

Ford Motor Company - Livonia Transmission Plant
36200 Plymouth Road, Livonia, Wayne County, Michigan
EGLE Site ID No. 82002970

Summary of Individual Off-site Vapor Intrusion Evaluations and Request for No Additional Investigation

**12400 Belden Court; 11675 Belden Court; 12001 Stark
Road; 34360 Capitol Street and 34934 Standish Street**

March 19, 2021

Summary of Individual Off-site Vapor Intrusion Evaluations and Request for No Additional Investigations

**12400 Belden Court; 11675 Belden Court; 12001 Stark Road;
34360 Capitol Street and 34934 Standish Street**

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Prepared By:

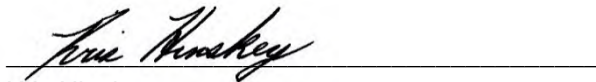
Arcadis of Michigan, LLC
28550 Cabot Drive, Suite 500
Novi
Michigan 48377
Phone: 248 994 2240

Prepared For:

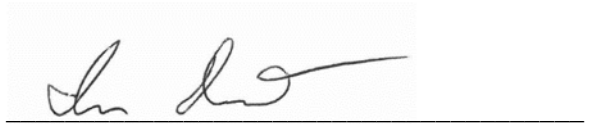
Mr. Brandon Alger
Warren District Office Remediation and
Redevelopment Division
Michigan Department of Environment, Great
Lakes and Energy
27700 Donald Court
Warren, Michigan 48092

Our Ref:

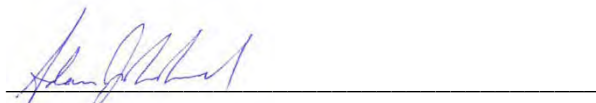
30050315



Kris Hinskey
Certified Project Manager II



Ian Drost
Senior Geologic Specialist



Adam Richmond
Project Geologic Specialist

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1 Introduction

On behalf of Ford Motor Company (Ford), Arcadis of Michigan, LLC (Arcadis) has prepared this summary report for the additional vapor intrusion investigation activities completed at the request of the Michigan Department of Environment, Great Lakes, and Energy (EGLE) to address volatile organic compounds (VOCs) detected in sub-slab samples at several commercial and residential properties. The objective of this summary is to provide EGLE and the Michigan Department of Health and Human Services (MDHHS) the required multiple lines of evidence to demonstrate that the impacts are not related to the Ford Livonia Transmission Plant (the site) and to request concurrence that no additional investigation is required at the commercial properties located at 12400 Belden Court and 11675 Belden Court and the residential properties located at 12001 Stark Road, 34360 Capitol Street, and 34934 Standish Street. All properties are located east of the site as shown on **Figure 1**.

2 Commercial Properties

On July 17, 2019, in response to reported exceedances of the Nonresidential Recommended Interim Action Screening Levels for a 12-hour exposure day (RIASL₁₂; Revised list September 2020) in indoor air for trichloroethylene (TCE) at 12400 and 11675 Belden Court, Ford received a letter from EGLE that required Ford to address the potential vapor intrusion pathway at both commercial properties.

On September 23, 2019, EGLE sent Ford a letter indicating that additional investigations were warranted at both commercial locations to determine if the TCE was present in groundwater near the properties.

The following subsections summarize the investigation results and the basis for the request of no additional investigations at the above-mentioned commercial properties.

2.1 12400 Belden Court

The property located at 12400 Belden Court (**Figure 2**) was occupied by Advanced Technology Services (ATS) and business at the property included industrial equipment repair. ATS occupied the space for more than 16 years and were present during the November 2018 and April 2019 sampling events. ATS used chlorinated solvents in the workplace regularly for degreasing purposes, as well as an aerosol recycler that captured excess liquid, including chlorinated solvents, in a 55-gallon steel drum. The lines of evidence used to evaluate this property included the following:

- Building Survey and chemical inventory including:
 - Inventory of floor drains, pipe penetrations, and cracks
 - Photoionization detector (PID) screening of floor drains and cracks
 - Documentation of floor staining
- Vapor intrusion assessment including:
 - Exterior soil vapor monitoring point (SVMP) sampling
 - Interior sub-slab monitoring point (SSMP) sampling, including:
 - Collection of pressure readings using a micromanometer from all SSMP sampling locations
 - Outdoor ambient air and indoor air sampling
- Groundwater sampling.

In compliance with the Consent Decree (CD), Arcadis (on behalf of Ford) submitted 24-hour notices detailing the chlorinated solvent exceedances in indoor air and sub-slab samples collected at the property. The 24-hour

notices were submitted to EGLE on November 30, 2018, May 28, 2019, October 15, 2020, and December 22, 2020. In each 24-hour notice, multiple lines of evidence were provided to EGLE documenting that the source of the exceedances was not related to the off-site vinyl chloride groundwater impacts associated with the LTP site. The 24-hour notices included significant property information, including: data packages provided to the property owner, laboratory reports for all media that Arcadis sampled at the property, safety data sheets for products noted to be present at the property, and a photo log documenting products in use at the property. Site-specific property infrastructure information such as floor drains, floor staining, pipe penetrations, and other property features were also included, a copy of which is provided in **Attachment 1**.

2.1.1 Building Survey and Chemical Inventory

Arcadis performed a detailed building survey and chemical inventory at this property before each sampling event (November 2018, April 2019, September 2020, and December 2020). ATS staff indicated to Arcadis field personnel that chemicals containing TCE and other solvents would be in use during the vapor intrusion assessment conducted in November 2018 and April 2019. Photos documenting the presence of chlorinated compounds inside the building are presented below in **Exhibits 1** and **2**. Products containing TCE, tetrachloroethene (PCE), and trans-1,2-dichloroethene (trans-1,2-DCE); degreasers (there were at least six); an aerosol can crusher; supplies of aerosols; a scrap metal bin (there were at least three) where chlorinated canisters were disposed of; and a waste solvent drum were located during the building survey and chemical inventory.

Exhibit 1. Product used by tenant containing PCE.

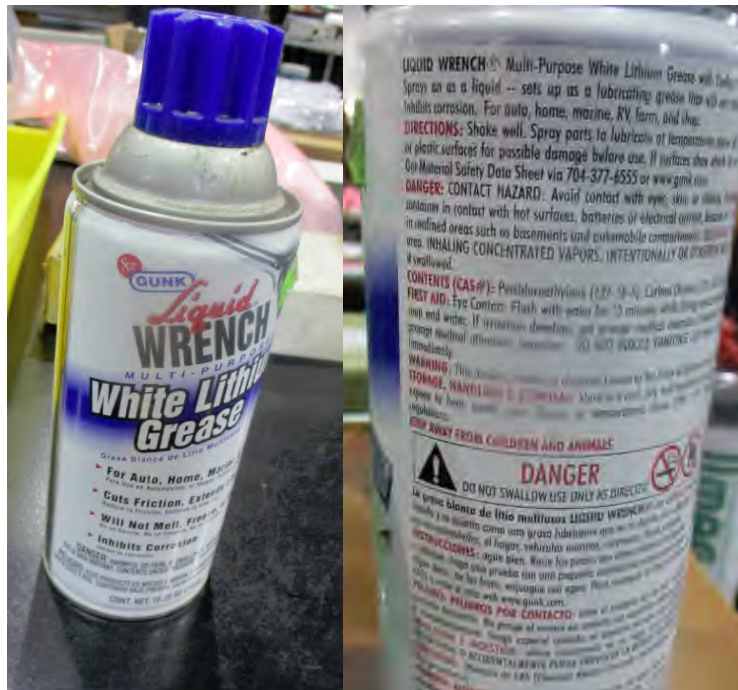


Exhibit 2. Product used by tenant containing TCE.



The current property owner notified Arcadis that ATS had vacated the property in July 2020. Therefore, the building was unoccupied for the September and December 2020 sampling events. During the September and December 2020 sampling events, several potential sources of VOCs were present (household cleaners and a can of instant tire repair material), but the TCE containing products and materials shown in **Exhibits 1** and **2** and in the photo log were not present during these sampling events.

Arcadis also completed an inventory of floor drains, pipe penetrations, and cracks in the slab during the September and December 2020 events. At least four floor drains and at least seven pipe penetrations were noted within the building, but no cracks in the slab were observed. During each sampling event, separate PID readings were taken close to the floor drains and in the ambient air about 4 feet above the floor drains. A maximum PID reading of 0 parts per billion (ppb) was recorded during the September 2020 sampling event from the floor drains and ambient air above the floor drains. An average PID reading of 155 ppb was recorded in the ambient air above the floor drains during the December 2020 sampling event. ATS (former tenant) reported that the floor drains were tied into the municipal sewer.

Staining was observed on the concrete slab during the September 2020 sampling event, but no staining was observed in the December 2020 sampling event.

2.1.2 Vapor Intrusion Assessment

2.1.2.1 Exterior SVMP Sampling

Two exterior nested SVMPs are associated with this property: SVMP-25S (screened 3.0 feet [ft] below ground surface [bgs]) and SVMP-25D (screened 6.0 ft bgs) are located approximately 190 feet southwest of 12400 Belden Court. Both SVMPs were sampled nine times for site-related constituents, with each result being below

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the nonresidential site-specific volatilization to indoor air criteria (VIAC) provided by EGLE on October 30, 2018 (site-specific criteria). Each result was non-detect (below laboratory reporting limits) for trans-1,2-DCE and TCE except for one detection of TCE (1.3 J micrograms per cubic meter [$\mu\text{g}/\text{m}^3$]) in the June 2019 sampling event at SVMP-25S (**Table 1**). The June 2019 sample collected from SVMP-25S is below the nonresidential site-specific criteria of $130 \mu\text{g}/\text{m}^3$.

2.1.2.2 Interior SSMP Sampling

Analytical results for the commercial property located at 12400 Belden Court indicate exceedances of site-specific criteria for TCE in the interior sub-slab samples from three vapor intrusion sampling events (**Table 2**). The sampling events occurred in April 2019, September 2020, and December 2020. The November 2018 SSMP results were rejected due to the sample chain-of-custody document missing a signature. Results for TCE and trans-1,2-DCE from all sampling events relative to property status (occupied or unoccupied) are presented below in **Exhibit 3**. As shown in **Exhibit 3** and **Table 2**, analytical results for TCE and trans-1,2-DCE in sub-slab soil vapor show a general decreasing trend once the building became unoccupied. All other results for the site-related constituents analyzed were below site-specific criteria and/or non-detect in all sampling events.

Exhibit 3. 12400 Belden Court Soil Vapor Analytical Results

Property Status:	Occupied		Unoccupied			
Sample Date:	4/9/2019		9/15/2020		12/22/2020	
Constituent of Concern:	trans-1,2-DCE	TCE	trans-1,2-DCE	TCE	trans-1,2-DCE	TCE
Nonresidential Site-Specific Criteria:	8,200	130	8,200	130	8,200	130
SSMP-01	380	1,200	36	390	8.0	130
SSMP-02	150	270	2.0 J	81	<4.9	26
SSMP-03	300	580	41	340	13	75
SSMP-04	170	170	4.1 J	32	<5.0	7.3
SSMP-05	260	240	6.0	21	2.0 J	1.9 J
SSMP-06	340	1,100	5.8	240	1.4 J	59
SSMP-07	230	370	14	110	2.1 J	37
SSMP-08	360	960	95	470	8.7	50
SSMP-09	560	1,400	320	620	81	240
SSMP-10	810	1,800	430	900	83	400
SSMP-11	2,300	2,900	820	690	130	290
SSMP-12	540	1,100	200	460	29	140

See Notes on next page.

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Notes:

1. Results are presented in $\mu\text{g}/\text{m}^3$.
2. All samples were analyzed via modified United States Environmental Protection Agency (USEPA) Method TO-15.
3. **Bold** indicates exceedance of site-specific criteria.
4. Sample names have been shortened for simplicity.
5. All sub-slab data collected during the November 2018 sampling event were rejected.
6. Duplicate sample results collected from the property are not shown.
7. J = estimated result.
8. < = Not detected above the reporting limit.
9. Site-specific criteria (adjusted for a 12 hr work-day exposure in a slab-on-grade building less than 50,000 square feet) were provided by EGLE on October 30, 2018.

During each sampling event, pressure readings were collected using a micromanometer from all sub-slab sampling locations. The results of the pressure readings are shown below in **Exhibit 4**.

Exhibit 4. 12400 Belden Court Micromanometer Results

Sample Date:	4/9/2019	9/15/2020	12/22/2020
Sample ID	Pressure Reading (in. WC)		
SSMP-01	0.00034	-0.00283	-0.0020
SSMP-02	0.02890	0.00299	-0.0020
SSMP-03	-0.01670	0.00965	0.0040
SSMP-04	-0.00919	0.01482	-0.0020
SSMP-05	0.02040	0.02200	-0.0050
SSMP-06	-0.00216	-0.00635	-0.0060
SSMP-07	-0.00648	-0.00107	-0.0100
SSMP-08	0.00320	0.01700	-0.0060
SSMP-09	0.00255	0.0218	-0.0050
SSMP-10	0.01500	-0.00121	-0.0060
SSMP-11	0.00440	0.00550	-0.0070
SSMP-12	0.00110	0.00597	-0.0050

Note:

1. Results presented are in inches of water column (in. WC).

2.1.2.3 Outdoor Ambient Air and Indoor Air Sampling

Analytical results for the commercial property located at 12400 Belden Court indicate exceedances of the RIASL₁₂ in indoor and outdoor ambient air samples for TCE and trans-1,2-DCE from two vapor intrusion sampling events conducted on November 15, 2018 and April 9, 2019 (**Table 3 and Table 4**). All other results for the site-related constituents analyzed were non-detect and/or detected below the RIASL₁₂ in all sampling events.

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As shown in **Exhibit 5** and **Table 3**, exceedances of TCE and trans-1,2-DCE in indoor air only occurred while ATS occupied the building. Analytical results for TCE and trans-1,2-DCE in indoor air were significantly lower (below RIASL₁₂) during the unoccupied events.

Exhibit 5. 12400 Belden Court Indoor Air Analytical Results

Property Status:	Occupied				Unoccupied			
Sample Date:	11/15/2018		4/9/2019		9/15/2020		12/22/2020	
Constituent of Concern:	trans-1,2-DCE	TCE	trans-1,2-DCE	TCE	trans-1,2-DCE	TCE	trans-1,2-DCE	TCE
Nonresidential RIASL ₁₂	250	4	250	4	250	4	250	4
IAF-01	230	340	12,000	9,200	2.1	2.2	<0.72	<0.98
IAF-02	200	290	9,100	6,600	2.2	2.3	<0.72	<0.98
IAF-03	220	320	14,000	10,000	2.1	2.2	<0.71	<0.96
IAF-04	R	R	14,000	8,600	2.1	2.3	<0.74	<1.0
IAF-05	220	320	13,000	7,900	2.1	2.2	<0.71	<0.96
IAF-06	220	310	14,000	8,300	2.0	2.3	<0.69	<0.94
IAF-07	190	270	9,600	6,600	1.7	1.9	<0.68	<0.92
IAF-08	210	290	11,000	7,300	1.8	2.0	<0.72	<0.98
IAF-09	220	310	12,000	8,400	2.3	2.2	<0.71	<0.96
IAF-10	240	320	12,000	5,700	2.4	2.4	<0.74	0.53 J
IAF-11	210	300	7,100	5,400	2.3	2.5	0.59 J	0.57 J
IAF-12	230	330	6,600	4,900	2.3	2.6	<0.72	0.51 J

Notes:

1. Results presented are in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$).
2. All samples were analyzed via modified USEPA Method TO-15.
3. **Bold** indicates exceedance of RIASL₁₂.
4. Sample names have been shortened for simplicity.
5. Indoor air samples were collected in June 2020; however, sub-slab soil vapor samples could not be collected concurrently due to health and safety concerns, so data from these indoor air samples is not shown.
6. Duplicate and ambient air sample results collected from the property are not shown.
7. R = Rejected Sample.
8. < = Not detected above the reporting limit
9. J = Estimated Value
10. Non-Residential RIASL appropriate for exposure of 12 hours as provided by EGLE in August 2017 and updated in September 2020.

2.1.3 Groundwater Analytical Results

Shallow groundwater monitoring wells MW-54S (screened 4.5 to 9.5 ft bgs) and MW-214S (screened 5.5 to 10.5 ft bgs) are located approximately 250 feet and 60 feet upgradient (west) of 12400 Belden Court, respectively (**Figure 2**). The monitoring wells were installed to determine if shallow groundwater impacts were present and

presented an apparent risk of vapor intrusion to the commercial buildings in the northern cul-de-sac of Belden Court. Results of the sampling are as follow:

- Monitoring Well MW-54S has been sampled eight times, with each result non-detect for TCE and trans-1,2-DCE (**Table 5**).
- Monitoring Well MW-214S has been sampled four times, with each result non-detect for TCE and trans-1,2-DCE (**Table 5**).
- Based on Henry's Law at 10 degrees Celsius, groundwater concentrations of 0.63 to 14.06 micrograms per liter ($\mu\text{g/L}$) for TCE would be needed to generate the 130 to 2,900 $\mu\text{g/m}^3$ concentration for TCE noted in sub-slab soil vapor. For trans-1,2-DCE, a concentration of 38.40 $\mu\text{g/L}$ in groundwater would be needed to generate the 8,200 $\mu\text{g/m}^3$ to exceed site-specific criteria for trans-1,2-DCE.

The groundwater data collected upgradient of 12400 Belden Court show that groundwater concentrations migrating from the LTP site are not sufficient to create the sub-slab and indoor air concentrations observed at the 12400 Belden Court building.

2.1.4 12400 Belden Court Summary

As part of this evaluation, multiple lines of evidence have been used to assess the vapor intrusion risk to the building including building surveys and chemical inventories, exterior soil vapor, interior sub-slab soil vapor, ambient air, indoor air, and groundwater. These multiple lines of evidence demonstrate that indoor air and sub-slab vapor impacts observed at 12400 Belden Court are not related to operations at the LTP. These lines of evidence include:

- Products containing TCE and trans-1,2-DCE were in use during the vapor intrusion assessment conducted in November 2018 and April 2019, when concentrations of TCE and trans-1,2-DCE were highest in sub-slab (April 2019) and indoor air sample results (November 2018 and April 2019).
- Staining observed on the floor in the building during the September 2020 event suggests the potential release of solvents and migration to the subfloor. These releases likely contributed to the elevated PID readings at floor openings (e.g., floor drains) and detections in sub-slab vapor.
- Two exterior nested SVMPs have each been sampled nine times, with each result being non-detect or below the site-specific criteria for trans-1,2-DCE and TCE.
- Results that exceeded site-specific criteria in sub-slab soil vapor samples declined significantly once ATS had vacated the building and ceased operations, suggesting that a release as a result of ATS' operations contributed to soil vapor concentrations.
- Negative pressure readings were recorded on SSMPs during all sampling events, indicating that indoor air has the potential to migrate to the sub-slab and impact sub-slab soil vapor concentrations.
- Indoor air concentrations exceeding the RIASLs₁₂ in indoor air samples declined significantly and did not exceed the RIASLs₁₂ once ATS had vacated the building and ceased operations, indicating that the source of the exceedances in indoor air is from ATS operations.
- The groundwater data collected at monitoring wells MW-54S and MW-214S located upgradient of 12400 Belden Court suggest that impacts are not present in sufficient concentrations to create the sub-slab and indoor air concentrations observed at the 12400 Belden Court building.

2.2 11675 Belden Court

The property located at 11675 Belden Court (**Figure 3**) is occupied by a civil/environmental consultant that used TCE to process asphalt samples. The lines of evidence used to evaluate this property included the following:

- Building Survey and chemical inventory including:
 - Inventory of floor drains and cracks
 - PID screening of floor drains and cracks
- Vapor intrusion assessment including:
 - Exterior SVMP sampling
 - Interior SSMP sampling including:
 - Collection of pressure readings using a micromanometer from all SSMP sampling locations
 - Outdoor ambient air and indoor air sampling
- Groundwater sampling.

In compliance with the CD, Arcadis (on behalf of Ford) submitted 24-hour notices detailing the exceedances of TCE in indoor air and sub-slab samples. The 24-hour notices were submitted to EGLE on December 11, 2018, June 13, 2019, August 15, 2019, and December 6, 2019. In each 24-hour notice, multiple lines of evidence were provided to EGLE documenting that the source of the exceedances was not related to the off-site vinyl chloride groundwater impacts. The 24-hour notices, data packages provided to the property owner, laboratory reports for all media that Arcadis collected at the property, safety data sheets for products noted to be present at the property, and a photo log documenting products in use at the property and floor drains within the building are provided in **Attachment 2**.

2.2.1 Building Survey and Chemical Inventory

Arcadis performed a detailed building survey and chemical inventory at this property before each sampling event (November 2018, March 2019, July 2019, and November 2019). During the building survey and chemical inventory conducted in November 2018, Arcadis staff noted that TCE was in use in the warehouse portion of the building along with a fume hood and aerosol canisters containing paint, pesticides, and cleaners. At least four drums containing TCE were also noted during the chemical inventory. Photos documenting the presence of chlorinated compounds inside the building are presented below in **Exhibits 6 and 7**.

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Exhibit 6. Drum containing TCE



Exhibit 7. Drum containing TCE.



During the building survey conducted before the March 2019 sampling event, on-site staff indicated to Arcadis staff that the use of TCE had been terminated and that any products containing TCE had been removed from the property. Although several potential sources of VOCs were present, products containing TCE were not in use during the March 2019, July 2019, and December 2019 sampling events. VOC containing chemicals such as gas cans, spray paints, epoxy residue remover, wasp and hornet killer, paint thinner, urethane foam, heavy-duty silicone, silicone lubricant, starting fluids, primers, rubber cement, varnish, and spray grease were removed from the site before each round of sampling and stored in either the storage room or in company vehicles in the parking lot.

Arcadis also completed an inventory of floor drains and cracks in the slab of the building. Two floor drains in the bathrooms and one floor drain in the warehouse were noted. Cracks were observed throughout the slab floor of the warehouse; however, the exact number and lengths of the cracks were not recorded. Although staining was not present on the floors inside the building, PID readings in the ambient air in the vicinity of the floor drains were recorded at 700 ppb, 81 ppb, 0 ppb, and 82 ppb in the November 2018, March 2019, July 2019, and November 2019 vapor intrusion assessments, respectively.

2.2.2 Vapor Intrusion Assessment

2.2.2.1 Exterior SVMP Sampling

Former exterior soil vapor monitoring points SVMP-15-05 (screened 5.0 ft bgs and located approximately 400 feet north of the property), SVMP-15-06 (screened 6.0 ft bgs and located along the western property boundary), and SVMP-15-07 (screened 7.0 ft bgs and located approximately 350 feet south of the property) have all been sampled one time. All results from this sampling event were below site-specific criteria, and results were non-detect for TCE (**Table 1**).

2.2.2.2 Interior SSMP Sampling

Analytical results for the commercial property located at 11675 Belden Court indicate exceedances of site-specific criteria for TCE in interior sub-slab samples in all sampling events (**Table 2**). All results for the other site-related constituents analyzed were below site-specific criteria and/or non-detect in all sampling events. As shown in **Exhibit 8** and **Table 2**, analytical results for TCE in sub-slab soil vapor decreased on average once products containing TCE were removed from the building.

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Exhibit 8. 11675 Belden Court Soil Vapor Analytical Results

Property Status:	TCE Present		TCE Removed	
Sample Date:	11/29/2018	3/28/2019	7/24/2019	11/12/2019
Constituent of Concern:	TCE	TCE	TCE	TCE
Nonresidential Site- Specific Criteria:	130	130	130	130
SSMP-01	34	13	8.9	180
SSMP-02	110	54	62	20
SSMP-03	280	250	270	<6.9
SSMP-04	110	39	27	14
SSMP-05	74	6.4 J	2.8 J	16
SSMP-06	57	16	7.5	5.6 J

Notes:

1. Results are presented in µg/m³.
2. All samples were analyzed via modified USEPA Method TO-15.
3. **Bold** indicates exceedance of site-specific criteria.
4. Sample names have been shortened for simplicity.
5. Duplicate sample results collected from the property are not shown.
6. J = estimated result.
7. < = Not detected above the reporting limit.
8. Site-specific criteria (adjusted for a 12 hr work-day exposure in a slab-on-grade building less than 50,000 square feet) were provided by EGLE on October 30, 2018.

During each sampling event, pressure readings were collected using a micromanometer from all sub-slab sampling locations as shown in **Exhibit 9**.

Exhibit 9. 11675 Belden Court Micromanometer Results

Sample Date:	11/29/2018	3/28/2019	7/24/2019	11/12/2019
	Pressure Reading (in. WC)			
SSMP-01	0.0080	0.0070	-0.0026	0.00060
SSMP-02	0.0016	-0.0076	0.0026	0.0050
SSMP-03	0.00080	-0.0031	0.00017	-0.0014
SSMP-04	0.0036	0.0072	0.00046	0.0014
SSMP-05	0.0037	0.00030	0.0023	0.0023
SSMP-06	0.0054	0.0030	0.0021	0.0013

2.2.2.3 Outdoor Ambient Air and Indoor Air Sampling

Analytical results for the commercial property located at 11675 Belden Court indicate exceedances of the RIASL₁₂ for TCE in indoor air samples collected from all sampling events (**Table 3**). The outdoor ambient air sample collected from the property in November 2018 was rejected due to a low initial vacuum. The analytical results from that event have been removed from the dataset. All results for the other site-related constituents analyzed were below the RIASLs₁₂ and/or non-detect in all sampling events. As shown in **Exhibit 10** and **Table 3**, indoor air concentrations of TCE were significantly higher when products containing TCE were in use at the property (November 2018 sampling event).

Exhibit 10. 11675 Belden Court Indoor Air Analytical Results

Property Status:	TCE Present	TCE Removed		
	Sample Date:	11/29/2018	3/28/2019	7/24/2019
Constituent of Concern:	TCE	TCE	TCE	TCE
Nonresidential Site- Specific Criteria:	130	130	130	130
IAF-01	630	7.0	5.5	2.1
IAF-02	380	4.4	4.1	1.4
IAF-03	350	3.8	4.2	1.2
IAF-04	730	8.8	4.5	2.6
IAF-05	700	14	5.5	5.1

Notes:

1. Results are presented in µg/m³.
2. All samples were analyzed via modified USEPA Method TO-15.
3. Bold indicates exceedance of RIASL₁₂.
4. Sample names have been shortened for simplicity.
5. Duplicate and ambient air sample results collected from the property are not shown.
6. Non-Residential RIASL appropriate for exposure of 12 hours as provided by EGLE in August 2017 and updated in September 2020.

2.2.3 Groundwater Analytical Results

Shallow monitoring well MW-208S is located approximately 40 feet upgradient to the west of the site property (**Figure 3**). MW-208S, which was requested by EGLE in the July 17, 2019 letter, is screened from 9.0 to 14.0 ft bgs. The monitoring well was installed to determine if shallow groundwater impacts had the potential to produce vapor intrusion at the commercial property. The sampling frequency and analytical results of the groundwater sampling events were as follow:

- MW-208S has been sampled four times, and all groundwater results for TCE have been non-detect (**Table 5**).
- Based on Henry’s Law at 10 degrees Celsius, a groundwater concentration of 0.63 to 1.36 µg/L for TCE would be needed to generate the 130 to 280 µg/m³ noted in sub-slab soil vapor beneath the slab.

Based on the groundwater data in the vicinity of 11675 Belden Court, there is no evidence of a TCE impact to groundwater that could cause the exceedances observed in the sub-slab and indoor air samples.

2.2.4 Summary

As part of this evaluation, multiple lines of evidence have been used to assess the vapor intrusion risk to the building including building surveys and chemical inventories, exterior soil vapor, interior sub-slab soil vapor, ambient air, indoor air, and groundwater. The multiple lines of evidence demonstrate that indoor air and sub-slab vapor impacts observed at 11675 Belden Court are not related to operations at the LTP. These lines of evidence include:

- Products containing TCE were in use during the vapor intrusion assessment conducted in November 2018 when concentrations of TCE were highest on average in sub-slab and indoor air sample results.
- Potential releases of chemicals to the floor that migrated through floor drains into sub-slab soils have likely contributed to the elevated PID readings at floor openings (e.g., floor drains) and detections in sub-slab vapor.
- Three former exterior SVMPs have each been sampled one time, with each result being non-detect for TCE.
- Results that exceeded site-specific criteria in sub-slab soil vapor samples declined on average when products containing TCE were removed from the property, suggesting that a release as a result of the consultant's operations contributed to soil vapor concentrations.
- Negative pressure readings were recorded on SSMPs during three of four sampling events, indicating that indoor air has the potential to migrate to sub-slab and impact sub-slab soil vapor concentrations.
- Indoor air concentrations of TCE were significantly lower when products containing TCE were removed from the property, indicating that the source of the TCE in indoor air is from the consultant's former operations.
- The groundwater data collected at monitoring well MW-208S, located upgradient of 11675 Belden Court, suggest that impacts are not present in sufficient concentrations to create the sub-slab and indoor air concentrations observed at the 11675 Belden Court building.

3 Residential Properties

On December 9, 2019, September 23, 2019, and January 6, 2020, Ford received emails and a letter from EGLE requesting further information concerning three residential properties (12001 Stark Road, 34360 Capitol Street, and 34934 Standish Street). These properties exhibited exceedances of the Residential Volatilization to Indoor Air RIASLs provided by EGLE on July 22, 2017 in the CD for indoor air and/or exceedances of the residential site-specific VIAC provided by EGLE on October 30, 2018 (site-specific criteria) for sub-slab soil vapors.

On March 31, 2020, Arcadis (on behalf of Ford) submitted a workplan via email to EGLE for review and approval.

On April 29, 2020, EGLE provided comments to the workplan, which was incorporated into the investigation approach.

The following subsections summarize the investigation results and the basis for the request of no additional investigations at the above-mentioned residential properties.

3.1 12001 Stark Road

The property located at 12001 Stark Road (**Figure 4**) is a single-family residential home with an attached garage. The property is part of Alden Village subdivision located downgradient to the east of the site. The lines of evidence used to evaluate this property included the following:

- Building Survey and chemical inventory including:
 - Inventory of floor drains and cracks

- PID screening of floor drains and cracks
- Vapor intrusion assessment including:
 - Interior SSMP sampling
 - Outdoor ambient air and indoor air sampling
- Groundwater sampling
- Soil and groundwater investigation.

In compliance with the CD, Arcadis (on behalf of Ford) submitted 24-hour notices detailing the exceedances in sub-slab samples. The 24-hour notices were submitted to EGLE on November 10, 2018, September 6, 2019, and November 13, 2019. It should be noted that all sample results from the December 2019 sampling event did not exceed the RIASLs or site-specific criteria for indoor/ambient air or sub-slab soil vapor samples, respectively. Therefore a 24-hour notice was not submitted for this fourth and final event. In each 24-hour notice, multiple lines of evidence were provided to EGLE documenting that the source of the exceedances was not related to the off-site vinyl chloride groundwater impacts. The 24-hour notices, data packages provided to the property owner; laboratory reports for all media that Arcadis collected at the property; and a photo log documenting products in use at the property, a floor drain in the garage, and cracks within the garage floor are provided in **Attachment 3**.

3.1.1 Building Survey and Chemical Inventory

Arcadis performed detailed chemical inventories at this property before all sampling events (October 2018, April 2019, October 2019, and December 2019). During the inventories, it was noted the homeowner keeps several degreasers and cleaners on shelves in the garage, as shown in the photo log.

The products presented in the photo log were removed from the garage and stored in a tote outside of the garage before each round of sampling. The resident would not allow photographs inside the garage during the December 2019 sampling event. Field staff did not note any spills or stains on the garage floor that indicated a release; however, evidence of poor housekeeping in the garage was noted by field staff including clutter on the floor of the garage in which chemicals were intermixed. The amount of clutter in the garage made it difficult to inventory and remove all items in the garage that could potentially contain site-related constituents of concern and may have been spilled onto the garage floor.

Arcadis also noted that there was one floor drain in the slab of the garage. It is unknown to where the floor drain discharges. A number of cracks in the slab of the garage were also observed; however, an exact count was not noted. PID readings in the ambient air above the floor drain were recorded at 0 ppb, 0 ppb, 40 ppb, and 77 ppb in the October 2018, April 2019, October 2019, and December 2019 assessments, respectively.

3.1.2 Vapor Intrusion Assessment

3.1.2.1 Interior SSMP Sampling

Analytical results from two vapor intrusion sampling events for the residential property located at 12001 Stark Road indicated that PCE was detected above the site-specific criteria in the sub-slab soil vapor collected from the garage (**Table 6**). All results for the other site-related constituents analyzed were below site-specific criteria and/or non-detect.

3.1.2.2 Outdoor Ambient Air and Indoor Air Sampling

There have been no exceedances of the RIASLs in indoor or outdoor ambient air samples collected at the property; only low-level detections (**Table 7** and **8**). Due to quality assurance and quality control issues, the first round of data (October 2018) has been removed from the dataset, but the results were similar to the second and third rounds of vapor intrusion sampling.

3.1.3 Groundwater Analytical Results

Shallow monitoring well MW-106S is located approximately 80 feet to the west upgradient of 12001 Stark Road, and MW-167S is located on the property approximately 30 feet downgradient to the east (**Figure 4**). MW-106S is screened from 2.5 to 12.5 ft bgs, and MW-167S is screened from 5.0 to 10.0 ft bgs. These wells were installed as part of the August 30, 2018 VI-Response Activity Plan approval letter in an effort to determine if shallow groundwater impacts had the potential to produce vapor intrusion at the residential property. The list below details the sampling frequency and analytical results of the groundwater sampling events:

- MW-106S has been sampled nine times, and all groundwater results for PCE have been non-detect (**Table 9**).
- MW-167S has been sampled eight times, and all groundwater results for PCE have been non-detect (**Table 9**).
- Based on Henry's Law at 10 degrees Celsius, groundwater concentrations of 4.15 to 8.31 µg/L for PCE would be needed to generate the 1,400 to 2,800 µg/m³ to exceed the site-specific criteria for PCE noted in sub-slab soil vapor beneath the slab.

Based on the groundwater data in the vicinity of 12001 Stark Road, there is no evidence of a PCE impact to groundwater that could cause the exceedances observed in the sub-slab samples in the garage. Further, three to 15 rounds of groundwater sampling have been completed to date from 185 monitoring wells installed east of the site including within the Alden Village subdivision, where 12001 Stark Road is located. The data, which are presented in the quarterly progress reports, indicate that PCE concentrations have never exceeded site-specific VIAC in any of the monitoring wells within the Alden Village subdivision.

3.1.4 Soil and Groundwater Investigation

Arcadis attempted to complete an investigation within the garage near the SSMP location to determine the source of the impacts. The proposed investigation included advancing four soil borings to the water table with soil samples collected in 1-foot intervals. At one of the soil boring locations, a temporary monitoring well with a pre-packed screen would be installed to bisect the water table and collect a groundwater sample. Arcadis was not granted access to the property, and the proposed investigation was not completed.

3.1.5 Summary

As part of this evaluation, multiple lines of evidence have been used to assess the vapor intrusion risk to the property including building surveys and chemical inventories, interior sub-slab soil vapor from this property and neighboring properties, ambient air, indoor air, and groundwater. The following multiple lines of evidence demonstrate that sub-slab vapor impacts observed at 12001 Stark Road are not related to operations at the LTP:

Summary of Individual Off-site Vapor Intrusion Evaluations and Request for No Additional Investigations

- All sample results for sump water, sub-slab, indoor air, and ambient air samples collected at properties adjacent to 12001 Stark Road have not exceeded the RIASLs and/or site-specific criteria for PCE or any other site-related constituent of concern.
- The amount of clutter in the garage made it difficult to inventory and remove all items in the garage that could potentially contain site-related constituents of concern and may have been spilled onto the garage floor.
- Potential releases of chemicals to the floor that migrated through the floor drain and cracks into sub-slab soils have likely contributed to the elevated PID readings at floor openings (e.g., floor drains and cracks) and detections in sub-slab soil vapor.
- There have been no exceedances of PCE in indoor or ambient air samples collected at the property; only low-level detections.
- The groundwater data collected at monitoring wells MW-106S located upgradient of 12001 Stark Road and MW-167S located on 12001 Stark Road suggest that impacts are not present at sufficient concentrations to create the sub-slab concentrations observed at 12001 Stark Road.

3.2 34360 Capitol Street

The property located at 34360 Capitol Street (**Figure 5**) is a single-family residential home with a detached two-car garage. The property is part of the Alden Village subdivision located downgradient to the east of the site. The lines of evidence used to evaluate this property included the following:

- Building Survey and chemical inventory including:
 - Inventory of floor drains and cracks
 - PID screening of floor drains and cracks
- Vapor intrusion assessment including:
 - Exterior SVMP sampling
 - Interior SSMP sampling
 - Outdoor ambient air and indoor air sampling
- Groundwater sampling
- Soil and groundwater investigation.

In compliance with the CD, Arcadis (on behalf of Ford) submitted 24-hour notices detailing the exceedances in sub-slab samples. The 24-hour notices were submitted to EGLE on September 6, 2019, December 20, 2019, and August 19, 2020. It should be noted that none of the sample results from the December 2018 sampling event exceeded the RIASLs or site-specific criteria for indoor/ambient air samples or sub-slab soil vapor samples. Therefore a 24-hour notice was not submitted for this first sampling event. In each subsequent 24-hour notice, multiple lines of evidence were provided to EGLE documenting that the source of the exceedances was not related to the off-site vinyl chloride groundwater impacts. The 24-hour notices, data packages provided to the property owner, laboratory reports for all media that Arcadis collected at the property, and the safety data sheet for a product noted to be present at the property are provided in **Attachment 4**.

3.2.1 Building Survey and Chemical Inventory

Arcadis performed detailed chemical inventories at this property before all sampling events (December 2018, June 2019, December 2019, and July 2020). During the building survey and chemical inventory, a number of potential sources of VOCs were noted including aerosol cleaners, solvents, and household products. An aerosol canister of “Carquest Brake Parts Cleaner” was noted in the garage during the June 2019 sampling event. A

photo documenting this product is presented below in **Exhibit 11**. The safety data sheet for this product indicates that this product is 90 to 100 percent PCE.

Exhibit 11. Aerosol canister of "Carquest Brake Parts Cleaner"



All products presented in **Exhibit 11** were removed before sampling in June. Arcadis staff asked the property owner about when the product was last used. The property owner was unsure of its last use and could not give a timeline on how recently they had used the product before the sampling event.

Arcadis staff observed one crack in the slab floor of the garage; however, the length of the crack was not recorded. PID readings in the ambient air in the vicinity of the crack were recorded at 0 ppb, 476 ppb, 716 ppb, and 0 ppb in the December 2018, June 2019, December 2019, and July 2020 vapor intrusion assessments, respectively.

3.2.2 Vapor Intrusion Assessment

3.2.2.1 Exterior SVMP Sampling

Exterior soil vapor monitoring point SVMP-18 (screened at 3.0 ft bgs) is located approximately 135 feet upgradient (southwest) of this property. This monitoring point has been sampled nine times, with all results being non-detect (**Table 10**).

3.2.2.2 Interior SSMP Sampling

Analytical results from three vapor intrusion sampling events for the residential property located at 34360 Capitol Street indicated that PCE was detected above the site-specific criteria of 1,400 $\mu\text{g}/\text{m}^3$ in the sub-slab soil vapor collected from beneath the garage (SSMP-01) (**Table 6**). All results for the other site-related constituents analyzed were below site-specific criteria and/or non-detect. The sub-slab soil vapor sample collected from beneath the garage in December 2018 was rejected due to a low laboratory check in vacuum and has been removed from the dataset.

3.2.2.3 Outdoor Ambient Air and Indoor Air Sampling

There have been no exceedances of the RIASLs in indoor or outdoor ambient air samples collected at the property; only low-level detections of site-related constituents (**Table 7** and **8**).

3.2.3 Groundwater Analytical Results

Groundwater monitoring well MW-128S is located on 34360 Capitol Street, approximately 10 feet away from the house and 90 feet away from the garage (**Figure 5**). MW-128S, which was installed as part of the August 30, 2018 VI-Response Activity Plan approval letter, is screened from 4.0 to 14.0 ft bgs. The monitoring well was installed to determine if shallow groundwater impacts had the potential to produce vapor intrusion at the residential property. The list below details the sampling frequency and analytical results of the groundwater sampling events:

- MW-128S has been sampled nine times, with each sampling event being non-detect for PCE (**Table 9**).
- Based on Henry's Law at 10 degrees Celsius, a groundwater concentration of 4.15 to 27.88 $\mu\text{g}/\text{L}$ PCE would be needed to generate the 1,400 to 9,400 $\mu\text{g}/\text{m}^3$ PCE noted in sub-slab soil vapor beneath the garage.

Based on the groundwater data in the vicinity of 34360 Capitol Street, there is no evidence of a PCE impact to groundwater that could cause the exceedances observed in the sub-slab samples observed at the residence. Further, three to 15 rounds of groundwater sampling have been completed to date from 185 monitoring wells installed east of the LTP site, including within the Alden Village subdivision, where 34360 Capitol Street is located. The data, which are presented in the quarterly progress reports, indicate that PCE concentrations have never exceeded site-specific VIAC in any of the monitoring wells within the Alden Village subdivision.

3.2.4 Soil and Groundwater Investigation

A soil and groundwater investigation was completed inside the garage on Monday, July 27, 2020 to evaluate PCE impacts in sub-slab soil vapor below the garage in the vicinity of SSMP-01. Four soil borings (SB-138, SB-139, SB-140, and TMW-20-01) were completed within approximately 1 to 5 feet of SSMP-01 (**Figure 5**), and the soil boring logs are included in **Attachment 5**.

3.2.4.1 Soil Results

As a part of the investigation, 25 soil samples were collected and analyzed for the seven constituents of concern. Soil samples were collected in 1-foot intervals until groundwater was encountered at each location. Groundwater was observed at approximately 7.0 ft bgs. The soil analytical results ranged from non-detect to 3,100 micrograms per kilogram ($\mu\text{g}/\text{kg}$), with the highest concentration detected in the 1- to 2-foot sample from SB-139. Based on the data collected from these borings, PCE was detected at concentrations above site-specific criteria in the vadose zone soils decreasing with depth, suggesting that a localized surface spill within the garage that migrated

down into the subsurface could be the source of the impacts and are not a result of fluctuations within the groundwater table. All soil analytical results are summarized in **Table 10**.

3.2.4.2 Groundwater Results

The soil boring completed at TMW-20-01 was converted into a temporary monitoring well, and a groundwater sample was collected from 3.5 to 8.5 ft bgs. The groundwater sample was collected using low-flow sampling techniques and was analyzed for the seven constituents of concern. The groundwater analytical result was non-detect for PCE, further supporting the evidence that the sub-slab impacts are related to the impacts found in the shallow soils beneath the garage. All groundwater results are summarized in **Table 9**.

3.2.5 Summary

As part of this evaluation, multiple lines of evidence, including building surveys and chemical inventories, exterior soil vapor, interior sub-slab soil vapor, ambient air, indoor air, soil, and groundwater, have been used to assess the vapor intrusion risk to this residential property. The multiple lines of evidence demonstrate that sub-slab vapor impacts observed at 34360 Capitol Street are not related to operations at the LTP. These lines of evidence include:

- The product “Carquest Brake Parts Cleaner,” which is 90 to 100 percent PCE, is located in the garage and likely contributed to the PCE concentrations in sub-slab soil vapor in all sampling events.
- Exterior SVMP-18 has been sampled nine times, with each result being non-detect.
- Potential releases of chemicals to the floor that migrated through cracks in the garage floor into sub-slab soils have likely contributed to the elevated PID readings at floor openings (e.g., cracks) and detections in sub-slab soil vapor.
- There have been no exceedances of RIASLs in indoor or ambient air samples collected at the property; only low-level detections of site-related constituents.
- The groundwater data collected at monitoring well MW-128S located on 34360 Capitol Street suggest that impacts are not present in sufficient concentrations to create the sub-slab concentrations observed at 34360 Capitol Street.
- Impacts detected in the shallow soils beneath the garage suggest that a localized surface spill within the garage migrated down into the subsurface and could be the source of the impacts.
- The groundwater analytical data collected at TMW-20-01 were non-detect for PCE, further supporting the evidence that the sub-slab soil vapor impacts are related to the impacts found in the shallow soils beneath the garage.

3.3 34934 Standish Street

The property located at 34934 Standish Street (**Figure 6**) is a single-family residential home with a detached two-car garage. The property is part of the Alden Village subdivision located downgradient to the east of the site. The lines of evidence used to evaluate this property included the following:

- Building Survey and chemical inventory including:
 - Inventory of floor drains and cracks
 - PID screening of floor drains and cracks
- Vapor intrusion assessment including:
 - Exterior SVMP sampling

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- Interior SSMP sampling
- Outdoor ambient air and indoor air sampling
- Groundwater sampling
- Soil and groundwater investigation.

In compliance with the CD, Arcadis (on behalf of Ford) submitted 24-hour notices detailing the exceedances in indoor air samples. The 24-hour notices were submitted to EGLE on September 6, 2019 and November 14, 2019. It should be noted that all sample results from the first (October 2018), second (April 2019), and fifth and final sampling event (February 2020) did not exceed the RIASLs or site-specific criteria for indoor/ambient air samples and sub-slab samples. As a result, 24-hour notices were not submitted for these events. In each 24-hour notice, multiple lines of evidence were provided to EGLE documenting that the source of the exceedances was not related to the off-site vinyl chloride groundwater impacts. The 24-hour notices, data packages provided to the property owner, laboratory reports for all samples that Arcadis collected at the property, and the safety data sheet for a product noted to be present at the property are provided in **Attachment 5**.

3.3.1 Building Survey and Chemical Inventory

Arcadis performed detailed chemical inventories in the home and garage at this property before all sampling events (October 2018, April 2019, June 2019, October 2019, and February 2020).

An aerosol canister of “CRC Lectra Motive Electric Parts Cleaner” was noted in the garage before the June 2019 sampling event. A photo documenting this product is presented below in **Exhibit 12**. The safety data sheet for this product indicates that this product is 90 to 100 percent PCE.

Exhibit 12. Aerosol canister of CRC Lectra-Motive Electric Parts Cleaner found in the garage containing PCE.



The product (“CRC Lectra Motive Electric Parts Cleaner”) presented in **Exhibit 12** was removed from the garage and stored in a tote outside before the June 2019 sampling event. It is unclear when the product may have been used before sampling. Arcadis was not provided access to the house to complete the chemical inventory during the April 2019, June 2019, and October 2019 sampling events at the property owner’s request. Arcadis was

provided limited access to the garage during these sampling events to conduct a chemical inventory. During the chemical inventory for the October 2019 vapor intrusion sampling event, the homeowner removed chemicals from the garage on his own that included aerosol cleaners, solvents, and household products and placed them in his own tote. Arcadis then placed these chemicals in an Arcadis tote and stored the tote outside of the garage. The property owner indicated that all chemicals from the garage were placed in the tote that he provided to Arcadis. The property owner indicated that what was provided was sufficient in order to complete the testing for this sampling event. TCE was detected at concentrations above the RIASL in indoor air collected from the garage during the October 2019 sampling event (see Section 3.3.2.3). Arcadis did not locate any products containing TCE out of the chemical inventories that Arcadis was able to complete and what the property owner provided.

3.3.2 Vapor Intrusion Assessment

3.3.2.1 Exterior SVMP Sampling

Two exterior SVMPs are located in the vicinity of 34934 Standish. SVMP-28 (screened 3.0 ft bgs) is located approximately 670 feet upgradient (northwest) of this property. This monitoring point has been sampled nine times and PCE was the only site-related constituent detected out of all results for the nine sampling events. PCE was included in the analysis for eight of the nine sampling events. Detections of PCE were present in three of the eight sampling events, but PCE results from all eight events are below the site-specific criteria for PCE of 1,400 $\mu\text{g}/\text{m}^3$ (**Table 10**). TCE was non-detect (reporting limits between 5.8 and 7.1 $\mu\text{g}/\text{m}^3$) for all nine sampling events. Soil vapor monitoring point SVMP-29 (two screened intervals at 3.5 ft bgs and 7.5 ft bgs) is located approximately 130 feet upgradient (northwest) of the property. This monitoring point has been sampled once for TCE and vinyl chloride only, with both interval results being non-detect for both constituents.

3.3.2.2 Interior SSMP Sampling

There have been no exceedances of site-specific criteria in interior sub-slab samples collected at the property; only low-level detections of site-related constituents (**Table 6**).

3.3.2.3 Outdoor Ambient Air and Indoor Air Sampling

Analytical results for the residential property at 34934 Standish Street indicate that TCE and PCE were detected at concentrations above the RIASLs in indoor air collected from the garage during two vapor intrusion sampling events (**Table 7**). PCE concentrations in indoor air collected from the garage exceeded the RIASL during the June 2019 sampling event, and TCE concentrations in indoor air collected from the garage exceeded the RIASL during the October 2019 sampling event. Concentrations of all other site-related constituents analyzed in all vapor intrusion sampling events were below the RIASLs and/or non-detect.

There have been no exceedances of the RIASLs in outdoor ambient air samples collected at the property; only low-level detections of site-related constituents (**Table 7**).

3.3.3 Groundwater Analytical Results

Groundwater monitoring well MW-183S is located on 34934 Standish Street, approximately 15 feet away from the house and 60 feet away from the garage (**Figure 6**). MW-183S, which was installed as part of the October 23, 2018 EGLE request letter, is screened from 8.0 to 13.0 ft bgs. The monitoring well was installed to determine if shallow groundwater impacts had the potential to produce vapor intrusion at the residential property. The list below details the sampling frequency and analytical results of the groundwater sampling events:

- MW-183S has been sampled seven times, with each sampling event non-detect for PCE and TCE (**Table 9** and **Attachment 5**).
- Based on Henry's Law at 10 degrees Celsius, groundwater concentrations of 0.32 µg/L TCE and 4.15 µg/L PCE would be needed to generate the 67 µg/m³ to exceed the site-specific criteria for TCE and 1,400 µg/m³ to exceed the site-specific criteria for PCE.

Based on the groundwater data in the vicinity of 34934 Standish Street, there is no evidence of a PCE or TCE impact to groundwater that could cause the exceedances observed in the indoor air samples at the residence. Further, three to 15 rounds of groundwater sampling have been completed to date from 185 monitoring wells installed east of the site, including within the Alden Village subdivision, where 34934 Standish Street is located. The data, which are presented in the quarterly progress reports, indicate that PCE and TCE has never exceeded site-specific VIAC criteria in any of the monitoring wells within the Alden Village subdivision.

3.3.4 Soil and Groundwater Investigation

A soil and groundwater investigation was completed inside the garage on Tuesday, July 28, 2020 to evaluate PCE detections in sub-slab soil vapor below the garage in the vicinity of SSMP-01. Four soil borings (SB-141, SB-142, SB-143, and TMW-20-02) were completed within approximately 1 to 6 feet of SSMP-01 (**Figure 6**), and soil boring logs are included in **Attachment 6**.

3.3.4.1 Soil Results

As a part of the investigation, 32 soil samples were collected and analyzed for the seven constituents of concern. Soil samples were collected in a 0.5-ft interval from the surface sample and then in 1-ft intervals until groundwater was encountered at each location. Groundwater was observed at approximately 8.0 ft bgs. The soil analytical results for PCE were non-detect for all samples except for one detection of 19 J (a laboratory estimated value) µg/kg in the 3- to 4-foot sample from SB-142. Based on the soil analytical results, there is no source present in the soil that would contribute to the indoor air impacts found within the garage. All soil analytical results are summarized in **Table 11**.

3.3.4.2 Groundwater Results

The soil boring completed at TMW-20-02 was converted into a temporary monitoring well, and a groundwater sample was collected from 7.0 to 12.0 ft bgs, bisecting the water table. The groundwater sample was collected using low-flow sampling techniques and was analyzed for the seven constituents of concern. The groundwater analytical results were non-detect for PCE and TCE, further supporting the evidence that the indoor air impacts present in the garage are not related to previously unknown subsurface sources. All groundwater results are summarized in **Table 9**.

3.3.5 Summary

As part of this evaluation, multiple lines of evidence, including building surveys and chemical inventories, exterior soil vapor, interior sub-slab soil vapor, ambient air, indoor air, soil, and groundwater, have been used to assess the vapor intrusion risk to this residential property. The multiple lines of evidence demonstrate that indoor air impacts observed at 34934 Standish Street are not related to operations at the LTP. These lines of evidence include:

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- The product “CRC Lectra Motive Electric Parts Cleaner,” which is 90 to 100 percent PCE and located in the garage, likely contributed to PCE concentrations in indoor air collected from the garage during the June 2019 sampling event.
- The limited access to the house and garage at the property owner’s request made it difficult for Arcadis to locate and isolate any background sources that may have contributed to analyte concentrations in indoor air collected from the property.
- Exterior soil vapor monitoring point SVMP-28 has been sampled nine times, with all results being below site-specific criteria for PCE and TCE. Exterior soil vapor monitoring point SVMP-29 has been sampled once for TCE, with both interval results being non-detect.
- There have been no exceedances of PCE or TCE in either the outdoor ambient air or sub-slab samples collected at the property; only low-level detections, suggesting that the exceedances in indoor air are from a background source that is likely present in the garage.
- The groundwater data collected at monitoring well MW-183S located on 34934 Standish Street suggest that impacts are not present in sufficient concentrations to create the sub-slab and indoor air concentrations observed at 34934 Standish Street.
- Based on the soil analytical results, there is no source in soil that would contribute to the indoor air impacts found within the garage.
- The groundwater analytical data collected at TMW-20-02 was non-detect for PCE, further supporting the evidence that the indoor air impacts are not related to previously unknown subsurface sources.

4 Closing

Ford has completed an investigation and evaluation of the vapor intrusion pathway at each of the properties discussed above including building and chemical usage surveys, exterior soil vapor sampling, interior sub-slab soil vapor sampling, ambient air sampling, indoor air sampling, groundwater sampling, and soil sampling. The data collected from these investigations support the following key takeaways:

- Based on the data collected at each property, the PCE, TCE, and trans-1,2-DCE in groundwater are not present at sufficient concentrations to produce the soil vapor impacts observed at the individual properties evaluated as part of this assessment.
- Based on a review of the various chemicals found at each property, it has been determined that the constituents present at concentrations exceeding the RIASLs, RIASLs₁₂, and/or site-specific criteria in vapor samples collected at each property can be attributed to background sources present at the time of sampling or released to the surrounding environment before sampling.

Based on the results of the site-specific vapor intrusion investigations, the impacts observed (either indoor air or sub-slab vapor results) are not related to a release associated with the LTP site. Therefore, Ford requests concurrence that no additional investigation is required regarding these properties.

Tables

Table 1
 Non-Residential Soil Vapor Monitoring Point Results
 Ford Livonia Transmission Plant
 36200 Plymouth Road
 Livonia, Michigan



Location: Sample Depth (ft. bgs): Sample Date:	Non-Residential VIAC ¹	SVMP-15-05	SVMP-15-06	SVMP-15-07	SVMP-25D									SVMP-25S									
		5	6	7	6									3									
		11/17/2015	11/17/2015	11/17/2015	6/19/2017	9/21/2017	11/21/2017	2/21/2018	5/29/2018	8/23/2018	11/6/2018	3/21/2019	6/24/2019	6/19/2017	9/21/2017	11/21/2017	2/21/2018	5/29/2018	8/23/2018	11/6/2018	3/21/2019	6/24/2019	
Volatile Organic Compounds (VOCs)																							
1,1-Dichloroethene	20,000	< 16	< 16	< 16	NA	< 4.4	< 4.7	< 4.4	< 5.1	< 4.7	< 4.7	< 5.2	< 4.9	NA	< 4.7	< 4.5	< 4.4	< 5.0	< 5.0	< 4.6	< 5.0	< 5.1	
1,4-Dioxane	800	NA	NA	NA	NA	< 16	< 17	< 16	< 19	< 17	< 17	< 19	< 18	NA	< 17	< 16	< 16	< 18	< 18	< 17	< 18	< 18	
cis-1,2-Dichloroethene	820	< 7.9	< 7.9	< 7.9	NA	< 4.4	< 4.7	< 4.4	< 5.1	< 4.7	< 4.7	< 5.2	< 4.9	NA	< 4.7	< 4.5	< 4.4	< 5.0	< 5.0	< 4.6	< 5.0	< 5.1	
Tetrachloroethene	2,700	4.0 J	< 14	< 14	NA	12	< 8.1	< 7.6	< 8.8	< 8.1	2.5 J	< 8.8	1.4 J	NA	< 8.1	< 7.7	< 7.6	< 8.5	< 8.5	1.6 J	< 8.5	4.1 J	
trans-1,2-Dichloroethene	8,200	< 7.9	< 7.9	< 7.9	NA	< 4.4	< 4.7	< 4.4	< 5.1	< 4.7	< 4.7	< 5.2	< 4.9	NA	< 4.7	< 4.5	< 4.4	< 5.0	< 5.0	< 4.6	< 5.0	< 5.1	
Trichloroethene	130	< 11	< 11	< 11	< 6.4	< 6.0	< 6.4	< 6.0	< 7.0	< 6.4	< 6.4	< 7.0	< 6.6	< 6.2	< 6.4	< 6.1	< 6.0	< 6.7	< 6.7	< 6.2	< 6.7	1.3 J	
Vinyl Chloride	910	< 5.1	< 5.1	< 5.1	< 3.0	< 2.9	< 3.0	< 2.9	< 3.3	< 3.0	< 3.0	< 3.3	< 3.2	< 3.0	< 3.0	< 2.9	< 2.9	< 3.2	< 3.2	< 3.0	< 3.2	< 3.3	

Notes:
 Bold result indicates a concentration above the reporting limit.
 All samples were analyzed via modified USEPA Method TO-15.
 All units are measured in micrograms per cubic meter (µg/m³).
 This document is a DRAFT document that has not received approval from EGLE. This document was prepared pursuant to a court Consent Decree. The opinions, findings, and conclusions expressed are those of the authors and not those of EGLE.

Footnote:
 1 The Non-Residential VIACs (for a 12-hr work-day exposure in a slab-on-grade building <50,000 sq. ft.) were provided by EGLE on 10/30/2018 (site-specific criteria). This is the criteria used for Non-Residential Soil Gas (SSMP).

Abbreviations:
 < Denotes non-detect result below the reporting limit
 EGLE Michigan Department of Environment, Great Lakes, and Energy
 ft. bgs Feet below ground surface
 J Reported value is estimated
 NA Not analyzed
 SVMP Soil vapor monitoring point
 µg/m³ Micrograms per cubic meter
 USEPA United States Environmental Protection Agency
 VIAC Volatilization to indoor air criteria

Table 2
 Non-Residential Vapor Intrusion Analytical Results - Soil Gas
 Ford Livonia Transmission Plant
 36200 Plymouth Road
 Livonia, Michigan



Constituent:			1,1-Dichloroethene	1,4-Dioxane	cis-1,2-Dichloroethene	Tetrachloroethene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl chloride	
Non-Residential Sub-Slab Volatilization to Indoor Air Criteria (ug/m ³):			20,000	800	820	2,700	8,200	130	910	
Property Address	Sample Date	Sample Location								
11675 Belden Court	11/29/2018	SSMP-11675BELDEN-01_112918	< 4.6	< 17	< 4.6	< 7.9	< 4.6	34	< 3.0	
	11/29/2018	SSMP-11675BELDEN-02_112918	< 4.5	< 16	< 4.5	1.6 J	< 4.5	110	< 2.9	
	11/29/2018	SSMP-11675BELDEN-03_112918	< 5.5	< 20	< 5.5	< 9.4	< 5.5	280	< 3.5	
	11/29/2018	SSMP-11675BELDEN-04_112918	< 4.7	< 17	< 4.7	1.5 J	< 4.7	110	< 3.0	
	11/29/2018	SSMP-11675BELDEN-05_112918	< 4.7	< 17	< 4.7	< 8.1	< 4.7	74	< 3.0	
	11/29/2018	SSMP-11675BELDEN-06_112918	< 4.6	< 17	< 4.6	< 7.9	< 4.6	57	< 3.0	
	3/28/2019	SSMP-11675BELDEN-01_032819	< 4.9	< 18	< 4.9	< 8.4	< 4.9	13	< 3.2	
	3/28/2019	SSMP-11675BELDEN-02_032819	< 4.8	< 18	< 4.8	< 8.2	< 4.8	54	< 3.1	
	3/28/2019	SSMP-11675BELDEN-03_032819	< 4.9	< 18	< 4.9	2.9 J	< 4.9	250	< 3.2	
	3/28/2019	SSMP-11675BELDEN-04_032819	< 4.8	< 18	< 4.8	< 8.3	< 4.8	39	< 3.1	
	3/28/2019	SSMP-11675BELDEN-05_032819	< 4.8	< 18	< 4.8	< 8.3	< 4.8	6.4 J	< 3.1	
	3/28/2019	SSMP-11675BELDEN-06_032819	< 4.9	< 18	< 4.9	3.3 J	< 4.9	16	< 3.2	
	7/24/2019	SSMP-11675BELDEN-01_072419	< 4.9	< 18	< 4.9	1.5 J	< 4.9	8.9	< 3.2	
	7/24/2019	SSMP-11675BELDEN-02_072419	< 4.6	< 17	< 4.6	3.7 J	< 4.6	62	< 3.0	
	7/24/2019	SSMP-11675BELDEN-03_072419	< 5.0	< 18	< 5.0	2.8 J	< 5.0	270	< 3.2	
	7/24/2019	SSMP-11675BELDEN-04_072419	< 5.1	< 18	< 5.1	2.6 J	< 5.1	27	< 3.3	
	7/24/2019	SSMP-11675BELDEN-05_072419	< 5.1	< 18	< 5.1	1.9 J	< 5.1	2.8 J	< 3.3	
			DUP-11675BELDEN-01_072419	< 5.0	< 18	< 5.0	1.6 J	< 5.0	2.7 J	< 3.2
	7/24/2019	SSMP-11675BELDEN-06_072419	< 5.0	< 18	< 5.0	1.2 J	< 5.0	7.5	< 3.2	
	11/12/2019	SSMP-11675BELDEN-01_111219	< 5.1	< 18	< 5.1	< 8.8	< 5.1	180	< 3.3	
11/12/2019	SSMP-11675BELDEN-02_111219	< 5.0	< 18	< 5.0	< 8.5	< 5.0	20	< 3.2		
11/12/2019	SSMP-11675BELDEN-03_111219	< 5.1	< 18	< 5.1	< 8.8	< 5.1	< 6.9	< 3.3		
11/12/2019	SSMP-11675BELDEN-04_111219	< 5.0	< 18	< 5.0	< 8.5	< 5.0	14	< 3.2		
11/12/2019	SSMP-11675BELDEN-05_111219	< 4.9	< 18	3.6 J	< 8.4	< 4.9	16	< 3.2		
11/12/2019	SSMP-11675BELDEN-06_111219	< 5.2	< 19	< 5.2	3.0 J	< 5.2	5.6 J	< 3.4		
12400 Belden Court	4/9/2019	SSMP-12400BELDEN-01_040919	< 5.3	< 19	< 5.3	27	380	1,200	< 3.4	
	4/9/2019	SSMP-12400BELDEN-02_040919	< 5.3	< 19	< 5.3	14	150	270	< 3.4	
	4/9/2019	SSMP-12400BELDEN-03_040919	< 5.4	< 20	< 5.4	13	300	580	< 3.5	
	4/9/2019	SSMP-12400BELDEN-04_040919	< 4.8	< 18	< 4.8	< 8.2	170	170	< 3.1	
	4/9/2019	SSMP-12400BELDEN-05_040919	< 5.2	< 19	< 5.2	< 9.0	260	240	< 3.4	
	4/9/2019	SSMP-12400BELDEN-06_040919	< 5.1	< 18	< 5.1	31	340	1,100	< 3.3	
	4/9/2019	SSMP-12400BELDEN-07_040919	< 4.8	< 18	< 4.8	18	230	370	< 3.1	
	4/9/2019	SSMP-12400BELDEN-08_040919	< 5.2	12 J	< 5.2	22	360	960	< 3.4	
	4/9/2019	SSMP-12400BELDEN-09_040919	< 5.2	< 19	< 5.2	36	560	1,400	< 3.4	
	4/9/2019	SSMP-12400BELDEN-10_040919	< 5.2	< 19	< 5.2	29	810	1,800	< 3.3	

See Abbreviations and Notes on Last Page.

Table 2
 Non-Residential Vapor Intrusion Analytical Results - Soil Gas
 Ford Livonia Transmission Plant
 36200 Plymouth Road
 Livonia, Michigan



Constituent:			1,1-Dichloroethene	1,4-Dioxane	cis-1,2-Dichloroethene	Tetrachloroethene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl chloride
Non-Residential Sub-Slab Volatilization to Indoor Air Criteria (ug/m ³):			20,000	800	820	2,700	8,200	130	910
Property Address	Sample Date	Sample Location							
12400 Belden Court	4/9/2019	SSMP-12400BELDEN-11_040919	< 6.9	< 25	< 6.9	11 J	2,300	2,900	< 4.4
	4/9/2019	SSMP-12400BELDEN-12_040919	< 4.8	< 17	< 4.8	12	540	1,100	< 3.1
		DUP-12400BELDEN-02_040919	< 4.8	< 17	< 4.8	12	570	1,100	< 3.1
	9/15/2020	SSMP-12400BELDEN-01_091520	< 5.0	< 18	< 5.0	21	36	390	< 3.2
	9/15/2020	SSMP-12400BELDEN-02_091520	< 5.0	< 18	< 5.0	13	2.0 J	81	< 3.2
	9/15/2020	SSMP-12400BELDEN-03_091520	< 4.9	< 18	< 4.9	13	41	340	< 3.2
	9/15/2020	SSMP-12400BELDEN-04_091520	< 4.8	< 18	< 4.8	3.7 J	4.1 J	32	< 3.1
	9/15/2020	SSMP-12400BELDEN-05_091520	2.0 J	< 18	< 4.9	3.6 J	6.0	21	< 3.2
	9/15/2020	SSMP-12400BELDEN-06_091520	< 5.2	< 19	< 5.2	29	5.8	240	< 3.3
	9/15/2020	SSMP-12400BELDEN-07_091520	< 5.0	< 18	< 5.0	9.9	14	110	< 3.2
	9/15/2020	SSMP-12400BELDEN-08_091520	< 5.0	< 18	< 5.0	18	95	470	< 3.2
	9/15/2020	SSMP-12400BELDEN-09_091520	< 4.8	< 18	1.3 J	27	320	620	< 3.1
	9/15/2020	SSMP-12400BELDEN-10_091520	< 4.8	< 18	< 4.8	25	430	900	< 3.1
	9/15/2020	SSMP-12400BELDEN-11_091520	< 5.1	< 18	1.4 J	19	820	690	< 3.3
9/15/2020	SSMP-12400BELDEN-12_091520	< 4.8	< 17	< 4.8	13	200	460	<3.1	
12400 Belden Court	12/22/2020	SSMP-12400BELDEN-01_122220	<5.1	<18	<5.1	5.3 J	8.0	130	<3.3
	12/22/2020	SSMP-12400BELDEN-02_122220	<4.9	<18	<4.9	3.4 J	<4.9	26	<3.2
	12/22/2020	SSMP-12400BELDEN-03_122220	<5.2	<19	<5.2	2.9 J	13	75	<3.4
	12/22/2020	SSMP-12400BELDEN-04_122220	<5.0	<18	<5.0	<8.5	<5.0	7.3	<3.2
	12/22/2020	SSMP-12400BELDEN-05_122220	<5.1	<18	<5.1	<8.8	2.0 J	1.9 J	<3.3
	12/22/2020	SSMP-12400BELDEN-06_122220	<5.1	<18	<5.1	5.3 J	1.4 J	59	<3.3
	12/22/2020	SSMP-12400BELDEN-07_122220	<5.1	<18	<5.1	3.0 J	2.1 J	37	<3.3
	12/22/2020	SSMP-12400BELDEN-08_122220	<5.0	<18	<5.0	3.0 J	8.7	50	<3.2
	12/22/2020	SSMP-12400BELDEN-09_122220	<5.3	<19	<5.3	8.8 J	81	240	<3.4
	12/22/2020	SSMP-12400BELDEN-10_122220	<5.0	<18	<5.0	9.3	83	400	<3.2
	12/22/2020	SSMP-12400BELDEN-11_122220	<5.0	<18	<5.0	5.3 J	130	290	<3.2
	12/22/2020	SSMP-12400BELDEN-12_122220	<5.2	<19	<5.2	4.8 J	29	140	<3.4

Abbreviations:

< Denotes non-detect result below the reporting limit
 DUP Duplicate
 EGLE Michigan Department of Environment, Great Lakes, and Energy
 J Estimated result
 SSMP Sub-slab Monitoring Point
 µg/m³ Microgram per cubic meter
 USEPA United States Environmental Protection Agency

Notes:

All units are measured in micrograms per cubic meter (µg/m³).
 All samples were analyzed via modified USEPA Method TO-15.
 Bold result denotes exceedance of criteria.
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Footnote:

1 The Non-Residential Volatilization to Indoor Air Criteria (adjusted for a 12-hr work-day exposure in a slab-on-grade building less than 50,000 square-feet) were provided in the Consent Decree by EGLE on 10/30/2018 (site-specific criteria).

Table 3
 Non-Residential Vapor Intrusion Analytical Results - Indoor Air
 Ford Livonia Transmission Plant
 36200 Plymouth Road
 Livonia, Michigan



Constituent:			1,1-Dichloroethene	1,4-Dioxane	cis-1,2-Dichloroethene	Tetrachloroethene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl chloride
¹ Non-Residential Indoor Air Recommended Interim Action Screening Levels (µg/m ³):			610	24	25	82	250	4.0	27
Property Address	Sample Date	Sample Location							
11675 Belden Court	11/29/2018	IAF-11675BELDEN-01_112918	< 1.3	< 1.2	< 1.3	< 2.3	< 1.3	630	< 0.85
	11/29/2018	IAF-11675BELDEN-02_112918	< 1.4	< 1.2	< 1.4	< 2.4	< 1.4	380	< 0.89
	11/29/2018	IAF-11675BELDEN-03_112918	< 1.4	< 1.2	< 1.4	< 2.3	< 1.4	350	< 0.87
	11/29/2018	IAF-11675BELDEN-04_112918	< 2.2	< 2.0	< 2.2	< 3.7	< 2.2	730	< 1.4
	11/29/2018	IAF-11675BELDEN-05_112918	< 1.7	< 1.6	< 1.7	< 2.9	< 1.7	700	< 1.1
	3/28/2019	IAF-11675BELDEN-01_032819	< 0.72	0.14 J	< 0.72	< 1.2	< 0.72	7.0	< 0.47
	3/28/2019	IAF-11675BELDEN-02_032819	< 0.69	0.23 J	< 0.69	< 1.2	< 0.69	4.4	< 0.45
	3/28/2019	IAF-11675BELDEN-03_032819	< 0.69	0.12 J	< 0.69	< 1.2	< 0.69	3.8	< 0.45
	3/28/2019	IAF-11675BELDEN-04_032819	< 0.72	0.16 J	< 0.72	< 1.2	< 0.72	8.8	< 0.47
	3/28/2019	IAF-11675BELDEN-05_032819	< 0.71	0.23 J	< 0.71	0.47 J	< 0.71	14.0	< 0.46
	7/24/2019	IAF-11675BELDEN-01_072419	< 0.68	< 0.62	< 0.68	< 1.2	< 0.68	5.5	< 0.44
	7/24/2019	IAF-11675BELDEN-02_072419	< 0.67	< 0.60	< 0.67	< 1.1	< 0.67	4.1	< 0.43
	7/24/2019	IAF-11675BELDEN-03_072419	< 0.71	< 0.64	< 0.71	< 1.2	< 0.71	4.2	< 0.46
	7/24/2019	IAF-11675BELDEN-04_072419	< 0.64	< 0.58	< 0.64	< 1.1	< 0.64	4.5	< 0.41
	7/24/2019	IAF-11675BELDEN-05_072419	< 0.71	< 0.64	< 0.71	< 1.2	< 0.71	5.5	< 0.46
	11/12/2019	IAF-11675BELDEN-01_111219	< 0.67	< 0.60	< 0.67	< 1.1	< 0.67	2.1	< 0.43
	11/12/2019	IAF-11675BELDEN-02_111219	< 0.68	< 0.62	< 0.68	< 1.2	< 0.68	1.4	< 0.44
	11/12/2019	IAF-11675BELDEN-03_111219	< 0.65	0.11 J	< 0.65	< 1.1	< 0.65	1.2	< 0.42
		DUP-11675BELDEN-01_111219	< 0.65	< 0.59	< 0.65	< 1.1	< 0.65	1.1	< 0.42
	11/12/2019	IAF-11675BELDEN-04_111219	< 0.65	< 0.59	< 0.65	< 1.1	< 0.65	2.6	< 0.42
11/12/2019	IAF-11675BELDEN-05_111219	< 0.65	< 0.59	< 0.65	< 1.1	< 0.65	5.1	< 0.42	
12400 Belden Court	11/15/2018	IAF-12400BELDEN-01_111518	< 1.3	< 1.2	< 1.3	< 2.2	230	340	< 0.85
	11/15/2018	IAF-12400BELDEN-02_111518	< 1.2	0.87 J	< 1.2	< 2.1	200	290	< 0.80
	11/15/2018	IAF-12400BELDEN-03_111518	< 1.4	< 1.2	< 1.4	< 2.3	220	320	< 0.88
	11/15/2018	IAF-12400BELDEN-05_111518	< 1.2	< 1.1	< 1.2	< 2.1	220	320	< 0.81
	11/15/2018	IAF-12400BELDEN-06_111518	< 1.3	< 1.2	< 1.3	< 2.2	220	310	< 0.84
	11/15/2018	IAF-12400BELDEN-07_111518	< 1.4	< 1.3	< 1.4	< 2.4	190	270	< 0.91
	11/15/2018	IAF-12400BELDEN-08_111518	< 1.5	< 1.4	< 1.5	< 2.6	210	290	< 0.96
	11/15/2018	IAF-12400BELDEN-09_111518	< 1.3	< 1.1	< 1.3	< 2.2	220	310	< 0.81
	11/15/2018	IAF-12400BELDEN-10_111518	< 1.3	< 1.2	< 1.3	< 2.2	240	320	< 0.85
	11/15/2018	IAF-12400BELDEN-11_111518	< 1.2	< 1.1	< 1.2	< 2.1	210	300	< 0.80
	11/15/2018	IAF-12400BELDEN-12_111518	< 1.3	< 1.2	< 1.3	< 2.2	230	330	< 0.82
		DUP-01_111518	< 1.3	< 1.2	< 1.3	< 2.3	230	320	< 0.86
	4/9/2019	IAF-12400BELDEN-01_040919	< 71	< 260	< 71	< 120	12,000	9,200	< 46
	4/9/2019	IAF-12400BELDEN-02_040919	< 76	< 280	< 76	< 130	9,100	6,600	< 49
	4/9/2019	IAF-12400BELDEN-03_040919	< 180	< 670	< 180	< 320	14,000	10,000	< 120
4/9/2019	IAF-12400BELDEN-04_040919	< 120	< 450	< 120	< 210	14,000	8,600	< 80	
4/9/2019	IAF-12400BELDEN05_040919	< 77	< 280	< 77	< 130	13,000	7,900	< 50	

See Abbreviations and Notes on Last Page.

Table 3
 Non-Residential Vapor Intrusion Analytical Results - Indoor Air
 Ford Livonia Transmission Plant
 36200 Plymouth Road
 Livonia, Michigan



Constituent:			1,1-Dichloroethene	1,4-Dioxane	cis-1,2-Dichloroethene	Tetrachloroethene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl chloride
¹ Non-Residential Indoor Air Recommended Interim Action Screening Levels (µg/m ³):			610	24	25	82	250	4.0	27
Property Address	Sample Date	Sample Location							
12400 Belden Court	4/9/2019	IAF-12400BELDEN-06_040919	< 180	< 670	< 180	< 320	14,000	8,300	< 120
	4/9/2019	IAF-12400BELDEN-07_040919	< 72	< 260	< 72	< 120	9,600	6,600	< 46
	4/9/2019	IAF-12400BELDEN-08_040919	< 69	< 250	< 69	< 120	11,000	7,300	< 45
	4/9/2019	IAF-12400BELDEN-09_040919	< 71	< 260	< 71	< 120	12,000	8,400	< 46
	4/9/2019	IAF-12400BELDEN-10_040919	< 70	< 260	< 70	< 120	12,000	5,700	< 45
	4/9/2019	IAF-12400BELDEN-11_040919	< 68	< 250	< 68	< 120	7,100	5,400	< 44
	4/9/2019	IAF-12400BELDEN-12_040919	< 71	< 260	< 71	< 120	6,600	4,900	< 46
	9/15/2020	IAF-12400BELDEN-01_091520	< 0.69	< 0.63	< 0.69	0.61 J	2.1	2.2	< 0.45
	9/15/2020	IAF-12400BELDEN-02_091520	< 0.69	< 0.63	< 0.69	0.96 J	2.2	2.3	< 0.45
	9/15/2020	IAF-12400BELDEN-03_091520	< 0.69	< 0.63	< 0.69	0.55 J	2.1	2.2	< 0.45
	9/15/2020	IAF-12400BELDEN-04_091520	< 0.71	0.46 J	< 0.71	0.59 J	2.1	2.3	< 0.46
	9/15/2020	IAF-12400BELDEN-05_091520	< 0.69	< 0.63	< 0.69	0.61 J	2.1	2.2	< 0.45
	9/15/2020	IAF-12400BELDEN-06_091520	< 0.69	< 0.63	< 0.69	0.65 J	2.0	2.3	< 0.45
	9/15/2020	IAF-12400BELDEN-07_091520	< 0.69	< 0.63	< 0.69	0.53 J	1.7	1.9	< 0.45
	9/15/2020	IAF-12400BELDEN-08_091520	< 0.71	< 0.64	< 0.71	0.59 J	1.8	2.0	< 0.46
	9/15/2020	IAF-12400BELDEN-09_091520	< 0.71	0.41 J	< 0.71	0.59 J	2.3	2.2	< 0.46
	9/15/2020	IAF-12400BELDEN-10_091520	< 0.64	< 0.58	< 0.64	0.58 J	2.4	2.4	< 0.41
	9/15/2020	IAF-12400BELDEN-11_091520	< 0.69	0.45 J	< 0.69	0.63 J	2.3	2.5	< 0.45
	9/15/2020	IAF-12400BELDEN-12_091520	< 0.69	< 0.63	< 0.69	0.68 J	2.3	2.6	< 0.45
	12400 Belden Court	12/22/2020	IAF-12400BELDEN-01_122220	<0.72	<0.66	<0.72	<1.2	<0.72	<0.98
12/22/2020		IAF-12400BELDEN-02_122220	<0.72	<0.66	<0.72	1.3	<0.72	<0.98	<0.47
12/22/2020		IAF-12400BELDEN-03_122220	<0.71	<0.64	<0.71	<1.2	<0.71	<0.96	<0.46
12/22/2020		IAF-12400BELDEN-04_122220	<0.74	<0.67	<0.74	<1.3	<0.74	<1.0	<0.48
12/22/2020		IAF-12400BELDEN-05_122220	<0.71	<0.64	<0.71	<1.2	<0.71	<0.96	<0.46
12/22/2020		IAF-12400BELDEN-06_122220	<0.69	<0.63	<0.69	<1.2	<0.69	<0.94	<0.45
12/22/2020		IAF-12400BELDEN-07_122220	<0.68	<0.62	<0.68	<1.2	<0.68	<0.92	<0.44
12/22/2020		IAF-12400BELDEN-08_122220	<0.72	<0.66	<0.72	<1.2	<0.72	<0.98	<0.47
12/22/2020		IAF-12400BELDEN-09_122220	<0.71	<0.64	<0.71	0.62 J	<0.71	<0.96	<0.46
12/22/2020		IAF-12400BELDEN-10_122220	<0.74	<0.67	<0.74	<1.3	<0.74	0.53 J	<0.48
12/22/2020		DUP-12400BELDEN-01_122220	<0.72	<0.66	<0.72	<1.2	<0.72	<0.98	<0.47
12/22/2020		IAF-12400BELDEN-11_122220	<0.71	<0.64	<0.71	<1.2	0.59 J	0.57 J	<0.46
12/22/2020		IAF-12400BELDEN-12_122220	<0.72	<0.66	<0.72	<1.2	<0.72	0.51 J	<0.47

Abbreviations:

- < Denotes non-detect result below the reporting limit
- DUP Duplicate
- EGLE Michigan Department of Environment, Great Lakes, and Energy
- IAF Indoor Air First Floor
- J Estimated result
- µg/m³ Microgram per cubic meter
- USEPA United States Environmental Protection Agency

Notes:

All samples were analyzed via modified USEPA Method TO-15.
 All units are measured in micrograms per cubic meter (µg/m³).
 Bold result indicates exceedance of criteria.
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Footnote:

¹ Non-Residential Recommended Interim Action Screening Levels appropriate for exposures less than 12 hours (RIASLs12) as provided by EGLE in August 2017 and updated in September 2020.

Table 4
Non-Residential Vapor Intrusion Analytical Results - Ambient Air
Ford Livonia Transmission Plant
36200 Plymouth Road
Livonia, Michigan



Constituent:			1,1-Dichloroethene	1,4-Dioxane	cis-1,2-Dichloroethene	Tetrachloroethene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl chloride
¹ Non-Residential Indoor Air Recommended Interim Action Screening Levels (µg/m ³):			610	24	25	82	250	4.0	27
Property Address	Sample Date	Sample Location							
11675 Belden Court	3/28/2019	AA-11675BELDEN-01_032819	< 0.74	< 0.67	< 0.74	< 1.3	< 0.74	< 1.0	< 0.48
		DUP-11675BELDEN-01_032819	< 0.71	< 0.64	< 0.71	< 1.2	< 0.71	< 0.96	< 0.46
	7/24/2019	AA-11675BELDEN-01_072419	< 0.68	< 0.62	< 0.68	< 1.2	< 0.68	< 0.92	< 0.44
	11/12/2019	AA-11675BELDEN-01_111219	< 0.61	< 0.56	< 0.61	< 1.0	< 0.61	< 0.83	< 0.40
12400 Belden Court	11/15/2018	AA-12400BELDEN-01_111518	< 0.62	< 0.56	< 0.62	< 1.0	< 0.62	< 0.84	< 0.40
	4/9/2019	AA-12400BELDEN-01_040919	< 0.67	< 0.61	< 0.67	< 1.1	4.6 J	3.2 J	< 0.43
		DUP-12400BELDEN01_040919	< 0.76	< 0.69	< 0.76	< 1.3	96 J	55 J	< 0.49
	9/15/2020	AA-12400BELDEN-01_091520	< 0.71	< 0.64	< 0.71	< 1.2	< 0.71	< 0.96	< 0.46
12400 Belden Court	12/22/2020	AA-12400BELDEN-01_122220	<0.72	<0.66	<0.72	<1.2	<0.72	<0.98	<0.47

Abbreviations:

- < Denotes non-detect result below the reporting limit
- AA Ambient Air
- DUP Duplicate
- EGLE Michigan Department of Environment, Great Lakes, and Energy
- J Estimated result
- µg/m³ Microgram per cubic meter
- USEPA United States Environmental Protection Agency

Notes:

All units are measured in micrograms per cubic meter (µg/m³).
 All samples were analyzed via modified USEPA Method TO-15.
 Bold result indicates exceedance of criteria.

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Footnote:

¹ Non-Residential Recommended Interim Action Screening Levels appropriate for exposures less than 12 hours (RIASLs₁₂) as provided by EGLE in August 2017 and updated in September 2020.

Table 5
 Non-Residential Groundwater Analytical Results
 Ford Livonia Transmission Plant
 36200 Plymouth Road
 Livonia, Michigan



Location: Sample Depth (ft. bgs): Sample Date:	Non-Residential VIAC GIWC Criteria ¹	MW-54S 4.5-9.5								MW-208S 9-14				MW-214S 5.5-10.5			
		4/29/2019	6/10/2019	9/27/2019	11/19/2019	2/12/2020	5/21/2020	8/11/2020	11/5/2020	2/8/2020	5/30/2020	8/15/2020	11/14/2020	2/7/2020	5/20/2020	8/10/2020	11/5/2020
		Semi-Volatile Organic Compounds (SVOCs)															
1,4-Dioxane	1,200,000	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	1.1 J	< 2.0	< 2.0
Volatile Organic Compounds (VOCs)																	
1,1-Dichloroethene	8,600	< 1.0	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0
cis-1,2-Dichloroethene	2,400	0.26 J	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0
Tetrachloroethene	3,300	< 1.0	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0
trans-1,2-Dichloroethene	10,000	< 1.0	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0
Trichloroethene	210	< 1.0	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0
Vinyl chloride	280	< 1.0	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0

Notes:

All units are measured in micrograms per liter (µg/L).

Bold result indicates a concentration above the reporting limit.

Results are compared to EGLE Part 201 Generic Cleanup Criteria, June 2018.

All samples were analyzed via USEPA Method 8260B or 8260B SIM.

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Footnote:

¹ Non-Residential Volatilization to Indoor Air (VIAC) for Groundwater in Contact (GWIC) Criteria is adjusted for a 12-hour workday for a non-residential structure (>50,000 sq. ft. with a slab-on-grade or crawlspace) from EGLE Proposed Rule Changes (September 2016) and Emergency Rules (October 27, 2016).

Abbreviations:

< Denotes non-detect result below reporting limit

EGLE Michigan Department of Environment, Great Lakes, and Energy

ft. bgs Feet below ground surface

J Reported value is estimated

MW Monitoring well

µg/L Micrograms per liter

USEPA United States Environmental Protection Agency

Table 6
Residential Vapor Intrusion Analytical Results - Soil Gas
Ford Livonia Transmission Plant
36200 Plymouth Road
Livonia, Michigan



Residential Sub-Slab Volatilization to Indoor Air Criteria (ug/m ³):			1,1-Dichloroethene	1,4-Dioxane	cis-1,2-Dichloroethene	Tetrachloroethene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl Chloride
Constituent:			7,000	170	280	1,400	2,800	67	54
Property Address	Sample Date	Sample Location							
34360 Capitol	6/26/2019	SSMP-34360CAPITOL-01_062619	< 17	< 62	< 17	6,400	< 17	26	< 11
	12/4/2019	SSMP-34360CAPITOL-01_120419	< 4.9	< 18	< 4.9	2,200	< 4.9	7.9	< 3.1
	7/17/2020	SSMP-34360CAPITOL-01_071720	< 26	< 94	< 26	9,400	< 26	36	< 17
34934 Standish	10/24/2018	SSMP-34934STANDISH-01_102418	< 4.4	< 16	< 4.4	< 7.6	< 4.4	< 6.0	< 2.9
	4/12/2019	SSMP-34934STANDISH-01_041219	< 5.2	< 19	< 5.2	< 8.8	< 5.2	< 7.0	< 3.3
	6/28/2019	SSMP-34934STANDISH-01_062819	< 5.0	< 18	< 5.0	64	< 5.0	< 6.7	< 3.2
	10/25/2019	SSMP-34934STANDISH-01_102519	< 4.9	< 18	< 4.9	3.1 J	< 4.9	2.7 J	< 3.2
	2/7/2020	SSMP-34934STANDISH-01_020720	< 4.9	< 18	< 4.9	< 8.4	< 4.9	< 6.7	< 3.2
12001 Stark	4/19/2019	SSMP-12001STARK-01_041919	< 5.0	< 18	< 5.0	2,800	< 5.0	< 6.8	< 3.2
	10/18/2019	SSMP-12001STARK-01_101819	< 4.9	< 18	< 4.9	2,500	< 4.9	< 6.7	< 3.2
		DUP-12001STARK-01_101819	< 4.8	< 18	< 4.8	2,400	< 4.8	< 6.5	< 3.1
	12/5/2019	SSMP-12001STARK-01_120519	< 4.9	< 18	< 4.9	1,400	< 4.9	1.9 J	< 3.2

Abbreviations:

- < Denotes non-detect result below the reporting limit
- DUP Duplicate
- EGLE Michigan Department of Environment, Great Lakes, and Energy
- J Estimated result
- SSMP Sub-slab Monitoring Point
- µg/m³ Microgram per cubic meter
- USEPA United States Environmental Protection Agency

Notes:

All units are measured in micrograms per cubic meter (µg/m³).
 All samples were analyzed via modified USEPA Method TO-15.
 Bold result denotes exceedance of criteria.

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Footnote:

1 The Residential Volatilization to Indoor Air Criteria (house with a basement) was provided by EGLE on 10/30/2018 (site-specific criteria).

Table 7
Residential Vapor Intrusion Analytical Results - Indoor Air
Ford Livonia Transmission Plant
36200 Plymouth Road
Livonia, Michigan



Constituent:			1,1-Dichloroethene	1,4-Dioxane	cis-1,2-Dichloroethene	Tetrachloroethene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl Chloride
¹ Residential Indoor Air Recommended Interim Action Screening Levels (µg/m ³):			210	5.1	8.3	41	270	2.0	1.6
Property Address	Sample Date	Sample Location							
34360 Capitol	12/6/2018	IAB-34360CAPITOL-02_120618	< 0.69	< 0.63	< 0.69	< 1.2	< 0.69	< 0.94	< 0.45
		DUP-34360CAPITOL-02_120618	< 0.67	< 0.60	< 0.67	1.0 J	< 0.67	< 0.90	< 0.43
	12/6/2018	IACS-34360CAPITOL-03_120618	< 0.67	< 0.61	< 0.67	< 1.2	< 0.67	< 0.91	< 0.43
	12/6/2018	IAF-34360CAPITOL-01_120618	< 0.68	< 0.62	< 0.68	< 1.2	< 0.68	< 0.92	< 0.44
		DUP-34360CAPITOL-01_120618	< 0.74	< 0.67	< 0.74	< 1.3	< 0.74	< 1.0	< 0.48
	12/6/2018	IAG-34360CAPITOL-04_120618	< 0.60	< 0.55	< 0.60	< 1.0	< 0.60	< 0.82	< 0.39
	6/25/2019	IAB-34360CAPITOL-02_062519	< 0.68	0.79	< 0.68	0.97 J	< 0.68	0.25 J	0.22 J
		DUP-34360CAPITOL-01_062519	< 0.68	< 0.62	< 0.68	0.90 J	< 0.68	0.27 J	0.22 J
	6/25/2019	IAF-34360CAPITOL-01_062519	< 0.67	< 0.60	< 0.67	1.1	< 0.67	< 0.90	< 0.43
	6/25/2019	IAG-34360CAPITOL-04_062519	< 0.71	0.35 J	< 0.71	0.68 J	< 0.71	< 0.96	< 0.46
	12/4/2019	IAB-34360CAPITOL-02_120419	< 0.71	< 0.64	< 0.71	< 1.2	< 0.71	< 0.96	< 0.46
	12/4/2019	IAF-34360CAPITOL-01_120419	< 0.71	< 0.64	< 0.71	< 1.2	< 0.71	< 0.96	< 0.46
	12/4/2019	IAG-34360CAPITOL-04_120419	< 0.71	< 0.64	< 0.71	< 1.2	< 0.71	< 0.96	< 0.46
	7/17/2020	IAB-34360CAPITOL-02_071720	< 0.68	0.19 J	< 0.68	0.11 J	< 0.68	< 0.92	< 0.44
7/17/2020	IAF-34360CAPITOL-01_071720	< 0.65	0.15 J	< 0.65	0.12 J	< 0.65	< 0.88	< 0.42	
7/17/2020	IAG-34360CAPITOL-04_071720	< 0.65	0.33 J	< 0.65	0.23 J	< 0.65	< 0.88	< 0.42	
34934 Standish	10/23/2018	IACS-34934STANDISH-03_102318	< 0.60	< 0.55	< 0.60	< 1.0	< 0.60	< 0.82	< 0.39
	10/23/2018	IAF-34934STANDISH-02_102318	< 0.68	< 0.62	< 0.68	1.0 J	< 0.68	< 0.92	< 0.44
	10/23/2018	IAG-34934STANDISH-01_102318	< 0.65	< 0.59	< 0.65	< 1.1	< 0.65	< 0.88	< 0.42
	4/11/2019	IAF-34934STANDISH-02_041119	< 0.68	< 0.62	< 0.68	< 1.2	< 0.68	0.14 J	< 0.44
	4/11/2019	IAG-34934STANDISH-01_041119	< 0.67	< 0.61	< 0.67	< 1.1	< 0.67	0.046 J	< 0.43
	6/27/2019	IAF-34934STANDISH-02_062719	< 0.64	< 0.58	< 0.64	< 1.1	< 0.64	< 0.86	< 0.41
		DUP-34934STANDISH-01_062719	< 0.67	< 0.60	< 0.67	< 1.1	< 0.67	< 0.90	< 0.43
	6/27/2019	IAG-34934STANDISH-01_062719	< 0.78	< 0.71	< 0.78	120	< 0.78	< 1.0	< 0.50
	10/25/2019	IAF-34934STANDISH-02_102519	< 0.71	< 0.64	< 0.71	< 1.2	0.14 J	< 0.96	< 0.46
	10/25/2019	IAG-34934STANDISH-01_102519	< 0.65	< 0.59	< 0.65	< 1.1	0.12 J	100	< 0.42
2/7/2020	IAF-34934STANDISH-02_020720	< 0.71	0.69	< 0.71	< 1.2	< 0.71	< 0.96	< 0.46	
2/7/2020	IAG-34934STANDISH-01_020720	< 0.60	< 0.55	< 0.60	< 1.0	< 0.60	0.94	< 0.39	
12001 Stark	4/18/2019	IAF-12001STARK-03_041819	< 0.65	< 0.59	< 0.65	0.70 J	< 0.65	< 0.88	< 0.42
	4/18/2019	IAG12001STARK-02_041819	< 0.69	< 0.63	< 0.69	1.4	< 0.69	< 0.94	< 0.45
	10/18/2019	IAF-12001STARK-03_101819	< 7.3	< 6.6	< 7.3	< 12	< 7.3	< 2.0	< 0.47
	10/18/2019	IAG12001STARK-02_101819	< 0.65	< 0.59	< 0.65	0.92 J	< 0.65	< 0.89	< 0.42
	12/5/2019	IAF-12001STARK-03_120519	< 0.74	< 0.67	< 0.74	< 1.3	< 0.74	< 1.0	< 0.48

See Notes on last page.

Table 7
Residential Vapor Intrusion Analytical Results - Indoor Air
Ford Livonia Transmission Plant
36200 Plymouth Road
Livonia, Michigan

Abbreviations:

<	Denotes non-detect result below the reporting limit
DUP	Duplicate
EGLE	Michigan Department of Environment, Great Lakes, and Energy
IAB	Indoor Air Basement
IACS	Indoor Air Crawl Space
IAF	Indoor Air First Floor
IAG	Indoor Air Garage
J	Estimated result
$\mu\text{g}/\text{m}^3$	Microgram per cubic meter
USEPA	United States Environmental Protection Agency

Notes:

Bold result denotes exceedance of criteria.

All samples were analyzed via modified USEPA Method TO-15.

All units are measured in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$).

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Footnote:

¹ The Residential Recommended Interim Action Screening Levels (RIASLs) are unrestricted screening levels that apply to residential structures with a basement and were provided in the Consent Decree by EGLE on 7/22/2017 (Residential Indoor Air).

Table 8
Residential Vapor Intrusion Analytical Results - Ambient Air
Ford Livonia Transmission Plant
36200 Plymouth Road
Livonia, Michigan



Constituent:			1,1-Dichloroethene	1,4-Dioxane	cis-1,2-Dichloroethene	Tetrachloroethene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl Chloride
¹ Residential Indoor Air Recommended Interim Action Screening Levels (µg/m ³):			210	5.1	8.3	41	270	2.0	1.6
Property Address	Sample Date	Sample Location							
34360 Capitol	12/6/2018	AA-34360CAPITOL-01_120618	< 0.63	< 0.57	< 0.63	< 1.1	< 0.63	< 0.85	< 0.40
		DUP-34360CAPITOL-03_120618	< 0.61	< 0.56	< 0.61	< 1.0	< 0.61	< 0.83	< 0.40
	6/25/2019	AA-34360CAPITOL-01_062519	< 0.69	< 0.63	< 0.69	< 1.2	< 0.69	< 0.94	< 0.45
		DUP-34360CAPITOL-02_062519	< 0.63	< 0.57	< 0.63	< 1.1	< 0.63	< 0.85	< 0.40
	12/4/2019	AA-34360CAPITOL-01_120419	< 0.69	< 0.63	< 0.69	< 1.2	< 0.69	< 0.94	< 0.45
7/17/2020	AA-34360CAPITOL-01_071720	< 0.67	0.16 J	< 0.67	< 1.1	< 0.67	< 0.90	< 0.43	
34934 Standish	10/24/2018	AA-34934STANDISH-01_102318	< 0.60	< 0.55	< 0.60	< 1.0	< 0.60	< 0.82	< 0.39
	4/12/2019	AA-34934STANDISH-01_041119	< 0.63	< 0.57	< 0.63	< 1.1	< 0.63	0.040 J	< 0.41
	6/28/2019	AA-34934STANDISH-01_062719	< 0.69	< 0.63	< 0.69	< 1.2	< 0.69	< 0.94	< 0.45
	10/25/2019	AA-34934STANDISH-01_102519	< 0.66	< 0.60	< 0.66	< 1.1	0.16 J	< 0.90	< 0.43
	2/7/2020	AA-34934STANDISH-01_020720	< 0.64	0.18 J	< 0.64	< 1.1	< 0.64	0.64 J	< 0.41
12001 Stark	4/19/2019	AA-12001STARK-01_041819	< 0.69	< 0.63	< 0.69	< 1.2	< 0.69	< 0.94	< 0.45
		DUP-12001STARK-02_041819	< 0.64	< 0.58	< 0.64	< 1.1	< 0.64	< 0.86	< 0.41
	10/18/2019	AA-12001STARK-01_101819	< 0.64	< 0.58	< 0.64	< 1.1	< 0.64	< 0.86	< 0.41
	12/5/2019	AA-12001STARK-01_120519	< 0.67	< 0.60	< 0.67	< 1.1	< 0.67	< 0.90	< 0.43

Abbreviations:

- < Denotes non-detect result below the reporting limit
- AA Ambient Air
- DUP Duplicate
- EGLE Michigan Department of Environment, Great Lakes, and Energy
- J Estimated result
- µg/m³ Microgram per cubic meter
- USEPA United States Environmental Protection Agency

Notes:

Bold result denotes exceedance of criteria.

All units are measured in micrograms per cubic meter (µg/m³).

All samples were analyzed via modified USEPA Method TO-15.

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Footnote:

¹ The Residential Recommended Interim Action Screening Levels (RIASLs) are unrestricted screening levels that apply to residential structures with a basement and were provided in the Consent Decree by EGLE on 7/22/2017 (Residential Indoor Air).

Table 9
 Residential Groundwater Analytical Results
 Ford Livonia Transmission Plant
 36200 Plymouth Road
 Livonia, Michigan



Location: Sample Depth (ft. bgs): Sample Date:	Residential Drinking Water Criteria ¹	Residential VIAC GWIC Criteria ²	MW-106S 2.5-12.5									MW-128S 4-14								
			12/19/2018	2/27/2019	5/16/2019	9/23/2019	11/15/2019	2/10/2020	5/19/2020	8/5/2020	11/12/2020	12/27/2018	3/6/2019	5/22/2019	9/20/2019	11/21/2019	2/10/2020	5/20/2020	8/4/2020	11/19/2020
Semi-Volatile Organic Compounds (SVOCs)																				
1,4-Dioxane	7.2*	1,900	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Volatile Organic Compounds (VOCs)																				
1,1-Dichloroethene	7.0	18.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene	70	3.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	5.0	1.5	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethene	100	13	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	1.0**	1.0	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride	1.0**	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

See Notes on last page.

Location: Sample Depth (ft. bgs): Sample Date:	Residential Drinking Water Criteria ¹	Residential VIAC GWIC Criteria ²	MW-167S								MW-183S								TMW-20-01	TMW-20-02
			5-10								8-13								3.5-8.5	7-12
			2/25/2019	5/20/2019	9/20/2019	11/26/2019	2/5/2020	5/21/2020	8/5/2020	11/5/2020	3/1/2019	5/13/2019	9/17/2019	11/21/2019	2/12/2020	8/6/2020	11/9/2020	7/27/2020	7/28/2020	
Semi-Volatile Organic Compounds (SVOCs)																				
1,4-Dioxane	7.2*	1,900	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	
Volatile Organic Compounds (VOCs)																				
1,1-Dichloroethene	7.0	18.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
cis-1,2-Dichloroethene	70	3.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Tetrachloroethene	5.0	1.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
trans-1,2-Dichloroethene	100	13	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Trichloroethene	1.0**	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.13 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Vinyl chloride	1.0**	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	

Notes:

All units are measured in micrograms per liter (µg/L).

Bold text indicates a concentration above the reporting limit.

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All samples were analyzed via USEPA Method 8260B or 8260B SIM.

Footnotes:

¹ Residential Drinking Water Criteria are referenced in the EGLE Part 201 Generic Cleanup Criteria, June 2018.

² Residential Volatilization to Indoor Air (VIAC) for Groundwater in Contact (GWIC) Criteria is the Site-Specific Recommended Interim Action Screening Level (RIASL) provided from EGLE.

* Residential Drinking Water Criteria for 1,4-dioxane is derived from EGLE Proposed Rule Changes (September 2016) and Emergency Rules (October 27, 2016).

** Groundwater results for Trichloroethene and Vinyl Chloride are compared to the published EGLE Remediation and Redevelopment Division Target Detection Limit of 1.0 µg/l.

Abbreviations:

- < Denotes non-detect result below reporting limit
- B Compound was found in the blank and sample
- EGLE Michigan Department of Environment, Great Lakes, and Energy
- ft. bgs Feet below ground surface
- J Reported value is estimated
- MW Monitoring well
- µg/L Micrograms per liter
- USEPA United States Environmental Protection Agency

Table 10
 Residential Soil Vapor Monitoring Point Results
 Ford Livonia Transmission Plant
 36200 Plymouth Road
 Livonia, Michigan



Location: Sample Depth (ft. bgs): Sample Date:	Residential VIAC ¹	SVMP-18										SVMP-28								SVMP-29	
		3										3								3.5	7.5
		6/16/2017	9/18/2017	11/17/2017	2/20/2018	5/30/2018	8/22/2018	11/7/2018	3/5/2019	6/25/2019	6/19/2017	9/21/2017	11/21/2017	2/21/2018	5/29/2018	8/23/2018	11/6/2018	3/21/2019	6/24/2019	6/14/2017	6/14/2017
Volatile Organic Compounds (VOCs)																					
1,1-Dichloroethene	7,000	NA	< 4.6	< 4.3	< 4.5	< 4.7	< 5.1	< 4.6	< 5.6	< 5.2	NA	< 4.8	< 4.6	< 4.3	< 5.2	< 4.7	< 4.7	< 5.0	< 5.1	NA	NA
1,4-Dioxane	170	NA	< 17	< 16	< 16	< 17	< 18	< 16	< 20	< 19	NA	< 17	< 17	< 16	< 19	< 17	< 17	< 18	< 18	NA	NA
cis-1,2-Dichloroethene	280	NA	< 4.6	< 4.3	< 4.5	< 4.7	< 5.1	< 4.6	< 5.6	< 5.2	NA	< 4.8	< 4.6	< 4.3	< 5.2	< 4.7	< 4.7	< 5.0	< 5.1	NA	NA
Tetrachloroethene	1,400	NA	< 7.9	< 7.3	< 7.8	< 8.1	< 8.8	< 7.8	< 9.6	< 9.0	NA	25	< 7.9	< 7.3	< 8.9	8.9	< 8.1	< 8.5	1.3 J	NA	NA
trans-1,2-Dichloroethene	2,800	NA	< 4.6	< 4.3	< 4.5	< 4.7	< 5.1	< 4.6	< 5.6	< 5.2	NA	< 4.8	< 4.6	< 4.3	< 5.2	< 4.7	< 4.7	< 5.0	< 5.1	NA	NA
Trichloroethene	67	< 6.6	< 6.3	< 5.8	< 6.2	< 6.4	< 6.9	< 6.2	< 7.6	< 7.1	< 6.1	< 6.5	< 6.3	< 5.8	< 7.1	< 6.3	< 6.4	< 6.7	< 6.9	< 6.3	< 6.0
Vinyl Chloride	54	< 3.2	< 3.0	< 2.8	< 2.9	< 3.0	< 3.3	< 2.9	< 3.6	< 3.4	< 2.9	< 3.1	< 3.0	< 2.8	< 3.4	< 3.0	< 3.0	< 3.2	< 3.3	< 3.0	< 2.8

Notes:
 All units are measured in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$).
 SVMP-29 is located on a residential property, therefore, was only sampled during the initial sampling event.
 Bold text indicates a concentration above the reporting limit.
 All samples were analyzed via modified USEPA Method TO-15.
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Footnote:
 1 The Residential VIACs for a residential house with a basement were provided by EGLE on 10/30/2018 (site-specific criteria).

Abbreviations:
 < Denotes non-detect result below the reporting limit
 EGLE Michigan Department of Environment, Great Lakes, and Energy
 ft. bgs Feet below ground surface
 J Reported value is estimated
 NA Not analyzed
 SVMP Soil vapor monitoring point
 $\mu\text{g}/\text{m}^3$ Micrograms per cubic meter
 USEPA United States Environmental Protection Agency
 VIAC Volatilization to indoor air criteria

Table 11
 Residential Soil Analytical Results
 Ford Livonia Transmission Plant
 36200 Plymouth Road
 Livonia, Michigan



Location:	Residential SSVIAC Criteria (2018)	SB-138	SB-138	SB-138	SB-138	SB-138	SB-138	SB-138	SB-139	SB-139	SB-139	SB-139	SB-139	SB-139	SB-140	SB-140	SB-140	SB-140	SB-140	SB-140	SB-141	SB-141	SB-141	
Sample Depth (ft. bgs):		0.5-1	1-2	2-3	3-4	4-5	6-7	6-7	0.5-1	1-2	2-3	3-4	5-6	6-7	0.5-1	1-2	2-3	3-4	5-6	6-7	6-7	0.5-1	1-2	2-3
Sample Date:		7/27/2020	7/27/2020	7/27/2020	7/27/2020	7/27/2020	7/27/2020	7/27/2020	7/27/2020	7/27/2020	7/27/2020	7/27/2020	7/27/2020	7/27/2020	7/27/2020	7/27/2020	7/27/2020	7/27/2020	7/27/2020	7/27/2020	7/28/2020	7/28/2020	7/28/2020	
Volatile Organic Compounds (VOCs)																								
1,1-Dichloroethene	12	< 60	< 48	< 59	< 56	< 59	< 50	< 55	< 54	< 52	< 60	< 55	< 51	< 58	< 58	< 45	< 52	< 46	< 49	< 55	< 49	< 47	< 42	< 45
1,4-Dioxane	360	< 19,000	< 15,000	< 18,000	< 18,000	< 18,000	< 15,000	< 17,000	< 17,000	< 16,000	< 19,000	< 17,000	< 16,000	< 18,000	< 18,000	< 14,000	< 16,000	< 14,000	< 15,000	< 17,000	< 15,000	< 15,000	< 13,000	< 14,000
cis-1,2-Dichloroethene	2.1	< 60	< 48	< 59	< 56	< 59	< 50	< 55	< 54	< 52	< 60	< 55	< 51	< 58	< 58	< 45	< 52	< 46	< 49	< 55	< 49	< 47	< 42	< 45
Tetrachloroethene	6.2	1,800	480 J	270	< 56	140	< 50	< 55	740 J	3,100	350 J	< 55	86	140	1,000	1,500	1,300	300	< 49	98	65	< 47	< 42	< 45
trans-1,2-Dichloroethene	12	< 60 B	< 48	< 59	< 56	< 59	< 50	< 55	< 54	< 52	< 60	< 55	< 51	< 58	< 58	< 45	< 52	< 46	< 49	< 55	< 49	< 47	< 42	< 45
Trichloroethene	0.33	< 60	< 48	< 59	< 56	< 59	< 50	< 55	< 54	37 J	< 60	< 55	< 51	< 58	< 58	< 45	< 52	35 J	< 49	< 55	< 49	< 47	< 42	< 45
Vinyl chloride	0.082	< 48	< 38	< 47	< 45	< 47	< 40	< 44	< 43	< 42	< 48	< 44	< 41	< 46	< 46	< 36	< 41	< 37	< 39	< 44	< 39	< 38	< 34	< 36

See Notes on last page.

Table 11
 Residential Soil Analytical Results
 Ford Livonia Transmission Plant
 36200 Plymouth Road
 Livonia, Michigan



Location:	Residential SSVIAC Criteria (2018)	SB-141	SB-141	SB-141	SB-141	SB-141	SB-142	SB-142	SB-142	SB-142	SB-142	SB-142	SB-142	SB-142	SB-142	SB-143	SB-143	SB-143	SB-143	SB-143	SB-143	SB-143	SB-143	TMW-20-01	TMW-20-01
Sample Depth (ft. bgs):		3-4	4-5	5-6	6-7	7-8	0.5-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	0.5-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	0.5-1	1-2	
Sample Date:		7/28/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020	7/27/2020	7/27/2020	
Volatile Organic Compounds (VOCs)																									
1,1-Dichloroethene	12	< 43	< 44	< 45	< 43	< 48	< 44	< 43	< 44	< 39	< 44	< 48	< 43	< 46	< 44	< 42	< 45	< 43	< 43	< 43	< 46	< 55	< 58	< 55	
1,4-Dioxane	360	< 13,000	< 14,000	< 14,000	< 14,000	< 15,000	< 14,000	< 13,000	< 14,000	< 12,000	< 14,000	< 15,000	< 13,000	< 14,000	< 14,000	< 13,000	< 14,000	< 13,000	< 14,000	< 13,000	< 15,000	< 17,000	< 18,000	< 17,000	
cis-1,2-Dichloroethene	2.1	< 43	< 44	< 45	< 43	< 48	< 44	< 43	< 44	14 J	< 44	< 48	< 43	< 46	< 44	< 42	< 45	< 43	< 43	< 43	< 46	< 55	< 58	< 55	
Tetrachloroethene	6.2	< 43	< 44	< 45	< 43	< 48	< 44	< 43	< 44	19 J	< 44	< 48	< 43	< 46	< 44	< 42	< 45	< 43	< 43	< 43	< 46	< 55	490	1,200	
trans-1,2-Dichloroethene	12	< 43	< 44	< 45	< 43	< 48	< 44	< 43	< 44	24 J	< 44	< 48	< 43	< 46	< 44	< 42	< 45	< 43	< 43	< 43	< 46	< 55	< 58	< 55	
Trichloroethene	0.33	< 43	< 44	< 45	< 43	< 48	< 44	< 43	< 44	13 J	< 44	< 48	< 43	< 46	< 44	< 42	< 45	< 43	< 43	< 43	< 46	< 55	< 58	< 55	
Vinyl chloride	0.082	< 35	< 35	< 36	< 35	< 38	< 35	< 34	< 35	12 J	< 35	< 39	< 34	< 37	< 35	< 34	< 36	< 34	< 35	< 34	< 37	< 44	< 46	< 44	

See Notes on last page.

Table 11
 Residential Soil Analytical Results
 Ford Livonia Transmission Plant
 36200 Plymouth Road
 Livonia, Michigan



Location:	Residential	TMW-20-01	TMW-20-01	TMW-20-01	TMW-20-01	TMW-20-01	TMW-20-02	TMW-20-02	TMW-20-02	TMW-20-02	TMW-20-02	TMW-20-02	TMW-20-02	TMW-20-02	TMW-20-02
Sample Depth (ft. bgs):	SSVIAC	2-3	3-4	4-5	5-6	6-7	0.5-1	1-2	2-3	3-4	4-5	5-6	6-7	6-7	7-8
Sample Date:	Criteria (2018)	7/27/2020	7/27/2020	7/27/2020	7/27/2020	7/27/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020
Volatile Organic Compounds (VOCs)															
1,1-Dichloroethene	12	< 67	< 76	< 52	< 56	< 49	< 45	< 45	< 48	< 42	< 45	< 49	< 45	< 47	< 46
1,4-Dioxane	360	< 21,000	< 24,000	< 16,000	< 18,000	< 15,000	< 14,000	< 14,000	< 15,000	< 13,000	< 14,000	< 15,000	< 14,000	< 15,000	< 14,000
cis-1,2-Dichloroethene	2.1	< 67	< 76	< 52	< 56	< 49	< 45	< 45	< 48	< 42	< 45	< 49	< 45	< 47	< 46
Tetrachloroethene	6.2	460	300 J	< 52	150	24 J	< 45	< 45	< 48	< 42	< 45	< 49	< 45	< 47	< 46
trans-1,2-Dichloroethene	12	< 67	< 76	< 52	< 56	< 49	< 45	< 45	< 48	< 42	< 45	< 49	< 45	< 47	< 46
Trichloroethene	0.33	< 67	< 76	< 52	< 56	< 49	< 45	< 45	< 48	< 42	< 45	< 49	< 45	< 47	< 46
Vinyl chloride	0.082	< 54	< 61	< 42	< 45	< 39	< 36	< 36	< 38	< 34	< 36	< 39	< 36	< 37	< 37

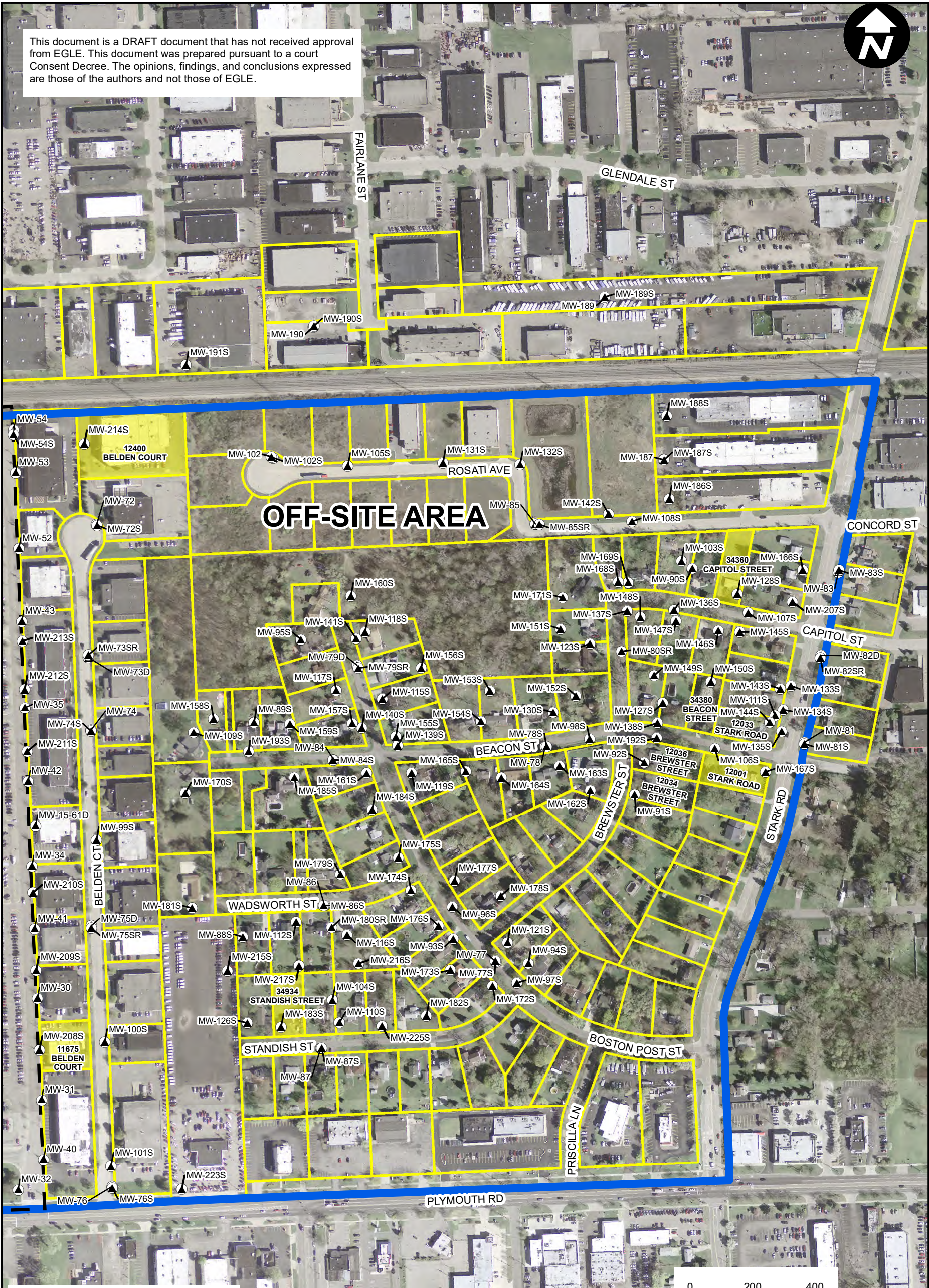
See Notes on last page.

Notes:
All units are measured in micrograms per kilogram ($\mu\text{g}/\text{kg}$).
Bold result denotes concentration was detected above reporting limit.
Shaded result denotes concentration exceeds Residential SSVIAC Criteria.
Site-Specific Residential Volatilization to Indoor Air Criteria (SSVIAC), applies to a residential house with a basement and is referenced in Table 9 of the Consent Decree dated October 30, 2018.
All samples were analyzed via USEPA Method 8260B, 8260B MI, or 8260B SIM.
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Abbreviations:
< Denotes non-detect result below reporting limit
B Compound was found in the blank and sample
ft. bgs Feet below ground surface
EGLE Michigan Department of Environment, Great Lakes, and Energy
J Reported value is estimated
SB Soil boring
TMW Temporary monitoring well
 $\mu\text{g}/\text{kg}$ Micrograms per kilogram
USEPA United States Environmental Protection Agency

Figures

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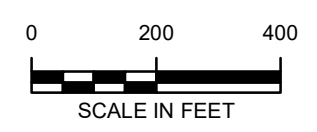


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LEGEND

- MONITORING WELL
- FORD PROPERTY BOUNDARY
- COMMERCIAL/RESIDENTIAL PROPERTY BOUNDARY
- AREA OF CONCERN
- COMMERCIAL/RESIDENTIAL PROPERTY OF FOCUS

NOTES:
EGLE = MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

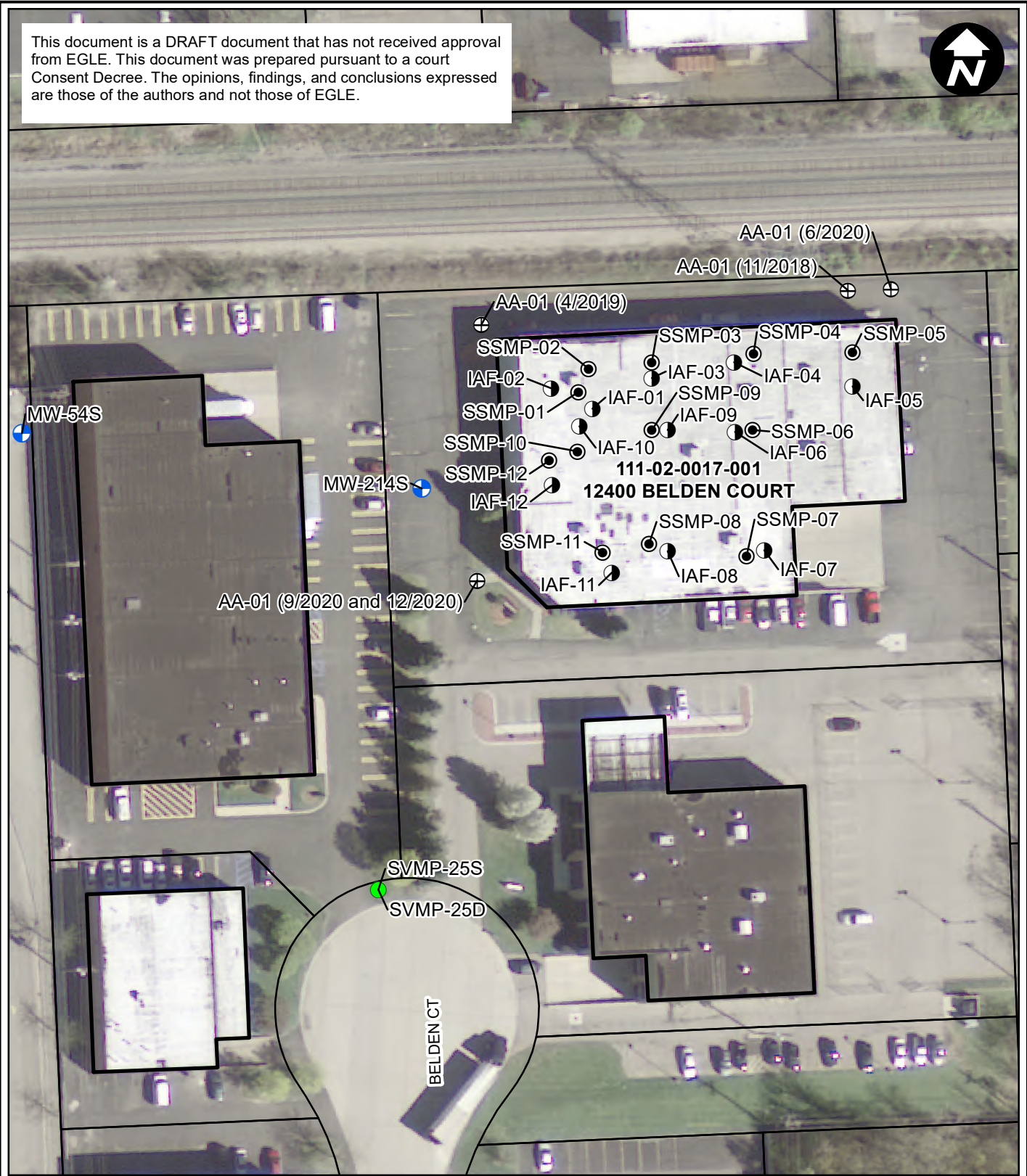


FORD MOTOR COMPANY
LIVONIA TRANSMISSION PLANT
LIVONIA, MICHIGAN

SITE LAYOUT

FIGURE
1

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CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY PROJECT NUMBER: 30050315 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
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LEGEND:

- MONITORING WELL LOCATION
- SOIL VAPOR MONITORING POINT
- INDOOR AIR LOCATION
- AMBIENT AIR LOCATION
- SUB-SLAB MONITORING POINT LOCATION
- BUILDING
- PROPERTY BOUNDARIES



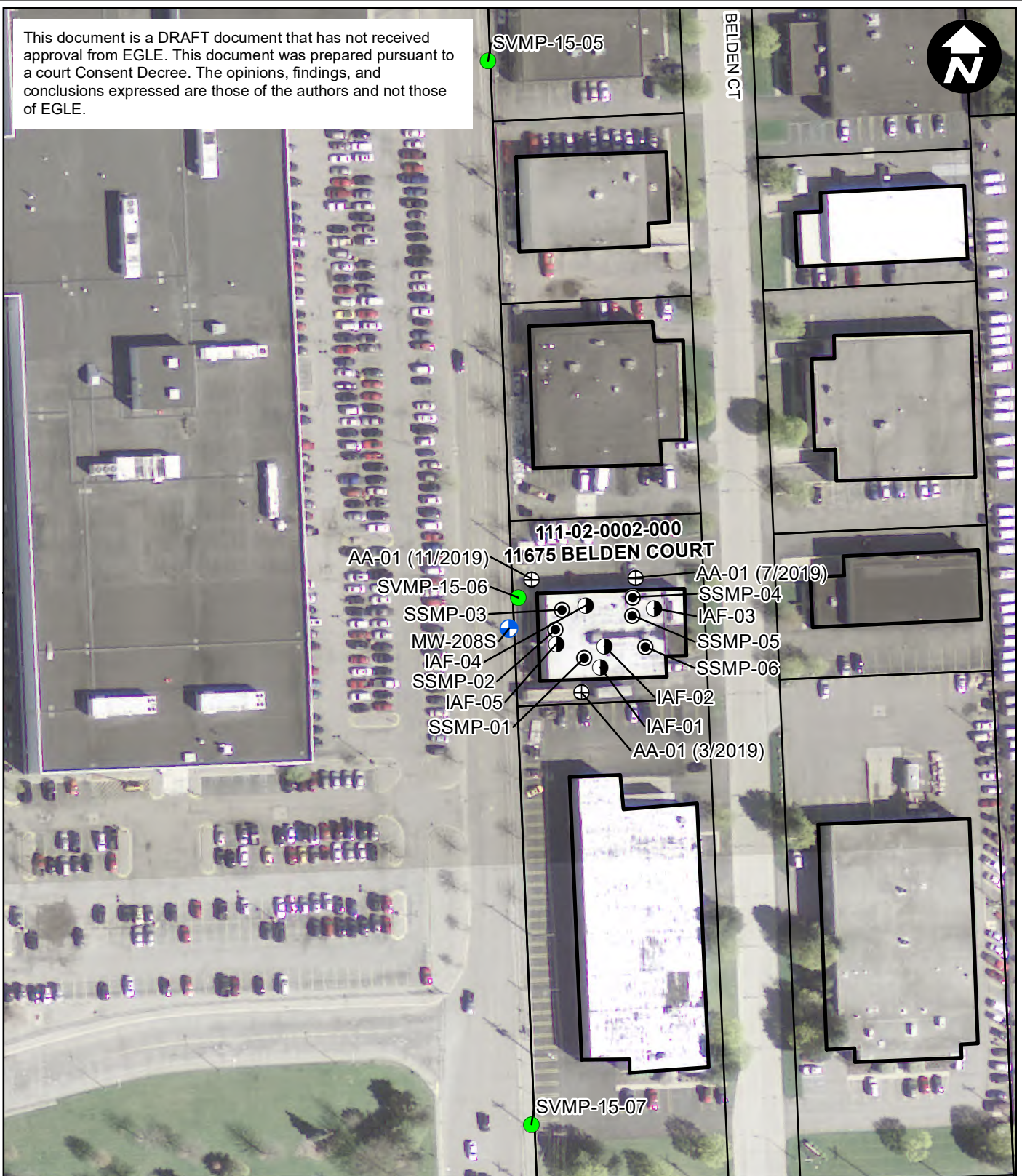
NOTES:
 1. VAPOR SAMPLE LOCATION IDENTIFICATION DOES NOT INCLUDE ADDRESS (STREET NAME AND NUMBER) FOR BREVITY.
 2. EGLE = MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

FORD MOTOR COMPANY
 LIVONIA TRANSMISSION PLANT
 LIVONIA, MICHIGAN

**12400 BELDEN COURT
 SAMPLING LOCATIONS**

FIGURE
2

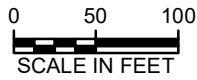
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CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY PROJECT NUMBER: 30050315 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet T:\ENVMov\Brighton_MIL\FordLivonia\GIS\docs\GEC\PCPE Memo Figures\Figures3_11675 Belden Court Locations_V1.mxd PLOTTED: 2/16/2021 3:51:25 PM BY: mai00749

LEGEND:

- MONITORING WELL LOCATION
- SOIL VAPOR MONITORING POINT
- INDOOR AIR LOCATION
- AMBIENT AIR LOCATION
- SUB-SLAB MONITORING POINT LOCATION
- BUILDING
- PROPERTY BOUNDARIES



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 1. VAPOR SAMPLE LOCATION IDENTIFICATION DOES NOT INCLUDE ADDRESS (STREET NAME AND NUMBER) FOR BREVITY.
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FORD MOTOR COMPANY
 LIVONIA TRANSMISSION PLANT
 LIVONIA, MICHIGAN

**11675 BELDEN COURT
 SAMPLING LOCATIONS**



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CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY PROJECT NUMBER: 30050315 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
 T:_ENV\Novi\Brighton_MilFord\Livonia\GIS\docs\GEC\PCPE Memo Figures\Figure4_12001 Stark Road Locations_V1.mxd PLOTTED: 2/17/2021 10:47:38 AM BY: mai00749

LEGEND:

- MONITORING WELL LOCATION
- INDOOR AIR LOCATION
- AMBIENT AIR LOCATION
- SUB-SLAB MONITORING POINT LOCATION
- BUILDING
- PROPERTY BOUNDARIES



NOTES:

1. VAPOR SAMPLE LOCATION IDENTIFICATION DOES NOT INCLUDE ADDRESS (STREET NAME AND NUMBER) FOR BREVITY.
2. EGLE = MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

FORD MOTOR COMPANY
 LIVONIA TRANSMISSION PLANT
 LIVONIA, MICHIGAN

**12001 STARK ROAD
 SAMPLING LOCATIONS**



FIGURE
4

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ROSATI AVE

111-01-0109-000
34360 CAPITOL STREET



CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY PROJECT NUMBER: 30050315 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
T:\ENVMov\Brighton_MilFord\Livonia\GIS\docs\GEC\PCPE Memo Figures\Figures_34360 Capitol Street Locations_V1.mxd PLOTTED: 2/10/2021 4:53:51 PM BY: mai00749

LEGEND:

- MONITORING WELL LOCATION
- SOIL VAPOR MONITORING POINT
- BORING LOCATIONS
- INDOOR AIR LOCATION
- AMBIENT AIR LOCATION
- SUB-SLAB MONITORING POINT LOCATION
- PROPERTY BOUNDARIES

BUILDING

0 15 30
SCALE IN FEET

NOTES:

1. VAPOR SAMPLE LOCATION IDENTIFICATION DOES NOT INCLUDE ADDRESS (STREET NAME AND NUMBER) FOR BREVITY.
2. EGLE = MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
3. SB = SOIL BORING
4. TMW = TEMPORARY MONITORING WELL

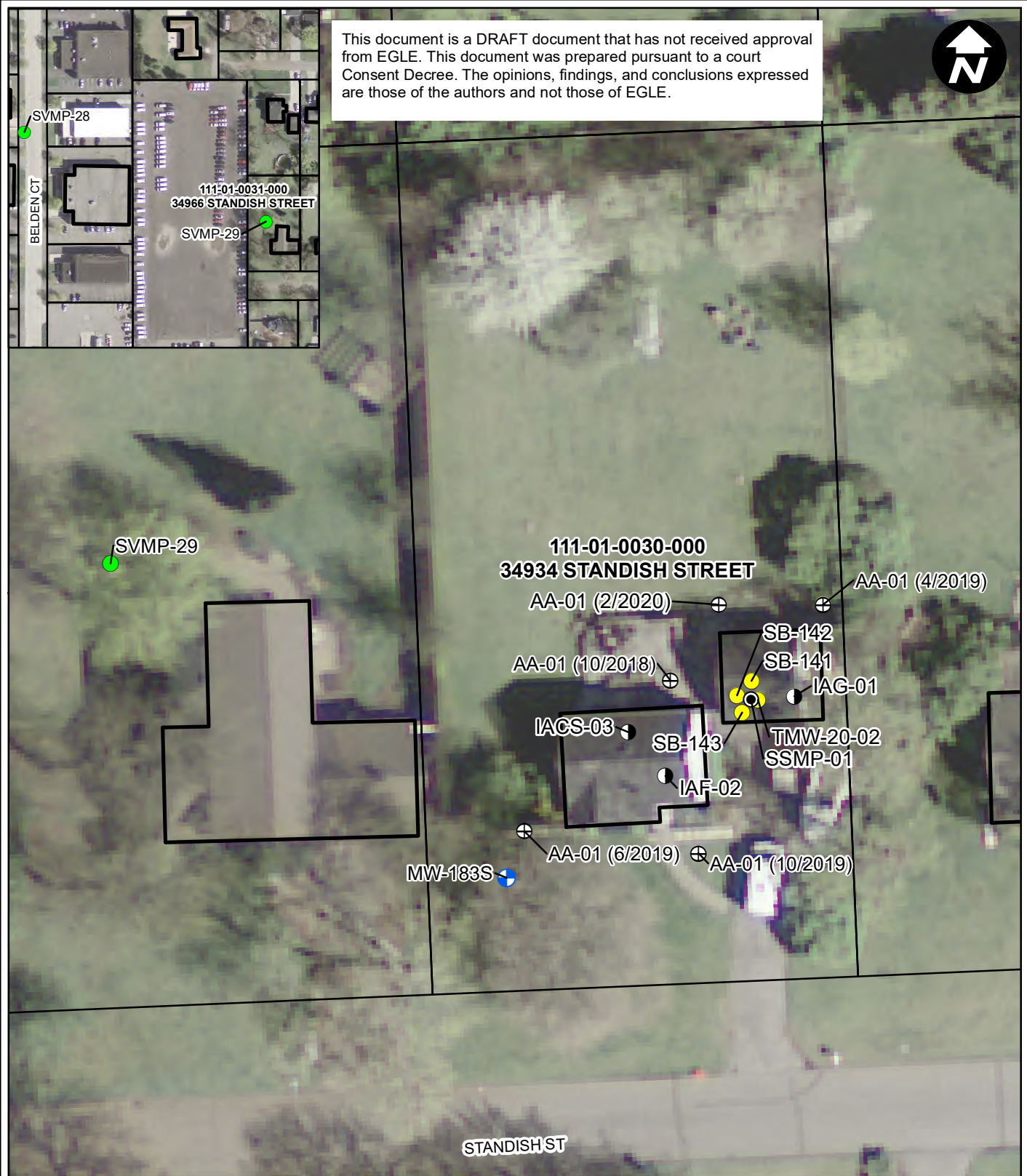
FORD MOTOR COMPANY
LIVONIA TRANSMISSION PLANT
LIVONIA, MICHIGAN

**34360 CAPITOL STREET
SAMPLING LOCATIONS**



FIGURE
5

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CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY PROJECT NUMBER: 30050315 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
 T:\ENVMov\Brighton_MIFord\Livonia\GIS\docs\GEC\PCPE Memo Figures\Figure6_34934 Standish Street Locations_V1.mxd PLOTTED: 2/10/2021 4:58:24 PM BY: mai00749

LEGEND:

- MONITORING WELL LOCATION
- SOIL VAPOR MONITORING POINT
- BORING LOCATIONS
- INDOOR AIR LOCATION
- AMBIENT AIR LOCATION
- SUB-SLAB MONITORING POINT LOCATION
- PROPERTY BOUNDARIES

BUILDING

0 15 30
SCALE IN FEET

- NOTES:**
1. VAPOR SAMPLE LOCATION IDENTIFICATION DOES NOT INCLUDE ADDRESS (STREET NAME AND NUMBER) FOR BREVITY.
 2. EGLE = MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
 3. SB = SOIL BORING
 4. TMW = TEMPORARY MONITORING WELL

FORD MOTOR COMPANY
 LIVONIA TRANSMISSION PLANT
 LIVONIA, MICHIGAN

**34934 STANDISH STREET
 SAMPLING LOCATIONS**



FIGURE
6

Attachment 1

**12400 Belden Court – Analytical Laboratory Reports,
24-hr Notices, Data Packages, Safety Data Sheets, and
Photo Log**

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-126085-1
Client Project/Site: Ford LTP Off Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
2/14/2020 3:47:41 PM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126085-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126085-1

Job ID: 240-126085-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Off Site

Report Number: 240-126085-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 2/11/2020 8:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.9° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-126085-1) and MW-214S_020720 (240-126085-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 02/13/2020.

The MS/MSD for batch 240-422674 was not analyzed due to an instrument malfunction: TRIP BLANK (240-126085-1) and MW-214S_020720 (240-126085-2).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-214S_020720 (240-126085-2) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 02/12/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126085-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126085-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-126085-1	TRIP BLANK	Water	02/07/20 00:00	02/11/20 08:40	
240-126085-2	MW-214S_020720	Water	02/07/20 12:50	02/11/20 08:40	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126085-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-126085-1

No Detections.

Client Sample ID: MW-214S_020720

Lab Sample ID: 240-126085-2

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off Site

Job ID: 240-126085-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-126085-1

Date Collected: 02/07/20 00:00

Matrix: Water

Date Received: 02/11/20 08:40

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/13/20 17:53	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/13/20 17:53	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/13/20 17:53	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/13/20 17:53	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/13/20 17:53	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/13/20 17:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		75 - 130		02/13/20 17:53	1
4-Bromofluorobenzene (Surr)	60		47 - 134		02/13/20 17:53	1
Toluene-d8 (Surr)	76		69 - 122		02/13/20 17:53	1
Dibromofluoromethane (Surr)	85		78 - 129		02/13/20 17:53	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126085-1

Client Sample ID: MW-214S_020720

Lab Sample ID: 240-126085-2

Date Collected: 02/07/20 12:50

Matrix: Water

Date Received: 02/11/20 08:40

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			02/12/20 15:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		70 - 133		02/12/20 15:27	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/13/20 18:15	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/13/20 18:15	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/13/20 18:15	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/13/20 18:15	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/13/20 18:15	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/13/20 18:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		75 - 130		02/13/20 18:15	1
4-Bromofluorobenzene (Surr)	62		47 - 134		02/13/20 18:15	1
Toluene-d8 (Surr)	77		69 - 122		02/13/20 18:15	1
Dibromofluoromethane (Surr)	87		78 - 129		02/13/20 18:15	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126085-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-126085-1	TRIP BLANK	90	60	76	85
240-126085-2	MW-214S_020720	92	62	77	87
LCS 240-422674/4	Lab Control Sample	88	80	85	93
MB 240-422674/7	Method Blank	91	68	79	87

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-133)
240-125920-I-2 MS	Matrix Spike	101
240-125920-I-2 MSD	Matrix Spike Duplicate	102
240-126085-2	MW-214S_020720	95
LCS 240-422563/4	Lab Control Sample	97
MB 240-422563/5	Method Blank	96

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off Site

Job ID: 240-126085-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-422674/7
Matrix: Water
Analysis Batch: 422674

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/13/20 11:42	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/13/20 11:42	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/13/20 11:42	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/13/20 11:42	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/13/20 11:42	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/13/20 11:42	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		75 - 130		02/13/20 11:42	1
4-Bromofluorobenzene (Surr)	68		47 - 134		02/13/20 11:42	1
Toluene-d8 (Surr)	79		69 - 122		02/13/20 11:42	1
Dibromofluoromethane (Surr)	87		78 - 129		02/13/20 11:42	1

Lab Sample ID: LCS 240-422674/4
Matrix: Water
Analysis Batch: 422674

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	11.2		ug/L		112	73 - 129
cis-1,2-Dichloroethene	10.0	11.1		ug/L		111	75 - 124
Tetrachloroethene	10.0	10.9		ug/L		109	70 - 125
trans-1,2-Dichloroethene	10.0	11.0		ug/L		110	74 - 130
Trichloroethene	10.0	11.3		ug/L		113	71 - 121
Vinyl chloride	10.0	7.68		ug/L		77	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	88		75 - 130
4-Bromofluorobenzene (Surr)	80		47 - 134
Toluene-d8 (Surr)	85		69 - 122
Dibromofluoromethane (Surr)	93		78 - 129

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-422563/5
Matrix: Water
Analysis Batch: 422563

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			02/12/20 14:10	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		70 - 133		02/12/20 14:10	1

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126085-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-422563/4
Matrix: Water
Analysis Batch: 422563

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	9.83		ug/L		98	80 - 135
Surrogate							
	%Recovery	LCS Qualifier	LCS Limits				
1,2-Dichloroethane-d4 (Surr)	97		70 - 133				

Lab Sample ID: 240-125920-I-2 MS
Matrix: Water
Analysis Batch: 422563

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	10.0	9.37		ug/L		94	46 - 170
Surrogate									
	%Recovery	MS Qualifier	MS Limits						
1,2-Dichloroethane-d4 (Surr)	101		70 - 133						

Lab Sample ID: 240-125920-I-2 MSD
Matrix: Water
Analysis Batch: 422563

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	2.0	U	10.0	10.5		ug/L		105	46 - 170	12	26
Surrogate											
	%Recovery	MSD Qualifier	MSD Limits								
1,2-Dichloroethane-d4 (Surr)	102		70 - 133								

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126085-1

GC/MS VOA

Analysis Batch: 422563

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-126085-2	MW-214S_020720	Total/NA	Water	8260B SIM	
MB 240-422563/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-422563/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-125920-I-2 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-125920-I-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 422674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-126085-1	TRIP BLANK	Total/NA	Water	8260B	
240-126085-2	MW-214S_020720	Total/NA	Water	8260B	
MB 240-422674/7	Method Blank	Total/NA	Water	8260B	
LCS 240-422674/4	Lab Control Sample	Total/NA	Water	8260B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126085-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-126085-1

Date Collected: 02/07/20 00:00

Matrix: Water

Date Received: 02/11/20 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	422674	02/13/20 17:53	LRW	TAL CAN

Client Sample ID: MW-214S_020720

Lab Sample ID: 240-126085-2

Date Collected: 02/07/20 12:50

Matrix: Water

Date Received: 02/11/20 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	422674	02/13/20 18:15	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	422563	02/12/20 15:27	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126085-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-20 *
Connecticut	State	PH-0590	12-31-19 *
Florida	NELAP	E87225	06-30-20
Georgia	State	4062	02-23-20 *
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-20
Kentucky (UST)	State	112225	02-23-20
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-20
New York	NELAP	10975	03-31-20
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-23-20 *
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-16-00404	12-28-19 *
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Canton



TestAmerica Michigan
 10448 Citation Drive
 Suite 200
 Brighton, MI 48116-6561
 phone 810.229.2763 fax

MICHIGAN
190

Chain of Custody Record

TestAmerica
 THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: DW NPDES RCRA Other:

Client Contact
 ARCADIS of Michigan
 28550 Cabot Drive Suite 500
 Novi, Michigan 48377
 (248)-994-2240 Phone
 (248)-994-2241 FAX
 Project Name: Ford LTP Off-Site
 Site: Ford LTP
 P O # 30042006 0402.02

Client Project Manager: Kris Hinskey
 Tel/Fax: 248-994-2240

Site Contact: Julia McClafferty
 Lab Contact: Mike DelMonico

Date: 2/7/20
 Carrier:

COC No. _____ of _____ COCs

Sampler Name: _____
 For Lab Use Only:
 Walk-in Client: _____
 Lab Sampling: _____
 Job / SDG No.: _____

Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Identification	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Vinyl Chloride 8260B	Chl-1,2-DCE 8260B	Trans-1,2-DCE 8260B	1,1-DCE 8260B	PCE 8260B	1,4-Dioxane 8260B SIM	Sample Specific Notes
---	---	G	W	1	TRIP BLANK									
MW-245	020720	G	W	6		X	X	X	X	X	X	X	X	1 VIA 3 WAS 8260B SIM 3 WAS 8260B



Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
 Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

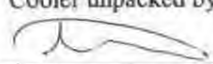

Non-Hazard Flammable Skin Irritant Poison B Unknown

Return to Client Disposal by Lab Archive for _____ Months

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Relinquished by	Relinquished by	Relinquished by	Custody Seal No.:	Company	Date/Time	Received by	Company	Date/Time	Therm ID No.:
<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>		ARCADIS	2/7/20 1700	<i>[Signature]</i>	ARCADIS	2/7/20 1700	
<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>		ARCADIS	2/7/20 1800	<i>[Signature]</i>	ARCADIS	2/7/20 1800	
<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>		ARCADIS	2/10/20 1320	<i>[Signature]</i>	ETA	2/10/20 1440	846



Eurofins TestAmerica Canton Sample Receipt Form/Narrative		Login # : <u>126085</u>
Canton Facility		
Client <u>Arcadis</u>	Site Name _____	Cooler unpacked by: 
Cooler Received on <u>2-11-20</u>	Opened on <u>2-11-20</u>	
FedEx: 1 st <input checked="" type="checkbox"/> Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other		
Receipt After-hours: Drop-off Date/Time		Storage Location
TestAmerica Cooler # <u>TA</u>	Foam Box _____	Client Cooler _____
Packing material used: Bubble Wrap _____ Foam _____ Plastic Bag _____ None _____ Other _____		
COOLANT: Wet Ice _____ Blue Ice _____ Dry Ice _____ Water _____ None _____		
1. Cooler temperature upon receipt <input type="checkbox"/> See Multiple Cooler Form		
IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. <u>1.2</u> °C Corrected Cooler Temp. <u>1.9</u> °C		
IR GUN #IR-11 (CF +0.9 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C		
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity <u>1</u> Yes No		
-Were the seals on the outside of the cooler(s) signed & dated? Yes No NA		
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes <u>No</u>		
-Were tamper/custody seals intact and uncompromised? Yes No NA		
3. Shippers' packing slip attached to the cooler(s)? Yes No		
4. Did custody papers accompany the sample(s)? Yes No		
5. Were the custody papers relinquished & signed in the appropriate place? Yes No		
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes <u>No</u>		
7. Did all bottles arrive in good condition (Unbroken)? Yes No		
8. Could all bottle labels be reconciled with the COC? Yes No		
9. Were correct bottle(s) used for the test(s) indicated? Yes No		
10. Sufficient quantity received to perform indicated analyses? Yes No		
11. Are these work share samples? Yes <u>No</u>		
If yes, Questions 12-16 have been checked at the originating laboratory.		
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No <u>NA</u> pH Strip Lot# <u>HC995364</u>		
13. Were VOAs on the COC? <u>Yes</u> No		
14. Were air bubbles >6 mm in any VOA vials?  Larger than this. Yes <u>No</u> NA		
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No		
16. Was a LL Hg or Me Hg trip blank present? Yes <u>No</u>		
Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other		
Concerning _____		

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES	Samples processed by: <u>AG</u>
<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	
18. SAMPLE CONDITION	
Sample(s) _____ were received after the recommended holding time had expired.	
Sample(s) _____ were received in a broken container.	
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)	
19. SAMPLE PRESERVATION	
Sample(s) _____ were further preserved in the laboratory.	
Time preserved: _____ Preservative(s) added/Lot number(s): _____	
VOA Sample Preservation - Date/Time VOAs Frozen: _____	

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-130753-1
Client Project/Site: Ford LTP Off-Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
6/8/2020 10:29:59 AM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

LINKS

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results through
TotalAccess

Have a Question?



Visit us at:
www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130753-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130753-1

Job ID: 240-130753-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Off-Site

Report Number: 240-130753-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 5/22/2020 9:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.0° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-130753-1) and MW-214S_052020 (240-130753-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 06/01/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-214S_052020 (240-130753-2) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 06/02/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130753-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130753-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-130753-1	TRIP BLANK	Water	05/20/20 00:00	05/22/20 09:20	
240-130753-2	MW-214S_052020	Water	05/20/20 13:40	05/22/20 09:20	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130753-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-130753-1

No Detections.

Client Sample ID: MW-214S_052020

Lab Sample ID: 240-130753-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.1	J	2.0	0.86	ug/L	1		8260B SIM	Total/NA

This Detection Summary does not include radiochemical test results.

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Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off-Site

Job ID: 240-130753-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-130753-1

Date Collected: 05/20/20 00:00

Matrix: Water

Date Received: 05/22/20 09:20

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 19:52	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/01/20 19:52	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/01/20 19:52	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 19:52	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/01/20 19:52	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/01/20 19:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		75 - 130		06/01/20 19:52	1
4-Bromofluorobenzene (Surr)	83		47 - 134		06/01/20 19:52	1
Toluene-d8 (Surr)	88		69 - 122		06/01/20 19:52	1
Dibromofluoromethane (Surr)	89		78 - 129		06/01/20 19:52	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off-Site

Job ID: 240-130753-1

Client Sample ID: MW-214S_052020

Lab Sample ID: 240-130753-2

Date Collected: 05/20/20 13:40

Matrix: Water

Date Received: 05/22/20 09:20

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.1	J	2.0	0.86	ug/L			06/02/20 09:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		70 - 133		06/02/20 09:32	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 20:16	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/01/20 20:16	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/01/20 20:16	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 20:16	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/01/20 20:16	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/01/20 20:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		75 - 130		06/01/20 20:16	1
4-Bromofluorobenzene (Surr)	82		47 - 134		06/01/20 20:16	1
Toluene-d8 (Surr)	87		69 - 122		06/01/20 20:16	1
Dibromofluoromethane (Surr)	88		78 - 129		06/01/20 20:16	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130753-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-130751-D-2 MS	Matrix Spike	86	89	89	88
240-130751-E-2 MSD	Matrix Spike Duplicate	86	90	90	90
240-130753-1	TRIP BLANK	92	83	88	89
240-130753-2	MW-214S_052020	92	82	87	88
LCS 240-436358/4	Lab Control Sample	90	92	93	91
MB 240-436358/7	Method Blank	92	83	88	89

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-133)
240-130753-2	MW-214S_052020	94
240-130793-C-2 MS	Matrix Spike	103
240-130793-C-2 MSD	Matrix Spike Duplicate	102
LCS 240-436445/4	Lab Control Sample	93
MB 240-436445/5	Method Blank	93

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130753-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-436358/7
Matrix: Water
Analysis Batch: 436358

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 13:54	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/01/20 13:54	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/01/20 13:54	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 13:54	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/01/20 13:54	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/01/20 13:54	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		75 - 130		06/01/20 13:54	1
4-Bromofluorobenzene (Surr)	83		47 - 134		06/01/20 13:54	1
Toluene-d8 (Surr)	88		69 - 122		06/01/20 13:54	1
Dibromofluoromethane (Surr)	89		78 - 129		06/01/20 13:54	1

Lab Sample ID: LCS 240-436358/4
Matrix: Water
Analysis Batch: 436358

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	9.84		ug/L		98	73 - 129
cis-1,2-Dichloroethene	10.0	9.82		ug/L		98	75 - 124
Tetrachloroethene	10.0	10.9		ug/L		109	70 - 125
trans-1,2-Dichloroethene	10.0	10.3		ug/L		103	74 - 130
Trichloroethene	10.0	10.1		ug/L		101	71 - 121
Vinyl chloride	10.0	8.13		ug/L		81	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	90		75 - 130
4-Bromofluorobenzene (Surr)	92		47 - 134
Toluene-d8 (Surr)	93		69 - 122
Dibromofluoromethane (Surr)	91		78 - 129

Lab Sample ID: 240-130751-D-2 MS
Matrix: Water
Analysis Batch: 436358

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U	10.0	9.22		ug/L		92	64 - 132
cis-1,2-Dichloroethene	1.0	U	10.0	9.36		ug/L		94	68 - 121
Tetrachloroethene	1.0	U	10.0	10.1		ug/L		101	52 - 129
trans-1,2-Dichloroethene	1.0	U	10.0	9.56		ug/L		96	69 - 126
Trichloroethene	1.0	U	10.0	9.39		ug/L		94	56 - 124
Vinyl chloride	1.0	U	10.0	7.84		ug/L		78	49 - 136

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	86		75 - 130
4-Bromofluorobenzene (Surr)	89		47 - 134
Toluene-d8 (Surr)	89		69 - 122

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QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130753-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-130751-D-2 MS
Matrix: Water
Analysis Batch: 436358

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	88		78 - 129

Lab Sample ID: 240-130751-E-2 MSD
Matrix: Water
Analysis Batch: 436358

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	10.0	9.31		ug/L		93	64 - 132	1	35
cis-1,2-Dichloroethene	1.0	U	10.0	9.57		ug/L		96	68 - 121	2	35
Tetrachloroethene	1.0	U	10.0	10.1		ug/L		101	52 - 129	1	35
trans-1,2-Dichloroethene	1.0	U	10.0	9.88		ug/L		99	69 - 126	3	35
Trichloroethene	1.0	U	10.0	9.31		ug/L		93	56 - 124	1	35
Vinyl chloride	1.0	U	10.0	7.86		ug/L		79	49 - 136	0	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	86		75 - 130
4-Bromofluorobenzene (Surr)	90		47 - 134
Toluene-d8 (Surr)	90		69 - 122
Dibromofluoromethane (Surr)	90		78 - 129

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-436445/5
Matrix: Water
Analysis Batch: 436445

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			06/02/20 05:36	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		70 - 133		06/02/20 05:36	1

Lab Sample ID: LCS 240-436445/4
Matrix: Water
Analysis Batch: 436445

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	9.10		ug/L		91	80 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	93		70 - 133

Lab Sample ID: 240-130793-C-2 MS
Matrix: Water
Analysis Batch: 436445

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	1.9	J	10.0	10.7		ug/L		89	46 - 170

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off-Site

Job ID: 240-130753-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	103		70 - 133

Lab Sample ID: 240-130793-C-2 MSD
Matrix: Water
Analysis Batch: 436445

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
1,4-Dioxane	1.9	J	10.0	10.7		ug/L		89	46 - 170	0	26

<i>Surrogate</i>	<i>%Recovery</i>	<i>MSD MSD Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	102		70 - 133



QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130753-1

GC/MS VOA

Analysis Batch: 436358

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-130753-1	TRIP BLANK	Total/NA	Water	8260B	
240-130753-2	MW-214S_052020	Total/NA	Water	8260B	
MB 240-436358/7	Method Blank	Total/NA	Water	8260B	
LCS 240-436358/4	Lab Control Sample	Total/NA	Water	8260B	
240-130751-D-2 MS	Matrix Spike	Total/NA	Water	8260B	
240-130751-E-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Analysis Batch: 436445

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-130753-2	MW-214S_052020	Total/NA	Water	8260B SIM	
MB 240-436445/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-436445/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-130793-C-2 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-130793-C-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130753-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-130753-1

Date Collected: 05/20/20 00:00

Matrix: Water

Date Received: 05/22/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	436358	06/01/20 19:52	LRW	TAL CAN

Client Sample ID: MW-214S_052020

Lab Sample ID: 240-130753-2

Date Collected: 05/20/20 13:40

Matrix: Water

Date Received: 05/22/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	436358	06/01/20 20:16	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	436445	06/02/20 09:32	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130753-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-20
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-20
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

Chain of Custody Record

TestAmerica Laboratory location: Brighton --- 10448 Claiton Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Client Contact Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other		Site Contact: Julia McClafferty Telephone: 734-644-5131		Lab Contact: Mike DeMonico Telephone: 330-497-9396		TestAmerica Laboratories, Inc. COC No:	
Client Project Manager: Kris Hinsley Telephone: 248-994-2240 Email: kristoffer.hinsley@arcadis.com		Analysis Turnaround Time TAT if different than below: 10 day <input checked="" type="checkbox"/> 3 weeks 1 week <input type="checkbox"/> 2 weeks 2 days <input type="checkbox"/> 1 day		Analysis Vinyl Chloride 8260B TCE 8260B PCE 8260B Trans-1,2-DCE 8260B cis-1,2-DCE 8260B 1,1-DCE 8260B Composite C / Grab C		Walk-in client Lab sampling Job/SDG No:		Sample Specific Notes / Special Instructions:	
Sampler Name: RACHEL BIELAK		Containers & Preservatives H2SO4 HNO3 HCl NaOH ZnAc NaOH Other:		Filtered Sample (Y / N) Y		1,4-Dioxane 8260B SIM		1 TRIP BLANK 3 VOAs for 8260B 3 VOAs for 8260B SIM	
Method of Shipment/Carrier: Shipping/Tracking No:		Matrix Solid Sediment Aqueous Air Other:		Sample Date Sample Time		Date/Time:		Date/Time:	
Sample Identification TRIP BLANK MW-2145-052020		Sample Date Sample Time 5/20/20 1340		Date/Time: 5/20/20 1620		Date/Time: 5/21/20 8:54		Date/Time: 5/20/20 900	
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Irritant <input type="checkbox"/> Inflammable <input type="checkbox"/> Corrosive		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		Company: Arcadis Received by: NAVI GOLD STORAGE Received by: [Signature]		Company: Arcadis Received by: [Signature]		Company: Arcadis Received by: [Signature]	
Special Instructions/QC Requirements & Comments: 240-130753 Chain of Custody		Company: Arcadis Received by: [Signature]		Company: Arcadis Received by: [Signature]		Company: Arcadis Received by: [Signature]		Company: Arcadis Received by: [Signature]	

Submit all results through Cadena at jtomalia@cadenaco.com, Cadena #E203631
 Level IV Reporting requested.



Eurofins TestAmerica Canton Sample Receipt Form/Narrative

Login # : 130753

Canton Facility

Client Aradix Site Name _____ Cooler unpacked by: Adam Jensen
 Cooler Received on 5-22-20 Opened on 5-22-20
 FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # 78 Foam Box Client Cooler Box Other _____
 Packing material used: Bubble Wrap Foam Plastic Bag None Other _____
 COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. 13 °C Corrected Cooler Temp. 26 °C
 IR GUN #IR-11 (CF +0.9 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
 If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC902937
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? Yes No NA Larger than this
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # W1970E Yes No
16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:
 VOAs
 Oil and Grease
 TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____
 Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: PL

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____
 VOA Sample Preservation - Date/Time VOAs Frozen: _____

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-134796-1
Client Project/Site: Ford LTP Off-Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
8/25/2020 4:14:37 PM
Opal Johnson, Project Manager II
(330)966-9279

Opal.Johnson@Eurofinset.com

Designee for

Michael DelMonico, Project Manager I
(330)497-9396

Michael.DelMonico@Eurofinset.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:

www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134796-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134796-1

Job ID: 240-134796-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Off-Site

Report Number: 240-134796-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 8/12/2020 9:30 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 5.2° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-134796-1) and MW-214S_081020 (240-134796-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 08/20/2020.

Sample MW-214S_081020 (240-134796-2)[5X] required dilution prior to analysis due to foaming at the time of purging during the original sample analysis.. The reporting limits have been adjusted accordingly.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-214S_081020 (240-134796-2) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 08/18/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134796-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134796-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-134796-1	TRIP BLANK	Water	08/10/20 00:00	08/12/20 09:30	
240-134796-2	MW-214S_081020	Water	08/10/20 11:30	08/12/20 09:30	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134796-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134796-1

No Detections.

Client Sample ID: MW-214S_081020

Lab Sample ID: 240-134796-2

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off-Site

Job ID: 240-134796-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134796-1

Date Collected: 08/10/20 00:00

Matrix: Water

Date Received: 08/12/20 09:30

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/20/20 16:14	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/20/20 16:14	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/20/20 16:14	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/20/20 16:14	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/20/20 16:14	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/20/20 16:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		75 - 130		08/20/20 16:14	1
4-Bromofluorobenzene (Surr)	96		47 - 134		08/20/20 16:14	1
Toluene-d8 (Surr)	89		69 - 122		08/20/20 16:14	1
Dibromofluoromethane (Surr)	87		78 - 129		08/20/20 16:14	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134796-1

Client Sample ID: MW-214S_081020

Lab Sample ID: 240-134796-2

Date Collected: 08/10/20 11:30

Matrix: Water

Date Received: 08/12/20 09:30

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/18/20 19:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		70 - 133		08/18/20 19:56	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	5.0	U	5.0	2.3	ug/L			08/20/20 19:34	5
cis-1,2-Dichloroethene	5.0	U	5.0	1.9	ug/L			08/20/20 19:34	5
Tetrachloroethene	5.0	U	5.0	1.6	ug/L			08/20/20 19:34	5
trans-1,2-Dichloroethene	5.0	U	5.0	2.2	ug/L			08/20/20 19:34	5
Trichloroethene	5.0	U	5.0	1.8	ug/L			08/20/20 19:34	5
Vinyl chloride	5.0	U	5.0	2.5	ug/L			08/20/20 19:34	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		75 - 130		08/20/20 19:34	5
4-Bromofluorobenzene (Surr)	99		47 - 134		08/20/20 19:34	5
Toluene-d8 (Surr)	91		69 - 122		08/20/20 19:34	5
Dibromofluoromethane (Surr)	83		78 - 129		08/20/20 19:34	5

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134796-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA	BFB	TOL	DBFM
		(75-130)	(47-134)	(69-122)	(78-129)
240-134796-1	TRIP BLANK	90	96	89	87
240-134796-2	MW-214S_081020	90	99	91	83
240-134797-C-2 MS	Matrix Spike	93	103	91	86
240-134797-F-2 MSD	Matrix Spike Duplicate	92	99	93	87
LCS 240-448008/4	Lab Control Sample	93	102	94	89
MB 240-448008/7	Method Blank	91	98	90	88

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA
		(70-133)
240-134734-A-3 MS	Matrix Spike	91
240-134734-A-3 MSD	Matrix Spike Duplicate	92
240-134796-2	MW-214S_081020	94
LCS 240-447609/4	Lab Control Sample	83
MB 240-447609/5	Method Blank	87

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134796-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-448008/7
Matrix: Water
Analysis Batch: 448008

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/20/20 15:00	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/20/20 15:00	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/20/20 15:00	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/20/20 15:00	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/20/20 15:00	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/20/20 15:00	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		75 - 130		08/20/20 15:00	1
4-Bromofluorobenzene (Surr)	98		47 - 134		08/20/20 15:00	1
Toluene-d8 (Surr)	90		69 - 122		08/20/20 15:00	1
Dibromofluoromethane (Surr)	88		78 - 129		08/20/20 15:00	1

Lab Sample ID: LCS 240-448008/4
Matrix: Water
Analysis Batch: 448008

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	8.99		ug/L		90	73 - 129
cis-1,2-Dichloroethene	10.0	9.00		ug/L		90	75 - 124
Tetrachloroethene	10.0	10.2		ug/L		102	70 - 125
trans-1,2-Dichloroethene	10.0	9.05		ug/L		91	74 - 130
Trichloroethene	10.0	9.61		ug/L		96	71 - 121
Vinyl chloride	10.0	10.9		ug/L		109	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	93		75 - 130
4-Bromofluorobenzene (Surr)	102		47 - 134
Toluene-d8 (Surr)	94		69 - 122
Dibromofluoromethane (Surr)	89		78 - 129

Lab Sample ID: 240-134797-C-2 MS
Matrix: Water
Analysis Batch: 448008

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U	10.0	8.88		ug/L		89	64 - 132
cis-1,2-Dichloroethene	1.0	U	10.0	8.85		ug/L		88	68 - 121
Tetrachloroethene	1.0	U	10.0	8.92		ug/L		89	52 - 129
trans-1,2-Dichloroethene	1.0	U	10.0	8.92		ug/L		89	69 - 126
Trichloroethene	1.0	U	10.0	8.49		ug/L		85	56 - 124
Vinyl chloride	1.0	U	10.0	11.1		ug/L		111	49 - 136

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	93		75 - 130
4-Bromofluorobenzene (Surr)	103		47 - 134
Toluene-d8 (Surr)	91		69 - 122

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134796-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-134797-C-2 MS
Matrix: Water
Analysis Batch: 448008

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	86		78 - 129

Lab Sample ID: 240-134797-F-2 MSD
Matrix: Water
Analysis Batch: 448008

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	10.0	8.93		ug/L		89	64 - 132	1	35
cis-1,2-Dichloroethene	1.0	U	10.0	9.16		ug/L		92	68 - 121	3	35
Tetrachloroethene	1.0	U	10.0	8.81		ug/L		88	52 - 129	1	35
trans-1,2-Dichloroethene	1.0	U	10.0	8.89		ug/L		89	69 - 126	0	35
Trichloroethene	1.0	U	10.0	8.99		ug/L		90	56 - 124	6	35
Vinyl chloride	1.0	U	10.0	11.1		ug/L		111	49 - 136	0	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	92		75 - 130
4-Bromofluorobenzene (Surr)	99		47 - 134
Toluene-d8 (Surr)	93		69 - 122
Dibromofluoromethane (Surr)	87		78 - 129

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-447609/5
Matrix: Water
Analysis Batch: 447609

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/18/20 11:05	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		70 - 133		08/18/20 11:05	1

Lab Sample ID: LCS 240-447609/4
Matrix: Water
Analysis Batch: 447609

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	10.6		ug/L		106	80 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	83		70 - 133

Lab Sample ID: 240-134734-A-3 MS
Matrix: Water
Analysis Batch: 447609

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	10.0	10.3		ug/L		103	46 - 170

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off-Site

Job ID: 240-134796-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>MS</i> <i>%Recovery</i>	<i>MS</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	91		70 - 133

Lab Sample ID: 240-134734-A-3 MSD
Matrix: Water
Analysis Batch: 447609

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

<i>Analyte</i>	<i>Sample</i> <i>Result</i>	<i>Sample</i> <i>Qualifier</i>	<i>Spike</i> <i>Added</i>	<i>MSD</i> <i>Result</i>	<i>MSD</i> <i>Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec.</i> <i>Limits</i>	<i>RPD</i>	<i>RPD</i> <i>Limit</i>
1,4-Dioxane	2.0	U	10.0	10.1		ug/L		101	46 - 170	1	26

<i>Surrogate</i>	<i>MSD</i> <i>%Recovery</i>	<i>MSD</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	92		70 - 133

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QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134796-1

GC/MS VOA

Analysis Batch: 447609

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134796-2	MW-214S_081020	Total/NA	Water	8260B SIM	
MB 240-447609/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-447609/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-134734-A-3 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-134734-A-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 448008

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134796-1	TRIP BLANK	Total/NA	Water	8260B	
240-134796-2	MW-214S_081020	Total/NA	Water	8260B	
MB 240-448008/7	Method Blank	Total/NA	Water	8260B	
LCS 240-448008/4	Lab Control Sample	Total/NA	Water	8260B	
240-134797-C-2 MS	Matrix Spike	Total/NA	Water	8260B	
240-134797-F-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134796-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134796-1

Date Collected: 08/10/20 00:00

Matrix: Water

Date Received: 08/12/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	448008	08/20/20 16:14	LRW	TAL CAN

Client Sample ID: MW-214S_081020

Lab Sample ID: 240-134796-2

Date Collected: 08/10/20 11:30

Matrix: Water

Date Received: 08/12/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	448008	08/20/20 19:34	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	447609	08/18/20 19:56	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134796-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-20 *
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Canton

Chain of Custody Record

TestAmerica Laboratory location: Brighton — 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Client Contact Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other	
Client Project Manager: Kris Hinskey Telephone: 248-994-2240 Email: kristoffer.hinskey@arcadis.com		Lab Contact: Mike DelMonico Telephone: 330-497-9396	
Project Name: Ford LTP Off-Site Project Number: 30050315.402.04 PO # 30050315.402.04		Analysis Turnaround Time TAT (if different from below): <u>10 day</u> <input type="checkbox"/> 3 weeks <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day	
Sampler Name: Emma Witherspoon Method of Shipment/Carrier: Shipping/Tracking No:		Containers & Preservatives H2SO4 _____ HNO3 _____ HCl _____ NaOH _____ NaOBr _____ Utraps _____ Other: _____	
Sample Identification TRIP BLANK MW-2145-081020		Matrix Aqueous <input checked="" type="checkbox"/> _____ Sediment _____ Solid _____ Other: _____	
Sample Date: 8/10/20 Sample Time: 1130		Filtered Sample (Y/N) Composite=C / Grab=G 1-DCE 8260B _____ Cis-1,2-DCE 8260B _____ Trans-1,2-DCE 8260B _____ PCE 8260B _____ TCE 8260B _____ Vinyl Chloride 8260B _____ 1,4-Dioxane 8260B SIM _____	
Date: 8/10/20 Time: 1130		Analyses Walk-in client _____ Lab sampling _____ Job/SDG No. _____	
Sample Specific Notes / Special Instructions: TRIP BLANK 113 vials for 8260B 3 vials for 8260B SIM		Date: 8/10/20 / 1500 Date: 8/11/20 / 1415 Date: 8-12-20 / 950	



Possible Hazard Identification
 Non-Hazard Flammable Irritant Poison B Unknown

Special Instructions/OC Requirements & Comments:
 Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal By Lab Archive For _____ Months

Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203631 Level IV Reporting requested.

Relinquished by: *Emma Witherspoon* Date/Time: 8/10/20 / 1500
 Company: Arcadis
 Relinquished by: *Kris Hinskey* Date/Time: 8/11/20 / 1415
 Company: Arcadis
 Relinquished by: *Jenifer* Date/Time: 8/12/20 / 950
 Company: ETA

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Eurofins TestAmerica Canton Sample Receipt Form/Narrative

Login # : 134796

Canton Facility

Client Arcadis

Site Name _____

Cooler unpacked by: _____

Cooler Received on 8-12-20

Opened on 8-12-20 930

Ryan C

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time

Storage Location _____

TestAmerica Cooler # TA Foam Box Client Cooler Box Other _____

Packing material used: Bubble Wrap Foam Plastic Bag None Other _____

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN #IR-11 (CF +0.9°C) Observed Cooler Temp. 4.5 °C Corrected Cooler Temp. 5.2 °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 2 Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
 If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC911298
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? Larger than this. Yes No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No
16. Was a LL Hg or Me Hg trip blank present? _____ Yes No

Tests that are not checked for pH by Receiving:
 VOAs
 Oil and Grease
 TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: _____

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-139780-1
Client Project/Site: Ford LTP - Off Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
11/23/2020 11:12:07 AM

Michael DelMonico, Project Manager I
(330)497-9396
Michael.DelMonico@Eurofinset.com

LINKS

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results through
TotalAccess

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Visit us at:

www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139780-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139780-1

Job ID: 240-139780-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP - Off Site

Report Number: 240-139780-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 11/7/2020 9:40 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.9° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-139780-1) and MW-214S_110520 (240-139780-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/18/2020.

Vinyl chloride failed the recovery criteria high for LCS 240-461636/4. Refer to the QC report for details.

The continuing calibration verification (CCV) associated with batch 461636 recovered above the upper control limit for Vinyl Chloride. The samples associated with this CCV were non-detect for the affected analytes; therefore, the data have been reported. The associated samples are impacted: TRIP BLANK (240-139780-1) and MW-214S_110520 (240-139780-2).

The laboratory control sample (LCS) for 461636 recovered outside control limits for one or multiple analytes. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported: TRIP BLANK (240-139780-1), MW-214S_110520 (240-139780-2) and (LCS 240-461636/4).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139780-1

Job ID: 240-139780-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-214S_110520 (240-139780-2) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 11/12/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139780-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139780-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-139780-1	TRIP BLANK	Water	11/05/20 00:00	11/07/20 09:40	
240-139780-2	MW-214S_110520	Water	11/05/20 12:30	11/07/20 09:40	

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- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139780-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-139780-1

No Detections.

Client Sample ID: MW-214S_110520

Lab Sample ID: 240-139780-2

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
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- 10
- 11
- 12
- 13
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This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP - Off Site

Job ID: 240-139780-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-139780-1

Date Collected: 11/05/20 00:00

Matrix: Water

Date Received: 11/07/20 09:40

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/18/20 22:45	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/18/20 22:45	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/18/20 22:45	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/18/20 22:45	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/18/20 22:45	1
Vinyl chloride	1.0	U *	1.0	0.20	ug/L			11/18/20 22:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	130		75 - 130		11/18/20 22:45	1
4-Bromofluorobenzene (Surr)	104		47 - 134		11/18/20 22:45	1
Toluene-d8 (Surr)	119		69 - 122		11/18/20 22:45	1
Dibromofluoromethane (Surr)	127		78 - 129		11/18/20 22:45	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP - Off Site

Job ID: 240-139780-1

Client Sample ID: MW-214S_110520

Lab Sample ID: 240-139780-2

Date Collected: 11/05/20 12:30

Matrix: Water

Date Received: 11/07/20 09:40

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/12/20 18:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		70 - 133		11/12/20 18:23	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/18/20 23:07	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/18/20 23:07	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/18/20 23:07	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/18/20 23:07	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/18/20 23:07	1
Vinyl chloride	1.0	U *	1.0	0.20	ug/L			11/18/20 23:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	114		75 - 130		11/18/20 23:07	1
4-Bromofluorobenzene (Surr)	90		47 - 134		11/18/20 23:07	1
Toluene-d8 (Surr)	103		69 - 122		11/18/20 23:07	1
Dibromofluoromethane (Surr)	115		78 - 129		11/18/20 23:07	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139780-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-139780-1	TRIP BLANK	130	104	119	127
240-139780-2	MW-214S_110520	114	90	103	115
LCS 240-461636/4	Lab Control Sample	109	103	108	108
MB 240-461636/6	Method Blank	117	91	105	112

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-133)
240-139757-A-3 MS	Matrix Spike	113
240-139757-A-3 MSD	Matrix Spike Duplicate	114
240-139780-2	MW-214S_110520	104
LCS 240-460682/4	Lab Control Sample	105
MB 240-460682/5	Method Blank	105

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139780-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-461636/6
Matrix: Water
Analysis Batch: 461636

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/18/20 19:47	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/18/20 19:47	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/18/20 19:47	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/18/20 19:47	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/18/20 19:47	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/18/20 19:47	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	117		75 - 130		11/18/20 19:47	1
4-Bromofluorobenzene (Surr)	91		47 - 134		11/18/20 19:47	1
Toluene-d8 (Surr)	105		69 - 122		11/18/20 19:47	1
Dibromofluoromethane (Surr)	112		78 - 129		11/18/20 19:47	1

Lab Sample ID: LCS 240-461636/4
Matrix: Water
Analysis Batch: 461636

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	10.6		ug/L		106	73 - 129
cis-1,2-Dichloroethene	10.0	9.94		ug/L		99	75 - 124
Tetrachloroethene	10.0	7.64		ug/L		76	70 - 125
trans-1,2-Dichloroethene	10.0	10.1		ug/L		101	74 - 130
Trichloroethene	10.0	7.44		ug/L		74	71 - 121
Vinyl chloride	10.0	13.8 *		ug/L		138	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	109		75 - 130
4-Bromofluorobenzene (Surr)	103		47 - 134
Toluene-d8 (Surr)	108		69 - 122
Dibromofluoromethane (Surr)	108		78 - 129

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-460682/5
Matrix: Water
Analysis Batch: 460682

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/12/20 15:42	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		70 - 133		11/12/20 15:42	1

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139780-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-460682/4
Matrix: Water
Analysis Batch: 460682

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	11.5		ug/L		115	80 - 135
Surrogate							
	%Recovery	LCS Qualifier	LCS Limits				
1,2-Dichloroethane-d4 (Surr)	105		70 - 133				

Lab Sample ID: 240-139757-A-3 MS
Matrix: Water
Analysis Batch: 460682

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	3.1		10.0	14.0		ug/L		109	46 - 170
Surrogate									
	%Recovery	MS Qualifier	MS Limits						
1,2-Dichloroethane-d4 (Surr)	113		70 - 133						

Lab Sample ID: 240-139757-A-3 MSD
Matrix: Water
Analysis Batch: 460682

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	3.1		10.0	14.2		ug/L		111	46 - 170	2	26
Surrogate											
	%Recovery	MSD Qualifier	MSD Limits								
1,2-Dichloroethane-d4 (Surr)	114		70 - 133								

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139780-1

GC/MS VOA

Analysis Batch: 460682

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-139780-2	MW-214S_110520	Total/NA	Water	8260B SIM	
MB 240-460682/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-460682/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-139757-A-3 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-139757-A-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 461636

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-139780-1	TRIP BLANK	Total/NA	Water	8260B	
240-139780-2	MW-214S_110520	Total/NA	Water	8260B	
MB 240-461636/6	Method Blank	Total/NA	Water	8260B	
LCS 240-461636/4	Lab Control Sample	Total/NA	Water	8260B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139780-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-139780-1

Date Collected: 11/05/20 00:00

Matrix: Water

Date Received: 11/07/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	461636	11/18/20 22:45	LEE	TAL CAN

Client Sample ID: MW-214S_110520

Lab Sample ID: 240-139780-2

Date Collected: 11/05/20 12:30

Matrix: Water

Date Received: 11/07/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	461636	11/18/20 23:07	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	460682	11/12/20 18:23	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139780-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-21
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-21
Texas	NELAP	T104704517-18-10	08-31-21
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-21
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

Chain of Custody Record

TestAmerica Laboratory location: Brighton --- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763



Client Contact
 Company Name: Arcadis
 Address: 28550 Cabot Drive, Suite 500
 City/State/Zip: Novi, MI, 48377
 Phone: 248-994-2240
 Project Name: Ford LTP Off-Site
 Project Number: 30050315.402.04
 PO # 30050315.402.04

Regulatory program: DW NPDES RCRA Other

Client Project Manager: Kris Hinskey
 Telephone: 248-994-2240
 Email: kristoffer.hinskey@arcadis.com

Site Contact: Julia McClafferty
 Telephone: 734-644-5131

Lab Contact: Mike DeMonico
 Telephone: 330-497-9396

Sampler Name: Alyson Hartz
Method of Shipment/Carrier:
Shipping/Tracking No:

Analysis Turnaround Time
 TAT is defined from below:
 3 weeks
 2 weeks
 1 week
 2 days
 1 day

Containers & Preservatives
 H2SO4 HNO3 HCl NaOH ZnAc Laps Other:

Matrix
 Solid Sediment Aqueous Air

Filtered Sample (Y/N)
 Composite=C / Grab=G

Sample Date	Sample Time	Analyses											Sample Specific Notes / Special Instructions:		
		1,1-DCE 8260B	cis-1,2-DCE 8260B	Trans-1,2-DCE 8260B	PCE 8260B	TCE 8260B	Vinyl Chloride 8260B	1,4-Dioxane 8260B SIM	Other	Other	Other	Other			
TRIP BLANK	-	X	X	X	X	X	X								1 TRIP BLANK
MW-2145-110520 (214)	11/5/20 13:30	X	X	X	X	X	X								3 VOAs for 8260B 3 VOAs for 8260B 91M

Possible Hazard Identification
 Non-Hazard Inflammable Irritant Poison B Unknown

Special Instructions/OC Requirements & Comments:
 Submit all results through Cadena at jtomalia@cadenaco.com, Cadena #E203631
 Level IV Reporting requested.

Relinquished by: [Signature] Company: Arcadis Date/Time: 11/5/20 15:45
Relinquished by: [Signature] Company: Arcadis Date/Time: 11/6/20 / 0915
Relinquished by: [Signature] Company: ETA Date/Time: 11-6-20 0925

Received by: [Signature] Company: Arcadis Date/Time: 11/5/20 15:45
Received by: [Signature] Company: ETA Date/Time: 11-6-20 0915
Received in Laboratory by: [Signature] Company: TA Date/Time: 11-7-20 940



Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 139786

Client Arcadis Site Name _____

Cooler unpacked by: _____

Cooler Received on 11-7-20 Opened on 11-9-20

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____


Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # TA Foam Box _____ Client Cooler _____ Box _____ Other _____
 Packing material used: Bubble Wrap _____ Foam _____ Plastic Bag _____ None _____ Other _____
 COOLANT: Wet Ice _____ Blue Ice _____ Dry Ice _____ Water _____ None _____

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN# IR-11 (CF +0.9 °C) Observed Cooler Temp. 1.0 °C Corrected Cooler Temp. 1.9 °C
 IR GUN #IR-12 (CF +0.5°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity _____ Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
 -Were tamper/custody seals intact and uncompromised? Yes No NA

Tests that are not checked for pH by Receiving:
 VOAs
 Oil and Grease
 TOC

3. Shippers' packing slip attached to the cooler(s)? Yes No
 4. Did custody papers accompany the sample(s)? Yes No
 5. Were the custody papers relinquished & signed in the appropriate place? Yes No
 6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
 7. Did all bottles arrive in good condition (Unbroken)? Yes No
 8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
 9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?
 10. Were correct bottle(s) used for the test(s) indicated? Yes No
 11. Sufficient quantity received to perform indicated analyses? Yes No
 12. Are these work share samples and all listed on the COC? Yes No
 If yes, Questions 13-17 have been checked at the originating laboratory.
 13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC907861
 14. Were VOAs on the COC? Yes No
 15. Were air bubbles >6 mm in any VOA vials?  Larger than this. Yes No NA
 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No
 17. Was a LL Hg or Me Hg trip blank present? Yes No

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____

Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page

Samples processed by: _____

19. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____
 VOA Sample Preservation - Date/Time VOAs Frozen: _____

6/23/2017
Mr. Troy Stevens
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #: MI001386.0001.00002
Workorder #: 1706395

Dear Mr. Troy Stevens

The following report includes the data for the above referenced project for sample(s) received on 6/21/2017 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,




Ausha Scott
Project Manager

WORK ORDER #: 1706395

Work Order Summary

CLIENT:	Mr. Troy Stevens Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-324-5050	P.O. #	MI001386.0001.00002
FAX:		PROJECT #	MI001386.0001.00002 Ford LTP
DATE RECEIVED:	06/21/2017	CONTACT:	Ausha Scott
DATE COMPLETED:	06/23/2017		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SVMP-20-3(061917)	TO-15	2.2 "Hg	14.6 psi
02A	SVMP-21-2(061917)	TO-15	3.9 "Hg	15 psi
03A	SVMP-22-3(061917)	TO-15	4.7 "Hg	15.1 psi
04A	SVMP-23-3(061917)	TO-15	4.7 "Hg	15 psi
05A	SVMP-24-4(061917)	TO-15	3.7 "Hg	15.1 psi
06A	SVMP-25-3(061917)	TO-15	3.9 "Hg	15 psi
07A	SVMP-25-6(061917)	TO-15	4.3 "Hg	15.1 psi
08A	SVMP-26-4(061917)	TO-15	3.9 "Hg	15 psi
09A	SVMP-27-4.5(061917)	TO-15	3.7 "Hg	15.1 psi
10A	SVMP-28-3(061917)	TO-15	3.3 "Hg	15.2 psi
11A	Lab Blank	TO-15	NA	NA
12A	CCV	TO-15	NA	NA
13A	LCS	TO-15	NA	NA
13AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 06/23/17

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1706395

Ten 1 Liter Summa Canister samples were received on June 21, 2017. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

The Chain of Custody (COC) information for sample SVMP-23-3(061917) did not match the information on the canister with regard to canister identification. The client was notified of the discrepancy and the information on the canister was used to process and report the sample.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue



Summary of Detected Compounds EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SVMP-20-3(061917)

Lab ID#: 1706395-01A

No Detections Were Found.

Client Sample ID: SVMP-21-2(061917)

Lab ID#: 1706395-02A

No Detections Were Found.

Client Sample ID: SVMP-22-3(061917)

Lab ID#: 1706395-03A

No Detections Were Found.

Client Sample ID: SVMP-23-3(061917)

Lab ID#: 1706395-04A

No Detections Were Found.

Client Sample ID: SVMP-24-4(061917)

Lab ID#: 1706395-05A

No Detections Were Found.

Client Sample ID: SVMP-25-3(061917)

Lab ID#: 1706395-06A

No Detections Were Found.

Client Sample ID: SVMP-25-6(061917)

Lab ID#: 1706395-07A

No Detections Were Found.

Client Sample ID: SVMP-26-4(061917)

Lab ID#: 1706395-08A

No Detections Were Found.

Client Sample ID: SVMP-27-4.5(061917)

Lab ID#: 1706395-09A



Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SVMP-27-4.5(061917)

Lab ID#: 1706395-09A

No Detections Were Found.

Client Sample ID: SVMP-28-3(061917)

Lab ID#: 1706395-10A

No Detections Were Found.



Air Toxics

Client Sample ID: SVMP-20-3(061917)

Lab ID#: 1706395-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062210	Date of Collection:	6/19/17 10:48:00 AM
Dil. Factor:	2.15	Date of Analysis:	6/22/17 04:13 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.7	Not Detected
Trichloroethene	1.1	Not Detected	5.8	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
4-Bromofluorobenzene	112	70-130
1,2-Dichloroethane-d4	93	70-130



Air Toxics

Client Sample ID: SVMP-21-2(061917)

Lab ID#: 1706395-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062211	Date of Collection:	6/19/17 11:49:00 AM
Dil. Factor:	2.32	Date of Analysis:	6/22/17 04:41 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
Trichloroethene	1.2	Not Detected	6.2	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
4-Bromofluorobenzene	112	70-130
1,2-Dichloroethane-d4	95	70-130



Air Toxics

Client Sample ID: SVMP-22-3(061917)

Lab ID#: 1706395-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062212	Date of Collection:	6/19/17 1:55:00 PM
Dil. Factor:	2.40	Date of Analysis:	6/22/17 05:10 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
4-Bromofluorobenzene	113	70-130
1,2-Dichloroethane-d4	92	70-130



Client Sample ID: SVMP-23-3(061917)

Lab ID#: 1706395-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062213	Date of Collection:	6/19/17 3:18:00 PM
Dil. Factor:	2.40	Date of Analysis:	6/22/17 05:38 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
4-Bromofluorobenzene	109	70-130
1,2-Dichloroethane-d4	94	70-130



Air Toxics

Client Sample ID: SVMP-24-4(061917)

Lab ID#: 1706395-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062214	Date of Collection:	6/19/17 4:25:00 PM
Dil. Factor:	2.31	Date of Analysis:	6/22/17 06:05 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
Trichloroethene	1.2	Not Detected	6.2	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
4-Bromofluorobenzene	112	70-130
1,2-Dichloroethane-d4	98	70-130



Air Toxics

Client Sample ID: SVMP-25-3(061917)

Lab ID#: 1706395-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062215	Date of Collection:	6/19/17 10:36:00 AM	
Dil. Factor:	2.32	Date of Analysis:	6/22/17 06:32 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
Trichloroethene	1.2	Not Detected	6.2	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
4-Bromofluorobenzene	112	70-130
1,2-Dichloroethane-d4	95	70-130



Air Toxics

Client Sample ID: SVMP-25-6(061917)

Lab ID#: 1706395-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062216	Date of Collection:	6/19/17 11:27:00 AM
Dil. Factor:	2.37	Date of Analysis:	6/22/17 06:58 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	94	70-130
4-Bromofluorobenzene	118	70-130
1,2-Dichloroethane-d4	94	70-130



Client Sample ID: SVMP-26-4(061917)

Lab ID#: 1706395-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062218	Date of Collection: 6/19/17 1:49:00 PM
Dil. Factor:	2.32	Date of Analysis: 6/22/17 09:36 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
Trichloroethene	1.2	Not Detected	6.2	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
4-Bromofluorobenzene	111	70-130
1,2-Dichloroethane-d4	97	70-130



Air Toxics

Client Sample ID: SVMP-27-4.5(061917)

Lab ID#: 1706395-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062219	Date of Collection:	6/19/17 3:10:00 PM
Dil. Factor:	2.31	Date of Analysis:	6/22/17 10:03 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
Trichloroethene	1.2	Not Detected	6.2	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
4-Bromofluorobenzene	108	70-130
1,2-Dichloroethane-d4	94	70-130



Air Toxics

Client Sample ID: SVMP-28-3(061917)

Lab ID#: 1706395-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062220	Date of Collection:	6/19/17 4:16:00 PM	
Dil. Factor:	2.28	Date of Analysis:	6/22/17 10:29 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
Trichloroethene	1.1	Not Detected	6.1	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
4-Bromofluorobenzene	111	70-130
1,2-Dichloroethane-d4	94	70-130



Client Sample ID: Lab Blank

Lab ID#: 1706395-11A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062207	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/22/17 01:44 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
4-Bromofluorobenzene	111	70-130
1,2-Dichloroethane-d4	97	70-130



Client Sample ID: CCV

Lab ID#: 1706395-12A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062202	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/22/17 09:32 AM

Compound	%Recovery
Vinyl Chloride	95
Trichloroethene	99

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
4-Bromofluorobenzene	114	70-130
1,2-Dichloroethane-d4	98	70-130



Client Sample ID: LCS

Lab ID#: 1706395-13A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062203	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/22/17 09:57 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	98	70-130
Trichloroethene	100	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
4-Bromofluorobenzene	114	70-130
1,2-Dichloroethane-d4	96	70-130



Client Sample ID: LCSD

Lab ID#: 1706395-13AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062204	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/22/17 10:22 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	97	70-130
Trichloroethene	100	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
4-Bromofluorobenzene	115	70-130
1,2-Dichloroethane-d4	99	70-130

10/5/2017
Mr. Gustan Taylor
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #: MI001386.0001.00002
Workorder #: 1709442

Dear Mr. Gustan Taylor

The following report includes the data for the above referenced project for sample(s) received on 9/22/2017 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1709442

Work Order Summary

CLIENT:	Mr. Gustan Taylor Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	248.994.2294	P.O. #	MI001386.0001_AT_WA08
FAX:		PROJECT #	MI001386.0001.00002 Ford LTP
DATE RECEIVED:	09/22/2017	CONTACT:	Ausha Scott
DATE COMPLETED:	10/04/2017		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SVMP-3-7(092117)	TO-15	4.5 "Hg	15 psi
02A	SVMP-3-3.5(092117)	TO-15	5.0 "Hg	15.4 psi
03A	SVMP-26-4(092117)	TO-15	5.5 "Hg	15 psi
04A	SVMP-28-3(092117)	TO-15	5.0 "Hg	15 psi
05A	SVMP-25-6(092117)	TO-15	3.0 "Hg	15 psi
06A	SVMP-25-3(092117)	TO-15	4.5 "Hg	15 psi
07A	SVMP-27-4.5(092117)	TO-15	3.0 "Hg	15 psi
08A	Lab Blank	TO-15	NA	NA
09A	CCV	TO-15	NA	NA
10A	LCS	TO-15	NA	NA
10AA	LCSD	TO-15	NA	NA

CERTIFIED BY: _____



Technical Director

DATE: 10/05/17 _____

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1709442

Seven 1 Liter Summa Canister samples were received on September 22, 2017. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

The Chain of Custody (COC) information for sample SVMP-26-4(092117) did not match the information on the canister with regard to canister identification. The client was notified of the discrepancy and the information on the canister was used to process and report the sample.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue



**Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN**

Client Sample ID: SVMP-3-7(092117)

Lab ID#: 1709442-01A

No Detections Were Found.

Client Sample ID: SVMP-3-3.5(092117)

Lab ID#: 1709442-02A

No Detections Were Found.

Client Sample ID: SVMP-26-4(092117)

Lab ID#: 1709442-03A

No Detections Were Found.

Client Sample ID: SVMP-28-3(092117)

Lab ID#: 1709442-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	1.2	3.6	8.2	25

Client Sample ID: SVMP-25-6(092117)

Lab ID#: 1709442-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	1.1	1.8	7.6	12

Client Sample ID: SVMP-25-3(092117)

Lab ID#: 1709442-06A

No Detections Were Found.

Client Sample ID: SVMP-27-4.5(092117)

Lab ID#: 1709442-07A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	1.1	2.8	4.4	11
Trichloroethene	1.1	1.3	6.0	7.2



Air Toxics

Client Sample ID: SVMP-3-7(092117)

Lab ID#: 1709442-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17092510	Date of Collection:	9/21/17 9:42:00 AM
Dil. Factor:	2.38	Date of Analysis:	9/25/17 05:56 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.1	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	109	70-130
4-Bromofluorobenzene	90	70-130



Air Toxics

Client Sample ID: SVMP-3-3.5(092117)

Lab ID#: 1709442-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17092511	Date of Collection:	9/21/17 10:33:00 AM
Dil. Factor:	2.46	Date of Analysis:	9/25/17 06:25 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Trichloroethene	1.2	Not Detected	6.6	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Tetrachloroethene	1.2	Not Detected	8.3	Not Detected
1,4-Dioxane	4.9	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	110	70-130
4-Bromofluorobenzene	91	70-130



Air Toxics

Client Sample ID: SVMP-26-4(092117)

Lab ID#: 1709442-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17092512	Date of Collection:	9/21/17 11:43:00 AM
Dil. Factor:	2.47	Date of Analysis:	9/25/17 06:53 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.2	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Trichloroethene	1.2	Not Detected	6.6	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Tetrachloroethene	1.2	Not Detected	8.4	Not Detected
1,4-Dioxane	4.9	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	108	70-130
4-Bromofluorobenzene	89	70-130



Air Toxics

Client Sample ID: SVMP-28-3(092117)

Lab ID#: 1709442-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17092513	Date of Collection:	9/21/17 12:29:00 PM
Dil. Factor:	2.42	Date of Analysis:	9/25/17 07:22 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.5	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrachloroethene	1.2	3.6	8.2	25
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	106	70-130
4-Bromofluorobenzene	92	70-130



Air Toxics

Client Sample ID: SVMP-25-6(092117)

Lab ID#: 1709442-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17092514	Date of Collection:	9/21/17 10:01:00 AM
Dil. Factor:	2.24	Date of Analysis:	9/25/17 07:50 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Trichloroethene	1.1	Not Detected	6.0	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrachloroethene	1.1	1.8	7.6	12
1,4-Dioxane	4.5	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	109	70-130
4-Bromofluorobenzene	93	70-130



Air Toxics

Client Sample ID: SVMP-25-3(092117)

Lab ID#: 1709442-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17092515	Date of Collection:	9/21/17 10:53:00 AM
Dil. Factor:	2.38	Date of Analysis:	9/25/17 08:19 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.1	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	108	70-130
4-Bromofluorobenzene	90	70-130



Air Toxics

Client Sample ID: SVMP-27-4.5(092117)

Lab ID#: 1709442-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17092516	Date of Collection:	9/21/17 12:26:00 PM
Dil. Factor:	2.24	Date of Analysis:	9/25/17 08:47 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
cis-1,2-Dichloroethene	1.1	2.8	4.4	11
Trichloroethene	1.1	1.3	6.0	7.2
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrachloroethene	1.1	Not Detected	7.6	Not Detected
1,4-Dioxane	4.5	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	108	70-130
4-Bromofluorobenzene	90	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1709442-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17092506	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	9/25/17 12:11 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	105	70-130
4-Bromofluorobenzene	85	70-130



Client Sample ID: CCV

Lab ID#: 1709442-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17092502	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/25/17 09:58 AM

Compound	%Recovery
Vinyl Chloride	103
1,1-Dichloroethene	98
cis-1,2-Dichloroethene	104
Trichloroethene	102
trans-1,2-Dichloroethene	104
Tetrachloroethene	94
1,4-Dioxane	97

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	106	70-130
4-Bromofluorobenzene	96	70-130



Client Sample ID: LCS

Lab ID#: 1709442-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17092503	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/25/17 10:24 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	113	70-130
1,1-Dichloroethene	102	70-130
cis-1,2-Dichloroethene	123	70-130
Trichloroethene	109	70-130
trans-1,2-Dichloroethene	95	70-130
Tetrachloroethene	100	70-130
1,4-Dioxane	108	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	111	70-130
4-Bromofluorobenzene	97	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1709442-10AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17092504	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	9/25/17 10:51 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	112	70-130
1,1-Dichloroethene	100	70-130
cis-1,2-Dichloroethene	120	70-130
Trichloroethene	108	70-130
trans-1,2-Dichloroethene	94	70-130
Tetrachloroethene	100	70-130
1,4-Dioxane	106	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	111	70-130
4-Bromofluorobenzene	95	70-130

12/2/2017

Mr. Gustan Taylor
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: FORD LTP
Project #: MI001386.0001.00002
Workorder #: 1711414

Dear Mr. Gustan Taylor

The following report includes the data for the above referenced project for sample(s) received on 11/22/2017 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,




Ausha Scott
Project Manager

WORK ORDER #: 1711414

Work Order Summary

CLIENT:	Mr. Gustan Taylor Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	248.994.2294	P.O. #	MI001386.0001_AT_WA08
FAX:		PROJECT #	MI001386.0001.00002 FORD LTP
DATE RECEIVED:	11/22/2017	CONTACT:	Ausha Scott
DATE COMPLETED:	12/02/2017		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SVMP-25S-3(112117)	TO-15	3.5 "Hg	14.9 psi
02A	SVMP-25D-6(112117)	TO-15	4.7 "Hg	14.9 psi
03A	SVMP-14-2(112117)	TO-15	0.8 "Hg	15.1 psi
04A	SVMP-13-2(112117)	TO-15	3.7 "Hg	15 psi
05A	SVMP-12-3.5(112117)	TO-15	4.1 "Hg	15.3 psi
06A	SVMP-10-3(112117)	TO-15	2.6 "Hg	14.8 psi
07A	SVMP-26-4(112117)	TO-15	2.8 "Hg	15.2 psi
08A	SVMP-27-4.5(112117)	TO-15	2.4 "Hg	15 psi
09A	SVMP-28-3(112117)	TO-15	4.1 "Hg	15 psi
10A	SVMP-15-2(112017)	TO-15	2.8 "Hg	15.1 psi
11A	Lab Blank	TO-15	NA	NA
12A	CCV	TO-15	NA	NA
13A	LCS	TO-15	NA	NA
13AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 12/02/17

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.

Eurofins Air Toxics Inc. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1711414

Nine 1 Liter Summa Canister samples were received on November 22, 2017. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

The Chain of Custody (COC) information for samples SVMP-25S-3(112117) and SVMP-25D-6(112117) did not match the entries on the sample tags with regard to sample identification. Therefore the information on the COC was used to process and report the samples.

The number of samples received did not match the information on the Chain of Custody (COC). Sample SVMP-15-2(112017) was added to the analytical request.

Sample identification for sample SVMP-28-3(112117) was not provided on the sample tag. Therefore the information on the Chain of Custody was used to process and report the sample.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue



Summary of Detected Compounds EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SVMP-25S-3(112117)

Lab ID#: 1711414-01A

No Detections Were Found.

Client Sample ID: SVMP-25D-6(112117)

Lab ID#: 1711414-02A

No Detections Were Found.

Client Sample ID: SVMP-14-2(112117)

Lab ID#: 1711414-03A

No Detections Were Found.

Client Sample ID: SVMP-13-2(112117)

Lab ID#: 1711414-04A

No Detections Were Found.

Client Sample ID: SVMP-12-3.5(112117)

Lab ID#: 1711414-05A

No Detections Were Found.

Client Sample ID: SVMP-10-3(112117)

Lab ID#: 1711414-06A

No Detections Were Found.

Client Sample ID: SVMP-26-4(112117)

Lab ID#: 1711414-07A

No Detections Were Found.

Client Sample ID: SVMP-27-4.5(112117)

Lab ID#: 1711414-08A

No Detections Were Found.

Client Sample ID: SVMP-28-3(112117)

Lab ID#: 1711414-09A



**Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN**

Client Sample ID: SVMP-28-3(112117)

Lab ID#: 1711414-09A

No Detections Were Found.

Client Sample ID: SVMP-15-2(112017)

Lab ID#: 1711414-10A

No Detections Were Found.



Air Toxics

Client Sample ID: SVMP-25S-3(112117)

Lab ID#: 1711414-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3112810	Date of Collection:	11/21/17 8:55:00 AM
Dil. Factor:	2.28	Date of Analysis:	11/28/17 03:42 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.5	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Trichloroethene	1.1	Not Detected	6.1	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Tetrachloroethene	1.1	Not Detected	7.7	Not Detected
1,4-Dioxane	4.6	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	90	70-130
1,2-Dichloroethane-d4	87	70-130
4-Bromofluorobenzene	101	70-130



Air Toxics

Client Sample ID: SVMP-25D-6(112117)

Lab ID#: 1711414-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3112811	Date of Collection:	11/21/17 9:50:00 AM
Dil. Factor:	2.39	Date of Analysis:	11/28/17 04:08 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.1	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	94	70-130
1,2-Dichloroethane-d4	91	70-130
4-Bromofluorobenzene	101	70-130



Air Toxics

Client Sample ID: SVMP-14-2(112117)

Lab ID#: 1711414-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3112812	Date of Collection:	11/21/17 9:02:00 AM
Dil. Factor:	2.08	Date of Analysis:	11/28/17 04:34 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.0	Not Detected	2.6	Not Detected
1,1-Dichloroethene	1.0	Not Detected	4.1	Not Detected
cis-1,2-Dichloroethene	1.0	Not Detected	4.1	Not Detected
Trichloroethene	1.0	Not Detected	5.6	Not Detected
trans-1,2-Dichloroethene	1.0	Not Detected	4.1	Not Detected
Tetrachloroethene	1.0	Not Detected	7.0	Not Detected
1,4-Dioxane	4.2	Not Detected	15	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	94	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	108	70-130



Air Toxics

Client Sample ID: SVMP-13-2(112117)

Lab ID#: 1711414-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3112813	Date of Collection:	11/21/17 10:30:00 A
Dil. Factor:	2.30	Date of Analysis:	11/28/17 05:00 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Trichloroethene	1.2	Not Detected	6.2	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrachloroethene	1.2	Not Detected	7.8	Not Detected
1,4-Dioxane	4.6	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	88	70-130
4-Bromofluorobenzene	99	70-130



Air Toxics

Client Sample ID: SVMP-12-3.5(112117)

Lab ID#: 1711414-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3112814	Date of Collection:	11/21/17 1:34:00 PM
Dil. Factor:	2.36	Date of Analysis:	11/28/17 05:27 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.0	Not Detected
1,4-Dioxane	4.7	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	85	70-130
4-Bromofluorobenzene	96	70-130



Air Toxics

Client Sample ID: SVMP-10-3(112117)

Lab ID#: 1711414-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3112815	Date of Collection:	11/21/17 11:45:00 A
Dil. Factor:	2.20	Date of Analysis:	11/28/17 05:53 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.8	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Trichloroethene	1.1	Not Detected	5.9	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrachloroethene	1.1	Not Detected	7.5	Not Detected
1,4-Dioxane	4.4	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	87	70-130
4-Bromofluorobenzene	100	70-130



Air Toxics

Client Sample ID: SVMP-26-4(112117)

Lab ID#: 1711414-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3112816	Date of Collection:	11/21/17 11:40:00 A
Dil. Factor:	2.24	Date of Analysis:	11/28/17 06:19 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Trichloroethene	1.1	Not Detected	6.0	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrachloroethene	1.1	Not Detected	7.6	Not Detected
1,4-Dioxane	4.5	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	85	70-130
4-Bromofluorobenzene	100	70-130



Air Toxics

Client Sample ID: SVMP-27-4.5(112117)

Lab ID#: 1711414-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3112817	Date of Collection:	11/21/17 1:00:00 PM
Dil. Factor:	2.20	Date of Analysis:	11/28/17 06:45 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.8	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Trichloroethene	1.1	Not Detected	5.9	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrachloroethene	1.1	Not Detected	7.5	Not Detected
1,4-Dioxane	4.4	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	85	70-130
4-Bromofluorobenzene	94	70-130



Air Toxics

Client Sample ID: SVMP-28-3(112117)

Lab ID#: 1711414-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3112818	Date of Collection:	11/21/17 2:55:00 PM
Dil. Factor:	2.34	Date of Analysis:	11/28/17 07:12 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrachloroethene	1.2	Not Detected	7.9	Not Detected
1,4-Dioxane	4.7	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	86	70-130
4-Bromofluorobenzene	95	70-130



Air Toxics

Client Sample ID: SVMP-15-2(112017)

Lab ID#: 1711414-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3112819	Date of Collection:	11/20/17 3:11:00 PM
Dil. Factor:	2.24	Date of Analysis:	11/28/17 09:37 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Trichloroethene	1.1	Not Detected	6.0	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrachloroethene	1.1	Not Detected	7.6	Not Detected
1,4-Dioxane	4.5	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	93	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	99	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1711414-11A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3112809	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	11/28/17 02:51 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	88	70-130
4-Bromofluorobenzene	103	70-130



Client Sample ID: CCV

Lab ID#: 1711414-12A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3112802	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/28/17 10:42 AM

Compound	%Recovery
Vinyl Chloride	80
1,1-Dichloroethene	79
cis-1,2-Dichloroethene	81
Trichloroethene	99
trans-1,2-Dichloroethene	97
Tetrachloroethene	102
1,4-Dioxane	96

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	110	70-130
1,2-Dichloroethane-d4	84	70-130
4-Bromofluorobenzene	99	70-130



Client Sample ID: LCS

Lab ID#: 1711414-13A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3112803	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/28/17 11:05 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	84	70-130
1,1-Dichloroethene	81	70-130
cis-1,2-Dichloroethene	91	70-130
Trichloroethene	99	70-130
trans-1,2-Dichloroethene	84	70-130
Tetrachloroethene	100	70-130
1,4-Dioxane	95	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	80	70-130
4-Bromofluorobenzene	104	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1711414-13AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3112804	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/28/17 11:28 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	83	70-130
1,1-Dichloroethene	82	70-130
cis-1,2-Dichloroethene	89	70-130
Trichloroethene	100	70-130
trans-1,2-Dichloroethene	86	70-130
Tetrachloroethene	103	70-130
1,4-Dioxane	96	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	82	70-130
4-Bromofluorobenzene	106	70-130

3/7/2018

Mr. Gustan Taylor
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: FORD LTP
Project #: MI001386.0001.00002
Workorder #: 1802456

Dear Mr. Gustan Taylor

The following report includes the data for the above referenced project for sample(s) received on 2/22/2018 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1802456

Work Order Summary

CLIENT:	Mr. Gustan Taylor Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	248.994.2294	P.O. #	MI001386.0001_AT_WA08
FAX:		PROJECT #	MI001386.0001.00002 FORD LTP
DATE RECEIVED:	02/22/2018	CONTACT:	Ausha Scott
DATE COMPLETED:	03/07/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SVMP-2S-4.5 (021918)	TO-15	1 "Hg	15 psi
02A	SVMP-2D-8.5 (021918)	TO-15	1 "Hg	15 psi
03A	SVMP-3S-3.5 (021918)	TO-15	2 "Hg	15 psi
04A	SVMP-3D-7.0 (021918)	TO-15	4 "Hg	15 psi
05A	SVMP-08-3.5 (022018)	TO-15	4 "Hg	15 psi
06A	SVMP-09-4.0 (022018)	TO-15	5 "Hg	15 psi
07A	SVMP-10-3.0 (022018)	TO-15	4.5 "Hg	15 psi
08A	SVMP-12-3.5 (022018)	TO-15	4.5 "Hg	15 psi
09A	SVMP-22-3.0 (022018)	TO-15	4.5 "Hg	15 psi
10A	SVMP-25S-3.0 (022118)	TO-15	3 "Hg	15 psi
11A	SVMP-25D-6.0 (022118)	TO-15	3 "Hg	15 psi
12A	SVMP-26-4.0 (022118)	TO-15	2.5 "Hg	15 psi
13A	SVMP-28-3.0 (022118)	TO-15	2 "Hg	15 psi
14A	SVMP-27-4.5 (022118)	TO-15	3 "Hg	15 psi
15A	Lab Blank	TO-15	NA	NA
15B	Lab Blank	TO-15	NA	NA
16A	CCV	TO-15	NA	NA
16B	CCV	TO-15	NA	NA
17A	LCS	TO-15	NA	NA
17AA	LCS	TO-15	NA	NA
17B	LCS	TO-15	NA	NA
17BB	LCS	TO-15	NA	NA

CERTIFIED BY: 

DATE: 03/07/18

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.

Eurofins Air Toxics Inc. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1802456

Fourteen 1 Liter Summa Canister samples were received on February 22, 2018. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There was a difference (greater than or equal to 5.0" Hg) between the measured canister receipt vacuum and that which was reported on the Chain of Custody (COC) for sample SVMP-2D-8.5 (021918). A leak test indicated that the valve was functioning properly.

Analytical Notes

Dilution was performed on samples SVMP-2S-4.5 (021918) and SVMP-2D-8.5 (021918) due to the presence of high level non-target species.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue



Summary of Detected Compounds EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SVMP-2S-4.5 (021918)

Lab ID#: 1802456-01A

No Detections Were Found.

Client Sample ID: SVMP-2D-8.5 (021918)

Lab ID#: 1802456-02A

No Detections Were Found.

Client Sample ID: SVMP-3S-3.5 (021918)

Lab ID#: 1802456-03A

No Detections Were Found.

Client Sample ID: SVMP-3D-7.0 (021918)

Lab ID#: 1802456-04A

No Detections Were Found.

Client Sample ID: SVMP-08-3.5 (022018)

Lab ID#: 1802456-05A

No Detections Were Found.

Client Sample ID: SVMP-09-4.0 (022018)

Lab ID#: 1802456-06A

No Detections Were Found.

Client Sample ID: SVMP-10-3.0 (022018)

Lab ID#: 1802456-07A

No Detections Were Found.

Client Sample ID: SVMP-12-3.5 (022018)

Lab ID#: 1802456-08A

No Detections Were Found.

Client Sample ID: SVMP-22-3.0 (022018)

Lab ID#: 1802456-09A



Summary of Detected Compounds EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SVMP-22-3.0 (022018)

Lab ID#: 1802456-09A

No Detections Were Found.

Client Sample ID: SVMP-25S-3.0 (022118)

Lab ID#: 1802456-10A

No Detections Were Found.

Client Sample ID: SVMP-25D-6.0 (022118)

Lab ID#: 1802456-11A

No Detections Were Found.

Client Sample ID: SVMP-26-4.0 (022118)

Lab ID#: 1802456-12A

No Detections Were Found.

Client Sample ID: SVMP-28-3.0 (022118)

Lab ID#: 1802456-13A

No Detections Were Found.

Client Sample ID: SVMP-27-4.5 (022118)

Lab ID#: 1802456-14A

No Detections Were Found.



Air Toxics

Client Sample ID: SVMP-2S-4.5 (021918)

Lab ID#: 1802456-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17022620	Date of Collection:	2/19/18 9:45:00 AM
Dil. Factor:	4.18	Date of Analysis:	2/26/18 10:20 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	2.1	Not Detected	5.3	Not Detected
1,1-Dichloroethene	2.1	Not Detected	8.3	Not Detected
cis-1,2-Dichloroethene	2.1	Not Detected	8.3	Not Detected
Trichloroethene	2.1	Not Detected	11	Not Detected
trans-1,2-Dichloroethene	2.1	Not Detected	8.3	Not Detected
Tetrachloroethene	2.1	Not Detected	14	Not Detected
1,4-Dioxane	8.4	Not Detected	30	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	96	70-130
4-Bromofluorobenzene	84	70-130



Air Toxics

Client Sample ID: SVMP-2D-8.5 (021918)

Lab ID#: 1802456-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17022614	Date of Collection:	2/19/18 11:00:00 AM
Dil. Factor:	4.18	Date of Analysis:	2/26/18 05:37 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	2.1	Not Detected	5.3	Not Detected
1,1-Dichloroethene	2.1	Not Detected	8.3	Not Detected
cis-1,2-Dichloroethene	2.1	Not Detected	8.3	Not Detected
Trichloroethene	2.1	Not Detected	11	Not Detected
trans-1,2-Dichloroethene	2.1	Not Detected	8.3	Not Detected
Tetrachloroethene	2.1	Not Detected	14	Not Detected
1,4-Dioxane	8.4	Not Detected	30	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	89	70-130



Air Toxics

Client Sample ID: SVMP-3S-3.5 (021918)

Lab ID#: 1802456-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17022621	Date of Collection:	2/19/18 12:14:00 PM
Dil. Factor:	2.16	Date of Analysis:	2/26/18 10:49 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.8	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.3	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.3	Not Detected
Trichloroethene	1.1	Not Detected	5.8	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.3	Not Detected
Tetrachloroethene	1.1	Not Detected	7.3	Not Detected
1,4-Dioxane	4.3	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	106	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	91	70-130



Air Toxics

Client Sample ID: SVMP-3D-7.0 (021918)

Lab ID#: 1802456-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17022622	Date of Collection:	2/19/18 2:47:00 PM
Dil. Factor:	2.33	Date of Analysis:	2/26/18 11:17 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrachloroethene	1.2	Not Detected	7.9	Not Detected
1,4-Dioxane	4.7	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	106	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	91	70-130



Air Toxics

Client Sample ID: SVMP-08-3.5 (022018)

Lab ID#: 1802456-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17022623	Date of Collection:	2/20/18 9:28:00 AM
Dil. Factor:	2.33	Date of Analysis:	2/26/18 11:46 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrachloroethene	1.2	Not Detected	7.9	Not Detected
1,4-Dioxane	4.7	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	107	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	90	70-130



Air Toxics

Client Sample ID: SVMP-09-4.0 (022018)

Lab ID#: 1802456-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022521	Date of Collection:	2/20/18 10:34:00 AM
Dil. Factor:	2.42	Date of Analysis:	2/26/18 12:10 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.5	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrachloroethene	1.2	Not Detected	8.2	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	90	70-130
4-Bromofluorobenzene	89	70-130



Air Toxics

Client Sample ID: SVMP-10-3.0 (022018)

Lab ID#: 1802456-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022520	Date of Collection:	2/20/18 11:37:00 AM
Dil. Factor:	2.38	Date of Analysis:	2/25/18 11:44 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.1	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	90	70-130
4-Bromofluorobenzene	92	70-130



Air Toxics

Client Sample ID: SVMP-12-3.5 (022018)

Lab ID#: 1802456-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022519	Date of Collection:	2/20/18 1:04:00 PM
Dil. Factor:	2.38	Date of Analysis:	2/25/18 11:17 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.1	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	90	70-130
4-Bromofluorobenzene	92	70-130



Air Toxics

Client Sample ID: SVMP-22-3.0 (022018)

Lab ID#: 1802456-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022518	Date of Collection:	2/20/18 4:14:00 PM
Dil. Factor:	2.38	Date of Analysis:	2/25/18 10:51 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.1	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	87	70-130
4-Bromofluorobenzene	92	70-130



Air Toxics

Client Sample ID: SVMP-25S-3.0 (022118)

Lab ID#: 1802456-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022517	Date of Collection:	2/21/18 9:11:00 AM
Dil. Factor:	2.24	Date of Analysis:	2/25/18 10:25 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Trichloroethene	1.1	Not Detected	6.0	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrachloroethene	1.1	Not Detected	7.6	Not Detected
1,4-Dioxane	4.5	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	92	70-130



Air Toxics

Client Sample ID: SVMP-25D-6.0 (022118)

Lab ID#: 1802456-11A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022516	Date of Collection:	2/21/18 10:05:00 AM
Dil. Factor:	2.24	Date of Analysis:	2/25/18 09:58 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Trichloroethene	1.1	Not Detected	6.0	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrachloroethene	1.1	Not Detected	7.6	Not Detected
1,4-Dioxane	4.5	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	94	70-130



Air Toxics

Client Sample ID: SVMP-26-4.0 (022118)

Lab ID#: 1802456-12A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022514	Date of Collection:	2/21/18 11:11:00 AM
Dil. Factor:	2.20	Date of Analysis:	2/25/18 08:58 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.8	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Trichloroethene	1.1	Not Detected	5.9	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrachloroethene	1.1	Not Detected	7.5	Not Detected
1,4-Dioxane	4.4	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	87	70-130
4-Bromofluorobenzene	92	70-130



Air Toxics

Client Sample ID: SVMP-28-3.0 (022118)

Lab ID#: 1802456-13A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022512	Date of Collection:	2/21/18 12:41:00 PM
Dil. Factor:	2.16	Date of Analysis:	2/25/18 07:55 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.8	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.3	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.3	Not Detected
Trichloroethene	1.1	Not Detected	5.8	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.3	Not Detected
Tetrachloroethene	1.1	Not Detected	7.3	Not Detected
1,4-Dioxane	4.3	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	92	70-130



Air Toxics

Client Sample ID: SVMP-27-4.5 (022118)

Lab ID#: 1802456-14A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022511	Date of Collection:	2/21/18 1:53:00 PM
Dil. Factor:	2.24	Date of Analysis:	2/25/18 07:29 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Trichloroethene	1.1	Not Detected	6.0	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrachloroethene	1.1	Not Detected	7.6	Not Detected
1,4-Dioxane	4.5	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	94	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1802456-15A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022507	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	2/25/18 05:05 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	90	70-130
4-Bromofluorobenzene	96	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1802456-15B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17022607	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	2/26/18 01:06 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	92	70-130



Client Sample ID: CCV

Lab ID#: 1802456-16A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022502	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/25/18 02:33 PM

Compound	%Recovery
Vinyl Chloride	129
1,1-Dichloroethene	103
cis-1,2-Dichloroethene	93
Trichloroethene	109
trans-1,2-Dichloroethene	100
Tetrachloroethene	105
1,4-Dioxane	98

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	94	70-130
4-Bromofluorobenzene	98	70-130



Client Sample ID: CCV

Lab ID#: 1802456-16B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17022602	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/26/18 09:07 AM

Compound	%Recovery
Vinyl Chloride	117
1,1-Dichloroethene	97
cis-1,2-Dichloroethene	101
Trichloroethene	116
trans-1,2-Dichloroethene	100
Tetrachloroethene	106
1,4-Dioxane	114

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	120	70-130
1,2-Dichloroethane-d4	107	70-130
4-Bromofluorobenzene	101	70-130



Client Sample ID: LCS

Lab ID#: 1802456-17A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022503	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/25/18 02:57 PM

Compound	%Recovery	Method Limits
Vinyl Chloride	127	70-130
1,1-Dichloroethene	101	70-130
cis-1,2-Dichloroethene	98	70-130
Trichloroethene	105	70-130
trans-1,2-Dichloroethene	82	70-130
Tetrachloroethene	101	70-130
1,4-Dioxane	99	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	93	70-130
4-Bromofluorobenzene	98	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1802456-17AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022504	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/25/18 03:22 PM

Compound	%Recovery	Method Limits
Vinyl Chloride	130	70-130
1,1-Dichloroethene	103	70-130
cis-1,2-Dichloroethene	101	70-130
Trichloroethene	106	70-130
trans-1,2-Dichloroethene	85	70-130
Tetrachloroethene	102	70-130
1,4-Dioxane	100	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	94	70-130
4-Bromofluorobenzene	99	70-130



Client Sample ID: LCS

Lab ID#: 1802456-17B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17022603	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/26/18 09:34 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	103	70-130
1,1-Dichloroethene	91	70-130
cis-1,2-Dichloroethene	103	70-130
Trichloroethene	112	70-130
trans-1,2-Dichloroethene	82	70-130
Tetrachloroethene	104	70-130
1,4-Dioxane	108	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	111	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	105	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1802456-17BB

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17022604	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/26/18 10:00 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	107	70-130
1,1-Dichloroethene	94	70-130
cis-1,2-Dichloroethene	107	70-130
Trichloroethene	111	70-130
trans-1,2-Dichloroethene	84	70-130
Tetrachloroethene	107	70-130
1,4-Dioxane	109	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	109	70-130
1,2-Dichloroethane-d4	102	70-130
4-Bromofluorobenzene	106	70-130

6/6/2018
Mr. Gustan Taylor
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: FORD LTP
Project #: MI001454.0004.00003
Workorder #: 1806042

Dear Mr. Gustan Taylor

The following report includes the data for the above referenced project for sample(s) received on 6/1/2018 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,




Ausha Scott
Project Manager

WORK ORDER #: 1806042

Work Order Summary

CLIENT:	Mr. Gustan Taylor Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	248.994.2294	P.O. #	MI001386.0001_AT_WA08
FAX:		PROJECT #	MI001454.0004.00003 FORD LTP
DATE RECEIVED:	06/01/2018	CONTACT:	Ausha Scott
DATE COMPLETED:	06/06/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SVMP-25D-6(052918)	TO-15	6.1 "Hg	15.6 psi
02A	SVMP-26-4(052918)	TO-15	5.7 "Hg	14.9 psi
03A	SVMP-25S-3(052918)	TO-15	5.5 "Hg	15.3 psi
04A	SVMP-27-4.5(052918)	TO-15	6.1 "Hg	14.5 psi
05A	SVMP-28-3(052918)	TO-15	7.1 "Hg	14.8 psi
06A	SVMP-12-3.5(052918)	TO-15	5.3 "Hg	14.7 psi
07A	SVMP-08-3.5(052918)	TO-15	6.3 "Hg	14.7 psi
08A	SVMP-09-4(053018)	TO-15	4.1 "Hg	14.2 psi
09A	SVMP-07-3.5(053018)	TO-15	5.5 "Hg	15.1 psi
10A	DUP-01(052918)	TO-15	5.9 "Hg	14.4 psi
11A	SVMP-06-4.5(053018)	TO-15	4.3 "Hg	15.3 psi
12A	SVMP-05-4.5(053018)	TO-15	4.7 "Hg	14.5 psi
13A	SVMP-04-3.5(053018)	TO-15	5.5 "Hg	14.3 psi
14A	SVMP-17-2(053018)	TO-15	5.3 "Hg	14.4 psi
15A	DUP-02(053018)	TO-15	5.5 "Hg	14.9 psi
16A	Lab Blank	TO-15	NA	NA
17A	CCV	TO-15	NA	NA
18A	LCS	TO-15	NA	NA
18AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 06/06/18

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1806042

Fifteen 1 Liter Summa Canister samples were received on June 01, 2018. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

The Chain of Custody (COC) information for sample SVMP-25S-3(052918) did not match the information on the canister with regard to canister identification. The client was notified of the discrepancy and the information on the canister was used to process and report the sample.

Sample collection date was not provided on the Chain of Custody (COC) for samples DUP-02(053018). The sampling date was taken from the tag.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue



**Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN**

Client Sample ID: SVMP-25D-6(052918)

Lab ID#: 1806042-01A

No Detections Were Found.

Client Sample ID: SVMP-26-4(052918)

Lab ID#: 1806042-02A

No Detections Were Found.

Client Sample ID: SVMP-25S-3(052918)

Lab ID#: 1806042-03A

No Detections Were Found.

Client Sample ID: SVMP-27-4.5(052918)

Lab ID#: 1806042-04A

No Detections Were Found.

Client Sample ID: SVMP-28-3(052918)

Lab ID#: 1806042-05A

No Detections Were Found.

Client Sample ID: SVMP-12-3.5(052918)

Lab ID#: 1806042-06A

No Detections Were Found.

Client Sample ID: SVMP-08-3.5(052918)

Lab ID#: 1806042-07A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	1.3	2.0	6.8	11

Client Sample ID: SVMP-09-4(053018)

Lab ID#: 1806042-08A

No Detections Were Found.



Summary of Detected Compounds EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SVMP-07-3.5(053018)

Lab ID#: 1806042-09A

No Detections Were Found.

Client Sample ID: DUP-01(052918)

Lab ID#: 1806042-10A

No Detections Were Found.

Client Sample ID: SVMP-06-4.5(053018)

Lab ID#: 1806042-11A

No Detections Were Found.

Client Sample ID: SVMP-05-4.5(053018)

Lab ID#: 1806042-12A

No Detections Were Found.

Client Sample ID: SVMP-04-3.5(053018)

Lab ID#: 1806042-13A

No Detections Were Found.

Client Sample ID: SVMP-17-2(053018)

Lab ID#: 1806042-14A

No Detections Were Found.

Client Sample ID: DUP-02(053018)

Lab ID#: 1806042-15A

No Detections Were Found.



Air Toxics

Client Sample ID: SVMP-25D-6(052918)

Lab ID#: 1806042-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060512	Date of Collection:	5/29/18 11:13:00 AM
Dil. Factor:	2.59	Date of Analysis:	6/5/18 03:58 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.3	Not Detected	3.3	Not Detected
1,1-Dichloroethene	1.3	Not Detected	5.1	Not Detected
cis-1,2-Dichloroethene	1.3	Not Detected	5.1	Not Detected
Trichloroethene	1.3	Not Detected	7.0	Not Detected
trans-1,2-Dichloroethene	1.3	Not Detected	5.1	Not Detected
Tetrachloroethene	1.3	Not Detected	8.8	Not Detected
1,4-Dioxane	5.2	Not Detected	19	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	93	70-130
4-Bromofluorobenzene	116	70-130



Air Toxics

Client Sample ID: SVMP-26-4(052918)

Lab ID#: 1806042-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060513	Date of Collection:	5/29/18 1:15:00 PM
Dil. Factor:	2.48	Date of Analysis:	6/5/18 04:26 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.2	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Trichloroethene	1.2	Not Detected	6.7	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Tetrachloroethene	1.2	Not Detected	8.4	Not Detected
1,4-Dioxane	5.0	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	94	70-130
4-Bromofluorobenzene	113	70-130



Air Toxics

Client Sample ID: SVMP-25S-3(052918)

Lab ID#: 1806042-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060514	Date of Collection:	5/29/18 11:50:00 AM
Dil. Factor:	2.50	Date of Analysis:	6/5/18 04:55 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.2	Not Detected
1,1-Dichloroethene	1.2	Not Detected	5.0	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	5.0	Not Detected
Trichloroethene	1.2	Not Detected	6.7	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	5.0	Not Detected
Tetrachloroethene	1.2	Not Detected	8.5	Not Detected
1,4-Dioxane	5.0	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	95	70-130
4-Bromofluorobenzene	114	70-130



Air Toxics

Client Sample ID: SVMP-27-4.5(052918)

Lab ID#: 1806042-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060517	Date of Collection:	5/29/18 2:11:00 PM
Dil. Factor:	2.49	Date of Analysis:	6/5/18 06:20 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.2	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Trichloroethene	1.2	Not Detected	6.7	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Tetrachloroethene	1.2	Not Detected	8.4	Not Detected
1,4-Dioxane	5.0	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	96	70-130
1,2-Dichloroethane-d4	93	70-130
4-Bromofluorobenzene	126	70-130



Air Toxics

Client Sample ID: SVMP-28-3(052918)

Lab ID#: 1806042-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060516	Date of Collection:	5/29/18 3:03:00 PM
Dil. Factor:	2.63	Date of Analysis:	6/5/18 05:51 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.3	Not Detected	3.4	Not Detected
1,1-Dichloroethene	1.3	Not Detected	5.2	Not Detected
cis-1,2-Dichloroethene	1.3	Not Detected	5.2	Not Detected
Trichloroethene	1.3	Not Detected	7.1	Not Detected
trans-1,2-Dichloroethene	1.3	Not Detected	5.2	Not Detected
Tetrachloroethene	1.3	Not Detected	8.9	Not Detected
1,4-Dioxane	5.3	Not Detected	19	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	111	70-130
1,2-Dichloroethane-d4	93	70-130
4-Bromofluorobenzene	112	70-130



Air Toxics

Client Sample ID: SVMP-12-3.5(052918)

Lab ID#: 1806042-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060515	Date of Collection:	5/29/18 3:55:00 PM
Dil. Factor:	2.43	Date of Analysis:	6/5/18 05:23 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.5	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrachloroethene	1.2	Not Detected	8.2	Not Detected
1,4-Dioxane	4.9	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	92	70-130
1,2-Dichloroethane-d4	91	70-130
4-Bromofluorobenzene	115	70-130



Air Toxics

Client Sample ID: SVMP-08-3.5(052918)

Lab ID#: 1806042-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060518	Date of Collection:	5/29/18 4:36:00 PM
Dil. Factor:	2.53	Date of Analysis:	6/5/18 08:53 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.3	Not Detected	3.2	Not Detected
1,1-Dichloroethene	1.3	Not Detected	5.0	Not Detected
cis-1,2-Dichloroethene	1.3	Not Detected	5.0	Not Detected
Trichloroethene	1.3	2.0	6.8	11
trans-1,2-Dichloroethene	1.3	Not Detected	5.0	Not Detected
Tetrachloroethene	1.3	Not Detected	8.6	Not Detected
1,4-Dioxane	5.1	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	94	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	115	70-130



Air Toxics

Client Sample ID: SVMP-09-4(053018)

Lab ID#: 1806042-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060521	Date of Collection:	5/30/18 6:43:00 AM
Dil. Factor:	2.28	Date of Analysis:	6/5/18 10:18 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.5	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Trichloroethene	1.1	Not Detected	6.1	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Tetrachloroethene	1.1	Not Detected	7.7	Not Detected
1,4-Dioxane	4.6	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	94	70-130
4-Bromofluorobenzene	114	70-130



Air Toxics

Client Sample ID: SVMP-07-3.5(053018)

Lab ID#: 1806042-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060522	Date of Collection:	5/30/18 8:03:00 AM
Dil. Factor:	2.48	Date of Analysis:	6/5/18 10:46 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.2	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Trichloroethene	1.2	Not Detected	6.7	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Tetrachloroethene	1.2	Not Detected	8.4	Not Detected
1,4-Dioxane	5.0	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	94	70-130
4-Bromofluorobenzene	113	70-130



Air Toxics

Client Sample ID: DUP-01(052918)

Lab ID#: 1806042-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060519	Date of Collection:	5/29/18
Dil. Factor:	2.46	Date of Analysis:	6/5/18 09:21 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Trichloroethene	1.2	Not Detected	6.6	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Tetrachloroethene	1.2	Not Detected	8.3	Not Detected
1,4-Dioxane	4.9	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	114	70-130



Air Toxics

Client Sample ID: SVMP-06-4.5(053018)

Lab ID#: 1806042-11A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060523	Date of Collection:	5/30/18 9:03:00 AM
Dil. Factor:	2.38	Date of Analysis:	6/5/18 11:14 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.1	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	93	70-130
4-Bromofluorobenzene	114	70-130



Air Toxics

Client Sample ID: SVMP-05-4.5(053018)

Lab ID#: 1806042-12A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060524	Date of Collection:	5/30/18 9:53:00 AM
Dil. Factor:	2.36	Date of Analysis:	6/5/18 11:42 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.0	Not Detected
1,4-Dioxane	4.7	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	93	70-130
4-Bromofluorobenzene	113	70-130



Air Toxics

Client Sample ID: SVMP-04-3.5(053018)

Lab ID#: 1806042-13A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060520	Date of Collection:	5/30/18 11:38:00 AM
Dil. Factor:	2.42	Date of Analysis:	6/5/18 09:49 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.5	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrachloroethene	1.2	Not Detected	8.2	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	114	70-130



Air Toxics

Client Sample ID: SVMP-17-2(053018)

Lab ID#: 1806042-14A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060525	Date of Collection:	5/30/18 2:28:00 PM
Dil. Factor:	2.40	Date of Analysis:	6/6/18 12:11 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrachloroethene	1.2	Not Detected	8.1	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	117	70-130



Air Toxics

Client Sample ID: DUP-02(053018)

Lab ID#: 1806042-15A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060526	Date of Collection:	5/30/18
Dil. Factor:	2.46	Date of Analysis:	6/6/18 12:39 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Trichloroethene	1.2	Not Detected	6.6	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Tetrachloroethene	1.2	Not Detected	8.3	Not Detected
1,4-Dioxane	4.9	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	110	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1806042-16A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060511	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	6/5/18 02:43 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	91	70-130
4-Bromofluorobenzene	110	70-130



Client Sample ID: CCV

Lab ID#: 1806042-17A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060508	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/5/18 01:21 PM

Compound	%Recovery
Vinyl Chloride	74
1,1-Dichloroethene	91
cis-1,2-Dichloroethene	98
Trichloroethene	97
trans-1,2-Dichloroethene	96
Tetrachloroethene	110
1,4-Dioxane	95

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	96	70-130
4-Bromofluorobenzene	113	70-130



Client Sample ID: LCS

Lab ID#: 1806042-18A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060509	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/5/18 01:48 PM

Compound	%Recovery	Method Limits
Vinyl Chloride	77	70-130
1,1-Dichloroethene	91	70-130
cis-1,2-Dichloroethene	88	70-130
Trichloroethene	102	70-130
trans-1,2-Dichloroethene	104	70-130
Tetrachloroethene	110	70-130
1,4-Dioxane	106	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	94	70-130
4-Bromofluorobenzene	113	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1806042-18AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060510	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/5/18 02:15 PM

Compound	%Recovery	Method Limits
Vinyl Chloride	77	70-130
1,1-Dichloroethene	92	70-130
cis-1,2-Dichloroethene	86	70-130
Trichloroethene	98	70-130
trans-1,2-Dichloroethene	102	70-130
Tetrachloroethene	114	70-130
1,4-Dioxane	101	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	114	70-130

[REDACTED]

9/1/2018

Mr. Gustan Taylor
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: FORD LTP
Project #: MI001454.0004.00003
Workorder #: 1808627

Dear Mr. Gustan Taylor

The following report includes the data for the above referenced project for sample(s) received on 8/27/2018 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

[REDACTED]

Ausha Scott
Project Manager

WORK ORDER #: 1808627

Work Order Summary

CLIENT: Mr. Gustan Taylor
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi, MI 48377

BILL TO: Accounts Payable
Arcadis U.S., Inc.
630 Plaza Drive
Suite 600
Highlands Ranch, CO 80129

PHONE: 248.994.2294

P.O. # MI001454.0004.0001B

FAX:

PROJECT # MI001454.0004.00003 FORD LTP

DATE RECEIVED: 08/27/2018

CONTACT: Ausha Scott

DATE COMPLETED: 09/01/2018

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SVMP-01D-7(082218)	TO-15	4.3 "Hg	15.3 psi
02A	SVMP-01S-3.5(082218)	TO-15	5.5 "Hg	14.6 psi
03A	SVMP-02S-4.5(082218)	TO-15	5.9 "Hg	15.1 psi
04A	SVMP-02D-8.5(082218)	TO-15	5.1 "Hg	15.4 psi
05A	SVMP-03S-3.5(082218)	TO-15	3.9 "Hg	14.8 psi
06A	SVMP-03D-7(082218)	TO-15	4.1 "Hg	14.6 psi
07A	SVMP-25S-3(082318)	TO-15	5.9 "Hg	14.9 psi
08A	SVMP-25D-6(082318)	TO-15	4.5 "Hg	15.1 psi
09A	Lab Blank	TO-15	NA	NA
10A	CCV	TO-15	NA	NA
11A	LCS	TO-15	NA	NA
11AA	LCSD	TO-15	NA	NA

CERTIFIED BY:



Technical Director

DATE: 09/01/18

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1808627

Eight 1 Liter Summa Canister samples were received on August 27, 2018. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

The Chain of Custody (COC) was not relinquished properly. A signature, date and time were not provided by the field sampler.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.


CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue



**Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN**

Client Sample ID: SVMP-01D-7(082218)

Lab ID#: 1808627-01A

No Detections Were Found.

Client Sample ID: SVMP-01S-3.5(082218)

Lab ID#: 1808627-02A

No Detections Were Found.

Client Sample ID: SVMP-02S-4.5(082218)

Lab ID#: 1808627-03A

No Detections Were Found.

Client Sample ID: SVMP-02D-8.5(082218)

Lab ID#: 1808627-04A

No Detections Were Found.

Client Sample ID: SVMP-03S-3.5(082218)

Lab ID#: 1808627-05A

No Detections Were Found.

Client Sample ID: SVMP-03D-7(082218)

Lab ID#: 1808627-06A

No Detections Were Found.

Client Sample ID: SVMP-25S-3(082318)

Lab ID#: 1808627-07A

No Detections Were Found.

Client Sample ID: SVMP-25D-6(082318)

Lab ID#: 1808627-08A

No Detections Were Found.

Client Sample ID: SVMP-01D-7(082218)

Lab ID#: 1808627-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a082920	Date of Collection:	8/22/18 2:19:00 PM
Dil. Factor:	2.38	Date of Analysis:	8/29/18 11:58 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.1	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	103	70-130

Client Sample ID: SVMP-01S-3.5(082218)

Lab ID#: 1808627-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a082921	Date of Collection:	8/22/18 3:04:00 PM
Dil. Factor:	2.44	Date of Analysis:	8/30/18 12:24 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.6	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrachloroethene	1.2	Not Detected	8.3	Not Detected
1,4-Dioxane	4.9	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	103	70-130

Client Sample ID: SVMP-02S-4.5(082218)

Lab ID#: 1808627-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a082922	Date of Collection:	8/22/18 3:47:00 PM
Dil. Factor:	2.52	Date of Analysis:	8/30/18 12:50 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.3	Not Detected	3.2	Not Detected
1,1-Dichloroethene	1.3	Not Detected	5.0	Not Detected
cis-1,2-Dichloroethene	1.3	Not Detected	5.0	Not Detected
Trichloroethene	1.3	Not Detected	6.8	Not Detected
trans-1,2-Dichloroethene	1.3	Not Detected	5.0	Not Detected
Tetrachloroethene	1.3	Not Detected	8.5	Not Detected
1,4-Dioxane	5.0	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	103	70-130

Client Sample ID: SVMP-02D-8.5(082218)

Lab ID#: 1808627-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a082923	Date of Collection:	8/22/18 3:52:00 PM
Dil. Factor:	2.47	Date of Analysis:	8/30/18 01:16 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.2	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Trichloroethene	1.2	Not Detected	6.6	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Tetrachloroethene	1.2	Not Detected	8.4	Not Detected
1,4-Dioxane	4.9	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	102	70-130

Client Sample ID: SVMP-03S-3.5(082218)

Lab ID#: 1808627-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a082924	Date of Collection:	8/22/18 4:44:00 PM
Dil. Factor:	2.31	Date of Analysis:	8/30/18 01:43 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Trichloroethene	1.2	Not Detected	6.2	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrachloroethene	1.2	Not Detected	7.8	Not Detected
1,4-Dioxane	4.6	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	102	70-130



Air Toxics

Client Sample ID: SVMP-03D-7(082218)

Lab ID#: 1808627-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a082925	Date of Collection:	8/22/18 4:46:00 PM
Dil. Factor:	2.31	Date of Analysis:	8/30/18 02:09 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Trichloroethene	1.2	Not Detected	6.2	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrachloroethene	1.2	Not Detected	7.8	Not Detected
1,4-Dioxane	4.6	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	102	70-130
4-Bromofluorobenzene	103	70-130



Air Toxics

Client Sample ID: SVMP-25S-3(082318)

Lab ID#: 1808627-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a082927	Date of Collection:	8/23/18 9:02:00 AM
Dil. Factor:	2.51	Date of Analysis:	8/30/18 03:02 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.2	Not Detected
1,1-Dichloroethene	1.2	Not Detected	5.0	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	5.0	Not Detected
Trichloroethene	1.2	Not Detected	6.7	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	5.0	Not Detected
Tetrachloroethene	1.2	Not Detected	8.5	Not Detected
1,4-Dioxane	5.0	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	96	70-130
4-Bromofluorobenzene	101	70-130



Air Toxics

Client Sample ID: SVMP-25D-6(082318)

Lab ID#: 1808627-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a082926	Date of Collection:	8/23/18 9:11:00 AM
Dil. Factor:	2.38	Date of Analysis:	8/30/18 02:36 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.1	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	103	70-130
4-Bromofluorobenzene	101	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1808627-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a082905	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	8/29/18 12:03 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	96	70-130
4-Bromofluorobenzene	105	70-130

Client Sample ID: CCV

Lab ID#: 1808627-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a082902	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/29/18 09:50 AM

Compound	%Recovery
Vinyl Chloride	112
1,1-Dichloroethene	111
cis-1,2-Dichloroethene	111
Trichloroethene	107
trans-1,2-Dichloroethene	113
Tetrachloroethene	103
1,4-Dioxane	100

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	106	70-130

Client Sample ID: LCS

Lab ID#: 1808627-11A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a082903	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/29/18 10:43 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	111	70-130
1,1-Dichloroethene	105	70-130
cis-1,2-Dichloroethene	100	70-130
Trichloroethene	107	70-130
trans-1,2-Dichloroethene	119	70-130
Tetrachloroethene	100	70-130
1,4-Dioxane	93	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	105	70-130

Client Sample ID: LCSD

Lab ID#: 1808627-11AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a082904	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/29/18 11:10 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	110	70-130
1,1-Dichloroethene	107	70-130
cis-1,2-Dichloroethene	100	70-130
Trichloroethene	107	70-130
trans-1,2-Dichloroethene	117	70-130
Tetrachloroethene	101	70-130
1,4-Dioxane	100	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	106	70-130

11/15/2018
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #: MI001454.0004.00003
Workorder #: 1811197


Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 11/9/2018 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1811197

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0004.0001B
FAX:		PROJECT #	MI001454.0004.00003 Ford LTP
DATE RECEIVED:	11/09/2018	CONTACT:	Ausha Scott
DATE COMPLETED:	11/15/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SVMP-22-3(110518)	TO-15	4.7 "Hg	14.9 psi
02A	SVMP-23-3(110518)	TO-15	3.1 "Hg	15.2 psi
03A	SVMP-24-4(110518)	TO-15	3.9 "Hg	14.6 psi
04A	SVMP-07-3.5(110518)	TO-15	4.3 "Hg	15.5 psi
05A	SVMP-06-4.5(110518)	TO-15	3.1 "Hg	14.8 psi
06A	SVMP-05-4.5(110518)	TO-15	3.7 "Hg	14.9 psi
07A	SVMP-04-3.5(110518)	TO-15	6.1 "Hg	15.3 psi
08A	SVMP-08-3.5(110518)	TO-15	4.3 "Hg	14.8 psi
09A	SVMP-09-4(110518)	TO-15	2.8 "Hg	14.7 psi
10A	SVMP-10-3(110518)	TO-15	4.7 "Hg	14.8 psi
11A	SVMP-25D-6(110618)	TO-15	4.5 "Hg	15 psi
12A	SVMP-25S-3(110618)	TO-15	3.9 "Hg	14.9 psi
13A	SVMP-26-4(110618)	TO-15	5.9 "Hg	14.7 psi
14A	SVMP-27-4.5(110618)	TO-15	3.3 "Hg	14.8 psi
15A	SVMP-28-3(110618)	TO-15	4.5 "Hg	15 psi
16A	DUP-01(110618)	TO-15	2.8 "Hg	15.1 psi
17A	Lab Blank	TO-15	NA	NA
18A	CCV	TO-15	NA	NA
19A	LCS	TO-15	NA	NA
19AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 11/15/18

Certification numbers: AZ Licensure AZ0775, FL NELAP - E8 , LA NELAP - 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP CA009332018-10, VA NELAP - 9505, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005-011, Effective date: 10/18/2018, Expiration date: 10/17/2019.

Eurofins Air Toxics LLC. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1811197

Sixteen 1 Liter Summa Canister samples were received on November 09, 2018. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified (0.2 ppbv for compounds reported at 0.5 ppbv and 0.8 ppbv for compounds reported at 2.0 ppbv) may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: SVMP-22-3(110518)
Lab ID: 1811197-01A
Date/Time Collected: 11/5/18 08:50 AM
Media: 1 Liter Summa Canister

Date/Time Analyzed: 11/14/18 07:48 PM
Dilution Factor: 2.39
Instrument/Filename: msda.i / a111406

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.8	4.7	Not Detected
1,4-Dioxane	123-91-1	3.4	8.6	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.8	4.7	Not Detected
Tetrachloroethene	127-18-4	1.4	6.5	8.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.3	3.8	4.7	Not Detected
Trichloroethene	79-01-6	2.0	5.1	6.4	Not Detected
Vinyl Chloride	75-01-4	1.2	2.4	3.0	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	SVMP-23-3(110518)	Date/Time Analyzed:	11/14/18 08:14 PM
Lab ID:	1811197-02A	Dilution Factor:	2.27
Date/Time Collected:	11/5/18 09:30 AM	Instrument/Filename:	msda.i / a111407
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.6	4.5	Not Detected
1,4-Dioxane	123-91-1	3.3	8.2	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.6	4.5	Not Detected
Tetrachloroethene	127-18-4	1.4	6.2	7.7	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.3	3.6	4.5	Not Detected
Trichloroethene	79-01-6	2.0	4.9	6.1	Not Detected
Vinyl Chloride	75-01-4	1.1	2.3	2.9	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: SVMP-24-4(110518)
Lab ID: 1811197-03A
Date/Time Collected: 11/5/18 10:19 AM
Media: 1 Liter Summa Canister

Date/Time Analyzed: 11/14/18 08:41 PM
Dilution Factor: 2.29
Instrument/Filename: msda.i / a111408

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.6	4.5	Not Detected
1,4-Dioxane	123-91-1	3.3	8.2	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.6	4.5	Not Detected
Tetrachloroethene	127-18-4	1.4	6.2	7.8	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.3	3.6	4.5	Not Detected
Trichloroethene	79-01-6	2.0	4.9	6.2	Not Detected
Vinyl Chloride	75-01-4	1.1	2.3	2.9	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	SVMP-07-3.5(110518)	Date/Time Analyzed:	11/14/18 09:07 PM
Lab ID:	1811197-04A	Dilution Factor:	2.40
Date/Time Collected:	11/5/18 10:58 AM	Instrument/Filename:	msda.i / a111409
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.8	4.8	Not Detected
1,4-Dioxane	123-91-1	3.4	8.6	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.8	4.8	Not Detected
Tetrachloroethene	127-18-4	1.5	6.5	8.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.3	3.8	4.8	Not Detected
Trichloroethene	79-01-6	2.1	5.2	6.4	Not Detected
Vinyl Chloride	75-01-4	1.2	2.4	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	SVMP-06-4.5(110518)	Date/Time Analyzed:	11/14/18 09:33 PM
Lab ID:	1811197-05A	Dilution Factor:	2.24
Date/Time Collected:	11/5/18 11:38 AM	Instrument/Filename:	msda.i / a111410
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.6	4.4	Not Detected
1,4-Dioxane	123-91-1	3.2	8.1	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.6	4.4	Not Detected
Tetrachloroethene	127-18-4	1.4	6.1	7.6	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.2	3.6	4.4	Not Detected
Trichloroethene	79-01-6	1.9	4.8	6.0	Not Detected
Vinyl Chloride	75-01-4	1.1	2.3	2.9	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-05-4.5(110518)	Date/Time Analyzed:	11/14/18 11:41 PM
Lab ID:	1811197-06A	Dilution Factor:	2.30
Date/Time Collected:	11/5/18 12:18 PM	Instrument/Filename:	msda.i / a111411
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.6	4.6	Not Detected
1,4-Dioxane	123-91-1	3.3	8.3	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.6	4.6	Not Detected
Tetrachloroethene	127-18-4	1.4	6.2	7.8	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.3	3.6	4.6	Not Detected
Trichloroethene	79-01-6	2.0	4.9	6.2	Not Detected
Vinyl Chloride	75-01-4	1.1	2.4	2.9	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SVMP-04-3.5(110518)	Date/Time Analyzed:	11/15/18 12:08 AM
Lab ID:	1811197-07A	Dilution Factor:	2.56
Date/Time Collected:	11/5/18 01:54 PM	Instrument/Filename:	msda.i / a111412
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.9	4.1	5.1	Not Detected
1,4-Dioxane	123-91-1	3.7	9.2	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.5	4.0	5.1	Not Detected
Tetrachloroethene	127-18-4	1.6	6.9	8.7	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.4	4.0	5.1	Not Detected
Trichloroethene	79-01-6	2.2	5.5	6.9	Not Detected
Vinyl Chloride	75-01-4	1.2	2.6	3.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-08-3.5(110518)	Date/Time Analyzed:	11/15/18 12:40 AM
Lab ID:	1811197-08A	Dilution Factor:	2.34
Date/Time Collected:	11/5/18 02:35 PM	Instrument/Filename:	msda.i / a111413
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.7	4.6	Not Detected
1,4-Dioxane	123-91-1	3.4	8.4	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.7	4.6	Not Detected
Tetrachloroethene	127-18-4	1.4	6.3	7.9	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.3	3.7	4.6	Not Detected
Trichloroethene	79-01-6	2.0	5.0	6.3	Not Detected
Vinyl Chloride	75-01-4	1.1	2.4	3.0	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-09-4(110518)	Date/Time Analyzed:	11/15/18 01:07 AM
Lab ID:	1811197-09A	Dilution Factor:	2.20
Date/Time Collected:	11/5/18 03:02 PM	Instrument/Filename:	msda.i / a111414
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.6	3.5	4.4	Not Detected
1,4-Dioxane	123-91-1	3.2	7.9	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.5	4.4	Not Detected
Tetrachloroethene	127-18-4	1.3	6.0	7.5	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.2	3.5	4.4	Not Detected
Trichloroethene	79-01-6	1.9	4.7	5.9	Not Detected
Vinyl Chloride	75-01-4	1.1	2.2	2.8	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-10-3(110518)	Date/Time Analyzed:	11/15/18 01:43 AM
Lab ID:	1811197-10A	Dilution Factor:	2.38
Date/Time Collected:	11/5/18 03:45 PM	Instrument/Filename:	msda.i / a111415
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.8	4.7	Not Detected
1,4-Dioxane	123-91-1	3.4	8.6	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.8	4.7	Not Detected
Tetrachloroethene	127-18-4	1.4	6.4	8.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.3	3.8	4.7	Not Detected
Trichloroethene	79-01-6	2.0	5.1	6.4	Not Detected
Vinyl Chloride	75-01-4	1.2	2.4	3.0	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-25D-6(110618)	Date/Time Analyzed:	11/15/18 02:36 AM
Lab ID:	1811197-11A	Dilution Factor:	2.38
Date/Time Collected:	11/6/18 08:50 AM	Instrument/Filename:	msda.i / a111417
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.8	4.7	Not Detected
1,4-Dioxane	123-91-1	3.4	8.6	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.8	4.7	Not Detected
Tetrachloroethene	127-18-4	1.4	6.4	8.1	2.5 J
trans-1,2-Dichloroethene	156-60-5	1.3	3.8	4.7	Not Detected
Trichloroethene	79-01-6	2.0	5.1	6.4	Not Detected
Vinyl Chloride	75-01-4	1.2	2.4	3.0	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-25S-3(110618)	Date/Time Analyzed:	11/15/18 03:03 AM
Lab ID:	1811197-12A	Dilution Factor:	2.31
Date/Time Collected:	11/6/18 08:57 AM	Instrument/Filename:	msda.i / a111418
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.7	4.6	Not Detected
1,4-Dioxane	123-91-1	3.3	8.3	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.7	4.6	Not Detected
Tetrachloroethene	127-18-4	1.4	6.3	7.8	1.6 J
trans-1,2-Dichloroethene	156-60-5	1.3	3.7	4.6	Not Detected
Trichloroethene	79-01-6	2.0	5.0	6.2	Not Detected
Vinyl Chloride	75-01-4	1.1	2.4	3.0	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-26-4(110618)	Date/Time Analyzed:	11/15/18 03:29 AM
Lab ID:	1811197-13A	Dilution Factor:	2.49
Date/Time Collected:	11/6/18 09:37 AM	Instrument/Filename:	msda.i / a111419
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.9	3.9	4.9	Not Detected
1,4-Dioxane	123-91-1	3.6	9.0	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.5	3.9	4.9	Not Detected
Tetrachloroethene	127-18-4	1.5	6.8	8.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.4	3.9	4.9	Not Detected
Trichloroethene	79-01-6	2.1	5.4	6.7	Not Detected
Vinyl Chloride	75-01-4	1.2	2.5	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	103

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-27-4.5(110618)	Date/Time Analyzed:	11/15/18 03:55 AM
Lab ID:	1811197-14A	Dilution Factor:	2.25
Date/Time Collected:	11/6/18 10:28 AM	Instrument/Filename:	msda.i / a111420
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.6	4.5	Not Detected
1,4-Dioxane	123-91-1	3.2	8.1	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.6	4.5	Not Detected
Tetrachloroethene	127-18-4	1.4	6.1	7.6	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.2	3.6	4.5	Not Detected
Trichloroethene	79-01-6	1.9	4.8	6.0	Not Detected
Vinyl Chloride	75-01-4	1.1	2.3	2.9	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	108
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-28-3(110618)	Date/Time Analyzed:	11/15/18 04:22 AM
Lab ID:	1811197-15A	Dilution Factor:	2.38
Date/Time Collected:	11/6/18 12:38 PM	Instrument/Filename:	msda.i / a111421
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.8	4.7	Not Detected
1,4-Dioxane	123-91-1	3.4	8.6	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.8	4.7	Not Detected
Tetrachloroethene	127-18-4	1.4	6.4	8.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.3	3.8	4.7	Not Detected
Trichloroethene	79-01-6	2.0	5.1	6.4	Not Detected
Vinyl Chloride	75-01-4	1.2	2.4	3.0	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	DUP-01(110618)	Date/Time Analyzed:	11/15/18 02:10 AM
Lab ID:	1811197-16A	Dilution Factor:	2.24
Date/Time Collected:	11/6/18 12:00 AM	Instrument/Filename:	msda.i / a111416
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.6	4.4	Not Detected
1,4-Dioxane	123-91-1	3.2	8.1	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.6	4.4	Not Detected
Tetrachloroethene	127-18-4	1.4	6.1	7.6	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.2	3.6	4.4	Not Detected
Trichloroethene	79-01-6	1.9	4.8	6.0	Not Detected
Vinyl Chloride	75-01-4	1.1	2.3	2.9	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	11/14/18 06:40 PM
Lab ID:	1811197-17A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a111405
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.75	1.6	2.0	Not Detected
1,4-Dioxane	123-91-1	1.4	3.6	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.59	1.6	2.0	Not Detected
Tetrachloroethene	127-18-4	0.61	2.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.56	1.6	2.0	Not Detected
Trichloroethene	79-01-6	0.86	2.1	2.7	Not Detected
Vinyl Chloride	75-01-4	0.48	1.0	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	CCV	Date/Time Analyzed:	11/14/18 05:09 PM
Lab ID:	1811197-18A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a111402
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	112
1,4-Dioxane	123-91-1	92
cis-1,2-Dichloroethene	156-59-2	110
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	110
Trichloroethene	79-01-6	97
Vinyl Chloride	75-01-4	113

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	105

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCS	Date/Time Analyzed:	11/14/18 05:36 PM
Lab ID:	1811197-19A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a111403
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	103
1,4-Dioxane	123-91-1	92
cis-1,2-Dichloroethene	156-59-2	98
Tetrachloroethene	127-18-4	100
trans-1,2-Dichloroethene	156-60-5	113
Trichloroethene	79-01-6	100
Vinyl Chloride	75-01-4	105

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	101

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	11/14/18 06:02 PM
Lab ID:	1811197-19AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a111404
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	102
1,4-Dioxane	123-91-1	91
cis-1,2-Dichloroethene	156-59-2	97
Tetrachloroethene	127-18-4	98
trans-1,2-Dichloroethene	156-60-5	114
Trichloroethene	79-01-6	100
Vinyl Chloride	75-01-4	107

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	100

* % Recovery is calculated using unrounded analytical results.

[REDACTED]

4/11/2019

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #: MI001454.0006
Workorder #: 1903633R1

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 3/26/2019 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

[REDACTED]


Ausha Scott
Project Manager

WORK ORDER #: 1903633R1

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0004.0001B
FAX:		PROJECT #	MI001454.0006 Ford LTP
DATE RECEIVED:	03/26/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	03/30/2019		
DATE REISSUED:	04/11/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A(cancelled)	SVMP-3S-3.5_032119	TO-15	1.8 "Hg	15.5 psi
02A	SVMP-3D-7_032119	TO-15	4.7 "Hg	15.6 psi
03A	SVMP-02S-4.5_032119	TO-15	3.9 "Hg	15.9 psi
04A	DUP-01	TO-15	4.5 "Hg	16 psi
05A	SVMP-06-4.5_032119	TO-15	4.9 "Hg	15.8 psi
06A	SVMP-12-3.5_032119	TO-15	4.1 "Hg	16 psi
07A	SVMP-24-4_032119	TO-15	4.5 "Hg	15.7 psi
08A	SVMP-25D-6_032119	TO-15	6.7 "Hg	15.1 psi
09A	SVMP-25S-3_032119	TO-15	4.9 "Hg	16 psi
10A	SVMP-26-4_032119	TO-15	5.1 "Hg	16.1 psi
11A	Lab Blank	TO-15	NA	NA
12A	CCV	TO-15	NA	NA
13A	LCS	TO-15	NA	NA
13AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 04/11/19

Certification numbers: AZ Licensure AZ0775, FL NELAP - E8 , LA NELAP - 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP CA009332018-10, VA NELAP - 9505, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005-011, Effective date: 10/18/2018, Expiration date: 10/17/2019.

Eurofins Air Toxics LLC. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1903633R1

Ten 1 Liter Summa Canister (100% Certified) samples were received on March 26, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

Sample SVMP-35-3.5_032119 was cancelled on 03/28/2019 per client's request.

The work order was reissued on 4/11/2019 to correct identification of samples SVMP-3S-3.5_032119 and SVMP-3D-7_032119 due to laboratory transcription error.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified (0.2 ppbv for compounds reported at 0.5 ppbv and 0.8 ppbv for compounds reported at 2.0 ppbv) may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	SVMP-3D-7_032119	Date/Time Analyzed:	3/28/19 03:51 PM
Lab ID:	1903633R1-02A	Dilution Factor:	2.44
Date/Time Collected:	3/21/19 11:35 AM	Instrument/Filename:	msd3.i / 3032808
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.9	4.8	Not Detected
1,4-Dioxane	123-91-1	1.6	8.8	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.1	3.9	4.8	Not Detected
Tetrachloroethene	127-18-4	1.6	6.6	8.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.4	3.9	4.8	Not Detected
Trichloroethene	79-01-6	1.0	5.2	6.6	Not Detected
Vinyl Chloride	75-01-4	1.7	2.5	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	SVMP-02S-4.5_032119	Date/Time Analyzed:	3/28/19 04:17 PM
Lab ID:	1903633R1-03A	Dilution Factor:	2.39
Date/Time Collected:	3/21/19 10:53 AM	Instrument/Filename:	msd3.i / 3032809
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.8	4.7	Not Detected
1,4-Dioxane	123-91-1	1.6	8.6	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	3.8	4.7	Not Detected
Tetrachloroethene	127-18-4	1.6	6.5	8.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.4	3.8	4.7	Not Detected
Trichloroethene	79-01-6	1.0	5.1	6.4	Not Detected
Vinyl Chloride	75-01-4	1.7	2.4	3.0	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	DUP-01	Date/Time Analyzed:	3/28/19 04:43 PM
Lab ID:	1903633R1-04A	Dilution Factor:	2.46
Date/Time Collected:	3/21/19 12:00 AM	Instrument/Filename:	msd3.i / 3032810
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.9	4.9	Not Detected
1,4-Dioxane	123-91-1	1.6	8.9	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.1	3.9	4.9	Not Detected
Tetrachloroethene	127-18-4	1.7	6.7	8.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.5	3.9	4.9	Not Detected
Trichloroethene	79-01-6	1.0	5.3	6.6	Not Detected
Vinyl Chloride	75-01-4	1.8	2.5	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	SVMP-06-4.5_032119	Date/Time Analyzed:	3/28/19 05:10 PM
Lab ID:	1903633R1-05A	Dilution Factor:	2.48
Date/Time Collected:	3/21/19 12:21 PM	Instrument/Filename:	msd3.i / 3032811
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.9	4.9	Not Detected
1,4-Dioxane	123-91-1	1.6	8.9	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.1	3.9	4.9	Not Detected
Tetrachloroethene	127-18-4	1.7	6.7	8.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.5	3.9	4.9	Not Detected
Trichloroethene	79-01-6	1.1	5.3	6.7	Not Detected
Vinyl Chloride	75-01-4	1.8	2.5	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	SVMP-12-3.5_032119	Date/Time Analyzed:	3/28/19 02:58 PM
Lab ID:	1903633R1-06A	Dilution Factor:	2.42
Date/Time Collected:	3/21/19 01:52 PM	Instrument/Filename:	msd3.i / 3032806
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.8	4.8	Not Detected
1,4-Dioxane	123-91-1	1.6	8.7	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	3.8	4.8	Not Detected
Tetrachloroethene	127-18-4	1.6	6.6	8.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.4	3.8	4.8	Not Detected
Trichloroethene	79-01-6	1.0	5.2	6.5	Not Detected
Vinyl Chloride	75-01-4	1.7	2.5	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-24-4_032119	Date/Time Analyzed:	3/28/19 05:36 PM
Lab ID:	1903633R1-07A	Dilution Factor:	2.43
Date/Time Collected:	3/21/19 02:47 PM	Instrument/Filename:	msd3.i / 3032812
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.8	4.8	Not Detected
1,4-Dioxane	123-91-1	1.6	8.8	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	3.8	4.8	Not Detected
Tetrachloroethene	127-18-4	1.6	6.6	8.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.4	3.8	4.8	Not Detected
Trichloroethene	79-01-6	1.0	5.2	6.5	Not Detected
Vinyl Chloride	75-01-4	1.7	2.5	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-25D-6_032119	Date/Time Analyzed:	3/28/19 06:02 PM
Lab ID:	1903633R1-08A	Dilution Factor:	2.61
Date/Time Collected:	3/21/19 03:36 PM	Instrument/Filename:	msd3.i / 3032813
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.9	4.1	5.2	Not Detected
1,4-Dioxane	123-91-1	1.7	9.4	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.1	4.1	5.2	Not Detected
Tetrachloroethene	127-18-4	1.8	7.1	8.8	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.6	4.1	5.2	Not Detected
Trichloroethene	79-01-6	1.1	5.6	7.0	Not Detected
Vinyl Chloride	75-01-4	1.9	2.7	3.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SVMP-25S-3_032119	Date/Time Analyzed:	3/28/19 09:23 PM
Lab ID:	1903633R1-09A	Dilution Factor:	2.50
Date/Time Collected:	3/21/19 03:36 PM	Instrument/Filename:	msd3.i / 3032816
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	4.0	5.0	Not Detected
1,4-Dioxane	123-91-1	1.6	9.0	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.1	4.0	5.0	Not Detected
Tetrachloroethene	127-18-4	1.7	6.8	8.5	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.5	4.0	5.0	Not Detected
Trichloroethene	79-01-6	1.1	5.4	6.7	Not Detected
Vinyl Chloride	75-01-4	1.8	2.6	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	108
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SVMP-26-4_032119	Date/Time Analyzed:	3/28/19 09:49 PM
Lab ID:	1903633R1-10A	Dilution Factor:	2.52
Date/Time Collected:	3/21/19 04:23 PM	Instrument/Filename:	msd3.i / 3032817
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	4.0	5.0	Not Detected
1,4-Dioxane	123-91-1	1.6	9.1	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.1	4.0	5.0	Not Detected
Tetrachloroethene	127-18-4	1.7	6.8	8.5	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.5	4.0	5.0	Not Detected
Trichloroethene	79-01-6	1.1	5.4	6.8	Not Detected
Vinyl Chloride	75-01-4	1.8	2.6	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	111
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	3/28/19 01:31 PM
Lab ID:	1903633R1-11A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3032805c
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.71	1.6	2.0	Not Detected
1,4-Dioxane	123-91-1	0.65	3.6	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.44	1.6	2.0	Not Detected
Tetrachloroethene	127-18-4	0.68	2.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.59	1.6	2.0	Not Detected
Trichloroethene	79-01-6	0.43	2.1	2.7	Not Detected
Vinyl Chloride	75-01-4	0.72	1.0	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	96

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	CCV	Date/Time Analyzed:	3/28/19 10:32 AM
Lab ID:	1903633R1-12A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3032802
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	108
1,4-Dioxane	123-91-1	91
cis-1,2-Dichloroethene	156-59-2	103
Tetrachloroethene	127-18-4	107
trans-1,2-Dichloroethene	156-60-5	105
Trichloroethene	79-01-6	101
Vinyl Chloride	75-01-4	103

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCS	Date/Time Analyzed:	3/28/19 11:39 AM
Lab ID:	1903633R1-13A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3032803
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	104
1,4-Dioxane	123-91-1	90
cis-1,2-Dichloroethene	156-59-2	111
Tetrachloroethene	127-18-4	107
trans-1,2-Dichloroethene	156-60-5	89
Trichloroethene	79-01-6	102
Vinyl Chloride	75-01-4	99

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	101

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	3/28/19 01:04 PM
Lab ID:	1903633R1-13AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3032804
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	105
1,4-Dioxane	123-91-1	91
cis-1,2-Dichloroethene	156-59-2	111
Tetrachloroethene	127-18-4	109
trans-1,2-Dichloroethene	156-60-5	89
Trichloroethene	79-01-6	103
Vinyl Chloride	75-01-4	106

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	98

* % Recovery is calculated using unrounded analytical results.

[REDACTED]

7/3/2019

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1906589

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 6/27/2019 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

[REDACTED]


Ausha Scott
Project Manager

WORK ORDER #: 1906589

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0004
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	06/27/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	07/03/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SVMP-28-3.0_062419	TO-15	6.5 "Hg	15 psi
02A	SVMP-25D-6.0_062419	TO-15	5.5 "Hg	15 psi
03A	SVMP-25S-3.0_062419	TO-15	6.5 "Hg	15 psi
04A	SVMP-17-2.0_062419	TO-15	6.5 "Hg	15 psi
05A	SVMP-04-3.5_062519	TO-15	5.5 "Hg	15 psi
06A	SVMP-01D-7.0_062519	TO-15	6.0 "Hg	15 psi
07A	SVMP-01S-3.5_062519	TO-15	5.5 "Hg	15 psi
08A	SVMP-02D-8.5_062519	TO-15	7.0 "Hg	15 psi
09A	DUP-01_062419	TO-15	5.5 "Hg	15 psi
10A	DUP-02_062519	TO-15	5.5 "Hg	15 psi
11A	Lab Blank	TO-15	NA	NA
12A	CCV	TO-15	NA	NA
13A	LCS	TO-15	NA	NA
13AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 07/03/19

Certification numbers: AZ Licensure AZ0775, FL NELAP - E8 , LA NELAP - 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP CA009332018-10, VA NELAP - 9505, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005-011, Effective date: 10/18/2018, Expiration date: 10/17/2019.

Eurofins Air Toxics LLC. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1906589

Ten 1 Liter Summa Canister (100% Certified) samples were received on June 27, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

All Quality Control Limit exceedances and affected sample results are noted by flags. Each flag is defined at the bottom of this Case Narrative and on each Sample Result Summary page.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	SVMP-28-3.0_062419	Date/Time Analyzed:	7/1/19 06:48 PM
Lab ID:	1906589-01A	Dilution Factor:	2.58
Date/Time Collected:	6/24/19 10:45 AM	Instrument/Filename:	msda.i / a070110
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.1	5.1	Not Detected
1,4-Dioxane	123-91-1	2.7	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	4.1	5.1	Not Detected
Tetrachloroethene	127-18-4	1.0	7.0	8.8	1.3 J
trans-1,2-Dichloroethene	156-60-5	1.9	4.1	5.1	Not Detected
Trichloroethene	79-01-6	0.69	5.5	6.9	Not Detected
Vinyl Chloride	75-01-4	0.66	2.6	3.3	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP



Client ID:	SVMP-25D-6.0_062419	Date/Time Analyzed:	7/1/19 07:15 PM
Lab ID:	1906589-02A	Dilution Factor:	2.47
Date/Time Collected:	6/24/19 01:25 PM	Instrument/Filename:	msda.i / a070111
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	3.9	4.9	Not Detected
1,4-Dioxane	123-91-1	2.6	13	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.98	3.9	4.9	Not Detected
Tetrachloroethene	127-18-4	1.0	6.7	8.4	1.4 J
trans-1,2-Dichloroethene	156-60-5	1.9	3.9	4.9	Not Detected
Trichloroethene	79-01-6	0.66	5.3	6.6	Not Detected
Vinyl Chloride	75-01-4	0.63	2.5	3.2	Not Detected

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	SVMP-25S-3.0_062419	Date/Time Analyzed:	7/1/19 07:41 PM
Lab ID:	1906589-03A	Dilution Factor:	2.58
Date/Time Collected:	6/24/19 01:26 PM	Instrument/Filename:	msda.i / a070112
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.1	5.1	Not Detected
1,4-Dioxane	123-91-1	2.7	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	4.1	5.1	Not Detected
Tetrachloroethene	127-18-4	1.0	7.0	8.8	4.1 J
trans-1,2-Dichloroethene	156-60-5	1.9	4.1	5.1	Not Detected
Trichloroethene	79-01-6	0.69	5.5	6.9	1.3 J
Vinyl Chloride	75-01-4	0.66	2.6	3.3	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	SVMP-17-2.0_062419	Date/Time Analyzed:	7/1/19 08:08 PM
Lab ID:	1906589-04A	Dilution Factor:	2.58
Date/Time Collected:	6/24/19 04:13 PM	Instrument/Filename:	msda.i / a070113
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.1	5.1	Not Detected
1,4-Dioxane	123-91-1	2.7	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	4.1	5.1	Not Detected
Tetrachloroethene	127-18-4	1.0	7.0	8.8	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.9	4.1	5.1	Not Detected
Trichloroethene	79-01-6	0.69	5.5	6.9	Not Detected
Vinyl Chloride	75-01-4	0.66	2.6	3.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	SVMP-04-3.5_062519	Date/Time Analyzed:	7/1/19 08:35 PM
Lab ID:	1906589-05A	Dilution Factor:	2.47
Date/Time Collected:	6/25/19 10:14 AM	Instrument/Filename:	msda.i / a070114
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	3.9	4.9	Not Detected
1,4-Dioxane	123-91-1	2.6	13	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.98	3.9	4.9	Not Detected
Tetrachloroethene	127-18-4	1.0	6.7	8.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.9	3.9	4.9	Not Detected
Trichloroethene	79-01-6	0.66	5.3	6.6	Not Detected
Vinyl Chloride	75-01-4	0.63	2.5	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-01D-7.0_062519	Date/Time Analyzed:	7/1/19 09:01 PM
Lab ID:	1906589-06A	Dilution Factor:	2.52
Date/Time Collected:	6/25/19 11:31 AM	Instrument/Filename:	msda.i / a070115
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.0	5.0	Not Detected
1,4-Dioxane	123-91-1	2.6	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	4.0	5.0	Not Detected
Tetrachloroethene	127-18-4	1.0	6.8	8.5	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.9	4.0	5.0	Not Detected
Trichloroethene	79-01-6	0.68	5.4	6.8	Not Detected
Vinyl Chloride	75-01-4	0.64	2.6	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-01S-3.5_062519	Date/Time Analyzed:	7/1/19 09:28 PM
Lab ID:	1906589-07A	Dilution Factor:	2.47
Date/Time Collected:	6/25/19 11:32 AM	Instrument/Filename:	msda.i / a070116
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	3.9	4.9	Not Detected
1,4-Dioxane	123-91-1	2.6	13	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.98	3.9	4.9	Not Detected
Tetrachloroethene	127-18-4	1.0	6.7	8.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.9	3.9	4.9	Not Detected
Trichloroethene	79-01-6	0.66	5.3	6.6	Not Detected
Vinyl Chloride	75-01-4	0.63	2.5	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-02D-8.5_062519	Date/Time Analyzed:	7/1/19 09:54 PM
Lab ID:	1906589-08A	Dilution Factor:	2.64
Date/Time Collected:	6/25/19 12:34 PM	Instrument/Filename:	msda.i / a070117
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.6	4.2	5.2	Not Detected
1,4-Dioxane	123-91-1	2.8	14	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	4.2	5.2	Not Detected
Tetrachloroethene	127-18-4	1.1	7.2	9.0	Not Detected
trans-1,2-Dichloroethene	156-60-5	2.0	4.2	5.2	Not Detected
Trichloroethene	79-01-6	0.71	5.7	7.1	Not Detected
Vinyl Chloride	75-01-4	0.67	2.7	3.4	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	DUP-01_062419	Date/Time Analyzed:	7/1/19 11:14 PM
Lab ID:	1906589-09A	Dilution Factor:	2.47
Date/Time Collected:	6/24/19 12:00 AM	Instrument/Filename:	msda.i / a070118
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	3.9	4.9	Not Detected
1,4-Dioxane	123-91-1	2.6	13	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.98	3.9	4.9	7.4
Tetrachloroethene	127-18-4	1.0	6.7	8.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.9	3.9	4.9	Not Detected
Trichloroethene	79-01-6	0.66	5.3	6.6	Not Detected
Vinyl Chloride	75-01-4	0.63	2.5	3.2	0.70 J

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	DUP-02_062519	Date/Time Analyzed:	7/1/19 11:41 PM
Lab ID:	1906589-10A	Dilution Factor:	2.47
Date/Time Collected:	6/25/19 12:00 AM	Instrument/Filename:	msda.i / a070119
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	3.9	4.9	Not Detected
1,4-Dioxane	123-91-1	2.6	13	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.98	3.9	4.9	Not Detected
Tetrachloroethene	127-18-4	1.0	6.7	8.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.9	3.9	4.9	Not Detected
Trichloroethene	79-01-6	0.66	5.3	6.6	9.7
Vinyl Chloride	75-01-4	0.63	2.5	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	7/1/19 12:22 PM
Lab ID:	1906589-11A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a070106a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.59	1.6	2.0	Not Detected
1,4-Dioxane	123-91-1	1.0	5.4	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.40	1.6	2.0	Not Detected
Tetrachloroethene	127-18-4	0.41	2.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.75	1.6	2.0	Not Detected
Trichloroethene	79-01-6	0.27	2.1	2.7	Not Detected
Vinyl Chloride	75-01-4	0.26	1.0	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	CCV	Date/Time Analyzed:	7/1/19 08:58 AM
Lab ID:	1906589-12A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a070102
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	96
1,4-Dioxane	123-91-1	88
cis-1,2-Dichloroethene	156-59-2	91
Tetrachloroethene	127-18-4	99
trans-1,2-Dichloroethene	156-60-5	90
Trichloroethene	79-01-6	94
Vinyl Chloride	75-01-4	90

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCS	Date/Time Analyzed:	7/1/19 09:24 AM
Lab ID:	1906589-13A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a070103
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	95
1,4-Dioxane	123-91-1	69 Q
cis-1,2-Dichloroethene	156-59-2	95
Tetrachloroethene	127-18-4	100
trans-1,2-Dichloroethene	156-60-5	77
Trichloroethene	79-01-6	90
Vinyl Chloride	75-01-4	92

Q = Exceeds Quality Control limits.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	96

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	7/1/19 09:49 AM
Lab ID:	1906589-13AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a070104
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	96
1,4-Dioxane	123-91-1	78
cis-1,2-Dichloroethene	156-59-2	97
Tetrachloroethene	127-18-4	99
trans-1,2-Dichloroethene	156-60-5	77
Trichloroethene	79-01-6	93
Vinyl Chloride	75-01-4	92

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	98

* % Recovery is calculated using unrounded analytical results.

[REDACTED]

11/29/2018
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1811416

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 11/20/2018 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

[REDACTED]


Ausha Scott
Project Manager

WORK ORDER #: 1811416

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0003
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	11/20/2018	CONTACT:	Ausha Scott
DATE COMPLETED:	11/29/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	AA-12400Belden-01_111518	Modified TO-15	4.1 "Hg	5.1 psi
02A	IAF-12400Belden-01_111518	Modified TO-15	5.7 "Hg	5.1 psi
03A	IAF-12400Belden-02_111518	Modified TO-15	4.3 "Hg	5 psi
04A	IAF-12400Belden-03_111518	Modified TO-15	6.9 "Hg	4.9 psi
05A	IAF-12400Belden-04_111518	Modified TO-15	1.8 "Hg	5.1 psi
06A	IAF-12400Belden-05_111518	Modified TO-15	4.5 "Hg	5.1 psi
07A	IAF-12400Belden-06_111518	Modified TO-15	5.5 "Hg	5.1 psi
08A	IAF-12400Belden-07_111518	Modified TO-15	7.1 "Hg	5.2 psi
09A	IAF-12400Belden-08_111518	Modified TO-15	8.6 "Hg	5.1 psi
10A	IAF-12400Belden-09_111518	Modified TO-15	4.3 "Hg	5.3 psi
11A	IAF-12400Belden-10_111518	Modified TO-15	5.9 "Hg	4.9 psi
12A	IAF-12400Belden-11_111518	Modified TO-15	4.5 "Hg	4.9 psi
13A	IAF-12400Belden-12_111518	Modified TO-15	4.7 "Hg	5.1 psi
14A	DUP-01	Modified TO-15	5.9 "Hg	5.1 psi
15A	Lab Blank	Modified TO-15	NA	NA
16A	CCV	Modified TO-15	NA	NA
17A	LCS	Modified TO-15	NA	NA
17AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 11/29/18

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 1811416

Fourteen 6 Liter Summa Canister (100% Certified) samples were received on November 20, 2018. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per project specific client request the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. All The canisters used for this project have been certified to the Reporting Limit for the target analytes included in this workorder. Concentrations that are below the level at which the canister was certified may be false positives.

Dilution was performed on samples IAF-12400Belden-01_111518, IAF-12400Belden-02_111518, IAF-12400Belden-03_111518, IAF-12400Belden-04_111518, IAF-12400Belden-05_111518, IAF-12400Belden-06_111518, IAF-12400Belden-09_111518, IAF-12400Belden-10_111518, IAF-12400Belden-11_111518, IAF-12400Belden-12_111518 and DUP-01 due to the presence of high level target species.

Dilution was performed on samples IAF-12400Belden-07_111518 and IAF-12400Belden-08_111518 due to the presence of high level non-target species.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-12400Belden-01_111518	Date/Time Analyzed:	11/21/18 10:14 AM
Lab ID:	1811416-01A	Dilution Factor:	1.56
Date/Time Collected:	11/15/18 03:43 PM	Instrument/Filename:	msd20.i / 20112106
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.32	0.56	0.62	Not Detected
1,4-Dioxane	123-91-1	0.43	0.50	0.56	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.25	0.56	0.62	Not Detected
Tetrachloroethene	127-18-4	0.60	0.95	1.0	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.39	0.56	0.62	Not Detected
Trichloroethene	79-01-6	0.33	0.75	0.84	Not Detected
Vinyl Chloride	75-01-4	0.23	0.36	0.40	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	88
4-Bromofluorobenzene	460-00-4	70-130	110
Toluene-d8	2037-26-5	70-130	96

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400Belden-01_111518	Date/Time Analyzed:	11/21/18 11:19 AM
Lab ID:	1811416-02A	Dilution Factor:	3.32
Date/Time Collected:	11/15/18 03:49 PM	Instrument/Filename:	msd20.i / 20112107
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.69	1.2	1.3	Not Detected
1,4-Dioxane	123-91-1	0.91	1.1	1.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.54	1.2	1.3	Not Detected
Tetrachloroethene	127-18-4	1.3	2.0	2.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.84	1.2	1.3	230
Trichloroethene	79-01-6	0.70	1.6	1.8	340
Vinyl Chloride	75-01-4	0.49	0.76	0.85	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	85
4-Bromofluorobenzene	460-00-4	70-130	116
Toluene-d8	2037-26-5	70-130	95

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP



Client ID:	IAF-12400Belden-02_111518	Date/Time Analyzed:	11/21/18 12:14 PM
Lab ID:	1811416-03A	Dilution Factor:	3.12
Date/Time Collected:	11/15/18 04:24 PM	Instrument/Filename:	msd20.i / 20112108
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.65	1.1	1.2	Not Detected
1,4-Dioxane	123-91-1	0.86	1.0	1.1	0.87 J
cis-1,2-Dichloroethene	156-59-2	0.50	1.1	1.2	Not Detected
Tetrachloroethene	127-18-4	1.2	1.9	2.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.78	1.1	1.2	200
Trichloroethene	79-01-6	0.66	1.5	1.7	290
Vinyl Chloride	75-01-4	0.46	0.72	0.80	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	79
4-Bromofluorobenzene	460-00-4	70-130	114
Toluene-d8	2037-26-5	70-130	96

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	IAF-12400Belden-03_111518	Date/Time Analyzed:	11/21/18 01:08 PM
Lab ID:	1811416-04A	Dilution Factor:	3.46
Date/Time Collected:	11/15/18 04:29 PM	Instrument/Filename:	msd20.i / 20112109
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.72	1.2	1.4	Not Detected
1,4-Dioxane	123-91-1	0.95	1.1	1.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.56	1.2	1.4	Not Detected
Tetrachloroethene	127-18-4	1.3	2.1	2.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.87	1.2	1.4	220
Trichloroethene	79-01-6	0.73	1.7	1.8	320
Vinyl Chloride	75-01-4	0.51	0.80	0.88	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	85
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	94

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP



Client ID:	IAF-12400Belden-04_111518	Date/Time Analyzed:	11/21/18 01:47 PM
Lab ID:	1811416-05A	Dilution Factor:	2.86
Date/Time Collected:	11/15/18 04:32 PM	Instrument/Filename:	msd20.i / 20112110
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.60	1.0	1.1	Not Detected
1,4-Dioxane	123-91-1	0.79	0.93	1.0	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.46	1.0	1.1	Not Detected
Tetrachloroethene	127-18-4	1.1	1.7	1.9	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.72	1.0	1.1	230
Trichloroethene	79-01-6	0.60	1.4	1.5	340
Vinyl Chloride	75-01-4	0.42	0.66	0.73	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	83
4-Bromofluorobenzene	460-00-4	70-130	113
Toluene-d8	2037-26-5	70-130	95

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400Belden-05_111518	Date/Time Analyzed:	11/21/18 02:26 PM
Lab ID:	1811416-06A	Dilution Factor:	3.16
Date/Time Collected:	11/15/18 04:34 PM	Instrument/Filename:	msd20.i / 20112111
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.66	1.1	1.2	Not Detected
1,4-Dioxane	123-91-1	0.87	1.0	1.1	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.51	1.1	1.2	Not Detected
Tetrachloroethene	127-18-4	1.2	1.9	2.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.80	1.1	1.2	220
Trichloroethene	79-01-6	0.66	1.5	1.7	320
Vinyl Chloride	75-01-4	0.47	0.73	0.81	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	84
4-Bromofluorobenzene	460-00-4	70-130	108
Toluene-d8	2037-26-5	70-130	95

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400Belden-06_111518	Date/Time Analyzed:	11/21/18 03:05 PM
Lab ID:	1811416-07A	Dilution Factor:	3.30
Date/Time Collected:	11/15/18 04:31 PM	Instrument/Filename:	msd20.i / 20112112
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.69	1.2	1.3	Not Detected
1,4-Dioxane	123-91-1	0.91	1.1	1.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.53	1.2	1.3	Not Detected
Tetrachloroethene	127-18-4	1.3	2.0	2.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.83	1.2	1.3	220
Trichloroethene	79-01-6	0.69	1.6	1.8	310
Vinyl Chloride	75-01-4	0.49	0.76	0.84	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	84
4-Bromofluorobenzene	460-00-4	70-130	110
Toluene-d8	2037-26-5	70-130	93

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400Belden-07_111518	Date/Time Analyzed:	11/21/18 03:44 PM
Lab ID:	1811416-08A	Dilution Factor:	3.56
Date/Time Collected:	11/15/18 04:35 PM	Instrument/Filename:	msd20.i / 20112113
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.74	1.3	1.4	Not Detected
1,4-Dioxane	123-91-1	0.98	1.2	1.3	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.58	1.3	1.4	Not Detected
Tetrachloroethene	127-18-4	1.4	2.2	2.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.90	1.3	1.4	190
Trichloroethene	79-01-6	0.75	1.7	1.9	270
Vinyl Chloride	75-01-4	0.52	0.82	0.91	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	84
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	91

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400Belden-08_111518	Date/Time Analyzed:	11/21/18 04:23 PM
Lab ID:	1811416-09A	Dilution Factor:	3.76
Date/Time Collected:	11/15/18 04:35 PM	Instrument/Filename:	msd20.i / 20112114
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.78	1.3	1.5	Not Detected
1,4-Dioxane	123-91-1	1.0	1.2	1.4	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.61	1.3	1.5	Not Detected
Tetrachloroethene	127-18-4	1.4	2.3	2.6	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.95	1.3	1.5	210
Trichloroethene	79-01-6	0.79	1.8	2.0	290
Vinyl Chloride	75-01-4	0.56	0.86	0.96	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	84
4-Bromofluorobenzene	460-00-4	70-130	117
Toluene-d8	2037-26-5	70-130	90

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400Belden-09_111518	Date/Time Analyzed:	11/21/18 05:02 PM
Lab ID:	1811416-10A	Dilution Factor:	3.18
Date/Time Collected:	11/15/18 04:37 PM	Instrument/Filename:	msd20.i / 20112115
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.66	1.1	1.3	Not Detected
1,4-Dioxane	123-91-1	0.87	1.0	1.1	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.52	1.1	1.3	Not Detected
Tetrachloroethene	127-18-4	1.2	1.9	2.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.80	1.1	1.3	220
Trichloroethene	79-01-6	0.67	1.5	1.7	310
Vinyl Chloride	75-01-4	0.47	0.73	0.81	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	86
4-Bromofluorobenzene	460-00-4	70-130	110
Toluene-d8	2037-26-5	70-130	92

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400Belden-10_111518	Date/Time Analyzed:	11/21/18 05:41 PM
Lab ID:	1811416-11A	Dilution Factor:	3.32
Date/Time Collected:	11/15/18 03:57 PM	Instrument/Filename:	msd20.i / 20112116
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.69	1.2	1.3	Not Detected
1,4-Dioxane	123-91-1	0.91	1.1	1.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.54	1.2	1.3	Not Detected
Tetrachloroethene	127-18-4	1.3	2.0	2.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.84	1.2	1.3	240
Trichloroethene	79-01-6	0.70	1.6	1.8	320
Vinyl Chloride	75-01-4	0.49	0.76	0.85	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	89
4-Bromofluorobenzene	460-00-4	70-130	114
Toluene-d8	2037-26-5	70-130	94

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400Belden-11_111518	Date/Time Analyzed:	11/21/18 06:20 PM
Lab ID:	1811416-12A	Dilution Factor:	3.14
Date/Time Collected:	11/15/18 04:09 PM	Instrument/Filename:	msd20.i / 20112117
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.66	1.1	1.2	Not Detected
1,4-Dioxane	123-91-1	0.86	1.0	1.1	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.51	1.1	1.2	Not Detected
Tetrachloroethene	127-18-4	1.2	1.9	2.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.79	1.1	1.2	210
Trichloroethene	79-01-6	0.66	1.5	1.7	300
Vinyl Chloride	75-01-4	0.46	0.72	0.80	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	80
4-Bromofluorobenzene	460-00-4	70-130	112
Toluene-d8	2037-26-5	70-130	91

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400Belden-12_111518	Date/Time Analyzed:	11/21/18 07:28 PM
Lab ID:	1811416-13A	Dilution Factor:	3.20
Date/Time Collected:	11/15/18 04:15 PM	Instrument/Filename:	msd20.i / 20112118
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.67	1.1	1.3	Not Detected
1,4-Dioxane	123-91-1	0.88	1.0	1.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.52	1.1	1.3	Not Detected
Tetrachloroethene	127-18-4	1.2	2.0	2.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.80	1.1	1.3	230
Trichloroethene	79-01-6	0.67	1.5	1.7	330
Vinyl Chloride	75-01-4	0.47	0.74	0.82	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	88
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	93

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	DUP-01	Date/Time Analyzed:	11/21/18 08:08 PM
Lab ID:	1811416-14A	Dilution Factor:	3.36
Date/Time Collected:	11/15/18 04:15 PM	Instrument/Filename:	msd20.i / 20112119
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.70	1.2	1.3	Not Detected
1,4-Dioxane	123-91-1	0.92	1.1	1.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.54	1.2	1.3	Not Detected
Tetrachloroethene	127-18-4	1.3	2.0	2.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.85	1.2	1.3	230
Trichloroethene	79-01-6	0.70	1.6	1.8	320
Vinyl Chloride	75-01-4	0.50	0.77	0.86	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	81
4-Bromofluorobenzene	460-00-4	70-130	113
Toluene-d8	2037-26-5	70-130	92

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	11/21/18 08:33 AM
Lab ID:	1811416-15A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20112105
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.21	0.36	0.40	Not Detected
1,4-Dioxane	123-91-1	0.27	0.32	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.16	0.36	0.40	Not Detected
Tetrachloroethene	127-18-4	0.38	0.61	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.25	0.36	0.40	Not Detected
Trichloroethene	79-01-6	0.21	0.48	0.54	Not Detected
Vinyl Chloride	75-01-4	0.15	0.23	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	97

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	11/21/18 05:54 AM
Lab ID:	1811416-16A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20112102
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	82
1,4-Dioxane	123-91-1	92
cis-1,2-Dichloroethene	156-59-2	90
Tetrachloroethene	127-18-4	109
trans-1,2-Dichloroethene	156-60-5	93
Trichloroethene	79-01-6	106
Vinyl Chloride	75-01-4	79

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	83
4-Bromofluorobenzene	460-00-4	70-130	115
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	11/21/18 06:51 AM
Lab ID:	1811416-17A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20112103
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	80
1,4-Dioxane	123-91-1	93
cis-1,2-Dichloroethene	156-59-2	76
Tetrachloroethene	127-18-4	110
trans-1,2-Dichloroethene	156-60-5	97
Trichloroethene	79-01-6	109
Vinyl Chloride	75-01-4	80

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	76
4-Bromofluorobenzene	460-00-4	70-130	117
Toluene-d8	2037-26-5	70-130	102

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	11/21/18 07:30 AM
Lab ID:	1811416-17AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20112104
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	83
1,4-Dioxane	123-91-1	94
cis-1,2-Dichloroethene	156-59-2	78
Tetrachloroethene	127-18-4	108
trans-1,2-Dichloroethene	156-60-5	98
Trichloroethene	79-01-6	105
Vinyl Chloride	75-01-4	80

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	77
4-Bromofluorobenzene	460-00-4	70-130	113
Toluene-d8	2037-26-5	70-130	98

* % Recovery is calculated using unrounded analytical results.

4/19/2019
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #: MI001454.0003
Workorder #: 1904294

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 4/12/2019 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1904294

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0004.0001B
FAX:		PROJECT #	MI001454.0003 Ford LTP
DATE RECEIVED:	04/12/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	04/19/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	AA-12400BELDEN-01_040919	Modified TO-15	6.3 "Hg	4.9 psi
02A	IAF-12400BELDEN-01_040919	Modified TO-15	8 "Hg	4.6 psi
03A	IAF-12400BELDEN-02_040919	Modified TO-15	9.2 "Hg	4.8 psi
04A	IAF-12400BELDEN-03_040919	Modified TO-15	8.4 "Hg	5 psi
05A	IAF-12400BELDEN-04_040919	Modified TO-15	8.4 "Hg	5.1 psi
06A	IAF-12400BELDEN05_040919	Modified TO-15	9 "Hg	5.3 psi
07A	IAF-12400BELDEN-06_040919	Modified TO-15	7.8 "Hg	5.6 psi
08A	IAF-12400BELDEN-07_040919	Modified TO-15	7.6 "Hg	5.3 psi
09A	IAF-12400BELDEN-08_040919	Modified TO-15	6.7 "Hg	5.3 psi
10A	IAF-12400BELDEN-09_040919	Modified TO-15	7.6 "Hg	5 psi
11A	IAF-12400BELDEN-10_040919	Modified TO-15	7.1 "Hg	5.1 psi
12A	IAF-12400BELDEN-11_040919	Modified TO-15	7.1 "Hg	4.5 psi
13A	IAF-12400BELDEN-12_040919	Modified TO-15	7.3 "Hg	5.3 psi
14A	DUP-12400BELDEN01_040919	Modified TO-15	9.2 "Hg	4.9 psi
15A	Lab Blank	Modified TO-15	NA	NA
15B	Lab Blank	Modified TO-15	NA	NA
15C	Lab Blank	Modified TO-15	NA	NA
16A	CCV	Modified TO-15	NA	NA
16B	CCV	Modified TO-15	NA	NA
16C	CCV	Modified TO-15	NA	NA
17A	LCS	Modified TO-15	NA	NA
17AA	LCS	Modified TO-15	NA	NA
17B	LCS	Modified TO-15	NA	NA


Continued on next page

WORK ORDER #: 1904294

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0004.0001B
FAX:		PROJECT #	MI001454.0003 Ford LTP
DATE RECEIVED:	04/12/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	04/19/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
17BB	LCSD	Modified TO-15	NA	NA
17C	LCS	Modified TO-15	NA	NA
17CC	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 04/19/19

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 1904294

Fourteen 6 Liter Summa Canister (100% Cert Ambient) samples were received on April 12, 2019. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per project specific client request the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. The canisters used for this project have been certified to the Reporting Limit for the target analytes included in this workorder. Concentrations that are below the level at which the canister was certified may be false positives.

Samples IAF-12400BELDEN-01_040919, IAF-12400BELDEN-02_040919, IAF-12400BELDEN-03_040919, IAF-12400BELDEN-04_040919, IAF-12400BELDEN05_040919, IAF-12400BELDEN-06_040919, IAF-12400BELDEN-07_040919, IAF-12400BELDEN-08_040919, IAF-12400BELDEN-09_040919, IAF-12400BELDEN-10_040919, IAF-12400BELDEN-11_040919 and IAF-12400BELDEN-12_040919 were transferred from Low Level analysis to full scan TO-15 due to high levels of target compounds.

Dilution was performed on samples IAF-12400BELDEN-01_040919, IAF-12400BELDEN-02_040919, IAF-12400BELDEN-03_040919, IAF-12400BELDEN-04_040919, IAF-12400BELDEN05_040919, IAF-12400BELDEN-06_040919, IAF-12400BELDEN-07_040919, IAF-12400BELDEN-08_040919, IAF-12400BELDEN-09_040919, IAF-12400BELDEN-10_040919, IAF-12400BELDEN-11_040919 and IAF-12400BELDEN-12_040919 due to the presence of high level target species.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-12400BELDEN-01_040919	Date/Time Analyzed:	4/16/19 03:01 PM
Lab ID:	1904294-01A	Dilution Factor:	1.69
Date/Time Collecte	4/9/19 03:16 PM	Instrument/Filename:	msd20.i / 20041606
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.16	0.60	0.67	Not Detected
1,4-Dioxane	123-91-1	0.49	0.55	0.61	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.36	0.60	0.67	Not Detected
Tetrachloroethene	127-18-4	0.71	1.0	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.38	0.60	0.67	4.6
Trichloroethene	79-01-6	0.44	0.82	0.91	3.2
Vinyl Chloride	75-01-4	0.14	0.39	0.43	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	107
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-01_040919	Date/Time Analyzed:	4/17/19 04:34 PM
Lab ID:	1904294-02A	Dilution Factor:	3.58
Date/Time Collecte	4/9/19 03:25 PM	Instrument/Filename:	msd14.i / 14041714
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	9.6	42	71	Not Detected
1,4-Dioxane	123-91-1	71	130	260	Not Detected
cis-1,2-Dichloroethene	156-59-2	22	42	71	Not Detected
Tetrachloroethene	127-18-4	43	73	120	Not Detected
trans-1,2-Dichloroethene	156-60-5	27	42	71	12000
Trichloroethene	79-01-6	28	58	96	9200
Vinyl Chloride	75-01-4	16	27	46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-02_040919	Date/Time Analyzed:	4/17/19 05:48 PM
Lab ID:	1904294-03A	Dilution Factor:	3.82
Date/Time Collecte	4/9/19 03:24 PM	Instrument/Filename:	msd14.i / 14041716
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	10	45	76	Not Detected
1,4-Dioxane	123-91-1	76	140	280	Not Detected
cis-1,2-Dichloroethene	156-59-2	23	45	76	Not Detected
Tetrachloroethene	127-18-4	46	78	130	Not Detected
trans-1,2-Dichloroethene	156-60-5	29	45	76	9100
Trichloroethene	79-01-6	30	62	100	6600
Vinyl Chloride	75-01-4	17	29	49	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-03_040919	Date/Time Analyzed:	4/18/19 11:53 AM
Lab ID:	1904294-04A	Dilution Factor:	9.30
Date/Time Collecte	4/9/19 03:04 PM	Instrument/Filename:	msd14.i / 14041809
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	25	110	180	Not Detected
1,4-Dioxane	123-91-1	180	340	670	Not Detected
cis-1,2-Dichloroethene	156-59-2	57	110	180	Not Detected
Tetrachloroethene	127-18-4	110	190	320	Not Detected
trans-1,2-Dichloroethene	156-60-5	70	110	180	14000
Trichloroethene	79-01-6	74	150	250	10000
Vinyl Chloride	75-01-4	41	71	120	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-04_040919	Date/Time Analyzed:	4/18/19 12:23 PM
Lab ID:	1904294-05A	Dilution Factor:	6.23
Date/Time Collecte	4/9/19 03:25 PM	Instrument/Filename:	msd14.i / 14041810
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	17	74	120	Not Detected
1,4-Dioxane	123-91-1	120	220	450	Not Detected
cis-1,2-Dichloroethene	156-59-2	38	74	120	Not Detected
Tetrachloroethene	127-18-4	74	130	210	Not Detected
trans-1,2-Dichloroethene	156-60-5	47	74	120	14000
Trichloroethene	79-01-6	50	100	170	8600
Vinyl Chloride	75-01-4	28	48	80	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN05_040919	Date/Time Analyzed:	4/17/19 07:39 PM
Lab ID:	1904294-06A	Dilution Factor:	3.88
Date/Time Collecte	4/9/19 03:27 PM	Instrument/Filename:	msd14.i / 14041719
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	10	46	77	Not Detected
1,4-Dioxane	123-91-1	77	140	280	Not Detected
cis-1,2-Dichloroethene	156-59-2	24	46	77	Not Detected
Tetrachloroethene	127-18-4	46	79	130	Not Detected
trans-1,2-Dichloroethene	156-60-5	29	46	77	13000
Trichloroethene	79-01-6	31	62	100	7900
Vinyl Chloride	75-01-4	17	30	50	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-06_040919	Date/Time Analyzed:	4/18/19 11:19 AM
Lab ID:	1904294-07A	Dilution Factor:	9.30
Date/Time Collecte	4/9/19 03:07 PM	Instrument/Filename:	msd14.i / 14041808
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	25	110	180	Not Detected
1,4-Dioxane	123-91-1	180	340	670	Not Detected
cis-1,2-Dichloroethene	156-59-2	57	110	180	Not Detected
Tetrachloroethene	127-18-4	110	190	320	Not Detected
trans-1,2-Dichloroethene	156-60-5	70	110	180	14000
Trichloroethene	79-01-6	74	150	250	8300
Vinyl Chloride	75-01-4	41	71	120	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-07_040919	Date/Time Analyzed:	4/17/19 08:32 PM
Lab ID:	1904294-08A	Dilution Factor:	3.64
Date/Time Collecte	4/9/19 03:10 PM	Instrument/Filename:	msd14.i / 14041720
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	9.8	43	72	Not Detected
1,4-Dioxane	123-91-1	72	130	260	Not Detected
cis-1,2-Dichloroethene	156-59-2	22	43	72	Not Detected
Tetrachloroethene	127-18-4	43	74	120	Not Detected
trans-1,2-Dichloroethene	156-60-5	28	43	72	9600
Trichloroethene	79-01-6	29	59	98	6600
Vinyl Chloride	75-01-4	16	28	46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-08_040919	Date/Time Analyzed:	4/17/19 09:08 PM
Lab ID:	1904294-09A	Dilution Factor:	3.50
Date/Time Collecte	4/9/19 03:09 PM	Instrument/Filename:	msd14.i / 14041721
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	9.4	42	69	Not Detected
1,4-Dioxane	123-91-1	69	130	250	Not Detected
cis-1,2-Dichloroethene	156-59-2	21	42	69	Not Detected
Tetrachloroethene	127-18-4	42	71	120	Not Detected
trans-1,2-Dichloroethene	156-60-5	26	42	69	11000
Trichloroethene	79-01-6	28	56	94	7300
Vinyl Chloride	75-01-4	15	27	45	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-09_040919	Date/Time Analyzed:	4/17/19 09:48 PM
Lab ID:	1904294-10A	Dilution Factor:	3.58
Date/Time Collecte	4/9/19 03:06 PM	Instrument/Filename:	msd14.i / 14041722
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	9.6	42	71	Not Detected
1,4-Dioxane	123-91-1	71	130	260	Not Detected
cis-1,2-Dichloroethene	156-59-2	22	42	71	Not Detected
Tetrachloroethene	127-18-4	43	73	120	Not Detected
trans-1,2-Dichloroethene	156-60-5	27	42	71	12000
Trichloroethene	79-01-6	28	58	96	8400
Vinyl Chloride	75-01-4	16	27	46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-10_040919	Date/Time Analyzed:	4/17/19 10:16 PM
Lab ID:	1904294-11A	Dilution Factor:	3.54
Date/Time Collecte	4/9/19 03:43 PM	Instrument/Filename:	msd14.i / 14041723
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	9.5	42	70	Not Detected
1,4-Dioxane	123-91-1	70	130	260	Not Detected
cis-1,2-Dichloroethene	156-59-2	22	42	70	Not Detected
Tetrachloroethene	127-18-4	42	72	120	Not Detected
trans-1,2-Dichloroethene	156-60-5	27	42	70	12000
Trichloroethene	79-01-6	28	57	95	5700
Vinyl Chloride	75-01-4	16	27	45	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-11_040919	Date/Time Analyzed:	4/17/19 11:02 PM
Lab ID:	1904294-12A	Dilution Factor:	3.42
Date/Time Collecte	4/9/19 03:00 PM	Instrument/Filename:	msd14.i / 14041724
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	9.2	41	68	Not Detected
1,4-Dioxane	123-91-1	68	120	250	Not Detected
cis-1,2-Dichloroethene	156-59-2	21	41	68	Not Detected
Tetrachloroethene	127-18-4	41	70	120	Not Detected
trans-1,2-Dichloroethene	156-60-5	26	41	68	7100
Trichloroethene	79-01-6	27	55	92	5400
Vinyl Chloride	75-01-4	15	26	44	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-12_040919	Date/Time Analyzed:	4/18/19 10:48 AM
Lab ID:	1904294-13A	Dilution Factor:	3.60
Date/Time Collecte	4/9/19 03:00 PM	Instrument/Filename:	msd14.i / 14041807
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	9.7	43	71	Not Detected
1,4-Dioxane	123-91-1	71	130	260	Not Detected
cis-1,2-Dichloroethene	156-59-2	22	43	71	Not Detected
Tetrachloroethene	127-18-4	43	73	120	Not Detected
trans-1,2-Dichloroethene	156-60-5	27	43	71	6600
Trichloroethene	79-01-6	29	58	97	4900
Vinyl Chloride	75-01-4	16	28	46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	99

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	DUP-12400BELDEN01_040919	Date/Time Analyzed:	4/16/19 03:40 PM
Lab ID:	1904294-14A	Dilution Factor:	1.92
Date/Time Collecte	4/9/19 12:00 AM	Instrument/Filename:	msd20.i / 20041607
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.18	0.68	0.76	Not Detected
1,4-Dioxane	123-91-1	0.56	0.62	0.69	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.41	0.68	0.76	Not Detected
Tetrachloroethene	127-18-4	0.81	1.2	1.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.43	0.68	0.76	96
Trichloroethene	79-01-6	0.51	0.93	1.0	55
Vinyl Chloride	75-01-4	0.16	0.44	0.49	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	4/16/19 12:11 PM
Lab ID:	1904294-15A	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd20.i / 20041605a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.095	0.36	0.40	Not Detected
1,4-Dioxane	123-91-1	0.29	0.32	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.21	0.36	0.40	Not Detected
Tetrachloroethene	127-18-4	0.42	0.61	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.22	0.36	0.40	Not Detected
Trichloroethene	79-01-6	0.26	0.48	0.54	Not Detected
Vinyl Chloride	75-01-4	0.082	0.23	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	4/17/19 10:07 AM
Lab ID:	1904294-15B	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd14.i / 14041705d
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.7	12	20	Not Detected
1,4-Dioxane	123-91-1	20	36	72	Not Detected
cis-1,2-Dichloroethene	156-59-2	6.1	12	20	Not Detected
Tetrachloroethene	127-18-4	12	20	34	Not Detected
trans-1,2-Dichloroethene	156-60-5	7.6	12	20	Not Detected
Trichloroethene	79-01-6	8.0	16	27	Not Detected
Vinyl Chloride	75-01-4	4.4	7.7	13	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	4/18/19 09:43 AM
Lab ID:	1904294-15C	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd14.i / 14041805a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.7	12	20	Not Detected
1,4-Dioxane	123-91-1	20	36	72	Not Detected
cis-1,2-Dichloroethene	156-59-2	6.1	12	20	Not Detected
Tetrachloroethene	127-18-4	12	20	34	Not Detected
trans-1,2-Dichloroethene	156-60-5	7.6	12	20	Not Detected
Trichloroethene	79-01-6	8.0	16	27	Not Detected
Vinyl Chloride	75-01-4	4.4	7.7	13	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	4/16/19 09:17 AM
Lab ID:	1904294-16A	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd20.i / 20041602
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	100
1,4-Dioxane	123-91-1	105
cis-1,2-Dichloroethene	156-59-2	104
Tetrachloroethene	127-18-4	104
trans-1,2-Dichloroethene	156-60-5	100
Trichloroethene	79-01-6	94
Vinyl Chloride	75-01-4	89

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	95

EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	4/17/19 08:00 AM
Lab ID:	1904294-16B	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd14.i / 14041702
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	95
1,4-Dioxane	123-91-1	104
cis-1,2-Dichloroethene	156-59-2	97
Tetrachloroethene	127-18-4	92
trans-1,2-Dichloroethene	156-60-5	93
Trichloroethene	79-01-6	93
Vinyl Chloride	75-01-4	96

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	4/18/19 08:11 AM
Lab ID:	1904294-16C	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd14.i / 14041802
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	97
1,4-Dioxane	123-91-1	105
cis-1,2-Dichloroethene	156-59-2	98
Tetrachloroethene	127-18-4	91
trans-1,2-Dichloroethene	156-60-5	95
Trichloroethene	79-01-6	92
Vinyl Chloride	75-01-4	96

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	98

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	4/16/19 10:13 AM
Lab ID:	1904294-17A	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd20.i / 20041603
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	104
1,4-Dioxane	123-91-1	114
cis-1,2-Dichloroethene	156-59-2	118
Tetrachloroethene	127-18-4	119
trans-1,2-Dichloroethene	156-60-5	93
Trichloroethene	79-01-6	121
Vinyl Chloride	75-01-4	98

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	114
Toluene-d8	2037-26-5	70-130	99

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	4/16/19 11:14 AM
Lab ID:	1904294-17AA	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd20.i / 20041604
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	108
1,4-Dioxane	123-91-1	119
cis-1,2-Dichloroethene	156-59-2	120
Tetrachloroethene	127-18-4	115
trans-1,2-Dichloroethene	156-60-5	96
Trichloroethene	79-01-6	124
Vinyl Chloride	75-01-4	101

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	98

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	4/17/19 08:38 AM
Lab ID:	1904294-17B	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd14.i / 14041703
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	99
1,4-Dioxane	123-91-1	113
cis-1,2-Dichloroethene	156-59-2	110
Tetrachloroethene	127-18-4	95
trans-1,2-Dichloroethene	156-60-5	81
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	100

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	100

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	4/17/19 09:02 AM
Lab ID:	1904294-17BB	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd14.i / 14041704
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	98
1,4-Dioxane	123-91-1	114
cis-1,2-Dichloroethene	156-59-2	109
Tetrachloroethene	127-18-4	93
trans-1,2-Dichloroethene	156-60-5	86
Trichloroethene	79-01-6	94
Vinyl Chloride	75-01-4	102

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	99

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	4/18/19 08:47 AM
Lab ID:	1904294-17C	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd14.i / 14041803
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	99
1,4-Dioxane	123-91-1	117
cis-1,2-Dichloroethene	156-59-2	111
Tetrachloroethene	127-18-4	96
trans-1,2-Dichloroethene	156-60-5	84
Trichloroethene	79-01-6	95
Vinyl Chloride	75-01-4	102

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	99

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	4/18/19 09:16 AM
Lab ID:	1904294-17CC	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd14.i / 14041804
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	100
1,4-Dioxane	123-91-1	117
cis-1,2-Dichloroethene	156-59-2	109
Tetrachloroethene	127-18-4	98
trans-1,2-Dichloroethene	156-60-5	82
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	103

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	100

* % Recovery is calculated using unrounded analytical results.

9/28/2020

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #: 30050315
Workorder #: 2009561

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 9/21/2020 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,




Ausha Scott
Project Manager

WORK ORDER #: 2009561

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30050315.0301.01
FAX:		PROJECT #	30050315 Ford LTP
DATE RECEIVED:	09/21/2020	CONTACT:	Ausha Scott
DATE COMPLETED:	09/28/2020		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	AA-12400BELDEN-01_091520	Modified TO-15	7.5 "Hg	5 psi
02A	IAF-12400BELDEN-01_091520	Modified TO-15	7.0 "Hg	5 psi
03A	IAF-12400BELDEN-02_091520	Modified TO-15	7.0 "Hg	5 psi
04A	IAF-12400BELDEN-07_091520	Modified TO-15	7.0 "Hg	5 psi
05A	IAF-12400BELDEN-03_091520	Modified TO-15	7.0 "Hg	5 psi
06A	IAF-12400BELDEN-04_091520	Modified TO-15	7.5 "Hg	5 psi
07A	IAF-12400BELDEN-05_091520	Modified TO-15	7.0 "Hg	5 psi
08A	IAF-12400BELDEN-06_091520	Modified TO-15	7.0 "Hg	5 psi
09A	IAF-12400BELDEN-08_091520	Modified TO-15	7.5 "Hg	5 psi
10A	DUP-12400BELDEN-01_091520	Modified TO-15	7.5 "Hg	5 psi
11A	IAF-12400BELDEN-09_091520	Modified TO-15	7.5 "Hg	5 psi
12A	IAF-12400BELDEN-10_091520	Modified TO-15	5.0 "Hg	5 psi
13A	IAF-12400BELDEN-11_091520	Modified TO-15	7.0 "Hg	5 psi
14A	IAF-12400BELDEN-12_091520	Modified TO-15	7.0 "Hg	5 psi
15A	Lab Blank	Modified TO-15	NA	NA
15B	Lab Blank	Modified TO-15	NA	NA
16A	CCV	Modified TO-15	NA	NA
16B	CCV	Modified TO-15	NA	NA
17A	LCS	Modified TO-15	NA	NA
17AA	LCS	Modified TO-15	NA	NA
17B	LCS	Modified TO-15	NA	NA
17BB	LCS	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 09/28/20

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209219, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-19-14, UT NELAP – CA009332020-12, VA NELAP - 10615, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005-013, Effective date: 10/18/2019, Expiration date: 10/17/2020.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 2009561

Fourteen 6 Liter Summa Canister (100% Cert Ambient) samples were received on September 21, 2020. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the EATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

- B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).
- J - Estimated value.
- E - Exceeds instrument calibration range.
- S - Saturated peak.
- Q - Exceeds quality control limits.
- U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.
- UJ- Non-detected compound associated with low bias in the CCV
- N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

- a-File was requantified
- b-File was quantified by a second column and detector
- r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-12400BELDEN-01_091520	Date/Time Analyzed:	9/24/20 08:45 PM
Lab ID:	2009561-01A	Dilution Factor:	1.79
Date/Time Collected:	9/15/20 03:57 PM	Instrument/Filename:	msd20.i / 20092418
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	Not Detected
Trichloroethene	79-01-6	0.50	0.85	0.96	Not Detected
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	105

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-01_091520	Date/Time Analyzed:	9/24/20 09:24 PM
Lab ID:	2009561-02A	Dilution Factor:	1.75
Date/Time Collected:	9/15/20 04:29 PM	Instrument/Filename:	msd20.i / 20092419
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.39	0.61	0.69	Not Detected
1,4-Dioxane	123-91-1	0.37	0.55	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.61	0.69	Not Detected
Tetrachloroethene	127-18-4	0.46	1.0	1.2	0.61 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.61	0.69	2.1
Trichloroethene	79-01-6	0.49	0.83	0.94	2.2
Vinyl Chloride	75-01-4	0.14	0.39	0.45	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	107

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	IAF-12400BELDEN-02_091520	Date/Time Analyzed:	9/24/20 10:04 PM
Lab ID:	2009561-03A	Dilution Factor:	1.75
Date/Time Collected:	9/15/20 04:03 PM	Instrument/Filename:	msd20.i / 20092420
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.39	0.61	0.69	Not Detected
1,4-Dioxane	123-91-1	0.37	0.55	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.61	0.69	Not Detected
Tetrachloroethene	127-18-4	0.46	1.0	1.2	0.96 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.61	0.69	2.2
Trichloroethene	79-01-6	0.49	0.83	0.94	2.3
Vinyl Chloride	75-01-4	0.14	0.39	0.45	Not Detected

J = Estimated value.
 D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	105

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP



Client ID:	IAF-12400BELDEN-07_091520	Date/Time Analyzed:	9/24/20 10:43 PM
Lab ID:	2009561-04A	Dilution Factor:	1.75
Date/Time Collected:	9/15/20 04:33 PM	Instrument/Filename:	msd20.i / 20092421
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.39	0.61	0.69	Not Detected
1,4-Dioxane	123-91-1	0.37	0.55	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.61	0.69	Not Detected
Tetrachloroethene	127-18-4	0.46	1.0	1.2	0.53 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.61	0.69	1.7
Trichloroethene	79-01-6	0.49	0.83	0.94	1.9
Vinyl Chloride	75-01-4	0.14	0.39	0.45	Not Detected

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	104

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: IAF-12400BELDEN-03_091520
Lab ID: 2009561-05A
Date/Time Collected: 9/15/20 04:30 PM
Media: 6 Liter Summa Canister (100% Cert Ambier)

Date/Time Analyzed: 9/25/20 07:30 AM
Dilution Factor: 1.75
Instrument/Filename: msd20.i / 20092422

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.39	0.61	0.69	Not Detected
1,4-Dioxane	123-91-1	0.37	0.55	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.61	0.69	Not Detected
Tetrachloroethene	127-18-4	0.46	1.0	1.2	0.55 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.61	0.69	2.1
Trichloroethene	79-01-6	0.49	0.83	0.94	2.2
Vinyl Chloride	75-01-4	0.14	0.39	0.45	Not Detected

J = Estimated value.
 D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-04_091520	Date/Time Analyzed:	9/25/20 08:09 AM
Lab ID:	2009561-06A	Dilution Factor:	1.79
Date/Time Collected:	9/15/20 04:31 PM	Instrument/Filename:	msd20.i / 20092423
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	0.46 J
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	0.59 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	2.1
Trichloroethene	79-01-6	0.50	0.85	0.96	2.3
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	105

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-05_091520	Date/Time Analyzed:	9/25/20 02:59 PM
Lab ID:	2009561-07A	Dilution Factor:	1.75
Date/Time Collected:	9/15/20 04:33 PM	Instrument/Filename:	msd20.i / 20092509
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.39	0.61	0.69	Not Detected
1,4-Dioxane	123-91-1	0.37	0.55	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.61	0.69	Not Detected
Tetrachloroethene	127-18-4	0.46	1.0	1.2	0.61 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.61	0.69	2.1
Trichloroethene	79-01-6	0.49	0.83	0.94	2.2
Vinyl Chloride	75-01-4	0.14	0.39	0.45	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	105

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-06_091520	Date/Time Analyzed:	9/25/20 03:38 PM
Lab ID:	2009561-08A	Dilution Factor:	1.75
Date/Time Collected:	9/15/20 04:35 PM	Instrument/Filename:	msd20.i / 20092510
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.39	0.61	0.69	Not Detected
1,4-Dioxane	123-91-1	0.37	0.55	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.61	0.69	Not Detected
Tetrachloroethene	127-18-4	0.46	1.0	1.2	0.65 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.61	0.69	2.0
Trichloroethene	79-01-6	0.49	0.83	0.94	2.3
Vinyl Chloride	75-01-4	0.14	0.39	0.45	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	110
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-08_091520	Date/Time Analyzed:	9/25/20 04:17 PM
Lab ID:	2009561-09A	Dilution Factor:	1.79
Date/Time Collected:	9/15/20 04:31 PM	Instrument/Filename:	msd20.i / 20092511
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	0.59 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	1.8
Trichloroethene	79-01-6	0.50	0.85	0.96	2.0
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	DUP-12400BELDEN-01_091520	Date/Time Analyzed:	9/25/20 04:57 PM
Lab ID:	2009561-10A	Dilution Factor:	1.79
Date/Time Collected:	9/15/20 12:00 AM	Instrument/Filename:	msd20.i / 20092512
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	0.54 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	1.8
Trichloroethene	79-01-6	0.50	0.85	0.96	1.8
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-09_091520	Date/Time Analyzed:	9/25/20 05:36 PM
Lab ID:	2009561-11A	Dilution Factor:	1.79
Date/Time Collected:	9/15/20 04:30 PM	Instrument/Filename:	msd20.i / 20092513
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	0.41 J
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	0.59 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	2.3
Trichloroethene	79-01-6	0.50	0.85	0.96	2.2
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	111
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-10_091520	Date/Time Analyzed:	9/25/20 06:15 PM
Lab ID:	2009561-12A	Dilution Factor:	1.61
Date/Time Collected:	9/15/20 04:02 PM	Instrument/Filename:	msd20.i / 20092514
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.36	0.56	0.64	Not Detected
1,4-Dioxane	123-91-1	0.34	0.51	0.58	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.30	0.56	0.64	Not Detected
Tetrachloroethene	127-18-4	0.42	0.96	1.1	0.58 J
trans-1,2-Dichloroethene	156-60-5	0.32	0.56	0.64	2.4
Trichloroethene	79-01-6	0.45	0.76	0.86	2.4
Vinyl Chloride	75-01-4	0.13	0.36	0.41	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-11_091520	Date/Time Analyzed:	9/25/20 06:55 PM
Lab ID:	2009561-13A	Dilution Factor:	1.75
Date/Time Collected:	9/15/20 04:42 PM	Instrument/Filename:	msd20.i / 20092515
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.39	0.61	0.69	Not Detected
1,4-Dioxane	123-91-1	0.37	0.55	0.63	0.45 J
cis-1,2-Dichloroethene	156-59-2	0.33	0.61	0.69	Not Detected
Tetrachloroethene	127-18-4	0.46	1.0	1.2	0.63 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.61	0.69	2.3
Trichloroethene	79-01-6	0.49	0.83	0.94	2.5
Vinyl Chloride	75-01-4	0.14	0.39	0.45	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-12_091520	Date/Time Analyzed:	9/25/20 07:34 PM
Lab ID:	2009561-14A	Dilution Factor:	1.75
Date/Time Collected:	9/15/20 04:00 PM	Instrument/Filename:	msd20.i / 20092516
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.39	0.61	0.69	Not Detected
1,4-Dioxane	123-91-1	0.37	0.55	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.61	0.69	Not Detected
Tetrachloroethene	127-18-4	0.46	1.0	1.2	0.68 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.61	0.69	2.3
Trichloroethene	79-01-6	0.49	0.83	0.94	2.6
Vinyl Chloride	75-01-4	0.14	0.39	0.45	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	9/24/20 12:21 PM
Lab ID:	2009561-15A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20092406a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.22	0.35	0.40	Not Detected
1,4-Dioxane	123-91-1	0.21	0.32	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.19	0.35	0.40	Not Detected
Tetrachloroethene	127-18-4	0.26	0.60	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.20	0.35	0.40	Not Detected
Trichloroethene	79-01-6	0.28	0.47	0.54	Not Detected
Vinyl Chloride	75-01-4	0.081	0.22	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	105

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	9/25/20 12:33 PM
Lab ID:	2009561-15B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20092506a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.22	0.35	0.40	Not Detected
1,4-Dioxane	123-91-1	0.21	0.32	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.19	0.35	0.40	Not Detected
Tetrachloroethene	127-18-4	0.26	0.60	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.20	0.35	0.40	Not Detected
Trichloroethene	79-01-6	0.28	0.47	0.54	Not Detected
Vinyl Chloride	75-01-4	0.081	0.22	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	119
4-Bromofluorobenzene	460-00-4	70-130	108
Toluene-d8	2037-26-5	70-130	104

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	9/24/20 09:31 AM
Lab ID:	2009561-16A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20092402
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	102
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	91
Tetrachloroethene	127-18-4	101
trans-1,2-Dichloroethene	156-60-5	93
Trichloroethene	79-01-6	103
Vinyl Chloride	75-01-4	99

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	9/25/20 09:28 AM
Lab ID:	2009561-16B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20092502
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	101
1,4-Dioxane	123-91-1	100
cis-1,2-Dichloroethene	156-59-2	92
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	92
Trichloroethene	79-01-6	101
Vinyl Chloride	75-01-4	100

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	98

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	9/24/20 10:23 AM
Lab ID:	2009561-17A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20092403
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	100
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	90
Tetrachloroethene	127-18-4	104
trans-1,2-Dichloroethene	156-60-5	91
Trichloroethene	79-01-6	104
Vinyl Chloride	75-01-4	97

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	103

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	9/24/20 11:02 AM
Lab ID:	2009561-17AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20092404
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	103
1,4-Dioxane	123-91-1	96
cis-1,2-Dichloroethene	156-59-2	92
Tetrachloroethene	127-18-4	103
trans-1,2-Dichloroethene	156-60-5	91
Trichloroethene	79-01-6	102
Vinyl Chloride	75-01-4	99

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	97

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	9/25/20 10:21 AM
Lab ID:	2009561-17B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20092503
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	101
1,4-Dioxane	123-91-1	96
cis-1,2-Dichloroethene	156-59-2	91
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	90
Trichloroethene	79-01-6	101
Vinyl Chloride	75-01-4	98

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	97

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	9/25/20 11:11 AM
Lab ID:	2009561-17BB	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20092504
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	103
1,4-Dioxane	123-91-1	94
cis-1,2-Dichloroethene	156-59-2	92
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	90
Trichloroethene	79-01-6	98
Vinyl Chloride	75-01-4	99

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	94

* % Recovery is calculated using unrounded analytical results.

9/28/2020

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP

Project #:

Workorder #: 2009565

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 9/21/2020 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott


Project Manager

WORK ORDER #: 2009565

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30050315.0301.01
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	09/21/2020	CONTACT:	Ausha Scott
DATE COMPLETED:	09/28/2020		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SSMP-12400BELDEN-12_091520	TO-15	5.1 "Hg	14.8 psi
02A	SSMP-12400BELDEN-10_091520	TO-15	5.3 "Hg	15 psi
03A	SSMP-12400BELDEN-01_091520	TO-15	6.1 "Hg	14.6 psi
04A	SSMP-12400BELDEN-02_091520	TO-15	6.1 "Hg	14.8 psi
05A	SSMP-12400BELDEN-03_091520	TO-15	5.7 "Hg	15 psi
06A	SSMP-12400BELDEN-04_091520	TO-15	5.3 "Hg	14.9 psi
07A	SSMP-12400BELDEN-05_091520	TO-15	5.7 "Hg	14.8 psi
08A	SSMP-12400BELDEN-11_091520	TO-15	6.3 "Hg	15.1 psi
09A	SSMP-12400BELDEN-09_091520	TO-15	5.1 "Hg	15.2 psi
10A	SSMP-12400BELDEN-08_091520	TO-15	6.1 "Hg	14.9 psi
11A	SSMP-12400BELDEN-07_091520	TO-15	5.9 "Hg	15.1 psi
12A	SSMP-12400BELDEN-06_091520	TO-15	6.7 "Hg	15 psi
13A	Lab Blank	TO-15	NA	NA
14A	CCV	TO-15	NA	NA
15A	LCS	TO-15	NA	NA
15AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 09/28/20

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209219, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-19-14, UT NELAP – CA009332020-12, VA NELAP - 10615, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005-013, Effective date: 10/18/2019, Expiration date: 10/17/2020.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards
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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 2009565

Twelve 1 Liter Summa Canister (100% Certified) samples were received on September 21, 2020. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-12_091520	Date/Time Analyzed:	9/25/20 02:20 PM
Lab ID:	2009565-01A	Dilution Factor:	2.42
Date/Time Collected:	9/15/20 09:56 AM	Instrument/Filename:	msdj.i / j092509
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.6	2.9	4.8	Not Detected
1,4-Dioxane	123-91-1	4.3	6.1	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.2	2.9	4.8	Not Detected
Tetrachloroethene	127-18-4	2.3	4.9	8.2	13
trans-1,2-Dichloroethene	156-60-5	0.96	2.9	4.8	200
Trichloroethene	79-01-6	1.6	3.9	6.5	460
Vinyl Chloride	75-01-4	0.56	1.8	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-10_091520	Date/Time Analyzed:	9/25/20 02:46 PM
Lab ID:	2009565-02A	Dilution Factor:	2.45
Date/Time Collected:	9/15/20 10:35 AM	Instrument/Filename:	msdj.i / j092510
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.6	2.9	4.8	Not Detected
1,4-Dioxane	123-91-1	4.3	6.2	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	2.9	4.8	Not Detected
Tetrachloroethene	127-18-4	2.3	5.0	8.3	25
trans-1,2-Dichloroethene	156-60-5	0.97	2.9	4.8	430
Trichloroethene	79-01-6	1.6	3.9	6.6	900
Vinyl Chloride	75-01-4	0.56	1.9	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: SSMP-12400BELDEN-01_091520
Lab ID: 2009565-03A
Date/Time Collected: 9/15/20 11:03 AM
Media: 1 Liter Summa Canister (100% Certified)

Date/Time Analyzed: 9/25/20 03:13 PM
Dilution Factor: 2.50
Instrument/Filename: msdj.i / j092511

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.4	6.3	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.5	21
trans-1,2-Dichloroethene	156-60-5	0.99	3.0	5.0	36
Trichloroethene	79-01-6	1.6	4.0	6.7	390
Vinyl Chloride	75-01-4	0.58	1.9	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP



Client ID:	SSMP-12400BELDEN-02_091520	Date/Time Analyzed:	9/25/20 03:39 PM
Lab ID:	2009565-04A	Dilution Factor:	2.52
Date/Time Collected:	9/15/20 11:38 AM	Instrument/Filename:	msdj.i / j092512
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.4	6.4	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.5	13
trans-1,2-Dichloroethene	156-60-5	1.0	3.0	5.0	2.0 J
Trichloroethene	79-01-6	1.6	4.1	6.8	81
Vinyl Chloride	75-01-4	0.58	1.9	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	103

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	SSMP-12400BELDEN-03_091520	Date/Time Analyzed:	9/25/20 04:05 PM
Lab ID:	2009565-05A	Dilution Factor:	2.49
Date/Time Collected:	9/15/20 12:06 PM	Instrument/Filename:	msdj.i / j092513
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	4.9	Not Detected
1,4-Dioxane	123-91-1	4.4	6.3	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	4.9	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.4	13
trans-1,2-Dichloroethene	156-60-5	0.99	3.0	4.9	41
Trichloroethene	79-01-6	1.6	4.0	6.7	340
Vinyl Chloride	75-01-4	0.57	1.9	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	105

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-04_091520	Date/Time Analyzed:	9/25/20 04:31 PM
Lab ID:	2009565-06A	Dilution Factor:	2.44
Date/Time Collected:	9/15/20 12:31 PM	Instrument/Filename:	msdj.i / j092514
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.6	2.9	4.8	Not Detected
1,4-Dioxane	123-91-1	4.3	6.2	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.2	2.9	4.8	Not Detected
Tetrachloroethene	127-18-4	2.3	5.0	8.3	3.7 J
trans-1,2-Dichloroethene	156-60-5	0.97	2.9	4.8	4.1 J
Trichloroethene	79-01-6	1.6	3.9	6.6	32
Vinyl Chloride	75-01-4	0.56	1.9	3.1	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-05_091520	Date/Time Analyzed:	9/25/20 04:58 PM
Lab ID:	2009565-07A	Dilution Factor:	2.48
Date/Time Collected:	9/15/20 12:58 PM	Instrument/Filename:	msdj.i / j092515
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	4.9	2.0 J
1,4-Dioxane	123-91-1	4.4	6.2	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	2.9	4.9	Not Detected
Tetrachloroethene	127-18-4	2.4	5.0	8.4	3.6 J
trans-1,2-Dichloroethene	156-60-5	0.98	2.9	4.9	6.0
Trichloroethene	79-01-6	1.6	4.0	6.7	21
Vinyl Chloride	75-01-4	0.57	1.9	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-11_091520	Date/Time Analyzed:	9/25/20 05:24 PM
Lab ID:	2009565-08A	Dilution Factor:	2.57
Date/Time Collected:	9/15/20 10:25 AM	Instrument/Filename:	msdj.i / j092516
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.1	Not Detected
1,4-Dioxane	123-91-1	4.5	6.5	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.1	1.4 J
Tetrachloroethene	127-18-4	2.4	5.2	8.7	19
trans-1,2-Dichloroethene	156-60-5	1.0	3.0	5.1	820
Trichloroethene	79-01-6	1.6	4.1	6.9	690
Vinyl Chloride	75-01-4	0.59	2.0	3.3	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	104

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-09_091520	Date/Time Analyzed:	9/25/20 08:05 PM
Lab ID:	2009565-09A	Dilution Factor:	2.45
Date/Time Collected:	9/15/20 10:32 AM	Instrument/Filename:	msdj.i / j092517
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.6	2.9	4.8	Not Detected
1,4-Dioxane	123-91-1	4.3	6.2	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	2.9	4.8	1.3 J
Tetrachloroethene	127-18-4	2.3	5.0	8.3	27
trans-1,2-Dichloroethene	156-60-5	0.97	2.9	4.8	320
Trichloroethene	79-01-6	1.6	3.9	6.6	620
Vinyl Chloride	75-01-4	0.56	1.9	3.1	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-08_091520	Date/Time Analyzed:	9/25/20 08:32 PM
Lab ID:	2009565-10A	Dilution Factor:	2.53
Date/Time Collected:	9/15/20 11:26 AM	Instrument/Filename:	msdj.i / j092518
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.5	6.4	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.6	18
trans-1,2-Dichloroethene	156-60-5	1.0	3.0	5.0	95
Trichloroethene	79-01-6	1.6	4.1	6.8	470
Vinyl Chloride	75-01-4	0.58	1.9	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-07_091520	Date/Time Analyzed:	9/25/20 08:58 PM
Lab ID:	2009565-11A	Dilution Factor:	2.52
Date/Time Collected:	9/15/20 12:43 PM	Instrument/Filename:	msdj.i / j092519
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.4	6.4	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.5	9.9
trans-1,2-Dichloroethene	156-60-5	1.0	3.0	5.0	14
Trichloroethene	79-01-6	1.6	4.1	6.8	110
Vinyl Chloride	75-01-4	0.58	1.9	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	103

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-06_091520	Date/Time Analyzed:	9/25/20 09:24 PM
Lab ID:	2009565-12A	Dilution Factor:	2.60
Date/Time Collected:	9/15/20 12:36 PM	Instrument/Filename:	msdj.i / j092520
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.1	5.2	Not Detected
1,4-Dioxane	123-91-1	4.6	6.6	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.1	5.2	Not Detected
Tetrachloroethene	127-18-4	2.5	5.3	8.8	29
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.2	5.8
Trichloroethene	79-01-6	1.7	4.2	7.0	240
Vinyl Chloride	75-01-4	0.60	2.0	3.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	106

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	9/25/20 12:36 PM
Lab ID:	2009565-13A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j092506a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.67	1.2	2.0	Not Detected
1,4-Dioxane	123-91-1	1.8	2.5	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.52	1.2	2.0	Not Detected
Tetrachloroethene	127-18-4	0.95	2.0	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.40	1.2	2.0	Not Detected
Trichloroethene	79-01-6	0.64	1.6	2.7	Not Detected
Vinyl Chloride	75-01-4	0.23	0.77	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	CCV	Date/Time Analyzed:	9/25/20 11:20 AM
Lab ID:	2009565-14A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j092503
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	91
1,4-Dioxane	123-91-1	108
cis-1,2-Dichloroethene	156-59-2	106
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	92
Trichloroethene	79-01-6	91
Vinyl Chloride	75-01-4	93

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	116
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCS	Date/Time Analyzed:	9/25/20 11:45 AM
Lab ID:	2009565-15A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j092504
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	90
1,4-Dioxane	123-91-1	106
cis-1,2-Dichloroethene	156-59-2	106
Tetrachloroethene	127-18-4	98
trans-1,2-Dichloroethene	156-60-5	89
Trichloroethene	79-01-6	92
Vinyl Chloride	75-01-4	94

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	99

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	9/25/20 12:10 PM
Lab ID:	2009565-15AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j092505
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	93
1,4-Dioxane	123-91-1	105
cis-1,2-Dichloroethene	156-59-2	108
Tetrachloroethene	127-18-4	98
trans-1,2-Dichloroethene	156-60-5	89
Trichloroethene	79-01-6	89
Vinyl Chloride	75-01-4	93

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	109
Toluene-d8	2037-26-5	70-130	97

* % Recovery is calculated using unrounded analytical results.

1/7/2021
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 2012710

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 12/30/2020 at Eurofins Air Toxics LLC.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics LLC. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 2012710

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30050315.0301.01
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	12/30/2020	CONTACT:	Ausha Scott
DATE COMPLETED:	01/07/2021		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	AA-12400BELDEN-01_122220	Modified TO-15	8.0 "Hg	5 psi
02A	IAF-12400BELDEN-01_122220	Modified TO-15	8.0 "Hg	5 psi
03A	IAF-12400BELDEN-02_122220	Modified TO-15	8.0 "Hg	5 psi
04A	IAF-12400BELDEN-03_122220	Modified TO-15	7.5 "Hg	5 psi
05A	IAF-12400BELDEN-04_122220	Modified TO-15	8.5 "Hg	5 psi
06A	IAF-12400BELDEN-05_122220	Modified TO-15	7.5 "Hg	5 psi
07A	IAF-12400BELDEN-06_122220	Modified TO-15	7.0 "Hg	5 psi
08A	IAF-12400BELDEN-07_122220	Modified TO-15	6.5 "Hg	5 psi
09A	IAF-12400BELDEN-08_122220	Modified TO-15	8.0 "Hg	5 psi
10A	IAF-12400BELDEN-09_122220	Modified TO-15	7.5 "Hg	5 psi
11A	IAF-12400BELDEN-10_122220	Modified TO-15	8.5 "Hg	5 psi
12A	IAF-12400BELDEN-11_122220	Modified TO-15	7.5 "Hg	5 psi
13A	IAF-12400BELDEN-12_122220	Modified TO-15	8.0 "Hg	5 psi
14A	DUP-12400BELDEN-01_122220	Modified TO-15	8.0 "Hg	5 psi
15A	Lab Blank	Modified TO-15	NA	NA
15B	Lab Blank	Modified TO-15	NA	NA
16A	CCV	Modified TO-15	NA	NA
16B	CCV	Modified TO-15	NA	NA
17A	LCS	Modified TO-15	NA	NA
17AA	LCS	Modified TO-15	NA	NA
17B	LCS	Modified TO-15	NA	NA
17BB	LCS	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 01/07/21

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209220, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-20-16, UT NELAP – CA009332020-12, VA NELAP - 10615, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005-014, Effective date: 10/18/2020, Expiration date: 10/17/2021.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 2012710

Fourteen 6 Liter Summa Canister (100% Cert Ambient) samples were received on December 30, 2020. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the EATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	AA-12400BELDEN-01_122220	Date/Time Analyzed:	12/31/20 01:04 PM
Lab ID:	2012710-01A	Dilution Factor:	1.83
Date/Time Collected:	12/22/20 04:23 PM	Instrument/Filename:	msd20.i / 20123107
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.41	0.64	0.72	Not Detected
1,4-Dioxane	123-91-1	0.38	0.58	0.66	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.64	0.72	Not Detected
Tetrachloroethene	127-18-4	0.48	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.64	0.72	Not Detected
Trichloroethene	79-01-6	0.51	0.86	0.98	Not Detected
Vinyl Chloride	75-01-4	0.15	0.41	0.47	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-01_122220	Date/Time Analyzed:	12/31/20 01:44 PM
Lab ID:	2012710-02A	Dilution Factor:	1.83
Date/Time Collected:	12/22/20 04:06 PM	Instrument/Filename:	msd20.i / 20123108
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.41	0.64	0.72	Not Detected
1,4-Dioxane	123-91-1	0.38	0.58	0.66	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.64	0.72	Not Detected
Tetrachloroethene	127-18-4	0.48	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.64	0.72	Not Detected
Trichloroethene	79-01-6	0.51	0.86	0.98	Not Detected
Vinyl Chloride	75-01-4	0.15	0.41	0.47	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-02_122220	Date/Time Analyzed:	12/31/20 02:48 PM
Lab ID:	2012710-03A	Dilution Factor:	1.83
Date/Time Collected:	12/22/20 04:04 PM	Instrument/Filename:	msd20.i / 20123109
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.41	0.64	0.72	Not Detected
1,4-Dioxane	123-91-1	0.38	0.58	0.66	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.64	0.72	Not Detected
Tetrachloroethene	127-18-4	0.48	1.1	1.2	1.3
trans-1,2-Dichloroethene	156-60-5	0.36	0.64	0.72	Not Detected
Trichloroethene	79-01-6	0.51	0.86	0.98	Not Detected
Vinyl Chloride	75-01-4	0.15	0.41	0.47	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	112
Toluene-d8	2037-26-5	70-130	105

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	IAF-12400BELDEN-03_122220	Date/Time Analyzed:	12/31/20 03:27 PM
Lab ID:	2012710-04A	Dilution Factor:	1.79
Date/Time Collected:	12/22/20 04:06 PM	Instrument/Filename:	msd20.i / 20123110
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	Not Detected
Trichloroethene	79-01-6	0.50	0.85	0.96	Not Detected
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	110
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP



Client ID:	IAF-12400BELDEN-04_122220	Date/Time Analyzed:	12/31/20 04:07 PM
Lab ID:	2012710-05A	Dilution Factor:	1.87
Date/Time Collected:	12/22/20 04:08 PM	Instrument/Filename:	msd20.i / 20123111
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.42	0.65	0.74	Not Detected
1,4-Dioxane	123-91-1	0.39	0.59	0.67	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.35	0.65	0.74	Not Detected
Tetrachloroethene	127-18-4	0.49	1.1	1.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.37	0.65	0.74	Not Detected
Trichloroethene	79-01-6	0.52	0.88	1.0	Not Detected
Vinyl Chloride	75-01-4	0.15	0.42	0.48	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	IAF-12400BELDEN-05_122220	Date/Time Analyzed:	12/31/20 04:46 PM
Lab ID:	2012710-06A	Dilution Factor:	1.79
Date/Time Collected:	12/22/20 04:04 PM	Instrument/Filename:	msd20.i / 20123112
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	Not Detected
Trichloroethene	79-01-6	0.50	0.85	0.96	Not Detected
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-06_122220	Date/Time Analyzed:	12/31/20 05:25 PM
Lab ID:	2012710-07A	Dilution Factor:	1.75
Date/Time Collected:	12/22/20 04:11 PM	Instrument/Filename:	msd20.i / 20123113
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.39	0.61	0.69	Not Detected
1,4-Dioxane	123-91-1	0.37	0.55	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.61	0.69	Not Detected
Tetrachloroethene	127-18-4	0.46	1.0	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.35	0.61	0.69	Not Detected
Trichloroethene	79-01-6	0.49	0.83	0.94	Not Detected
Vinyl Chloride	75-01-4	0.14	0.39	0.45	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	110
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-07_122220	Date/Time Analyzed:	12/31/20 06:04 PM
Lab ID:	2012710-08A	Dilution Factor:	1.71
Date/Time Collected:	12/22/20 04:13 PM	Instrument/Filename:	msd20.i / 20123114
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.38	0.60	0.68	Not Detected
1,4-Dioxane	123-91-1	0.36	0.54	0.62	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.32	0.60	0.68	Not Detected
Tetrachloroethene	127-18-4	0.45	1.0	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.34	0.60	0.68	Not Detected
Trichloroethene	79-01-6	0.48	0.81	0.92	Not Detected
Vinyl Chloride	75-01-4	0.14	0.38	0.44	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	109
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-08_122220	Date/Time Analyzed:	12/31/20 08:21 PM
Lab ID:	2012710-09A	Dilution Factor:	1.83
Date/Time Collected:	12/22/20 04:15 PM	Instrument/Filename:	msd20.i / 20123117
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.41	0.64	0.72	Not Detected
1,4-Dioxane	123-91-1	0.38	0.58	0.66	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.64	0.72	Not Detected
Tetrachloroethene	127-18-4	0.48	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.64	0.72	Not Detected
Trichloroethene	79-01-6	0.51	0.86	0.98	Not Detected
Vinyl Chloride	75-01-4	0.15	0.41	0.47	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-09_122220	Date/Time Analyzed:	12/31/20 07:23 PM
Lab ID:	2012710-10A	Dilution Factor:	1.79
Date/Time Collected:	12/22/20 04:17 PM	Instrument/Filename:	msd20.i / 20123116
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	0.62 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	Not Detected
Trichloroethene	79-01-6	0.50	0.85	0.96	Not Detected
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-10_122220	Date/Time Analyzed:	12/31/20 09:00 PM
Lab ID:	2012710-11A	Dilution Factor:	1.87
Date/Time Collected:	12/22/20 03:57 PM	Instrument/Filename:	msd20.i / 20123118
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.42	0.65	0.74	Not Detected
1,4-Dioxane	123-91-1	0.39	0.59	0.67	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.35	0.65	0.74	Not Detected
Tetrachloroethene	127-18-4	0.49	1.1	1.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.37	0.65	0.74	Not Detected
Trichloroethene	79-01-6	0.52	0.88	1.0	0.53 J
Vinyl Chloride	75-01-4	0.15	0.42	0.48	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	108
Toluene-d8	2037-26-5	70-130	104

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-11_122220	Date/Time Analyzed:	12/31/20 09:39 PM
Lab ID:	2012710-12A	Dilution Factor:	1.79
Date/Time Collected:	12/22/20 03:57 PM	Instrument/Filename:	msd20.i / 20123119
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	0.59 J
Trichloroethene	79-01-6	0.50	0.85	0.96	0.57 J
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-12_122220	Date/Time Analyzed:	1/4/21 12:19 PM
Lab ID:	2012710-13A	Dilution Factor:	1.83
Date/Time Collected:	12/22/20 03:57 PM	Instrument/Filename:	msd20.i / 20010407
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.41	0.64	0.72	Not Detected
1,4-Dioxane	123-91-1	0.38	0.58	0.66	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.64	0.72	Not Detected
Tetrachloroethene	127-18-4	0.48	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.64	0.72	Not Detected
Trichloroethene	79-01-6	0.51	0.86	0.98	0.51 J
Vinyl Chloride	75-01-4	0.15	0.41	0.47	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	112
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	DUP-12400BELDEN-01_122220	Date/Time Analyzed:	1/4/21 01:06 PM
Lab ID:	2012710-14A	Dilution Factor:	1.83
Date/Time Collected:	12/22/20 12:00 AM	Instrument/Filename:	msd20.i / 20010408
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.41	0.64	0.72	Not Detected
1,4-Dioxane	123-91-1	0.38	0.58	0.66	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.64	0.72	Not Detected
Tetrachloroethene	127-18-4	0.48	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.64	0.72	Not Detected
Trichloroethene	79-01-6	0.51	0.86	0.98	Not Detected
Vinyl Chloride	75-01-4	0.15	0.41	0.47	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	12/31/20 12:10 PM
Lab ID:	2012710-15A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20123106a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.22	0.35	0.40	Not Detected
1,4-Dioxane	123-91-1	0.21	0.32	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.19	0.35	0.40	Not Detected
Tetrachloroethene	127-18-4	0.26	0.60	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.20	0.35	0.40	Not Detected
Trichloroethene	79-01-6	0.28	0.47	0.54	Not Detected
Vinyl Chloride	75-01-4	0.081	0.22	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	108
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	1/4/21 11:12 AM
Lab ID:	2012710-15B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20010406a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.22	0.35	0.40	Not Detected
1,4-Dioxane	123-91-1	0.21	0.32	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.19	0.35	0.40	Not Detected
Tetrachloroethene	127-18-4	0.26	0.60	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.20	0.35	0.40	Not Detected
Trichloroethene	79-01-6	0.28	0.47	0.54	Not Detected
Vinyl Chloride	75-01-4	0.081	0.22	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	111
4-Bromofluorobenzene	460-00-4	70-130	109
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	12/31/20 09:06 AM
Lab ID:	2012710-16A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20123102
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	91
1,4-Dioxane	123-91-1	119
cis-1,2-Dichloroethene	156-59-2	94
Tetrachloroethene	127-18-4	104
trans-1,2-Dichloroethene	156-60-5	92
Trichloroethene	79-01-6	120
Vinyl Chloride	75-01-4	89

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	106

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	1/4/21 08:06 AM
Lab ID:	2012710-16B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20010402
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	96
1,4-Dioxane	123-91-1	111
cis-1,2-Dichloroethene	156-59-2	97
Tetrachloroethene	127-18-4	103
trans-1,2-Dichloroethene	156-60-5	96
Trichloroethene	79-01-6	116
Vinyl Chloride	75-01-4	94

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	109
Toluene-d8	2037-26-5	70-130	111

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	12/31/20 09:56 AM
Lab ID:	2012710-17A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20123103
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	92
1,4-Dioxane	123-91-1	113
cis-1,2-Dichloroethene	156-59-2	93
Tetrachloroethene	127-18-4	104
trans-1,2-Dichloroethene	156-60-5	92
Trichloroethene	79-01-6	108
Vinyl Chloride	75-01-4	91

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	105

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	12/31/20 10:43 AM
Lab ID:	2012710-17AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20123104
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	92
1,4-Dioxane	123-91-1	110
cis-1,2-Dichloroethene	156-59-2	94
Tetrachloroethene	127-18-4	106
trans-1,2-Dichloroethene	156-60-5	92
Trichloroethene	79-01-6	108
Vinyl Chloride	75-01-4	92

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	103

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	1/4/21 08:54 AM
Lab ID:	2012710-17B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20010403
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	93
1,4-Dioxane	123-91-1	110
cis-1,2-Dichloroethene	156-59-2	95
Tetrachloroethene	127-18-4	106
trans-1,2-Dichloroethene	156-60-5	93
Trichloroethene	79-01-6	107
Vinyl Chloride	75-01-4	92

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	109
Toluene-d8	2037-26-5	70-130	104

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	1/4/21 09:42 AM
Lab ID:	2012710-17BB	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20010404
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	94
1,4-Dioxane	123-91-1	109
cis-1,2-Dichloroethene	156-59-2	96
Tetrachloroethene	127-18-4	104
trans-1,2-Dichloroethene	156-60-5	94
Trichloroethene	79-01-6	106
Vinyl Chloride	75-01-4	93

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	109
Toluene-d8	2037-26-5	70-130	102

* % Recovery is calculated using unrounded analytical results.

1/6/2021
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 2012711

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 12/30/2020 at Eurofins Air Toxics LLC.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics LLC. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 2012711

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30050315.0301.01
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	12/30/2020	CONTACT:	Ausha Scott
DATE COMPLETED:	01/06/2021		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SSMP-12400BELDEN-01_122220	TO-15	6.5 "Hg	15 psi
02A	SSMP-12400BELDEN-02_122220	TO-15	5.5 "Hg	15 psi
03A	SSMP-12400BELDEN-03_122220	TO-15	7.0 "Hg	15 psi
04A	SSMP-12400BELDEN-04_122220	TO-15	6.0 "Hg	15 psi
05A	SSMP-12400BELDEN-05_122220	TO-15	6.5 "Hg	15 psi
06A	SSMP-12400BELDEN-06_122220	TO-15	6.5 "Hg	15 psi
07A	SSMP-12400BELDEN-07_122220	TO-15	6.5 "Hg	15 psi
08A	SSMP-12400BELDEN-08_122220	TO-15	6.0 "Hg	15 psi
09A	SSMP-12400BELDEN-09_122220	TO-15	7.5 "Hg	15 psi
10A	SSMP-12400BELDEN-10_122220	TO-15	6.0 "Hg	15 psi
11A	SSMP-12400BELDEN-11_122220	TO-15	6.0 "Hg	15 psi
12A	SSMP-12400BELDEN-12_122220	TO-15	7.0 "Hg	15 psi
13A	Lab Blank	TO-15	NA	NA
14A	CCV	TO-15	NA	NA
15A	LCS	TO-15	NA	NA
15AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 01/06/21

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209220, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-20-16, UT NELAP – CA009332020-12, VA NELAP - 10615, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005-014, Effective date: 10/18/2020, Expiration date: 10/17/2021.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 2012711

Twelve 1 Liter Summa Canister (100% Certified) samples were received on December 30, 2020. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: SSMP-12400BELDEN-01_122220
Lab ID: 2012711-01A
Date/Time Collected: 12/22/20 09:52 AM
Media: 1 Liter Summa Canister (100% Certified)

Date/Time Analyzed: 1/5/21 12:16 PM
Dilution Factor: 2.58
Instrument/Filename: msdj.i / j010508

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.1	5.1	Not Detected
1,4-Dioxane	123-91-1	4.6	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.1	5.1	Not Detected
Tetrachloroethene	127-18-4	2.4	5.2	8.8	5.3 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.1	8.0
Trichloroethene	79-01-6	1.7	4.2	6.9	130
Vinyl Chloride	75-01-4	0.59	2.0	3.3	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-02_122220	Date/Time Analyzed:	1/5/21 12:46 PM
Lab ID:	2012711-02A	Dilution Factor:	2.47
Date/Time Collected:	12/22/20 10:12 AM	Instrument/Filename:	msdj.i / j010509
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	2.9	4.9	Not Detected
1,4-Dioxane	123-91-1	4.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	2.9	4.9	Not Detected
Tetrachloroethene	127-18-4	2.3	5.0	8.4	3.4 J
trans-1,2-Dichloroethene	156-60-5	0.98	2.9	4.9	Not Detected
Trichloroethene	79-01-6	1.6	4.0	6.6	26
Vinyl Chloride	75-01-4	0.57	1.9	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-03_122220	Date/Time Analyzed:	1/5/21 01:15 PM
Lab ID:	2012711-03A	Dilution Factor:	2.64
Date/Time Collected:	12/22/20 10:32 AM	Instrument/Filename:	msdj.i / j010510
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.1	5.2	Not Detected
1,4-Dioxane	123-91-1	4.7	13	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.1	5.2	Not Detected
Tetrachloroethene	127-18-4	2.5	5.4	9.0	2.9 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.2	13
Trichloroethene	79-01-6	1.7	4.2	7.1	75
Vinyl Chloride	75-01-4	0.61	2.0	3.4	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: SSMP-12400BELDEN-04_122220
Lab ID: 2012711-04A
Date/Time Collected: 12/22/20 10:51 AM
Media: 1 Liter Summa Canister (100% Certified)

Date/Time Analyzed: 1/5/21 01:44 PM
Dilution Factor: 2.52
Instrument/Filename: msdj.i / j010511

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.5	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.0	3.0	5.0	Not Detected
Trichloroethene	79-01-6	1.6	4.1	6.8	7.3
Vinyl Chloride	75-01-4	0.58	1.9	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: SSMP-12400BELDEN-05_122220
Lab ID: 2012711-05A
Date/Time Collected: 12/22/20 11:12 AM
Media: 1 Liter Summa Canister (100% Certified)

Date/Time Analyzed: 1/5/21 02:14 PM
Dilution Factor: 2.58
Instrument/Filename: msdj.i / j010512

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.1	5.1	Not Detected
1,4-Dioxane	123-91-1	4.6	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.1	5.1	Not Detected
Tetrachloroethene	127-18-4	2.4	5.2	8.8	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.1	2.0 J
Trichloroethene	79-01-6	1.7	4.2	6.9	1.9 J
Vinyl Chloride	75-01-4	0.59	2.0	3.3	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: SSMP-12400BELDEN-06_122220
Lab ID: 2012711-06A
Date/Time Collected: 12/22/20 11:36 AM
Media: 1 Liter Summa Canister (100% Certified)

Date/Time Analyzed: 1/5/21 02:43 PM
Dilution Factor: 2.58
Instrument/Filename: msdj.i / j010513

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.1	5.1	Not Detected
1,4-Dioxane	123-91-1	4.6	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.1	5.1	Not Detected
Tetrachloroethene	127-18-4	2.4	5.2	8.8	5.3 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.1	1.4 J
Trichloroethene	79-01-6	1.7	4.2	6.9	59
Vinyl Chloride	75-01-4	0.59	2.0	3.3	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-07_122220	Date/Time Analyzed:	1/5/21 03:12 PM
Lab ID:	2012711-07A	Dilution Factor:	2.58
Date/Time Collected:	12/22/20 11:56 AM	Instrument/Filename:	msdj.i / j010514
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.1	5.1	Not Detected
1,4-Dioxane	123-91-1	4.6	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.1	5.1	Not Detected
Tetrachloroethene	127-18-4	2.4	5.2	8.8	3.0 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.1	2.1 J
Trichloroethene	79-01-6	1.7	4.2	6.9	37
Vinyl Chloride	75-01-4	0.59	2.0	3.3	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-08_122220	Date/Time Analyzed:	1/5/21 03:42 PM
Lab ID:	2012711-08A	Dilution Factor:	2.52
Date/Time Collected:	12/22/20 11:59 AM	Instrument/Filename:	msdj.i / j010515
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.5	3.0 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.0	5.0	8.7
Trichloroethene	79-01-6	1.6	4.1	6.8	50
Vinyl Chloride	75-01-4	0.58	1.9	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-09_122220	Date/Time Analyzed:	1/5/21 04:11 PM
Lab ID:	2012711-09A	Dilution Factor:	2.69
Date/Time Collected:	12/22/20 11:34 AM	Instrument/Filename:	msdj.i / j010516
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.2	5.3	Not Detected
1,4-Dioxane	123-91-1	4.8	13	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.2	5.3	Not Detected
Tetrachloroethene	127-18-4	2.6	5.5	9.1	8.8 J
trans-1,2-Dichloroethene	156-60-5	1.1	3.2	5.3	81
Trichloroethene	79-01-6	1.7	4.3	7.2	240
Vinyl Chloride	75-01-4	0.62	2.1	3.4	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-10_122220	Date/Time Analyzed:	1/5/21 04:40 PM
Lab ID:	2012711-10A	Dilution Factor:	2.52
Date/Time Collected:	12/22/20 11:07 AM	Instrument/Filename:	msdj.i / j010517
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.5	9.3
trans-1,2-Dichloroethene	156-60-5	1.0	3.0	5.0	83
Trichloroethene	79-01-6	1.6	4.1	6.8	400
Vinyl Chloride	75-01-4	0.58	1.9	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-11_122220	Date/Time Analyzed:	1/5/21 07:49 PM
Lab ID:	2012711-11A	Dilution Factor:	2.52
Date/Time Collected:	12/22/20 10:45 AM	Instrument/Filename:	msdj.i / j010521
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.5	5.3 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.0	5.0	130
Trichloroethene	79-01-6	1.6	4.1	6.8	290
Vinyl Chloride	75-01-4	0.58	1.9	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-12_122220	Date/Time Analyzed:	1/5/21 05:35 PM
Lab ID:	2012711-12A	Dilution Factor:	2.64
Date/Time Collected:	12/22/20 10:19 AM	Instrument/Filename:	msdj.i / j010519
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.1	5.2	Not Detected
1,4-Dioxane	123-91-1	4.7	13	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.1	5.2	Not Detected
Tetrachloroethene	127-18-4	2.5	5.4	9.0	4.8 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.2	29
Trichloroethene	79-01-6	1.7	4.2	7.1	140
Vinyl Chloride	75-01-4	0.61	2.0	3.4	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	91
Toluene-d8	2037-26-5	70-130	105

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	1/5/21 11:15 AM
Lab ID:	2012711-13A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j010507a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.67	1.2	2.0	Not Detected
1,4-Dioxane	123-91-1	1.8	4.9	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.52	1.2	2.0	Not Detected
Tetrachloroethene	127-18-4	0.95	2.0	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.40	1.2	2.0	Not Detected
Trichloroethene	79-01-6	0.64	1.6	2.7	Not Detected
Vinyl Chloride	75-01-4	0.23	0.77	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	CCV	Date/Time Analyzed:	1/5/21 08:24 AM
Lab ID:	2012711-14A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j010502
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	92
1,4-Dioxane	123-91-1	102
cis-1,2-Dichloroethene	156-59-2	98
Tetrachloroethene	127-18-4	103
trans-1,2-Dichloroethene	156-60-5	99
Trichloroethene	79-01-6	101
Vinyl Chloride	75-01-4	115

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCS	Date/Time Analyzed:	1/5/21 09:01 AM
Lab ID:	2012711-15A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j010503
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	101
1,4-Dioxane	123-91-1	100
cis-1,2-Dichloroethene	156-59-2	103
Tetrachloroethene	127-18-4	104
trans-1,2-Dichloroethene	156-60-5	103
Trichloroethene	79-01-6	104
Vinyl Chloride	75-01-4	119

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	101

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	1/5/21 09:28 AM
Lab ID:	2012711-15AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j010504
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	94
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	98
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	98
Trichloroethene	79-01-6	100
Vinyl Chloride	75-01-4	108

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	98

* % Recovery is calculated using unrounded analytical results.

4/19/2019

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP

Project #:

Workorder #: 1904296

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 4/12/2019 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott

Project Manager

WORK ORDER #: 1904296

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0003
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	04/12/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	04/18/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SSMP-12400BELDEN-01_040919	TO-15	6.3 "Hg	16.2 psi
02A	SSMP-12400BELDEN-02_040919	TO-15	6.7 "Hg	15.9 psi
03A	SSMP-12400BELDEN-03_040919	TO-15	7.1 "Hg	16 psi
04A	SSMP-12400BELDEN-04_040919	TO-15	5.1 "Hg	14.9 psi
05A	SSMP-12400BELDEN-05_040919	TO-15	6.3 "Hg	16.1 psi
06A	SSMP-12400BELDEN-06_040919	TO-15	5.9 "Hg	15.8 psi
07A	SSMP-12400BELDEN-07_040919	TO-15	5.3 "Hg	14.9 psi
08A	SSMP-12400BELDEN-08_040919	TO-15	6.1 "Hg	16.2 psi
09A	SSMP-12400BELDEN-09_040919	TO-15	6.1 "Hg	16.2 psi
10A	SSMP-12400BELDEN-10_040919	TO-15	5.9 "Hg	16 psi
11A	SSMP-12400BELDEN-11_040919	TO-15	5.7 "Hg	16.3 psi
12A	SSMP-12400BELDEN-12_040919	TO-15	4.5 "Hg	15.3 psi
13A	DUP-12400BELDEN-02_040919	TO-15	4.7 "Hg	15 psi
14A	Lab Blank	TO-15	NA	NA
15A	CCV	TO-15	NA	NA
16A	LCS	TO-15	NA	NA
16AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

DATE: 04/19/19

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1904296

Thirteen 1 Liter Summa Canister (100% Certified) samples were received on April 12, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified (0.2 ppbv for compounds reported at 0.5 ppbv and 0.8 ppbv for compounds reported at 2.0 ppbv) may be false positives.

Dilution was performed on sample SSMP-12400BELDEN-11_040919 due to the presence of high level target species.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-01_040919	Date/Time Analyzed:	4/16/19 07:47 PM
Lab ID:	1904296-01A	Dilution Factor:	2.66
Date/Time Collecte	4/9/19 07:47 AM	Instrument/Filename:	msd17.i / 17041612
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.3	4.2	5.3	Not Detected
1,4-Dioxane	123-91-1	10	14	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.5	4.2	5.3	Not Detected
Tetrachloroethene	127-18-4	3.6	7.2	9.0	27
trans-1,2-Dichloroethene	156-60-5	1.6	4.2	5.3	380
Trichloroethene	79-01-6	2.6	5.7	7.1	1200
Vinyl Chloride	75-01-4	1.4	2.7	3.4	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	89
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	128

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-02_040919	Date/Time Analyzed:	4/16/19 08:16 PM
Lab ID:	1904296-02A	Dilution Factor:	2.68
Date/Time Collecte	4/9/19 08:15 AM	Instrument/Filename:	msd17.i / 17041613
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.3	4.2	5.3	Not Detected
1,4-Dioxane	123-91-1	10	14	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.5	4.2	5.3	Not Detected
Tetrachloroethene	127-18-4	3.6	7.3	9.1	14
trans-1,2-Dichloroethene	156-60-5	1.6	4.2	5.3	150
Trichloroethene	79-01-6	2.6	5.8	7.2	270
Vinyl Chloride	75-01-4	1.4	2.7	3.4	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	111

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-03_040919	Date/Time Analyzed:	4/16/19 11:13 PM
Lab ID:	1904296-03A	Dilution Factor:	2.74
Date/Time Collecte	4/9/19 08:42 AM	Instrument/Filename:	msd17.i / 17041615
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.4	4.3	5.4	Not Detected
1,4-Dioxane	123-91-1	10	15	20	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.5	4.3	5.4	Not Detected
Tetrachloroethene	127-18-4	3.7	7.4	9.3	13
trans-1,2-Dichloroethene	156-60-5	1.6	4.3	5.4	300
Trichloroethene	79-01-6	2.6	5.9	7.4	580
Vinyl Chloride	75-01-4	1.4	2.8	3.5	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	88
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	109

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-04_040919	Date/Time Analyzed:	4/16/19 11:42 PM
Lab ID:	1904296-04A	Dilution Factor:	2.43
Date/Time Collecte	4/9/19 09:10 AM	Instrument/Filename:	msd17.i / 17041616
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.1	3.8	4.8	Not Detected
1,4-Dioxane	123-91-1	9.3	13	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.8	4.8	Not Detected
Tetrachloroethene	127-18-4	3.3	6.6	8.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.4	3.8	4.8	170
Trichloroethene	79-01-6	2.4	5.2	6.5	170
Vinyl Chloride	75-01-4	1.2	2.5	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	88
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	110

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-05_040919	Date/Time Analyzed:	4/17/19 12:10 AM
Lab ID:	1904296-05A	Dilution Factor:	2.65
Date/Time Collecte	4/9/19 09:35 AM	Instrument/Filename:	msd17.i / 17041617
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.3	4.2	5.2	Not Detected
1,4-Dioxane	123-91-1	10	14	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.5	4.2	5.2	Not Detected
Tetrachloroethene	127-18-4	3.6	7.2	9.0	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.6	4.2	5.2	260
Trichloroethene	79-01-6	2.6	5.7	7.1	240
Vinyl Chloride	75-01-4	1.4	2.7	3.4	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	91
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	108

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-06_040919	Date/Time Analyzed:	4/17/19 12:38 AM
Lab ID:	1904296-06A	Dilution Factor:	2.58
Date/Time Collecte	4/9/19 09:58 AM	Instrument/Filename:	msd17.i / 17041618
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.2	4.1	5.1	Not Detected
1,4-Dioxane	123-91-1	9.8	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	4.1	5.1	Not Detected
Tetrachloroethene	127-18-4	3.5	7.0	8.8	31
trans-1,2-Dichloroethene	156-60-5	1.5	4.1	5.1	340
Trichloroethene	79-01-6	2.5	5.5	6.9	1100
Vinyl Chloride	75-01-4	1.3	2.6	3.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	108

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-07_040919	Date/Time Analyzed:	4/17/19 01:06 AM
Lab ID:	1904296-07A	Dilution Factor:	2.44
Date/Time Collecte	4/9/19 10:03 AM	Instrument/Filename:	msd17.i / 17041619
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.1	3.9	4.8	Not Detected
1,4-Dioxane	123-91-1	9.3	13	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.9	4.8	Not Detected
Tetrachloroethene	127-18-4	3.3	6.6	8.3	18
trans-1,2-Dichloroethene	156-60-5	1.4	3.9	4.8	230
Trichloroethene	79-01-6	2.4	5.2	6.6	370
Vinyl Chloride	75-01-4	1.2	2.5	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	109

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-08_040919	Date/Time Analyzed:	4/17/19 01:34 AM
Lab ID:	1904296-08A	Dilution Factor:	2.64
Date/Time Collecte	4/9/19 09:40 AM	Instrument/Filename:	msd17.i / 17041620
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.3	4.2	5.2	Not Detected
1,4-Dioxane	123-91-1	10	14	19	12 J
cis-1,2-Dichloroethene	156-59-2	1.5	4.2	5.2	Not Detected
Tetrachloroethene	127-18-4	3.6	7.2	9.0	22
trans-1,2-Dichloroethene	156-60-5	1.6	4.2	5.2	360
Trichloroethene	79-01-6	2.6	5.7	7.1	960
Vinyl Chloride	75-01-4	1.3	2.7	3.4	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	90

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-09_040919	Date/Time Analyzed:	4/17/19 02:03 AM
Lab ID:	1904296-09A	Dilution Factor:	2.64
Date/Time Collecte	4/9/19 09:09 AM	Instrument/Filename:	msd17.i / 17041621
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.3	4.2	5.2	Not Detected
1,4-Dioxane	123-91-1	10	14	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.5	4.2	5.2	Not Detected
Tetrachloroethene	127-18-4	3.6	7.2	9.0	36
trans-1,2-Dichloroethene	156-60-5	1.6	4.2	5.2	560
Trichloroethene	79-01-6	2.6	5.7	7.1	1400
Vinyl Chloride	75-01-4	1.3	2.7	3.4	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	108

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-10_040919	Date/Time Analyzed:	4/17/19 02:31 AM
Lab ID:	1904296-10A	Dilution Factor:	2.60
Date/Time Collecte	4/9/19 09:14 AM	Instrument/Filename:	msd17.i / 17041622
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.3	4.1	5.2	Not Detected
1,4-Dioxane	123-91-1	9.9	14	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	4.1	5.2	Not Detected
Tetrachloroethene	127-18-4	3.5	7.0	8.8	29
trans-1,2-Dichloroethene	156-60-5	1.5	4.1	5.2	810
Trichloroethene	79-01-6	2.5	5.6	7.0	1800
Vinyl Chloride	75-01-4	1.3	2.6	3.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	109

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-11_040919	Date/Time Analyzed:	4/17/19 07:17 AM
Lab ID:	1904296-11A	Dilution Factor:	3.47
Date/Time Collecte	4/9/19 08:14 AM	Instrument/Filename:	msd17.i / 17041626
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	3.0	5.5	6.9	Not Detected
1,4-Dioxane	123-91-1	13	19	25	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.9	5.5	6.9	Not Detected
Tetrachloroethene	127-18-4	4.7	9.4	12	11 J
trans-1,2-Dichloroethene	156-60-5	2.1	5.5	6.9	2300
Trichloroethene	79-01-6	3.4	7.4	9.3	2900
Vinyl Chloride	75-01-4	1.8	3.5	4.4	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	88
Toluene-d8	2037-26-5	70-130	107

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-12_040919	Date/Time Analyzed:	4/16/19 10:45 PM
Lab ID:	1904296-12A	Dilution Factor:	2.40
Date/Time Collecte	4/9/19 07:42 AM	Instrument/Filename:	msd17.i / 17041614
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.1	3.8	4.8	Not Detected
1,4-Dioxane	123-91-1	9.2	13	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.8	4.8	Not Detected
Tetrachloroethene	127-18-4	3.2	6.5	8.1	12
trans-1,2-Dichloroethene	156-60-5	1.4	3.8	4.8	540
Trichloroethene	79-01-6	2.3	5.2	6.4	1100
Vinyl Chloride	75-01-4	1.2	2.4	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	84
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	115

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	DUP-12400BELDEN-02_040919	Date/Time Analyzed:	4/17/19 03:27 AM
Lab ID:	1904296-13A	Dilution Factor:	2.40
Date/Time Collecte	4/9/19 12:00 AM	Instrument/Filename:	msd17.i / 17041624
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.1	3.8	4.8	Not Detected
1,4-Dioxane	123-91-1	9.2	13	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.8	4.8	Not Detected
Tetrachloroethene	127-18-4	3.2	6.5	8.1	12
trans-1,2-Dichloroethene	156-60-5	1.4	3.8	4.8	570
Trichloroethene	79-01-6	2.3	5.2	6.4	1100
Vinyl Chloride	75-01-4	1.2	2.4	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	111

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	4/16/19 06:01 PM
Lab ID:	1904296-14A	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd17.i / 17041611a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.87	1.6	2.0	Not Detected
1,4-Dioxane	123-91-1	3.8	5.4	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.56	1.6	2.0	Not Detected
Tetrachloroethene	127-18-4	1.4	2.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.59	1.6	2.0	Not Detected
Trichloroethene	79-01-6	0.97	2.1	2.7	Not Detected
Vinyl Chloride	75-01-4	0.51	1.0	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	89
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	4/16/19 03:06 PM
Lab ID:	1904296-15A	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd17.i / 17041606
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	108
1,4-Dioxane	123-91-1	123
cis-1,2-Dichloroethene	156-59-2	103
Tetrachloroethene	127-18-4	100
trans-1,2-Dichloroethene	156-60-5	115
Trichloroethene	79-01-6	112
Vinyl Chloride	75-01-4	110

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	90
Toluene-d8	2037-26-5	70-130	108

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	4/16/19 03:32 PM
Lab ID:	1904296-16A	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd17.i / 17041607
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	110
1,4-Dioxane	123-91-1	126
cis-1,2-Dichloroethene	156-59-2	112
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	106
Trichloroethene	79-01-6	110
Vinyl Chloride	75-01-4	126

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	108
4-Bromofluorobenzene	460-00-4	70-130	91
Toluene-d8	2037-26-5	70-130	107

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	4/16/19 05:33 PM
Lab ID:	1904296-16AA	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd17.i / 17041610
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	100
1,4-Dioxane	123-91-1	126
cis-1,2-Dichloroethene	156-59-2	102
Tetrachloroethene	127-18-4	96
trans-1,2-Dichloroethene	156-60-5	95
Trichloroethene	79-01-6	110
Vinyl Chloride	75-01-4	116

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	90
Toluene-d8	2037-26-5	70-130	108

* % Recovery is calculated using unrounded analytical results.

Martin, Michele

From: Hinskey, Kristoffer
Sent: Friday, November 30, 2018 2:52 PM
To: Brandon Alger (AlgerB@michigan.gov)
Cc: Vens, Beth (DEQ); Quiggle, Lisa (DHHS); RafalskiA@michigan.gov; CoochA@michigan.gov; Walton, Todd (T.M.); Pinter, Chuck (C.H.); Quinnan, Joseph
Subject: Livonia Transmission Plant - 24 Hr Notice

Brandon –

This email serves as the 24-hour notification for an exceedance as it relates to offsite vapor intrusion assessment conducted under the approval letter provided by the MDEQ for the VI RespAP.

Analytical results within a commercial building located at 12400 Belden Court indicated that detections were present for trans-1,2-Dichloroethene (trans-1,2-DCE), cis-1,2-Dichloroethene, 1,1-Dichloroethene, and vinyl chloride in the soil gas collected from the sub-slab monitoring points (SSMP) beneath the building. Soil gas results also indicated exceedances above the screening criteria that has been provided by the MDEQ for Trichloroethene (TCE). TCE exceeded the criteria at 10 of 12 locations and ranged from 160 - 3300 ug/m³.

Indoor air analytical results were compared to the *Volatilization to Indoor Air Recommendations of Interim Action Screening Levels and Time Sensitive Interim Action Screening Level* and indicated an exceedance for TCE and detections of trans-1,2-Dichloroethene. The concentration of TCE for the 12 indoor air samples that exceeded was 270 - 340 ug/m³.

A detailed chemical inventory was completed at the facility. The team identified a large variety of chemicals that are being used inside the facility including aerosol canisters of chlorinated solvents, which the contents contain TCE, Tetrachloroethene, and trans-1,2-DCE. Based on the documented use of TCE and other industrial chlorinated compounds inside the space, MIOSHA standards for indoor air exposure may be more appropriate for use than the RIASLs. In addition, TCE has not been detected in groundwater or soil gas collected near 12400 Belden Court facility.

Arcadis will provide a response memo providing additional information for the property, similar to previous submittals. The property owners has been provided the data package, that contained the analytical results.

Thank you

Pictures are provided below.



Kris Hinskey | Certified Project Manager | kristoffer.hinskey@arcadis.com
Arcadis | Arcadis of Michigan, LLC
28550 Cabot Drive Suite 500 Novi MI | 48377 | USA
T. +1 269 579 5402

Martin, Michele

From: Hinskey, Kristoffer
Sent: Wednesday, January 27, 2021 1:37 PM
To: Brandon Alger (AlgerB@michigan.gov)
Cc: 'Vens, Beth (DEQ)'; Hoin, Steven (EGLE); 'Rafalski, Alexandra (DHHS)'; 'Cooch, Aaron (DHHS-Contractor)'; 'Merritt, Lawrence (L.H.)'; Walton, Todd (T.M.); Pinter, Chuck (C.H.); Olechiw, Theresa
Subject: Livonia Transmission Plant - 24 Hr Notification 12400 Belden Ct
Attachments: 12400 Belden Data Package.pdf

Hi Brandon –

This email serves as the notification for an exceedance as it relates to the offsite vapor intrusion assessment conducted under the approval letter provided by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for the Vapor Intrusion (VI) Response Activity Plan (RespAP).

Analytical results from the fourth round of sampling at the commercial property located at 12400 Belden Court indicated that trichloroethene (TCE) was detected in sub-slab soil vapor collected from the property above the site-specific screening level of 130 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) provided by EGLE for this project on October 30, 2018. TCE was detected above the screening level in sub-slab soil vapor samples SSMP-12400BELDEN-09_122220, SSMP-12400BELDEN-10_122220, SSMP-12400BELDEN-11_122220, and SSMP-12400BELDEN-12_122220 at concentrations ranging from 140 to 400 $\mu\text{g}/\text{m}^3$. All indoor air and ambient air sample results were below the TCE indoor air screening level of 4.0 $\mu\text{g}/\text{m}^3$. Although other site-related constituents of concern were detected in sub-slab soil vapor, no other exceedances of respective screening levels were noted.

Detailed chemical inventories were completed at this property prior to all sampling events (November 2018, April 2019, September 2020, and December 2020). As stated in previous notifications of exceedances, Arcadis learned from Advanced Technology Services (ATS), the former building tenant, that ATS had operated in this space for 16 years. ATS had repaired industrial equipment during the November 2018 and April 2019 sampling events. This tenant used chlorinated solvents in the workplace regularly, had degreasing equipment, and an aerosol recycler that captured excess liquid including chlorinated compounds in a drum. ATS staff indicated to Arcadis field personnel that chemicals containing TCE and other solvents would be in use during indoor air sampling conducted during April 2019. Photos taken during the November 2018 event documenting the presence of chlorinated compounds inside the space are presented below and included products containing TCE, tetrachloroethene (PCE) and trans-1,2-dichloroethene (trans-1,2-DCE). Additional photos show a degreaser (there were multiple), the aerosol can crusher, supplies of aerosols, a scrap metal bin (there were multiple) where chlorinated canisters were disposed of, and a waste solvent drum. The products shown in the photos below were also present during the April 2019 event.



Figure 1. Product used by tenant containing trans-1,2-dichloroethene (trans-1,2-DCE).



Figure 2. Product used by tenant containing tetrachloroethene (PCE).



Figure 3. Product used by tenant containing trichloroethene (TCE).



Figure 4. Supplies of aerosols (including products shown in Figures 1 through 3) being stored and used by previous tenant.



Figure 5. Degreaser drum (there were multiple).



Figure 6. A scrap metal bin (there were multiple) with various products for recycling, including those presented in Figures 1 through 4.



Figure 7. A scrap metal bin (there were multiple) with various products for recycling in the aerosol recycler, including those presented in Figures 1 through 4.



Figure 8. Aerosol recycler/can crusher.



Figure 9. Waste solvent drum.

This tenant vacated the property in July 2020 and the building was unoccupied for the September and December 2020 sampling events. In the September and December 2020 sampling events, several potential sources of volatile organic compounds (VOCs) were present (household cleaners and a can of instant tire repair material), but none of the above-pictured products or materials were present as the tenant had vacated the property. Floor drains, cracks in the slab of the building, and pipes penetrating the slab were noted during the chemical inventories. The previous tenant reported that the floor drains tie into the municipal sewer. Floor drains and pipes penetrating the slab are shown in photos below.



Figure 10. Sink with pipe penetrating the slab.



Figure 11. Floor drain and locations where pipes had previously penetrated the slab.

As shown in **Table 1**, exceedances of TCE and trans-1,2-DCE in indoor air only occurred while the former tenant was occupying the building. Analytical results for TCE and trans-1,2-DCE in indoor air were significantly lower and did not exceed criteria once the building became unoccupied.

Table 1. 12400 Belden Court Analytical Results – Indoor Air

Property Status	Occupied				Unoccupied			
	11/15/2018		4/9/2019		9/15/2020		12/22/2020	
Constituent of Concern	trans-1,2-DCE	TCE	trans-1,2-DCE	TCE	trans-1,2-DCE	TCE	trans-1,2-DCE	TCE
Nonresidential RIASL ₁₂	250	4	250	4	250	4	250	4
IAF-01	230	340	12,000	9,200	2.1	2.2	<0.72	<0.98
IAF-02	200	290	9,100	6,600	2.2	2.3	<0.72	<0.98
IAF-03	220	320	14,000	10,000	2.1	2.2	<0.71	<0.96
IAF-04	R	R	14,000	8,600	2.1	2.3	<0.74	<1.0
IAF-05	220	320	13,000	7,900	2.1	2.2	<0.71	<0.96
IAF-06	220	310	14,000	8,300	2.0	2.3	<0.69	<0.94
IAF-07	190	270	9,600	6,600	1.7	1.9	<0.68	<0.92
IAF-08	210	290	11,000	7,300	1.8	2.0	<0.72	<0.98
IAF-09	220	310	12,000	8,400	2.3	2.2	<0.71	<0.96
IAF-10	240	320	12,000	5,700	2.4	2.4	<0.74	0.53 J
IAF-11	210	300	7,100	5,400	2.3	2.5	0.59 J	0.57 J
IAF-12	230	330	6,600	4,900	2.3	2.6	<0.72	0.51 J

1. Results presented are in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$).
2. All samples were analyzed via modified United States Environmental Protection Agency (USEPA) Method TO-15.
3. **Bold** indicates exceedance of criteria.
4. Sample names have been shortened for simplicity.
5. Indoor air samples were collected in June 2020, however, sub-slab soil vapor samples were unable to be collected concurrently due to health and safety concerns, so data from these indoor air samples is not shown.
6. Duplicate and ambient air sample results collected from the property are not shown.
7. R = Rejected Sample.

- 8. < = Not detected above the reporting limit.
 - 9. J = Estimated Value.
- Non-Residential Recommended Interim Action Screening Levels (RIASL) appropriate for exposures of 12 hours as provided by EGLE in August 2017 and updated in January 2020.

As shown in **Table 2**, analytical results for TCE and trans-1,2-DCE in sub-slab soil vapor were also significantly lower once the building became unoccupied. During the September and December 2020 sampling events, pressure readings were collected using a micromanometer from all sub-slab sampling locations. During the September and December 2020 sampling events, negative pressure readings were recorded at four and eleven of the sub-slab points, respectively, indicating that vapor could be migrating from indoor air to sub-slab in some areas. Therefore, any remaining TCE in the sub-slab can likely be attributed to residual TCE in indoor air as a result of the former tenant’s operations that is migrating to sub slab through floor drains, cracks in the slab of the building, and pipes penetrating the slab.

Table 2. 12400 Belden Court Analytical Results – Soil Gas

Property Status	Occupied		Unoccupied			
Sample Date	4/9/2019		9/15/2020		12/22/2020	
Constituent of Concern	trans-1,2-DCE	TCE	trans-1,2-DCE	TCE	trans-1,2-DCE	TCE
Nonresidential Site-Specific Criteria	8,200	130	8,200	130	8,200	130
SSMP-01	380	1,200	36	390	8.0	130
SSMP-02	150	270	2.0 J	81	<4.9	26
SSMP-03	300	580	41	340	13	75
SSMP-04	170	170	4.1 J	32	<5.0	7.3
SSMP-05	260	240	6.0	21	2.0 J	1.9 J
SSMP-06	340	1,100	5.8	240	1.4 J	59
SSMP-07	230	370	14	110	2.1 J	37
SSMP-08	360	960	95	470	8.7	50
SSMP-09	560	1,400	320	620	81	240
SSMP-10	810	1,800	430	900	83	400
SSMP-11	2,300	2,900	820	690	130	290
SSMP-12	540	1,100	200	460	29	140

Notes:

- 1. Results presented are in ug/m³.
- 2. All samples were analyzed via modified USEPA Method TO-15.
- 3. **Bold** indicates exceedance of criteria.
- 4. Sample names have been shortened for simplicity.
- 5. All sub-slab data collected during the November 2018 sampling event was rejected.
- 6. Duplicate sample results collected from the property are not shown.
- 7. J = estimated result.
- 8. < = Not detected above the reporting limit.

Nonresidential Volatilization to Indoor Air Criteria (adjusted for a 12-hr work-day exposure in a slab-on-grade building less than 50,000 square-feet) were provided in the Consent Decree by EGLE on 10/30/2018.

Shallow groundwater monitoring wells MW-54S (screened 4.5 – 9.5 feet below ground surface (bgs)) and MW-214S (screened 5.5-10.5 feet bgs) are located approximately 250 feet and 60 feet upgradient (west) of this property, respectively. Monitoring Well MW-54S has been sampled seven times with each sampling event being non-detect for TCE and trans-1,2-DCE. Monitoring well MW-214S, which was requested by EGLE in the July 17, 2019 Letter, has been sampled three times with each sampling event being non-detect for TCE and trans-1,2-DCE. Additionally, nested soil vapor monitoring points SVMP-25S and SVMP-25D are located approximately 190 feet southwest of this property and have been sampled nine times with each result being non-detect for trans-1,2-DCE and TCE except for one detection of

TCE (1.3 J) in the June 2019 sampling event, which is well below the residential (conservative assessment) Recommended Interim Action Screening Level (RIASL) of 67 ug/m³. These lines of evidence show that a groundwater source of TCE or trans-1,2-DCE is not present in this area.

As discussed above, multiple lines of evidence have been used to assess the vapor intrusion risk to the building. Exceedances of screening levels for indoor air and sub-slab can be attributed to background sources and is not related to the vinyl chloride impacts in groundwater offsite.

The December 2020 sampling event was the last sampling event scheduled for the property. Over the course of the four VI sampling events completed, Arcadis has found that concentrations of TCE and trans-1,2-DCE have declined in all samples collected at the property due to the absence of contributing background sources from the former tenant.

The property owner has been provided the data package (attached), that contains the analytical results.

Thank you

Kris Hinskey | Certified Project Manager II | kristoffer.hinskey@arcadis.com

Arcadis | Arcadis of Michigan, LLC

28550 Cabot Drive Suite 500 Novi MI | 48377 | USA

T. +1 269 579 5402

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Be green, leave it on the screen.

Martin, Michele

From: Hinskey, Kristoffer
Sent: Thursday, October 15, 2020 1:55 PM
To: Brandon Alger (AlgerB@michigan.gov)
Cc: 'Vens, Beth (DEQ)'; 'Rafalski, Alexandra (DHHS)'; 'Cooch, Aaron (DHHS-Contractor)'; 'Merritt, Lawrence (L.H.)'; Walton, Todd (T.M.); Pinter, Chuck (C.H.); Quinnan, Joseph; Olechiw, Theresa
Subject: Livonia Transmission Plant - 24-Hr Notice 12400 Belden Court
Attachments: 12400 Belden Data Package.pdf

Hey Brandon -

This email serves as the notification for an exceedance as it relates to the offsite vapor intrusion assessment conducted under the approval letter provided by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for the Vapor Intrusion (VI) Response Activity Plan (RespAP).

Analytical results from the third round of sampling at the commercial property located at 12400 Belden Court indicated that trichloroethene (TCE) was detected in sub-slab soil vapor collected from the property above the site-specific screening level of 130 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) provided by EGLE for this project on October 30, 2018. TCE was detected in all 12 sub-slab soil vapor samples collected with concentrations ranging from 21 to 900 $\mu\text{g}/\text{m}^3$. TCE was detected above the screening level in sub-slab soil vapor samples SSMP-12400BELDEN-01_091520, SSMP-12400BELDEN-03_091520, SSMP-12400BELDEN-06_091520, SSMP-12400BELDEN-08_091520, SSMP-12400BELDEN-09_091520, SSMP-12400BELDEN-10_091520, SSMP-12400BELDEN-11_091520, and SSMP-12400BELDEN-12_091520 at concentrations ranging from 240 to 900 $\mu\text{g}/\text{m}^3$. TCE was detected in all indoor air samples collected at the property at concentrations ranging from 1.9 to 2.6 $\mu\text{g}/\text{m}^3$ but was not detected in the ambient air sample. All indoor air results were below the TCE indoor air screening level of 4.0 $\mu\text{g}/\text{m}^3$. Although other site-related constituents of concern were detected in sub-slab soil vapor and indoor air, no other exceedances of respective screening levels were noted.

Detailed chemical inventories were completed at this property prior to all sampling events (November 2018, April 2019, and September 2020). Arcadis learned from the building tenant (Advanced Technology Services) that the occupant of the space present during the November 2018 and April 2019 sampling events repaired industrial equipment and had operated in this space for 16 years. This tenant used chlorinated solvents in the workplace regularly, had degreasing equipment, and an aerosol recycler that captured excess liquid including chlorinated compounds in a drum. On-site staff indicated to Arcadis field personnel that chemicals containing TCE and other solvents would be in use during indoor air sampling conducted during April 2019. Photos documenting the presence of chlorinated compounds inside the space are presented below and included products containing TCE, tetrachloroethene (PCE) and trans-1,2-dichloroethene (trans-1,2-DCE). Additional photos show a degreaser (there were multiple), the aerosol can crusher, supplies of aerosols, a scrap metal bin (there were multiple) where chlorinated canisters were disposed of, and a waste solvent drum.



Figure 1. Product used by tenant containing trans-1,2-dichloroethene (trans-1,2-DCE).



Figure 2. Product used by tenant containing tetrachloroethene (PCE).



Figure 3. Product used by tenant containing trichloroethene (TCE).



Figure 4. Supplies of aerosols (including products shown in Figures 1 through 3) being stored and used by previous tenant.



Figure 5. Degreaser drum (there were multiple).



Figure 6. A scrap metal bin (there were multiple) with various products for recycling, including those presented in Figures 1 through 4.



Figure 7. A scrap metal bin (there were multiple) with various products for recycling in the aerosol recycler, including those presented in Figures 1 through 4.



Figure 8. Aerosol recycler/can crusher.



Figure 9. Waste solvent drum.

This tenant vacated the property in July 2020 and the building was unoccupied for the September 2020 sampling event. The chemical inventory completed prior to the September 2020 sampling event indicated that a number of potential sources of VOCs were present (household cleaners and a can of instant tire repair material), but none of the above-pictured products or materials were present due to the tenant vacating the property. Floor drains, cracks in the slab of the building, and pipes penetrating the slab were noted during the chemical inventory. The previous tenant reported that the floor drains tie into the municipal sewer. Floor drains and pipes penetrating the slab are shown in photos below.



Figure 10. Sink with pipe penetrating the slab.



Figure 11. Floor drain and locations where pipes had previously penetrated the slab.

Data from all sampling events is presented below in **Table 1** and **Table 2**.

As shown in **Table 1**, exceedances of TCE and trans-1,2-DCE in indoor air only occurred while the former tenant was occupying the building. Analytical results for TCE and trans-1,2-DCE in indoor air were significantly lower and did not exceed criteria once the building became unoccupied.

Table 1. 12400 Belden Court Analytical Results – Indoor Air

Property Status	Occupied				Unoccupied	
Sample Date	11/15/2018		4/9/2019		9/15/2020	
Constituent of Concern	trans-1,2-DCE	TCE	trans-1,2-DCE	TCE	trans-1,2-DCE	TCE
Nonresidential RIASL ₁₂	790	4	790	4	790	4
IAF-01	230	340	12,000	9,200	2.1	2.2
IAF-02	200	290	9,100	6,600	2.2	2.3
IAF-03	220	320	14,000	10,000	2.1	2.2
IAF-04	R	R	14,000	8,600	2.1	2.3
IAF-05	220	320	13,000	7,900	2.1	2.2
IAF-06	220	310	14,000	8,300	2.0	2.3
IAF-07	190	270	9,600	6,600	1.7	1.9
IAF-08	210	290	11,000	7,300	1.8	2.0
IAF-09	220	310	12,000	8,400	2.3	2.2
IAF-10	240	320	12,000	5,700	2.4	2.4
IAF-11	210	300	7,100	5,400	2.3	2.5
IAF-12	230	330	6,600	4,900	2.3	2.6

1. Results presented are in micrograms per cubic meter (ug/m3).
2. All samples were analyzed via modified United States Environmental Protection Agency (USEPA) Method TO-15.
3. **Bold** indicates exceedance of criteria.
4. Sample names have been shortened for simplicity.
5. Indoor air samples were collected in June 2020, however, sub-slab soil vapor samples were unable to be collected concurrently due to health and safety concerns, so data from these indoor air samples is not shown.
6. Duplicate and ambient air sample results collected from the property are not shown.

7. R = Rejected Sample.
8. Nonresidential RIASL12 = Non-Residential Volatilization to Indoor Air RIASL12 (Indoor/Ambient Air) - EGLE August 2017 Table (commercial).

As shown in **Table 2**, analytical results for TCE and trans-1,2-DCE in sub-slab soil vapor were also significantly lower once the building became unoccupied. During the September 2020 sampling event, pressure readings were collected using a micromanometer from all sub-slab sampling locations. A negative pressure reading was recorded at four of the sub-slab points, indicating that vapor could be migrating from indoor air to sub-slab in some areas. Therefore, any remaining TCE in the sub-slab can likely be attributed to residual TCE in indoor air as a result of the former tenant’s operations that is migrating to sub slab through floor drains, cracks in the slab of the building, and pipes penetrating the slab.

Table 2. 12400 Belden Court Analytical Results – Soil Gas

Property Status	Occupied		Unoccupied	
Sample Date	4/9/2019		9/15/2020	
Constituent of Concern	trans-1,2-DCE	TCE	trans-1,2-DCE	TCE
Nonresidential Site-Specific Criteria	8200	130	8200	130
SSMP-01	380	1,200	36	390
SSMP-02	150	270	2.0 J	81
SSMP-03	300	580	41	340
SSMP-04	170	170	4.1 J	32
SSMP-05	260	240	6.0	21
SSMP-06	340	1,100	5.8	240
SSMP-07	230	370	14	110
SSMP-08	360	960	95	470
SSMP-09	560	1,400	320	620
SSMP-10	810	1,800	430	900
SSMP-11	2,300	2,900	820	690
SSMP-12	540	1,100	200	460

- Notes:
1. Results presented are in ug/m3.
 2. All samples were analyzed via modified USEPA Method TO-15.
 3. **Bold** indicates exceedance of criteria.
 4. Sample names have been shortened for simplicity.
 5. All sub-slab data collected during the November 2018 sampling event was rejected.
 6. Duplicate sample results collected from the property are not shown.
 7. J = estimated result.
 8. Nonresidential Site-Specific Criteria = Non-Residential Volatilization to Indoor Air Criteria adjusted for 12 hour work-day exposure. Slab-on-grade, <50,000 sqft. Provided by EGLE 10/30/2018.

Shallow groundwater monitoring wells MW-54S (screened 4.5 – 9.5 feet below ground surface (bgs)) and MW-72S (screened 3-13 feet bgs) are located approximately 250 feet upgradient (west) and 190 feet south of this property, respectively. Monitoring Well MW-54S has been sampled seven times with each sampling event being non-detect for TCE and trans-1,2-DCE. Monitoring Well MW-72S has been sampled eight times with each sampling event being non-detect for TCE and trans-1,2-DCE. Additionally, nested soil vapor monitoring points SVMP-25S and SVMP-25D are located approximately 190 feet southwest of this property and have been sampled nine times with each result being non-detect for trans-1,2-DCE and TCE except for one detection of TCE (1.3 J) in the June 2019 sampling event, which is well below the residential (conservative assessment) Recommended Interim Action Screening Level (RIASL) of 67 ug/m³. These lines of evidence show that a groundwater source of TCE or trans-1,2-DCE is not present in this area.

As discussed above, multiple lines of evidence have been used to assess the vapor intrusion risk to the building. Exceedances of screening levels for indoor air and sub-slab can be attributed to background sources and is not related to the vinyl chloride impacts in groundwater offsite.

The last sampling event for this property is tentatively scheduled for December 2020. As long as the space continues to be unoccupied, Arcadis expects concentrations of TCE and trans-1,2-DCE to continue to decline in all samples collected at the property due to the absence of contributing background sources.

The property owner has been provided the data package (attached), that contains the analytical results.

Thank you

Kris Hinskey | Certified Project Manager | kristoffer.hinskey@arcadis.com

Arcadis | Arcadis of Michigan, LLC

28550 Cabot Drive Suite 500 Novi MI | 48377 | USA

T. +1 269 579 5402

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Be green, leave it on the screen.

Martin, Michele

From: Hinskey, Kristoffer
Sent: Tuesday, May 28, 2019 3:36 PM
To: Brandon Alger (AlgerB@michigan.gov)
Cc: Vens, Beth (DEQ); Quiggle, Lisa (DHHS); Rafalski, Alexandra (DHHS); Cooch, Aaron (DHHS-Contractor); Walton, Todd (T.M.); Pinter, Chuck (C.H.); Quinnan, Joseph
Subject: Livonia Transmission Plant - 24-hr Notification 12400 Belden Court
Attachments: 12400 Belden Data Package.pdf

Brandon –

This email serves as the notification for an exceedance as it relates to offsite vapor intrusion assessment conducted under the approval letter provided by the MDEQ for the VI RespAP.

Analytical results from the commercial property at 12400 Belden Court indicated that TCE was detected in indoor air collected from the property above the *Volatilization to Indoor Air Interim Action Screening Levels and Time Sensitive Interim Action Screening Level* presented by MDEQ in the Consent Decree. TCE was detected in all 12 indoor air samples collected with concentrations ranging from 4,900 to 10,000 $\mu\text{g}/\text{m}^3$. TCE was detected in the concurrently collected ambient air sample and ambient air duplicate sample at concentrations of 3.2 and 55 $\mu\text{g}/\text{m}^3$, respectively. Trans-1,2-dichloroethene was also detected in all 12 indoor air samples at a range of concentrations from 6,600 to 14,000 $\mu\text{g}/\text{m}^3$, all exceeding the RIASL of 790 $\mu\text{g}/\text{m}^3$. Sub-slab soil gas results for TCE exceeded the soil gas criteria of 130 $\mu\text{g}/\text{m}^3$ in all 12 collected samples. Sub-slab TCE concentrations ranged from 170 $\mu\text{g}/\text{m}^3$ to 2,900 $\mu\text{g}/\text{m}^3$. Although other chlorinated compounds were detected in sub-slab soil vapor, no other exceedances of the screening levels provided by the MDEQ were noted.

This property was originally sampled in December 2018 and exceedances of the TCE screening level were noted in the first round of sampling.

A detailed chemical inventory was completed in this property. The current occupant of the space repairs industrial equipment and has operated in this space for 16 years. The current tenant uses chlorinated solvents in the workplace regularly, has degreasing equipment, and an aerosol recycler that captures excess liquid including chlorinated compounds in a drum.

Based on the documented use of TCE and other industrial chemicals inside the space, MIOSHA standards for indoor air exposure may be more appropriate for use than the RIASLs. Arcadis will provide a response memo providing additional information for the property, similar to previous submittals. The property owner has been provided the data package (attached), that contains the analytical results.

Thank you

Kris Hinskey | Certified Project Manager | kristoffer.hinskey@arcadis.com
Arcadis | Arcadis of Michigan, LLC
28550 Cabot Drive Suite 500 Novi MI | 48377 | USA
T. +1 269 579 5402

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TRANSMITTAL LETTER



To:
Livonia International
Development, LLC
Shawn Collins
Brandon Alger (EGLE)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:
March 4, 2020

Subject:

Shallow Groundwater
Assessment Data Package

Arcadis Project No.:

We are sending you hard copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- | | | | |
|--|---|---|---------------------------------------|
| <input type="checkbox"/> Shop Drawings | <input type="checkbox"/> Plans | <input type="checkbox"/> Specifications | <input type="checkbox"/> Change Order |
| <input type="checkbox"/> Prints | <input checked="" type="checkbox"/> Samples | <input type="checkbox"/> Copy of Letter | <input type="checkbox"/> Reports |
| <input type="checkbox"/> Other: | | | |

Copies	Delivery Date	Drawing No.	Rev.	Description	Action*
1	3/6/2020			Figure	
1	3/6/2020			Analytical Results	
1	3/6/2020			Field Notes and Drawings	

Action*

- | | | |
|--|---|--|
| <input type="checkbox"/> A Approved | <input type="checkbox"/> CR Correct and Resubmit | <input type="checkbox"/> Resubmit _____ Copies |
| <input type="checkbox"/> AN Approved As Noted | <input type="checkbox"/> F File | <input type="checkbox"/> Return _____ Copies |
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Mailing Method



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| <input checked="" type="checkbox"/> Other: <u>email</u> | | | |

Thank you for cooperating with the groundwater sampling at your property on February 7, 2020. Attached is your data package.

CITY: NOVI DIV: ENV DB: M/G PIC: R. ELLIS PM: K. HINSKEY TM: A. PAULSON TR: M. WACKSMAN PROJECT NUMBER: M1001454.0003.00001 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
Z:\GIS\Projects\ENV\NoviBrighton_M1\FordLivonia\GIS\docs\2020-03\MW_Locations\12400BeldenMW-214S.mxd PLOTTED: 3/4/2020 11:03:25 AM BY: msmiller



LEGEND:

-  MONITORING WELL LOCATION
-  PROPERTY BOUNDARIES



FORD MOTOR COMPANY
LIVONIA TRANSMISSION PLANT
LIVONIA, MICHIGAN

MONITORING WELL LOCATION MW-214



FIGURE
1

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-126085-1
Client Project/Site: Ford LTP Off Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
2/14/2020 3:47:41 PM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126085-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126085-1

Job ID: 240-126085-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Off Site

Report Number: 240-126085-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 2/11/2020 8:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.9° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-126085-1) and MW-214S_020720 (240-126085-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 02/13/2020.

The MS/MSD for batch 240-422674 was not analyzed due to an instrument malfunction: TRIP BLANK (240-126085-1) and MW-214S_020720 (240-126085-2).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-214S_020720 (240-126085-2) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 02/12/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126085-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126085-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-126085-1	TRIP BLANK	Water	02/07/20 00:00	02/11/20 08:40	
240-126085-2	MW-214S_020720	Water	02/07/20 12:50	02/11/20 08:40	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126085-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-126085-1

No Detections.

Client Sample ID: MW-214S_020720

Lab Sample ID: 240-126085-2

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off Site

Job ID: 240-126085-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-126085-1

Date Collected: 02/07/20 00:00

Matrix: Water

Date Received: 02/11/20 08:40

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/13/20 17:53	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/13/20 17:53	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/13/20 17:53	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/13/20 17:53	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/13/20 17:53	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/13/20 17:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		75 - 130		02/13/20 17:53	1
4-Bromofluorobenzene (Surr)	60		47 - 134		02/13/20 17:53	1
Toluene-d8 (Surr)	76		69 - 122		02/13/20 17:53	1
Dibromofluoromethane (Surr)	85		78 - 129		02/13/20 17:53	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126085-1

Client Sample ID: MW-214S_020720

Lab Sample ID: 240-126085-2

Date Collected: 02/07/20 12:50

Matrix: Water

Date Received: 02/11/20 08:40

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			02/12/20 15:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		70 - 133		02/12/20 15:27	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/13/20 18:15	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/13/20 18:15	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/13/20 18:15	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/13/20 18:15	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/13/20 18:15	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/13/20 18:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		75 - 130		02/13/20 18:15	1
4-Bromofluorobenzene (Surr)	62		47 - 134		02/13/20 18:15	1
Toluene-d8 (Surr)	77		69 - 122		02/13/20 18:15	1
Dibromofluoromethane (Surr)	87		78 - 129		02/13/20 18:15	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126085-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-126085-1	TRIP BLANK	90	60	76	85
240-126085-2	MW-214S_020720	92	62	77	87
LCS 240-422674/4	Lab Control Sample	88	80	85	93
MB 240-422674/7	Method Blank	91	68	79	87

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-133)
240-125920-I-2 MS	Matrix Spike	101
240-125920-I-2 MSD	Matrix Spike Duplicate	102
240-126085-2	MW-214S_020720	95
LCS 240-422563/4	Lab Control Sample	97
MB 240-422563/5	Method Blank	96

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126085-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-422674/7
Matrix: Water
Analysis Batch: 422674

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/13/20 11:42	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/13/20 11:42	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/13/20 11:42	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/13/20 11:42	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/13/20 11:42	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/13/20 11:42	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		75 - 130		02/13/20 11:42	1
4-Bromofluorobenzene (Surr)	68		47 - 134		02/13/20 11:42	1
Toluene-d8 (Surr)	79		69 - 122		02/13/20 11:42	1
Dibromofluoromethane (Surr)	87		78 - 129		02/13/20 11:42	1

Lab Sample ID: LCS 240-422674/4
Matrix: Water
Analysis Batch: 422674

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	11.2		ug/L		112	73 - 129
cis-1,2-Dichloroethene	10.0	11.1		ug/L		111	75 - 124
Tetrachloroethene	10.0	10.9		ug/L		109	70 - 125
trans-1,2-Dichloroethene	10.0	11.0		ug/L		110	74 - 130
Trichloroethene	10.0	11.3		ug/L		113	71 - 121
Vinyl chloride	10.0	7.68		ug/L		77	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	88		75 - 130
4-Bromofluorobenzene (Surr)	80		47 - 134
Toluene-d8 (Surr)	85		69 - 122
Dibromofluoromethane (Surr)	93		78 - 129

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-422563/5
Matrix: Water
Analysis Batch: 422563

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			02/12/20 14:10	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		70 - 133		02/12/20 14:10	1

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126085-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-422563/4
Matrix: Water
Analysis Batch: 422563

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	9.83		ug/L		98	80 - 135
Surrogate							
	%Recovery	LCS Qualifier	LCS Limits				
1,2-Dichloroethane-d4 (Surr)	97		70 - 133				

Lab Sample ID: 240-125920-I-2 MS
Matrix: Water
Analysis Batch: 422563

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	10.0	9.37		ug/L		94	46 - 170
Surrogate									
	%Recovery	MS Qualifier	MS Limits						
1,2-Dichloroethane-d4 (Surr)	101		70 - 133						

Lab Sample ID: 240-125920-I-2 MSD
Matrix: Water
Analysis Batch: 422563

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	2.0	U	10.0	10.5		ug/L		105	46 - 170	12	26
Surrogate											
	%Recovery	MSD Qualifier	MSD Limits								
1,2-Dichloroethane-d4 (Surr)	102		70 - 133								

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126085-1

GC/MS VOA

Analysis Batch: 422563

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-126085-2	MW-214S_020720	Total/NA	Water	8260B SIM	
MB 240-422563/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-422563/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-125920-I-2 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-125920-I-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 422674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-126085-1	TRIP BLANK	Total/NA	Water	8260B	
240-126085-2	MW-214S_020720	Total/NA	Water	8260B	
MB 240-422674/7	Method Blank	Total/NA	Water	8260B	
LCS 240-422674/4	Lab Control Sample	Total/NA	Water	8260B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126085-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-126085-1

Date Collected: 02/07/20 00:00

Matrix: Water

Date Received: 02/11/20 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	422674	02/13/20 17:53	LRW	TAL CAN

Client Sample ID: MW-214S_020720

Lab Sample ID: 240-126085-2

Date Collected: 02/07/20 12:50

Matrix: Water

Date Received: 02/11/20 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	422674	02/13/20 18:15	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	422563	02/12/20 15:27	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126085-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-20 *
Connecticut	State	PH-0590	12-31-19 *
Florida	NELAP	E87225	06-30-20
Georgia	State	4062	02-23-20 *
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-20
Kentucky (UST)	State	112225	02-23-20
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-20
New York	NELAP	10975	03-31-20
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-23-20 *
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-16-00404	12-28-19 *
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Canton

Chain of Custody Record

MICHIGAN
190

TestAmerica Michigan
10448 Citation Drive
Suite 200
Brighton, MI 48116-6561
phone 810.229.2763 fax

TestAmerica Laboratories, Inc.

Regulatory Program: DW NPDES RCRA Other:

Client Contact
ARCADIS of Michigan
28550 Cabot Drive Suite 500
Novi, Michigan 48377
(248)-994-2240 Phone
(248)-994-2241 FAX
Project Name: Ford LTP Off-Site
Site: Ford LTP
P O # 30042006 0402.02

Client Project Manager: Kris Hinskey
Tel/Fax: 248-994-2240

Site Contact: Julia McClafferty
Lab Contact: Mike DeMonico

Date: 2/7/20
Carrier:

Analysis Turnaround Time
 CALENDAR DAYS WORKING DAYS
TAT if different from Below / 3 Day
 2 weeks
 1 week
 2 days
 1 day

COC No: _____ of _____ COCs

Sampler Name:
For Lab Use Only:
Walk-in Client:
Lab Sampling:
Job / SDG No.:

Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes
---	---	G	W	1	
2/7/20	1750	G	W	6	1 VIA 3 WAS 8260B SIM 3 WAS 8260B



Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

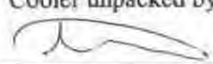

Non-Hazard Flammable Skin Irritant Poison B Unknown

Return to Client Disposal by Lab Archive for _____ Months

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Relinquished by	Relinquished by	Relinquished by	Company	Date/Time	Company	Date/Time	Company	Date/Time	Therm ID No.
Mike McClafferty	ARCADIS	ARCADIS	ARCADIS	2/7/20 1700	ARCADIS	2/7/20 1700	ARCADIS	2/7/20 1800	
ARCADIS	ARCADIS	ARCADIS	ARCADIS	2/10/20 13K	ARCADIS	2/10/20 1440	ETA	2-11-20 846	

1
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Eurofins TestAmerica Canton Sample Receipt Form/Narrative		Login # : <u>126075</u>
Canton Facility		
Client <u>Arcadis</u>	Site Name _____	Cooler unpacked by: 
Cooler Received on <u>2-11-20</u>	Opened on <u>2-11-20</u>	
FedEx: 1 st <input checked="" type="checkbox"/> Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other		
Receipt After-hours: Drop-off Date/Time		Storage Location
TestAmerica Cooler # <u>TA</u>	Foam Box _____	Client Cooler _____
Packing material used: Bubble Wrap _____ Foam _____ Plastic Bag _____ None _____ Other _____		
COOLANT: Wet Ice _____ Blue Ice _____ Dry Ice _____ Water _____ None _____		
1. Cooler temperature upon receipt		<input type="checkbox"/> See Multiple Cooler Form
IR GUN# IR-10 (CF +0.7 °C)	Observed Cooler Temp. <u>1.2</u> °C	Corrected Cooler Temp. <u>1.9</u> °C
IR GUN #IR-11 (CF +0.9 °C)	Observed Cooler Temp. _____ °C	Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity <u>1</u>	Yes No	
-Were the seals on the outside of the cooler(s) signed & dated?	Yes No NA	
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes <input checked="" type="checkbox"/> No	
-Were tamper/custody seals intact and uncompromised?	Yes No NA	
3. Shippers' packing slip attached to the cooler(s)?	Yes No	
4. Did custody papers accompany the sample(s)?	Yes No	
5. Were the custody papers relinquished & signed in the appropriate place?	Yes No	
6. Was/were the person(s) who collected the samples clearly identified on the COC?	Yes <input checked="" type="checkbox"/> No	
7. Did all bottles arrive in good condition (Unbroken)?	Yes No	
8. Could all bottle labels be reconciled with the COC?	Yes No	
9. Were correct bottle(s) used for the test(s) indicated?	Yes No	
10. Sufficient quantity received to perform indicated analyses?	Yes No	
11. Are these work share samples?	Yes <input checked="" type="checkbox"/> No	
If yes, Questions 12-16 have been checked at the originating laboratory.		
12. Were all preserved sample(s) at the correct pH upon receipt?	Yes No <input checked="" type="checkbox"/> NA	pH Strip Lot# <u>HC995364</u>
13. Were VOAs on the COC?	<input checked="" type="checkbox"/> Yes No	
14. Were air bubbles >6 mm in any VOA vials?  Larger than this.	Yes <input checked="" type="checkbox"/> NA	
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____	<input checked="" type="checkbox"/> Yes No	
16. Was a LL Hg or Me Hg trip blank present?	Yes <input checked="" type="checkbox"/> No	
Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____		
Concerning _____		

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES	Samples processed by: <u>AG</u>
<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	
18. SAMPLE CONDITION	
Sample(s) _____	were received after the recommended holding time had expired.
Sample(s) _____	were received in a broken container.
Sample(s) _____	were received with bubble >6 mm in diameter. (Notify PM)
19. SAMPLE PRESERVATION	
Sample(s) _____	were further preserved in the laboratory.
Time preserved: _____	Preservative(s) added/Lot number(s): _____
VOA Sample Preservation - Date/Time VOAs Frozen: _____	

DATA VERIFICATION REPORT



February 14, 2020

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: 30042006.0402.02
Event Specific Scope of Work References: Sample COC
Laboratory: TestAmerica - North Canton
Laboratory submittal: 126085-1
Sample date: 2020-02-07
Report received by CADENA: 2020-02-14
Initial Data Verification completed by CADENA: 2020-02-14
Number of Samples:2
Sample Matrices:Water
Test Categories:GCMS VOC

Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

The following minor QC exceptions or missing information were noted:

GCMS VOC QC batch MS/MSD issues as noted in the laboratory submittal case narrative were not used to qualify client sample results as part of this level 2 data package verification review.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

SAMPLING AND ANALYSIS SUMMARY

CADENA Project ID: E203631

Laboratory: TestAmerica-North Canton

Laboratory Submittal: 126085-1

Lab Sample ID	Sample ID	Collection Date (mm/yy/dd)	Collection Time (hh:mm:ss)	Volatile Organics by GCMS	8260B with Single Ion Monitoring	Comment
2401260851	TRIP BLANK	2/7/2020	12:00:00	X		
2401260852	MW-214S_020720	2/7/2020	12:50:00	X	X	

Analytical Results Summary

Reportable Results Only

CADENA Project ID: E203631

Laboratory: TestAmerica - North Canton

Laboratory Submittal: 126085-1

Sample Name: TRIP BLANK MW-214S_020720
Lab Sample ID: 2401260851 2401260852
Sample Date: 2/7/2020 2/7/2020

Analyte	Cas No.	Report		Units	Valid		Report		Valid	
		Result	Limit		Qualifier	Result	Limit	Units	Qualifier	
GC/MS VOC										
<u>OSW-8260B</u>										
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
<u>OSW-8260BBSim</u>										
1,4-Dioxane	123-91-1					ND	2.0	ug/l	---	

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG # 240-126085-1

CADENA Verification Report: 2020-02-14

Analyses Performed By:

TestAmerica

Edison, New Jersey

Report #36040R

Review Level: Tier III

Project: 30042006.0402.02

DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-126085-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III) includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						VOC (Full Scan)	VOC (SIM)	MISC
240-126085-1	TRIP BLANK	240-126085-1	Water	2/7/2020		X		
	MW-214S_020720	240-126085-2	Water	2/7/2020		X	X	

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260B and 8260B SIM. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260B/8260B-SIM	Water	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl

All samples were analyzed within the specified holding time criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (20%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

A field duplicate was not performed on a sample within this SDG.

6. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

No compounds were detected in the samples within this SDG.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: 8260B/8260B-SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times/Preservation		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Field Duplicate RPD		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: March 4, 2020

PEER REVIEW: Joseph C. Houser

DATE: March 4, 2020



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



**NO CORRECTIONS/QUALIFIERS ADDED
TO SAMPLE ANALYSIS DATA SHEETS**



TestAmerica Michigan
 10448 Citation Drive
 Suite 200
 Brighton, MI 48116-6561
 phone 810.229.2763 fax

MICHIGAN
190

Chain of Custody Record

TestAmerica
 THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: DW NPDES RCRA Other:

Client Contact
 ARCADIS of Michigan
 28550 Cabot Drive Suite 500
 Novi, Michigan 48377
 (248)-994-2240 Phone
 (248)-994-2241 FAX
 Project Name: Ford LTP Off-Site
 Site: Ford LTP
 P O # 30042006 0402.02

Client Project Manager: Kris Hinskey
 Tel/Fax: 248-994-2240

Site Contact: Julia McClafferty
 Lab Contact: Mike DelMonico

Date: 2/17/20
 Carrier:

COC No. 1 of COCs

Sampler Name:
 For Lab Use Only:
 Walk-in Client:
 Lab Sampling:
 Job / SDG No.:

Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	# of Cont.	Sample Identification	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Vinyl Chloride 8260B	Chl-1,2-DCE 8260B	Trans-1,2-DCE 8260B	1,1-DCE 8260B	PCE 8260B	1,4-Dioxane 8260B SIM	Sample Specific Notes
---	---	G	W	1	TRIP BLANK			X	X	X	X	X	X	
MW-245	020720	G	W	6		X	X	X	X	X	X	X	X	1 VIA 3 WAS 8260B SIM 3 WAS 8260B
 240-126085 Chain of Custody														

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other

Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard Flammable Skin Irritant Poison 8 Unknown

Return to Client Disposal by Lab Archive for Months

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Custody Seal No.:
 Relinquished by: [Signature]
 Relinquished by: [Signature]
 Relinquished by: [Signature]

Company: ARCADIS
 Company: ARCADIS
 Company: ARCADIS

Date/Time: 2/17/20 1700
 Date/Time: 2/17/20 1800
 Date/Time: 2/10/20 1300

Received by: [Signature]
 Received by: ARCADIS
 Received in Laboratory by: [Signature]

Company: ARCADIS
 Company: ARCADIS
 Company: ETA

2/10/20 1440
 2-11-20 846

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off Site

Job ID: 240-126085-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-126085-1

Date Collected: 02/07/20 00:00

Matrix: Water

Date Received: 02/11/20 08:40

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/13/20 17:53	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/13/20 17:53	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/13/20 17:53	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/13/20 17:53	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/13/20 17:53	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/13/20 17:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		75 - 130		02/13/20 17:53	1
4-Bromofluorobenzene (Surr)	60		47 - 134		02/13/20 17:53	1
Toluene-d8 (Surr)	76		69 - 122		02/13/20 17:53	1
Dibromofluoromethane (Surr)	85		78 - 129		02/13/20 17:53	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126085-1

Client Sample ID: MW-214S_020720

Lab Sample ID: 240-126085-2

Date Collected: 02/07/20 12:50

Matrix: Water

Date Received: 02/11/20 08:40

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			02/12/20 15:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		70 - 133		02/12/20 15:27	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/13/20 18:15	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/13/20 18:15	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/13/20 18:15	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/13/20 18:15	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/13/20 18:15	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/13/20 18:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		75 - 130		02/13/20 18:15	1
4-Bromofluorobenzene (Surr)	62		47 - 134		02/13/20 18:15	1
Toluene-d8 (Surr)	77		69 - 122		02/13/20 18:15	1
Dibromofluoromethane (Surr)	87		78 - 129		02/13/20 18:15	1

2020-01-16, Caitlin Cisco, Utility locate

Created	2020-01-16 18:57:59 UTC by Caitlin Cisco
Updated	2020-01-16 19:10:49 UTC by Caitlin Cisco
Location	42.3681709751605, -83.3900576319963

Basic Information

Project Name	Ford LTP
Task	Utility locate
Location	Livonia, MI
Date	2020-01-16
Completed By	Caitlin Cisco
Are you connected to the internet (WiFi or data plan)?	Yes
Get weather data from the National Weather Service website for your current location?	N/A
Weather	30.02 degrees F and Light Snow
PPE	Level D
Are you using equipment?	No

Daily Log of Activities

13:57, All staff arrive on-site. C. Cisco and C. Weaver (Arcadis), R. Moore (Fibertec). Purpose: utility locate at 12400 Belden Ct.

Time	13:57
Description of Task	All staff arrive on-site. C. Cisco and C. Weaver (Arcadis), R. Moore (Fibertec). Purpose: utility locate at 12400 Belden Ct.

14:10, Utility locate complete, all staff off-site.

Time	14:10
Description of Task	Utility locate complete, all staff off-site.

Waste Management

Are there any waste drums onsite?	No
Did you drum any waste today?	No

Signature

Caull Cises

Signed 2020-01-16 18:58:33 UTC

Daily Log

Project No.: 30016342 .0001B - Data Gap Evaluation Page 1 of 1
 Site Location: Ford LTP - Commercial Belden Ct. (MW-214)^{aw}
 Prepared By: Christina Weaver (Location 14)

Date	Time	Description of Activities
1/21/2020	—	Purpose: offsite MW installation
	0744	Weather: 21 °F, Cloudy, W 9 mph Wind
	—	Arcadis: C. Weaver
	—	Fibertec: M. Ryerson J. Vanmeter
	—	Equipment: RID (5937) bump checked 105/100 rpm
	—	Arcadis ^{aw} or WLM (6018) checked
	0800	Arcadis and Fibertec onsite, Health and Safety meeting.
	0815	Mobilize to MW-2145 (Location 14) at end of Belden Ct. Commercial property parking lot west of HTS Commercial building.
	0820	Use saw to cut through asphalt
	0845	Hand auger down to 5.0' bgs
	0900	Boeing appears wet at 8.0' bgs, use direct push down to 15.0' bgs.
	0905	Run augers down to 12.0' bgs, Pop out plug
	0920	OTW = 7.54' bgs I. Acrost approves screen interval 5.5 - 10.5' bgs.
	0940	Finish well install, set concrete pad.
	1010	Arcadis and Fibertec offsite. after decor.
		Christina Weaver 1/21/2020

2020-01-23, Madison Olender, Soils (drilling/logging)

Created	2020-01-23 13:36:50 UTC by Madison Olender
Updated	2020-01-29 19:41:20 UTC by Madison Olender
Location	42.3680272627394, -83.3951088329358

Basic Information

Project Name	Ford Drilling- data gap evaluation
Task	Soils (drilling/logging)
Project Number	30016342
Location	Livonia, MI
Date	2020-01-23
Completed By	Madison Olender
Are you connected to the internet (WiFi or data plan)?	Yes
Get weather data from the National Weather Service website for your current location?	N/A
Weather	28.94 degrees F and Cloudy
PPE	Level D
Are you using equipment?	Yes

PID

Supplier	Geotech
Type of Equipment (GEM, PID, etc)	PID
Model	Minirae 3000
Pine/Geotech Number	5937
Calibrated?	Yes
Calibration standard information	Pass

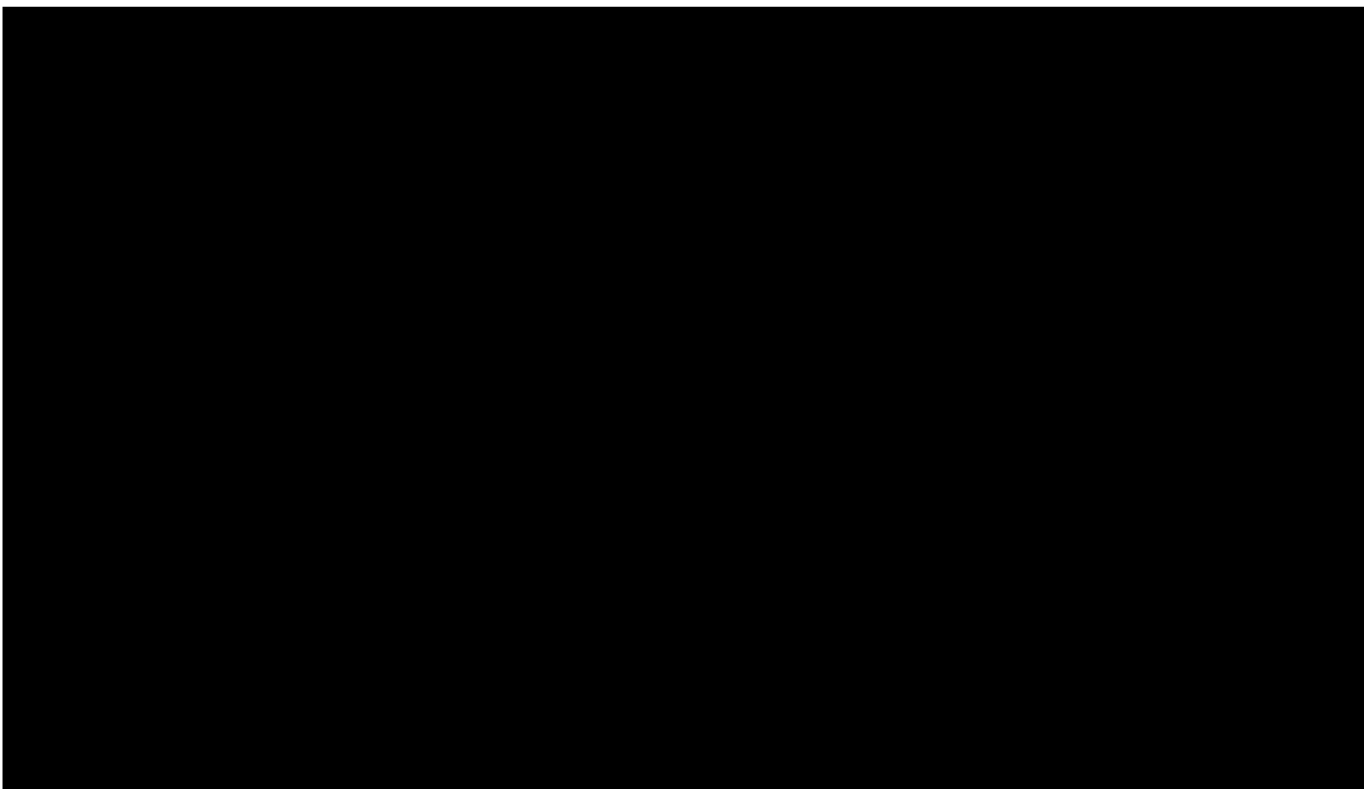
Daily Log of Activities

08:00, Arcadis onsite

Time	08:00
Description of Task	Arcadis onsite

08:05, Tailgate meeting

Time	08:05
Description of Task	Tailgate meeting



13:50, Mob to MW-214S, fibertec breaks for lunch

Time	13:50
Description of Task	Mob to MW-214S, fibertec breaks for lunch

14:25, Begin developing MW-214S

Time	14:25
Description of Task	Begin developing MW-214S

15:05, Mob back to site

Time	15:05
Description of Task	Mob back to site

15:10, Unload drums, move under overhang

Time	15:10
Description of Task	Unload drums, move under overhang

15:45, Arcadis and fibertec offsite

Time	15:45
Description of Task	Arcadis and fibertec offsite

Waste Management

Are there any waste drums onsite?	No
Did you drum any waste today?	Yes
Number of drums created during activities	3
Size of drums	55-gallon
Type of Drums	Stainless Steel

Condition of drums

Good

Signature

A handwritten signature in black ink, consisting of several overlapping loops and a long vertical stroke on the left side.

Signed 2020-01-23 13:39:44 UTC

Daily Log

Project No.: 30042006 Page 1 of 1

Site Location: FORD LTP

Prepared By: M. Olender

Date	Time	Description of Activities
2/5/2020	1440	ArCADIS onsite
	1445	gauge MW-2145
	1448	ArCADIS offsite

M. Olender

ARCADIS Water-Level Measurement Form

Project No.: 30042006.402.02
Site Location: LIVONIA, MI
Instrument Model: 100'

Field Personnel: M. Olander
Date: 2/5/2020
Instrument Serial No.: 6628

Well Number	Time	W.L. Measurements			Comments		
		DTP (feet)	DTW (feet)	TD (feet)	Well Locked	Lock Condition	Other Comments
MW-214S	1445	—	5.67	—	yes	good	

- W.L. Water Level
- TD Total Depth
- DTW Depth To Water
- DTP Depth To Product

THIS FORM MUST BE COMPLETED IN ENTIRETY PRIOR TO BEGINNING ANY INTRUSIVE WORK

Project: FD-01 LTP
 Project Number: 30214201
 Form Completion Date: 01/11/2020 Form Expiration Date: 12/15/2020
 All utility markings must be refreshed ≤ 15 days when work is ongoing. (15 business days post form completion date)

Pre-Field Work

Required: One Call or "811" notified 48-72 hours in advance of work? # ADVISORS
 Ticket Expiration Date 04/27/2020 (Review State Requirements)

Utility companies notified during the One Call process: See attached ticket
ELEC FIBER OPTIC SEWER
GAS STEAM WATER

List any other utilities requiring notification: None

Private Locator Contacted Yes No

Plan private utility clearance subcontractor assignments, areas, required clearance equipment, depth of clearance needed, types of utilities. When possible re-clear 811 markings to confirm utility locations.

Client provided utility maps or "as built" drawings showing utilities? Yes No

Field Work - This must be completed on site, by staff who have a minimum of one year of field experience in identifying utilities. Review Check list with PM or designee prior to beginning intrusive work.

Mechanized intrusive work in utility Tolerance Zone (<30-in.) requires pre-approval by Corporate H&S

List Soil Boring / Well IDs or Excavation Locations applicable to this clearance checklist:
Location 11 - off site at 11150 BEDFORD ST

3 Reliable Lines of Evidence Required Prior to Starting any Subsurface Intrusive Work

One Call/"811" (Reliable as a line of evidence when working in public right of way or easement)
 Utility Markings Present: Paint Pin flags/stakes Other None

Client Provided Maps/Drawings **OR** Maps/Drawings requested but not provided

Client Clearance Name(s)/Affiliation(s) _____

Interview(s) Name(s)/Affiliation(s) _____

Did person(s) interviewed indicate depths of any utilities in the subsurface?
 Yes, depths provided Did not know or refused to answer

Additional Comments:

Site Inspection (Complete Page 2 & Photo Document Marked Utilities & Utility Structures)

Public Records / Maps / As-Builts

Private Locator (Name and Company) FIBERTECH POWER SERVICE

Ground Penetrating Radar (GPR)

Radiofrequency (RF Loc)

Electromagnetic (EM)

Metal Detector

Soft Dig Methods

Termination Depth 5-10 ft. bgs

Potholing / Vacuum Extraction

Air knife -- Hydro knife

Probing

Hand Auguring

Other: _____

Marine Locator (Name and Company) _____

- Tips for Successful Utility Location (H&S Standard Section 5.6):**
1. Don't forget to look up (mark above grade utilities if warranted)
 2. Be on site with Private Utility Locators
 3. Ask Private Locators to "confirm" other's markings
 4. Select alternate/backup locations during clearance process
 5. Mark out all known utilities. Leave nothing to question
 6. No hammering - no pickaxes - no digging bars - no shortcutting
 7. No excessive turning or downward force of hand augers/shovels
 8. Utilities may run in or directly under asphalt/concrete
 9. Clearing, grubbing, and heavy equipment may damage shallow utilities
 10. Is Spotter needed for Heavy Equipment near aboveground utilities?

During the site inspection look for the following: ("YES" requires additional investigation and the utility must be marked properly prior to beginning subsurface intrusive work):

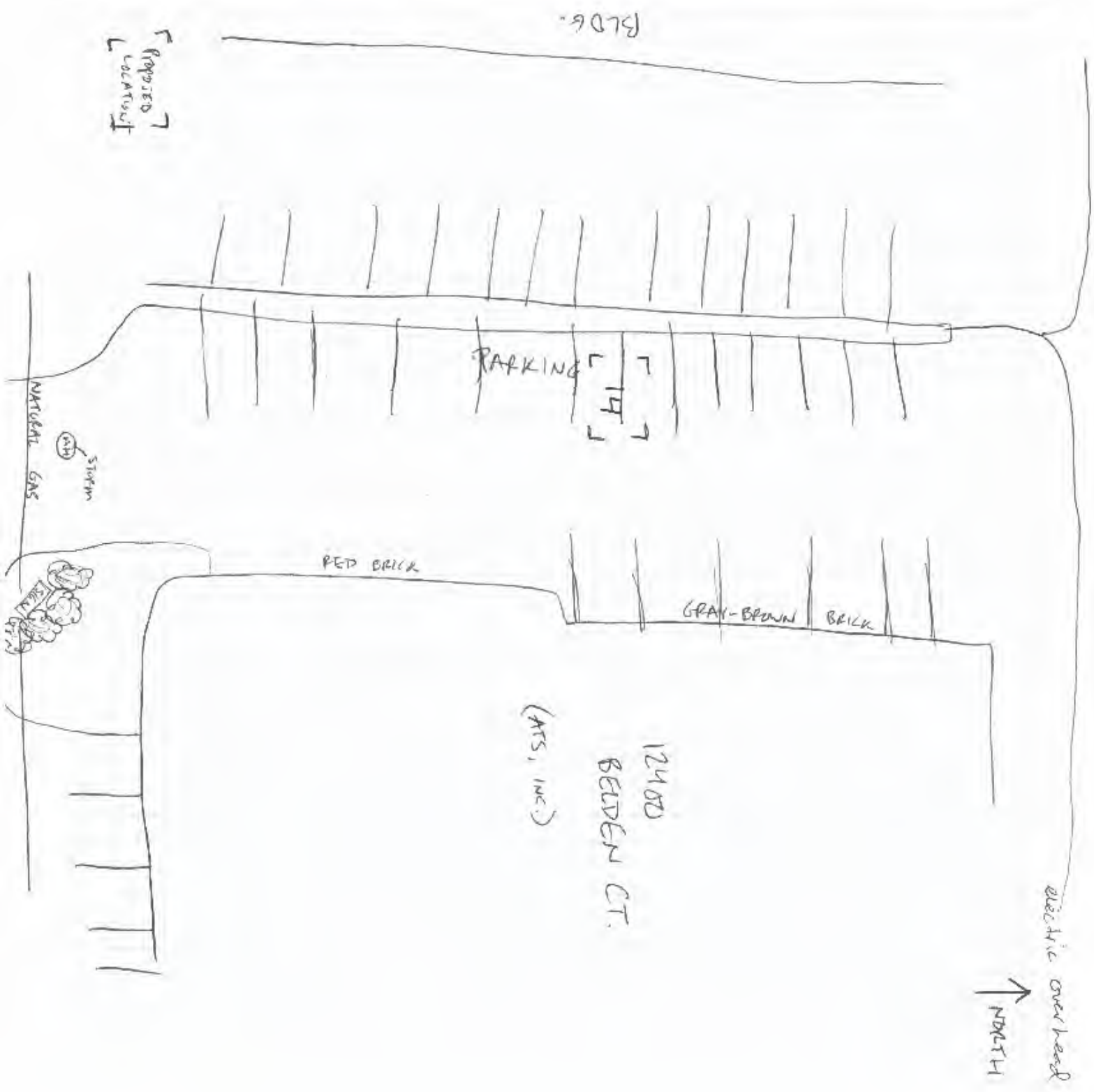
Site Inspection	Utility Color Codes	Present
A) Natural gas line present (evidence of a gas meter)?	Yellow	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
i) Feeder Lines to buildings or homes?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>at work</i>
B) Evidence of electric lines:	Red	
i) Conduits to ground from electric meter or along wall?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
ii) Conduits from power poles running into ground?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
iii) Light poles, electric devices with no overhead lines?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>at work</i>
iv) Overhead electric lines present? Marked? (See Section L)		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
C) Evidence of sewer drains:	Green	
i) Restrooms or kitchen on site?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
ii) Sewer cleanouts present?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>at work</i>
iii) Combined sewer /storm lines or multiple sewer lines?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>at work</i>
D) Evidence of water lines:	Blue	
i) Water meter on site or multiple water lines?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
ii) Fire hydrants in vicinity of work?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>at work</i>
iii) Irrigation systems? (Sprinkler heads, valve boxes, controls in building)		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>at work</i>
E) Evidence of storm drains:	Green	
i) Open curbside or slotted grate storm drains		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>at work</i>
ii) Gutter down spouts going into ground		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>at work</i>
F) Evidence of telecommunication lines:	Orange	
i) Fiber optic warning signs in areas?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
ii) Aboveground cable boxes or housings or wires in work area? Marked?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
G) Underground storage tanks:		
i) Tank pit present, tank vent present?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
ii) Product lines running to dispensers/buildings?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
H) Do utilities enter or exit existing structures/buildings?		
If Yes, confirm the utility markings outside of structure/building match up:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
I) Proposed excavation marked in white?	White	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>at work</i>
J) Unclassified utilities / anomalies marked in pink?	Pink	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>at work</i>
K) Overhead Utilities/Communication Lines - Look Up and MARK:		
i) Overhead electrical conduit, pipe chases, cable trays, product lines?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
ii) Overhead fire sprinkler system?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>at work</i>
L) Overhead Power lines in or near the work area:		
i) < 50 kV within 10 ft. of work area?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>at work</i>
ii) >50 - 200 kV within 15 ft. of work area?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
iii) >200-350 kV within 20 ft. of work area?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
iv) >350-500 kV within 25 ft. of work area?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
v) >500-750 kV within 35 ft. of work area?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
vi) >750-1000 kV within 45 ft. of work area?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
M) Other:		
i) Evidence of linear asphalt or concrete repair?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
ii) Evidence of linear ground subsidence or change in vegetation?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
iii) Unmarked manholes or valve covers in work area?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
iv) Warning signs (Call Before you Dig, Look Up, etc.) on or adjacent to site?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
v) Utility color markings not illustrated in this checklist? Purple		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
vi) Operating heavy equipment on unpaved/unimproved ground: review equipment route for shallow utilities crossing it and modify if necessary.		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
N) Utilities & Structures Checklist been reviewed by the PM or Designee		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No*
PM or Designee Name: <u>MRS HINSLER</u>		* if no, STOP WORK, call PM

Name and Signature of person completing the checklist: SARAH WISCO / Christina Weiser
 Date: 01/11/2020 CHRISTINA WEISER

Do not perform mechanized intrusive work within 30 inches of a utility marking without receiving pre-approval by Corporate H&S.

ALL UTILITY STRIKES REQUIRE CORPORATE H&S NOTIFICATION (EMAIL OR CALL) WITH A CONFIRMED RESPONSE

Subject		LOCATION 14	
Project No.		Sheet	
Calculations By	Date	Checked By	Date
			01/16/2020



Originally MW-215,
but refusal scrapped location
(Location 13)

ARCADIS					Boring No.: MW- 215 CW	
Soil Boring Log					Sheet: 1 of 1	
Project Name: Ford LTP - Data Gap Evaluation			Date Started: 1/26/2020		Logger: Christina Weaver	
Project Number: 30016342.0001B			Date Completed: 1/10/2020		Editor:	
Project Location: Livonia, MI			Weather Conditions: 12°F, Sunny, Slight Wind			
Depth (feet)	Sample ID & Time	Recovery (in.)	PID (ppm)	USCS Class.	Description	
1	24" HA	24"	0.0		(0.0-0.3) GRAVEL; Small to large pebbles.	
2			0.0		(0.3-2.0) SAND, F-M, SR-SA; trace small to medium pebbles SR-SA.	
3	60" CW				fy; well sorted; brown (10 YR 5/3)	
4						
5					Refusal at 2.0'	
6					Approved to use reg.	
7	60" UP				Concrete to 4.0'	
8					Location Scrapped by E. Drost	
9						
10						
11						
12	60" UP					
13						
14						
15						
16						
17						
18						
19						
20						

Drilling Co.:	Fibertec	Sampling Method:	5.0' Macro Core
Driller:	Mark Ryerson	Sampling Interval:	Continuous
Drilling Method:	Hand Auger/ Direct Push	Water Level Start:	FTL = 1.25
Drilling Fluid:	None	Water Level Finish:	NA
Remarks:		Converted to Well:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Surface Elev:	NA
		North Coord:	NA
		East Coord:	NA

Christina Weaver
01/20/2020

(Location 14)

ARCADIS Soil Boring Log	Boring No.: MW- 21 S
Project Name: Ford LTP - Data Gap Evaluation	Sheet: 1 of 1

Project Number: 30016342.0001B	Date Started: 1/21/2020	Logger: Christina Weaver
Project Location: Livonia, MI	Date Completed: 1/21/2020	Editor:
Weather Conditions: 20% slight wind, cloudy		

Depth (feet)	Sample ID & Time	Recovery (in.)	PID (µm)	USCS Class.	Description
1			0.0		(0.0-0.5') ASPHALT
2			0.0		(0.5-7.5') SAND, F-M, SR-SA; trace small pebbles SA; well sorted;
3	60" HA	60"	0.0		dry; brownish yellow (10 YR 6/6) to yellowish brown (10 YR 5/6)
4			0.0		(7.5-9.0') SAND F-M SR-SA; some
5			0.0		Silt; moist to wet; some well sorted; brown (10 YR 5/3).
6			0.0		(9.0-9.5') SAND VF-VC SR-SA; some
7			0.0		granules to small pebbles, SR-SA; poorly sorted; wet; brown (10 YR 5/3).
8	60" OP	46"	0.0		
9			0.0		(9.5-11.8') SAND, F-M, SR-SA; and SILT, nonplastic, rapid dilatancy; well sorted; wet;
10			0.0		grayish brown (10 YR 5/2).
11	60" OP	36"	0.0		(11.8-15.0') SAND, VF-VC, SR-SA; some granules to medium pebbles, SR-SA; poorly sorted;
12			0.0		wet; dark grayish brown (10 YR 4/2).
13			0.0		
14			0.0		* Note: small clay lense >0.5" at 8.9' bgs High plasticity, no dilatancy.
15			0.0		
16					Note: Boring appears wet at 8.0' bgs. DTW = 7.54' bgs
17					* I. Deost approves screen interval 5.5-10.5' bgs.
18					End of boring at 15.0' bgs
19					
20					<i>Christina Weaver</i> 01/21/2020

Drilling Co.: Fibertec	Sampling Method: 5.0' Macro Core
Driller: Mark Ryerson	Sampling Interval: Continuous
Drilling Method: Hand Auger/ Direct Push	Water Level Start: DTW = 7.54' bgs
Drilling Fluid: None	Water Level Finish: NA
Remarks:	Converted to Well: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	Surface Elev: NA
	North Coord: NA
	East Coord: NA

Western parking lot of ATS
Commercial building at the
end of Belden Court.

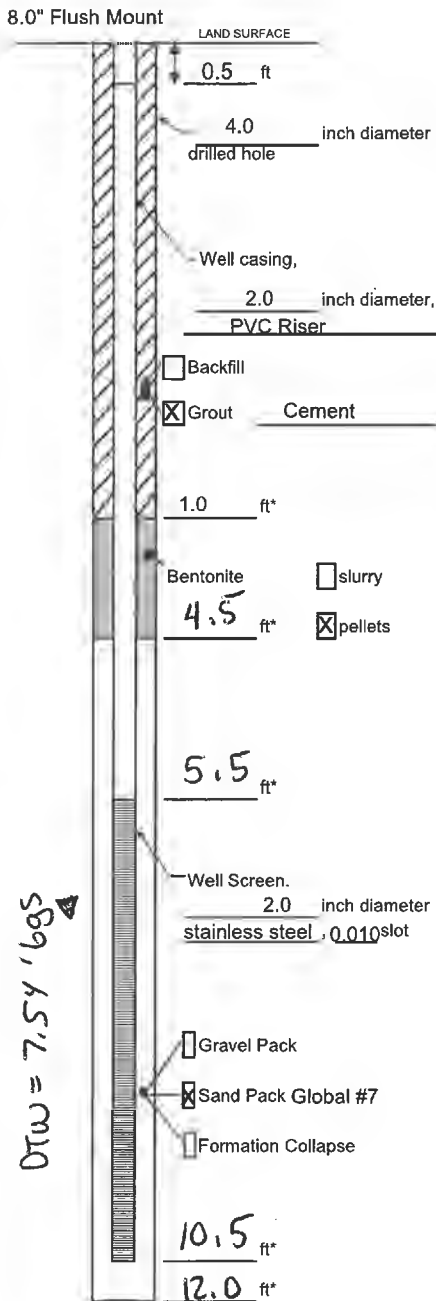
ARCADIS

Well Construction Log

(Unconsolidated)

(Location 14)

well development



DTW measurement taken at time of install.
I. Drost approved screen interval.

Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project 30016342.0001B - Ford LTP Data Gap Evaluation Well MW-2145

Town/City Livonia

County Wayne State MI

Permit No. NA

Land-Surface Elevation and Datum:
NA feet Surveyed Estimated

Installation Date(s) 1/21/2020

Drilling Method Hand Auger / Direct Push/ Hollow Stem Auger

Drilling Contractor Fibertec, M. Ryerson

Drilling Fluid NA

Development Technique(s) and Date(s)
1/23/20

Submersible Pump, PVC surge block

Fluid Loss During Drilling NA gallons

Water Removed During Development 24.41 gallons

Static Depth to Water 6.94 feet below M.P.

Pumping Depth to Water 7.37 feet below M.P.

Pumping Duration 33 mins

Yield 0.74 gpm Date 1/23/2020

Specific Capacity 1.72 gpm/ft
2800 mL/min

Well Purpose Monitoring

Remarks Surged at: 1432 second surge: 1454
start pump: 1436
stop pump: 1507

Time	NTU
1436	239
1441	808
1446	176
1451	97.6
1454	51.7
1459	383
1504	85.7
1509	28.9

Time	DTW
1429	6.94
1453	7.37

Prepared by Christina Weaver / M. Olender

Christina Weaver
01/21/2020
[Signature]

Document #ENFM011, Revision 06

1/24/2020



SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Page 1 of 1

Project No. 30042006.0402.02 Well ID Ford LTP MW-214S Date 2-7-20
 Project Name/Location Ford LTP Weather 28.94 degrees F, Light Snow
 Measuring Pt. Description Top of Casing Screen Setting (ft-bmp) 5.5-10.5 Casing Diameter (in.) 2 Well Material PVC
 Static Water Level (ft-bmp) 6.59 Total Depth (ft-bmp) 10.50 Water Column (ft.) 3.91 Gallons in Well 0.64
8.09 Pump Intake (ft-bmp) Purge Method Low-Flow Sample Method Low-Flow
1.63 Well Volumes Purged

Sample Time: Label 12:50 Volume Purged 1.04 gallons Replicate/Code No. -- Sampled by Shantel Johnson
 Purge Start 12:03
 Purge End 12:54

Time	Minutes Elapsed between Readings	Flow Rate (mL/min) [100-300 mL/min]	Depth to Water (ft) [±0.3]	Total Gallons Purged	pH [±0.1]	Cond. (mS/cm) [±3%]	Turbidity (NTU) [±10%*]	DO (mg/L) [±10%]	Temp. (C)/(F) [±3%]	Redox (mV) [±10mV]	Appearance	
											Color	Odor
12:05	0	100	6.62	0.00	7.89	1.17	48.00	11.97	9.0	1.4	Clear	No Odor
12:10	5	100	6.62	0.13	1.57	1.48	27.90	6.48	9.7	35.5	Clear	No Odor
12:15	5	100	6.63	0.26	7.26	2.54	33.80	1.98	10.1	14.7	Clear	No Odor
12:20	5	100	6.63	0.39	7.30	2.65	28.10	1.70	10.2	-16.3	Clear	No Odor
12:25	5	100	6.63	0.52	7.33	2.66	16.60	1.67	10.2	-27.7	Clear	No Odor
12:30	5	100	6.63	0.65	7.33	2.65	10.90	1.66	10.3	-32.1	Clear	No Odor
12:35	5	100	6.63	0.78	7.33	2.66	4.97	1.62	10.4	-34.3	Clear	No Odor
12:40	5	100	6.63	0.91	7.33	2.68	3.75	1.52	10.5	-35.1	Clear	No Odor
12:45	5	100	6.63	1.04	7.34	2.68	3.38	1.52	10.5	-35.3	Clear	No Odor
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* Turbidity < 50 NTU and ±10% or within 1 NTU of a previous reading when <10 NTU

Constituents Sampled	Container	Number	Preservative
1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, PCE, TCE, VC	40 mL Glass	3	HCL
1,4-dioxane	40 mL Glass	3	HCL

Comments None

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Well Information

Well Location: 12400 Belden Well Locked at Arrival: yes
 Condition of Well: Good Well Locked at Departure: yes
 Well Completion: Flush mount Lock Functioning: yes

TRANSMITTAL LETTER



To:
Livonia International
Development, LLC
Shawn Collins
Brandon Alger (EGLE)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:

July 16, 2020

Subject:

Arcadis Project No.:

Shallow Groundwater
Assessment Data Package

We are sending you copies:

Attached Under Separate Cover Via _____ the Following Items:

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Electronic Delivery Date	Drawing No.	Rev.	Description	Action*
1	7/16/2020			Figure	
1	7/16/2020			Analytical Results	
1	7/16/2020			Field Notes and Drawings	

Action*

- A Approved CR Correct and Resubmit Resubmit ____ Copies
 AN Approved As Noted F File Return ____ Copies
 AS As Requested FA For Approval Review and Comment
 Other: _____

Mailing Method



- U.S. Postal Service 1st Class Courier/Hand Delivery FedEx Priority Overnight FedEx 2-Day Delivery
 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
 Other: email

Thank you for cooperating with the groundwater sampling at your property on May 20, 2020. Attached is your data package.

CITY: NOVI DIV: ENV DB: M/G PIC: R. ELLIS PM: K. HINSKEY TM: A. PAULSON TR: M. WACKSMAN PROJECT NUMBER: M001454.0003.00001 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
 Z:\GIS\Projects\ENV\NoviBrighton_M1\FordLivonia\GIS\docs\2020-03\MW_Locations\12400BeldenMW-214S.mxd PLOTTED: 3/4/2020 11:03:25 AM BY: msmiller



LEGEND:

-  MONITORING WELL LOCATION
-  PROPERTY BOUNDARIES



FORD MOTOR COMPANY
 LIVONIA TRANSMISSION PLANT
 LIVONIA, MICHIGAN

MONITORING WELL LOCATION MW-214



FIGURE 1

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-130753-1
Client Project/Site: Ford LTP Off-Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
6/8/2020 10:29:59 AM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:

www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Sample Summary	6
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Surrogate Summary	10
QC Sample Results	11
QC Association Summary	14
Lab Chronicle	15
Certification Summary	16
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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130753-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130753-1

Job ID: 240-130753-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Off-Site

Report Number: 240-130753-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 5/22/2020 9:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.0° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-130753-1) and MW-214S_052020 (240-130753-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 06/01/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-214S_052020 (240-130753-2) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 06/02/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130753-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130753-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-130753-1	TRIP BLANK	Water	05/20/20 00:00	05/22/20 09:20	
240-130753-2	MW-214S_052020	Water	05/20/20 13:40	05/22/20 09:20	

- 1
- 2
- 3
- 4
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- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130753-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-130753-1

No Detections.

Client Sample ID: MW-214S_052020

Lab Sample ID: 240-130753-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.1	J	2.0	0.86	ug/L	1		8260B SIM	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton



Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off-Site

Job ID: 240-130753-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-130753-1

Date Collected: 05/20/20 00:00

Matrix: Water

Date Received: 05/22/20 09:20

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 19:52	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/01/20 19:52	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/01/20 19:52	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 19:52	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/01/20 19:52	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/01/20 19:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		75 - 130		06/01/20 19:52	1
4-Bromofluorobenzene (Surr)	83		47 - 134		06/01/20 19:52	1
Toluene-d8 (Surr)	88		69 - 122		06/01/20 19:52	1
Dibromofluoromethane (Surr)	89		78 - 129		06/01/20 19:52	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off-Site

Job ID: 240-130753-1

Client Sample ID: MW-214S_052020

Lab Sample ID: 240-130753-2

Date Collected: 05/20/20 13:40

Matrix: Water

Date Received: 05/22/20 09:20

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.1	J	2.0	0.86	ug/L			06/02/20 09:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		70 - 133		06/02/20 09:32	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 20:16	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/01/20 20:16	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/01/20 20:16	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 20:16	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/01/20 20:16	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/01/20 20:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		75 - 130		06/01/20 20:16	1
4-Bromofluorobenzene (Surr)	82		47 - 134		06/01/20 20:16	1
Toluene-d8 (Surr)	87		69 - 122		06/01/20 20:16	1
Dibromofluoromethane (Surr)	88		78 - 129		06/01/20 20:16	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130753-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-130751-D-2 MS	Matrix Spike	86	89	89	88
240-130751-E-2 MSD	Matrix Spike Duplicate	86	90	90	90
240-130753-1	TRIP BLANK	92	83	88	89
240-130753-2	MW-214S_052020	92	82	87	88
LCS 240-436358/4	Lab Control Sample	90	92	93	91
MB 240-436358/7	Method Blank	92	83	88	89

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-133)
240-130753-2	MW-214S_052020	94
240-130793-C-2 MS	Matrix Spike	103
240-130793-C-2 MSD	Matrix Spike Duplicate	102
LCS 240-436445/4	Lab Control Sample	93
MB 240-436445/5	Method Blank	93

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130753-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-436358/7
Matrix: Water
Analysis Batch: 436358

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 13:54	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/01/20 13:54	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/01/20 13:54	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 13:54	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/01/20 13:54	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/01/20 13:54	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		75 - 130		06/01/20 13:54	1
4-Bromofluorobenzene (Surr)	83		47 - 134		06/01/20 13:54	1
Toluene-d8 (Surr)	88		69 - 122		06/01/20 13:54	1
Dibromofluoromethane (Surr)	89		78 - 129		06/01/20 13:54	1

Lab Sample ID: LCS 240-436358/4
Matrix: Water
Analysis Batch: 436358

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	9.84		ug/L		98	73 - 129
cis-1,2-Dichloroethene	10.0	9.82		ug/L		98	75 - 124
Tetrachloroethene	10.0	10.9		ug/L		109	70 - 125
trans-1,2-Dichloroethene	10.0	10.3		ug/L		103	74 - 130
Trichloroethene	10.0	10.1		ug/L		101	71 - 121
Vinyl chloride	10.0	8.13		ug/L		81	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	90		75 - 130
4-Bromofluorobenzene (Surr)	92		47 - 134
Toluene-d8 (Surr)	93		69 - 122
Dibromofluoromethane (Surr)	91		78 - 129

Lab Sample ID: 240-130751-D-2 MS
Matrix: Water
Analysis Batch: 436358

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U	10.0	9.22		ug/L		92	64 - 132
cis-1,2-Dichloroethene	1.0	U	10.0	9.36		ug/L		94	68 - 121
Tetrachloroethene	1.0	U	10.0	10.1		ug/L		101	52 - 129
trans-1,2-Dichloroethene	1.0	U	10.0	9.56		ug/L		96	69 - 126
Trichloroethene	1.0	U	10.0	9.39		ug/L		94	56 - 124
Vinyl chloride	1.0	U	10.0	7.84		ug/L		78	49 - 136

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	86		75 - 130
4-Bromofluorobenzene (Surr)	89		47 - 134
Toluene-d8 (Surr)	89		69 - 122

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130753-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-130751-D-2 MS
Matrix: Water
Analysis Batch: 436358

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	88		78 - 129

Lab Sample ID: 240-130751-E-2 MSD
Matrix: Water
Analysis Batch: 436358

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	10.0	9.31		ug/L		93	64 - 132	1	35
cis-1,2-Dichloroethene	1.0	U	10.0	9.57		ug/L		96	68 - 121	2	35
Tetrachloroethene	1.0	U	10.0	10.1		ug/L		101	52 - 129	1	35
trans-1,2-Dichloroethene	1.0	U	10.0	9.88		ug/L		99	69 - 126	3	35
Trichloroethene	1.0	U	10.0	9.31		ug/L		93	56 - 124	1	35
Vinyl chloride	1.0	U	10.0	7.86		ug/L		79	49 - 136	0	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	86		75 - 130
4-Bromofluorobenzene (Surr)	90		47 - 134
Toluene-d8 (Surr)	90		69 - 122
Dibromofluoromethane (Surr)	90		78 - 129

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-436445/5
Matrix: Water
Analysis Batch: 436445

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			06/02/20 05:36	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		70 - 133		06/02/20 05:36	1

Lab Sample ID: LCS 240-436445/4
Matrix: Water
Analysis Batch: 436445

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	9.10		ug/L		91	80 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	93		70 - 133

Lab Sample ID: 240-130793-C-2 MS
Matrix: Water
Analysis Batch: 436445

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	1.9	J	10.0	10.7		ug/L		89	46 - 170

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off-Site

Job ID: 240-130753-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>MS</i> <i>%Recovery</i>	<i>MS</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	103		70 - 133

Lab Sample ID: 240-130793-C-2 MSD
Matrix: Water
Analysis Batch: 436445

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

<i>Analyte</i>	<i>Sample</i> <i>Result</i>	<i>Sample</i> <i>Qualifier</i>	<i>Spike</i> <i>Added</i>	<i>MSD</i> <i>Result</i>	<i>MSD</i> <i>Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec.</i> <i>Limits</i>	<i>RPD</i>	<i>RPD</i> <i>Limit</i>
1,4-Dioxane	1.9	J	10.0	10.7		ug/L		89	46 - 170	0	26

<i>Surrogate</i>	<i>MSD</i> <i>%Recovery</i>	<i>MSD</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	102		70 - 133

- 1
- 2
- 3
- 4
- 5
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- 7
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- 9
- 10
- 11
- 12
- 13
- 14

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130753-1

GC/MS VOA

Analysis Batch: 436358

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-130753-1	TRIP BLANK	Total/NA	Water	8260B	
240-130753-2	MW-214S_052020	Total/NA	Water	8260B	
MB 240-436358/7	Method Blank	Total/NA	Water	8260B	
LCS 240-436358/4	Lab Control Sample	Total/NA	Water	8260B	
240-130751-D-2 MS	Matrix Spike	Total/NA	Water	8260B	
240-130751-E-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Analysis Batch: 436445

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-130753-2	MW-214S_052020	Total/NA	Water	8260B SIM	
MB 240-436445/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-436445/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-130793-C-2 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-130793-C-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130753-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-130753-1

Date Collected: 05/20/20 00:00

Matrix: Water

Date Received: 05/22/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	436358	06/01/20 19:52	LRW	TAL CAN

Client Sample ID: MW-214S_052020

Lab Sample ID: 240-130753-2

Date Collected: 05/20/20 13:40

Matrix: Water

Date Received: 05/22/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	436358	06/01/20 20:16	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	436445	06/02/20 09:32	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130753-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-20
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-20
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

TestAmerica Laboratory location: Brighton -- 10448 Clifton Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Client Contact Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other	
Client Project Manager: Kris Hinsley Telephone: 248-994-2240 Email: kristoffer.hinsley@arcadis.com		Lab Contact: Mike DeMonico Telephone: 330-497-9396	
Site Contact: Julia McClafferty Telephone: 734-644-5131		COC No.: _____ of _____ COCs	
Sampler Name: RACHEL BIELAK Method of Shipment/Carrier: _____ Shipping/Tracking No.: _____		Analysis Turnaround Time TAT if different than below: 10 day <input checked="" type="checkbox"/> 3 weeks 1 week <input type="checkbox"/> 2 weeks 2 days <input type="checkbox"/> 1 day	
Sample Identification		Containers & Preservatives	
Sample Date: 5/20/20 Sample Time: 1340		H2SO4 HNO3 HCl NaOH ZnAc NaOH Other:	
Matrix: Solid Sediment Aqueous Air Other:		Filtered Sample (Y/N) Composite / Grab 1,1-DCE 8260B cis-1,2-DCE 8260B Trans-1,2-DCE 8260B PCE 8260B TCE 8260B Vinyl Chloride 8260B 1,4-Dioxane 8260B SIM	
Sample ID: TRIP BLANK MW-2145-052020		Walk-in client Lab sampling Job/SDG No.	
Sample Specific Notes / Special Instructions: 1 TRIP BLANK 3 VOA's for 8260B 3 VOA's for 8260B SIM		Date/Time: 5/20/20 1620 Date/Time: 5/21/20 8:54 Date/Time: 5/20/20 900	
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Irritant <input type="checkbox"/> Unknown		Special Instructions/QC Requirements & Comments: Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Requisitioned by: RACHEL BIELAK and Paul Requisitioned by: [Signature] Requisitioned by: [Signature]		Received by: NAVI GOLD STORAGE Received by: [Signature] Received by Laboratory: [Signature]	
Company: Arcadis Date/Time: 5/20/20 1620		Company: ARCADIS Date/Time: 5/21/20 8:54	
Company: Arcadis Date/Time: 5/21/20 0845		Company: ERM MI Date/Time: 5/20/20 8:50	



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Eurofins TestAmerica Canton Sample Receipt Form/Narrative

Login # : 130753

Canton Facility

Client Aradix Site Name _____ Cooler unpacked by: Adam Jensen
 Cooler Received on 5-22-20 Opened on 5-22-20
 FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # 78 Foam Box Client Cooler Box Other _____
 Packing material used: Bubble Wrap Foam Plastic Bag None Other _____
 COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. 13 °C Corrected Cooler Temp. 26 °C
 IR GUN #IR-11 (CF +0.9 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
 If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC902937
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? Yes NA Larger than this. Yes No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # W1970E Yes No
16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____
 Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: PL

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____
 VOA Sample Preservation - Date/Time VOAs Frozen: _____

DATA VERIFICATION REPORT



June 08, 2020

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: 30050315.0402.04 off site
Event Specific Scope of Work References: Sample COC
Laboratory: TestAmerica - North Canton
Laboratory submittal: 130753-1
Sample date: 2020-05-20
Report received by CADENA: 2020-06-08
Initial Data Verification completed by CADENA: 2020-06-08
Number of Samples:2
Sample Matrices:Water
Test Categories:GCMS VOC

Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

There were no significant QC anomalies or exceptions to report.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Analytical Results Summary

Reportable Results Only

CADENA Project ID: E203631

Laboratory: TestAmerica - North Canton

Laboratory Submittal: 130753-1

Sample Name: TRIP BLANK MW-214S_052020
Lab Sample ID: 2401307531 2401307532
Sample Date: 5/20/2020 5/20/2020

Analyte	Cas No.	Report		Units	Valid		Report		Valid	
		Result	Limit		Qualifier	Result	Limit	Units	Qualifier	
GC/MS VOC										
<u>OSW-8260B</u>										
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
<u>OSW-8260BBSim</u>										
1,4-Dioxane	123-91-1					1.1	2.0	ug/l		J

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG # 240-130753-1

CADENA Verification Report: 2020-06-08

Analyses Performed By:
TestAmerica
Edison, New Jersey

Report #37196R
Review Level: Tier III
Project: 30050315.402.02



DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-130753-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III) includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						VOC (Full Scan)	VOC (SIM)	MISC
240-130753-1	TRIP BLANK	240-130753-1	Water	5/20/2020		X		
	MW-214S_052020	240-130753-2	Water	5/20/2020		X	X	

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260B and 8260B SIM. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260B/8260B-SIM	Water	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl

All samples were analyzed within the specified holding time criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (20%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

A field duplicate was not performed on a sample within this SDG.

6. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: 8260B/8260B-SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times/Preservation		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Field Duplicate RPD		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: June 15, 2020

PEER REVIEW: Dennis Capria

DATE: June 24, 2020



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



**NO CORRECTIONS/QUALIFIERS ADDED
TO SAMPLE ANALYSIS DATA SHEETS**



TestAmerica Laboratory location: Brighton --- 10448 Claiton Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Client Contact Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other		Site Contact: Julia McClafferty Telephone: 734-644-5131		Lab Contact: Mike DeMonico Telephone: 330-497-9396		TestAmerica Laboratories, Inc. COC No:			
Client Project Manager: Kris Hinsley Telephone: 248-994-2240 Email: kristoffer.hinsley@arcadis.com		Analysis Turnaround Time TAT if different than below: 10 day <input checked="" type="checkbox"/> 3 weeks 1 week <input type="checkbox"/> 2 weeks 2 days <input type="checkbox"/> 1 day		Containers & Preservatives H2SO4 <input type="checkbox"/> HCl <input type="checkbox"/> NaOH <input type="checkbox"/> ZnAc <input type="checkbox"/> Other:		Filtered Sample (Y/N) Composite <input type="checkbox"/> Grab <input type="checkbox"/>		Analyses 1,4-Dioxane 8260B SIM <input type="checkbox"/> Vinyl Chloride 8260B <input type="checkbox"/> TCE 8260B <input type="checkbox"/> PCE 8260B <input type="checkbox"/> Trans-1,2-DCE 8260B <input type="checkbox"/> cis-1,2-DCE 8260B <input type="checkbox"/> 1,1-DCE 8260B <input type="checkbox"/>		Walk-in client <input type="checkbox"/> Lab sampling <input type="checkbox"/> Job/SDG No:	
Sampler Name: RACHEL BIELAK		Matrix Air <input type="checkbox"/> Solid <input type="checkbox"/> Sediment <input type="checkbox"/> Other:		Sample Date 5/20/20		Sample Time 1340		Sample Specific Notes / Special Instructions: 1 TRIP BLANK 3 Vials for 8260B 3 Vials for 8260BSIM			
Shipping/Tracking No: MW-2145-052020		Sample Identification TRIP BLANK		Date/Time: 5/20/20		Date/Time: 5/20/20		Date/Time: 5/20/20			
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Irritant <input type="checkbox"/> Inflammable <input type="checkbox"/>		Special Instructions/QC Requirements & Comments: Submit all results through Cadena at jtomalia@cadenaco.com, Cadena #E203631 Level IV Reporting requested.		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		Company: Arcadis Date/Time: 5/20/20		Company: Arcadis Date/Time: 5/20/20			
Requisitioned by: RACHEL BIELAK and Paul Penick		Company: Arcadis Date/Time: 5/20/20		Received by: NAVI GOLD STORAGE Date/Time: 5/21/20		Company: Arcadis Date/Time: 5/21/20		Company: Arcadis Date/Time: 5/21/20			
Requisitioned by: [Signature]		Company: Arcadis Date/Time: 5/21/20		Received by: [Signature] Date/Time: 5/21/20		Company: Arcadis Date/Time: 5/21/20		Company: Arcadis Date/Time: 5/21/20			
Requisitioned by: [Signature]		Company: Arcadis Date/Time: 5/21/20		Received by: [Signature] Date/Time: 5/21/20		Company: Arcadis Date/Time: 5/21/20		Company: Arcadis Date/Time: 5/21/20			



Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130753-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-130753-1

Date Collected: 05/20/20 00:00

Matrix: Water

Date Received: 05/22/20 09:20

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 19:52	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/01/20 19:52	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/01/20 19:52	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 19:52	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/01/20 19:52	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/01/20 19:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		75 - 130		06/01/20 19:52	1
4-Bromofluorobenzene (Surr)	83		47 - 134		06/01/20 19:52	1
Toluene-d8 (Surr)	88		69 - 122		06/01/20 19:52	1
Dibromofluoromethane (Surr)	89		78 - 129		06/01/20 19:52	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off-Site

Job ID: 240-130753-1

Client Sample ID: MW-214S_052020

Lab Sample ID: 240-130753-2

Date Collected: 05/20/20 13:40

Matrix: Water

Date Received: 05/22/20 09:20

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.1	J	2.0	0.86	ug/L			06/02/20 09:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		70 - 133		06/02/20 09:32	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 20:16	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/01/20 20:16	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/01/20 20:16	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 20:16	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/01/20 20:16	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/01/20 20:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		75 - 130		06/01/20 20:16	1
4-Bromofluorobenzene (Surr)	82		47 - 134		06/01/20 20:16	1
Toluene-d8 (Surr)	87		69 - 122		06/01/20 20:16	1
Dibromofluoromethane (Surr)	88		78 - 129		06/01/20 20:16	1



SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Project No.: 30050315.402.01

Page 1 of 1

Site Location: Ford LTP 12400 Belden; In parking lot area of ATS

Prepared By: Rachel Bielak

Date	Time	Description of Activities
5/20/2020	12:30	Arrive onsite
5/20/2020	12:37	Record static depth to water
5/20/2020	12:40	Begin purging well
5/20/2020	13:40	Collect sample
5/20/2020	13:47	End purge and turn off pump, begin decon of equipment
5/20/2020	14:00	Offsite
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Field staff signature: _____



SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Page 1 of 1

Project No. 30050315.402.01 Well ID MW-214S Date 5-20-20
 Project Name/Location Ford LTP Weather 62 degrees F. Mostly Cloudy
 Measuring Pt. Description Top of Casing Screen Setting (ft-bmp) 5.5-10.5 Casing Diameter (in.) 2 Well Material PVC
 Static Water Level (ft-bmp) 6.05 Total Depth (ft-bmp) 10.96 Water Column (ft.) 4.91 Gallons in Well 0.80
7.55 Pump Intake (ft-bmp) Low-Flow Purge Method Grab
2.77 Well Volumes Purged

Sample Time: Label 13:40 Volume Purged 2.22 gallons Replicate/Code No. -- Sampled by Rachel Bielak
 Purge Start 12:40
 Purge End 13:47

Rachel Bielak

Time	Minutes Elapsed between Readings	Flow Rate (mL/min) [100-300 mL/min]	Depth to Water (ft) [±0.3]	Total Gallons Purged	pH [±0.1]	Cond. (mS/cm) [±3%]	Turbidity (NTU) [±10%*]	DO (mg/L) [±10%]	Temp. (C)/(F) [±3%]	Redox (mV) [±10mV]	Appearance	
											Color	Odor
12:40	0	125	6.05	0.00	8.06	1.60	8.65	5.78	14.7	66.6	Clear	No Odor
12:45	5	125	6.07	0.17	7.87	1.69	7.64	4.83	14.8	62.8	Clear	No Odor
12:50	5	125	6.07	0.34	7.72	2.00	5.08	4.03	14.6	53.8	Clear	No Odor
12:55	5	125	6.06	0.51	7.31	2.59	3.19	2.56	14.7	-12.2	Clear	No Odor
13:00	5	125	6.06	0.68	7.28	2.64	3.58	2.23	14.4	-36.2	Clear	No Odor
13:05	5	150	6.06	0.85	7.29	2.70	1.48	1.29	14.5	-58.7	Clear	No Odor
13:10	5	125	6.06	1.05	7.30	2.74	1.25	1.43	14.5	-73.9	Clear	No Odor
13:15	5	150	6.06	1.22	7.29	2.76	1.57	1.04	14.5	-82.6	Clear	No Odor
13:20	5	150	6.06	1.42	7.29	2.77	1.63	0.93	14.4	-87.8	Clear	No Odor
13:25	5	150	6.06	1.62	7.29	2.78	1.13	0.78	14.5	-91.9	Clear	No Odor
13:30	5	150	6.06	1.82	7.29	2.79	2.32	0.70	14.3	-94.9	Clear	No Odor
13:35	5	150	6.06	2.02	7.29	2.81	1.33	0.55	14.3	-96.5	Clear	No Odor
13:40	5	150	6.06	2.22	7.29	2.81	0.80	0.60	14.6	-96.6	Clear	No Odor
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* Turbidity < 50 NTU and ±10% or within 1 NTU of a previous reading when <10 NTU

Constituents Sampled	Container	Number	Preservative
1,4-dioxane	40 mL Glass	3	HCL
1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, PCE, TCE, V ₂	40 mL Glass	3	HCL

Comments None

Well Casing Volumes	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
Gallons/Foot	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Well Information

Well Location: 12400 Belden; In parking lot area of ATS Well Locked at Arrival: yes

Condition of Well: Good Well Locked at Departure: yes

Well Completion: Flush mount Lock Functioning: yes

TRANSMITTAL LETTER



To:
Livonia International
Development, LLC
Shawn Collins
Brandon Alger (EGLE)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:
September 25, 2020

Subject:

Arcadis Project No.:

Shallow Groundwater
Assessment Data Package

We are sending you copies:

Attached Under Separate Cover Via _____ the Following Items:

- | | | | |
|--|---|---|---------------------------------------|
| <input type="checkbox"/> Shop Drawings | <input type="checkbox"/> Plans | <input type="checkbox"/> Specifications | <input type="checkbox"/> Change Order |
| <input type="checkbox"/> Prints | <input checked="" type="checkbox"/> Samples | <input type="checkbox"/> Copy of Letter | <input type="checkbox"/> Reports |
| <input type="checkbox"/> Other: | | | |

Copies	Delivery Date	Drawing No.	Rev.	Description	Action*
1	9/25/2020			Figure	
1	9/25/2020			Analytical Results	
1	9/25/2020			Field Notes and Drawings	

Action*

- | | | |
|--|---|--|
| <input type="checkbox"/> A Approved | <input type="checkbox"/> CR Correct and Resubmit | <input type="checkbox"/> Resubmit _____ Copies |
| <input type="checkbox"/> AN Approved As Noted | <input type="checkbox"/> F File | <input type="checkbox"/> Return _____ Copies |
| <input type="checkbox"/> AS As Requested | <input type="checkbox"/> FA For Approval | <input type="checkbox"/> Review and Comment |
| <input type="checkbox"/> Other: _____ | | |

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
- | | | | |
|--|--|---|---|
| <input type="checkbox"/> U.S. Postal Service 1 st Class | <input type="checkbox"/> Courier/Hand Delivery | <input type="checkbox"/> FedEx Priority Overnight | <input type="checkbox"/> FedEx 2-Day Delivery |
| <input type="checkbox"/> Certified/Registered Mail | <input type="checkbox"/> United Parcel Service (UPS) | <input type="checkbox"/> FedEx Standard Overnight | <input type="checkbox"/> FedEx Economy |
| <input checked="" type="checkbox"/> Other: <u>email</u> | | | |

Thank you for cooperating with the groundwater sampling at your property on August 10, 2020. Attached is your data package.

CITY: NOVI DIV: ENV DB: M/G PIC: R. ELLIS PM: K. HINSKEY TM: A. PAULSON TR: M. WACKSMAN PROJECT NUMBER: M1001454.0003.00001 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
Z:\GIS\Projects\ENV\NoviBrighton_M1\FordLivonia\GIS\docs\2020-03\MW_Locations\12400BeldenMW-214S.mxd PLOTTED: 3/4/2020 11:03:25 AM BY: msmiller



LEGEND:

-  MONITORING WELL LOCATION
-  PROPERTY BOUNDARIES



FORD MOTOR COMPANY
LIVONIA TRANSMISSION PLANT
LIVONIA, MICHIGAN

MONITORING WELL LOCATION MW-214S



FIGURE
1

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-134796-1
Client Project/Site: Ford LTP Off-Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
8/25/2020 4:14:37 PM
Opal Johnson, Project Manager II
(330)966-9279

Opal.Johnson@Eurofinset.com

Designee for

Michael DelMonico, Project Manager I
(330)497-9396

Michael.DelMonico@Eurofinset.com

LINKS

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www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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QC Sample Results	11
QC Association Summary	14
Lab Chronicle	15
Certification Summary	16
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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134796-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134796-1

Job ID: 240-134796-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Off-Site

Report Number: 240-134796-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 8/12/2020 9:30 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 5.2° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-134796-1) and MW-214S_081020 (240-134796-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 08/20/2020.

Sample MW-214S_081020 (240-134796-2)[5X] required dilution prior to analysis due to foaming at the time of purging during the original sample analysis.. The reporting limits have been adjusted accordingly.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-214S_081020 (240-134796-2) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 08/18/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134796-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134796-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-134796-1	TRIP BLANK	Water	08/10/20 00:00	08/12/20 09:30	
240-134796-2	MW-214S_081020	Water	08/10/20 11:30	08/12/20 09:30	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134796-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134796-1

No Detections.

Client Sample ID: MW-214S_081020

Lab Sample ID: 240-134796-2

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off-Site

Job ID: 240-134796-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134796-1

Date Collected: 08/10/20 00:00

Matrix: Water

Date Received: 08/12/20 09:30

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/20/20 16:14	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/20/20 16:14	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/20/20 16:14	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/20/20 16:14	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/20/20 16:14	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/20/20 16:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		75 - 130		08/20/20 16:14	1
4-Bromofluorobenzene (Surr)	96		47 - 134		08/20/20 16:14	1
Toluene-d8 (Surr)	89		69 - 122		08/20/20 16:14	1
Dibromofluoromethane (Surr)	87		78 - 129		08/20/20 16:14	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134796-1

Client Sample ID: MW-214S_081020

Lab Sample ID: 240-134796-2

Date Collected: 08/10/20 11:30

Matrix: Water

Date Received: 08/12/20 09:30

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/18/20 19:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		70 - 133		08/18/20 19:56	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	5.0	U	5.0	2.3	ug/L			08/20/20 19:34	5
cis-1,2-Dichloroethene	5.0	U	5.0	1.9	ug/L			08/20/20 19:34	5
Tetrachloroethene	5.0	U	5.0	1.6	ug/L			08/20/20 19:34	5
trans-1,2-Dichloroethene	5.0	U	5.0	2.2	ug/L			08/20/20 19:34	5
Trichloroethene	5.0	U	5.0	1.8	ug/L			08/20/20 19:34	5
Vinyl chloride	5.0	U	5.0	2.5	ug/L			08/20/20 19:34	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		75 - 130		08/20/20 19:34	5
4-Bromofluorobenzene (Surr)	99		47 - 134		08/20/20 19:34	5
Toluene-d8 (Surr)	91		69 - 122		08/20/20 19:34	5
Dibromofluoromethane (Surr)	83		78 - 129		08/20/20 19:34	5

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134796-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA	BFB	TOL	DBFM
		(75-130)	(47-134)	(69-122)	(78-129)
240-134796-1	TRIP BLANK	90	96	89	87
240-134796-2	MW-214S_081020	90	99	91	83
240-134797-C-2 MS	Matrix Spike	93	103	91	86
240-134797-F-2 MSD	Matrix Spike Duplicate	92	99	93	87
LCS 240-448008/4	Lab Control Sample	93	102	94	89
MB 240-448008/7	Method Blank	91	98	90	88

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA
		(70-133)
240-134734-A-3 MS	Matrix Spike	91
240-134734-A-3 MSD	Matrix Spike Duplicate	92
240-134796-2	MW-214S_081020	94
LCS 240-447609/4	Lab Control Sample	83
MB 240-447609/5	Method Blank	87

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134796-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-448008/7
Matrix: Water
Analysis Batch: 448008

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/20/20 15:00	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/20/20 15:00	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/20/20 15:00	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/20/20 15:00	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/20/20 15:00	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/20/20 15:00	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	91		75 - 130		08/20/20 15:00	1
4-Bromofluorobenzene (Surr)	98		47 - 134		08/20/20 15:00	1
Toluene-d8 (Surr)	90		69 - 122		08/20/20 15:00	1
Dibromofluoromethane (Surr)	88		78 - 129		08/20/20 15:00	1

Lab Sample ID: LCS 240-448008/4
Matrix: Water
Analysis Batch: 448008

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
1,1-Dichloroethene	10.0	8.99		ug/L		90	73 - 129
cis-1,2-Dichloroethene	10.0	9.00		ug/L		90	75 - 124
Tetrachloroethene	10.0	10.2		ug/L		102	70 - 125
trans-1,2-Dichloroethene	10.0	9.05		ug/L		91	74 - 130
Trichloroethene	10.0	9.61		ug/L		96	71 - 121
Vinyl chloride	10.0	10.9		ug/L		109	61 - 134

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	93		75 - 130
4-Bromofluorobenzene (Surr)	102		47 - 134
Toluene-d8 (Surr)	94		69 - 122
Dibromofluoromethane (Surr)	89		78 - 129

Lab Sample ID: 240-134797-C-2 MS
Matrix: Water
Analysis Batch: 448008

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample	Sample	Spike Added	MS	MS	Unit	D	%Rec	%Rec. Limits
	Result	Qualifier		Result	Qualifier				
1,1-Dichloroethene	1.0	U	10.0	8.88		ug/L		89	64 - 132
cis-1,2-Dichloroethene	1.0	U	10.0	8.85		ug/L		88	68 - 121
Tetrachloroethene	1.0	U	10.0	8.92		ug/L		89	52 - 129
trans-1,2-Dichloroethene	1.0	U	10.0	8.92		ug/L		89	69 - 126
Trichloroethene	1.0	U	10.0	8.49		ug/L		85	56 - 124
Vinyl chloride	1.0	U	10.0	11.1		ug/L		111	49 - 136

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	93		75 - 130
4-Bromofluorobenzene (Surr)	103		47 - 134
Toluene-d8 (Surr)	91		69 - 122

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134796-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-134797-C-2 MS
Matrix: Water
Analysis Batch: 448008

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	86		78 - 129

Lab Sample ID: 240-134797-F-2 MSD
Matrix: Water
Analysis Batch: 448008

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	10.0	8.93		ug/L		89	64 - 132	1	35
cis-1,2-Dichloroethene	1.0	U	10.0	9.16		ug/L		92	68 - 121	3	35
Tetrachloroethene	1.0	U	10.0	8.81		ug/L		88	52 - 129	1	35
trans-1,2-Dichloroethene	1.0	U	10.0	8.89		ug/L		89	69 - 126	0	35
Trichloroethene	1.0	U	10.0	8.99		ug/L		90	56 - 124	6	35
Vinyl chloride	1.0	U	10.0	11.1		ug/L		111	49 - 136	0	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	92		75 - 130
4-Bromofluorobenzene (Surr)	99		47 - 134
Toluene-d8 (Surr)	93		69 - 122
Dibromofluoromethane (Surr)	87		78 - 129

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-447609/5
Matrix: Water
Analysis Batch: 447609

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/18/20 11:05	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		70 - 133		08/18/20 11:05	1

Lab Sample ID: LCS 240-447609/4
Matrix: Water
Analysis Batch: 447609

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	10.6		ug/L		106	80 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	83		70 - 133

Lab Sample ID: 240-134734-A-3 MS
Matrix: Water
Analysis Batch: 447609

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	10.0	10.3		ug/L		103	46 - 170

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off-Site

Job ID: 240-134796-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	91		70 - 133

Lab Sample ID: 240-134734-A-3 MSD
 Matrix: Water
 Analysis Batch: 447609

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	2.0	U	10.0	10.1		ug/L		101	46 - 170	1	26

<i>Surrogate</i>	<i>%Recovery</i>	<i>MSD MSD Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	92		70 - 133

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134796-1

GC/MS VOA

Analysis Batch: 447609

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134796-2	MW-214S_081020	Total/NA	Water	8260B SIM	
MB 240-447609/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-447609/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-134734-A-3 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-134734-A-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 448008

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134796-1	TRIP BLANK	Total/NA	Water	8260B	
240-134796-2	MW-214S_081020	Total/NA	Water	8260B	
MB 240-448008/7	Method Blank	Total/NA	Water	8260B	
LCS 240-448008/4	Lab Control Sample	Total/NA	Water	8260B	
240-134797-C-2 MS	Matrix Spike	Total/NA	Water	8260B	
240-134797-F-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134796-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134796-1

Date Collected: 08/10/20 00:00

Matrix: Water

Date Received: 08/12/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	448008	08/20/20 16:14	LRW	TAL CAN

Client Sample ID: MW-214S_081020

Lab Sample ID: 240-134796-2

Date Collected: 08/10/20 11:30

Matrix: Water

Date Received: 08/12/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	448008	08/20/20 19:34	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	447609	08/18/20 19:56	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off-Site

Job ID: 240-134796-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-20 *
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.



Chain of Custody Record

TestAmerica Laboratory location: Brighton — 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Regulatory program: DW NPDES RCRA Other

Client Project Manager: Kris Hinskey
Site Contact: Julia McClafferty
Telephone: 248-994-2240
Telephone: 734-644-5131

Company Name: Arcadis
Address: 28550 Cabot Drive, Suite 500
City/State/Zip: Novi, MI, 48377
Phone: 248-994-2240

Project Name: Ford LTP Off-Site
Project Number: 30050315.402.04
PO # 30050315.402.04

Sampler Name: Emma Witherspoon
Method of Shipment/Carrier:
Shipping/Tracking No:

Analysis Turnaround Time
TAT (if different from below)
10 day
 3 weeks
 2 weeks
 1 week
 2 days
 1 day

Containers & Preservatives
H2SO4
HNO3
HCl
NaOH
NaOH
Ultraps
Other:

Matrix
Aqueous
Sediment
Solid
Other:

Filtered Sample (Y/N)
Composite=C / Grab=G

Analyses
1,1-DCE 8260B
cis-1,2-DCE 8260B
Trans-1,2-DCE 8260B
PCE 8260B
TCE 8260B
Vinyl Chloride 8260B
1,4-Dioxane 8260B SIM

Sample Identification
TRIP BLANK
MW-2145-081020

Sample Date
8/10/20
8/10/20

Sample Time
-
1130

Sample Specific Notes / Special Instructions:
1 TRIP BLANK
113 vials for 8260B
3 vials for 8260B SIM

Possible Hazard Identification
 Non-Hazard Flammable Irritant Poison B Unknown

Special Instructions/OC Requirements & Comments:
240-134796 Chain of Custody
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal By Lab Archive For _____ Months

Relinquished by: Emma Witherspoon
Relinquished by: Kris Hinskey
Relinquished by: Jennifer Healy

Received by: Arcadis
Received by: Arcadis
Received in Laboratory by: Jennifer Healy

Date/Time: 8/10/20 1500
Date/Time: 8/11/20 1415
Date/Time: 8/12/20 1416

Company: Arcadis
Company: Arcadis
Company: ETA

Date/Time: 8/10/20 1500
Date/Time: 8/11/20 1415
Date/Time: 8-12-20 950

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Eurofins TestAmerica Canton Sample Receipt Form/Narrative

Login # : 134796

Canton Facility

Client Arcadis

Site Name _____

Cooler unpacked by: _____

Cooler Received on 8-12-20

Opened on 8-12-20 930

Ryan C

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time

Storage Location _____

TestAmerica Cooler # TA Foam Box Client Cooler Box Other _____

Packing material used: Bubble Wrap Foam Plastic Bag None Other _____

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN #IR-11 (CF +0.9°C) Observed Cooler Temp. 4.5 °C Corrected Cooler Temp. 5.2 °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 2 Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
 If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC911298
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? Larger than this. Yes No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No
16. Was a LL Hg or Me Hg trip blank present? _____ Yes No

Tests that are not checked for pH by Receiving:
 VOAs
 Oil and Grease
 TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: _____

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

DATA VERIFICATION REPORT



August 25, 2020

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: 30050315.0402.04 off site
Event Specific Scope of Work References: Sample COC
Laboratory: TestAmerica - North Canton
Laboratory submittal: 134796-1
Sample date: 2020-08-10
Report received by CADENA: 2020-08-25
Initial Data Verification completed by CADENA: 2020-08-25
Number of Samples:2
Sample Matrices:Water
Test Categories:GCMS VOC

Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

There were no significant QC anomalies or exceptions to report.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Analytical Results Summary

Reportable Results Only

CADENA Project ID: E203631

Laboratory: TestAmerica - North Canton

Laboratory Submittal: 134796-1

Sample Name: TRIP BLANK MW-214S_081020
Lab Sample ID: 2401347961 2401347962
Sample Date: 8/10/2020 8/10/2020

Analyte	Cas No.	Report		Units	Valid Qualifier	Report		Units	Valid Qualifier
		Result	Limit			Result	Limit		
GC/MS VOC									
<u>OSW-8260B</u>									
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	5.0	ug/l	---
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	ND	5.0	ug/l	---
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	5.0	ug/l	---
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	ND	5.0	ug/l	---
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	5.0	ug/l	---
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	ND	5.0	ug/l	---
<u>OSW-8260BBSim</u>									
1,4-Dioxane	123-91-1					ND	2.0	ug/l	---

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG # 240-134796-1

CADENA Verification Report: 2020-08-25

Analyses Performed By:

TestAmerica

Edison, New Jersey

Report #38151R

Review Level: Tier III

Project: 30050315.402.02

DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-134796-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III) includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						VOC (Full Scan)	VOC (SIM)	MISC
240-134796-1	TRIP BLANK	240-134796-1	Water	8/10/2020		X		
	MW-214S_081020	240-134796-2	Water	8/10/2020		X	X	

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260B and 8260B SIM. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260B/8260B-SIM	Water	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl

All samples were analyzed within the specified holding time criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (20%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

A field duplicate was not performed on a sample within this SDG.

6. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

No compounds were detected in the samples within this SDG.

7. System Performance and Overall Assessment

The laboratory noted: Sample MW-214S_081020 (240-134796-2)[5X] required dilution prior to analysis due to foaming at the time of purging during the original sample analysis. The reporting limits have been adjusted accordingly.

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: 8260B/8260B-SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times/Preservation		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Field Duplicate RPD		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

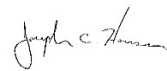
%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:



DATE: September 9, 2020

PEER REVIEW: Andrew Korycinski

DATE: September 9, 2020



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



**NO CORRECTIONS/QUALIFIERS ADDED
TO SAMPLE ANALYSIS DATA SHEETS**



Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off-Site

Job ID: 240-134796-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134796-1

Date Collected: 08/10/20 00:00

Matrix: Water

Date Received: 08/12/20 09:30

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/20/20 16:14	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/20/20 16:14	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/20/20 16:14	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/20/20 16:14	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/20/20 16:14	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/20/20 16:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		75 - 130		08/20/20 16:14	1
4-Bromofluorobenzene (Surr)	96		47 - 134		08/20/20 16:14	1
Toluene-d8 (Surr)	89		69 - 122		08/20/20 16:14	1
Dibromofluoromethane (Surr)	87		78 - 129		08/20/20 16:14	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134796-1

Client Sample ID: MW-214S_081020

Lab Sample ID: 240-134796-2

Date Collected: 08/10/20 11:30

Matrix: Water

Date Received: 08/12/20 09:30

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/18/20 19:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		70 - 133		08/18/20 19:56	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	5.0	U	5.0	2.3	ug/L			08/20/20 19:34	5
cis-1,2-Dichloroethene	5.0	U	5.0	1.9	ug/L			08/20/20 19:34	5
Tetrachloroethene	5.0	U	5.0	1.6	ug/L			08/20/20 19:34	5
trans-1,2-Dichloroethene	5.0	U	5.0	2.2	ug/L			08/20/20 19:34	5
Trichloroethene	5.0	U	5.0	1.8	ug/L			08/20/20 19:34	5
Vinyl chloride	5.0	U	5.0	2.5	ug/L			08/20/20 19:34	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		75 - 130		08/20/20 19:34	5
4-Bromofluorobenzene (Surr)	99		47 - 134		08/20/20 19:34	5
Toluene-d8 (Surr)	91		69 - 122		08/20/20 19:34	5
Dibromofluoromethane (Surr)	83		78 - 129		08/20/20 19:34	5

Chain of Custody Record

TestAmerica Laboratory location: Brighton — 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Client Contact Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other		Site Contact: Julia McClafferty Telephone: 734-644-5131		Lab Contact: Mike DelMonico Telephone: 330-497-9396		TestAmerica Laboratories, Inc. COC No:		
Client Project Manager: Kris Hinskey Telephone: 248-994-2240 Email: kristoffer.hinskey@arcadis.com		Analysis Turnaround Time TAT (if different from below): 10 day <input type="checkbox"/> 3 weeks <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Containers & Preservatives H2SO4 HNO3 HCl NaOH NaOH Utrps Other:		Filtered Sample (Y/N) Composite=C / Grab=G		Analyses 1-DCE 8260B cis-1,2-DCE 8260B Trans-1,2-DCE 8260B PCE 8260B TCE 8260B Vinyl Chloride 8260B 1,4-Dioxane 8260B SIM		For lab use only Walk-in client Lab sampling Job/SDG No.
Sampler Name: Emma Witherspoon		Matrix Aqueous Sediment Solid Other:		Sample Date 8/10/20 8/10/20		Sample Time - 1130		Sample Specific Notes / Special Instructions: 1 TRIP BLANK 113 vials for 8260B 3 vials for 8260B SIM		
Shipping/Tracking No: PO # 30050315-402.04		Method of Shipment/Carrier: EMS with USPS		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Irritant		Special Instructions/OC Requirements & Comments: Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203631 Level IV Reporting requested.		
Relinquished by: Emma Witherspoon		Date/Time: 8/10/20 1500		Received by: Arcadis cold storage		Date/Time: 8/10/20 1415		Company: Arcadis		
Relinquished by: Kris Hinskey		Date/Time: 8/10/20 1415		Received by: Jeni Healy		Date/Time: 8/10/20 1415		Company: ETA		
Relinquished by: Jeni Healy		Date/Time: 8/10/20 1416		Received in Laboratory by: J.A. G.		Date/Time: 8-12-20		Company: ETA		



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SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Project No.: 30050315.402.01

Page 1 of 1

Site Location: Ford LTP 12400 Belden

Prepared By: Emma Witherspoon

Date	Time	Description of Activities
8/10/2020	10:40	Arrive onsite
8/10/2020	10:42	Record static depth to water
8/10/2020	10:45	Begin purging well
8/10/2020	11:30	Collect sample
8/10/2020	11:38	End purge and turn off pump, begin decon of equipment
8/10/2020	11:50	Offsite
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Field staff signature: Emma Witherspoon



SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Page 1 of 1

Project No. 30050315.402.01 Well ID MW-214S Date 8-10-20
 Project Name/Location Ford LTP Weather 79 degrees F, Mostly Cloudy
 Measuring Pt. Description Top of Casing Screen Setting (ft-bmp) 5.5-10.5 Casing Diameter (in.) 2 Well Material PVC
 Static Water Level (ft-bmp) 7.80 Total Depth (ft-bmp) 10.96 Water Column (ft.) 3.16 Gallons in Well 0.51
 Pump Intake (ft-bmp) 9.30 Purge Method Low-Flow Sample Method Grab
 Well Volumes Purged 4.12

Sample Time: Label 11:30 Volume Purged 2.1 gallons Replicate/Code No. -- Sampled by Emma Witherspoon
 Purge Start 10:45
 Purge End 11:38

Time	Minutes Elapsed between Readings	Flow Rate (mL/min) [100-300 mL/min]	Depth to Water (ft) [± 0.3]	Total Gallons Purged	pH [± 0.1]	Cond. (mS/cm) [± 3%]	Turbidity (NTU) [± 10%*]	DO (mg/L) [± 10%]	Temp. (°C) [± 3%]	Redox (mV) [± 10mV]	Appearance	
											Color	Odor
10:45	0	200	7.82	0.00	7.93	1.06	81.20	1.24	22.0	-187.3	Turbid, Yellow	No Odor
10:50	5	200	7.82	0.26	7.22	4.37	55.00	0.28	21.3	-131.6	Turbid, Yellow	No Odor
10:55	5	200	7.82	0.52	7.09	4.36	31.10	0.17	21.1	-127.1	Yellow	No Odor
11:00	5	200	7.82	0.78	7.07	4.35	18.00	0.12	21.1	-126.1	Yellow	No Odor
11:05	5	200	7.82	1.04	7.08	4.33	10.30	0.09	21.1	-124.1	Clear	No Odor
11:10	5	150	7.82	1.30	7.09	4.32	6.93	0.12	21.0	-122.4	Yellow	No Odor
11:15	5	150	7.82	1.50	7.10	4.31	6.95	0.08	21.2	-119.2	Yellow	No Odor
11:20	5	150	7.82	1.70	7.10	4.30	4.65	0.09	21.3	-116.9	Clear	No Odor
11:25	5	150	7.82	1.90	7.09	4.28	3.93	0.08	21.2	-114.5	Clear	No Odor
11:30	5	150	7.82	2.10	7.10	4.29	4.24	0.11	21.2	-114.1	Clear	No Odor
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* Turbidity < 50 NTU and ±10% or within 1 NTU of a previous reading when <10 NTU

Constituents Sampled	Container	Number	Preservative
1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, PCE, TCE, VC	40 mL Glass	3	HCL
1,4-dioxane	40 mL Glass	3	HCL

Comments None

Well Casing Volumes	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
Gallons/Foot	1" = 0.04	2" = 0.16	3" = 0.37	4" = 0.65

Well Information

Well Location: 12400 Belden Well Locked at Arrival: yes

Condition of Well: Good Well Locked at Departure: yes

Well Completion: Flush mount Lock Functioning: yes

TRANSMITTAL LETTER



To:
Livonia International Development, LLC
Shawn Collins
Brandon Alger (EGLE)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:
January 27, 2021

Subject:
Vapor Intrusion Assessment Data
Package

Arcadis Project No.:

We are sending you copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Delivery Date	Drawing No.	Rev.	Description	Action*
1	1/27/2021			Figure	
1	1/27/2021			Analytical Results	
1	1/27/2021			Field Notes and Drawings	

Action*

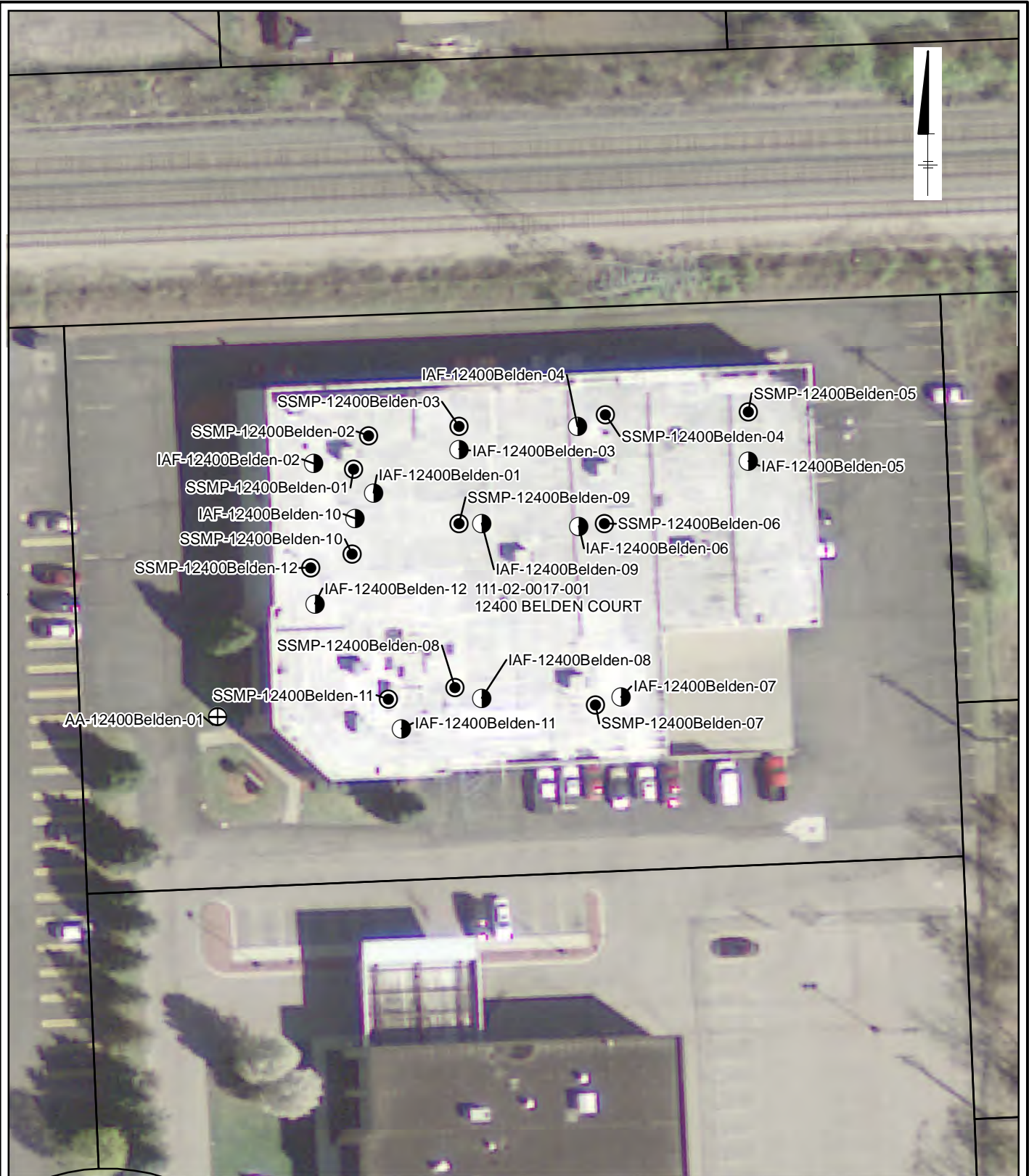
- A Approved CR Correct and Resubmit Resubmit _____ Copies
 AN Approved As Noted F File Return _____ Copies
 AS As Requested FA For Approval Review and Comment
 Other: _____

Mailing Method

- U.S. Postal Service 1st Class Courier/Hand Delivery FedEx Priority Overnight FedEx 2-Day Delivery
 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
 Other: email

Thank you for cooperating with the air sampling at your property on December 22, 2020. Attached is your data package.

CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TR: T. STEVENS TR: P. CURRY PROJECT NUMBER: M001373.0001.00003 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
 Z:\GIS\Projects\ENV\Novi\Brighton_M\Ford\Livonia\GIS\docs\2018-11\12400Belden_2018\1126.mxd PLOTTED: 11/28/2018 2:45:25 PM BY: msmliller



LEGEND:


- INDOOR AIR LOCATION
 - ⊕ AMBIENT AIR LOCATION
 - SUB-SLAB MONITORING POINT LOCATION
 - ▭ BUILDING
 - ▭ PROPERTY BOUNDARIES
- 0 25 50
 SCALE IN FEET

FORD MOTOR COMPANY
 LIVONIA TRANSMISSION PLANT
 LIVONIA, MICHIGAN

AIR SAMPLING LOCATIONS



**FIGURE
 1**



1/7/2021

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 2012710

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 12/30/2020 at Eurofins Air Toxics LLC.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics LLC. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,




Ausha Scott
Project Manager

WORK ORDER #: 2012710

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30050315.0301.01
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	12/30/2020	CONTACT:	Ausha Scott
DATE COMPLETED:	01/07/2021		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	AA-12400BELDEN-01_122220	Modified TO-15	8.0 "Hg	5 psi
02A	IAF-12400BELDEN-01_122220	Modified TO-15	8.0 "Hg	5 psi
03A	IAF-12400BELDEN-02_122220	Modified TO-15	8.0 "Hg	5 psi
04A	IAF-12400BELDEN-03_122220	Modified TO-15	7.5 "Hg	5 psi
05A	IAF-12400BELDEN-04_122220	Modified TO-15	8.5 "Hg	5 psi
06A	IAF-12400BELDEN-05_122220	Modified TO-15	7.5 "Hg	5 psi
07A	IAF-12400BELDEN-06_122220	Modified TO-15	7.0 "Hg	5 psi
08A	IAF-12400BELDEN-07_122220	Modified TO-15	6.5 "Hg	5 psi
09A	IAF-12400BELDEN-08_122220	Modified TO-15	8.0 "Hg	5 psi
10A	IAF-12400BELDEN-09_122220	Modified TO-15	7.5 "Hg	5 psi
11A	IAF-12400BELDEN-10_122220	Modified TO-15	8.5 "Hg	5 psi
12A	IAF-12400BELDEN-11_122220	Modified TO-15	7.5 "Hg	5 psi
13A	IAF-12400BELDEN-12_122220	Modified TO-15	8.0 "Hg	5 psi
14A	DUP-12400BELDEN-01_122220	Modified TO-15	8.0 "Hg	5 psi
15A	Lab Blank	Modified TO-15	NA	NA
15B	Lab Blank	Modified TO-15	NA	NA
16A	CCV	Modified TO-15	NA	NA
16B	CCV	Modified TO-15	NA	NA
17A	LCS	Modified TO-15	NA	NA
17AA	LCS	Modified TO-15	NA	NA
17B	LCS	Modified TO-15	NA	NA
17BB	LCS	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 01/07/21

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209220, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-20-16, UT NELAP – CA009332020-12, VA NELAP - 10615, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005-014, Effective date: 10/18/2020, Expiration date: 10/17/2021.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 2012710

Fourteen 6 Liter Summa Canister (100% Cert Ambient) samples were received on December 30, 2020. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the EATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-12400BELDEN-01_122220	Date/Time Analyzed:	12/31/20 01:04 PM
Lab ID:	2012710-01A	Dilution Factor:	1.83
Date/Time Collected:	12/22/20 04:23 PM	Instrument/Filename:	msd20.i / 20123107
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.41	0.64	0.72	Not Detected
1,4-Dioxane	123-91-1	0.38	0.58	0.66	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.64	0.72	Not Detected
Tetrachloroethene	127-18-4	0.48	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.64	0.72	Not Detected
Trichloroethene	79-01-6	0.51	0.86	0.98	Not Detected
Vinyl Chloride	75-01-4	0.15	0.41	0.47	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-01_122220	Date/Time Analyzed:	12/31/20 01:44 PM
Lab ID:	2012710-02A	Dilution Factor:	1.83
Date/Time Collected:	12/22/20 04:06 PM	Instrument/Filename:	msd20.i / 20123108
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.41	0.64	0.72	Not Detected
1,4-Dioxane	123-91-1	0.38	0.58	0.66	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.64	0.72	Not Detected
Tetrachloroethene	127-18-4	0.48	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.64	0.72	Not Detected
Trichloroethene	79-01-6	0.51	0.86	0.98	Not Detected
Vinyl Chloride	75-01-4	0.15	0.41	0.47	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-02_122220	Date/Time Analyzed:	12/31/20 02:48 PM
Lab ID:	2012710-03A	Dilution Factor:	1.83
Date/Time Collected:	12/22/20 04:04 PM	Instrument/Filename:	msd20.i / 20123109
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.41	0.64	0.72	Not Detected
1,4-Dioxane	123-91-1	0.38	0.58	0.66	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.64	0.72	Not Detected
Tetrachloroethene	127-18-4	0.48	1.1	1.2	1.3
trans-1,2-Dichloroethene	156-60-5	0.36	0.64	0.72	Not Detected
Trichloroethene	79-01-6	0.51	0.86	0.98	Not Detected
Vinyl Chloride	75-01-4	0.15	0.41	0.47	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	112
Toluene-d8	2037-26-5	70-130	105

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-03_122220	Date/Time Analyzed:	12/31/20 03:27 PM
Lab ID:	2012710-04A	Dilution Factor:	1.79
Date/Time Collected:	12/22/20 04:06 PM	Instrument/Filename:	msd20.i / 20123110
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	Not Detected
Trichloroethene	79-01-6	0.50	0.85	0.96	Not Detected
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	110
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	IAF-12400BELDEN-04_122220	Date/Time Analyzed:	12/31/20 04:07 PM
Lab ID:	2012710-05A	Dilution Factor:	1.87
Date/Time Collected:	12/22/20 04:08 PM	Instrument/Filename:	msd20.i / 20123111
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.42	0.65	0.74	Not Detected
1,4-Dioxane	123-91-1	0.39	0.59	0.67	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.35	0.65	0.74	Not Detected
Tetrachloroethene	127-18-4	0.49	1.1	1.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.37	0.65	0.74	Not Detected
Trichloroethene	79-01-6	0.52	0.88	1.0	Not Detected
Vinyl Chloride	75-01-4	0.15	0.42	0.48	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	IAF-12400BELDEN-05_122220	Date/Time Analyzed:	12/31/20 04:46 PM
Lab ID:	2012710-06A	Dilution Factor:	1.79
Date/Time Collected:	12/22/20 04:04 PM	Instrument/Filename:	msd20.i / 20123112
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	Not Detected
Trichloroethene	79-01-6	0.50	0.85	0.96	Not Detected
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-06_122220	Date/Time Analyzed:	12/31/20 05:25 PM
Lab ID:	2012710-07A	Dilution Factor:	1.75
Date/Time Collected:	12/22/20 04:11 PM	Instrument/Filename:	msd20.i / 20123113
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.39	0.61	0.69	Not Detected
1,4-Dioxane	123-91-1	0.37	0.55	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.61	0.69	Not Detected
Tetrachloroethene	127-18-4	0.46	1.0	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.35	0.61	0.69	Not Detected
Trichloroethene	79-01-6	0.49	0.83	0.94	Not Detected
Vinyl Chloride	75-01-4	0.14	0.39	0.45	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	110
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-07_122220	Date/Time Analyzed:	12/31/20 06:04 PM
Lab ID:	2012710-08A	Dilution Factor:	1.71
Date/Time Collected:	12/22/20 04:13 PM	Instrument/Filename:	msd20.i / 20123114
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.38	0.60	0.68	Not Detected
1,4-Dioxane	123-91-1	0.36	0.54	0.62	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.32	0.60	0.68	Not Detected
Tetrachloroethene	127-18-4	0.45	1.0	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.34	0.60	0.68	Not Detected
Trichloroethene	79-01-6	0.48	0.81	0.92	Not Detected
Vinyl Chloride	75-01-4	0.14	0.38	0.44	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	109
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-08_122220	Date/Time Analyzed:	12/31/20 08:21 PM
Lab ID:	2012710-09A	Dilution Factor:	1.83
Date/Time Collected:	12/22/20 04:15 PM	Instrument/Filename:	msd20.i / 20123117
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.41	0.64	0.72	Not Detected
1,4-Dioxane	123-91-1	0.38	0.58	0.66	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.64	0.72	Not Detected
Tetrachloroethene	127-18-4	0.48	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.64	0.72	Not Detected
Trichloroethene	79-01-6	0.51	0.86	0.98	Not Detected
Vinyl Chloride	75-01-4	0.15	0.41	0.47	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-09_122220	Date/Time Analyzed:	12/31/20 07:23 PM
Lab ID:	2012710-10A	Dilution Factor:	1.79
Date/Time Collected:	12/22/20 04:17 PM	Instrument/Filename:	msd20.i / 20123116
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	0.62 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	Not Detected
Trichloroethene	79-01-6	0.50	0.85	0.96	Not Detected
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-10_122220	Date/Time Analyzed:	12/31/20 09:00 PM
Lab ID:	2012710-11A	Dilution Factor:	1.87
Date/Time Collected:	12/22/20 03:57 PM	Instrument/Filename:	msd20.i / 20123118
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.42	0.65	0.74	Not Detected
1,4-Dioxane	123-91-1	0.39	0.59	0.67	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.35	0.65	0.74	Not Detected
Tetrachloroethene	127-18-4	0.49	1.1	1.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.37	0.65	0.74	Not Detected
Trichloroethene	79-01-6	0.52	0.88	1.0	0.53 J
Vinyl Chloride	75-01-4	0.15	0.42	0.48	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	108
Toluene-d8	2037-26-5	70-130	104

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-11_122220	Date/Time Analyzed:	12/31/20 09:39 PM
Lab ID:	2012710-12A	Dilution Factor:	1.79
Date/Time Collected:	12/22/20 03:57 PM	Instrument/Filename:	msd20.i / 20123119
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	0.59 J
Trichloroethene	79-01-6	0.50	0.85	0.96	0.57 J
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-12_122220	Date/Time Analyzed:	1/4/21 12:19 PM
Lab ID:	2012710-13A	Dilution Factor:	1.83
Date/Time Collected:	12/22/20 03:57 PM	Instrument/Filename:	msd20.i / 20010407
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.41	0.64	0.72	Not Detected
1,4-Dioxane	123-91-1	0.38	0.58	0.66	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.64	0.72	Not Detected
Tetrachloroethene	127-18-4	0.48	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.64	0.72	Not Detected
Trichloroethene	79-01-6	0.51	0.86	0.98	0.51 J
Vinyl Chloride	75-01-4	0.15	0.41	0.47	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	112
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	DUP-12400BELDEN-01_122220	Date/Time Analyzed:	1/4/21 01:06 PM
Lab ID:	2012710-14A	Dilution Factor:	1.83
Date/Time Collected:	12/22/20 12:00 AM	Instrument/Filename:	msd20.i / 20010408
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.41	0.64	0.72	Not Detected
1,4-Dioxane	123-91-1	0.38	0.58	0.66	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.64	0.72	Not Detected
Tetrachloroethene	127-18-4	0.48	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.64	0.72	Not Detected
Trichloroethene	79-01-6	0.51	0.86	0.98	Not Detected
Vinyl Chloride	75-01-4	0.15	0.41	0.47	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	12/31/20 12:10 PM
Lab ID:	2012710-15A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20123106a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.22	0.35	0.40	Not Detected
1,4-Dioxane	123-91-1	0.21	0.32	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.19	0.35	0.40	Not Detected
Tetrachloroethene	127-18-4	0.26	0.60	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.20	0.35	0.40	Not Detected
Trichloroethene	79-01-6	0.28	0.47	0.54	Not Detected
Vinyl Chloride	75-01-4	0.081	0.22	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	108
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	1/4/21 11:12 AM
Lab ID:	2012710-15B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20010406a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.22	0.35	0.40	Not Detected
1,4-Dioxane	123-91-1	0.21	0.32	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.19	0.35	0.40	Not Detected
Tetrachloroethene	127-18-4	0.26	0.60	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.20	0.35	0.40	Not Detected
Trichloroethene	79-01-6	0.28	0.47	0.54	Not Detected
Vinyl Chloride	75-01-4	0.081	0.22	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	111
4-Bromofluorobenzene	460-00-4	70-130	109
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	12/31/20 09:06 AM
Lab ID:	2012710-16A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20123102
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	91
1,4-Dioxane	123-91-1	119
cis-1,2-Dichloroethene	156-59-2	94
Tetrachloroethene	127-18-4	104
trans-1,2-Dichloroethene	156-60-5	92
Trichloroethene	79-01-6	120
Vinyl Chloride	75-01-4	89

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	106

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	1/4/21 08:06 AM
Lab ID:	2012710-16B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20010402
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	96
1,4-Dioxane	123-91-1	111
cis-1,2-Dichloroethene	156-59-2	97
Tetrachloroethene	127-18-4	103
trans-1,2-Dichloroethene	156-60-5	96
Trichloroethene	79-01-6	116
Vinyl Chloride	75-01-4	94

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	109
Toluene-d8	2037-26-5	70-130	111

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	12/31/20 09:56 AM
Lab ID:	2012710-17A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20123103
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	92
1,4-Dioxane	123-91-1	113
cis-1,2-Dichloroethene	156-59-2	93
Tetrachloroethene	127-18-4	104
trans-1,2-Dichloroethene	156-60-5	92
Trichloroethene	79-01-6	108
Vinyl Chloride	75-01-4	91

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	105

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	12/31/20 10:43 AM
Lab ID:	2012710-17AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20123104
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	92
1,4-Dioxane	123-91-1	110
cis-1,2-Dichloroethene	156-59-2	94
Tetrachloroethene	127-18-4	106
trans-1,2-Dichloroethene	156-60-5	92
Trichloroethene	79-01-6	108
Vinyl Chloride	75-01-4	92

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	103

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	1/4/21 08:54 AM
Lab ID:	2012710-17B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20010403
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	93
1,4-Dioxane	123-91-1	110
cis-1,2-Dichloroethene	156-59-2	95
Tetrachloroethene	127-18-4	106
trans-1,2-Dichloroethene	156-60-5	93
Trichloroethene	79-01-6	107
Vinyl Chloride	75-01-4	92

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	109
Toluene-d8	2037-26-5	70-130	104

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	1/4/21 09:42 AM
Lab ID:	2012710-17BB	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20010404
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	94
1,4-Dioxane	123-91-1	109
cis-1,2-Dichloroethene	156-59-2	96
Tetrachloroethene	127-18-4	104
trans-1,2-Dichloroethene	156-60-5	94
Trichloroethene	79-01-6	106
Vinyl Chloride	75-01-4	93

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	109
Toluene-d8	2037-26-5	70-130	102

* % Recovery is calculated using unrounded analytical results.



January 7, 2021

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - Soil Gas and Groundwater
Project number: 30050315.0301.01
Client project scopereference: Sample COC only was used to define project analytical requirements. Laboratory: Eurofins AirToxics - Folsom
Laboratorysubmittal: 2012710
Sample date: 2020-12-22
Report received byCADENA: 2021-01-07
Initial DataVerification completed: 2021-01-07
14 Air samples were analyzed for TO-15 parameters.

No data qualifications or sample integrity issues were observed.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) TO-15 Analysis

SDG #2012710

CADENA Verification Report: 2021-01-07

Analyses Performed By:
Eurofins Air Toxics
Folsom, California

Report #40013R
Review Level: Tier III
Project: 30050315.301.02



DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 2012710 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
2012710	AA-12400BELDEN-01_122220	2012710-01A	Air	12/22/2020		X		
	IAF-12400BELDEN-01_122220	2012710-02A	Air	12/22/2020		X		
	IAF-12400BELDEN-02_122220	2012710-03A	Air	12/22/2020		X		
	IAF-12400BELDEN-03_122220	2012710-04A	Air	12/22/2020		X		
	IAF-12400BELDEN-04_122220	2012710-05A	Air	12/22/2020		X		
	IAF-12400BELDEN-05_122220	2012710-06A	Air	12/22/2020		X		
	IAF-12400BELDEN-06_122220	2012710-07A	Air	12/22/2020		X		
	IAF-12400BELDEN-07_122220	2012710-08A	Air	12/22/2020		X		
	IAF-12400BELDEN-08_122220	2012710-09A	Air	12/22/2020		X		

DATA REVIEW

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
	IAF-12400BELDEN-09_122220	2012710-10A	Air	12/22/2020		X		
	IAF-12400BELDEN-10_122220	2012710-11A	Air	12/22/2020		X		
	IAF-12400BELDEN-11_122220	2012710-12A	Air	12/22/2020		X		
	IAF-12400BELDEN-12_122220	2012710-13A	Air	12/22/2020		X		
	DUP-12400BELDEN-01_122220	2012710-14A	Air	12/22/2020	IAF-12400BELDEN-10_122220	X		

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15 (Full Scan). Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15	Air	30 days from collection to analysis (Canister)	Ambient Temperature	< -2" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 140% or less than 60% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

6. Field Duplicate Sample Analysis

The field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 35% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are not greater than five times the RL, a control limit of three times the RL is applied to the difference between the duplicate sample results.

Results (in $\mu\text{g}/\text{m}^3$) for the field duplicate samples are summarized in the following table.

Sample ID / Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
IAF-12400BELDEN-10_122220/ DUP-12400BELDEN-01_122220	Trichloroethene	0.53 J	0.98 U	AC

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15 (Full Scan)	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-2"Hg)		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Field Duplicate Sample RPD		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:



DATE: January 22, 2020

PEER REVIEW: Dennis Capria

DATE: January 26, 2021



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



**NO CORRECTIONS/QUALIFIERS ADDED
TO SAMPLE ANALYSIS DATA SHEETS**



MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-12400BELDEN-01_122220	Date/Time Analyzed:	12/31/20 01:04 PM
Lab ID:	2012710-01A	Dilution Factor:	1.83
Date/Time Collected:	12/22/20 04:23 PM	Instrument/Filename:	msd20.i / 20123107
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.41	0.64	0.72	Not Detected
1,4-Dioxane	123-91-1	0.38	0.58	0.66	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.64	0.72	Not Detected
Tetrachloroethene	127-18-4	0.48	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.64	0.72	Not Detected
Trichloroethene	79-01-6	0.51	0.86	0.98	Not Detected
Vinyl Chloride	75-01-4	0.15	0.41	0.47	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	IAF-12400BELDEN-01_122220	Date/Time Analyzed:	12/31/20 01:44 PM
Lab ID:	2012710-02A	Dilution Factor:	1.83
Date/Time Collected:	12/22/20 04:06 PM	Instrument/Filename:	msd20.i / 20123108
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.41	0.64	0.72	Not Detected
1,4-Dioxane	123-91-1	0.38	0.58	0.66	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.64	0.72	Not Detected
Tetrachloroethene	127-18-4	0.48	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.64	0.72	Not Detected
Trichloroethene	79-01-6	0.51	0.86	0.98	Not Detected
Vinyl Chloride	75-01-4	0.15	0.41	0.47	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	IAF-12400BELDEN-02_122220	Date/Time Analyzed:	12/31/20 02:48 PM
Lab ID:	2012710-03A	Dilution Factor:	1.83
Date/Time Collected:	12/22/20 04:04 PM	Instrument/Filename:	msd20.i / 20123109
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.41	0.64	0.72	Not Detected
1,4-Dioxane	123-91-1	0.38	0.58	0.66	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.64	0.72	Not Detected
Tetrachloroethene	127-18-4	0.48	1.1	1.2	1.3
trans-1,2-Dichloroethene	156-60-5	0.36	0.64	0.72	Not Detected
Trichloroethene	79-01-6	0.51	0.86	0.98	Not Detected
Vinyl Chloride	75-01-4	0.15	0.41	0.47	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	112
Toluene-d8	2037-26-5	70-130	105

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-03_122220	Date/Time Analyzed:	12/31/20 03:27 PM
Lab ID:	2012710-04A	Dilution Factor:	1.79
Date/Time Collected:	12/22/20 04:06 PM	Instrument/Filename:	msd20.i / 20123110
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	Not Detected
Trichloroethene	79-01-6	0.50	0.85	0.96	Not Detected
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	110
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: IAF-12400BELDEN-04_122220
Lab ID: 2012710-05A
Date/Time Collected: 12/22/20 04:08 PM
Media: 6 Liter Summa Canister (100% Cert Ambier)

Date/Time Analyzed: 12/31/20 04:07 PM
Dilution Factor: 1.87
Instrument/Filename: msd20.i / 20123111

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.42	0.65	0.74	Not Detected
1,4-Dioxane	123-91-1	0.39	0.59	0.67	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.35	0.65	0.74	Not Detected
Tetrachloroethene	127-18-4	0.49	1.1	1.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.37	0.65	0.74	Not Detected
Trichloroethene	79-01-6	0.52	0.88	1.0	Not Detected
Vinyl Chloride	75-01-4	0.15	0.42	0.48	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	IAF-12400BELDEN-05_122220	Date/Time Analyzed:	12/31/20 04:46 PM
Lab ID:	2012710-06A	Dilution Factor:	1.79
Date/Time Collected:	12/22/20 04:04 PM	Instrument/Filename:	msd20.i / 20123112
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	Not Detected
Trichloroethene	79-01-6	0.50	0.85	0.96	Not Detected
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-06_122220	Date/Time Analyzed:	12/31/20 05:25 PM
Lab ID:	2012710-07A	Dilution Factor:	1.75
Date/Time Collected:	12/22/20 04:11 PM	Instrument/Filename:	msd20.i / 20123113
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.39	0.61	0.69	Not Detected
1,4-Dioxane	123-91-1	0.37	0.55	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.61	0.69	Not Detected
Tetrachloroethene	127-18-4	0.46	1.0	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.35	0.61	0.69	Not Detected
Trichloroethene	79-01-6	0.49	0.83	0.94	Not Detected
Vinyl Chloride	75-01-4	0.14	0.39	0.45	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	110
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-07_122220	Date/Time Analyzed:	12/31/20 06:04 PM
Lab ID:	2012710-08A	Dilution Factor:	1.71
Date/Time Collected:	12/22/20 04:13 PM	Instrument/Filename:	msd20.i / 20123114
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.38	0.60	0.68	Not Detected
1,4-Dioxane	123-91-1	0.36	0.54	0.62	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.32	0.60	0.68	Not Detected
Tetrachloroethene	127-18-4	0.45	1.0	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.34	0.60	0.68	Not Detected
Trichloroethene	79-01-6	0.48	0.81	0.92	Not Detected
Vinyl Chloride	75-01-4	0.14	0.38	0.44	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	109
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-08_122220	Date/Time Analyzed:	12/31/20 08:21 PM
Lab ID:	2012710-09A	Dilution Factor:	1.83
Date/Time Collected:	12/22/20 04:15 PM	Instrument/Filename:	msd20.i / 20123117
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.41	0.64	0.72	Not Detected
1,4-Dioxane	123-91-1	0.38	0.58	0.66	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.64	0.72	Not Detected
Tetrachloroethene	127-18-4	0.48	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.64	0.72	Not Detected
Trichloroethene	79-01-6	0.51	0.86	0.98	Not Detected
Vinyl Chloride	75-01-4	0.15	0.41	0.47	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	IAF-12400BELDEN-09_122220	Date/Time Analyzed:	12/31/20 07:23 PM
Lab ID:	2012710-10A	Dilution Factor:	1.79
Date/Time Collected:	12/22/20 04:17 PM	Instrument/Filename:	msd20.i / 20123116
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	0.62 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	Not Detected
Trichloroethene	79-01-6	0.50	0.85	0.96	Not Detected
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-10_122220	Date/Time Analyzed:	12/31/20 09:00 PM
Lab ID:	2012710-11A	Dilution Factor:	1.87
Date/Time Collected:	12/22/20 03:57 PM	Instrument/Filename:	msd20.i / 20123118
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.42	0.65	0.74	Not Detected
1,4-Dioxane	123-91-1	0.39	0.59	0.67	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.35	0.65	0.74	Not Detected
Tetrachloroethene	127-18-4	0.49	1.1	1.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.37	0.65	0.74	Not Detected
Trichloroethene	79-01-6	0.52	0.88	1.0	0.53 J
Vinyl Chloride	75-01-4	0.15	0.42	0.48	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	108
Toluene-d8	2037-26-5	70-130	104

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-11_122220	Date/Time Analyzed:	12/31/20 09:39 PM
Lab ID:	2012710-12A	Dilution Factor:	1.79
Date/Time Collected:	12/22/20 03:57 PM	Instrument/Filename:	msd20.i / 20123119
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	0.59 J
Trichloroethene	79-01-6	0.50	0.85	0.96	0.57 J
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-12_122220	Date/Time Analyzed:	1/4/21 12:19 PM
Lab ID:	2012710-13A	Dilution Factor:	1.83
Date/Time Collected:	12/22/20 03:57 PM	Instrument/Filename:	msd20.i / 20010407
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.41	0.64	0.72	Not Detected
1,4-Dioxane	123-91-1	0.38	0.58	0.66	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.64	0.72	Not Detected
Tetrachloroethene	127-18-4	0.48	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.64	0.72	Not Detected
Trichloroethene	79-01-6	0.51	0.86	0.98	0.51 J
Vinyl Chloride	75-01-4	0.15	0.41	0.47	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	112
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	DUP-12400BELDEN-01_122220	Date/Time Analyzed:	1/4/21 01:06 PM
Lab ID:	2012710-14A	Dilution Factor:	1.83
Date/Time Collected:	12/22/20 12:00 AM	Instrument/Filename:	msd20.i / 20010408
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.41	0.64	0.72	Not Detected
1,4-Dioxane	123-91-1	0.38	0.58	0.66	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.64	0.72	Not Detected
Tetrachloroethene	127-18-4	0.48	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.64	0.72	Not Detected
Trichloroethene	79-01-6	0.51	0.86	0.98	Not Detected
Vinyl Chloride	75-01-4	0.15	0.41	0.47	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	103

Analysis Request / Canister Chain of Custody

For Laboratory Use Only

PID: _____ Workorder #: **2012710**

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
Phone (800) 985-5955; Fax (916) 351-8279

Click links below to view:
[Canister Sampling Guide](#)
[Helium Shroud Video](#)

Client: <u>Ford</u> PID: <u>NA</u>		Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting		Turnaround Time (Rush surcharges may apply)									
Project Name: <u>Ford LTP</u>		P.O.# <u>30050315.0301.01</u>		5 Day Turnaround Time									
Project Manager: <u>Kris Hinskey</u>				Canister Vacuum/Pressure		Requested Analyses							
Sampler: <u>A. Hartz X. Chan</u>				Lab Use Only									
Site Name: <u>12400 BELDEN</u>				Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N ₂ / He						
TO-15 (See Special Instructions/Notes)	Do Not Analyze												
Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N ₂ / He	TO-15 (See Special Instructions/Notes)	Do Not Analyze
				Date	Time	Date	Time						
01A	AA-12400BELDEN-01-122220	6L2085	23385	12/22/20	9:23	12/22/20	16:23	-29	-8.5			X	
02A	IAF-12400BELDEN-01-122220	6L2099	24920		9:08		16:06	-29	-8			X	
03A	IAF-12400BELDEN-02-122220	6L2167	23247		9:09		16:04	-29	-8			X	
04A	IAF-12400BELDEN-03-122220	6L2318	23378		9:12		16:06	-29	-7.5			X	
05A	IAF-12400BELDEN-04-122220	6L2781	2028		9:20		16:08	-29	-8.5			X	
06A	IAF-12400BELDEN-05-122220	6L2794	24011		9:18		16:04	-29	-7.5			X	
07A	IAF-12400BELDEN-06-122220	6L0353	23832		9:18		16:11	-29	-7			X	
08A	IAF-12400BELDEN-07-122220	6L2390	23567		9:14		16:13	-29	-6.5			X	
09A	IAF-12400BELDEN-08-122220	6L1102	24298		9:15		16:15	-29	-8			X	
10A	IAF-12400BELDEN-09-122220	6L1697	23813		9:11		16:17	-29	-7.5			X	
11A	IAF-12400BELDEN-10-122220	6L1841	25259		9:04		15:57	-29	-8			X	
12A	IAF-12400BELDEN-11-122220	6L0295	23322		9:02		15:57	-29	-8			X	
13A	IAF-12400BELDEN-12-122220	6L0359	23255		9:03		15:57	-29	-8			X	
14A	DUP-12400BELDEN-01-122220	6L2644	23201					-29	-8			X	

Relinquished by: (Signature/Affiliation) <u>A. Hartz / Arcadis</u>	Date <u>12/22/20</u>	Time <u>17:00</u>	Received by: (Signature/Affiliation) <u>Navi Warehouse / Arcadis</u>	Date <u>12/22/20</u>	Time <u>17:00</u>
Relinquished by: (Signature/Affiliation) <u>Navi Warehouse / Arcadis</u>	Date <u>12-28-20</u>	Time <u>1400</u>	Received by: (Signature/Affiliation) <u>CR EATL</u>	Date <u>12-30-20</u>	Time <u>1059</u>
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Lab Use Only	
Shipper Name: <u>Folsom</u>	Custody Seals Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> None

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

1/6/2021
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 2012711

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 12/30/2020 at Eurofins Air Toxics LLC.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics LLC. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 2012711

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30050315.0301.01
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	12/30/2020	CONTACT:	Ausha Scott
DATE COMPLETED:	01/06/2021		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SSMP-12400BELDEN-01_122220	TO-15	6.5 "Hg	15 psi
02A	SSMP-12400BELDEN-02_122220	TO-15	5.5 "Hg	15 psi
03A	SSMP-12400BELDEN-03_122220	TO-15	7.0 "Hg	15 psi
04A	SSMP-12400BELDEN-04_122220	TO-15	6.0 "Hg	15 psi
05A	SSMP-12400BELDEN-05_122220	TO-15	6.5 "Hg	15 psi
06A	SSMP-12400BELDEN-06_122220	TO-15	6.5 "Hg	15 psi
07A	SSMP-12400BELDEN-07_122220	TO-15	6.5 "Hg	15 psi
08A	SSMP-12400BELDEN-08_122220	TO-15	6.0 "Hg	15 psi
09A	SSMP-12400BELDEN-09_122220	TO-15	7.5 "Hg	15 psi
10A	SSMP-12400BELDEN-10_122220	TO-15	6.0 "Hg	15 psi
11A	SSMP-12400BELDEN-11_122220	TO-15	6.0 "Hg	15 psi
12A	SSMP-12400BELDEN-12_122220	TO-15	7.0 "Hg	15 psi
13A	Lab Blank	TO-15	NA	NA
14A	CCV	TO-15	NA	NA
15A	LCS	TO-15	NA	NA
15AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 01/06/21

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209220, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-20-16, UT NELAP – CA009332020-12, VA NELAP - 10615, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005-014, Effective date: 10/18/2020, Expiration date: 10/17/2021.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 2012711

Twelve 1 Liter Summa Canister (100% Certified) samples were received on December 30, 2020. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	SSMP-12400BELDEN-01_122220	Date/Time Analyzed:	1/5/21 12:16 PM
Lab ID:	2012711-01A	Dilution Factor:	2.58
Date/Time Collected:	12/22/20 09:52 AM	Instrument/Filename:	msdj.i / j010508
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.1	5.1	Not Detected
1,4-Dioxane	123-91-1	4.6	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.1	5.1	Not Detected
Tetrachloroethene	127-18-4	2.4	5.2	8.8	5.3 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.1	8.0
Trichloroethene	79-01-6	1.7	4.2	6.9	130
Vinyl Chloride	75-01-4	0.59	2.0	3.3	Not Detected

J = Estimated value.
 D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-02_122220	Date/Time Analyzed:	1/5/21 12:46 PM
Lab ID:	2012711-02A	Dilution Factor:	2.47
Date/Time Collected:	12/22/20 10:12 AM	Instrument/Filename:	msdj.i / j010509
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	2.9	4.9	Not Detected
1,4-Dioxane	123-91-1	4.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	2.9	4.9	Not Detected
Tetrachloroethene	127-18-4	2.3	5.0	8.4	3.4 J
trans-1,2-Dichloroethene	156-60-5	0.98	2.9	4.9	Not Detected
Trichloroethene	79-01-6	1.6	4.0	6.6	26
Vinyl Chloride	75-01-4	0.57	1.9	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-03_122220	Date/Time Analyzed:	1/5/21 01:15 PM
Lab ID:	2012711-03A	Dilution Factor:	2.64
Date/Time Collected:	12/22/20 10:32 AM	Instrument/Filename:	msdj.i / j010510
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.1	5.2	Not Detected
1,4-Dioxane	123-91-1	4.7	13	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.1	5.2	Not Detected
Tetrachloroethene	127-18-4	2.5	5.4	9.0	2.9 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.2	13
Trichloroethene	79-01-6	1.7	4.2	7.1	75
Vinyl Chloride	75-01-4	0.61	2.0	3.4	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-04_122220	Date/Time Analyzed:	1/5/21 01:44 PM
Lab ID:	2012711-04A	Dilution Factor:	2.52
Date/Time Collected:	12/22/20 10:51 AM	Instrument/Filename:	msdj.i / j010511
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.5	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.0	3.0	5.0	Not Detected
Trichloroethene	79-01-6	1.6	4.1	6.8	7.3
Vinyl Chloride	75-01-4	0.58	1.9	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	SSMP-12400BELDEN-05_122220	Date/Time Analyzed:	1/5/21 02:14 PM
Lab ID:	2012711-05A	Dilution Factor:	2.58
Date/Time Collected:	12/22/20 11:12 AM	Instrument/Filename:	msdj.i / j010512
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.1	5.1	Not Detected
1,4-Dioxane	123-91-1	4.6	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.1	5.1	Not Detected
Tetrachloroethene	127-18-4	2.4	5.2	8.8	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.1	2.0 J
Trichloroethene	79-01-6	1.7	4.2	6.9	1.9 J
Vinyl Chloride	75-01-4	0.59	2.0	3.3	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: SSMP-12400BELDEN-06_122220
Lab ID: 2012711-06A
Date/Time Collected: 12/22/20 11:36 AM
Media: 1 Liter Summa Canister (100% Certified)

Date/Time Analyzed: 1/5/21 02:43 PM
Dilution Factor: 2.58
Instrument/Filename: msdj.i / j010513

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.1	5.1	Not Detected
1,4-Dioxane	123-91-1	4.6	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.1	5.1	Not Detected
Tetrachloroethene	127-18-4	2.4	5.2	8.8	5.3 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.1	1.4 J
Trichloroethene	79-01-6	1.7	4.2	6.9	59
Vinyl Chloride	75-01-4	0.59	2.0	3.3	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-07_122220	Date/Time Analyzed:	1/5/21 03:12 PM
Lab ID:	2012711-07A	Dilution Factor:	2.58
Date/Time Collected:	12/22/20 11:56 AM	Instrument/Filename:	msdj.i / j010514
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.1	5.1	Not Detected
1,4-Dioxane	123-91-1	4.6	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.1	5.1	Not Detected
Tetrachloroethene	127-18-4	2.4	5.2	8.8	3.0 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.1	2.1 J
Trichloroethene	79-01-6	1.7	4.2	6.9	37
Vinyl Chloride	75-01-4	0.59	2.0	3.3	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-08_122220	Date/Time Analyzed:	1/5/21 03:42 PM
Lab ID:	2012711-08A	Dilution Factor:	2.52
Date/Time Collected:	12/22/20 11:59 AM	Instrument/Filename:	msdj.i / j010515
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.5	3.0 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.0	5.0	8.7
Trichloroethene	79-01-6	1.6	4.1	6.8	50
Vinyl Chloride	75-01-4	0.58	1.9	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-09_122220	Date/Time Analyzed:	1/5/21 04:11 PM
Lab ID:	2012711-09A	Dilution Factor:	2.69
Date/Time Collected:	12/22/20 11:34 AM	Instrument/Filename:	msdj.i / j010516
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.2	5.3	Not Detected
1,4-Dioxane	123-91-1	4.8	13	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.2	5.3	Not Detected
Tetrachloroethene	127-18-4	2.6	5.5	9.1	8.8 J
trans-1,2-Dichloroethene	156-60-5	1.1	3.2	5.3	81
Trichloroethene	79-01-6	1.7	4.3	7.2	240
Vinyl Chloride	75-01-4	0.62	2.1	3.4	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-10_122220	Date/Time Analyzed:	1/5/21 04:40 PM
Lab ID:	2012711-10A	Dilution Factor:	2.52
Date/Time Collected:	12/22/20 11:07 AM	Instrument/Filename:	msdj.i / j010517
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.5	9.3
trans-1,2-Dichloroethene	156-60-5	1.0	3.0	5.0	83
Trichloroethene	79-01-6	1.6	4.1	6.8	400
Vinyl Chloride	75-01-4	0.58	1.9	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-11_122220	Date/Time Analyzed:	1/5/21 07:49 PM
Lab ID:	2012711-11A	Dilution Factor:	2.52
Date/Time Collected:	12/22/20 10:45 AM	Instrument/Filename:	msdj.i / j010521
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.5	5.3 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.0	5.0	130
Trichloroethene	79-01-6	1.6	4.1	6.8	290
Vinyl Chloride	75-01-4	0.58	1.9	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-12_122220	Date/Time Analyzed:	1/5/21 05:35 PM
Lab ID:	2012711-12A	Dilution Factor:	2.64
Date/Time Collected:	12/22/20 10:19 AM	Instrument/Filename:	msdj.i / j010519
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.1	5.2	Not Detected
1,4-Dioxane	123-91-1	4.7	13	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.1	5.2	Not Detected
Tetrachloroethene	127-18-4	2.5	5.4	9.0	4.8 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.2	29
Trichloroethene	79-01-6	1.7	4.2	7.1	140
Vinyl Chloride	75-01-4	0.61	2.0	3.4	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	91
Toluene-d8	2037-26-5	70-130	105

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	1/5/21 11:15 AM
Lab ID:	2012711-13A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j010507a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.67	1.2	2.0	Not Detected
1,4-Dioxane	123-91-1	1.8	4.9	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.52	1.2	2.0	Not Detected
Tetrachloroethene	127-18-4	0.95	2.0	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.40	1.2	2.0	Not Detected
Trichloroethene	79-01-6	0.64	1.6	2.7	Not Detected
Vinyl Chloride	75-01-4	0.23	0.77	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	CCV	Date/Time Analyzed:	1/5/21 08:24 AM
Lab ID:	2012711-14A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j010502
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	92
1,4-Dioxane	123-91-1	102
cis-1,2-Dichloroethene	156-59-2	98
Tetrachloroethene	127-18-4	103
trans-1,2-Dichloroethene	156-60-5	99
Trichloroethene	79-01-6	101
Vinyl Chloride	75-01-4	115

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCS	Date/Time Analyzed:	1/5/21 09:01 AM
Lab ID:	2012711-15A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j010503
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	101
1,4-Dioxane	123-91-1	100
cis-1,2-Dichloroethene	156-59-2	103
Tetrachloroethene	127-18-4	104
trans-1,2-Dichloroethene	156-60-5	103
Trichloroethene	79-01-6	104
Vinyl Chloride	75-01-4	119

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	101

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	1/5/21 09:28 AM
Lab ID:	2012711-15AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j010504
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	94
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	98
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	98
Trichloroethene	79-01-6	100
Vinyl Chloride	75-01-4	108

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	98

* % Recovery is calculated using unrounded analytical results.



January 6, 2021

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - Soil Gas and Groundwater
Project number: 30050315.0301.01
Client project scopereference: Sample COC only was used to define project analytical requirements. Laboratory: Eurofins AirToxics - Folsom
Laboratorysubmittal: 2012711
Sample date: 2020-12-22
Report received byCADENA: 2021-01-06
Initial DataVerification completed: 2021-01-06
12 Air samples were analyzed for TO-15 parameters.

No data qualifications or sample integrity issues were observed.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) TO-15 Analysis

SDG #2012711

CADENA Verification Report: 2021-01-06

Analyses Performed By:
Eurofins Air Toxics
Folsom, California

Report #40014R
Review Level: Tier III
Project: 30050315.301.02

DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 2012711 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
2012711	SSMP-12400BELDEN-01_122220	2012711-01A	Air	12/22/2020		X		
	SSMP-12400BELDEN-02_122220	2012711-02A	Air	12/22/2020		X		
	SSMP-12400BELDEN-03_122220	2012711-03A	Air	12/22/2020		X		
	SSMP-12400BELDEN-04_122220	2012711-04A	Air	12/22/2020		X		
	SSMP-12400BELDEN-05_122220	2012711-05A	Air	12/22/2020		X		
	SSMP-12400BELDEN-06_122220	2012711-06A	Air	12/22/2020		X		
	SSMP-12400BELDEN-07_122220	2012711-07A	Air	12/22/2020		X		
	SSMP-12400BELDEN-08_122220	2012711-08A	Air	12/22/2020		X		
	SSMP-12400BELDEN-09_122220	2012711-09A	Air	12/22/2020		X		

DATA REVIEW

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
	SSMP-12400BELDEN-10_122220	2012711-10A	Air	12/22/2020		X		
	SSMP-12400BELDEN-11_122220	2012711-11A	Air	12/22/2020		X		
	SSMP-12400BELDEN-12_122220	2012711-12A	Air	12/22/2020		X		

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15 (Full Scan). Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15	Air	30 days from collection to analysis (Canister)	Ambient Temperature	< -2" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 140% or less than 60% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. All identified compounds met the specified criteria.

6. Field Duplicate Sample Analysis

The field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 35% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are not greater than five times the RL, a control limit of three times the RL is applied to the difference between the duplicate sample results.

A field duplicate was not performed on a sample location within this SDG.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15 (Full Scan)	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-2"Hg)		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Field Duplicate Sample RPD					X
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:



DATE: January 22, 2021

PEER REVIEW: Dennis Capria

DATE: January 26, 2021



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



**NO CORRECTIONS/QUALIFIERS ADDED
TO SAMPLE ANALYSIS DATA SHEETS**



EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-01_122220	Date/Time Analyzed:	1/5/21 12:16 PM
Lab ID:	2012711-01A	Dilution Factor:	2.58
Date/Time Collected:	12/22/20 09:52 AM	Instrument/Filename:	msdj.i / j010508
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.1	5.1	Not Detected
1,4-Dioxane	123-91-1	4.6	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.1	5.1	Not Detected
Tetrachloroethene	127-18-4	2.4	5.2	8.8	5.3 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.1	8.0
Trichloroethene	79-01-6	1.7	4.2	6.9	130
Vinyl Chloride	75-01-4	0.59	2.0	3.3	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP



Client ID:	SSMP-12400BELDEN-02_122220	Date/Time Analyzed:	1/5/21 12:46 PM
Lab ID:	2012711-02A	Dilution Factor:	2.47
Date/Time Collected:	12/22/20 10:12 AM	Instrument/Filename:	msdj.i / j010509
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	2.9	4.9	Not Detected
1,4-Dioxane	123-91-1	4.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	2.9	4.9	Not Detected
Tetrachloroethene	127-18-4	2.3	5.0	8.4	3.4 J
trans-1,2-Dichloroethene	156-60-5	0.98	2.9	4.9	Not Detected
Trichloroethene	79-01-6	1.6	4.0	6.6	26
Vinyl Chloride	75-01-4	0.57	1.9	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: SSMP-12400BELDEN-03_122220
Lab ID: 2012711-03A
Date/Time Collected: 12/22/20 10:32 AM
Media: 1 Liter Summa Canister (100% Certified)

Date/Time Analyzed: 1/5/21 01:15 PM
Dilution Factor: 2.64
Instrument/Filename: msdj.i / j010510

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.1	5.2	Not Detected
1,4-Dioxane	123-91-1	4.7	13	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.1	5.2	Not Detected
Tetrachloroethene	127-18-4	2.5	5.4	9.0	2.9 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.2	13
Trichloroethene	79-01-6	1.7	4.2	7.1	75
Vinyl Chloride	75-01-4	0.61	2.0	3.4	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-04_122220	Date/Time Analyzed:	1/5/21 01:44 PM
Lab ID:	2012711-04A	Dilution Factor:	2.52
Date/Time Collected:	12/22/20 10:51 AM	Instrument/Filename:	msdj.i / j010511
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.5	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.0	3.0	5.0	Not Detected
Trichloroethene	79-01-6	1.6	4.1	6.8	7.3
Vinyl Chloride	75-01-4	0.58	1.9	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: SSMP-12400BELDEN-05_122220
Lab ID: 2012711-05A
Date/Time Collected: 12/22/20 11:12 AM
Media: 1 Liter Summa Canister (100% Certified)

Date/Time Analyzed: 1/5/21 02:14 PM
Dilution Factor: 2.58
Instrument/Filename: msdj.i / j010512

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.1	5.1	Not Detected
1,4-Dioxane	123-91-1	4.6	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.1	5.1	Not Detected
Tetrachloroethene	127-18-4	2.4	5.2	8.8	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.1	2.0 J
Trichloroethene	79-01-6	1.7	4.2	6.9	1.9 J
Vinyl Chloride	75-01-4	0.59	2.0	3.3	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: SSMP-12400BELDEN-06_122220
Lab ID: 2012711-06A
Date/Time Collected: 12/22/20 11:36 AM
Media: 1 Liter Summa Canister (100% Certified)

Date/Time Analyzed: 1/5/21 02:43 PM
Dilution Factor: 2.58
Instrument/Filename: msdj.i / j010513

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.1	5.1	Not Detected
1,4-Dioxane	123-91-1	4.6	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.1	5.1	Not Detected
Tetrachloroethene	127-18-4	2.4	5.2	8.8	5.3 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.1	1.4 J
Trichloroethene	79-01-6	1.7	4.2	6.9	59
Vinyl Chloride	75-01-4	0.59	2.0	3.3	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-07_122220	Date/Time Analyzed:	1/5/21 03:12 PM
Lab ID:	2012711-07A	Dilution Factor:	2.58
Date/Time Collected:	12/22/20 11:56 AM	Instrument/Filename:	msdj.i / j010514
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.1	5.1	Not Detected
1,4-Dioxane	123-91-1	4.6	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.1	5.1	Not Detected
Tetrachloroethene	127-18-4	2.4	5.2	8.8	3.0 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.1	2.1 J
Trichloroethene	79-01-6	1.7	4.2	6.9	37
Vinyl Chloride	75-01-4	0.59	2.0	3.3	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-08_122220	Date/Time Analyzed:	1/5/21 03:42 PM
Lab ID:	2012711-08A	Dilution Factor:	2.52
Date/Time Collected:	12/22/20 11:59 AM	Instrument/Filename:	msdj.i / j010515
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.5	3.0 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.0	5.0	8.7
Trichloroethene	79-01-6	1.6	4.1	6.8	50
Vinyl Chloride	75-01-4	0.58	1.9	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-09_122220	Date/Time Analyzed:	1/5/21 04:11 PM
Lab ID:	2012711-09A	Dilution Factor:	2.69
Date/Time Collected:	12/22/20 11:34 AM	Instrument/Filename:	msdj.i / j010516
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.2	5.3	Not Detected
1,4-Dioxane	123-91-1	4.8	13	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.2	5.3	Not Detected
Tetrachloroethene	127-18-4	2.6	5.5	9.1	8.8 J
trans-1,2-Dichloroethene	156-60-5	1.1	3.2	5.3	81
Trichloroethene	79-01-6	1.7	4.3	7.2	240
Vinyl Chloride	75-01-4	0.62	2.1	3.4	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-10_122220	Date/Time Analyzed:	1/5/21 04:40 PM
Lab ID:	2012711-10A	Dilution Factor:	2.52
Date/Time Collected:	12/22/20 11:07 AM	Instrument/Filename:	msdj.i / j010517
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.5	9.3
trans-1,2-Dichloroethene	156-60-5	1.0	3.0	5.0	83
Trichloroethene	79-01-6	1.6	4.1	6.8	400
Vinyl Chloride	75-01-4	0.58	1.9	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-11_122220	Date/Time Analyzed:	1/5/21 07:49 PM
Lab ID:	2012711-11A	Dilution Factor:	2.52
Date/Time Collected:	12/22/20 10:45 AM	Instrument/Filename:	msdj.i / j010521
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.5	5.3 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.0	5.0	130
Trichloroethene	79-01-6	1.6	4.1	6.8	290
Vinyl Chloride	75-01-4	0.58	1.9	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-12_122220	Date/Time Analyzed:	1/5/21 05:35 PM
Lab ID:	2012711-12A	Dilution Factor:	2.64
Date/Time Collected:	12/22/20 10:19 AM	Instrument/Filename:	msdj.i / j010519
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.1	5.2	Not Detected
1,4-Dioxane	123-91-1	4.7	13	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.1	5.2	Not Detected
Tetrachloroethene	127-18-4	2.5	5.4	9.0	4.8 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.2	29
Trichloroethene	79-01-6	1.7	4.2	7.1	140
Vinyl Chloride	75-01-4	0.61	2.0	3.4	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	91
Toluene-d8	2037-26-5	70-130	105

Analysis Request / Canister Chain of Custody

For Laboratory Use Only

PID: _____ Workorder #: **2012711**

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
Phone (800) 985-5955; Fax (916) 351-8279

Click links below to view:

- [Canister Sampling Guide](#)
- [Helium Shroud Video](#)

Client: <u>Ford</u>	PID: <u>NA</u>	Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting	Turnaround Time (Rush surcharges may apply) 5 Day Turnaround Time	
Project Name: <u>Ford LTP</u>	P.O.# <u>30050315.0301.01</u>		Canister Vacuum/Pressure	Requested Analyses
Project Manager: <u>Kris Hinskey</u>			Lab Use Only	
Sampler: <u>A. Hartz X. Chan</u>			Initial (in Hg) Final (in Hg) Receipt Final (psig) Gas: N ₂ / He TO-15 (See Special Instructions/Notes) Do Not Analyze	
Site Name: <u>12400 BELDEN</u>				

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N ₂ / He	TO-15 (See Special Instructions/Notes)	Do Not Analyze
				Date	Time	Date	Time						
01A	SSMP-12400BELDEN-01-122220	112800	23229	12/22/20	9:40	12/22/20	9:52	-29	-7			X	
02A	SSMP-12400BELDEN-02-122220	112930	24031		10:00		10:12	-29	-6			X	
03A	SSMP-12400BELDEN-03-122220	112545	21906		10:21		10:32	-29	-7.5			X	
04A	SSMP-12400BELDEN-04-122220	40863	24038		10:40		10:51	-29	-6.5			X	
05A	SSMP-12400BELDEN-05-122220	111871	23188		11:01		11:12	-29	-6			X	
06A	SSMP-12400BELDEN-06-122220	113271	24307		11:24		11:36	-29	-6.5			X	
07A	SSMP-12400BELDEN-07-122220	113881	23295		11:46		11:56	-29	-5.5			X	
08A	SSMP-12400BELDEN-08-122220	113852	24376		11:48		11:59	-29	-6			X	
09A	SSMP-12400BELDEN-09-122220	11735	24312		11:22		11:34	-29	-7			X	
10A	SSMP-12400BELDEN-10-122220	112533	23713		10:56		11:07	-29	-6			X	
11A	SSMP-12400BELDEN-11-122220	113858	23225		10:33		10:45	-29	-6			X	
12A	SSMP-12400BELDEN-12-122220	112343	23131		10:06		10:19	-29	-7			X	

Relinquished by: (Signature/Affiliation) <u>Arcadis</u>	Date <u>12/22/20</u>	Time <u>17:00</u>	Received by: (Signature/Affiliation) <u>Novi Warehouse/Arcadis</u>	Date <u>12/22/20</u>	Time <u>17:00</u>
Relinquished by: (Signature/Affiliation) <u>Novi Warehouse/Arcadis</u>	Date <u>12-28-20</u>	Time <u>1400</u>	Received by: (Signature/Affiliation) <u>Novi Warehouse</u>	Date <u>12-29-20</u>	Time <u>1059</u>
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date <u>30</u>	Time

Lab Use Only

Shipper Name: Fed Ex Custody Seals Intact? Yes No None

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

Daily Log - Ford Off Site VI Investigation - VISIT 1

Project No.: 30050315.0301.01

Site Location: 12400 BELDEN

Personnel Onsite: Xenia Chan, Allyson Hartz

Date	Time	Description of Activities
12/18/2020		Purpose: Round 4 Visit 1: building survey and chemical inventory
		Weather: 26.96 degrees F and Fog/Mist
		Equipment: PID
	10:56	Arcadis onsite.
	11:05	Conducted building survey and chemical inventory.
	11:09	Arcadis offsite.
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Visit 1 Checklist		
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Keeping windows & doors shut during IA/AA sampling was discussed? yes Field Staff Signature: _____

Have background sources of VOCs been removed/isolated? yes *Xenia Chan*

Is a sump pit present in the building? no

Number of SSMP samples collected: --

Number of indoor/ambient air samples collected: --

Occupancy hours (for commercial properties only): --

Location of removed/isolated background VOCs: Tote in front of office

Daily Log - Ford Off Site VI Investigation - VISIT 2

Project No.: 30050315.0301.01

Site Location: 12400 BELDEN

Personnel Onsite: Xenia Chan, Allyson Hartz

Date	Time	Description of Activities
12/22/2020		Purpose: Round 4 Visit 2: IA/AA canister deployment and SSMP sampling
		Weather: 35.96 degrees F and Cloudy
		Equipment: GEM, PID, Helium Detector
	8:54	Arcadis onsite.
	9:14	IA/AA canister deployment. Property is vacant, doors and windows are shut.
	9:58	SSMP sampling.
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Visit 2 Checklist

Windows and doors are shut (for IA samples only)? yes

Have background sources of VOCs been removed/isolated? yes

Number of SSMP samples collected: 12

Number of indoor/ambient air samples collected: --

Occupancy hours (for commercial properties only): Vacant

Field Staff Signature:
Xenia Chan

Daily Log - Ford Off Site VI Investigation - VISIT 3

Project No.: 30050315.0301.01

Site Location: 12400 BELDEN

Personnel Onsite: Xenia Chan, Allyson Hartz

Date	Time	Description of Activities
12/22/2020		Purpose: Round 4 Visit 3: IA/AA collection and SSMP measurements
		Weather: 39.02 degrees F and Cloudy
		Equipment: Micromanometer
	15:54	Arcadis onsite.
	16:18	Collected IA/AA canisters.
	16:24	Collected SSMP measurements and returned chemicals.
	16:43	Arcadis offsite.
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Visit 3 Checklist

Windows and doors are shut (for IA samples only)? yes

Have background sources of VOCs been removed/isolated? yes

Number of SSMP samples collected: --

Number of indoor/ambient air samples collected: 14

Occupancy hours (for commercial properties only): Vacant

Field Staff Signature: Xenia Chan



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM

R3.
 Date: ~~9/14/20~~ 9/14/20 Survey Performed by: X. Chan, A. Hartz, P. Labadie
 xc

conducted building walkthrough, building vacant
 NO ONE TO SURVEY.

1. OCCUPANT:

Rent: NA Own: NA

R4 12/18/220: X. Chan and A. Hartz conducted building survey with Tony Ford. NO changes since the building was vacated

Resident Name: VACANT

Address: 12900 Belden Court

Telephone: Home: NA Work: NA

How long have you lived at this location? NA

List current occupants/occupation below (attach additional pages if necessary):

Age (If under 18)	Sex (M/F)	Occupation
NA	NA	NA
xc		

2. OWNER OR LANDLORD: (If same as occupant, check here and go to Item No. 3).

Last Name: NA First Name: Lilonia International Development, LLC

Address: NA

City and State: NA

County: NA

Home Phone: NA Office Phone: NA



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

3. SENSITIVE POPULATION:

Daycare/Nursing Home/Hospital/School/Other (specify): N/A industrial

4. BUILDING CHARACTERISTICS:

Residential/Multi-family Residential/Office/Strip Mall/Commercial/Industrial/School

Describe Building: warehouse small office Year Constructed: ? UNKNOWN
portion

Number of floors at or above grade: 1

Number of floors below grade: 0 (full basement/crawl space/slab on grade)

Depth of structure below grade: 0 ft. Basement size: 0 ft²

If the property is residential, what type? (Circle all appropriate responses.)

Ranch	2-Family	3-Family	Raised Ranch	N/A
Split Level	Colonial	Cape Cod	Contemporary	
Mobile Home	Duplex	Apartment House	Townhouses/Condos	
Modular	Log Home	Other: _____		

If multiple units, how many? NA

If the property is commercial:

Business type(s) vacant

Does it include residences (i.e., multi-use)? Yes No If yes, how many? NA

5. OCCUPANCY:

Is basement/lowest level occupied? (Circle one)

Full-time Occasionally Seldom Almost Never CURRENTLY VACANT



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Level	General Use (e.g., family room, bedroom, laundry, workshop, storage)
Basement	N/A
1st Floor	warehouse office
2nd Floor	N/A
3rd Floor	N/A
4th Floor	N/A

(Use additional page(s) as necessary)

6. CONSTRUCTION CHARACTERISTICS: (Circle all that apply.)

a. Above Grade Construction: (Describe type: wood frame, concrete, stone, brick).

slab on-grade cinder block, interior wood frame / sheetrock

b. Basement Type: Full Crawlspace Slab ^{ON GRADE} Other: _____

c. Basement Floor: Concrete ^{SLAB} Dirt Stone Other: _____

d. Finished Basement Floor: Uncovered Covered N/A

If covered, what with? _____

e. Foundation Walls: Poured Block Stone Other: _____

f. Foundation Walls: Unsealed Sealed Sealed with: _____

g. The ^{slab} Basement is: Wet Damp Dry

h. The ^{slab} Basement is: Finished Unfinished Partially Finished warehouse

i. Sump Present (Y / N) If yes, how many? _____

Where Discharged? N/A

Water in Sump? Yes No Not Applicable



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Identify all potential soil vapor entry points and estimated size (e.g., cracks, utility parts, drains).

floor drains
pipe penetrating plumbing
cracks in the slab ground

Are the basement walls or floor sealed with waterproof paint or epoxy coatings? Yes No unknown

Type of ground cover outside of building: Grass Concrete Asphalt Other _____

Is an existing subsurface depressurization (radon) system in place? Yes No

If yes, is it active, or passive? NA

Is a sub-slab vapor/moisture barrier in place? Yes No unknown

Type of barrier: NA

7. HEATING, VENTING, and AIR CONDITIONING

Type of heating system(s) used in this building: (Circle all that apply: Note the primary).

- Hot Air Circulation
- Space Heaters
- Electric Baseboard
- Other: rooftop units (exchangers)
- Heat Pump
- Steam Radiation
- Wood Stove
- Hot Water Baseboard
- Radiant Floor
- Outdoor Wood Boiler

The primary type of fuel used is:

- Natural Gas
- Electric
- Wood
- Fuel Oil
- Propane
- Coal
- Kerosene
- Solar

Domestic hot water tank fueled by: electric

Location of Boiler/Furnace: Basement Outdoors Main Floor Other roof



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Air Conditioning: Central Air Window Units Open Windows None

Are air distribution ducts present? Yes No

Is there a whole house fan? Yes No

Describe the air intake system (outside air supply, cold air return, ductwork, etc.) and its condition where visible. Indicate the locations on the floor plan diagram.

AIR SUPPLY ON ROOF, HANGING UNITS IN WAREHOUSE,
DUCT WORK IN FRONT OFFICE, NOT VISIBLE.
PORTABLE AC UNIT IN WAREHOUSE OFFICE.

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

a) Is there an attached garage? Yes No

If yes, does it have a separate heating unit? Yes No

b) Are any petroleum-powered machines or vehicles stored in an attached garage (e.g., lawn mower, ATV, car) Yes No

c) Has the building ever had a fire? Yes No

d) Is there a fuel burning or unvented gas space heater? Yes No

e) Is there a workshop or hobby/craft area? Yes No

If yes, where and what type? NA

f) Is there smoking in the building? Yes No

If yes, how frequently? NA - VACANT.



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

- g) Have cleaning products been used recently? Yes No
If yes, when and what type? NA
- h) Have cosmetic products been used recently? Yes No
If yes, when and what type? NA
- i) Has there been painting or staining in the last six months? Yes No
If yes, when and where? NA
- j) Is there new carpet, drapes, or other textiles? Yes No
If yes, when and where? NA
- k) Have air fresheners been used recently? Yes No
If yes, when and what type? NA
- l) Is there a kitchen exhaust fan? Yes No
If yes, where is it vented? NA
- m) Is there a clothes dryer? Yes No
If yes, is it vented outside? Yes No N/A
- n) Has there been a pesticide application? Yes No
If yes, when and what type? NA
- o) Are there odors in the building? Yes No
If yes, please describe: NA



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

p) Do any of the building occupants use solvents at work (e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetology)?

Yes No N/A

If yes, what types of solvents are used? vacant

If yes, are their clothes washed at work?

Yes No N/A

q) Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response.)

No Unknown

vacant

Yes, use dry-cleaning regularly (weekly)

Yes, use dry-cleaning infrequently (monthly or less)

Yes, work at a dry-cleaning service

r) Is there a radon mitigation system for the building/structure?

Yes No

If yes, what is date of installation? N/A

Active Passive

s) Additional mitigation system information (fan size, location, operating status, liner installed, etc.):

NA

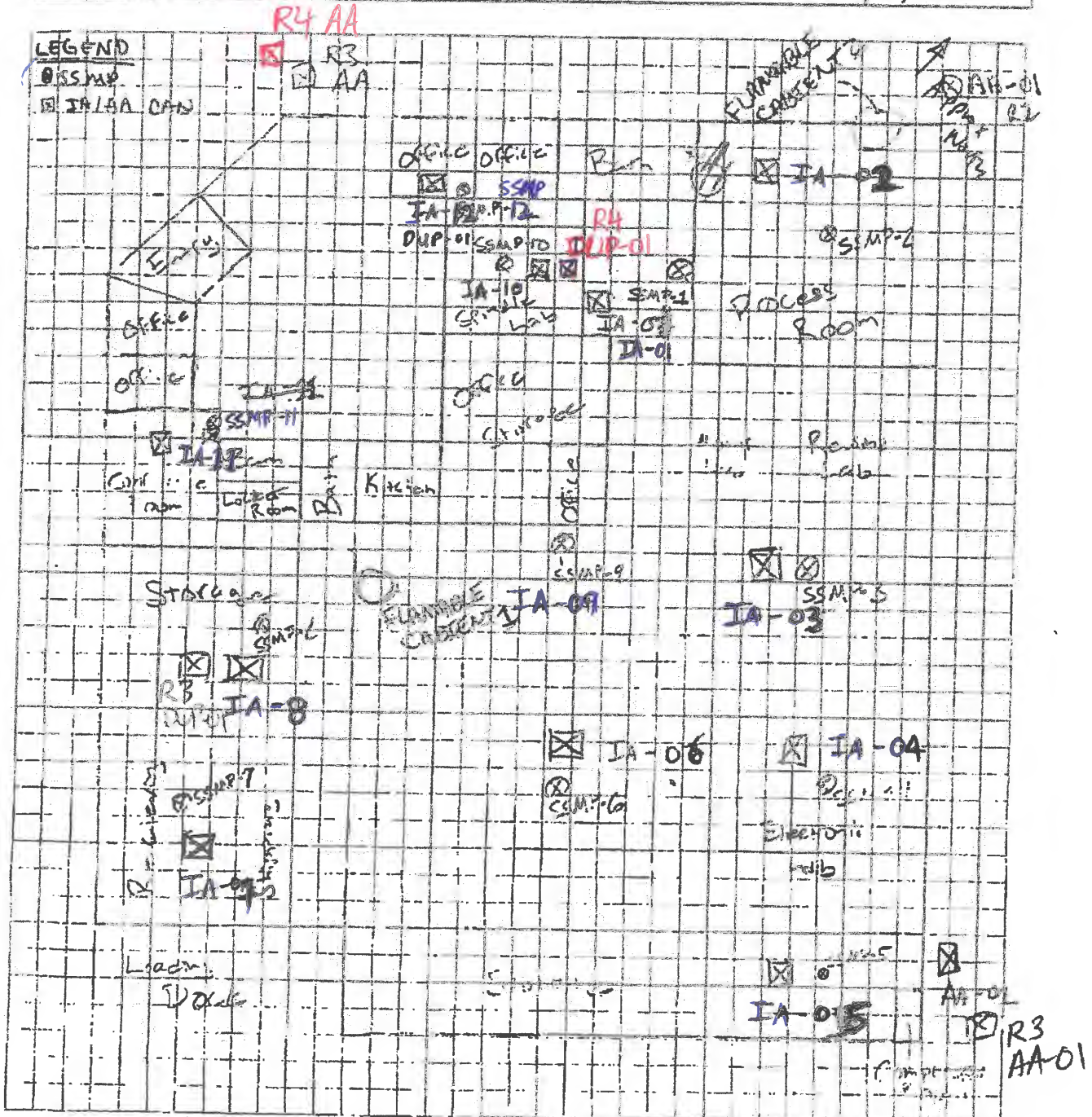
t) Is there an irrigation well, or any other well, present at the property:

Yes No

If yes, please describe placement, use, and history below.

NA

Subject: 2400 Belden Court		Sheet: 1 of 2	
Project No.: MIC01454.0003		Date: 11/13/2018	
Calculations By: EL	Date: 11/13/2018	Checked By: AR	Date: 11/13/2018



R3 VACANT PROPERTY. NO MACHINES / PRODUCTS / STORAGE.
 GENERAL MAP STRUCTURE REMAINS. NO RECENT CONSTRUCTION.
 R4: property still vacant, no changes since R3.

Office Name & Address (Reporting Information): Arcadis of Michigan, LLC 28550 Cabot Drive, Suite 500, Novi, MI 48377						Project Name: Ford LTP Off-site Sampling											
Field Manager: Adam Richmond						Project Number: 30050315.0301.01											
Phone Number: 248.994.2240			Special Instructions:			Site Address: 12400 BELDEN											
Email Address for Result Reporting: Kristoffer.Hinskey@arcadis.com			Report ONLY: 1,1-DCE, cis-1,2- DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting.			Sampler Name: Xenia Chan, Allyson Hartz											
Summa Canister Size (1L, 2.7 L, 6L) 6 Liter			Lab: Eurofins														

Sample ID	Sample Location Description	Indoor/ Outdoor	PID in Sampling Area (ppb)	Canister Number	Flow Controller Number	Sample Collection Start Date	Sample Collection Start Time	Beginning Canister Pressure (in. Hg)	Sample Collection End Date	Sample Collection End Time	Ending Canister Pressure (in. Hg)	HVAC System Information						Notes
												HVAC Fan On Start?	HVAC Fan On End?	Heat On Start?	Heat On End?	Temperature Setting (°F) Start	Temperature Setting (°F) End	
IAF-12400BELDEN-11_122220	South side front office	Indoor	177	6L0295	23322	12/22/2020	9:02	-29	12/22/2020	15:57	-8	Yes	yes	No	No	50	50	--
IAF-12400BELDEN-12_122220	North side front office	Indoor	161	6L0359	23255	12/22/2020	9:03	-29	12/22/2020	15:57	-8	Yes	yes	No	No	50	50	--
IAF-12400BELDEN-10_122220	Spindle lab	Indoor	157	6L1841	25259	12/22/2020	9:04	-29	12/22/2020	15:57	-8	Yes	yes	No	No	50	50	--
DUP-12400BELDEN-01_122220	Spindle lab	Indoor	173	6L2644	23201	12/22/2020	9:05	-29	12/22/2020	15:56	-8	Yes	yes	No	No	50	50	--
AA-12400BELDEN-01_122220	NW of building	Outdoor	0	6L2085	23385	12/22/2020	9:23	-29	12/22/2020	16:23	-8.5	--	--	--	--	--	--	--
IAF-12400BELDEN-01_122220	Next to spindle lab	Indoor	107	6L2049	24920	12/22/2020	9:08	-29	12/22/2020	16:06	-8	Yes	yes	No	No	50	50	--
IAF-12400BELDEN-02_122220	N side of warehouse	Indoor	116	6L2167	23247	12/22/2020	9:09	-29	12/22/2020	16:04	-8	Yes	yes	No	No	50	50	--
IAF-12400BELDEN-03_122220	NE side of warehouse	Indoor	124	6L2318	23378	12/22/2020	9:12	-29	12/22/2020	16:06	-7.5	Yes	yes	No	No	50	50	--
IAF-12400BELDEN-04_122220	South of northern side exit door	Indoor	129	6L2781	2028	12/22/2020	9:20	-29	12/22/2020	16:08	-8.5	Yes	yes	No	No	50	50	--
IAF-12400BELDEN-05_122220	North of electrical boxes	Indoor	145	6L2794	24011	12/22/2020	9:18	-29	12/22/2020	16:04	-7.5	Yes	yes	No	No	50	50	--
IAF-12400BELDEN-06_122220	North of bay doors	Indoor	137	6L0353	23832	12/22/2020	9:18	-29	12/22/2020	16:11	-7	Yes	yes	No	No	50	50	--
IAF-12400BELDEN-07_122220	In front of S side bay doors	Indoor	120	6L2390	23567	12/22/2020	9:14	-29	12/22/2020	16:13	-6.5	Yes	yes	No	No	50	50	--
IAF-12400BELDEN-08_122220	West side of warehouse	Indoor	161	6L1102	24298	12/22/2020	9:15	-29	12/22/2020	16:15	-8	Yes	yes	No	No	50	50	--
IAF-12400BELDEN-09_122220	South of warehouse office	Indoor	167	6L1697	23813	12/22/2020	9:11	-29	12/22/2020	16:17	-7.5	Yes	yes	No	No	50	50	--
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Meteorological Data							General Notes or Observations
Date	Time	Temp. (°F)		Relative Humidity (%)	Barometric Pressure (in. Hg)	Air Speed (mph)	Source of Weather Information
		Indoor	Outdoor				
12/22/2020	8:57	50	36	76	30.08	NW 8	weather.com app
12/22/2020	15:55	50	37	63	30.18	W 12	weather.com app
--	--	--	--	--	--	--	weather.com app
--	--	--	--	--	--	--	weather.com app

TRANSMITTAL LETTER



To:
Livonia International
Development, LLC
Shawn Collins
Brandon Alger (MDEQ)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:
November 30, 2018

Subject:

Vapor Intrusion Assessment
Data Package

Arcadis Project No.:

We are sending you hard copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Delivery Date	Drawing No.	Rev.	Description	Action*
1	12/03/2018			Figure	
1	12/03/2018			Analytical Results	
1	12/03/2018			Field Notes and Drawings	

Action*

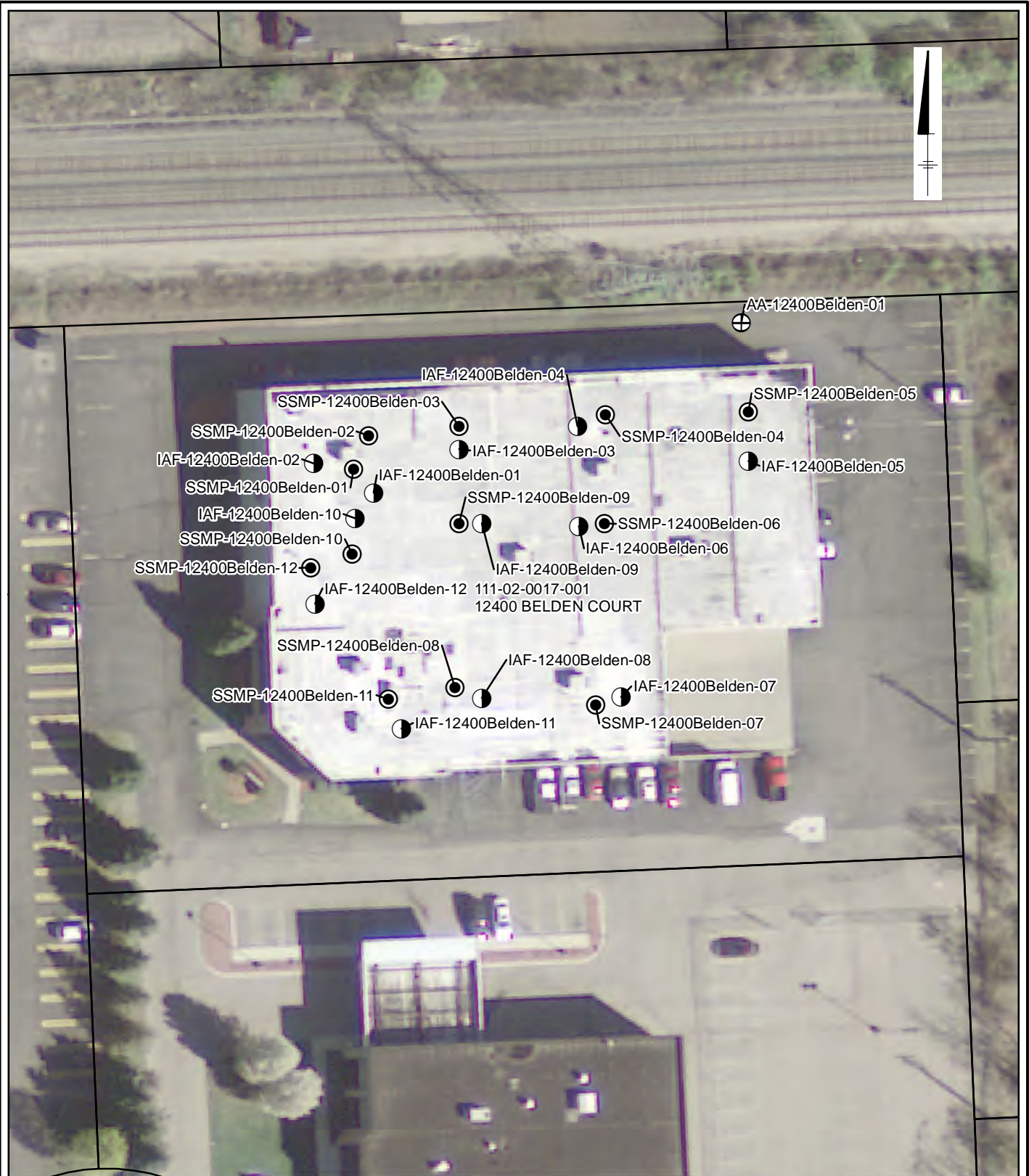
- A Approved CR Correct and Resubmit Resubmit _____ Copies
 AN Approved As Noted F File Return _____ Copies
 AS As Requested FA For Approval Review and Comment
 Other: _____

Mailing Method

- U.S. Postal Service 1st Class Courier/Hand Delivery FedEx Priority Overnight FedEx 2-Day Delivery
 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
 Other: email

Thank you for cooperating with the air sampling at your property on November 15, 2018. Attached is your data package.

CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: T. STEVENS TR: P. CURRY PROJECT NUMBER: M001373.0001.00003 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
 Z:\GIS\Projects\ENV\Novi\Brighton_M\Ford\Livonia\GIS\docs\2018-11\12400Belden_2018\1126.mxd PLOTTED: 11/28/2018 2:45:25 PM BY: msmliller



LEGEND:

- INDOOR AIR LOCATION
 - ⊕ AMBIENT AIR LOCATION
 - SUB-SLAB MONITORING POINT LOCATION
 - ▭ BUILDING
 - ▭ PROPERTY BOUNDARIES
- 0 25 50
SCALE IN FEET

FORD MOTOR COMPANY
 LIVONIA TRANSMISSION PLANT
 LIVONIA, MICHIGAN

AIR SAMPLING LOCATIONS



FIGURE 1

[REDACTED]

11/29/2018
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1811416

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 11/20/2018 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

[REDACTED]


Ausha Scott
Project Manager

WORK ORDER #: 1811416

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0003
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	11/20/2018	CONTACT:	Ausha Scott
DATE COMPLETED:	11/29/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	AA-12400Belden-01_111518	Modified TO-15	4.1 "Hg	5.1 psi
02A	IAF-12400Belden-01_111518	Modified TO-15	5.7 "Hg	5.1 psi
03A	IAF-12400Belden-02_111518	Modified TO-15	4.3 "Hg	5 psi
04A	IAF-12400Belden-03_111518	Modified TO-15	6.9 "Hg	4.9 psi
05A	IAF-12400Belden-04_111518	Modified TO-15	1.8 "Hg	5.1 psi
06A	IAF-12400Belden-05_111518	Modified TO-15	4.5 "Hg	5.1 psi
07A	IAF-12400Belden-06_111518	Modified TO-15	5.5 "Hg	5.1 psi
08A	IAF-12400Belden-07_111518	Modified TO-15	7.1 "Hg	5.2 psi
09A	IAF-12400Belden-08_111518	Modified TO-15	8.6 "Hg	5.1 psi
10A	IAF-12400Belden-09_111518	Modified TO-15	4.3 "Hg	5.3 psi
11A	IAF-12400Belden-10_111518	Modified TO-15	5.9 "Hg	4.9 psi
12A	IAF-12400Belden-11_111518	Modified TO-15	4.5 "Hg	4.9 psi
13A	IAF-12400Belden-12_111518	Modified TO-15	4.7 "Hg	5.1 psi
14A	DUP-01	Modified TO-15	5.9 "Hg	5.1 psi
15A	Lab Blank	Modified TO-15	NA	NA
16A	CCV	Modified TO-15	NA	NA
17A	LCS	Modified TO-15	NA	NA
17AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 11/29/18

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.
 180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 1811416

Fourteen 6 Liter Summa Canister (100% Certified) samples were received on November 20, 2018. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per project specific client request the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. All The canisters used for this project have been certified to the Reporting Limit for the target analytes included in this workorder. Concentrations that are below the level at which the canister was certified may be false positives.

Dilution was performed on samples IAF-12400Belden-01_111518, IAF-12400Belden-02_111518, IAF-12400Belden-03_111518, IAF-12400Belden-04_111518, IAF-12400Belden-05_111518, IAF-12400Belden-06_111518, IAF-12400Belden-09_111518, IAF-12400Belden-10_111518, IAF-12400Belden-11_111518, IAF-12400Belden-12_111518 and DUP-01 due to the presence of high level target species.

Dilution was performed on samples IAF-12400Belden-07_111518 and IAF-12400Belden-08_111518 due to the presence of high level non-target species.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.



E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	AA-12400Belden-01_111518	Date/Time Analyzed:	11/21/18 10:14 AM
Lab ID:	1811416-01A	Dilution Factor:	1.56
Date/Time Collected:	11/15/18 03:43 PM	Instrument/Filename:	msd20.i / 20112106
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.32	0.56	0.62	Not Detected
1,4-Dioxane	123-91-1	0.43	0.50	0.56	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.25	0.56	0.62	Not Detected
Tetrachloroethene	127-18-4	0.60	0.95	1.0	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.39	0.56	0.62	Not Detected
Trichloroethene	79-01-6	0.33	0.75	0.84	Not Detected
Vinyl Chloride	75-01-4	0.23	0.36	0.40	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	88
4-Bromofluorobenzene	460-00-4	70-130	110
Toluene-d8	2037-26-5	70-130	96

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	IAF-12400Belden-01_111518	Date/Time Analyzed:	11/21/18 11:19 AM
Lab ID:	1811416-02A	Dilution Factor:	3.32
Date/Time Collected:	11/15/18 03:49 PM	Instrument/Filename:	msd20.i / 20112107
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.69	1.2	1.3	Not Detected
1,4-Dioxane	123-91-1	0.91	1.1	1.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.54	1.2	1.3	Not Detected
Tetrachloroethene	127-18-4	1.3	2.0	2.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.84	1.2	1.3	230
Trichloroethene	79-01-6	0.70	1.6	1.8	340
Vinyl Chloride	75-01-4	0.49	0.76	0.85	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	85
4-Bromofluorobenzene	460-00-4	70-130	116
Toluene-d8	2037-26-5	70-130	95

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400Belden-02_111518	Date/Time Analyzed:	11/21/18 12:14 PM
Lab ID:	1811416-03A	Dilution Factor:	3.12
Date/Time Collected:	11/15/18 04:24 PM	Instrument/Filename:	msd20.i / 20112108
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.65	1.1	1.2	Not Detected
1,4-Dioxane	123-91-1	0.86	1.0	1.1	0.87 J
cis-1,2-Dichloroethene	156-59-2	0.50	1.1	1.2	Not Detected
Tetrachloroethene	127-18-4	1.2	1.9	2.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.78	1.1	1.2	200
Trichloroethene	79-01-6	0.66	1.5	1.7	290
Vinyl Chloride	75-01-4	0.46	0.72	0.80	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	79
4-Bromofluorobenzene	460-00-4	70-130	114
Toluene-d8	2037-26-5	70-130	96

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400Belden-03_111518	Date/Time Analyzed:	11/21/18 01:08 PM
Lab ID:	1811416-04A	Dilution Factor:	3.46
Date/Time Collected:	11/15/18 04:29 PM	Instrument/Filename:	msd20.i / 20112109
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.72	1.2	1.4	Not Detected
1,4-Dioxane	123-91-1	0.95	1.1	1.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.56	1.2	1.4	Not Detected
Tetrachloroethene	127-18-4	1.3	2.1	2.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.87	1.2	1.4	220
Trichloroethene	79-01-6	0.73	1.7	1.8	320
Vinyl Chloride	75-01-4	0.51	0.80	0.88	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	85
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	94

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400Belden-04_111518	Date/Time Analyzed:	11/21/18 01:47 PM
Lab ID:	1811416-05A	Dilution Factor:	2.86
Date/Time Collected:	11/15/18 04:32 PM	Instrument/Filename:	msd20.i / 20112110
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.60	1.0	1.1	Not Detected
1,4-Dioxane	123-91-1	0.79	0.93	1.0	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.46	1.0	1.1	Not Detected
Tetrachloroethene	127-18-4	1.1	1.7	1.9	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.72	1.0	1.1	230
Trichloroethene	79-01-6	0.60	1.4	1.5	340
Vinyl Chloride	75-01-4	0.42	0.66	0.73	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	83
4-Bromofluorobenzene	460-00-4	70-130	113
Toluene-d8	2037-26-5	70-130	95

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400Belden-05_111518	Date/Time Analyzed:	11/21/18 02:26 PM
Lab ID:	1811416-06A	Dilution Factor:	3.16
Date/Time Collected:	11/15/18 04:34 PM	Instrument/Filename:	msd20.i / 20112111
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.66	1.1	1.2	Not Detected
1,4-Dioxane	123-91-1	0.87	1.0	1.1	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.51	1.1	1.2	Not Detected
Tetrachloroethene	127-18-4	1.2	1.9	2.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.80	1.1	1.2	220
Trichloroethene	79-01-6	0.66	1.5	1.7	320
Vinyl Chloride	75-01-4	0.47	0.73	0.81	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	84
4-Bromofluorobenzene	460-00-4	70-130	108
Toluene-d8	2037-26-5	70-130	95

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400Belden-06_111518	Date/Time Analyzed:	11/21/18 03:05 PM
Lab ID:	1811416-07A	Dilution Factor:	3.30
Date/Time Collected:	11/15/18 04:31 PM	Instrument/Filename:	msd20.i / 20112112
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.69	1.2	1.3	Not Detected
1,4-Dioxane	123-91-1	0.91	1.1	1.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.53	1.2	1.3	Not Detected
Tetrachloroethene	127-18-4	1.3	2.0	2.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.83	1.2	1.3	220
Trichloroethene	79-01-6	0.69	1.6	1.8	310
Vinyl Chloride	75-01-4	0.49	0.76	0.84	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	84
4-Bromofluorobenzene	460-00-4	70-130	110
Toluene-d8	2037-26-5	70-130	93

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400Belden-07_111518	Date/Time Analyzed:	11/21/18 03:44 PM
Lab ID:	1811416-08A	Dilution Factor:	3.56
Date/Time Collected:	11/15/18 04:35 PM	Instrument/Filename:	msd20.i / 20112113
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.74	1.3	1.4	Not Detected
1,4-Dioxane	123-91-1	0.98	1.2	1.3	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.58	1.3	1.4	Not Detected
Tetrachloroethene	127-18-4	1.4	2.2	2.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.90	1.3	1.4	190
Trichloroethene	79-01-6	0.75	1.7	1.9	270
Vinyl Chloride	75-01-4	0.52	0.82	0.91	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	84
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	91

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400Belden-08_111518	Date/Time Analyzed:	11/21/18 04:23 PM
Lab ID:	1811416-09A	Dilution Factor:	3.76
Date/Time Collected:	11/15/18 04:35 PM	Instrument/Filename:	msd20.i / 20112114
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.78	1.3	1.5	Not Detected
1,4-Dioxane	123-91-1	1.0	1.2	1.4	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.61	1.3	1.5	Not Detected
Tetrachloroethene	127-18-4	1.4	2.3	2.6	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.95	1.3	1.5	210
Trichloroethene	79-01-6	0.79	1.8	2.0	290
Vinyl Chloride	75-01-4	0.56	0.86	0.96	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	84
4-Bromofluorobenzene	460-00-4	70-130	117
Toluene-d8	2037-26-5	70-130	90

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400Belden-09_111518	Date/Time Analyzed:	11/21/18 05:02 PM
Lab ID:	1811416-10A	Dilution Factor:	3.18
Date/Time Collected:	11/15/18 04:37 PM	Instrument/Filename:	msd20.i / 20112115
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.66	1.1	1.3	Not Detected
1,4-Dioxane	123-91-1	0.87	1.0	1.1	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.52	1.1	1.3	Not Detected
Tetrachloroethene	127-18-4	1.2	1.9	2.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.80	1.1	1.3	220
Trichloroethene	79-01-6	0.67	1.5	1.7	310
Vinyl Chloride	75-01-4	0.47	0.73	0.81	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	86
4-Bromofluorobenzene	460-00-4	70-130	110
Toluene-d8	2037-26-5	70-130	92

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400Belden-10_111518	Date/Time Analyzed:	11/21/18 05:41 PM
Lab ID:	1811416-11A	Dilution Factor:	3.32
Date/Time Collected:	11/15/18 03:57 PM	Instrument/Filename:	msd20.i / 20112116
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.69	1.2	1.3	Not Detected
1,4-Dioxane	123-91-1	0.91	1.1	1.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.54	1.2	1.3	Not Detected
Tetrachloroethene	127-18-4	1.3	2.0	2.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.84	1.2	1.3	240
Trichloroethene	79-01-6	0.70	1.6	1.8	320
Vinyl Chloride	75-01-4	0.49	0.76	0.85	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	89
4-Bromofluorobenzene	460-00-4	70-130	114
Toluene-d8	2037-26-5	70-130	94

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400Belden-11_111518	Date/Time Analyzed:	11/21/18 06:20 PM
Lab ID:	1811416-12A	Dilution Factor:	3.14
Date/Time Collected:	11/15/18 04:09 PM	Instrument/Filename:	msd20.i / 20112117
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.66	1.1	1.2	Not Detected
1,4-Dioxane	123-91-1	0.86	1.0	1.1	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.51	1.1	1.2	Not Detected
Tetrachloroethene	127-18-4	1.2	1.9	2.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.79	1.1	1.2	210
Trichloroethene	79-01-6	0.66	1.5	1.7	300
Vinyl Chloride	75-01-4	0.46	0.72	0.80	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	80
4-Bromofluorobenzene	460-00-4	70-130	112
Toluene-d8	2037-26-5	70-130	91

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400Belden-12_111518	Date/Time Analyzed:	11/21/18 07:28 PM
Lab ID:	1811416-13A	Dilution Factor:	3.20
Date/Time Collected:	11/15/18 04:15 PM	Instrument/Filename:	msd20.i / 20112118
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.67	1.1	1.3	Not Detected
1,4-Dioxane	123-91-1	0.88	1.0	1.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.52	1.1	1.3	Not Detected
Tetrachloroethene	127-18-4	1.2	2.0	2.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.80	1.1	1.3	230
Trichloroethene	79-01-6	0.67	1.5	1.7	330
Vinyl Chloride	75-01-4	0.47	0.74	0.82	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	88
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	93

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	DUP-01	Date/Time Analyzed:	11/21/18 08:08 PM
Lab ID:	1811416-14A	Dilution Factor:	3.36
Date/Time Collected:	11/15/18 04:15 PM	Instrument/Filename:	msd20.i / 20112119
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.70	1.2	1.3	Not Detected
1,4-Dioxane	123-91-1	0.92	1.1	1.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.54	1.2	1.3	Not Detected
Tetrachloroethene	127-18-4	1.3	2.0	2.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.85	1.2	1.3	230
Trichloroethene	79-01-6	0.70	1.6	1.8	320
Vinyl Chloride	75-01-4	0.50	0.77	0.86	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	81
4-Bromofluorobenzene	460-00-4	70-130	113
Toluene-d8	2037-26-5	70-130	92

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	11/21/18 08:33 AM
Lab ID:	1811416-15A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20112105
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.21	0.36	0.40	Not Detected
1,4-Dioxane	123-91-1	0.27	0.32	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.16	0.36	0.40	Not Detected
Tetrachloroethene	127-18-4	0.38	0.61	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.25	0.36	0.40	Not Detected
Trichloroethene	79-01-6	0.21	0.48	0.54	Not Detected
Vinyl Chloride	75-01-4	0.15	0.23	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	97

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	11/21/18 05:54 AM
Lab ID:	1811416-16A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20112102
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	82
1,4-Dioxane	123-91-1	92
cis-1,2-Dichloroethene	156-59-2	90
Tetrachloroethene	127-18-4	109
trans-1,2-Dichloroethene	156-60-5	93
Trichloroethene	79-01-6	106
Vinyl Chloride	75-01-4	79

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	83
4-Bromofluorobenzene	460-00-4	70-130	115
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	11/21/18 06:51 AM
Lab ID:	1811416-17A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20112103
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	80
1,4-Dioxane	123-91-1	93
cis-1,2-Dichloroethene	156-59-2	76
Tetrachloroethene	127-18-4	110
trans-1,2-Dichloroethene	156-60-5	97
Trichloroethene	79-01-6	109
Vinyl Chloride	75-01-4	80

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	76
4-Bromofluorobenzene	460-00-4	70-130	117
Toluene-d8	2037-26-5	70-130	102

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	11/21/18 07:30 AM
Lab ID:	1811416-17AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20112104
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	83
1,4-Dioxane	123-91-1	94
cis-1,2-Dichloroethene	156-59-2	78
Tetrachloroethene	127-18-4	108
trans-1,2-Dichloroethene	156-60-5	98
Trichloroethene	79-01-6	105
Vinyl Chloride	75-01-4	80

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	77
4-Bromofluorobenzene	460-00-4	70-130	113
Toluene-d8	2037-26-5	70-130	98

* % Recovery is calculated using unrounded analytical results.



November 29, 2018

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: MI001454.0002/3/4.00002/2B/3B
Client project scope reference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics - Folsom
Laboratory submittal: 1811416
Sample date: 2018-11-15
Report received by CADENA: 2018-11-29
Initial Data Verification completed by CADENA: 2018-11-29

14 Air samples were analyzed for TO-15 parameters.

There were no significant QC anomalies or exceptions to report.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Qualifiers added during verification have been added to the electronic data which is available for download from the CADENA CLMS. Refer to the attached table of analytical results that have been qualified during verification.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

[REDACTED]

11/29/2018
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1811417

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 11/20/2018 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

[REDACTED]


Ausha Scott
Project Manager

WORK ORDER #: 1811417

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0003
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	11/20/2018	CONTACT:	Ausha Scott
DATE COMPLETED:	11/29/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	DUP-02	TO-15	3.1 "Hg	15 psi
02A	SSMP-12400Belden-02_111518	TO-15	3.1 "Hg	15 psi
03A	SSMP-12400Belden-04_111518	TO-15	5.5 "Hg	15 psi
04A	SSMP-12400Belden-06_111518	TO-15	3.7 "Hg	15 psi
05A	SSMP-12400Belden-08_111518	TO-15	3.9 "Hg	15 psi
06A	SSMP-12400Belden-10_111518	TO-15	3.3 "Hg	15 psi
07A	SSMP-12400Belden-12_111518	TO-15	3.3 "Hg	15 psi
08A	SSMP-12400Belden-03_111518	TO-15	4.1 "Hg	15 psi
09A	SSMP-12400Belden-05_111518	TO-15	3.5 "Hg	15 psi
10A	SSMP-12400Belden-07_111518	TO-15	4.3 "Hg	15 psi
11A	SSMP-12400Belden-09_111518	TO-15	5.1 "Hg	15 psi
12A	SSMP-12400Belden-11_111518	TO-15	3.7 "Hg	15 psi
13A	SSMP-12400Belden-01_111518	TO-15	3.3 "Hg	15 psi
14A	Lab Blank	TO-15	NA	NA
15A	CCV	TO-15	NA	NA
16A	LCS	TO-15	NA	NA
16AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 11/29/18

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.
 180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1811417

Thirteen 1 Liter Summa Canister samples were received on November 20, 2018. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

The Chain of Custody (COC) was not relinquished properly. A signature, date and time were not provided by the field sampler.

The Chain of Custody (COC) information for sample SSMP_12400Belden-10_111518 did not match the information on the canister with regard to canister barcode. The sample labeled 40866 on the COC is labeled as 40865 on the canister. The client was notified of the discrepancy and the information on the canister was used to process and report the sample.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified (0.2 ppbv for compounds reported at 0.5 ppbv and 0.8 ppbv for compounds reported at 2.0 ppbv) may be false positives.

Dilution was performed on sample SSMP-12400Belden-11_111518 due to the presence of high level target species.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates



as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	DUP-02	Date/Time Analyzed:	11/26/18 03:27 PM
Lab ID:	1811417-01A	Dilution Factor:	2.25
Date/Time Collected:	11/15/20 10:28 AM	Instrument/Filename:	msd17.i / 17112607
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.0	3.6	4.5	Not Detected
1,4-Dioxane	123-91-1	3.6	12	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.71	3.6	4.5	Not Detected
Tetrachloroethene	127-18-4	1.1	6.1	7.6	25
trans-1,2-Dichloroethene	156-60-5	1.3	3.6	4.5	420
Trichloroethene	79-01-6	2.3	4.8	6.0	1100
Vinyl Chloride	75-01-4	0.69	2.3	2.9	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	109

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	SSMP-12400Belden-02_111518	Date/Time Analyzed:	11/26/18 03:56 PM
Lab ID:	1811417-02A	Dilution Factor:	2.25
Date/Time Collected:	11/15/20 11:13 AM	Instrument/Filename:	msd17.i / 17112608
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.0	3.6	4.5	Not Detected
1,4-Dioxane	123-91-1	3.6	12	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.71	3.6	4.5	Not Detected
Tetrachloroethene	127-18-4	1.1	6.1	7.6	9.5
trans-1,2-Dichloroethene	156-60-5	1.3	3.6	4.5	47
Trichloroethene	79-01-6	2.3	4.8	6.0	160
Vinyl Chloride	75-01-4	0.69	2.3	2.9	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	109

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400Belden-04_111518	Date/Time Analyzed:	11/26/18 04:24 PM
Lab ID:	1811417-03A	Dilution Factor:	2.47
Date/Time Collected:	11/15/20 11:53 AM	Instrument/Filename:	msd17.i / 17112609
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.2	3.9	4.9	Not Detected
1,4-Dioxane	123-91-1	3.9	13	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.78	3.9	4.9	Not Detected
Tetrachloroethene	127-18-4	1.2	6.7	8.4	2.7 J
trans-1,2-Dichloroethene	156-60-5	1.5	3.9	4.9	50
Trichloroethene	79-01-6	2.5	5.3	6.6	75
Vinyl Chloride	75-01-4	0.76	2.5	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	110

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400Belden-06_111518	Date/Time Analyzed:	11/26/18 04:52 PM
Lab ID:	1811417-04A	Dilution Factor:	2.30
Date/Time Collected:	11/15/20 12:27 PM	Instrument/Filename:	msd17.i / 17112610
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.0	3.6	4.6	Not Detected
1,4-Dioxane	123-91-1	3.6	12	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.73	3.6	4.6	Not Detected
Tetrachloroethene	127-18-4	1.1	6.2	7.8	20
trans-1,2-Dichloroethene	156-60-5	1.4	3.6	4.6	190
Trichloroethene	79-01-6	2.3	4.9	6.2	520
Vinyl Chloride	75-01-4	0.70	2.4	2.9	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	108

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400Belden-08_111518	Date/Time Analyzed:	11/26/18 05:21 PM
Lab ID:	1811417-05A	Dilution Factor:	2.32
Date/Time Collected:	11/15/20 12:53 PM	Instrument/Filename:	msd17.i / 17112611
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.0	3.7	4.6	Not Detected
1,4-Dioxane	123-91-1	3.7	12	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.74	3.7	4.6	Not Detected
Tetrachloroethene	127-18-4	1.1	6.3	7.9	20
trans-1,2-Dichloroethene	156-60-5	1.4	3.7	4.6	260
Trichloroethene	79-01-6	2.4	5.0	6.2	730
Vinyl Chloride	75-01-4	0.71	2.4	3.0	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	91
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	108

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400Belden-10_111518	Date/Time Analyzed:	11/26/18 05:49 PM
Lab ID:	1811417-06A	Dilution Factor:	2.27
Date/Time Collected:	11/15/20 01:29 PM	Instrument/Filename:	msd17.i / 17112612
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.0	3.6	4.5	Not Detected
1,4-Dioxane	123-91-1	3.6	12	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.72	3.6	4.5	1.8 J
Tetrachloroethene	127-18-4	1.1	6.2	7.7	27
trans-1,2-Dichloroethene	156-60-5	1.4	3.6	4.5	990
Trichloroethene	79-01-6	2.3	4.9	6.1	1700
Vinyl Chloride	75-01-4	0.70	2.3	2.9	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	91
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	107

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400Belden-12_111518	Date/Time Analyzed:	11/26/18 06:17 PM
Lab ID:	1811417-07A	Dilution Factor:	2.27
Date/Time Collected:	11/15/20 02:09 PM	Instrument/Filename:	msd17.i / 17112613
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.0	3.6	4.5	Not Detected
1,4-Dioxane	123-91-1	3.6	12	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.72	3.6	4.5	1.3 J
Tetrachloroethene	127-18-4	1.1	6.2	7.7	10
trans-1,2-Dichloroethene	156-60-5	1.4	3.6	4.5	890
Trichloroethene	79-01-6	2.3	4.9	6.1	1700
Vinyl Chloride	75-01-4	0.70	2.3	2.9	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	107

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400Belden-03_111518	Date/Time Analyzed:	11/26/18 06:46 PM
Lab ID:	1811417-08A	Dilution Factor:	2.34
Date/Time Collected:	11/15/20 11:17 AM	Instrument/Filename:	msd17.i / 17112614
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.0	3.7	4.6	Not Detected
1,4-Dioxane	123-91-1	3.7	13	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.74	3.7	4.6	0.75 J
Tetrachloroethene	127-18-4	1.1	6.3	7.9	9.6
trans-1,2-Dichloroethene	156-60-5	1.4	3.7	4.6	160
Trichloroethene	79-01-6	2.4	5.0	6.3	380
Vinyl Chloride	75-01-4	0.72	2.4	3.0	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	108

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400Belden-05_111518	Date/Time Analyzed:	11/26/18 07:14 PM
Lab ID:	1811417-09A	Dilution Factor:	2.29
Date/Time Collected:	11/15/20 11:54 AM	Instrument/Filename:	msd17.i / 17112615
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.0	3.6	4.5	Not Detected
1,4-Dioxane	123-91-1	3.6	12	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.73	3.6	4.5	0.96 J
Tetrachloroethene	127-18-4	1.1	6.2	7.8	1.3 J
trans-1,2-Dichloroethene	156-60-5	1.4	3.6	4.5	71
Trichloroethene	79-01-6	2.3	4.9	6.2	55
Vinyl Chloride	75-01-4	0.70	2.3	2.9	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	108

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400Belden-07_111518	Date/Time Analyzed:	11/26/18 10:38 PM
Lab ID:	1811417-10A	Dilution Factor:	2.36
Date/Time Collected:	11/15/20 12:23 PM	Instrument/Filename:	msd17.i / 17112617
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.0	3.7	4.7	Not Detected
1,4-Dioxane	123-91-1	3.7	13	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.75	3.7	4.7	Not Detected
Tetrachloroethene	127-18-4	1.1	6.4	8.0	8.8
trans-1,2-Dichloroethene	156-60-5	1.4	3.7	4.7	72
Trichloroethene	79-01-6	2.4	5.1	6.3	440
Vinyl Chloride	75-01-4	0.72	2.4	3.0	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	108

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400Belden-09_111518	Date/Time Analyzed:	11/26/18 11:06 PM
Lab ID:	1811417-11A	Dilution Factor:	2.43
Date/Time Collected:	11/15/20 12:56 PM	Instrument/Filename:	msd17.i / 17112618
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.1	3.8	4.8	3.3 J
1,4-Dioxane	123-91-1	3.8	13	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.77	3.8	4.8	52
Tetrachloroethene	127-18-4	1.2	6.6	8.2	1800
trans-1,2-Dichloroethene	156-60-5	1.4	3.8	4.8	850
Trichloroethene	79-01-6	2.5	5.2	6.5	2000
Vinyl Chloride	75-01-4	0.74	2.5	3.1	2.4 J

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	108

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400Belden-11_111518	Date/Time Analyzed:	11/26/18 07:40 PM
Lab ID:	1811417-12A	Dilution Factor:	7.68
Date/Time Collected:	11/15/20 01:29 PM	Instrument/Filename:	msd17.i / 17112616
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	6.7	12	15	Not Detected
1,4-Dioxane	123-91-1	12	42	55	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.4	12	15	3.1 J
Tetrachloroethene	127-18-4	3.6	21	26	9.8 J
trans-1,2-Dichloroethene	156-60-5	4.6	12	15	3600
Trichloroethene	79-01-6	7.8	16	21	3300
Vinyl Chloride	75-01-4	2.4	7.8	9.8	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	109

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400Belden-01_111518	Date/Time Analyzed:	11/26/18 11:34 PM
Lab ID:	1811417-13A	Dilution Factor:	2.27
Date/Time Collected:	11/15/18 10:28 AM	Instrument/Filename:	msd17.i / 17112619
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.0	3.6	4.5	Not Detected
1,4-Dioxane	123-91-1	3.6	12	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.72	3.6	4.5	Not Detected
Tetrachloroethene	127-18-4	1.1	6.2	7.7	26
trans-1,2-Dichloroethene	156-60-5	1.4	3.6	4.5	400
Trichloroethene	79-01-6	2.3	4.9	6.1	1200
Vinyl Chloride	75-01-4	0.70	2.3	2.9	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	89
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	108

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	11/26/18 01:12 PM
Lab ID:	1811417-14A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17112606c
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.87	1.6	2.0	Not Detected
1,4-Dioxane	123-91-1	1.6	5.4	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.32	1.6	2.0	Not Detected
Tetrachloroethene	127-18-4	0.47	2.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.59	1.6	2.0	Not Detected
Trichloroethene	79-01-6	1.0	2.1	2.7	Not Detected
Vinyl Chloride	75-01-4	0.31	1.0	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	109

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	CCV	Date/Time Analyzed:	11/26/18 10:57 AM
Lab ID:	1811417-15A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17112603
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	87
1,4-Dioxane	123-91-1	126
cis-1,2-Dichloroethene	156-59-2	100
Tetrachloroethene	127-18-4	106
trans-1,2-Dichloroethene	156-60-5	92
Trichloroethene	79-01-6	121
Vinyl Chloride	75-01-4	79

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	88
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	114

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	11/26/18 11:37 AM
Lab ID:	1811417-16A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17112604
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	82
1,4-Dioxane	123-91-1	123
cis-1,2-Dichloroethene	156-59-2	91
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	98
Trichloroethene	79-01-6	116
Vinyl Chloride	75-01-4	80

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	113

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	11/26/18 12:04 PM
Lab ID:	1811417-16AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17112605
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	84
1,4-Dioxane	123-91-1	118
cis-1,2-Dichloroethene	156-59-2	90
Tetrachloroethene	127-18-4	101
trans-1,2-Dichloroethene	156-60-5	96
Trichloroethene	79-01-6	112
Vinyl Chloride	75-01-4	78

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	110

* % Recovery is calculated using unrounded analytical results.



November 29, 2018

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: MI001454.0002/3/4.00002/2B/3B
Client project scope reference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics - Folsom
Laboratory submittal: 1811417
Sample date: 2018-11-15
Report received by CADENA: 2018-11-29
Initial Data Verification completed by CADENA: 2018-11-29

13 Air samples were analyzed for TO-15 parameters.

There were no significant QC anomalies or exceptions to report.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Qualifiers added during verification have been added to the electronic data which is available for download from the CADENA CLMS. Refer to the attached table of analytical results that have been qualified during verification.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

DAILY LOG

Camera 5907

Project No.: MI001454.0003

Page 1 of 2

Site Location: Livonia, MI 12400 Belden Cr

Prepared By: ARCADIS A. Reynolds

Date	Time	Description of Activities
11/13/18	630	Purpose: Commercial Visit & Install SAMP Site
	-	Arrived Eric Corbett Area
	-	Weather: High wind, 25°C
	700	Arrived on-site West of GPR's
	-	PRG vehicle arriving in warehouse
	-	Step outside. Power station will not shut back on
	-	Amit Back to Miller to get another PID
	-	Amit back on site
	-	New PID > 5000 pps in ambient air in
	-	warehouse
	810	Fibered on-site
	-	Call M. Vachon re High PID readings
	-	Instructions to take indoor air survey
	-	Request George from other team to
	-	by 11:00
	930	E. Corbett Mob to other commercial
	-	site to locate air in
	1000	E. Corbett back to 12400 Belden
	-	Conduct MDER questionnaire
	-	Chemical Inventory - Ambient air in warehouse
	-	is > 17,000 pps (Motor Lab, Electronic Lab)
	-	Identify several chemicals containing products
	-	located Place in unopened, remove for storage
	-	off site

DAILY LOG

Project No.: MI001454.0003

Page 2 of 2

Site Location: Livonia, MI 12120 Eastern Ct

Prepared By: EC, AR

Date	Time	Description of Activities
11/13/18	11:15	Swift (Senior Tech) Mailbox there is a
	-	can crushing operation to recycle used
	-	aerosol cans (some containing chlorinated)
	-	on site
	-	Request off can crushing operators stop
	-	until sampling is complete
	-	Also request that crates can down be
	-	stored outside until sampling is complete
	-	Identify 3 bins of Scrap Metal
	-	near storage room that holds Paints
	-	aerosol cans (including chlorinated containing)
	-	Request they be removed for sampling
	-	Staff Extremely helpful in identifying and
	-	removing chemicals
	-	Cleaner's schedules to come tonight
	-	Request no cleaning until sampling is complete
	-	Give list of chlorinated containing compounds
	-	to Andy. She will encourage email instructions
	-	staff to compile for removal
	12:15	Break for lunch
	1:15	Back on-site
	-	Begin installing SSMPs
	1:38	Complete installing SSMPs
	1:40	Check out of Bag

She Insured she sent an email to all staff to name the 5 chlorinated containing chemicals

DAILY LOG

Camera: 2532
 Photos: 102-0327
 ↓
 102-0402

Project No.: MI001454.0003

Page 1 of 1

Site Location: Livonia, MI 12400 Belden Ct

Prepared By: Duncan Mulholland | Amir Roghani

Date	Time	Description of Activities
11/15/18	—	Purpose: Canister deployment / SSMP Sampling
	—	Photos of location
	—	Arcadis: Amir Roghani, Duncan Mulholland
	—	Weather: 20°F, Cloudy
	0630	Met at site/trailer. Canister pack from trailer
	—	Trailer had no power
	0700	Met at Arrive at site - Notified Contact
	—	of intent or tasks for the day
	0700	
	↓	Identified locations of canister deployment
	0720	Canister dep (AM)
	0730	Canister deployment begins
	0840	Canister deployment ends
	0900	Duncan offsite to pick up sampling kits
	—	Photos of sampling locations begins
	0955	SSMP sampling begins (12 samples + Duplicate)
	1415	SSMP Sampling Ends Arcadis offsite
	1515	Arcadis onsite
	1540	Canister closure + pickup begins. Air parameter
	—	measurements collected int in between canister
	—	pickup in some locations.
	1640	Canister pickup completed - continued collection of
	—	air parameters and micromanometer readings. Requested additional
	1710	at time to the commercial complete readings + data sheets Arcadis offsite

Duncan Mulholland, 11/15/18

Utilities and Structures Checklist

THIS FORM MUST BE COMPLETED IN ENTIRETY PRIOR TO BEGINNING ANY INTRUSIVE WORK

Project: Ford LTP
 Project Number: MT 60454.003
 Form Completion Date: 11/13/2018 Form Expiration Date: 11/28/2018
(15 business days post form completion date)

Pre-Field Work

Required: One Call or "811" notified 48-72 hours in advance of work? # B83101452
 Ticket Expiration Date 11/28/2018 (Review State Requirements)

Utility companies notified during the One Call process See attached ticket
AT+T Electric City of Lincoln

List any other utilities requiring notification: None

Private Locator Contacted Yes No

Plan private utility clearance subcontractor assignments, areas, required clearance equipment, depth of clearance needed, types of utilities. When possible re-clear 811 markings to confirm utility locations.

Client provided utility maps or "as built" drawings showing utilities? Yes No

Field Work - This must be completed on site, by staff who have a minimum of one year of field experience in identifying utilities. Review Check list with PM or designee prior to beginning intrusive work.

List Soil Boring / Well IDs or Excavation Locations applicable to this clearance checklist:

SSM
Soil Boring SB-12400 Belden Ct - 111318

3 Reliable Lines of Evidence Required Prior to Starting any Subsurface Intrusive Work

- One Call/"811" (Reliable as a line of evidence when working in public right of way or easement)
 Utility Markings Present: Paint Pin flags/stakes Other None
- Client Provided Maps/Drawings **OR** Maps/Drawings requested but not provided
- Client Clearance Name(s)/Affiliation(s) _____
- Interview(s): Name(s)/Affiliation(s) _____

Did person(s) interviewed indicate depths of any utilities in the subsurface?
 Yes, depths provided: _____ Did not know or refused to answer
 Additional Comments: _____

- Site Inspection (Complete Page 2 & Photo Document Marked Utilities & Utility Structures)
- Public Records / Maps / Asbuilts
- Private Locator: (Name and Company) Erin Soro GPRS
- Ground Penetrating Radar (GPR)
- Radiofrequency (RFLoc)
- Electromagnetic (EM)
- Metal Detector

- Tips for Successful Utility Location:**
1. Don't forget to look up
 2. Be on site with Private Utility Locators
 3. Ask Private Locators to "confirm" other's markings
 4. Select alternate/backup locations during clearance process
 5. Mark out all known utilities. Leave nothing to question
 6. No hammering - no pickaxes - no digging bars - no shortcutting
 7. No excessive turning or downward force of hand augers/shovels
 8. Utilities may run in or directly under asphalt/concrete

Soft Dig Methods

- Termination Depth _____ ft. bgs
- Potholing / Vacuum Extraction
- Air-Knife Hydro-Knife
- Probing
- Hand Auguring

Other: _____
 Marine Locator: (Name and Company) _____



Utilities and Structures Checklist

During the site inspection look for the following: ("YES" requires additional investigation and the utility must be marked properly prior to beginning subsurface intrusive work):

Site Inspection	Utility Color Codes		Present	
a) Natural gas line present (evidence of a gas meter)?	Yellow	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
i) Feeder Lines to buildings or homes?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
b) Evidence of electric lines:	Red			
i) Conduits to ground from electric meter or along wall?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
iii) Conduits from power poles running into ground?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
ii) Light poles, electric devices with no overhead lines?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
iii) Overhead electric lines present? (See Section I)		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
c) Evidence of sewer drains:	Green			
i) Restrooms or kitchen on site?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
ii) Sewer cleanouts present?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
iii) Combined sewer /storm lines or multiple sewer lines?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
d) Evidence of water lines:	Blue			
i) Water meter on site or multiple water lines?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
ii) Fire hydrants in vicinity of work?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
iii) Irrigation systems? (Sprinkler heads, valve boxes, controls in building)		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
e) Evidence of storm drains:	Green			
i) Open curbside or slotted grate storm drains		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
ii) Gutter down spouts going into ground		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
f) Evidence of telecommunication lines:	Orange			
i) Fiber optic warning signs in areas?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
iv) Aboveground cable boxes or housings or wires in work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
g) Underground storage tanks:				
i) Tank pit present, tank vent present?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
ii) Product lines running to dispensers/buildings?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
h) Do utilities enter or exit existing structures/buildings?				
If Yes, confirm the utility markings outside of structure/building match up.		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
i) Proposed excavation marked in white?	White	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
j) Unclassed utilities / anomalies marked in pink?	Pink	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
k) Overhead Utilities/Communication Lines - Look Up:				
i) Overhead electrical conduit, pipe chases, cable trays, product lines?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
ii) Overhead fire sprinkler system?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
l) Overhead Power lines in or near the work area:				
i) < 50 kV within 10 ft. of work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
ii) >50 - 200 kV within 15 ft. of work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
iii) >200-350 kV within 20 ft. of work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
iv) >350-500 kV within 25 ft. of work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
v) >500-750 kV within 35 ft. or work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
vi) >750-1000 kV within 45 ft. of work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
m) Other:				
i) Evidence of linear asphalt or concrete repair?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
ii) Evidence of linear ground subsidence or change in vegetation?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
iii) Unmarked manholes or valve covers in work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
iv) Warning signs ("Call Before you Dig", etc.) on or adjacent to site?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
v) Utility color markings not illustrated in this checklist?	i.e. Purple	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
n) Has the Utilities & Structures Checklist been reviewed by the PM or Designee		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
PM or Designee Name: <u>Kris Hinson</u>				

Name and Signature of person completing the checklist:

Date: 11/12/2018

Do not perform mechanized intrusive work within 30 inches of a utility marking without receiving pre-approval by Corporate H&S.

Project Name: Ford LTP Date Started: 11/13/19 Logger: A. DeGrandis
Project Number: MD01454.0003 Date Completed: 11/13/19 Editor:
Project Location: Livonia, MI Weather Conditions: Clear, 30's

Depth (feet)	Sample ID & Time	Recovery (in.)	PID (ppm)	USCS Class.	Description
1		90"	NA		(0-1.0) TOPSOIL. Grass
2			NA		(1.0-2.0) SAND, f-m, SR-SA; trace to little silt; trace clay; poor sort; moist; yellowish brn.
3			NA		NOTE RECS.
4					
5			NA		(2.0-8.0) SAND, f-m, SR-SA; trace silt; well sort; moist; yellowish brn.
6					
7					NOTE: color change to light brn @ 3.5' bgs.
8					NOTE: color change to brownish gray @ 7' bgs.
9					NOTE: wet at 8.0' bgs.
10					LOB at 8.0' bgs.
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Drilling Co.: Editech
Driller: Kater Chase
Drilling Method: HA
Drilling Fluid: NA
Remarks: NA
Sampling Method: HA
Sampling Interval: Continuous
Water Level Start: 8.0' bgs
Water Level Finish: NA
Converted to Well: Yes No
Surface Elev: NA
North Coor: NA
East Coor: NA



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM

Date: 1/13/2014 Survey Performed by: E. Carney

1. OCCUPANT:

Rent: Own:

Resident Name: Advanced Technology Services

Address: 12400 Bellan Court

Telephone: Home: NA Work: 737-523-8806

How long have you ^{rented} lived at this location? 16 years

List current occupants/occupation below (attach additional pages if necessary):

Age (If under 18)	Sex (M/F)	Occupation
NA		

2. OWNER OR LANDLORD: (If same as occupant, check here and go to Item No. 3).

Last Name: International Development Company First Name: Daryl Royal

Address: 23179 Telegraph Rd

City and State: Southfield 48035

County: Unknown

Home Phone: NA Office Phone: 248-353-4800



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

3. SENSITIVE POPULATION:

Daycare/Nursing Home/Hospital/School/Other (specify): NA (Industrial)

4. BUILDING CHARACTERISTICS:

Residential/Multi-family Residential/Office/Strip Mall/Commercial/Industrial/School
 Describe Building: Primarily warehouse small office section Year Constructed: ?
 Number of floors at or above grade: 1
 Number of floors below grade: 0 (full basement/crawl space/slab on grade)
 Depth of structure below grade: 0 ft. Basement size: 0 ft²

If the property is residential, what type? (Circle all appropriate responses.) NA

- | | | | |
|-------------|----------|-----------------|-------------------|
| Ranch | 2-Family | 3-Family | Raised Ranch |
| Split Level | Colonial | Cape Cod | Contemporary |
| Mobile Home | Duplex | Apartment House | Townhouses/Condos |
| Modular | Log Home | Other: _____ | |

If multiple units, how many? _____

If the property is commercial:

Business type(s) Repair Industrial Equipment
 Does it include residences (i.e., multi-use)? Yes No If yes, how many? _____

5. OCCUPANCY:

Is basement/lowest level occupied? (Circle one) 1 shift 6am-4:30pm
 Full-time Occasionally Seldom Almost Never



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Level	General Use (e.g., family room, bedroom, laundry, workshop, storage)
Basement	NA
1 st Floor	Warehouse, Office
2 nd Floor	NA
3 rd Floor	NA
4 th Floor	NA

(Use additional page(s) as necessary)

6. CONSTRUCTION CHARACTERISTICS: (Circle all that apply.)

a. Above Grade Construction: (Describe type: wood frame, concrete, stone, brick).

Slab-on-Grass, Cinder Block, Interior Wood Frame/Sheetrock

b. Basement Type: Full CrawlSpace Slab Other: _____

c. Basement Floor: Concrete Dirt Stone Other: _____

d. Finished Basement Floor: Uncovered Covered NA

If covered, what with? _____

e. Foundation Walls: Poured Block Stone Other: _____

f. Foundation Walls: Unsealed Sealed Sealed with: _____

g. The ^{Slab}Basement is: Wet Damp Dry

h. The ^{Slab}Basement is: Finished Unfinished Partially Finished Warehouse

i. Sump Present (Y N) If yes, how many? _____

Where Discharged? _____

Water in Sump? Yes No Not Applicable



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Identify all potential soil vapor entry points and estimated size (e.g., cracks, utility parts, drains).

Floor Drains (ties to municipal sewer) - Do smell when they drain

Pipe Penetrations, Plumbing

Are the basement walls or floor sealed with waterproof paint or epoxy coatings? Yes No Unknown

Type of ground cover outside of building: Grass Concrete Asphalt Other _____

Is an existing subsurface depressurization (radon) system in place? Yes No

If yes, is it active, or passive?

Is a sub-slab vapor/moisture barrier in place? Yes No Unknown

Type of barrier: _____

7. HEATING, VENTING, and AIR CONDITIONING

Type of heating system(s) used in this building: (Circle all that apply: Note the primary).

- Hot Air Circulation
- Space Heaters
- Electric Baseboard
- Other: Roofing Units (Exhaust)
- Heat Pump
- Steam Radiation
- Wood Stove
- Hot Water Baseboard
- Radiant Floor
- Outdoor Wood Boiler

The primary type of fuel used is:

- Natural Gas
- Electric
- Wood
- Fuel Oil
- Propane
- Coal
- Kerosene
- Solar

Domestic hot water tank fueled by: Electric

Location of Boiler/Furnace: Basement Outdoors Main Floor Other Roof



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Air Conditioning: Central Air Window Units Open Windows None

Are air distribution ducts present?

Yes No

oversized ceiling fans present

Is there a whole house fan?

Yes No

- larger Exhaust fan in project room

Describe the air intake system (outside air supply, cold air return, ductwork, etc.) and its condition where visible. Indicate the locations on the floor plan diagram.

Ar Supply on roof

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

a) Is there an attached garage?

Yes No

van present near loading dock

If yes, does it have a separate heating unit?

Yes No

b) Are any petroleum-powered machines or vehicles stored in an attached garage (e.g., lawn mower, ATV, car)

Yes No

c) Has the building ever had a fire?

Yes No

d) Is there a fuel burning or unvented gas space heater?

Yes No

small individual space heaters (electric)

e) Is there a workshop or hobby/craft area?

Yes No

If yes, where and what type? _____

f) Is there smoking in the building?

Yes No

If yes, how frequently? _____



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

- g) Have cleaning products been used recently? Yes No
If yes, when and what type? Solvents, Vinegar, household chemicals
- h) Have cosmetic products been used recently? Yes No
If yes, when and what type? Face Powder
- i) Has there been painting or staining in the last six months? Yes No
If yes, when and where? Building - No, Painting in part of operation
- j) Is there new carpet, drapes, or other textiles? Yes No
If yes, when and where? Carpet replaced 3 years ago
- k) Have air fresheners been used recently? Yes No
If yes, when and what type? _____
- l) Is there a kitchen exhaust fan? Yes No
If yes, where is it vented? large exhaust fan in press room
- m) Is there a clothes dryer? Yes No
If yes, is it vented outside? Yes No
- n) Has there been a pesticide application? Yes No
If yes, when and what type? Service by Olen, last visit 3-4
years ago
- o) Are there odors in the building? Yes No
If yes, please describe: Sweet, waxy



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

p) Do any of the building occupants use solvents at work (e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetology)?

Yes No

If yes, what types of solvents are used? Paints, water, detergents,
(see chemical inventory)

If yes, are their clothes washed at work?

Yes No

q) Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response.)

- No
- Unknown
- Yes, use dry-cleaning regularly (weekly)
- Yes, use dry-cleaning infrequently (monthly or less)
- Yes, work at a dry-cleaning service

- Uniforms sewers
uniforms
- Assume to be regular laundry

r) Is there a radon mitigation system for the building/structure?

Yes No

If yes, what is date of installation? N/A

Active Passive

s) Additional mitigation system information (fan size, location, operating status, liner installed, etc.):

Over-sized ceiling fans
Have exhaust fan in process RDR

t) Is there an irrigation well, or any other well, present at the property?

Yes No

If yes, please describe placement, use, and history below.

Product Inventory Form

i.e. gasoline cans/equipment, kerosene, paints/thinners/strippers, cleaning solvents, hobby supplies (glues), oven cleaner, carpet/upholstery cleaners, household cleaners, moth balls, polishes/waxes, insecticides, furniture/floor polish, hairspray, cologne/perfume, air fresheners, interior fuel tank, wood stove/fireplace, new furniture/upholstery, new carpet/flooring

Location	Product Description	Chemical Ingredients	Quantity	PID Reading (ppb)	Photo	Removed (Y/N)
Between Electric Lab/Shipping	Solventless Polyester Resin	Flammable Vapors	1	5750	✓	N
Shipping	Polyether Poly Resin	Polyether Polymer	1	5715	✓	N
Shipping	Polymeric Isoctane	Polymeric Isoctane	1	5720	✓	N
Shipping	Disinfection Wipes	1,4-Dimethylbenzyl ammonium chloride	1	5850	✓	N
Shipping	Tylenol	n-Alkyl dimethyl benzylammonium	10	5750	✓	N
Shipping	Waste Battery	LiKOH	3	5830	✓	N
Storage	Storage Tank	Polyether Poly Resin	8	5850	✓	N
Storage	Storage Tank	Used O.L	4	7350	✓	N
Storage	VACTRAD LINDA	Way of L	5	5780	✓	N
Storage	WayLUBE 300	WayLube Lubricant Wax	1	5950	✓	N
Storage	Solvent Box	VIRGIN Solvent	1	5810	✓	N
Storage	Rando HDZ	Rando HDZ	5	10300	✓	N
Storage	DOLPHON Ce-100	Solventless Polyester Resin	1	5830	✓	N
Storage	Wire Phishing Lubr	Wax Lubricant	1	8950	✓	N
Storage	Thread Cutting Oil	Cutting Oil	1	9220	✓	N
Storage	Grease	Polyamide LEITE	1	7300	✓	N
Shipping	Cleaner	Cleaning solutions	1	7650	✓	N
Shipping	Washer	Cleaning solutions	1	7420	✓	N
Shipping	AEROSOLCAN	1,2-trans dichloro ethylene	13	14000	✓	N
Flaming Lab	Plenty 16	PTFE 100020	2	131000	✓	N
Motor Lab	Wax Film Protect	Solvent	1	16000	✓	N
Motor Lab	Heavy Duty Lub	Lubricant	1	161000	✓	N
Motor Lab	MAPAPA Heat Transfer	Heating Gas	1	14000	✓	N
Motor Lab	Sealant	ROS, n and methyl Acetate	1	131000	✓	N
Motor Lab	Lub Sealant	Sealing Material	2	107000	✓	N
Motor Lab	Gas Duster	1,1,1-trifluoroethane	1	13,000	✓	N
Electronic Lab	Adhesive/sealant	Butyl nate, Hyd. methyl base	2	12400	✓	N
Electronic Lab	potting compound	Silicone resins	1	13,000	✓	N
Electronic Lab	Perchloroethylene	Perchloroethylene	1	14,490	✓	N
Electronic Lab	Lubricant	Lubricant F.F.O.L-2000+2500	2	14000	✓	N
Electronic Lab	Multi Purpose Oil	Petroleum	1	141000	✓	N
Electronic Lab	Kitchen Silan	VOC 23% Wt/Wt C30910	2	14000	✓	N
Electronic Lab	Pipe Joint Compound	Lubricant	2	14000	✓	N
Electronic Lab	Part Cleaners	Xylene, ethylbenzene	1	14750	✓	N
Electronic Lab	Solvent Detergent	Trichloroethylene	1	14370	✓	N
Electronic Lab	Ink Remover	Cumene, Ethylene Glycol	1	14,450	✓	N
Electronic Lab	Anti-Rust Oil	Petroleum	1	14730	✓	N
Electronic Lab	Sheetrock Adhesive	Lithium	1	14,000	✓	N
Electronic Lab	Hydraulic Oil	Oil	3	135000	✓	N
Electronic Lab	Hydraulic Oil	Oil	7	13750	✓	N
Process Room	Oil Adsorbent	oil adsorbent	3	10,700	✓	N
Process Room	Lubricant	ROS, n, ROS, n Acid	1	10,750	✓	N
Process Room	Layout Fluid	ethanol, butyl acetate	1	10910	✓	N
Process Room	Water Soluble Oil	naphthalates, chlorinated paraffin	1	10900	✓	N
Process Room	Disinfection Cleaner	dimethyl benzyl ammonium chloride	1	10900	✓	N
Spindle Lab	Maintenance Clean	1,2-trans dichloro ethylene	1	33,000	✓	N
Spindle Lab	Bearing Grease	Food grade	1	25,400	✓	N
Electron Lab	Flux Remover	1,1-difluoroethane	13	14,000	✓	N

Receiving

Shipping

Electronic

Electronic

Electronic

Electronic

Electronic

Process Room

Process Room

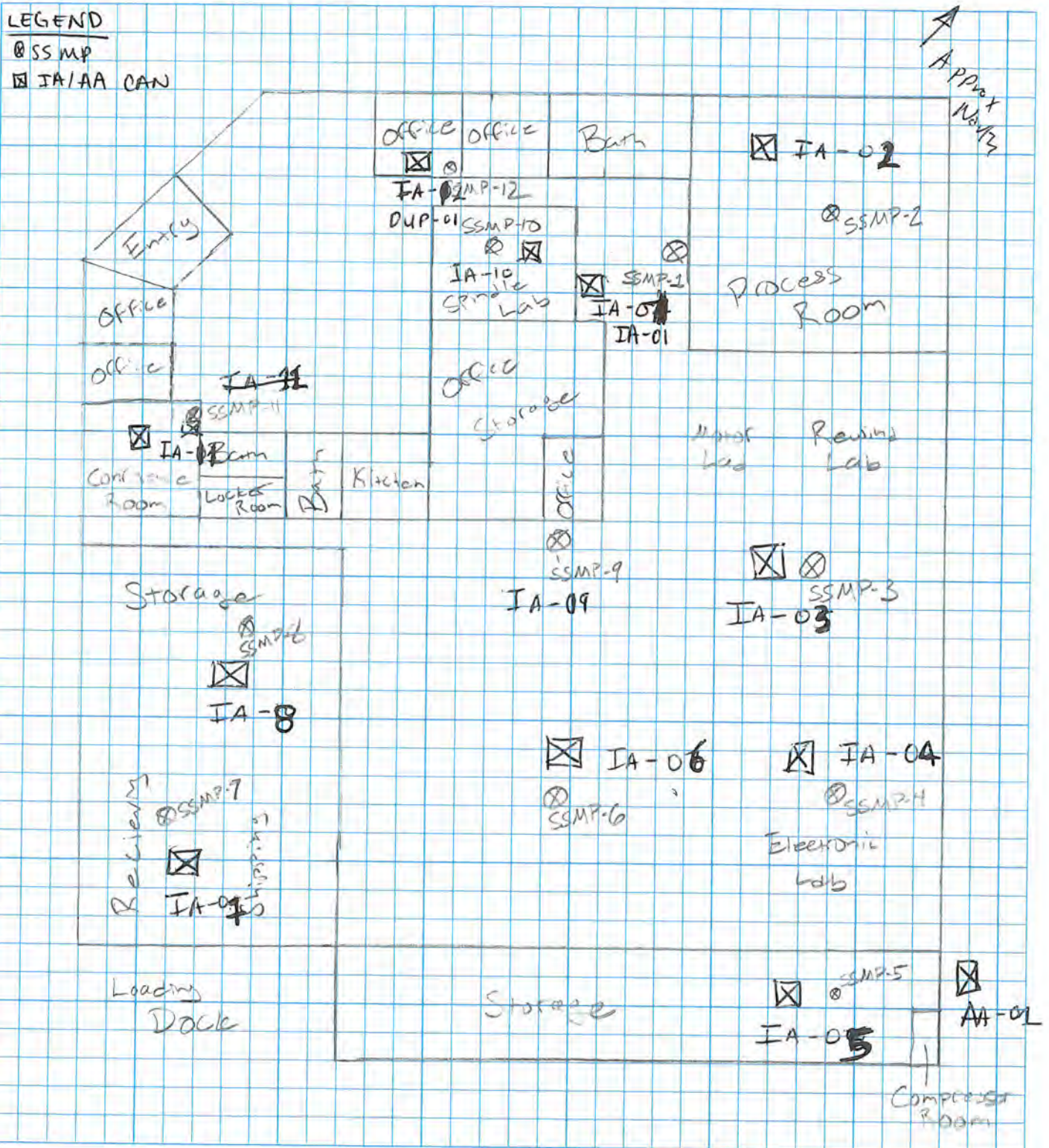
Process Room

Spindle Lab

Electron Lab

+ Motor Lab
VAL

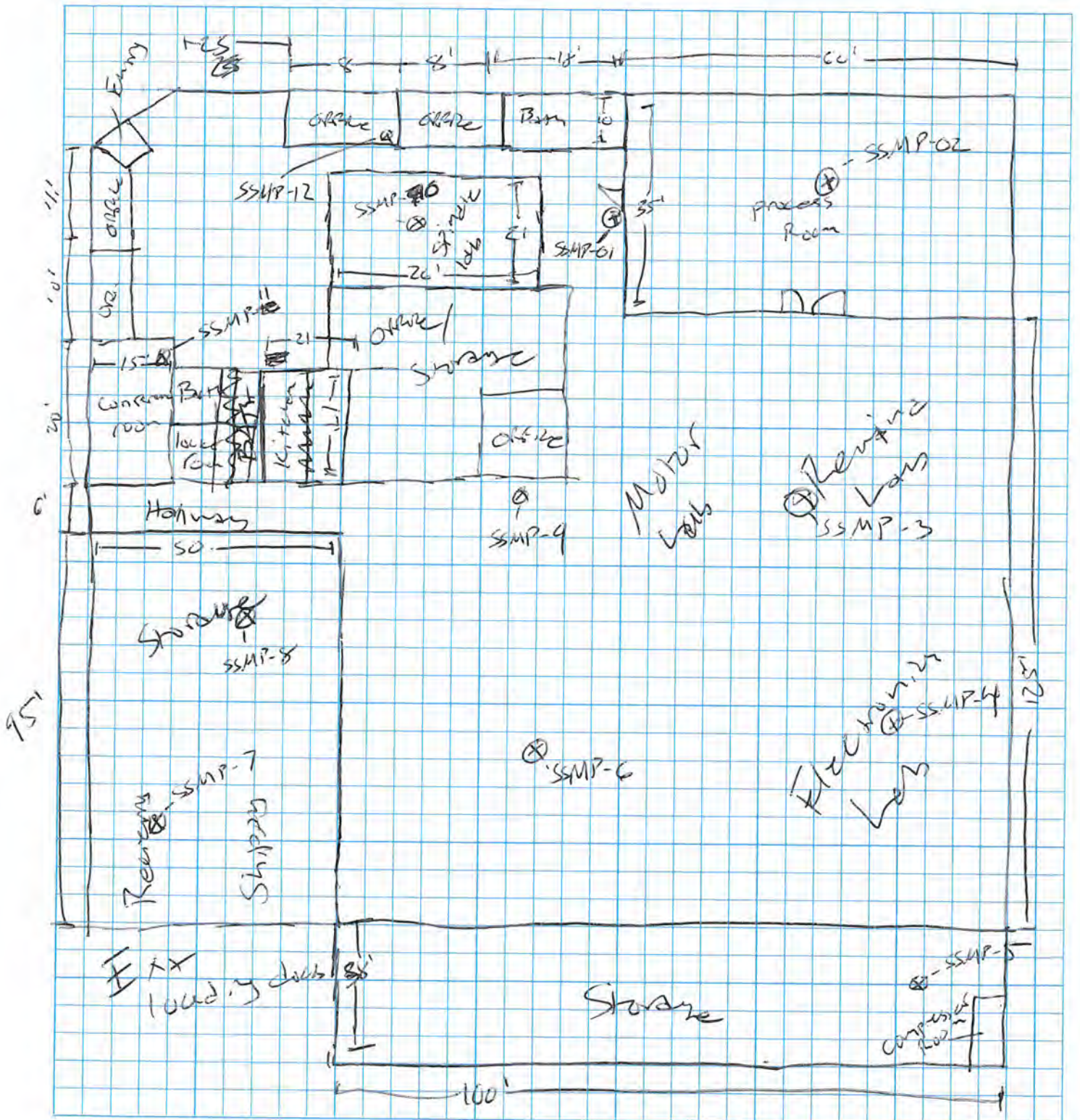
Subject: 2400 Belden Court		Sheet 1 of 2	
Project No. M1001454.0003			
Calculations By: EC	Date: 11/13/2018	Checked By: AR	Date: 11/13/2018



HS
31
22

Liberaca

Subject			
Project No.		Sheet 2 of 2	
Calculations By	Date	Checked By	Date



Real Time Exposure Monitoring Data Collection Form

Document all air monitoring conducted on the Site below. Keep this form with the project file.

Site Name: 12900 Belton Court Date: 11/13/2012
 Instrument: PPBRe Model: PPBRe 5000 Serial #: R20421

Calibration Method: (Material used settings, etc.)	<u>Isobutylene</u>
Calibration Results:	<u>Pass</u>
Calibrated By:	<u>EC</u>

Activity Being Monitored	Compounds/Hazards Monitored	Time	Reading	Action Required? Y/N
SSMP-1	VOCs	1330	10.02 ppm	N
SSMP-2	VOCs	1340	9.0 ppm	N
SSMP-3	VOCs	1355	9.5 ppm	N
SSMP-4	VOCs	1405	9.1 ppm	N
SSMP-5	VOCs	1420	9.2 ppm	N
SSMP-6	VOCs	1430	8.7 ppm	N
SSMP-7	VOCs	1440	8.2 ppm	N
SSMP-8	VOCs	1752	8.2 ppm	N

Describe Any Actions Taken as a Result of this Air Monitoring and Why (does it match Table 5-1):

NA

SSMP-9	VOCs	1500	8.3 ppm	N
SSMP-10	VOCs	1510	7.9 ppm	N
SSMP-11	VOCs	1523	6.6 ppm	N
SSMP-12	VOCs	1533	6.3 ppm	N

Office Name & Address (Reporting Information) 28550 Cabot Drive Suite 500 Novi, MI 48377		Project Name Ford	
Field Manager Adam Richmond		Project Number MI001454.0003	
Phone (248) 994-2240	Fax _____	Address: 12400 Belden ct	
Special Instructions _____		Sampler Name, Phone Number, Email Amir R. Bhowhani / Doreen Nishank	
Email Address for Result Reporting Kristoffer.Hinskey@arcadis.com		Summa Canister Size (1L, 2.7 L, 6L) 6L	
Lab EUROFINS			

Sample ID	Sample Location Description	Indoor/Outdoor	PID in sampling area (ppm)	Date	Canister Number	Flow Controller Number	Sample Collection Start Time	Beginning Canister Pressure (in. Hg)	Sample Collection End Time	Ending Canister Pressure (in. Hg)	Heating, Ventilation, and Air Conditioning System Information				Notes
											HVAC Fan On?	Heat On?	Temperature Setting (°F) (start/end)	Flow Rate (cfm) (start/end)	
AA-12400 Belden-01-111518	North East of Building	outdoor	0	11/5/18	6L025	23119	7:32	-28.5	1543	-5	NA	NA	30°		
IAF-12400 Belden-01-111518	West of Building next to Process room	IA	860 ppb		6L1559	23719	7:46	-30.0	1549	-5	Y	Y	70°		
IAF-12400 Belden-02-111518	in Process room	IA	1072 ppb		6L0687	23315	7:57	-30.0	1624	-5	Y	Y	70°		
IAF-12400 Belden-03-111518	NE - Central location of building (next to SSMP-03)	IA	866 ppb		6L0507	-*	0800	-29	1629	-6	Y	Y	70°		
IAF-12400 Belden-04-111518	East of Commercial bldg (close to SSMP-04)	IA	912 ppb		6L1676	24290	0809	-28.5	1632	-2	Y	Y	70°/70°		Aerosols + WD-40 at sample location
IAF-12400 Belden-05-111518	SE of Commercial bldg (Storage rm)	IA	917 ppb		6L1705	23422	0813	-29	1634 1631	-6 -5	Y	Y			
IAF-12400 Belden-06-111518	Central location of Comm. bldg (Next to SSMP-06)	IA	912 ppb		6L0367	23282	0817	-29	1631	-5					Hydraulic oil at sample location
IAF-12400 Belden-07-111518	Receiving + Shipping Room SW of Comm bldg (next to SSMP-07)	IA	798 ppb		6L1568	23187	0823	-29.5	1635 1632	-9 -5					
IAF-12400 Belden-08-111518	Receiving + Shipping Room SW of bld (next to SSMP-08)	IA	889 ppb		6L1788	24344	0826	-28.5	1635	-9					
IAF-12400 Belden-09-111518	Central location of Comm bldg (next to SSMP-09)	IA	916 ppb		6L1232	23418	0830	-30	1637	-6					

Meteorological Data						General Notes or Observations	
Date	Time	Temp. (°F)		% Humidity	Barometric Pressure (in.)	Air Speed (mph)	
		Indoor	Outdoor				
11/5/18	0700	70	30	80	30.24	7 mph	EWE

* Flow Control No. unavailable

Office Name & Address (Reporting Information) 28550 Cabot Drive Suite 500 Novi, MI 48377			Project Name Ford		
Field Manager Adam Richmond			Project Number MI001454.0003		
Phone (248) 994-2240		Fax	Address: 12400 Belden Ct		
Email Address for Result Reporting Kristoffer.Hinskey@arcadis.com		Special Instructions	Sampler Name, Phone Number, Email Amir Rhoqhani / Anesa Muchoki		
Summa Canister Size (1L, 2.7 L, 6L) 6L		Lab EURCFMS			

Sample ID	Sample Location Description	Indoor/Outdoor	PID in sampling area (ppm)	Date	Canister Number	Flow Controller Number	Sample Collection Start Time	Beginning Canister Pressure (in. Hg)	Sample Collection End Time	Ending Canister Pressure (in. Hg)	Heating, Ventilation, and Air Conditioning System Information				Notes
											HVAC Fan On?	Heat On?	Temperature Setting (°F) (start/end)	Flow Rate (cfm) (start/end)	
IAF-12400 Belden-10-111518	Spindle lab (next to SSMP-10) - Northwest of bldg	IA	1020ppb	11/15/18	6L0556	23623	0834	-29	15:57	-5	Y	Y	73/73		
IAF-12400 Belden-11-111518	Conference room (next to SSMP-11) - Northwest of bldg	IA	755ppb		6L0337	23404	0840	-29	1609	-5	Y	Y	70/70		
IAF-12400 Belden-12-111518	Office - NW of bldg (Next to SSMP-02)	IA	820ppb		6L0950	23764	0847	-30	1615	-5	Y	Y	70/70	Duplicate collected w/ this sample	
DUP-01	—	IA	820ppb		6L1780	23222	0847	-29	1615	-6.5	Y	Y	70/70		

Meteorological Data							General Notes or Observations	
Date	Time	Temp. (°F)		% Humidity	Barometric Pressure (in.)	Air Speed (mph)		
		Indoor	Outdoor					
11/15/18	0700	70	30	80	30.24	7 mph	ENE	DUP-01 collected w/ IAF-12

Office Name & Address (Reporting Information) 28550 Cabot Drive Suite 500 Novi, MI 48377			Project Name Ford																
Field Manager Adam Richmond			Project Number MI001454.0003																
Phone (248) 994-2240			Address 12400 Belden CT																
Email Address for Result Reporting Kristoffer.Hinskey@arcadis.com			Sampler Name, Phone Number, Email D Muchoki																
Helium Detector Used MGD -2002			Helium Leak Test Method Bucket/Shroud							Summa Canister Size (1L, 2.7L, 6L) 1L			Lab Eurofins						
Sample ID	Sample Location Description	Date	Leak/Tracer Test										Canister No.	Flow Controller Number	Sample Collection Start Time	Starting Canister Pressure (in Hg)	Sample Collection End Time	Ending Canister Pressure (in Hg)	Notes
			Shut In Test Pass/Fail?	Pre-sample Purge Reading (ppm)	Shroud Helium Concentration (%)	Post-Sample Purge Reading (ppm)	Helium Test Pass/Fail?	Purge Volume (mL)	Purge Rate (mL/min)	Helium Test Pass/Fail?	Purge Volume (mL)	Purge Rate (mL/min)							
SSMP-12400Belden-01-111518	NE of bldg next to process room	11/15/18	Pass	0	34%	NA	Pass	200	120	1L2911	23501	1015	-30	1028	-5	Dup collected here			
Dup-02	11		Pass	0	34%	NA	Pass	200	120	1L3024	23313	1015	-30	1028	-5				
SSMP-12400Belden-02-111518	in Process Room		Pass	0	33%	NA	Pass	150	120	1L2474	23699	1058	-28	1113	-5				
SSMP-12400Belden-04-111518	East of Building Electronics Lab		Pass	0	42%	NA	Pass	150	120	1L1647	23336	1141	-28.5	1153	-5				
SSMP-12400Belden-06-111518	next to shipping Electronics Lab		Pass	0	32.9%	NA	Pass	150	120	1L2991	24264	1212	-30	1227	-5				
SSMP-12400Belden-08-111518	Shipping		Pass	0	32.4%	NA	Pass	150	120	30000 3027	23167	1238	-29.5	1253	-5				
SSMP-12400Belden-10-111518	Spindle Lab		Pass	0	32.9%	NA	Pass	150	120	40865	23267	1315	-30	1329	-5				
SSMP-12400Belden-12-111518	Office NW of building		Pass	0	32.2%	NA	Pass	150	120	1L1698	24266	1354	-30	1409	-5				

Meteorological Data		General Notes or Observations			
Date	Time	Temp. (°F)		% Humidity	Barometric Pressure (in.)
		Indoor	Outdoor		
11/15/18	0700	70	30	80	30.24

Air Parameters (completed after sample collection)			Mm reading (in H ₂ O)
Location ID	CO2%	O2 %	
SSMP-01	1.7%	19%	0.00205
SSMP-02	3.0%	17.7%	-0.00902
SSMP-03	3.9%	18.1%	0.00033
SSMP-04	7.6%	18.2%	-0.00209
SSMP-05	7.9%	17.2%	0.00036
SSMP-06	2.7%	19%	0.0034
SSMP-07	8.5%	19.2%	0.00533
SSMP-08	1.9%	19.5%	0.00343
SSMP-09	1.4%	19.2%	0.00825
SSMP-10	1.2%	19.5%	0.0300
SSMP-11	0.4%	20.2%	0.0200
SSMP-12	1.3%	19.8%	0.0769

Office Name & Address (Reporting Information) 28550 Cabot Drive Suite 500 Novi, MI 48377		Project Name Ford	
Field Manager Adam Richmond		Project Number MI001454.0003.	
Phone (248) 994-2240		Address 12400 Belden Ct	
Fax		Sampler Name, Phone Number, Email Dustin MacHoney, 765 454 0003	
Email Address for Result Reporting Kristoffer.Hinskey@arcadis.com		Summa Canister Size (1L, 2.7L, 6L) 1L	
Helium Detector Used Multi-gas detector MGD-2002		Lab Eurofins	
Helium Leak Test Method Bucket/Shroud			

Sample ID	Sample Location Description	Date	Leak/Tracer Test							Canister No.	Flow Controller Number	Sample Collection Start Time	Starting Canister Pressure (in Hg)	Sample Collection End Time	Ending Canister Pressure (in Hg)	Notes
			Shut In Test Pass/Fail?	Pre-sample Purge Reading (ppm)	Shroud Helium Concentration (%)	Post-Sample Purge Reading (ppm)	Helium Test Pass/Fail?	Purge Volume (mL)	Purge Rate (mL/min)							
SSMP-12400Belden-03-111518	East of bldg - Rewind Lab	11/15/18	Pass	0	30.7%	NA	Pass	150	120	1L3898	23423	1104	-29.5	1117	-5	
SSMP-12400Belden-03-111518	SE of bldg - storage	11/15/18	Pass	0	30.8%	NA	Pass	150	120	1L2373	23624	1141	-30	1154	-5	
SSMP-12400Belden-04-111518	South of bldg - Receiving + Shipping		Pass	0	30.6%	NA	Pass	150	120	1L2647	24343	1211	-29.5	1223	-5	
SSMP-12400Belden-04-111518	Central location of bldg - next to storage + office		Pass	0	31.3%	NA	Pass	150	120	1L2988	23595	1243	-26	1256	-5	
SSMP-12400Belden-11-111518	Conference room - NW of building		Pass	0	30%	NA	Run	150	120	1L3886	23148	1316	-29.5	1329	-5	
[Large handwritten scribbles across the table rows]																

Meteorological Data						General Notes or Observations
Date	Time	Temp. (°F)		% Humidity	Barometric Pressure (in.)	
		Indoor	Outdoor			
11/15/18	0700	70	30	80	30.24	Dup collected @ SSMP-01

Air Parameters (completed after sample collection)		
Location ID	CO2%	O2 %

see page 1

Air Toxics

For Laboratory Use Only

180 Blue Ravine Rd. Suite B, Folsom, CA 95630

Phone (800) 985-5955; Fax (916) 351-8279

PID: _____

Workorder #: _____

Click links below to view:

[Canister Sampling Guide](#)

[Helium Shroud Video](#)

Client: Ford PID: 09L HSE 2000
 Project Name: Ford LTP
 Project Manager: Kris Hinskey P.O.# MI001454.0003
 Sampler: Diana M. Ruffin
 Site Name: 12700 Blue Ravine Rd.

Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting

Turnaround Time (Rush surcharges may apply)
 3 day

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Lab Use Only		Requested Analyses
				Date	Time	Date	Time			Receipt	Final (psig) Gas: N ₂ / He	
	AA-1240 Side - 11-15-18	6L1025	23119	11/15/18	7:32	11/15/18	15:42	-28.5	-5			
	IAF-1240 Side - 11-15-18	6L1519	23719		7:46		15:44	-28.0	-5			
	IAF-1240 Side - 11-15-18	6L0887	23318		7:57		16:24	-30.0	-5			
	IAF-1240 Side - 11-15-18	6L0537	*		8:00		16:27	-28.5	-5			
	IAF-1240 Side - 11-15-18	6L1676	24230		8:37		16:37	-28.5	-2			
	IAF-1240 Side - 11-15-18	6L1725	23422		8:15		16:54	-27	-6			
	IAF-1240 Side - 11-15-18	6L1508	23222		8:17		16:31	-27	-5			
	IAF-1240 Side - 11-15-18	6L1502	23229		8:23		16:36	-28.5	-5			
	IAF-1240 Side - 11-15-18	6L1725	23544		8:26		16:35	-28.5	-5			
	IAF-1240 Side - 11-15-18	6L1232	23418		8:30		16:37	-28	-6			
	IAF-1240 Side - 11-15-18	6L0536	23023		8:34		16:57	-27	-5			
	IAF-1240 Side - 11-15-18	6L0537	23424		8:40		16:59	-27	-5			
	IAF-1240 Side - 11-15-18	6L1150	23704		8:47		16:15	-28.2	-5			
	DUP-01	6L1720	23222		8:47		16:16	-27	-5			
	IAF-1240 Side - 11-15-18	6L1150	23704		8:47		16:22	-27	-5			

Relinquished by: (Signature/Affiliation) <i>Sofia Torralba / Arcadia</i>	Date: 11/16/18	Time: 1300	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Lab Use Only

Shipper Name: _____ Custody Seals Intact? Yes No None

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T Hotline (800) 467-4922

For Laboratory Use Only

180 Blue Ravine Rd. Suite B, Folsom, CA 95630

Phone (800) 985-5955; Fax (916) 351-9279

PID: _____

Workorder #: _____

Click links below to view:

[Canister Sampling Guide](#)

[Helium Shroud Video](#)

Client: Ford PID: 0018AE2000
 Project Name: Ford LTP
 Project Manager: Kris Hinskey P.O.# MI001454.0003
 Sampler: Diana M. Johnson, Amir Aguiar
 Site Name: 12400 Belden

Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting

Turnaround Time (Rush surcharges may apply)

5 day

Canister Vacuum/Pressure Requested Analyses

Lab Use Only

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N ₂ / He	Requested Analyses
				Date	Time	Date	Time					
	Dup - 02	1L3023	23515	11/20/08	1:15	11/20/08	10:20	-30	-5			
	SSMP-12400Belden-11-2-08	1L2474	23599		10:50		11:13	-28	-5			
	SSMP-12400Belden-14-11-08	1L1697	23370		11:41		11:50	-28.5	-5			
	SSMP-12400Belden-15-11-08	1L2391	24264		12:12		12:27	-30	-5			
	SSMP-12400Belden-16-11-08	0200-3029	23107		12:32		12:33	-29.5	-5			
	SSMP-12400Belden-19-11-08	40806	23287		13:15		13:21	-30	-5			
	SSMP-12400Belden-12-11-08	1L1608	24265		13:41		14:08	-30	-5			
	SSMP-12400Belden-20-11-08	1L3878	23423		13:41		14:17	-29.5	-5			
	SSMP-12400Belden-23-11-08	1L2873	23624		11:41		11:54	-30	-5			
	SSMP-12400Belden-27-11-08	1L2647	24843		12:11		12:23	-29.5	-5			
	SSMP-12400Belden-28-11-08	1L2988	23505		12:43		12:56	-28	-5			
	SSMP-12400Belden-11-11-08	1L3885	23148		13:16		13:29	-29.5	-5			

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Lab Use Only

Shipper Name:	Custody Seals Intact?	Yes	No	None

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T Hotline (800) 467-4922

TRANSMITTAL LETTER



To:
Livonia International Development, LLC
Shawn Collins
Brandon Alger (MDEQ)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:
May 27, 2019

Subject:
Vapor Intrusion Assessment Data
Package

Arcadis Project No.:

We are sending you hard copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Delivery Date	Drawing No.	Rev.	Description	Action*
1	5/29/19			Figure	
1	5/29/19			Analytical Results	
1	5/29/19			Field Notes and Drawings	

Action*

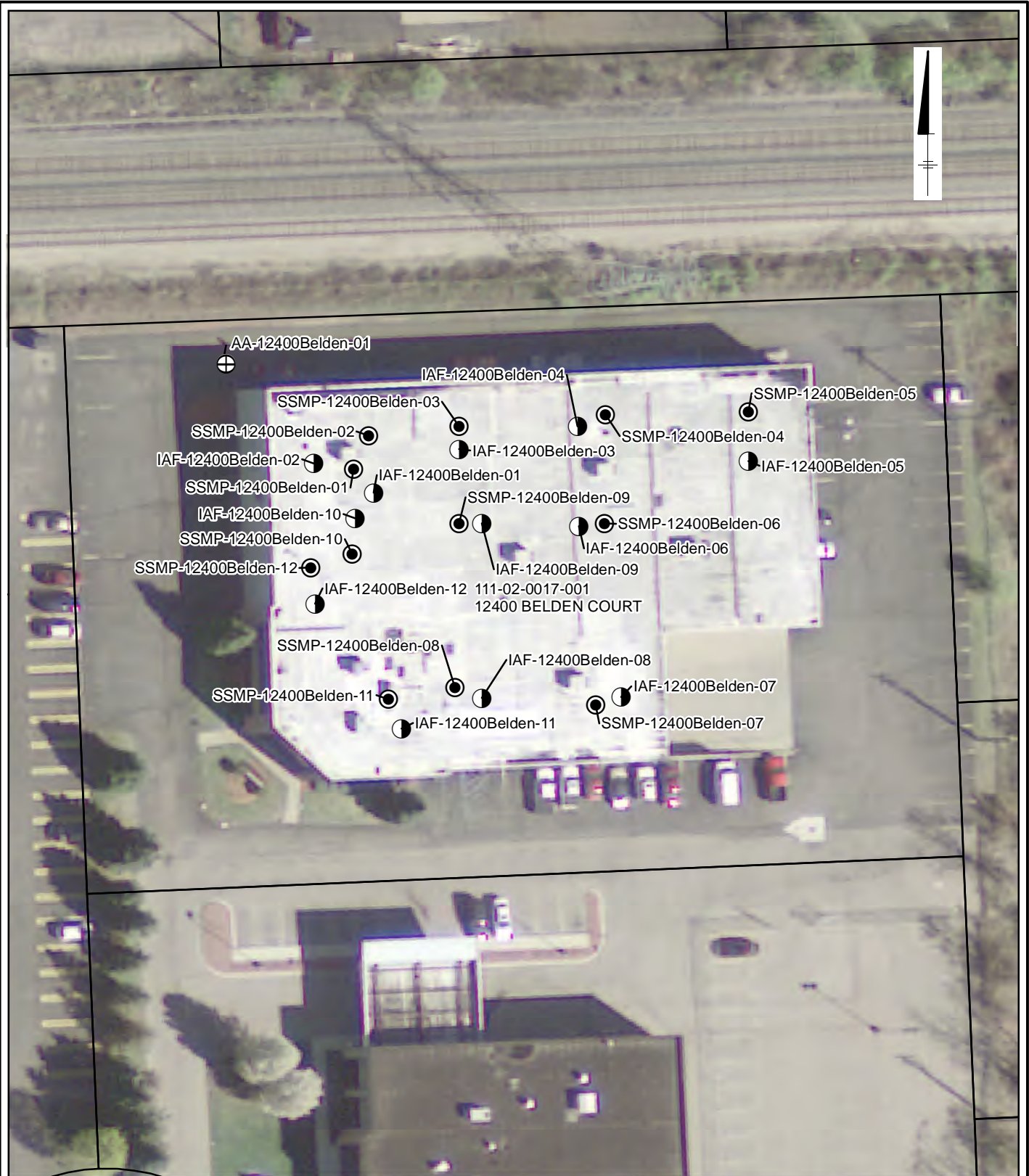
- A Approved CR Correct and Resubmit Resubmit _____ Copies
 AN Approved As Noted F File Return _____ Copies
 AS As Requested FA For Approval Review and Comment
 Other: _____

Mailing Method

- U.S. Postal Service 1st Class Courier/Hand Delivery FedEx Priority Overnight FedEx 2-Day Delivery
 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
 Other: email

Thank you for cooperating with the air sampling at your property on April 9, 2019. Attached is your data package.

CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: T. STEVENS TR: P. CURRY PROJECT NUMBER: M001373.0001.00003 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
 Z:\GIS\Projects_ENV\Novi\Brighton_MI\Ford\Livonia\GIS\docs\2018-11\12400Belden_20181126.mxd PLOTTED: 11/28/2018 2:45:25 PM BY: msmliller



LEGEND:

- INDOOR AIR LOCATION
 - ⊕ AMBIENT AIR LOCATION
 - SUB-SLAB MONITORING POINT LOCATION
 - ▭ BUILDING
 - ▭ PROPERTY BOUNDARIES
- 0 25 50
SCALE IN FEET

FORD MOTOR COMPANY
 LIVONIA TRANSMISSION PLANT
 LIVONIA, MICHIGAN

AIR SAMPLING LOCATIONS



FIGURE 1

4/19/2019
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #: MI001454.0003
Workorder #: 1904294

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 4/12/2019 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1904294

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0004.0001B
FAX:		PROJECT #	MI001454.0003 Ford LTP
DATE RECEIVED:	04/12/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	04/19/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	AA-12400BELDEN-01_040919	Modified TO-15	6.3 "Hg	4.9 psi
02A	IAF-12400BELDEN-01_040919	Modified TO-15	8 "Hg	4.6 psi
03A	IAF-12400BELDEN-02_040919	Modified TO-15	9.2 "Hg	4.8 psi
04A	IAF-12400BELDEN-03_040919	Modified TO-15	8.4 "Hg	5 psi
05A	IAF-12400BELDEN-04_040919	Modified TO-15	8.4 "Hg	5.1 psi
06A	IAF-12400BELDEN05_040919	Modified TO-15	9 "Hg	5.3 psi
07A	IAF-12400BELDEN-06_040919	Modified TO-15	7.8 "Hg	5.6 psi
08A	IAF-12400BELDEN-07_040919	Modified TO-15	7.6 "Hg	5.3 psi
09A	IAF-12400BELDEN-08_040919	Modified TO-15	6.7 "Hg	5.3 psi
10A	IAF-12400BELDEN-09_040919	Modified TO-15	7.6 "Hg	5 psi
11A	IAF-12400BELDEN-10_040919	Modified TO-15	7.1 "Hg	5.1 psi
12A	IAF-12400BELDEN-11_040919	Modified TO-15	7.1 "Hg	4.5 psi
13A	IAF-12400BELDEN-12_040919	Modified TO-15	7.3 "Hg	5.3 psi
14A	DUP-12400BELDEN01_040919	Modified TO-15	9.2 "Hg	4.9 psi
15A	Lab Blank	Modified TO-15	NA	NA
15B	Lab Blank	Modified TO-15	NA	NA
15C	Lab Blank	Modified TO-15	NA	NA
16A	CCV	Modified TO-15	NA	NA
16B	CCV	Modified TO-15	NA	NA
16C	CCV	Modified TO-15	NA	NA
17A	LCS	Modified TO-15	NA	NA
17AA	LCS	Modified TO-15	NA	NA
17B	LCS	Modified TO-15	NA	NA


Continued on next page

WORK ORDER #: 1904294

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0004.0001B
FAX:		PROJECT #	MI001454.0003 Ford LTP
DATE RECEIVED:	04/12/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	04/19/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
17BB	LCSD	Modified TO-15	NA	NA
17C	LCS	Modified TO-15	NA	NA
17CC	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 04/19/19

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 1904294

Fourteen 6 Liter Summa Canister (100% Cert Ambient) samples were received on April 12, 2019. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per project specific client request the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. The canisters used for this project have been certified to the Reporting Limit for the target analytes included in this workorder. Concentrations that are below the level at which the canister was certified may be false positives.

Samples IAF-12400BELDEN-01_040919, IAF-12400BELDEN-02_040919, IAF-12400BELDEN-03_040919, IAF-12400BELDEN-04_040919, IAF-12400BELDEN05_040919, IAF-12400BELDEN-06_040919, IAF-12400BELDEN-07_040919, IAF-12400BELDEN-08_040919, IAF-12400BELDEN-09_040919, IAF-12400BELDEN-10_040919, IAF-12400BELDEN-11_040919 and IAF-12400BELDEN-12_040919 were transferred from Low Level analysis to full scan TO-15 due to high levels of target compounds.

Dilution was performed on samples IAF-12400BELDEN-01_040919, IAF-12400BELDEN-02_040919, IAF-12400BELDEN-03_040919, IAF-12400BELDEN-04_040919, IAF-12400BELDEN05_040919, IAF-12400BELDEN-06_040919, IAF-12400BELDEN-07_040919, IAF-12400BELDEN-08_040919, IAF-12400BELDEN-09_040919, IAF-12400BELDEN-10_040919, IAF-12400BELDEN-11_040919 and IAF-12400BELDEN-12_040919 due to the presence of high level target species.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue



MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-12400BELDEN-01_040919	Date/Time Analyzed:	4/16/19 03:01 PM
Lab ID:	1904294-01A	Dilution Factor:	1.69
Date/Time Collecte	4/9/19 03:16 PM	Instrument/Filename:	msd20.i / 20041606
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.16	0.60	0.67	Not Detected
1,4-Dioxane	123-91-1	0.49	0.55	0.61	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.36	0.60	0.67	Not Detected
Tetrachloroethene	127-18-4	0.71	1.0	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.38	0.60	0.67	4.6
Trichloroethene	79-01-6	0.44	0.82	0.91	3.2
Vinyl Chloride	75-01-4	0.14	0.39	0.43	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	107
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-01_040919	Date/Time Analyzed:	4/17/19 04:34 PM
Lab ID:	1904294-02A	Dilution Factor:	3.58
Date/Time Collecte	4/9/19 03:25 PM	Instrument/Filename:	msd14.i / 14041714
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	9.6	42	71	Not Detected
1,4-Dioxane	123-91-1	71	130	260	Not Detected
cis-1,2-Dichloroethene	156-59-2	22	42	71	Not Detected
Tetrachloroethene	127-18-4	43	73	120	Not Detected
trans-1,2-Dichloroethene	156-60-5	27	42	71	12000
Trichloroethene	79-01-6	28	58	96	9200
Vinyl Chloride	75-01-4	16	27	46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	99



EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-02_040919	Date/Time Analyzed:	4/17/19 05:48 PM
Lab ID:	1904294-03A	Dilution Factor:	3.82
Date/Time Collecte	4/9/19 03:24 PM	Instrument/Filename:	msd14.i / 14041716
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	10	45	76	Not Detected
1,4-Dioxane	123-91-1	76	140	280	Not Detected
cis-1,2-Dichloroethene	156-59-2	23	45	76	Not Detected
Tetrachloroethene	127-18-4	46	78	130	Not Detected
trans-1,2-Dichloroethene	156-60-5	29	45	76	9100
Trichloroethene	79-01-6	30	62	100	6600
Vinyl Chloride	75-01-4	17	29	49	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	99



EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-03_040919	Date/Time Analyzed:	4/18/19 11:53 AM
Lab ID:	1904294-04A	Dilution Factor:	9.30
Date/Time Collecte	4/9/19 03:04 PM	Instrument/Filename:	msd14.i / 14041809
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	25	110	180	Not Detected
1,4-Dioxane	123-91-1	180	340	670	Not Detected
cis-1,2-Dichloroethene	156-59-2	57	110	180	Not Detected
Tetrachloroethene	127-18-4	110	190	320	Not Detected
trans-1,2-Dichloroethene	156-60-5	70	110	180	14000
Trichloroethene	79-01-6	74	150	250	10000
Vinyl Chloride	75-01-4	41	71	120	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	99



EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-04_040919	Date/Time Analyzed:	4/18/19 12:23 PM
Lab ID:	1904294-05A	Dilution Factor:	6.23
Date/Time Collecte	4/9/19 03:25 PM	Instrument/Filename:	msd14.i / 14041810
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	17	74	120	Not Detected
1,4-Dioxane	123-91-1	120	220	450	Not Detected
cis-1,2-Dichloroethene	156-59-2	38	74	120	Not Detected
Tetrachloroethene	127-18-4	74	130	210	Not Detected
trans-1,2-Dichloroethene	156-60-5	47	74	120	14000
Trichloroethene	79-01-6	50	100	170	8600
Vinyl Chloride	75-01-4	28	48	80	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	99



EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN05_040919	Date/Time Analyzed:	4/17/19 07:39 PM
Lab ID:	1904294-06A	Dilution Factor:	3.88
Date/Time Collecte	4/9/19 03:27 PM	Instrument/Filename:	msd14.i / 14041719
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	10	46	77	Not Detected
1,4-Dioxane	123-91-1	77	140	280	Not Detected
cis-1,2-Dichloroethene	156-59-2	24	46	77	Not Detected
Tetrachloroethene	127-18-4	46	79	130	Not Detected
trans-1,2-Dichloroethene	156-60-5	29	46	77	13000
Trichloroethene	79-01-6	31	62	100	7900
Vinyl Chloride	75-01-4	17	30	50	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	99



EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-06_040919	Date/Time Analyzed:	4/18/19 11:19 AM
Lab ID:	1904294-07A	Dilution Factor:	9.30
Date/Time Collecte	4/9/19 03:07 PM	Instrument/Filename:	msd14.i / 14041808
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	25	110	180	Not Detected
1,4-Dioxane	123-91-1	180	340	670	Not Detected
cis-1,2-Dichloroethene	156-59-2	57	110	180	Not Detected
Tetrachloroethene	127-18-4	110	190	320	Not Detected
trans-1,2-Dichloroethene	156-60-5	70	110	180	14000
Trichloroethene	79-01-6	74	150	250	8300
Vinyl Chloride	75-01-4	41	71	120	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	100



EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-07_040919	Date/Time Analyzed:	4/17/19 08:32 PM
Lab ID:	1904294-08A	Dilution Factor:	3.64
Date/Time Collecte	4/9/19 03:10 PM	Instrument/Filename:	msd14.i / 14041720
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	9.8	43	72	Not Detected
1,4-Dioxane	123-91-1	72	130	260	Not Detected
cis-1,2-Dichloroethene	156-59-2	22	43	72	Not Detected
Tetrachloroethene	127-18-4	43	74	120	Not Detected
trans-1,2-Dichloroethene	156-60-5	28	43	72	9600
Trichloroethene	79-01-6	29	59	98	6600
Vinyl Chloride	75-01-4	16	28	46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	101



EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-08_040919	Date/Time Analyzed:	4/17/19 09:08 PM
Lab ID:	1904294-09A	Dilution Factor:	3.50
Date/Time Collecte	4/9/19 03:09 PM	Instrument/Filename:	msd14.i / 14041721
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	9.4	42	69	Not Detected
1,4-Dioxane	123-91-1	69	130	250	Not Detected
cis-1,2-Dichloroethene	156-59-2	21	42	69	Not Detected
Tetrachloroethene	127-18-4	42	71	120	Not Detected
trans-1,2-Dichloroethene	156-60-5	26	42	69	11000
Trichloroethene	79-01-6	28	56	94	7300
Vinyl Chloride	75-01-4	15	27	45	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	101



EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-09_040919	Date/Time Analyzed:	4/17/19 09:48 PM
Lab ID:	1904294-10A	Dilution Factor:	3.58
Date/Time Collecte	4/9/19 03:06 PM	Instrument/Filename:	msd14.i / 14041722
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	9.6	42	71	Not Detected
1,4-Dioxane	123-91-1	71	130	260	Not Detected
cis-1,2-Dichloroethene	156-59-2	22	42	71	Not Detected
Tetrachloroethene	127-18-4	43	73	120	Not Detected
trans-1,2-Dichloroethene	156-60-5	27	42	71	12000
Trichloroethene	79-01-6	28	58	96	8400
Vinyl Chloride	75-01-4	16	27	46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	100



EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-10_040919	Date/Time Analyzed:	4/17/19 10:16 PM
Lab ID:	1904294-11A	Dilution Factor:	3.54
Date/Time Collecte	4/9/19 03:43 PM	Instrument/Filename:	msd14.i / 14041723
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	9.5	42	70	Not Detected
1,4-Dioxane	123-91-1	70	130	260	Not Detected
cis-1,2-Dichloroethene	156-59-2	22	42	70	Not Detected
Tetrachloroethene	127-18-4	42	72	120	Not Detected
trans-1,2-Dichloroethene	156-60-5	27	42	70	12000
Trichloroethene	79-01-6	28	57	95	5700
Vinyl Chloride	75-01-4	16	27	45	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	98



EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-11_040919	Date/Time Analyzed:	4/17/19 11:02 PM
Lab ID:	1904294-12A	Dilution Factor:	3.42
Date/Time Collecte	4/9/19 03:00 PM	Instrument/Filename:	msd14.i / 14041724
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	9.2	41	68	Not Detected
1,4-Dioxane	123-91-1	68	120	250	Not Detected
cis-1,2-Dichloroethene	156-59-2	21	41	68	Not Detected
Tetrachloroethene	127-18-4	41	70	120	Not Detected
trans-1,2-Dichloroethene	156-60-5	26	41	68	7100
Trichloroethene	79-01-6	27	55	92	5400
Vinyl Chloride	75-01-4	15	26	44	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	99



EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-12_040919	Date/Time Analyzed:	4/18/19 10:48 AM
Lab ID:	1904294-13A	Dilution Factor:	3.60
Date/Time Collecte	4/9/19 03:00 PM	Instrument/Filename:	msd14.i / 14041807
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	9.7	43	71	Not Detected
1,4-Dioxane	123-91-1	71	130	260	Not Detected
cis-1,2-Dichloroethene	156-59-2	22	43	71	Not Detected
Tetrachloroethene	127-18-4	43	73	120	Not Detected
trans-1,2-Dichloroethene	156-60-5	27	43	71	6600
Trichloroethene	79-01-6	29	58	97	4900
Vinyl Chloride	75-01-4	16	28	46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	99



MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	DUP-12400BELDEN01_040919	Date/Time Analyzed:	4/16/19 03:40 PM
Lab ID:	1904294-14A	Dilution Factor:	1.92
Date/Time Collecte	4/9/19 12:00 AM	Instrument/Filename:	msd20.i / 20041607
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.18	0.68	0.76	Not Detected
1,4-Dioxane	123-91-1	0.56	0.62	0.69	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.41	0.68	0.76	Not Detected
Tetrachloroethene	127-18-4	0.81	1.2	1.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.43	0.68	0.76	96
Trichloroethene	79-01-6	0.51	0.93	1.0	55
Vinyl Chloride	75-01-4	0.16	0.44	0.49	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	101



MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	4/16/19 12:11 PM
Lab ID:	1904294-15A	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd20.i / 20041605a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.095	0.36	0.40	Not Detected
1,4-Dioxane	123-91-1	0.29	0.32	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.21	0.36	0.40	Not Detected
Tetrachloroethene	127-18-4	0.42	0.61	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.22	0.36	0.40	Not Detected
Trichloroethene	79-01-6	0.26	0.48	0.54	Not Detected
Vinyl Chloride	75-01-4	0.082	0.23	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	100



EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	4/17/19 10:07 AM
Lab ID:	1904294-15B	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd14.i / 14041705d
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.7	12	20	Not Detected
1,4-Dioxane	123-91-1	20	36	72	Not Detected
cis-1,2-Dichloroethene	156-59-2	6.1	12	20	Not Detected
Tetrachloroethene	127-18-4	12	20	34	Not Detected
trans-1,2-Dichloroethene	156-60-5	7.6	12	20	Not Detected
Trichloroethene	79-01-6	8.0	16	27	Not Detected
Vinyl Chloride	75-01-4	4.4	7.7	13	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	101



EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	4/18/19 09:43 AM
Lab ID:	1904294-15C	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd14.i / 14041805a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.7	12	20	Not Detected
1,4-Dioxane	123-91-1	20	36	72	Not Detected
cis-1,2-Dichloroethene	156-59-2	6.1	12	20	Not Detected
Tetrachloroethene	127-18-4	12	20	34	Not Detected
trans-1,2-Dichloroethene	156-60-5	7.6	12	20	Not Detected
Trichloroethene	79-01-6	8.0	16	27	Not Detected
Vinyl Chloride	75-01-4	4.4	7.7	13	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	100



MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	4/16/19 09:17 AM
Lab ID:	1904294-16A	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd20.i / 20041602
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	100
1,4-Dioxane	123-91-1	105
cis-1,2-Dichloroethene	156-59-2	104
Tetrachloroethene	127-18-4	104
trans-1,2-Dichloroethene	156-60-5	100
Trichloroethene	79-01-6	94
Vinyl Chloride	75-01-4	89

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	95



EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	4/17/19 08:00 AM
Lab ID:	1904294-16B	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd14.i / 14041702
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	95
1,4-Dioxane	123-91-1	104
cis-1,2-Dichloroethene	156-59-2	97
Tetrachloroethene	127-18-4	92
trans-1,2-Dichloroethene	156-60-5	93
Trichloroethene	79-01-6	93
Vinyl Chloride	75-01-4	96

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	100



EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	4/18/19 08:11 AM
Lab ID:	1904294-16C	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd14.i / 14041802
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	97
1,4-Dioxane	123-91-1	105
cis-1,2-Dichloroethene	156-59-2	98
Tetrachloroethene	127-18-4	91
trans-1,2-Dichloroethene	156-60-5	95
Trichloroethene	79-01-6	92
Vinyl Chloride	75-01-4	96

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	98



MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	4/16/19 10:13 AM
Lab ID:	1904294-17A	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd20.i / 20041603
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	104
1,4-Dioxane	123-91-1	114
cis-1,2-Dichloroethene	156-59-2	118
Tetrachloroethene	127-18-4	119
trans-1,2-Dichloroethene	156-60-5	93
Trichloroethene	79-01-6	121
Vinyl Chloride	75-01-4	98

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	114
Toluene-d8	2037-26-5	70-130	99

* % Recovery is calculated using unrounded analytical results.



MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	4/16/19 11:14 AM
Lab ID:	1904294-17AA	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd20.i / 20041604
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	108
1,4-Dioxane	123-91-1	119
cis-1,2-Dichloroethene	156-59-2	120
Tetrachloroethene	127-18-4	115
trans-1,2-Dichloroethene	156-60-5	96
Trichloroethene	79-01-6	124
Vinyl Chloride	75-01-4	101

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	98

* % Recovery is calculated using unrounded analytical results.



EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	4/17/19 08:38 AM
Lab ID:	1904294-17B	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd14.i / 14041703
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	99
1,4-Dioxane	123-91-1	113
cis-1,2-Dichloroethene	156-59-2	110
Tetrachloroethene	127-18-4	95
trans-1,2-Dichloroethene	156-60-5	81
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	100

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	100

* % Recovery is calculated using unrounded analytical results.



EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	4/17/19 09:02 AM
Lab ID:	1904294-17BB	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd14.i / 14041704
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	98
1,4-Dioxane	123-91-1	114
cis-1,2-Dichloroethene	156-59-2	109
Tetrachloroethene	127-18-4	93
trans-1,2-Dichloroethene	156-60-5	86
Trichloroethene	79-01-6	94
Vinyl Chloride	75-01-4	102

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	99

* % Recovery is calculated using unrounded analytical results.



EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	4/18/19 08:47 AM
Lab ID:	1904294-17C	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd14.i / 14041803
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	99
1,4-Dioxane	123-91-1	117
cis-1,2-Dichloroethene	156-59-2	111
Tetrachloroethene	127-18-4	96
trans-1,2-Dichloroethene	156-60-5	84
Trichloroethene	79-01-6	95
Vinyl Chloride	75-01-4	102

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	99

* % Recovery is calculated using unrounded analytical results.



EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	4/18/19 09:16 AM
Lab ID:	1904294-17CC	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd14.i / 14041804
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	100
1,4-Dioxane	123-91-1	117
cis-1,2-Dichloroethene	156-59-2	109
Tetrachloroethene	127-18-4	98
trans-1,2-Dichloroethene	156-60-5	82
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	103

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	100

* % Recovery is calculated using unrounded analytical results.



April 19, 2019

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: MI001454.0002/3/4.00002/2B/3B
Client project scope reference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics - Folsom
Laboratory submittal: 1904294
Sample date: 2019-04-09
Report received by CADENA: 2019-04-19
Initial Data Verification completed by CADENA: 2019-04-19

14 Air samples were analyzed for TO-15 parameters.

There were no significant QC anomalies or exceptions to report.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) TO-15 Analysis

SDG #1904294

CADENA Verification Report: 2019-04-19

Analyses Performed By:
Eurofins Air Toxics
Folsom, California

Report #32576R
Review Level: Tier III
Project: MI001454.0003.00001

DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 1904294 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
1904294	AA-12400BELDEN-01_040919	1904294-01A	Air	4/9/2019		X		
	IAF-12400BELDEN-01_040919	1904294-02A	Air	4/9/2019		X		
	IAF-12400BELDEN-02_040919	1904294-03A	Air	4/9/2019		X		
	IAF-12400BELDEN-03_040919	1904294-04A	Air	4/9/2019		X		
	IAF-12400BELDEN-04_040919	1904294-05A	Air	4/9/2019		X		
	IAF-12400BELDEN05_040919	1904294-06A	Air	4/9/2019		X		
	IAF-12400BELDEN-06_040919	1904294-07A	Air	4/9/2019		X		
	IAF-12400BELDEN-07_040919	1904294-08A	Air	4/9/2019		X		
	IAF-12400BELDEN-08_040919	1904294-09A	Air	4/9/2019		X		
	IAF-12400BELDEN-09_040919	1904294-10A	Air	4/9/2019		X		
	IAF-12400BELDEN-10_040919	1904294-11A	Air	4/9/2019		X		
IAF-12400BELDEN-11_040919	1904294-12A	Air	4/9/2019		X			

DATA REVIEW

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
	IAF-12400BELDEN-12_040919	1904294-13A	Air	4/9/2019		X		
	DUP-12400BELDEN01_040919	1904294-14A	Air	4/9/2019	AA-12400BELDEN-01_040919	X		

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15 (Full Scan). Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15	Air	30 days from collection to analysis (Canister)	Ambient Temperature	< -2" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 140% or less than 60% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. All identified compounds met the specified criteria.

6. Field Duplicate Sample Analysis

The field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 35% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are not greater than five times the RL, a control limit of one times the RL is applied to the difference between the duplicate sample results.

Results (in $\mu\text{g}/\text{m}^3$) for the field duplicate samples are summarized in the following table.

Sample ID / Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
AA-12400BELDEN-01_040919/ DUP-12400BELDEN01_040919	trans-1,2-Dichloroethene	4.6	96	NC
	Trichloroethene	3.2	55	

NC - Not Compliant

The compounds trans-1,2-Dichloroethene and Trichloroethene associated with sample locations AA-12400BELDEN-01_040919 and DUP-12400BELDEN01_040919 exhibited a field duplicate RPD greater than the control limit. The associated sample results from sample locations for the listed compound were qualified as estimated.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15 (Full Scan)	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-2"Hg)		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Field Duplicate Sample RPD		X	X		
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:



DATE: April 28, 2019

PEER REVIEW: Dennis Capria

DATE: May 2, 2019



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**





MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-12400BELDEN-01_040919	Date/Time Analyzed:	4/16/19 03:01 PM
Lab ID:	1904294-01A	Dilution Factor:	1.69
Date/Time Collecte	4/9/19 03:16 PM	Instrument/Filename:	msd20.i / 20041606
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.16	0.60	0.67	Not Detected
1,4-Dioxane	123-91-1	0.49	0.55	0.61	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.36	0.60	0.67	Not Detected
Tetrachloroethene	127-18-4	0.71	1.0	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.38	0.60	0.67	4.6 J
Trichloroethene	79-01-6	0.44	0.82	0.91	3.2 J
Vinyl Chloride	75-01-4	0.14	0.39	0.43	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	107
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-01_040919	Date/Time Analyzed:	4/17/19 04:34 PM
Lab ID:	1904294-02A	Dilution Factor:	3.58
Date/Time Collecte	4/9/19 03:25 PM	Instrument/Filename:	msd14.i / 14041714
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	9.6	42	71	Not Detected
1,4-Dioxane	123-91-1	71	130	260	Not Detected
cis-1,2-Dichloroethene	156-59-2	22	42	71	Not Detected
Tetrachloroethene	127-18-4	43	73	120	Not Detected
trans-1,2-Dichloroethene	156-60-5	27	42	71	12000
Trichloroethene	79-01-6	28	58	96	9200
Vinyl Chloride	75-01-4	16	27	46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	99



EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-02_040919	Date/Time Analyzed:	4/17/19 05:48 PM
Lab ID:	1904294-03A	Dilution Factor:	3.82
Date/Time Collecte	4/9/19 03:24 PM	Instrument/Filename:	msd14.i / 14041716
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	10	45	76	Not Detected
1,4-Dioxane	123-91-1	76	140	280	Not Detected
cis-1,2-Dichloroethene	156-59-2	23	45	76	Not Detected
Tetrachloroethene	127-18-4	46	78	130	Not Detected
trans-1,2-Dichloroethene	156-60-5	29	45	76	9100
Trichloroethene	79-01-6	30	62	100	6600
Vinyl Chloride	75-01-4	17	29	49	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	99



EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-03_040919	Date/Time Analyzed:	4/18/19 11:53 AM
Lab ID:	1904294-04A	Dilution Factor:	9.30
Date/Time Collecte	4/9/19 03:04 PM	Instrument/Filename:	msd14.i / 14041809
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	25	110	180	Not Detected
1,4-Dioxane	123-91-1	180	340	670	Not Detected
cis-1,2-Dichloroethene	156-59-2	57	110	180	Not Detected
Tetrachloroethene	127-18-4	110	190	320	Not Detected
trans-1,2-Dichloroethene	156-60-5	70	110	180	14000
Trichloroethene	79-01-6	74	150	250	10000
Vinyl Chloride	75-01-4	41	71	120	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	99



EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-04_040919	Date/Time Analyzed:	4/18/19 12:23 PM
Lab ID:	1904294-05A	Dilution Factor:	6.23
Date/Time Collecte	4/9/19 03:25 PM	Instrument/Filename:	msd14.i / 14041810
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	17	74	120	Not Detected
1,4-Dioxane	123-91-1	120	220	450	Not Detected
cis-1,2-Dichloroethene	156-59-2	38	74	120	Not Detected
Tetrachloroethene	127-18-4	74	130	210	Not Detected
trans-1,2-Dichloroethene	156-60-5	47	74	120	14000
Trichloroethene	79-01-6	50	100	170	8600
Vinyl Chloride	75-01-4	28	48	80	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	99



EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN05_040919	Date/Time Analyzed:	4/17/19 07:39 PM
Lab ID:	1904294-06A	Dilution Factor:	3.88
Date/Time Collecte	4/9/19 03:27 PM	Instrument/Filename:	msd14.i / 14041719
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	10	46	77	Not Detected
1,4-Dioxane	123-91-1	77	140	280	Not Detected
cis-1,2-Dichloroethene	156-59-2	24	46	77	Not Detected
Tetrachloroethene	127-18-4	46	79	130	Not Detected
trans-1,2-Dichloroethene	156-60-5	29	46	77	13000
Trichloroethene	79-01-6	31	62	100	7900
Vinyl Chloride	75-01-4	17	30	50	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	99



EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-06_040919	Date/Time Analyzed:	4/18/19 11:19 AM
Lab ID:	1904294-07A	Dilution Factor:	9.30
Date/Time Collecte	4/9/19 03:07 PM	Instrument/Filename:	msd14.i / 14041808
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	25	110	180	Not Detected
1,4-Dioxane	123-91-1	180	340	670	Not Detected
cis-1,2-Dichloroethene	156-59-2	57	110	180	Not Detected
Tetrachloroethene	127-18-4	110	190	320	Not Detected
trans-1,2-Dichloroethene	156-60-5	70	110	180	14000
Trichloroethene	79-01-6	74	150	250	8300
Vinyl Chloride	75-01-4	41	71	120	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	100



EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-07_040919	Date/Time Analyzed:	4/17/19 08:32 PM
Lab ID:	1904294-08A	Dilution Factor:	3.64
Date/Time Collecte	4/9/19 03:10 PM	Instrument/Filename:	msd14.i / 14041720
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	9.8	43	72	Not Detected
1,4-Dioxane	123-91-1	72	130	260	Not Detected
cis-1,2-Dichloroethene	156-59-2	22	43	72	Not Detected
Tetrachloroethene	127-18-4	43	74	120	Not Detected
trans-1,2-Dichloroethene	156-60-5	28	43	72	9600
Trichloroethene	79-01-6	29	59	98	6600
Vinyl Chloride	75-01-4	16	28	46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	101



EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-08_040919	Date/Time Analyzed:	4/17/19 09:08 PM
Lab ID:	1904294-09A	Dilution Factor:	3.50
Date/Time Collecte	4/9/19 03:09 PM	Instrument/Filename:	msd14.i / 14041721
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	9.4	42	69	Not Detected
1,4-Dioxane	123-91-1	69	130	250	Not Detected
cis-1,2-Dichloroethene	156-59-2	21	42	69	Not Detected
Tetrachloroethene	127-18-4	42	71	120	Not Detected
trans-1,2-Dichloroethene	156-60-5	26	42	69	11000
Trichloroethene	79-01-6	28	56	94	7300
Vinyl Chloride	75-01-4	15	27	45	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	101



EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-09_040919	Date/Time Analyzed:	4/17/19 09:48 PM
Lab ID:	1904294-10A	Dilution Factor:	3.58
Date/Time Collecte	4/9/19 03:06 PM	Instrument/Filename:	msd14.i / 14041722
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	9.6	42	71	Not Detected
1,4-Dioxane	123-91-1	71	130	260	Not Detected
cis-1,2-Dichloroethene	156-59-2	22	42	71	Not Detected
Tetrachloroethene	127-18-4	43	73	120	Not Detected
trans-1,2-Dichloroethene	156-60-5	27	42	71	12000
Trichloroethene	79-01-6	28	58	96	8400
Vinyl Chloride	75-01-4	16	27	46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	100



EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-10_040919	Date/Time Analyzed:	4/17/19 10:16 PM
Lab ID:	1904294-11A	Dilution Factor:	3.54
Date/Time Collecte	4/9/19 03:43 PM	Instrument/Filename:	msd14.i / 14041723
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	9.5	42	70	Not Detected
1,4-Dioxane	123-91-1	70	130	260	Not Detected
cis-1,2-Dichloroethene	156-59-2	22	42	70	Not Detected
Tetrachloroethene	127-18-4	42	72	120	Not Detected
trans-1,2-Dichloroethene	156-60-5	27	42	70	12000
Trichloroethene	79-01-6	28	57	95	5700
Vinyl Chloride	75-01-4	16	27	45	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	98



EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-11_040919	Date/Time Analyzed:	4/17/19 11:02 PM
Lab ID:	1904294-12A	Dilution Factor:	3.42
Date/Time Collecte	4/9/19 03:00 PM	Instrument/Filename:	msd14.i / 14041724
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	9.2	41	68	Not Detected
1,4-Dioxane	123-91-1	68	120	250	Not Detected
cis-1,2-Dichloroethene	156-59-2	21	41	68	Not Detected
Tetrachloroethene	127-18-4	41	70	120	Not Detected
trans-1,2-Dichloroethene	156-60-5	26	41	68	7100
Trichloroethene	79-01-6	27	55	92	5400
Vinyl Chloride	75-01-4	15	26	44	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	99



EPA METHOD TO-15 GC/MS
Ford LTP

Client ID:	IAF-12400BELDEN-12_040919	Date/Time Analyzed:	4/18/19 10:48 AM
Lab ID:	1904294-13A	Dilution Factor:	3.60
Date/Time Collecte	4/9/19 03:00 PM	Instrument/Filename:	msd14.i / 14041807
Media:	6 Liter Summa Canister (100% Cert Ambie		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	9.7	43	71	Not Detected
1,4-Dioxane	123-91-1	71	130	260	Not Detected
cis-1,2-Dichloroethene	156-59-2	22	43	71	Not Detected
Tetrachloroethene	127-18-4	43	73	120	Not Detected
trans-1,2-Dichloroethene	156-60-5	27	43	71	6600
Trichloroethene	79-01-6	29	58	97	4900
Vinyl Chloride	75-01-4	16	28	46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	99



MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	DUP-12400BELDEN01_040919	Date/Time Analyzed:	4/16/19 03:40 PM
Lab ID:	1904294-14A	Dilution Factor:	1.92
Date/Time Collected:	4/9/19 12:00 AM	Instrument/Filename:	msd20.i / 20041607
Media:	6 Liter Summa Canister (100% Cert Ambie)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.18	0.68	0.76	Not Detected
1,4-Dioxane	123-91-1	0.56	0.62	0.69	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.41	0.68	0.76	Not Detected
Tetrachloroethene	127-18-4	0.81	1.2	1.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.43	0.68	0.76	96 J
Trichloroethene	79-01-6	0.51	0.93	1.0	55 J
Vinyl Chloride	75-01-4	0.16	0.44	0.49	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	101

Analysis Request /Canister Chain of Custody

For Laboratory Use Only

PID: _____ Workorder #: 1904294

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
Phone (800) 985-5955; Fax (916) 351-8279

Click links below to view:

[Canister Sampling Guide](#)

[Helium Shroud Video](#)

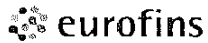
Client: <u>Ford</u>	PID: <u>NA</u>	Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting	Turnaround Time (Rush surcharges may apply)		
Project Name: <u>Ford LTP</u>			5 Day Turnaround Time		
Project Manager: <u>Kris Hinskey</u>	P.O.# <u>MI001454.0003</u>		Canister Vacuum/Pressure	Requested Analyses	
Sampler: <u>E. Redner/J. LUST</u>			Lab Use Only		
Site Name: <u>12400 Belden</u>					

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N ₂ / He	TO-15 (See Special Instructions/Notes)			
				Date	Time	Date	Time								
01A	AA-12400BELDEN-01_040919	6L0483	23599	4/9/19	0657	4/9/19	1516	-29	-6			X			
02A	IAF-12400BELDEN-01_040919	6L0905	24327	4/9/19	0633	4/9/19	1525	-29	-7			X			
03A	IAF-12400BELDEN-02_040919	6L1604	23339	4/9/19	0638	4/9/19	1524	-29	-8			X			
04A	IAF-12400BELDEN-03_040919	6L1472	23369	4/9/19	0635	4/9/19	1504	-29	-7			X			
05A	IAF-12400BELDEN-04_040919	6L1092	23694	4/9/19	0640	4/9/19	1525	-29	-7.5			X			
06A	IAF-12400BELDEN-05_040919	6L1787	22706	4/9/19	0642	4/9/19	1527	-29	-8			X			
07A	IAF-12400BELDEN-06_040919	6L0391	23620	4/9/19	0652	4/9/19	1507	-29	-6.5			X			
08A	IAF-12400BELDEN-07_040919	6L0836	23662	4/9/19	0650	4/9/19	1510	-29	-6.5			X			
09A	IAF-12400BELDEN-08_040919	6L0399	23153	4/9/19	0649	4/9/19	1509	-29	-6			X			
10A	IAF-12400BELDEN-09_040919	6L0390	23537	4/9/19	0646	4/9/19	1506	-29	-6.5			X			

Relinquished by: (Signature/Affiliation) <i>[Signature]</i>	Date <u>4-12-19</u>	Time <u>1600</u>	Received by: (Signature/Affiliation) <i>[Signature]</i> SATL	Date <u>4/12/19</u>	Time <u>1010</u>
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Shipper Name: <u>[Signature]</u>	Custody Seals Intact? <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> None	Lab Use Only
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Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922



Air Toxics

Analysis Request / Canister Chain of Custody

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
Phone (800) 985-5955; Fax (916) 351-8279

For Laboratory Use Only
Workorder #: **1904294**

Click links below to view:
[Canister Sampling Guide](#)
[Helium Shroud Video](#)

Client: <u>Ford</u> PID: _____	Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting	Turnaround Time (Rush surcharges may apply)							
Project Name: <u>Ford LTP</u>		5 day							
Project Manager: <u>Kris Hinskey</u> P.O.# <u>MI001454.0003</u>		Canister Vacuum/Pressure		Requested Analyses					
Sampler: <u>E. Redner / J. Lujt</u>		Lab Use Only							
Site Name: <u>12400 Belden</u>		Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N ₂ / He	TO-15 (See Special Instructions/Notes)			

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N ₂ / He	TO-15 (See Special Instructions/Notes)			
				Date	Time	Date	Time								
11A 01A	IAF-12400Belden-10-040919	6L1840	23738	4/9/19	0632	4/9/19	1543	-29	-6.5			X			
12A 02A	IAF-12400Belden-11-040919	6L0687	23593	4/9/19	0626	4/9/19	1500	-29	-6.5			X			
13A 03A	IAF-12400Belden-12-040919	6L0087	23657	4/9/19	0628	4/9/19	1500	-29	-7			X			
14A 04A	DUP-12400Belden-01-040919	6L0720	23417	4/9/19	—	4/9/19	—	-29	-9			X			
17W 04/2/19															

Relinquished by: (Signature/Affiliation) <i>[Signature]</i>	Date <u>4-10-19</u>	Time <u>1600</u>	Received by: (Signature/Affiliation) <i>[Signature]</i>	Date <u>4/12/19</u>	Time <u>1010</u>
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Lab Use Only

Shipper Name: [Signature] Custody Seals Intact? Yes No None

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T Hotline (800) 467-4922

4/19/2019
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1904296

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 4/12/2019 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1904296

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0003
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	04/12/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	04/18/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SSMP-12400BELDEN-01_040919	TO-15	6.3 "Hg	16.2 psi
02A	SSMP-12400BELDEN-02_040919	TO-15	6.7 "Hg	15.9 psi
03A	SSMP-12400BELDEN-03_040919	TO-15	7.1 "Hg	16 psi
04A	SSMP-12400BELDEN-04_040919	TO-15	5.1 "Hg	14.9 psi
05A	SSMP-12400BELDEN-05_040919	TO-15	6.3 "Hg	16.1 psi
06A	SSMP-12400BELDEN-06_040919	TO-15	5.9 "Hg	15.8 psi
07A	SSMP-12400BELDEN-07_040919	TO-15	5.3 "Hg	14.9 psi
08A	SSMP-12400BELDEN-08_040919	TO-15	6.1 "Hg	16.2 psi
09A	SSMP-12400BELDEN-09_040919	TO-15	6.1 "Hg	16.2 psi
10A	SSMP-12400BELDEN-10_040919	TO-15	5.9 "Hg	16 psi
11A	SSMP-12400BELDEN-11_040919	TO-15	5.7 "Hg	16.3 psi
12A	SSMP-12400BELDEN-12_040919	TO-15	4.5 "Hg	15.3 psi
13A	DUP-12400BELDEN-02_040919	TO-15	4.7 "Hg	15 psi
14A	Lab Blank	TO-15	NA	NA
15A	CCV	TO-15	NA	NA
16A	LCS	TO-15	NA	NA
16AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

DATE: 04/19/19

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.

Eurofins Air Toxics Inc. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1904296

Thirteen 1 Liter Summa Canister (100% Certified) samples were received on April 12, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified (0.2 ppbv for compounds reported at 0.5 ppbv and 0.8 ppbv for compounds reported at 2.0 ppbv) may be false positives.

Dilution was performed on sample SSMP-12400BELDEN-11_040919 due to the presence of high level target species.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue



EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-01_040919	Date/Time Analyzed:	4/16/19 07:47 PM
Lab ID:	1904296-01A	Dilution Factor:	2.66
Date/Time Collecte	4/9/19 07:47 AM	Instrument/Filename:	msd17.i / 17041612
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.3	4.2	5.3	Not Detected
1,4-Dioxane	123-91-1	10	14	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.5	4.2	5.3	Not Detected
Tetrachloroethene	127-18-4	3.6	7.2	9.0	27
trans-1,2-Dichloroethene	156-60-5	1.6	4.2	5.3	380
Trichloroethene	79-01-6	2.6	5.7	7.1	1200
Vinyl Chloride	75-01-4	1.4	2.7	3.4	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	89
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	128

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-02_040919	Date/Time Analyzed:	4/16/19 08:16 PM
Lab ID:	1904296-02A	Dilution Factor:	2.68
Date/Time Collecte	4/9/19 08:15 AM	Instrument/Filename:	msd17.i / 17041613
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.3	4.2	5.3	Not Detected
1,4-Dioxane	123-91-1	10	14	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.5	4.2	5.3	Not Detected
Tetrachloroethene	127-18-4	3.6	7.3	9.1	14
trans-1,2-Dichloroethene	156-60-5	1.6	4.2	5.3	150
Trichloroethene	79-01-6	2.6	5.8	7.2	270
Vinyl Chloride	75-01-4	1.4	2.7	3.4	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	111

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-03_040919	Date/Time Analyzed:	4/16/19 11:13 PM
Lab ID:	1904296-03A	Dilution Factor:	2.74
Date/Time Collecte	4/9/19 08:42 AM	Instrument/Filename:	msd17.i / 17041615
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.4	4.3	5.4	Not Detected
1,4-Dioxane	123-91-1	10	15	20	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.5	4.3	5.4	Not Detected
Tetrachloroethene	127-18-4	3.7	7.4	9.3	13
trans-1,2-Dichloroethene	156-60-5	1.6	4.3	5.4	300
Trichloroethene	79-01-6	2.6	5.9	7.4	580
Vinyl Chloride	75-01-4	1.4	2.8	3.5	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	88
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	109

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-04_040919	Date/Time Analyzed:	4/16/19 11:42 PM
Lab ID:	1904296-04A	Dilution Factor:	2.43
Date/Time Collecte	4/9/19 09:10 AM	Instrument/Filename:	msd17.i / 17041616
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.1	3.8	4.8	Not Detected
1,4-Dioxane	123-91-1	9.3	13	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.8	4.8	Not Detected
Tetrachloroethene	127-18-4	3.3	6.6	8.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.4	3.8	4.8	170
Trichloroethene	79-01-6	2.4	5.2	6.5	170
Vinyl Chloride	75-01-4	1.2	2.5	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	88
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	110

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-05_040919	Date/Time Analyzed:	4/17/19 12:10 AM
Lab ID:	1904296-05A	Dilution Factor:	2.65
Date/Time Collecte	4/9/19 09:35 AM	Instrument/Filename:	msd17.i / 17041617
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.3	4.2	5.2	Not Detected
1,4-Dioxane	123-91-1	10	14	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.5	4.2	5.2	Not Detected
Tetrachloroethene	127-18-4	3.6	7.2	9.0	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.6	4.2	5.2	260
Trichloroethene	79-01-6	2.6	5.7	7.1	240
Vinyl Chloride	75-01-4	1.4	2.7	3.4	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	91
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	108

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-06_040919	Date/Time Analyzed:	4/17/19 12:38 AM
Lab ID:	1904296-06A	Dilution Factor:	2.58
Date/Time Collecte	4/9/19 09:58 AM	Instrument/Filename:	msd17.i / 17041618
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.2	4.1	5.1	Not Detected
1,4-Dioxane	123-91-1	9.8	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	4.1	5.1	Not Detected
Tetrachloroethene	127-18-4	3.5	7.0	8.8	31
trans-1,2-Dichloroethene	156-60-5	1.5	4.1	5.1	340
Trichloroethene	79-01-6	2.5	5.5	6.9	1100
Vinyl Chloride	75-01-4	1.3	2.6	3.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	108

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-07_040919	Date/Time Analyzed:	4/17/19 01:06 AM
Lab ID:	1904296-07A	Dilution Factor:	2.44
Date/Time Collecte	4/9/19 10:03 AM	Instrument/Filename:	msd17.i / 17041619
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.1	3.9	4.8	Not Detected
1,4-Dioxane	123-91-1	9.3	13	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.9	4.8	Not Detected
Tetrachloroethene	127-18-4	3.3	6.6	8.3	18
trans-1,2-Dichloroethene	156-60-5	1.4	3.9	4.8	230
Trichloroethene	79-01-6	2.4	5.2	6.6	370
Vinyl Chloride	75-01-4	1.2	2.5	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	109

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-08_040919	Date/Time Analyzed:	4/17/19 01:34 AM
Lab ID:	1904296-08A	Dilution Factor:	2.64
Date/Time Collecte	4/9/19 09:40 AM	Instrument/Filename:	msd17.i / 17041620
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.3	4.2	5.2	Not Detected
1,4-Dioxane	123-91-1	10	14	19	12 J
cis-1,2-Dichloroethene	156-59-2	1.5	4.2	5.2	Not Detected
Tetrachloroethene	127-18-4	3.6	7.2	9.0	22
trans-1,2-Dichloroethene	156-60-5	1.6	4.2	5.2	360
Trichloroethene	79-01-6	2.6	5.7	7.1	960
Vinyl Chloride	75-01-4	1.3	2.7	3.4	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	90

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-09_040919	Date/Time Analyzed:	4/17/19 02:03 AM
Lab ID:	1904296-09A	Dilution Factor:	2.64
Date/Time Collecte	4/9/19 09:09 AM	Instrument/Filename:	msd17.i / 17041621
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.3	4.2	5.2	Not Detected
1,4-Dioxane	123-91-1	10	14	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.5	4.2	5.2	Not Detected
Tetrachloroethene	127-18-4	3.6	7.2	9.0	36
trans-1,2-Dichloroethene	156-60-5	1.6	4.2	5.2	560
Trichloroethene	79-01-6	2.6	5.7	7.1	1400
Vinyl Chloride	75-01-4	1.3	2.7	3.4	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	108

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-10_040919	Date/Time Analyzed:	4/17/19 02:31 AM
Lab ID:	1904296-10A	Dilution Factor:	2.60
Date/Time Collecte	4/9/19 09:14 AM	Instrument/Filename:	msd17.i / 17041622
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.3	4.1	5.2	Not Detected
1,4-Dioxane	123-91-1	9.9	14	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	4.1	5.2	Not Detected
Tetrachloroethene	127-18-4	3.5	7.0	8.8	29
trans-1,2-Dichloroethene	156-60-5	1.5	4.1	5.2	810
Trichloroethene	79-01-6	2.5	5.6	7.0	1800
Vinyl Chloride	75-01-4	1.3	2.6	3.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	109

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-11_040919	Date/Time Analyzed:	4/17/19 07:17 AM
Lab ID:	1904296-11A	Dilution Factor:	3.47
Date/Time Collecte	4/9/19 08:14 AM	Instrument/Filename:	msd17.i / 17041626
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	3.0	5.5	6.9	Not Detected
1,4-Dioxane	123-91-1	13	19	25	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.9	5.5	6.9	Not Detected
Tetrachloroethene	127-18-4	4.7	9.4	12	11 J
trans-1,2-Dichloroethene	156-60-5	2.1	5.5	6.9	2300
Trichloroethene	79-01-6	3.4	7.4	9.3	2900
Vinyl Chloride	75-01-4	1.8	3.5	4.4	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	88
Toluene-d8	2037-26-5	70-130	107

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-12_040919	Date/Time Analyzed:	4/16/19 10:45 PM
Lab ID:	1904296-12A	Dilution Factor:	2.40
Date/Time Collecte	4/9/19 07:42 AM	Instrument/Filename:	msd17.i / 17041614
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.1	3.8	4.8	Not Detected
1,4-Dioxane	123-91-1	9.2	13	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.8	4.8	Not Detected
Tetrachloroethene	127-18-4	3.2	6.5	8.1	12
trans-1,2-Dichloroethene	156-60-5	1.4	3.8	4.8	540
Trichloroethene	79-01-6	2.3	5.2	6.4	1100
Vinyl Chloride	75-01-4	1.2	2.4	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	84
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	115

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	DUP-12400BELDEN-02_040919	Date/Time Analyzed:	4/17/19 03:27 AM
Lab ID:	1904296-13A	Dilution Factor:	2.40
Date/Time Collected:	4/9/19 12:00 AM	Instrument/Filename:	msd17.i / 17041624
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.1	3.8	4.8	Not Detected
1,4-Dioxane	123-91-1	9.2	13	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.8	4.8	Not Detected
Tetrachloroethene	127-18-4	3.2	6.5	8.1	12
trans-1,2-Dichloroethene	156-60-5	1.4	3.8	4.8	570
Trichloroethene	79-01-6	2.3	5.2	6.4	1100
Vinyl Chloride	75-01-4	1.2	2.4	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	111

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	4/16/19 06:01 PM
Lab ID:	1904296-14A	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd17.i / 17041611a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.87	1.6	2.0	Not Detected
1,4-Dioxane	123-91-1	3.8	5.4	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.56	1.6	2.0	Not Detected
Tetrachloroethene	127-18-4	1.4	2.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.59	1.6	2.0	Not Detected
Trichloroethene	79-01-6	0.97	2.1	2.7	Not Detected
Vinyl Chloride	75-01-4	0.51	1.0	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	89
Toluene-d8	2037-26-5	70-130	98



EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	4/16/19 03:06 PM
Lab ID:	1904296-15A	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd17.i / 17041606
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	108
1,4-Dioxane	123-91-1	123
cis-1,2-Dichloroethene	156-59-2	103
Tetrachloroethene	127-18-4	100
trans-1,2-Dichloroethene	156-60-5	115
Trichloroethene	79-01-6	112
Vinyl Chloride	75-01-4	110

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	90
Toluene-d8	2037-26-5	70-130	108



EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	4/16/19 03:32 PM
Lab ID:	1904296-16A	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd17.i / 17041607
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	110
1,4-Dioxane	123-91-1	126
cis-1,2-Dichloroethene	156-59-2	112
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	106
Trichloroethene	79-01-6	110
Vinyl Chloride	75-01-4	126

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	108
4-Bromofluorobenzene	460-00-4	70-130	91
Toluene-d8	2037-26-5	70-130	107

* % Recovery is calculated using unrounded analytical results.



EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	4/16/19 05:33 PM
Lab ID:	1904296-16AA	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd17.i / 17041610
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	100
1,4-Dioxane	123-91-1	126
cis-1,2-Dichloroethene	156-59-2	102
Tetrachloroethene	127-18-4	96
trans-1,2-Dichloroethene	156-60-5	95
Trichloroethene	79-01-6	110
Vinyl Chloride	75-01-4	116

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	90
Toluene-d8	2037-26-5	70-130	108

* % Recovery is calculated using unrounded analytical results.



April 19, 2019

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: MI001454.0002/3/4.00002/2B/3B
Client project scope reference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics - Folsom
Laboratory submittal: 1904296
Sample date: 2019-04-09
Report received by CADENA: 2019-04-19
Initial Data Verification completed by CADENA: 2019-04-19

13 Air samples were analyzed for TO-15 parameters.

There were no significant QC anomalies or exceptions to report.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) TO-15 Analysis

SDG #1904296

CADENA Verification Report: 2019-04-19

Analyses Performed By:
Eurofins Air Toxics
Folsom, California

Report #32577R
Review Level: Tier III
Project: MI001454.0003.00001

DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 1904296 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
1904296	SSMP-12400BELDEN-01_040919	1904296-01A	Air	4/9/2019		X		
	SSMP-12400BELDEN-02_040919	1904296-02A	Air	4/9/2019		X		
	SSMP-12400BELDEN-03_040919	1904296-03A	Air	4/9/2019		X		
	SSMP-12400BELDEN-04_040919	1904296-04A	Air	4/9/2019		X		
	SSMP-12400BELDEN-05_040919	1904296-05A	Air	4/9/2019		X		
	SSMP-12400BELDEN-06_040919	1904296-06A	Air	4/9/2019		X		
	SSMP-12400BELDEN-07_040919	1904296-07A	Air	4/9/2019		X		
	SSMP-12400BELDEN-08_040919	1904296-08A	Air	4/9/2019		X		
	SSMP-12400BELDEN-09_040919	1904296-09A	Air	4/9/2019		X		

DATA REVIEW

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
	SSMP-12400BELDEN-10_040919	1904296-10A	Air	4/9/2019		X		
	SSMP-12400BELDEN-11_040919	1904296-11A	Air	4/9/2019		X		
	SSMP-12400BELDEN-12_040919	1904296-12A	Air	4/9/2019		X		
	DUP-12400BELDEN-02_040919	1904296-13A	Air	4/9/2019	SSMP-12400BELDEN-12_040919	X		

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15 (Full Scan). Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15	Air	30 days from collection to analysis (Canister)	Ambient Temperature	< -2" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 140% or less than 60% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. All identified compounds met the specified criteria.

6. Field Duplicate Sample Analysis

The field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 35% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are not greater than five times the RL, a control limit of one times the RL is applied to the difference between the duplicate sample results.

Results (in $\mu\text{g}/\text{m}^3$) for the field duplicate samples are summarized in the following table.

Sample ID / Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
SSMP-12400BELDEN-12_040919/ DUP-12400BELDEN-02_040919	Tetrachloroethene	12	12	AC
	trans-1,2-Dichloroethene	540	570	5.4%
	Trichloroethene	1100	1100	0.0%

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15 (Full Scan)	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-2"Hg)		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Field Duplicate Sample RPD		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:



DATE: April 28, 2019

PEER REVIEW: Dennis Capria

DATE: May 2, 2019



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**





EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-01_040919	Date/Time Analyzed:	4/16/19 07:47 PM
Lab ID:	1904296-01A	Dilution Factor:	2.66
Date/Time Collecte	4/9/19 07:47 AM	Instrument/Filename:	msd17.i / 17041612
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.3	4.2	5.3	Not Detected
1,4-Dioxane	123-91-1	10	14	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.5	4.2	5.3	Not Detected
Tetrachloroethene	127-18-4	3.6	7.2	9.0	27
trans-1,2-Dichloroethene	156-60-5	1.6	4.2	5.3	380
Trichloroethene	79-01-6	2.6	5.7	7.1	1200
Vinyl Chloride	75-01-4	1.4	2.7	3.4	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	89
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	128

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-02_040919	Date/Time Analyzed:	4/16/19 08:16 PM
Lab ID:	1904296-02A	Dilution Factor:	2.68
Date/Time Collecte	4/9/19 08:15 AM	Instrument/Filename:	msd17.i / 17041613
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.3	4.2	5.3	Not Detected
1,4-Dioxane	123-91-1	10	14	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.5	4.2	5.3	Not Detected
Tetrachloroethene	127-18-4	3.6	7.3	9.1	14
trans-1,2-Dichloroethene	156-60-5	1.6	4.2	5.3	150
Trichloroethene	79-01-6	2.6	5.8	7.2	270
Vinyl Chloride	75-01-4	1.4	2.7	3.4	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	111

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-03_040919	Date/Time Analyzed:	4/16/19 11:13 PM
Lab ID:	1904296-03A	Dilution Factor:	2.74
Date/Time Collecte	4/9/19 08:42 AM	Instrument/Filename:	msd17.i / 17041615
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.4	4.3	5.4	Not Detected
1,4-Dioxane	123-91-1	10	15	20	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.5	4.3	5.4	Not Detected
Tetrachloroethene	127-18-4	3.7	7.4	9.3	13
trans-1,2-Dichloroethene	156-60-5	1.6	4.3	5.4	300
Trichloroethene	79-01-6	2.6	5.9	7.4	580
Vinyl Chloride	75-01-4	1.4	2.8	3.5	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	88
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	109

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-04_040919	Date/Time Analyzed:	4/16/19 11:42 PM
Lab ID:	1904296-04A	Dilution Factor:	2.43
Date/Time Collecte	4/9/19 09:10 AM	Instrument/Filename:	msd17.i / 17041616
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.1	3.8	4.8	Not Detected
1,4-Dioxane	123-91-1	9.3	13	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.8	4.8	Not Detected
Tetrachloroethene	127-18-4	3.3	6.6	8.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.4	3.8	4.8	170
Trichloroethene	79-01-6	2.4	5.2	6.5	170
Vinyl Chloride	75-01-4	1.2	2.5	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	88
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	110

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-05_040919	Date/Time Analyzed:	4/17/19 12:10 AM
Lab ID:	1904296-05A	Dilution Factor:	2.65
Date/Time Collecte	4/9/19 09:35 AM	Instrument/Filename:	msd17.i / 17041617
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.3	4.2	5.2	Not Detected
1,4-Dioxane	123-91-1	10	14	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.5	4.2	5.2	Not Detected
Tetrachloroethene	127-18-4	3.6	7.2	9.0	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.6	4.2	5.2	260
Trichloroethene	79-01-6	2.6	5.7	7.1	240
Vinyl Chloride	75-01-4	1.4	2.7	3.4	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	91
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	108

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-06_040919	Date/Time Analyzed:	4/17/19 12:38 AM
Lab ID:	1904296-06A	Dilution Factor:	2.58
Date/Time Collecte	4/9/19 09:58 AM	Instrument/Filename:	msd17.i / 17041618
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.2	4.1	5.1	Not Detected
1,4-Dioxane	123-91-1	9.8	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	4.1	5.1	Not Detected
Tetrachloroethene	127-18-4	3.5	7.0	8.8	31
trans-1,2-Dichloroethene	156-60-5	1.5	4.1	5.1	340
Trichloroethene	79-01-6	2.5	5.5	6.9	1100
Vinyl Chloride	75-01-4	1.3	2.6	3.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	108

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-07_040919	Date/Time Analyzed:	4/17/19 01:06 AM
Lab ID:	1904296-07A	Dilution Factor:	2.44
Date/Time Collecte	4/9/19 10:03 AM	Instrument/Filename:	msd17.i / 17041619
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.1	3.9	4.8	Not Detected
1,4-Dioxane	123-91-1	9.3	13	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.9	4.8	Not Detected
Tetrachloroethene	127-18-4	3.3	6.6	8.3	18
trans-1,2-Dichloroethene	156-60-5	1.4	3.9	4.8	230
Trichloroethene	79-01-6	2.4	5.2	6.6	370
Vinyl Chloride	75-01-4	1.2	2.5	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	109

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-08_040919	Date/Time Analyzed:	4/17/19 01:34 AM
Lab ID:	1904296-08A	Dilution Factor:	2.64
Date/Time Collecte	4/9/19 09:40 AM	Instrument/Filename:	msd17.i / 17041620
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.3	4.2	5.2	Not Detected
1,4-Dioxane	123-91-1	10	14	19	12 J
cis-1,2-Dichloroethene	156-59-2	1.5	4.2	5.2	Not Detected
Tetrachloroethene	127-18-4	3.6	7.2	9.0	22
trans-1,2-Dichloroethene	156-60-5	1.6	4.2	5.2	360
Trichloroethene	79-01-6	2.6	5.7	7.1	960
Vinyl Chloride	75-01-4	1.3	2.7	3.4	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	90

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-09_040919	Date/Time Analyzed:	4/17/19 02:03 AM
Lab ID:	1904296-09A	Dilution Factor:	2.64
Date/Time Collecte	4/9/19 09:09 AM	Instrument/Filename:	msd17.i / 17041621
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.3	4.2	5.2	Not Detected
1,4-Dioxane	123-91-1	10	14	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.5	4.2	5.2	Not Detected
Tetrachloroethene	127-18-4	3.6	7.2	9.0	36
trans-1,2-Dichloroethene	156-60-5	1.6	4.2	5.2	560
Trichloroethene	79-01-6	2.6	5.7	7.1	1400
Vinyl Chloride	75-01-4	1.3	2.7	3.4	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	108

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-10_040919	Date/Time Analyzed:	4/17/19 02:31 AM
Lab ID:	1904296-10A	Dilution Factor:	2.60
Date/Time Collecte	4/9/19 09:14 AM	Instrument/Filename:	msd17.i / 17041622
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.3	4.1	5.2	Not Detected
1,4-Dioxane	123-91-1	9.9	14	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	4.1	5.2	Not Detected
Tetrachloroethene	127-18-4	3.5	7.0	8.8	29
trans-1,2-Dichloroethene	156-60-5	1.5	4.1	5.2	810
Trichloroethene	79-01-6	2.5	5.6	7.0	1800
Vinyl Chloride	75-01-4	1.3	2.6	3.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	109

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-11_040919	Date/Time Analyzed:	4/17/19 07:17 AM
Lab ID:	1904296-11A	Dilution Factor:	3.47
Date/Time Collecte	4/9/19 08:14 AM	Instrument/Filename:	msd17.i / 17041626
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	3.0	5.5	6.9	Not Detected
1,4-Dioxane	123-91-1	13	19	25	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.9	5.5	6.9	Not Detected
Tetrachloroethene	127-18-4	4.7	9.4	12	11 J
trans-1,2-Dichloroethene	156-60-5	2.1	5.5	6.9	2300
Trichloroethene	79-01-6	3.4	7.4	9.3	2900
Vinyl Chloride	75-01-4	1.8	3.5	4.4	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	88
Toluene-d8	2037-26-5	70-130	107

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-12_040919	Date/Time Analyzed:	4/16/19 10:45 PM
Lab ID:	1904296-12A	Dilution Factor:	2.40
Date/Time Collecte	4/9/19 07:42 AM	Instrument/Filename:	msd17.i / 17041614
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.1	3.8	4.8	Not Detected
1,4-Dioxane	123-91-1	9.2	13	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.8	4.8	Not Detected
Tetrachloroethene	127-18-4	3.2	6.5	8.1	12
trans-1,2-Dichloroethene	156-60-5	1.4	3.8	4.8	540
Trichloroethene	79-01-6	2.3	5.2	6.4	1100
Vinyl Chloride	75-01-4	1.2	2.4	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	84
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	115

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	DUP-12400BELDEN-02_040919	Date/Time Analyzed:	4/17/19 03:27 AM
Lab ID:	1904296-13A	Dilution Factor:	2.40
Date/Time Collected:	4/9/19 12:00 AM	Instrument/Filename:	msd17.i / 17041624
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.1	3.8	4.8	Not Detected
1,4-Dioxane	123-91-1	9.2	13	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.8	4.8	Not Detected
Tetrachloroethene	127-18-4	3.2	6.5	8.1	12
trans-1,2-Dichloroethene	156-60-5	1.4	3.8	4.8	570
Trichloroethene	79-01-6	2.3	5.2	6.4	1100
Vinyl Chloride	75-01-4	1.2	2.4	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	111

Analysis Request / Canister Chain of Custody

For Laboratory Use Only

PID: _____ Workorder #: 1904296

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
Phone (800) 985-5955; Fax (916) 351-8279

Click links below to view:

[Canister Sampling Guide](#)
[Helium Shroud Video](#)

Client: <u>Ford</u> PID: <u>NA</u>		Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting				Turnaround Time (Rush surcharges may apply)									
Project Name: <u>Ford LTP</u>						5 Day Turnaround Time									
Project Manager: <u>Kris Hinskey</u> P.O.# <u>MI001454.0003</u>						Canister Vacuum/Pressure		Requested Analyses							
Sampler: <u>J. Lutz, E. Redner</u>						Initial (in Hg)	Final (in Hg)	Lab Use Only		TO-15 (See Special Instructions/Notes)					
Site Name: <u>12400 Belden</u>								Receipt	Final (psig) Gas: N ₂ / He						
Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N ₂ / He	TO-15 (See Special Instructions/Notes)			
				Date	Time	Date	Time								
01A	SSMP-12400BELDEN-01_040919	1L3132	23639	4-9-19	0737	4-9-19	0747	-29	-6			X			
02A	SSMP-12400BELDEN-02_040919	1L1714	23614	4-9-19	0805	4-9-19	0815	-29	-6.5			X			
03A	SSMP-12400BELDEN-03_040919	1L1908	23254	4-9-19	0831	4-9-19	0842	-29	-6.5			X			
04A	SSMP-12400BELDEN-04_040919	1L2344	23585	4-9-19	0859	4-9-19	0910	-29	-5			X			
05A	SSMP-12400BELDEN-05_040919	1L1604	23283	4-9-19	0925	4-9-19	0935	-29	-6			X			
06A	SSMP-12400BELDEN-06_040919	1L1519	23447	4-9-19	0947	4-9-19	0958	-20	-5.5			X			
07A	SSMP-12400BELDEN-07_040919	1L1912	23444	4-9-19	0953	4-9-19	1003	-28.5	-5			X			
08A	SSMP-12400BELDEN-08_040919	1L1515	23581	4-9-19	0930	4-9-19	0940	-28.5	-6			X			
09A	SSMP-12400BELDEN-09_040919	1L1818	23536	4-9-19	0859	4-9-19	0909	-29	-6			X			
10A	SSMP-12400BELDEN-10_040919	600009 6431	23615	4-9-19	0833	4-9-19	0844	-29	-6			X			
Relinquished by: (Signature/Affiliation)			Date	Time	Received by: (Signature/Affiliation)			Date	Time						
			4-10-19	1600				4/12/19	1210						
Relinquished by: (Signature/Affiliation)			Date	Time	Received by: (Signature/Affiliation)			Date	Time						
Relinquished by: (Signature/Affiliation)			Date	Time	Received by: (Signature/Affiliation)			Date	Time						
Lab Use Only															
Shipper Name: <u>edca</u>		Custody Seals Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> None													
<p>Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922</p>															



Air Toxics

Analysis Request /Canister Chain of Custody

2 of 2
1 of 1

For Laboratory Use Only

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
Phone (800) 985-5955; Fax (916) 351-8279

PID: _____

Workorder #: 1904296

Click links below to view:

[Canister Sampling Guide](#)

[Helium Shroud Video](#)

Client: <u>Ford</u> PID: <u> </u>		Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting		Turnaround Time (Rush surcharges may apply) 5 day													
Project Name: <u>Ford LTP</u>				Canister Vacuum/Pressure		Requested Analyses											
Project Manager: <u>Kris Hinskey</u> P.O.# <u>MI001454.0003</u>																	
Sampler: <u>S. L. S. E. Redner</u>																	
Site Name: <u>12400 Bolden</u>																	
Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Lab Use Only		TO-15 (See Special Instructions/Notes)					
				Date	Time	Date	Time			Receipt	Final (psig) Gas: N ₂ / He						
S1A	Smp-12400 Bolden-11-040919	1L1774	23545	4-2-12	0903	4-2-12	0914	-28.5	-6			X					
S2A	Smp-12400 Bolden-12-040919	1L2424 1L2724	24246	4-2-12	0732	4-2-12	0742	-29	-4.5			X					
S3A	Dop-12400 Bolden-02-040919	1L2381	23727	4-2-12	 	4-2-12		-29	-4.5			X					
Relinquished by: (Signature/Affiliation)		Date	Time	Received by: (Signature/Affiliation)		Date	Time										
		4-10-19	1600			4/2/19	1215										
Relinquished by: (Signature/Affiliation)		Date	Time	Received by: (Signature/Affiliation)		Date	Time										
Relinquished by: (Signature/Affiliation)		Date	Time	Received by: (Signature/Affiliation)		Date	Time										
Lab Use Only																	
Shipper Name: <u> </u>		Custody Seals Intact? <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> None															
<p>Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922</p>																	

Daily Log - Ford Off Site VI Investigation - VISIT 1

Project No.: MI001454.0003 Page 1 of 1

Site Location: 12400 Belden Livonia, MI

Prepared By: D. Craig

Date	Time	Description of Activities
4/8/19		Purpose: R2 Visit 1, Bldg Survey, Chemical Inventory + Samp inspection
		Arcadis: D. Craig, H. Ladd
		Weather: 57° Partly Cloudy
	0905	Arcadis on-site
	0910	Conducted Bldg Survey
	0915	Conducted Chemical inventory - Staff notified not to open windows/bay doors
		Note - TCE containing chemicals will be in use during sampling
		Chemicals cannot be removed as they are needed for normal
		business operation per Site staff. Background PID in
		general warehouse area - 7,500 ppb & 10,500 ppb in process
		room.
	0950	Arcadis off Site

Visit 1 Checklist

Background sources of VOCs have been removed/isolated? Yes No

Location of background sources of VOCs that have been removed/isolated: Flammable cabinets

Sump pit is present? Yes No

Daily Log - Ford Off Site VI Investigation - VISIT 2 & 3

Project No.: MI001454.0003 Page 1 of 1
 Site Location: 12400 Beidon Livonia, MI
 Prepared By: E Reimer

Date	Time	Description of Activities
4/9/14		Purpose: R2, V2 Deploy canisters, collect SSMP samples / R2, V3
		Arcadis: E Reimer, J. Lust
		Weather: 52°F
		SUMMA Canisters used: 13-10 min (include 1 dup) 14-hr (including 1 dup)
	0610	Arcadis on site
	0615	Deploy canisters, collect SSMP samples
	1009	Remind occupants to keep doors/windows to the outside closed
	1015	Arcadis off site
	1500	Arcadis on site - Visit 3: Jan retrieval / GEM+MH readings
	1500	Retrieve IA/AA canisters
		ER FR

Visit 2 & 3 Checklist

Background sources of VOCs have been removed/isolated? Yes No *as much as possible - stored in flammable cabinets*

Number of SSMP samples collected: 13 10-min (include 1 dup)

Number of indoor/ambient air samples collected: 14-hr (include 1 dup)

Occupancy hours (for commercial properties only): 6am - 4:30 pm



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM

Date: 11/13/2016 Survey Performed by: E. Conroy

R2: 4-8-19

H. Ladd

1. OCCUPANT:

Rent: Own:

Resident Name: Advanced Technology Services R2-Todd Buhler

Address: 12400 Belton Court

Telephone: Home: NA Work: 734-523-8800

How long have you ^{lives} lived at this location? 16 years

List current occupants/occupation below (attach additional pages if necessary):

Age (if under 18)	Sex (M/F)	Occupation
NA		

2. OWNER OR LANDLORD: (If same as occupant, check here and go to Item No. 3).

Last Name: International Development Company First Name: Darryl Rogers

Address: 23179 Telegraph Rd

City and State: Southfield 48033

County: Unknown

Home Phone: NA Office Phone: 248-353-4800



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

3. SENSITIVE POPULATION:

Daycare/Nursing Home/Hospital/School/Other (specify): NA (Industrial)

4. BUILDING CHARACTERISTICS:

Residential/Multi-family Residential/Office/Strip Mall/Commercial/Industrial/School

Describe Building: Primarily Warehouse, small office SECTION Year Constructed: ?

Number of floors at or above grade: 1

Number of floors below grade: 0 (full basement/crawl space/slab on grade)

Depth of structure below grade: 0 ft. Basement size: 0 ft²

If the property is residential, what type? (Circle all appropriate responses.) NA

- | | | | |
|-------------|----------|-----------------|-------------------|
| Ranch | 2-Family | 3-Family | Raised Ranch |
| Split Level | Colonial | Cape Cod | Contemporary |
| Mobile Home | Duplex | Apartment House | Townhouses/Condos |
| Modular | Log Home | Other: _____ | |

If multiple units, how many? _____

If the property is commercial:

Business type(s) Repair Industrial Equipment

Does it include residences (i.e., multi-use)? Yes (No) If yes, how many? _____

5. OCCUPANCY:

Is basement/lowest level occupied? (Circle one) § 1 SLAB 6am - 4 30 pm

- (Full-time) Occasionally Seldom Almost Never



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Level	General Use (e.g., family room, bedroom, laundry, workshop, storage)
Basement	NA
1 st Floor	Warehouse, office
2 nd Floor	NA
3 rd Floor	NA
4 th Floor	NA

(Use additional page(s) as necessary)

6. CONSTRUCTION CHARACTERISTICS: (Circle all that apply.)

a. Above Grade Construction: (Describe type: wood frame, concrete, stone, brick).

Slab-on-Grass, Cinder Block, Interior Wood Frame/Sheetrock

b. Basement Type: Full Crawlspace Slab Other: _____

c. Basement Floor: Concrete Dirt Stone Other: _____

d. Finished Basement Floor: Uncovered Covered NA

If covered, what with? _____

e. Foundation Walls: Poured Block Stone Other: _____

f. Foundation Walls: Unsealed Sealed Sealed with: _____

g. The ^{Slab}Basement is: Wet Damp Dry

h. The ^{Slab}Basement is: Finished Unfinished Partially Finished Warehouse

i. Sump Present (Y/N) N If yes, how many? _____

Where Discharged? NA

Water in Sump? Yes No Not Applicable



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Identify all potential soil vapor entry points and estimated size (e.g., cracks, utility parts, drains).

Floor Drains (ties to municipal sewer) - Do smell when they dry out
Pipe Penetrations, Plumbing

Are the basement walls or floor sealed with waterproof paint or epoxy coatings? Yes No Unknown

Type of ground cover outside of building: Grass Concrete Asphalt Other _____

Is an existing subsurface depressurization (radon) system in place? Yes No

If yes, is it active, or passive?

Is a sub-slab vapor/moisture barrier in place? Yes No Unknown

Type of barrier: _____

7. HEATING, VENTING, and AIR CONDITIONING

Type of heating system(s) used in this building: (Circle all that apply: Note the primary).

- | | | |
|--|-----------------|---------------------|
| Hot Air Circulation | Heat Pump | Hot Water Baseboard |
| Space Heaters | Steam Radiation | Radiant Floor |
| Electric Baseboard | Wood Stove | Outdoor Wood Boiler |
| Other: <u>Roofing units (Exhausters)</u> | | |

The primary type of fuel used is:

- | | | |
|--------------------|----------|----------|
| <u>Natural Gas</u> | Fuel Oil | Kerosene |
| Electric | Propane | Solar |
| Wood | Coal | |

Domestic hot water tank fueled by: Electric

Location of Boiler/Furnace: Basement Outdoors Main Floor Other Roof
Roof



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Air Conditioning: Central Air Window Units Open Windows None

Are air distribution ducts present?

Yes No

- oversized ceiling fans present

Is there a whole house fan?

Yes No

- large Exhaust fan in process room

Describe the air intake system (outside air supply, cold air return, ductwork, etc.) and its condition where visible. Indicate the locations on the floor plan diagram.

~~air~~ Air Supply on roof

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

a) Is there an attached garage?

Yes No

Van present near loading dock

If yes, does it have a separate heating unit?

Yes No

b) Are any petroleum-powered machines or vehicles stored in an attached garage (e.g., lawn mower, ATV, car)

Yes No

c) Has the building ever had a fire?

Yes No

d) Is there a fuel burning or unvented gas space heater?

Yes No

small individual space heaters (electrical)

e) Is there a workshop or hobby/craft area?

Yes No

If yes, where and what type? _____

f) Is there smoking in the building?

Yes No

If yes, how frequently? _____



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

- g) Have cleaning products been used recently? Yes No
 If yes, when and what type? Solvents, Vinegar, household cleaners *Cleaning company comes twice/week*
- h) Have cosmetic products been used recently? Yes No
 If yes, when and what type? Face Powder
- i) Has there been painting or staining in the last six months? Yes No
 If yes, when and where? Building - No, Painting in part of operation *(Spray painting booth)*
- j) Is there new carpet, drapes, or other textiles? Yes No
 If yes, when and where? Carpeters replaced 3 year ago
- k) Have air fresheners been used recently? Yes No
 If yes, when and what type? _____
- l) Is there a kitchen exhaust fan? Yes No
 If yes, where is it vented? large exhaust fan in press room
- m) Is there a clothes dryer? Yes No
 If yes, is it vented outside? Yes No
- n) Has there been a pesticide application? Yes No
 If yes, when and what type? Services by O.K.M., last visit 3-4 year ago - Ockin comes monthly to administer pesticides *Unknown what kind of pesticides*
- o) Are there odors in the building? Yes No
 If yes, please describe: Sweet, volatile



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

p) Do any of the building occupants use solvents at work (e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetology)?

Yes No

If yes, what types of solvents are used? Parts washer, aerosols,
(See chemical inventory)

If yes, are their clothes washed at work?

Yes No

q) Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response.)

- No
- Unknown
- Yes, use dry-cleaning regularly (weekly)
- Yes, use dry-cleaning infrequently (monthly or less)
- Yes, work at a dry-cleaning service

- Uniform Services
Uniting
- Assumed to be regular
laundry

r) Is there a radon mitigation system for the building/structure?

Yes No

If yes, what is date of installation? N/A

Active Passive

s) Additional mitigation system information (fan size, location, operating status, liner installed, etc.):

Overides ceiling fans
Large exhaust fan to process radon

t) Is there an irrigation well, or any other well, present at the property:

Yes No

If yes, please describe placement, use, and history below.

Product Inventory Form

i.e. gasoline cans/equipment, kerosene, paints/thinners/strippers, cleaning solvents, hobby supplies (glues), oven cleaner, carpet/upholstery cleaners, household cleaners, moth balls, polishes/waxes, insecticides, furniture/floor polish, hairspray, cologne/perfume, air fresheners, interior fuel tank, wood stove/fireplace, new furniture/upholstery, new carpet/flooring

Location	Product Description	Chemical Ingredients	Quantity	PID Reading (ppb)	Photo	Removed (Y/N)
Between Electric Substation Shipping	Solventless Polyester Resin	Flammable Vapors	1	5750	✓	N
Shipping	Polyether Polyresin	Polyether Polyresin	1	5775	✓	N
Shipping	Polymeric Isocyanate	Polymeric Isocyanate	1	5720	✓	N
Shipping	Disinfectant Wipes	Alkyl benzyl ammonium chloride	1	5850	✓	N
Shipping	Tylenol Disinfectant	n-Alkyl dimethyl benzylammonium	10	5750	✓	N
Shipping	waste battery	LiKAl	3	5230	✓	N
Storage	Storage Tank	Polyether Polyresin	8	5750	✓	N
Storage	Storage tank	Used O.L	4	7350	✓	N
Storage	VACTRA OIL	way oil	5	5780	✓	N
Storage	WayLUBE 300	WayLubricant Anti Wear	1	5950	✓	N
Storage	Solvent Box	VIRGIN SOLVENT	1	5810	✓	N
Storage	Rando HDZ	Rando HDZ	5	10300	✓	N
Storage	DOLPHON Cores	Solventless Polyester Resin	1	5830	✓	N
Storage	Wire Plumbing Lube	Way Lubricant	1	6950	✓	N
Storage	Thread Cutting O.L	Cutting O.L	1	7220	✓	N
Storage	Grease	Polyamide	1	7300	✓	N
Shipping	Cleaner	Cleaning solutions	1	7650	✓	N
Shipping	Washer	Cleaning solutions	1	7420	✓	N
Shipping	AEROSOLCAN	1,2-Dichloroethane	13	14000	✓	N
Electric Lab	Priority TG	PFE 100 P20	2	131000	✓	N
Motor Lab	Waxy Film Protect	Solvent	1	161000	✓	N
Motor Lab	Heavy Duty Lube	Lubricant	1	161000	✓	N
Motor Lab	MAPPER Heat Transfer	Heating gas	1	141000	✓	N
Motor Lab	Sealant	ROS and Methyl Acetate	1	131000	✓	N
Motor Lab	Lubricant	Sealing Material	2	107000	✓	N
Motor Lab	Gas Duster	difluoroethane	1	131000	✓	N
Electronic Lab	Adhesive/sealant	BUTYL nate, polydimethylsiloxane	2	12400	✓	N
Electronic Lab	Pottery compound	Silicone resin	1	13100	✓	N
Electronic Lab	Perchloroethylene	Perchloroethylene	1	14190	✓	N
Electronic Lab	Lubricant	Lubricant TFGH-2000-2320	2	14000	✓	N
Electronic Lab	Multipurpose oil	Petroleum	1	141000	✓	N
Electronic Lab	Kitchen Silicon	VOC 23% wt/wt (309/1)	2	14000	✓	N
Electronic Lab	Pipe Joint Compound	Lubricant	2	14000	✓	N
Electronic Lab	Part Cleaners	Xylene, ethyl benzene	1	14750	✓	N
Electronic Lab	Solvent/detergent	Trichloroethylene	1	14370	✓	N
Electronic Lab	Gas Ket Remover	Cumene, Acetic Ethylene Glycol	1	141450	✓	N
Electronic Lab	Antisol oil	Petroleum	1	14730	✓	N
Electronic Lab	Shell ABS solvent	Lithium	1	14000	✓	N
Electronic Lab	Hydraulic oil	OIL	3	135000	✓	N
Electronic Lab	Shell oil	oil	7	13750	✓	N
Process Room	Oil Adsorbent	oil adsorbent	3	10700	✓	N
Process Room	Lubricant	ROS, ROS in Acid	1	10750	✓	N
Process Room	Washout fluid	ethanol, butyl acetate	1	10910	✓	N
Process Room	Water soluble oil	naphthalates, chlorinated paraffin	1	10900	✓	N
Process Room	Disinfection cleaner	dimethyl benzyl ammonium chloride	1	10900	✓	N
Spindle Lab	Maintenance grease	1,2-dichloroethane	1	331000	✓	N
Spindle Lab	Bearing Grease	Food grade	1	25400	✓	N
Electronic Lab	Flux Remover	1,1-difluoroethane	13	14000	✓	N

Receiving

Shipping

Electronic

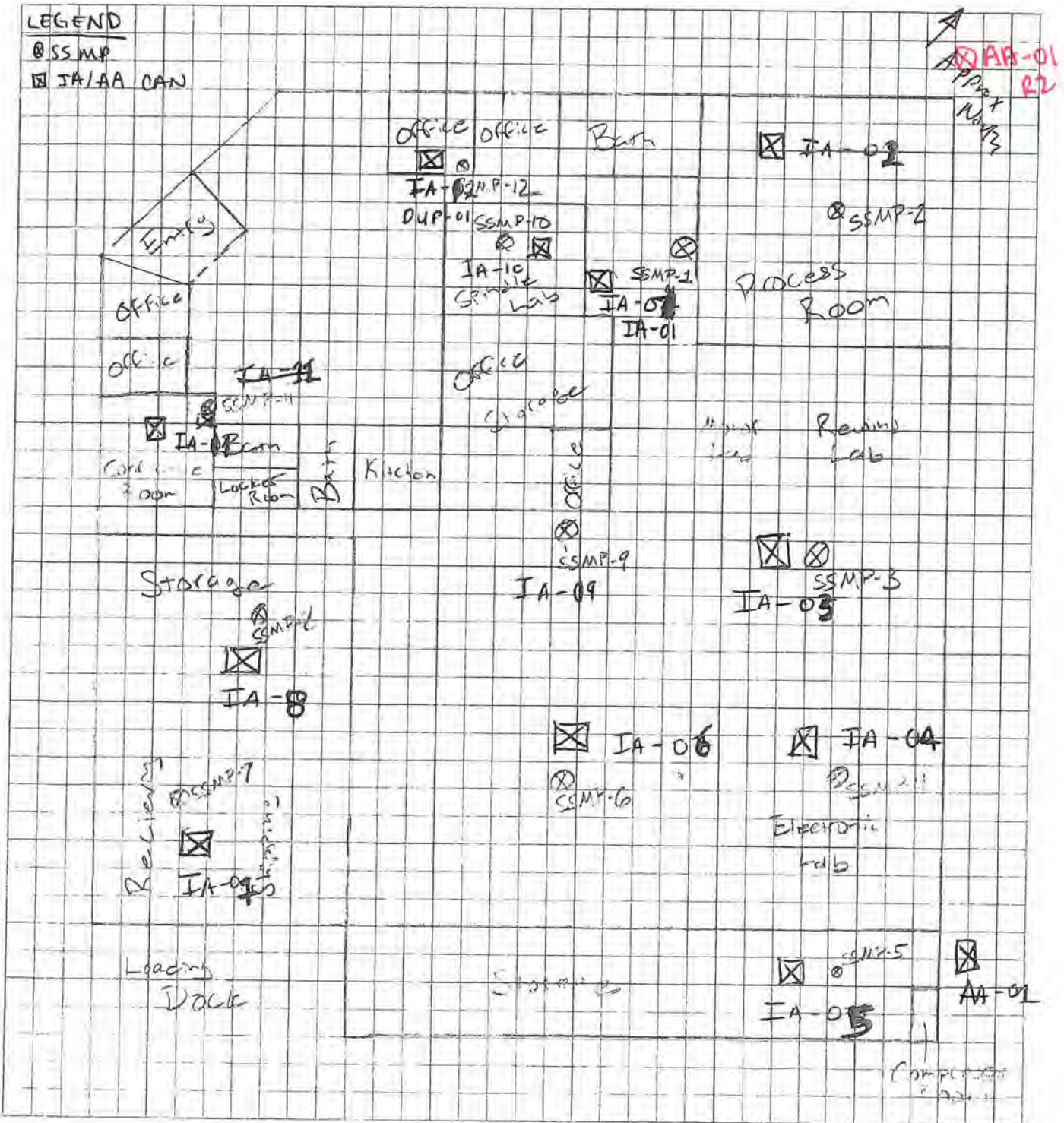
Electronic

Electronic

R2 - Background PID in general warehouse area - 7500 ppb
 - Background PID in process rooms - 10,500 ppb

Note - chemicals containing TCE & Trans 1,2-dichloroethane will be in use during sampling. Chemicals must be removed per Site Safety.

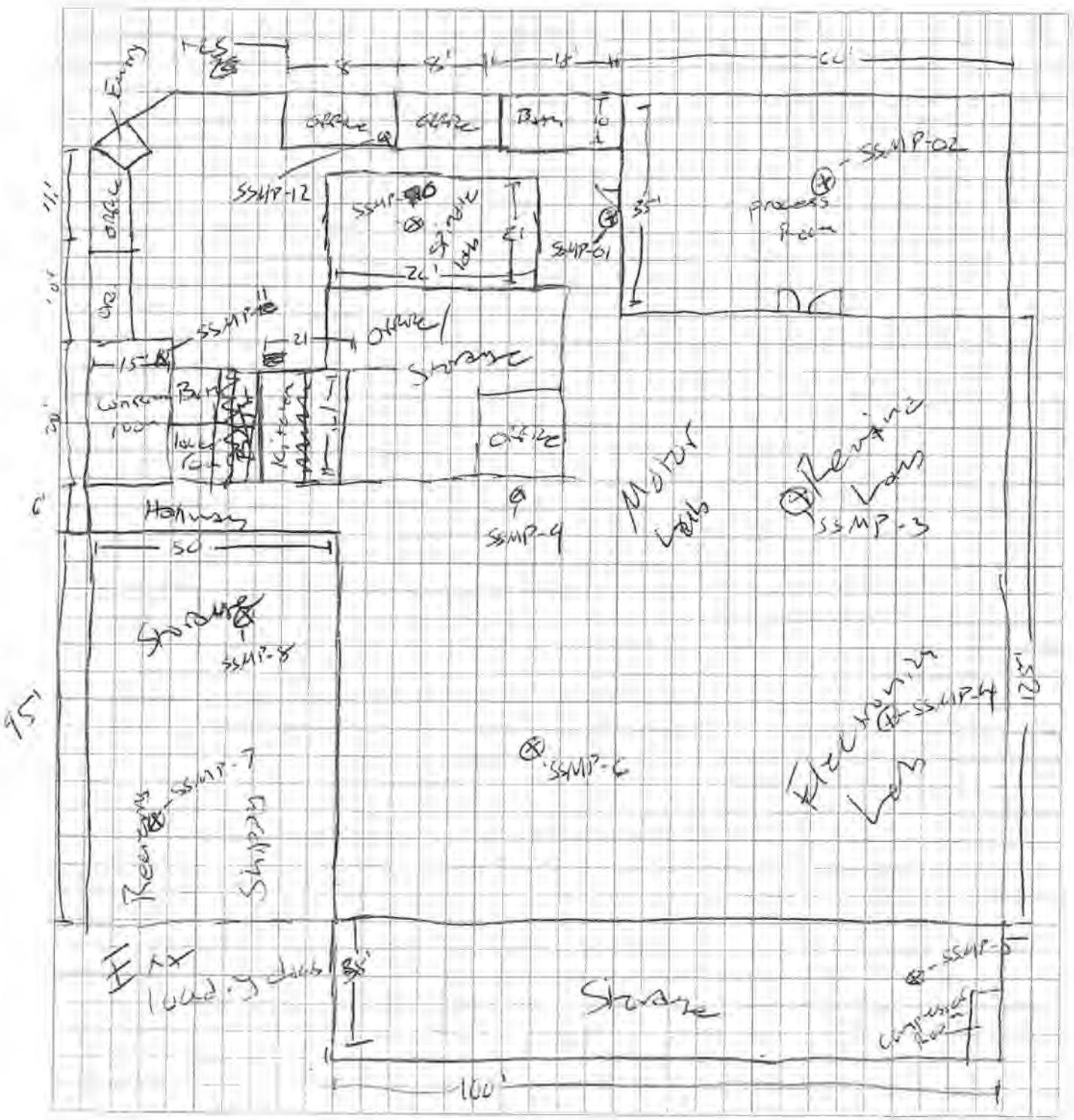
Subject: 12400 Belden Court		Sheet 1 of 2	
Project No. MIC01454.0003		Date 11/13/2018	
Calculations By: EL	Date: 11/13/2018	Checked By: AR	Date: 11/13/2018



HS
BY
ZL

Liberalia

Subject			
Project No.		Sheet 2 of 2	
Calculations By	Date	Checked By	Date



Office Name & Address (Reporting Information): Arcadis of Michigan, LLC 28550 Cabot Drive, Suite 500, Novi, MI 48377		Project Name: Ford LTP Off-site Sampling	
Field Manager: Adam Richmond		Project Number: M001154.0003	
Phone Number: 248.994.2240	Special Instructions: ✓	Site Address: 12400 Belden	
Email Address for Result Reporting: kristoffer.hinsley@arcadis.com		Sampler Name: ER/JL	
Summa Canister Size (1L, 2.7 L, 5L): 6 Liter	Lab: Epsilon		

Sample ID	Sample Location Description	Indoor/Outdoor	PID in Sampling Area (ppb)	Canister Number	Flow Controller Number	Sample Collection Start Date	Sample Collection Start Time	Beginning Canister Pressure (in. Hg)	Sample Collection End Date	Sample Collection End Time	Ending Canister Pressure (in. Hg)	HVAC System Information			Notes
												HVAC Fan On?	Heat On?	Temperature Setting (°F) (start/end)	
AA-12400BELDEN-01_040919	NW edge of building	O	0	6L0483	23599	4/9/19	0657	-29	4/9/19	1516	-6	-	-	-	
IAF-12400BELDEN-01_040919	W of building next to process rooms	I	9960	6L0405	24327	4/9/19	0633	-29	4/9/19	1525	-7	✓	✓	70/70	
IAF-12400BELDEN-02_040919	in process room	I	8876 7915	6L1604	25339	4/9/19	0635 0638	-29	4/9/19	1524	-8	✓	✓	70/70	
IAF-12400BELDEN-03_040919	N-E central location of building (next to SSMP-03)	I	10.30 ppm	6L1472	23369	4/9/19	0635	-29	4/9/19	1504	-7	✓	✓	70/70	
IAF-12400BELDEN-04_040919	E of commercial bldg (close to SSMP-04)	I	10.02 ppm	6L1092	23694	4/9/19	0640	-29	4/9/19	1525	-7.5	✓	✓	70/70	
IAF-12400BELDEN-05_040919	SE of building - storage room	I	10.03 ppm	6L1787	22700	4/9/19	0642	-29	4/9/19	1527	-8	✓	✓	70/70	
IAF-12400BELDEN-06_040919	Central location in building, next to SSMP-06	I	9808	6L0391	23620	4/9/19	0652	-29	4/9/19	1507	-6.5	✓	✓	70/70	
IAF-12400BELDEN-07_040919	Receiving/shipping zone SW of bldg next to SSMP-07	I	8748	6L0836	23862	4/9/19	0650	-29	4/9/19	1510	-6.5	✓	✓	70/70	
IAF-12400BELDEN-08_040919	Receiving/shipping zone next to SSMP-08	I	9400	6L0349	23153	4/9/19	0649	-29	4/9/19	1509	-6	✓	✓	70/70	
IAF-12400BELDEN-09_040919	Central location of bldg, next to office and SSMP-09	I	9859	6L0390	23537	4/9/19	0646	-29	4/9/19	1506	-6.5	✓	✓	70/70	

Meteorological Data						General Notes or Observations	
Date	Time	Temp (°F)		Relative Humidity (%)	Barometric Pressure (in. Hg)	Air Speed (mph)	Source of Weather Information
		Indoor	Outdoor				
4/9/19	0656	70	52	54	29.72	WNW 17	weather.com app
4-9-19	1515	75	61	33	29.77	WNW 16	weather.com app
							weather.com app
							weather.com app


Office Name & Address (Reporting Information): Arcadis of Michigan, LLC 28550 Cabot Drive, Suite 500, Novi, MI 48377		Project Name: Ford LTP Off-site Sampling	
Field Manager: Adam Richmond		Project Number: MI001454.0003	
Phone Number: 248.994.2240	Special Instructions: —	Site Address: 12400 Beiden	
Email Address for Result Reporting: Kristofer.Hinskey@arcadis.com		Sampler Name: ER/JL	
Summa Canister Size (1L, 2.7 L, 6L) 6 Liter	Lab: Eurofins		

Sample ID	Sample Location Description	Indoor/Outdoor	PID in Sampling Area (ppb)	Canister Number	Flow Controller Number	Sample Collection Start Date	Sample Collection Start Time	Beginning Canister Pressure (in. Hg)	Sample Collection End Date	Sample Collection End Time	Ending Canister Pressure (in. Hg)	HVAC System Information			Notes
												HVAC Fan On?	Heat On?	Temperature Setting (°F) (start/end)	
IAF-12400Beiden-10-040919	In spindle lab next to SSMP-10	I	9533	6L1840	23738	4/9/19	0632	-29	4/9/19	1543	-6.5	Y	Y	70	
IAF-12400Beiden-11-040919	Conference room next to SSMP-11	I	9214	6L0687	23593	4/9/19	0626	-29	4/9/19	1500	-6.5	Y	Y	70	
IAF-12400Beiden-12-040919	Office NW of bldg, next to SSMP-12	I	8878	6L0087	23657	4/9/19	0628	-29	4/9/19	1500	-7	Y	Y	70	
DUP-12400Beiden-01-040919	NW edge of building	O	0	6L0726	23417	4/9/19	0657	-29	4/9/19	1516	-9	-	-	-	

Meteorological Data							General Notes or Observations
Date	Time	Temp. (°F)		Relative Humidity (%)	Barometric Pressure (in. Hg)	Air Speed (mph)	
		Indoor	Outdoor				
4/9/19	0656	70	52	54	29.72	WNW 17	—
4/9/19	1540	70	61	33	29.77	WNW 16	

Client Name & Address (Reporting Information) Arcadis (Michigan) LLC 2850 Cabot Drive, Suite 500, Novi, MI 48377		Project Name: Field LTP (White Sampling)	
Field Manager: Adam Richmond		Project Number: M001454-0003	
Phone Number: 248.594.2201		Site Address: 12400 Belden	
Email Address for Field Reports: Kristofer.Husky@arcadis.com		Sample Name: E. Redner / W. Lust	
Helium Detector Model (User): Datascope MGD-2002		Summa Canister Size (L / 2.7 L / GL): 1 Liter	
Helium Leak Test Method: Bucker Stroud		Lab: Eurofins	

Sample ID	Sample Location Description	Date	Pre-Sampling Shut In / Leak-Down Test (Pass/Fail)?	Helium Tracer Test - Performed During Sample Point Purge			Purge Volume (mL)	Purge Rate (mL/min)	Canister Number	FID Canister Number	Sample Collection Start Time	Starting Canister Pressure (in. Hg)	Sample Collection End Time	Ending Canister Pressure (in. Hg)	Total Sampling CC (Reading from GEM) (%)	Post-Sampling O ₂ Reading from GEM (%)	Microanalyzer Reading (in. WG)
				Smallest Helium Concentration During Purge (% Helium)	Helium Reading in Purged Vapor (% Helium)	Helium Test Pass/Fail (Purge contains <5% of amount to pass)?											
SSMP-12400Belden-01-040919	NE of bldg next to process room	4/9/19	Pass	43.2	0	Pass	100 mL	100 mL/min	1L3132	23639	0737	-29	0747	-6	1.6	18.9	0.00034
SSMP-12400Belden-02-040919	in process room	4/9/19	Pass	40.5	0	Pass	100 mL	100 mL/min	1L1714	23614	0805	-29	0815	-6.5	2.4	18.3	0.00079 0.0289 ^{no}
SSMP-12400Belden-03-040919	E of building reward lab	4/9/19	Pass	42.0	0	Pass	100 mL	100 mL/min	1L1408	23254	0831	-29	0842	-6.5	4.1	17.0	-0.01670
SSMP-12400Belden-04-040919	E of building in electronics lab	4/9/19	Pass	40.2	0	Pass	100 mL	100 mL/min	1L2344	23585	0859	-29	0910	-5	6.0	15.2	-0.00919
SSMP-12400Belden-05-040919	SE of building-storage	4/9/19	Pass	41.0	0	Pass	100 mL	100 mL/min	1L1604	23283	0925	-29	0935	-6	7.4	13.3	0.0204
SSMP-12400Belden-06-040919	next to shipping / electronics lab	4/9/19	Pass	44.2	0	Pass	100 mL	100 mL/min	1L1519	23447	0947	-28	0958	-5.5	2.5	17.7	-0.0026
SSMP-12400Belden-07-040919	S of building-receiving+shipping	4/9/19	Pass	41.3	0	Pass	100 mL	100 mL/min	1L1912	23444	0953	-28.5	1003	-5	0.3	19.6	-0.00648
SSMP-12400Belden-08-040919	in shipping area	4/9/19	Pass	43.6	0	Pass	100 mL	100 mL/min	1L1515	23581	0930	-29	0940	-6	0.8	19.3	0.00320
SSMP-12400Belden-09-040919	central locations of bldg-next to storage and office	4/9/19	Pass	46.6	0	Pass	100 mL	100 mL/min	1L1818	23536	0859	-29	0909	-6	1.6	18.6	0.00255
SSMP-12400Belden-10-040919	spindle lab	4/9/19	Pass	43.7	0	Pass	100 mL	100 mL/min	1L1515 6431	23615	0833	-29	0844	-6	1.1	19.2	0.0150

Date		Time		Temp (°F)		Relative Humidity (%)	Barometric Pressure (in. Hg)	Source of Weather Information	Purge Volume Calculation: The purge volume for each sample has been pre-calculated using the information below: For 60-ml soil vapor canisters the sample flow tubing length is ~34 inches and the interior tubing volume is 0.085. Three volumes of the sample flow is 60 milliliters using the equation for volume of a cylinder (volume = pi * radius ² * height) where Volume = 60 ml, radius = 0.25" and height = 34". To have sufficient volume to conduct helium leak testing 100 milliliters should be purged from each sample point. For other soil vapor sampling (0) milliliters should be used for the above general sample flow. Each additional foot of sub-grade tubing account for approximately 1.5 ml. To have sufficient volume to conduct helium leak testing at least 100 milliliters should be purged from each sample point.
Year	Month	Hour	Minute	Indoor	Outdoor				
4/9/19		06	56	70	52	54	29.72	weather.com app	General Notes or Observations: 
								weather.com app	
								weather.com app	
								weather.com app	
								weather.com app	
								weather.com app	

Office Name & Address (Reporting Information) Arcadis of Michigan, LLC 28550 Cabot Drive, Suite 500, Novi, MI 48377		Project Name: Ford LTP Off-site Sampling	
Field Manager: Adam Richardson		Project Number: MI001454.0003	
Phone Number: 248.994.2240		Site Address: 12400 Belden	
Email Address for Result Reporting: Kvistoffer.Hinskey@arcadis.com		Sampler Name: E. Redner / J. LUST	
Helium Detector Model Used: Dielectric MGD-2002		Summa Canister Size (1L, 2.7 L, 6L) 1 Liter	
Helium Leak Test Method: Bucket Shroud		Lab: Eurofins	

Sample ID	Sample Location Description	Date	Pre-Sampling Shut-In / Leak-Down Test Pass/Fail?	Helium Tracer Test - Performed During Sample Point Purge			Purge Volume (mL)	Purge Rate (mL/min)	Canister Number	Flow Controller Number	Sample Collection Start Time	Starting Canister Pressure (in. Hg)	Sample Collection End Time	Ending Canister Pressure (in. Hg)	Post-Sampling CO ₂ Reading from GEM (%)	Post-Sampling O ₂ Reading from GEM (%)	Micromanometer Reading (in. WC)
				Shroud Helium Concentration During Purge (% Helium)	Helium Reading in Purged Vapor (% Helium)	Helium Test: Pass/Fail (Purge contains <5% of shroud to pass)?											
SSMP-12400 Belden-11-040919	conference room NW of building	4/9/19	Pass	42.4	0	Pass	100 mL	100 ml/min	1L1774	23545	0803	-28.5	0814	-6	0.6	19.7	0.00440
SSMP-12400 Belden-12-040919	office NW of building	4/9/19	Pass	47.6	0	Pass	100 mL	100 ml/min	1L2724	24246	0732	-29	0742	-45	0.7	19.6	0.00110
DUP-12400 Belden-02-040919	SSMP-12	4/9/19	Pass	47.6	0	Pass	100 mL	100 ml/min	1L2381	23727	0732	-29	0742	-45	0.7	19.6	0.00110
							100 mL	100 ml/min									
							100 mL	100 ml/min									
							100 mL	100 ml/min									
							100 mL	100 ml/min									
							100 mL	100 ml/min									
							100 mL	100 ml/min									
							100 mL	100 ml/min									

Meteorological Data							Purge Volume Calculations: The purge volume for each sample has been pre-calculated using the information below. For sub-slab soil vapor samples the sample train tubing length is ~54 inches and the interior tubing radius is 0.085". Three volumes of the sample train is 60 milliliters using the equation for volume of a cylinder (volume = pi * radius ² * height) where Volume = 60 ml, radius = 0.085" and height = 54". To have sufficient volume to conduct helium leak testing 100 milliliters should be purged from each sample point. For exterior soil vapor sampling 60 milliliters should be used for the above ground sample train. Each additional foot of sub-grade tubing account for approximately 13 ml. To have sufficient volume to conduct helium leak testing at least 100 milliliters should be purged from each sample point.
Date	Time	Temp (°F)		Relative Humidity (%)	Barometric Pressure (in. Hg)	Source of Weather Information	
4/9/19	0656	70	52	54	29.72	weather.com app	
						weather.com app	
						weather.com app	
						weather.com app	
						weather.com app	
						weather.com app	

General Notes or Observations

TRANSMITTAL LETTER



To:
Livonia International Development, LLC
Shawn Collins
Brandon Alger (EGLE)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:
October 15, 2020

Subject:
Vapor Intrusion Assessment Data
Package

Arcadis Project No.:

We are sending you copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Delivery Date	Drawing No.	Rev.	Description	Action*
1	10/15/2020			Figure	
1	10/15/2020			Analytical Results	
1	10/15/2020			Field Notes and Drawings	

Action*

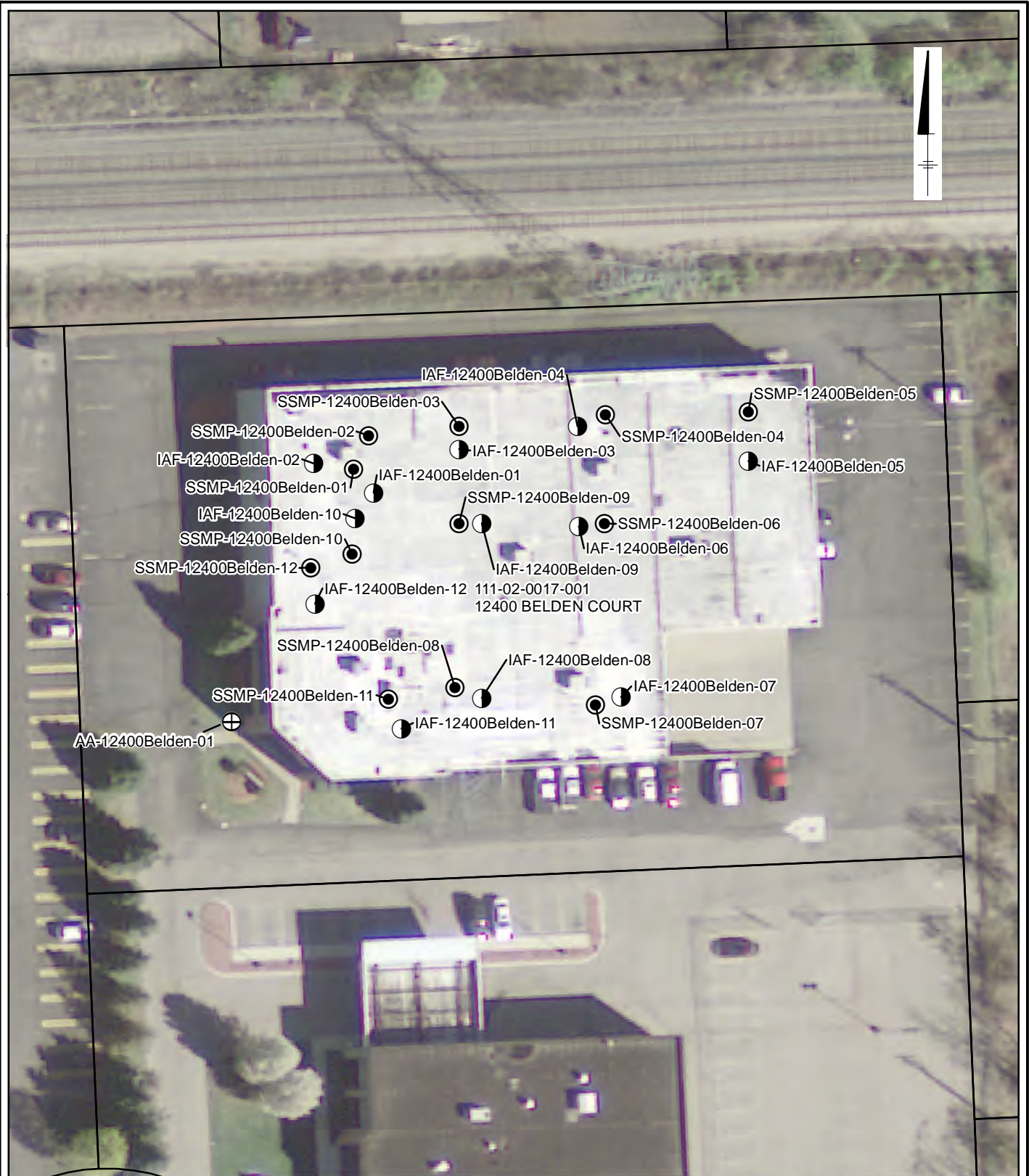
- A Approved CR Correct and Resubmit Resubmit _____ Copies
 AN Approved As Noted F File Return _____ Copies
 AS As Requested FA For Approval Review and Comment
 Other: _____

Mailing Method

- U.S. Postal Service 1st Class Courier/Hand Delivery FedEx Priority Overnight FedEx 2-Day Delivery
 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
 Other: email

Thank you for cooperating with the air sampling at your property on June 17 and September 15, 2020. During the initial sampling event on June 17th Arcadis staff encountered high air monitoring readings, this resulted in a change of conditions, therefore the team stopped work and did not collect sub-slab samples, thus the indoor air results were rejected. Arcadis returned on September 15th to collect a complete sample set. Attached is your data package.

CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: T. STEVENS TR: P. CURRY PROJECT NUMBER: M001373.0001.00003 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
 Z:\GIS\Projects\ENV\Novi\Brighton_M\Ford\Livonia\GIS\docs\2018-11\12400Belden_2018\1126.mxd PLOTTED: 11/28/2018 2:45:25 PM BY: msmliller



LEGEND:


- INDOOR AIR LOCATION
 - ⊕ AMBIENT AIR LOCATION
 - SUB-SLAB MONITORING POINT LOCATION
 - ▭ BUILDING
 - ▭ PROPERTY BOUNDARIES
- 0 25 50
SCALE IN FEET

FORD MOTOR COMPANY
 LIVONIA TRANSMISSION PLANT
 LIVONIA, MICHIGAN

AIR SAMPLING LOCATIONS



FIGURE 1



6/30/2020

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #: 30042006.0301.02
Workorder #: 2006644

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 6/23/2020 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 2006644

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30042006
FAX:		PROJECT #	30042006.0301.02 Ford LTP
DATE RECEIVED:	06/23/2020	CONTACT:	Ausha Scott
DATE COMPLETED:	06/30/2020		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	IAF-12400BELDEN-11_061720	Modified TO-15	6.3 "Hg	5.1 psi
02A	IAF-12400BELDEN-12_061720	Modified TO-15	5.1 "Hg	4.8 psi
03A	AA-12400BELDEN-01_061720	Modified TO-15	6.3 "Hg	5 psi
04A	IAF-12400BELDEN-03_061720	Modified TO-15	7.1 "Hg	5.1 psi
05A	IAF-12400BELDEN-05_061720	Modified TO-15	6.7 "Hg	4.9 psi
06A	IAF-12400BELDEN-04_061720	Modified TO-15	5.9 "Hg	5 psi
07A	IAF-12400BELDEN-07_061720	Modified TO-15	6.3 "Hg	5 psi
08A	IAF-12400BELDEN-06_061720	Modified TO-15	6.9 "Hg	5.1 psi
09A	IAF-12400BELDEN-08_061720	Modified TO-15	5.5 "Hg	5 psi
10A	IAF-12400BELDEN-09_061720	Modified TO-15	5.3 "Hg	4.8 psi
11A	IAF-12400BELDEN-01_061720	Modified TO-15	5.5 "Hg	5.1 psi
12A	IAF-12400BELDEN-02_061720	Modified TO-15	6.7 "Hg	4.8 psi
13A	IAF-12400BELDEN-10_061720	Modified TO-15	5.7 "Hg	4.8 psi
14A	Lab Blank	Modified TO-15	NA	NA
14B	Lab Blank	Modified TO-15	NA	NA
15A	CCV	Modified TO-15	NA	NA
15B	CCV	Modified TO-15	NA	NA
16A	LCS	Modified TO-15	NA	NA
16AA	LCS	Modified TO-15	NA	NA
16B	LCS	Modified TO-15	NA	NA
16BB	LCS	Modified TO-15	NA	NA

CERTIFIED BY: 

DATE: 06/30/20

Technical Director

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP – CA009332019-11, VA NELAP - 460197, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005-011, Effective date: 10/18/2019, Expiration date: 10/17/2020.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 2006644

Thirteen 6 Liter Summa Canister (100% Cert Ambient) samples were received on June 23, 2020. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the EATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	$\leq 30\%$ RSD with 2 compounds allowed out to <math>< 40\%</math> RSD	$\leq 30\%$ RSD with 4 compounds allowed out to <math>< 40\%</math> RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Samples IAF-12400BELDEN-11_061720, IAF-12400BELDEN-12_061720, IAF-12400BELDEN-03_061720, IAF-12400BELDEN-05_061720, IAF-12400BELDEN-04_061720, IAF-12400BELDEN-07_061720, IAF-12400BELDEN-06_061720, IAF-12400BELDEN-08_061720, IAF-12400BELDEN-09_061720, IAF-12400BELDEN-01_061720, IAF-12400BELDEN-02_061720 and IAF-12400BELDEN-10_061720 were transferred from Low Level analysis to full scan TO-15 due to high levels of target compounds.

Dilution was performed on samples IAF-12400BELDEN-11_061720, IAF-12400BELDEN-12_061720, IAF-12400BELDEN-03_061720, IAF-12400BELDEN-05_061720, IAF-12400BELDEN-04_061720, IAF-12400BELDEN-07_061720, IAF-12400BELDEN-06_061720, IAF-12400BELDEN-08_061720, IAF-12400BELDEN-09_061720, IAF-12400BELDEN-01_061720, IAF-12400BELDEN-02_061720 and IAF-12400BELDEN-10_061720 due to the presence of high level target species.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS
 Ford LTP

Client ID:	IAF-12400BELDEN-11_061720	Date/Time Analyzed:	6/26/20 03:49 PM
Lab ID:	2006644-01A	Dilution Factor:	5.69
Date/Time Collected:	6/17/20 02:59 PM	Instrument/Filename:	msd14.i / 14062615
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	22	68	110	Not Detected
1,4-Dioxane	123-91-1	120	310	410	Not Detected
cis-1,2-Dichloroethene	156-59-2	18	68	110	Not Detected
Tetrachloroethene	127-18-4	59	120	190	Not Detected
trans-1,2-Dichloroethene	156-60-5	35	68	110	11000
Trichloroethene	79-01-6	28	92	150	40 J
Vinyl Chloride	75-01-4	26	44	73	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS
 Ford LTP

Client ID:	IAF-12400BELDEN-12_061720	Date/Time Analyzed:	6/26/20 02:11 PM
Lab ID:	2006644-02A	Dilution Factor:	4.00
Date/Time Collected:	6/17/20 02:59 PM	Instrument/Filename:	msd14.i / 14062612
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	16	48	79	Not Detected
1,4-Dioxane	123-91-1	87	220	290	Not Detected
cis-1,2-Dichloroethene	156-59-2	12	48	79	14 J
Tetrachloroethene	127-18-4	41	81	140	Not Detected
trans-1,2-Dichloroethene	156-60-5	24	48	79	8700
Trichloroethene	79-01-6	20	64	110	34 J
Vinyl Chloride	75-01-4	18	31	51	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	99

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-12400BELDEN-01_061720	Date/Time Analyzed:	6/25/20 09:50 PM
Lab ID:	2006644-03A	Dilution Factor:	1.70
Date/Time Collected:	6/17/20 02:53 PM	Instrument/Filename:	msdv.i / v062519
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.39	0.54	0.67	Not Detected
1,4-Dioxane	123-91-1	0.32	0.49	0.61	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.10	0.54	0.67	Not Detected
Tetrachloroethene	127-18-4	0.33	0.92	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.29	0.54	0.67	0.74
Trichloroethene	79-01-6	0.31	0.73	0.91	Not Detected
Vinyl Chloride	75-01-4	0.11	0.35	0.43	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	96

EPA METHOD TO-15 GC/MS
 Ford LTP

Client ID:	IAF-12400BELDEN-03_061720	Date/Time Analyzed:	6/26/20 09:36 PM
Lab ID:	2006644-04A	Dilution Factor:	7.04
Date/Time Collected:	6/17/20 03:04 PM	Instrument/Filename:	msd14.i / 14062630
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	28	84	140	Not Detected
1,4-Dioxane	123-91-1	150	380	510	Not Detected
cis-1,2-Dichloroethene	156-59-2	22	84	140	25 J
Tetrachloroethene	127-18-4	72	140	240	Not Detected
trans-1,2-Dichloroethene	156-60-5	43	84	140	14000
Trichloroethene	79-01-6	35	110	190	45 J
Vinyl Chloride	75-01-4	32	54	90	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS
 Ford LTP

Client ID:	IAF-12400BELDEN-05_061720	Date/Time Analyzed:	6/26/20 10:01 PM
Lab ID:	2006644-05A	Dilution Factor:	6.88
Date/Time Collected:	6/17/20 03:24 PM	Instrument/Filename:	msd14.i / 14062631
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	27	82	140	Not Detected
1,4-Dioxane	123-91-1	150	370	500	Not Detected
cis-1,2-Dichloroethene	156-59-2	21	82	140	Not Detected
Tetrachloroethene	127-18-4	71	140	230	Not Detected
trans-1,2-Dichloroethene	156-60-5	42	82	140	13000
Trichloroethene	79-01-6	34	110	180	Not Detected
Vinyl Chloride	75-01-4	31	53	88	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS
 Ford LTP

Client ID:	IAF-12400BELDEN-04_061720	Date/Time Analyzed:	6/26/20 10:43 PM
Lab ID:	2006644-06A	Dilution Factor:	5.96
Date/Time Collected:	6/17/20 03:24 PM	Instrument/Filename:	msd14.i / 14062633
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	23	71	120	Not Detected
1,4-Dioxane	123-91-1	130	320	430	Not Detected
cis-1,2-Dichloroethene	156-59-2	18	71	120	Not Detected
Tetrachloroethene	127-18-4	61	120	200	Not Detected
trans-1,2-Dichloroethene	156-60-5	36	71	120	13000
Trichloroethene	79-01-6	30	96	160	46 J
Vinyl Chloride	75-01-4	27	46	76	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	91
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS
 Ford LTP

Client ID:	IAF-12400BELDEN-07_061720	Date/Time Analyzed:	6/26/20 11:52 PM
Lab ID:	2006644-07A	Dilution Factor:	5.67
Date/Time Collected:	6/17/20 03:21 PM	Instrument/Filename:	msd14.i / 14062636
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	22	67	110	Not Detected
1,4-Dioxane	123-91-1	120	310	410	Not Detected
cis-1,2-Dichloroethene	156-59-2	18	67	110	Not Detected
Tetrachloroethene	127-18-4	58	120	190	Not Detected
trans-1,2-Dichloroethene	156-60-5	35	67	110	11000
Trichloroethene	79-01-6	28	91	150	30 J
Vinyl Chloride	75-01-4	26	43	72	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	96

EPA METHOD TO-15 GC/MS
 Ford LTP



Client ID:	IAF-12400BELDEN-06_061720	Date/Time Analyzed:	6/26/20 04:17 PM
Lab ID:	2006644-08A	Dilution Factor:	5.84
Date/Time Collected:	6/17/20 03:05 PM	Instrument/Filename:	msd14.i / 14062616
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	23	69	120	Not Detected
1,4-Dioxane	123-91-1	130	320	420	Not Detected
cis-1,2-Dichloroethene	156-59-2	18	69	120	Not Detected
Tetrachloroethene	127-18-4	60	120	200	Not Detected
trans-1,2-Dichloroethene	156-60-5	36	69	120	12000
Trichloroethene	79-01-6	29	94	160	42 J
Vinyl Chloride	75-01-4	26	45	75	Not Detected

J = Estimated value.
 D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS
 Ford LTP



Client ID:	IAF-12400BELDEN-08_061720	Date/Time Analyzed:	6/26/20 02:41 PM
Lab ID:	2006644-09A	Dilution Factor:	4.10
Date/Time Collected:	6/17/20 03:20 PM	Instrument/Filename:	msd14.i / 14062613
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	16	49	81	Not Detected
1,4-Dioxane	123-91-1	89	220	300	Not Detected
cis-1,2-Dichloroethene	156-59-2	13	49	81	Not Detected
Tetrachloroethene	127-18-4	42	83	140	Not Detected
trans-1,2-Dichloroethene	156-60-5	25	49	81	9700
Trichloroethene	79-01-6	20	66	110	Not Detected
Vinyl Chloride	75-01-4	18	31	52	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS
 Ford LTP

Client ID:	IAF-12400BELDEN-09_061720	Date/Time Analyzed:	6/26/20 11:06 PM
Lab ID:	2006644-10A	Dilution Factor:	5.75
Date/Time Collected:	6/17/20 03:01 PM	Instrument/Filename:	msd14.i / 14062634
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	22	68	110	Not Detected
1,4-Dioxane	123-91-1	120	310	410	Not Detected
cis-1,2-Dichloroethene	156-59-2	18	68	110	20 J
Tetrachloroethene	127-18-4	59	120	200	Not Detected
trans-1,2-Dichloroethene	156-60-5	35	68	110	14000
Trichloroethene	79-01-6	29	93	150	38 J
Vinyl Chloride	75-01-4	26	44	73	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS
 Ford LTP

Client ID:	IAF-12400BELDEN-01_061720	Date/Time Analyzed:	6/26/20 11:29 PM
Lab ID:	2006644-11A	Dilution Factor:	5.50
Date/Time Collected:	6/17/20 03:12 PM	Instrument/Filename:	msd14.i / 14062635
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	22	65	110	Not Detected
1,4-Dioxane	123-91-1	120	300	400	Not Detected
cis-1,2-Dichloroethene	156-59-2	17	65	110	Not Detected
Tetrachloroethene	127-18-4	57	110	190	Not Detected
trans-1,2-Dichloroethene	156-60-5	34	65	110	13000
Trichloroethene	79-01-6	27	89	150	44 J
Vinyl Chloride	75-01-4	25	42	70	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS
 Ford LTP

Client ID:	IAF-12400BELDEN-02_061720	Date/Time Analyzed:	6/26/20 04:50 PM
Lab ID:	2006644-12A	Dilution Factor:	5.70
Date/Time Collected:	6/17/20 03:20 PM	Instrument/Filename:	msd14.i / 14062617
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	22	68	110	Not Detected
1,4-Dioxane	123-91-1	120	310	410	Not Detected
cis-1,2-Dichloroethene	156-59-2	18	68	110	Not Detected
Tetrachloroethene	127-18-4	59	120	190	Not Detected
trans-1,2-Dichloroethene	156-60-5	35	68	110	12000
Trichloroethene	79-01-6	28	92	150	33 J
Vinyl Chloride	75-01-4	26	44	73	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS
 Ford LTP

Client ID:	IAF-12400BELDEN-10_061720	Date/Time Analyzed:	6/26/20 03:07 PM
Lab ID:	2006644-13A	Dilution Factor:	4.10
Date/Time Collected:	6/17/20 03:22 PM	Instrument/Filename:	msd14.i / 14062614
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	16	49	81	Not Detected
1,4-Dioxane	123-91-1	89	220	300	Not Detected
cis-1,2-Dichloroethene	156-59-2	13	49	81	Not Detected
Tetrachloroethene	127-18-4	42	83	140	Not Detected
trans-1,2-Dichloroethene	156-60-5	25	49	81	9000
Trichloroethene	79-01-6	20	66	110	28 J
Vinyl Chloride	75-01-4	18	31	52	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	98

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	6/25/20 01:56 PM
Lab ID:	2006644-14A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdv.i / v062508c
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.23	0.32	0.40	Not Detected
1,4-Dioxane	123-91-1	0.19	0.29	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.061	0.32	0.40	Not Detected
Tetrachloroethene	127-18-4	0.20	0.54	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.17	0.32	0.40	Not Detected
Trichloroethene	79-01-6	0.18	0.43	0.54	Not Detected
Vinyl Chloride	75-01-4	0.065	0.20	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	107
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	6/26/20 10:40 AM
Lab ID:	2006644-14B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd14.i / 14062606c
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	3.9	12	20	Not Detected
1,4-Dioxane	123-91-1	22	54	72	Not Detected
cis-1,2-Dichloroethene	156-59-2	3.1	12	20	Not Detected
Tetrachloroethene	127-18-4	10	20	34	Not Detected
trans-1,2-Dichloroethene	156-60-5	6.1	12	20	Not Detected
Trichloroethene	79-01-6	5.0	16	27	Not Detected
Vinyl Chloride	75-01-4	4.5	7.7	13	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	6/25/20 08:30 AM
Lab ID:	2006644-15A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdv.i / v062502
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	99
1,4-Dioxane	123-91-1	112
cis-1,2-Dichloroethene	156-59-2	104
Tetrachloroethene	127-18-4	103
trans-1,2-Dichloroethene	156-60-5	103
Trichloroethene	79-01-6	100
Vinyl Chloride	75-01-4	99

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	106

EPA METHOD TO-15 GC/MS
 Ford LTP

Client ID:	CCV	Date/Time Analyzed:	6/26/20 08:58 AM
Lab ID:	2006644-15B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd14.i / 14062602
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	98
1,4-Dioxane	123-91-1	97
cis-1,2-Dichloroethene	156-59-2	102
Tetrachloroethene	127-18-4	92
trans-1,2-Dichloroethene	156-60-5	100
Trichloroethene	79-01-6	90
Vinyl Chloride	75-01-4	98

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	6/25/20 09:08 AM
Lab ID:	2006644-16A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdv.i / v062503
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	102
1,4-Dioxane	123-91-1	115
cis-1,2-Dichloroethene	156-59-2	96
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	111
Trichloroethene	79-01-6	100
Vinyl Chloride	75-01-4	107

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	103

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	6/25/20 09:46 AM
Lab ID:	2006644-16AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdv.i / v062504
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	115
1,4-Dioxane	123-91-1	115
cis-1,2-Dichloroethene	156-59-2	92
Tetrachloroethene	127-18-4	98
trans-1,2-Dichloroethene	156-60-5	110
Trichloroethene	79-01-6	98
Vinyl Chloride	75-01-4	103

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	102

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS
 Ford LTP

Client ID:	LCS	Date/Time Analyzed:	6/26/20 09:21 AM
Lab ID:	2006644-16B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd14.i / 14062603
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	98
1,4-Dioxane	123-91-1	102
cis-1,2-Dichloroethene	156-59-2	96
Tetrachloroethene	127-18-4	100
trans-1,2-Dichloroethene	156-60-5	114
Trichloroethene	79-01-6	95
Vinyl Chloride	75-01-4	101

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	102

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS
 Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	6/26/20 09:45 AM
Lab ID:	2006644-16BB	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd14.i / 14062604
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	98
1,4-Dioxane	123-91-1	100
cis-1,2-Dichloroethene	156-59-2	91
Tetrachloroethene	127-18-4	90
trans-1,2-Dichloroethene	156-60-5	108
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	100

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	100

* % Recovery is calculated using unrounded analytical results.



June 30, 2020

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: 30042006.0301.02 RESIDENTIAL
Client project scopereference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics -Folsom
Laboratory submittal: 2006644
Sample date: 2020-06-17
Report received by CADENA: 2020-06-30
Initial Data Verification completed: 2020-06-30
13 Air samples were analyzed for TO-15 parameters.

No data qualifications or sample integrity issues were observed.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) TO-15 Analysis

SDG #2006644

CADENA Verification Report: 2020-06-30

Analyses Performed By:
Eurofins Air Toxics
Folsom, California

Report #37738R
Review Level: Tier III
Project: 30050315.301.02

DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 2006644 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
2006644	IAF-12400BELDEN-11_061720	2006644-01A	Air	6/17/2020		X		
	IAF-12400BELDEN-12_061720	2006644-02A	Air	6/17/2020		X		
	AA-12400BELDEN-01_061720	2006644-03A	Air	6/17/2020		X		
	IAF-12400BELDEN-03_061720	2006644-04A	Air	6/17/2020		X		
	IAF-12400BELDEN-05_061720	2006644-05A	Air	6/17/2020		X		
	IAF-12400BELDEN-04_061720	2006644-06A	Air	6/17/2020		X		
	IAF-12400BELDEN-07_061720	2006644-07A	Air	6/17/2020		X		
	IAF-12400BELDEN-06_061720	2006644-08A	Air	6/17/2020		X		
	IAF-12400BELDEN-08_061720	2006644-09A	Air	6/17/2020		X		
	IAF-12400BELDEN-09_061720	2006644-10A	Air	6/17/2020		X		
	IAF-12400BELDEN-01_061720	2006644-11A	Air	6/17/2020		X		
	IAF-12400BELDEN-02_061720	2006644-12A	Air	6/17/2020		X		
	IAF-12400BELDEN-10_061720	2006644-13A	Air	6/17/2020		X		

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15 (Full Scan). Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15	Air	30 days from collection to analysis (Canister)	Ambient Temperature	< -2" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 140% or less than 60% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. All identified compounds met the specified criteria.

6. Field Duplicate Sample Analysis

The field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 35% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are not greater than five times the RL, a control limit of three times the RL is applied to the difference between the duplicate sample results.

A field duplicate was not performed on a sample location within this SDG.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15 (Full Scan)	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-2"Hg)		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Field Duplicate Sample RPD					X
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

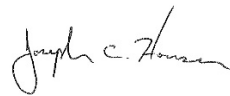
%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:



DATE: July 27, 2020

PEER REVIEW: Andrew Korycinski

DATE: August 7, 2020



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



**NO CORRECTIONS/QUALIFIERS ADDED
TO SAMPLE ANALYSIS DATA SHEETS**



EPA METHOD TO-15 GC/MS
 Ford LTP

Client ID:	IAF-12400BELDEN-11_061720	Date/Time Analyzed:	6/26/20 03:49 PM
Lab ID:	2006644-01A	Dilution Factor:	5.69
Date/Time Collected:	6/17/20 02:59 PM	Instrument/Filename:	msd14.i / 14062615
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	22	68	110	Not Detected
1,4-Dioxane	123-91-1	120	310	410	Not Detected
cis-1,2-Dichloroethene	156-59-2	18	68	110	Not Detected
Tetrachloroethene	127-18-4	59	120	190	Not Detected
trans-1,2-Dichloroethene	156-60-5	35	68	110	11000
Trichloroethene	79-01-6	28	92	150	40 J
Vinyl Chloride	75-01-4	26	44	73	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS
 Ford LTP

Client ID:	IAF-12400BELDEN-12_061720	Date/Time Analyzed:	6/26/20 02:11 PM
Lab ID:	2006644-02A	Dilution Factor:	4.00
Date/Time Collected:	6/17/20 02:59 PM	Instrument/Filename:	msd14.i / 14062612
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	16	48	79	Not Detected
1,4-Dioxane	123-91-1	87	220	290	Not Detected
cis-1,2-Dichloroethene	156-59-2	12	48	79	14 J
Tetrachloroethene	127-18-4	41	81	140	Not Detected
trans-1,2-Dichloroethene	156-60-5	24	48	79	8700
Trichloroethene	79-01-6	20	64	110	34 J
Vinyl Chloride	75-01-4	18	31	51	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	99

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-12400BELDEN-01_061720	Date/Time Analyzed:	6/25/20 09:50 PM
Lab ID:	2006644-03A	Dilution Factor:	1.70
Date/Time Collected:	6/17/20 02:53 PM	Instrument/Filename:	msdv.i / v062519
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.39	0.54	0.67	Not Detected
1,4-Dioxane	123-91-1	0.32	0.49	0.61	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.10	0.54	0.67	Not Detected
Tetrachloroethene	127-18-4	0.33	0.92	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.29	0.54	0.67	0.74
Trichloroethene	79-01-6	0.31	0.73	0.91	Not Detected
Vinyl Chloride	75-01-4	0.11	0.35	0.43	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	96

EPA METHOD TO-15 GC/MS
 Ford LTP

Client ID:	IAF-12400BELDEN-03_061720	Date/Time Analyzed:	6/26/20 09:36 PM
Lab ID:	2006644-04A	Dilution Factor:	7.04
Date/Time Collected:	6/17/20 03:04 PM	Instrument/Filename:	msd14.i / 14062630
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	28	84	140	Not Detected
1,4-Dioxane	123-91-1	150	380	510	Not Detected
cis-1,2-Dichloroethene	156-59-2	22	84	140	25 J
Tetrachloroethene	127-18-4	72	140	240	Not Detected
trans-1,2-Dichloroethene	156-60-5	43	84	140	14000
Trichloroethene	79-01-6	35	110	190	45 J
Vinyl Chloride	75-01-4	32	54	90	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS
 Ford LTP

Client ID:	IAF-12400BELDEN-05_061720	Date/Time Analyzed:	6/26/20 10:01 PM
Lab ID:	2006644-05A	Dilution Factor:	6.88
Date/Time Collected:	6/17/20 03:24 PM	Instrument/Filename:	msd14.i / 14062631
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	27	82	140	Not Detected
1,4-Dioxane	123-91-1	150	370	500	Not Detected
cis-1,2-Dichloroethene	156-59-2	21	82	140	Not Detected
Tetrachloroethene	127-18-4	71	140	230	Not Detected
trans-1,2-Dichloroethene	156-60-5	42	82	140	13000
Trichloroethene	79-01-6	34	110	180	Not Detected
Vinyl Chloride	75-01-4	31	53	88	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS
 Ford LTP

Client ID:	IAF-12400BELDEN-04_061720	Date/Time Analyzed:	6/26/20 10:43 PM
Lab ID:	2006644-06A	Dilution Factor:	5.96
Date/Time Collected:	6/17/20 03:24 PM	Instrument/Filename:	msd14.i / 14062633
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	23	71	120	Not Detected
1,4-Dioxane	123-91-1	130	320	430	Not Detected
cis-1,2-Dichloroethene	156-59-2	18	71	120	Not Detected
Tetrachloroethene	127-18-4	61	120	200	Not Detected
trans-1,2-Dichloroethene	156-60-5	36	71	120	13000
Trichloroethene	79-01-6	30	96	160	46 J
Vinyl Chloride	75-01-4	27	46	76	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	91
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS
 Ford LTP

Client ID:	IAF-12400BELDEN-07_061720	Date/Time Analyzed:	6/26/20 11:52 PM
Lab ID:	2006644-07A	Dilution Factor:	5.67
Date/Time Collected:	6/17/20 03:21 PM	Instrument/Filename:	msd14.i / 14062636
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	22	67	110	Not Detected
1,4-Dioxane	123-91-1	120	310	410	Not Detected
cis-1,2-Dichloroethene	156-59-2	18	67	110	Not Detected
Tetrachloroethene	127-18-4	58	120	190	Not Detected
trans-1,2-Dichloroethene	156-60-5	35	67	110	11000
Trichloroethene	79-01-6	28	91	150	30 J
Vinyl Chloride	75-01-4	26	43	72	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	96

EPA METHOD TO-15 GC/MS
 Ford LTP



Client ID:	IAF-12400BELDEN-06_061720	Date/Time Analyzed:	6/26/20 04:17 PM
Lab ID:	2006644-08A	Dilution Factor:	5.84
Date/Time Collected:	6/17/20 03:05 PM	Instrument/Filename:	msd14.i / 14062616
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	23	69	120	Not Detected
1,4-Dioxane	123-91-1	130	320	420	Not Detected
cis-1,2-Dichloroethene	156-59-2	18	69	120	Not Detected
Tetrachloroethene	127-18-4	60	120	200	Not Detected
trans-1,2-Dichloroethene	156-60-5	36	69	120	12000
Trichloroethene	79-01-6	29	94	160	42 J
Vinyl Chloride	75-01-4	26	45	75	Not Detected

J = Estimated value.
 D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS
 Ford LTP



Client ID:	IAF-12400BELDEN-08_061720	Date/Time Analyzed:	6/26/20 02:41 PM
Lab ID:	2006644-09A	Dilution Factor:	4.10
Date/Time Collected:	6/17/20 03:20 PM	Instrument/Filename:	msd14.i / 14062613
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	16	49	81	Not Detected
1,4-Dioxane	123-91-1	89	220	300	Not Detected
cis-1,2-Dichloroethene	156-59-2	13	49	81	Not Detected
Tetrachloroethene	127-18-4	42	83	140	Not Detected
trans-1,2-Dichloroethene	156-60-5	25	49	81	9700
Trichloroethene	79-01-6	20	66	110	Not Detected
Vinyl Chloride	75-01-4	18	31	52	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS
 Ford LTP

Client ID:	IAF-12400BELDEN-09_061720	Date/Time Analyzed:	6/26/20 11:06 PM
Lab ID:	2006644-10A	Dilution Factor:	5.75
Date/Time Collected:	6/17/20 03:01 PM	Instrument/Filename:	msd14.i / 14062634
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	22	68	110	Not Detected
1,4-Dioxane	123-91-1	120	310	410	Not Detected
cis-1,2-Dichloroethene	156-59-2	18	68	110	20 J
Tetrachloroethene	127-18-4	59	120	200	Not Detected
trans-1,2-Dichloroethene	156-60-5	35	68	110	14000
Trichloroethene	79-01-6	29	93	150	38 J
Vinyl Chloride	75-01-4	26	44	73	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS
 Ford LTP

Client ID:	IAF-12400BELDEN-01_061720	Date/Time Analyzed:	6/26/20 11:29 PM
Lab ID:	2006644-11A	Dilution Factor:	5.50
Date/Time Collected:	6/17/20 03:12 PM	Instrument/Filename:	msd14.i / 14062635
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	22	65	110	Not Detected
1,4-Dioxane	123-91-1	120	300	400	Not Detected
cis-1,2-Dichloroethene	156-59-2	17	65	110	Not Detected
Tetrachloroethene	127-18-4	57	110	190	Not Detected
trans-1,2-Dichloroethene	156-60-5	34	65	110	13000
Trichloroethene	79-01-6	27	89	150	44 J
Vinyl Chloride	75-01-4	25	42	70	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS
 Ford LTP

Client ID:	IAF-12400BELDEN-02_061720	Date/Time Analyzed:	6/26/20 04:50 PM
Lab ID:	2006644-12A	Dilution Factor:	5.70
Date/Time Collected:	6/17/20 03:20 PM	Instrument/Filename:	msd14.i / 14062617
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	22	68	110	Not Detected
1,4-Dioxane	123-91-1	120	310	410	Not Detected
cis-1,2-Dichloroethene	156-59-2	18	68	110	Not Detected
Tetrachloroethene	127-18-4	59	120	190	Not Detected
trans-1,2-Dichloroethene	156-60-5	35	68	110	12000
Trichloroethene	79-01-6	28	92	150	33 J
Vinyl Chloride	75-01-4	26	44	73	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS
 Ford LTP

Client ID:	IAF-12400BELDEN-10_061720	Date/Time Analyzed:	6/26/20 03:07 PM
Lab ID:	2006644-13A	Dilution Factor:	4.10
Date/Time Collected:	6/17/20 03:22 PM	Instrument/Filename:	msd14.i / 14062614
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	16	49	81	Not Detected
1,4-Dioxane	123-91-1	89	220	300	Not Detected
cis-1,2-Dichloroethene	156-59-2	13	49	81	Not Detected
Tetrachloroethene	127-18-4	42	83	140	Not Detected
trans-1,2-Dichloroethene	156-60-5	25	49	81	9000
Trichloroethene	79-01-6	20	66	110	28 J
Vinyl Chloride	75-01-4	18	31	52	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	98

Analysis Request /Canister Chain of Custody

For Laboratory Use Only

PID: _____ Workorder # **2006644**

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
Phone (800) 985-5955; Fax (916) 351-8279

Click links below to view:

- [Canister Sampling Guide](#)
- [Helium Shroud Video](#)

Client:	Ford	PID:	NA	Special instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting	Turnaround Time (Rush surcharges may apply)	
Project Name:	Ford LTP				5 Day Turnaround Time	
Project Manager:	Kris Hinskey	P.O.#	30042006.0301.02		Canister Vacuum/Pressure	
Sampler:	Xenia Chan				Requested Analyses	
Site Name:	12400 BELDEN				Lab Use Only	

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N ₂ / He	TO-15 (See Special Instructions/Notes)	Do Not Analyze
				Date	Time	Date	Time						
01A	IAF-12400BELDEN-11_061720	6L0251	23691	6/17/2020	7:28	6/17/2020	14:59	-30	-6.5			X	
02A	IAF-12400BELDEN-12_061720	6L1140	23600	6/17/2020	7:16	6/17/2020	14:59	-30	-5.5			X	
03A	AA-12400BELDEN-01_061720	6L1999	23714	6/17/2020	7:05	6/17/2020	14:53	-30	-6			X	
04A	IAF-12400BELDEN-03_061720	6L2861	24543	6/17/2020	8:14	6/17/2020	15:04	-30	-7			X	
05A	IAF-12400BELDEN-05_061720	6L1913	23395	6/17/2020	8:11	6/17/2020	15:24	-30	-6.5			X	
06A	IAF-12400BELDEN-04_061720	6L1794	24271	6/17/2020	8:10	6/17/2020	15:24	-29.5	-6			X	
07A	IAF-12400BELDEN-07_061720	6L1195	24558	6/17/2020	7:54	6/17/2020	15:21	-30	-6			X	
08A	IAF-12400BELDEN-06_061720	6L1950	23562	6/17/2020	7:52	6/17/2020	15:05	-30	-7			X	
09A	IAF-12400BELDEN-08_061720	6L0653	24683	6/17/2020	7:34	6/17/2020	15:20	-30	-6			X	
10A	IAF-12400BELDEN-09_061720	6L2249	23117	6/17/2020	7:50	6/17/2020	15:01	-30	-5			X	
11A	IAF-12400BELDEN-01_061720	6L0603	24340	6/17/2020	7:48	6/17/2020	15:12	-30	-5.5			X	
12A	IAF-12400BELDEN-02_061720	6L2498	23812	6/17/2020	7:41	6/17/2020	15:20	-30	-6.5			X	
13A	IAF-12400BELDEN-10_061720	6L0790	23487	6/17/2020	7:39	6/17/2020	15:22	-30	-6			X	
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Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
<i>Patricia Salas / Arcadis</i>	06-19-20	12:00	<i>ALEX</i>	6-23-2020	10:20
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Shipper Name: <i>FEDEX</i>	Custody Seals Intact?	(Yes) <input checked="" type="checkbox"/>	No <input type="checkbox"/>	None <input type="checkbox"/>	
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Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

9/28/2020

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #: 30050315
Workorder #: 2009561

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 9/21/2020 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,




Ausha Scott
Project Manager

WORK ORDER #: 2009561

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30050315.0301.01
FAX:		PROJECT #	30050315 Ford LTP
DATE RECEIVED:	09/21/2020	CONTACT:	Ausha Scott
DATE COMPLETED:	09/28/2020		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	AA-12400BELDEN-01_091520	Modified TO-15	7.5 "Hg	5 psi
02A	IAF-12400BELDEN-01_091520	Modified TO-15	7.0 "Hg	5 psi
03A	IAF-12400BELDEN-02_091520	Modified TO-15	7.0 "Hg	5 psi
04A	IAF-12400BELDEN-07_091520	Modified TO-15	7.0 "Hg	5 psi
05A	IAF-12400BELDEN-03_091520	Modified TO-15	7.0 "Hg	5 psi
06A	IAF-12400BELDEN-04_091520	Modified TO-15	7.5 "Hg	5 psi
07A	IAF-12400BELDEN-05_091520	Modified TO-15	7.0 "Hg	5 psi
08A	IAF-12400BELDEN-06_091520	Modified TO-15	7.0 "Hg	5 psi
09A	IAF-12400BELDEN-08_091520	Modified TO-15	7.5 "Hg	5 psi
10A	DUP-12400BELDEN-01_091520	Modified TO-15	7.5 "Hg	5 psi
11A	IAF-12400BELDEN-09_091520	Modified TO-15	7.5 "Hg	5 psi
12A	IAF-12400BELDEN-10_091520	Modified TO-15	5.0 "Hg	5 psi
13A	IAF-12400BELDEN-11_091520	Modified TO-15	7.0 "Hg	5 psi
14A	IAF-12400BELDEN-12_091520	Modified TO-15	7.0 "Hg	5 psi
15A	Lab Blank	Modified TO-15	NA	NA
15B	Lab Blank	Modified TO-15	NA	NA
16A	CCV	Modified TO-15	NA	NA
16B	CCV	Modified TO-15	NA	NA
17A	LCS	Modified TO-15	NA	NA
17AA	LCS	Modified TO-15	NA	NA
17B	LCS	Modified TO-15	NA	NA
17BB	LCS	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 09/28/20

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209219, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-19-14, UT NELAP – CA009332020-12, VA NELAP - 10615, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005-013, Effective date: 10/18/2019, Expiration date: 10/17/2020.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 2009561

Fourteen 6 Liter Summa Canister (100% Cert Ambient) samples were received on September 21, 2020. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the EATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

- B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).
- J - Estimated value.
- E - Exceeds instrument calibration range.
- S - Saturated peak.
- Q - Exceeds quality control limits.
- U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.
- UJ- Non-detected compound associated with low bias in the CCV
- N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

- a-File was requantified
- b-File was quantified by a second column and detector
- r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-12400BELDEN-01_091520	Date/Time Analyzed:	9/24/20 08:45 PM
Lab ID:	2009561-01A	Dilution Factor:	1.79
Date/Time Collected:	9/15/20 03:57 PM	Instrument/Filename:	msd20.i / 20092418
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	Not Detected
Trichloroethene	79-01-6	0.50	0.85	0.96	Not Detected
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	105

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-01_091520	Date/Time Analyzed:	9/24/20 09:24 PM
Lab ID:	2009561-02A	Dilution Factor:	1.75
Date/Time Collected:	9/15/20 04:29 PM	Instrument/Filename:	msd20.i / 20092419
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.39	0.61	0.69	Not Detected
1,4-Dioxane	123-91-1	0.37	0.55	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.61	0.69	Not Detected
Tetrachloroethene	127-18-4	0.46	1.0	1.2	0.61 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.61	0.69	2.1
Trichloroethene	79-01-6	0.49	0.83	0.94	2.2
Vinyl Chloride	75-01-4	0.14	0.39	0.45	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	107

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-02_091520	Date/Time Analyzed:	9/24/20 10:04 PM
Lab ID:	2009561-03A	Dilution Factor:	1.75
Date/Time Collected:	9/15/20 04:03 PM	Instrument/Filename:	msd20.i / 20092420
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.39	0.61	0.69	Not Detected
1,4-Dioxane	123-91-1	0.37	0.55	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.61	0.69	Not Detected
Tetrachloroethene	127-18-4	0.46	1.0	1.2	0.96 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.61	0.69	2.2
Trichloroethene	79-01-6	0.49	0.83	0.94	2.3
Vinyl Chloride	75-01-4	0.14	0.39	0.45	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	105

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP



Client ID:	IAF-12400BELDEN-07_091520	Date/Time Analyzed:	9/24/20 10:43 PM
Lab ID:	2009561-04A	Dilution Factor:	1.75
Date/Time Collected:	9/15/20 04:33 PM	Instrument/Filename:	msd20.i / 20092421
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.39	0.61	0.69	Not Detected
1,4-Dioxane	123-91-1	0.37	0.55	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.61	0.69	Not Detected
Tetrachloroethene	127-18-4	0.46	1.0	1.2	0.53 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.61	0.69	1.7
Trichloroethene	79-01-6	0.49	0.83	0.94	1.9
Vinyl Chloride	75-01-4	0.14	0.39	0.45	Not Detected

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	104

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: IAF-12400BELDEN-03_091520
Lab ID: 2009561-05A
Date/Time Collected: 9/15/20 04:30 PM
Media: 6 Liter Summa Canister (100% Cert Ambier)
Date/Time Analyzed: 9/25/20 07:30 AM
Dilution Factor: 1.75
Instrument/Filename: msd20.i / 20092422

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.39	0.61	0.69	Not Detected
1,4-Dioxane	123-91-1	0.37	0.55	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.61	0.69	Not Detected
Tetrachloroethene	127-18-4	0.46	1.0	1.2	0.55 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.61	0.69	2.1
Trichloroethene	79-01-6	0.49	0.83	0.94	2.2
Vinyl Chloride	75-01-4	0.14	0.39	0.45	Not Detected

J = Estimated value.
 D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-04_091520	Date/Time Analyzed:	9/25/20 08:09 AM
Lab ID:	2009561-06A	Dilution Factor:	1.79
Date/Time Collected:	9/15/20 04:31 PM	Instrument/Filename:	msd20.i / 20092423
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	0.46 J
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	0.59 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	2.1
Trichloroethene	79-01-6	0.50	0.85	0.96	2.3
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	105

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-05_091520	Date/Time Analyzed:	9/25/20 02:59 PM
Lab ID:	2009561-07A	Dilution Factor:	1.75
Date/Time Collected:	9/15/20 04:33 PM	Instrument/Filename:	msd20.i / 20092509
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.39	0.61	0.69	Not Detected
1,4-Dioxane	123-91-1	0.37	0.55	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.61	0.69	Not Detected
Tetrachloroethene	127-18-4	0.46	1.0	1.2	0.61 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.61	0.69	2.1
Trichloroethene	79-01-6	0.49	0.83	0.94	2.2
Vinyl Chloride	75-01-4	0.14	0.39	0.45	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	105

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-06_091520	Date/Time Analyzed:	9/25/20 03:38 PM
Lab ID:	2009561-08A	Dilution Factor:	1.75
Date/Time Collected:	9/15/20 04:35 PM	Instrument/Filename:	msd20.i / 20092510
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.39	0.61	0.69	Not Detected
1,4-Dioxane	123-91-1	0.37	0.55	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.61	0.69	Not Detected
Tetrachloroethene	127-18-4	0.46	1.0	1.2	0.65 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.61	0.69	2.0
Trichloroethene	79-01-6	0.49	0.83	0.94	2.3
Vinyl Chloride	75-01-4	0.14	0.39	0.45	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	110
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-08_091520	Date/Time Analyzed:	9/25/20 04:17 PM
Lab ID:	2009561-09A	Dilution Factor:	1.79
Date/Time Collected:	9/15/20 04:31 PM	Instrument/Filename:	msd20.i / 20092511
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	0.59 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	1.8
Trichloroethene	79-01-6	0.50	0.85	0.96	2.0
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	DUP-12400BELDEN-01_091520	Date/Time Analyzed:	9/25/20 04:57 PM
Lab ID:	2009561-10A	Dilution Factor:	1.79
Date/Time Collected:	9/15/20 12:00 AM	Instrument/Filename:	msd20.i / 20092512
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	0.54 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	1.8
Trichloroethene	79-01-6	0.50	0.85	0.96	1.8
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-09_091520	Date/Time Analyzed:	9/25/20 05:36 PM
Lab ID:	2009561-11A	Dilution Factor:	1.79
Date/Time Collected:	9/15/20 04:30 PM	Instrument/Filename:	msd20.i / 20092513
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	0.41 J
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	0.59 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	2.3
Trichloroethene	79-01-6	0.50	0.85	0.96	2.2
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	111
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-10_091520	Date/Time Analyzed:	9/25/20 06:15 PM
Lab ID:	2009561-12A	Dilution Factor:	1.61
Date/Time Collected:	9/15/20 04:02 PM	Instrument/Filename:	msd20.i / 20092514
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.36	0.56	0.64	Not Detected
1,4-Dioxane	123-91-1	0.34	0.51	0.58	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.30	0.56	0.64	Not Detected
Tetrachloroethene	127-18-4	0.42	0.96	1.1	0.58 J
trans-1,2-Dichloroethene	156-60-5	0.32	0.56	0.64	2.4
Trichloroethene	79-01-6	0.45	0.76	0.86	2.4
Vinyl Chloride	75-01-4	0.13	0.36	0.41	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-11_091520	Date/Time Analyzed:	9/25/20 06:55 PM
Lab ID:	2009561-13A	Dilution Factor:	1.75
Date/Time Collected:	9/15/20 04:42 PM	Instrument/Filename:	msd20.i / 20092515
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.39	0.61	0.69	Not Detected
1,4-Dioxane	123-91-1	0.37	0.55	0.63	0.45 J
cis-1,2-Dichloroethene	156-59-2	0.33	0.61	0.69	Not Detected
Tetrachloroethene	127-18-4	0.46	1.0	1.2	0.63 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.61	0.69	2.3
Trichloroethene	79-01-6	0.49	0.83	0.94	2.5
Vinyl Chloride	75-01-4	0.14	0.39	0.45	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-12_091520	Date/Time Analyzed:	9/25/20 07:34 PM
Lab ID:	2009561-14A	Dilution Factor:	1.75
Date/Time Collected:	9/15/20 04:00 PM	Instrument/Filename:	msd20.i / 20092516
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.39	0.61	0.69	Not Detected
1,4-Dioxane	123-91-1	0.37	0.55	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.61	0.69	Not Detected
Tetrachloroethene	127-18-4	0.46	1.0	1.2	0.68 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.61	0.69	2.3
Trichloroethene	79-01-6	0.49	0.83	0.94	2.6
Vinyl Chloride	75-01-4	0.14	0.39	0.45	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	9/24/20 12:21 PM
Lab ID:	2009561-15A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20092406a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.22	0.35	0.40	Not Detected
1,4-Dioxane	123-91-1	0.21	0.32	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.19	0.35	0.40	Not Detected
Tetrachloroethene	127-18-4	0.26	0.60	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.20	0.35	0.40	Not Detected
Trichloroethene	79-01-6	0.28	0.47	0.54	Not Detected
Vinyl Chloride	75-01-4	0.081	0.22	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	105

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	9/25/20 12:33 PM
Lab ID:	2009561-15B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20092506a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.22	0.35	0.40	Not Detected
1,4-Dioxane	123-91-1	0.21	0.32	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.19	0.35	0.40	Not Detected
Tetrachloroethene	127-18-4	0.26	0.60	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.20	0.35	0.40	Not Detected
Trichloroethene	79-01-6	0.28	0.47	0.54	Not Detected
Vinyl Chloride	75-01-4	0.081	0.22	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	119
4-Bromofluorobenzene	460-00-4	70-130	108
Toluene-d8	2037-26-5	70-130	104

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	9/24/20 09:31 AM
Lab ID:	2009561-16A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20092402
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	102
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	91
Tetrachloroethene	127-18-4	101
trans-1,2-Dichloroethene	156-60-5	93
Trichloroethene	79-01-6	103
Vinyl Chloride	75-01-4	99

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	9/25/20 09:28 AM
Lab ID:	2009561-16B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20092502
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	101
1,4-Dioxane	123-91-1	100
cis-1,2-Dichloroethene	156-59-2	92
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	92
Trichloroethene	79-01-6	101
Vinyl Chloride	75-01-4	100

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	98

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	9/24/20 10:23 AM
Lab ID:	2009561-17A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20092403
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	100
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	90
Tetrachloroethene	127-18-4	104
trans-1,2-Dichloroethene	156-60-5	91
Trichloroethene	79-01-6	104
Vinyl Chloride	75-01-4	97

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	103

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	9/24/20 11:02 AM
Lab ID:	2009561-17AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20092404
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	103
1,4-Dioxane	123-91-1	96
cis-1,2-Dichloroethene	156-59-2	92
Tetrachloroethene	127-18-4	103
trans-1,2-Dichloroethene	156-60-5	91
Trichloroethene	79-01-6	102
Vinyl Chloride	75-01-4	99

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	97

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	9/25/20 10:21 AM
Lab ID:	2009561-17B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20092503
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	101
1,4-Dioxane	123-91-1	96
cis-1,2-Dichloroethene	156-59-2	91
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	90
Trichloroethene	79-01-6	101
Vinyl Chloride	75-01-4	98

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	97

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	9/25/20 11:11 AM
Lab ID:	2009561-17BB	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20092504
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	103
1,4-Dioxane	123-91-1	94
cis-1,2-Dichloroethene	156-59-2	92
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	90
Trichloroethene	79-01-6	98
Vinyl Chloride	75-01-4	99

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	94

* % Recovery is calculated using unrounded analytical results.



September 28, 2020

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - Soil Gas and Groundwater
Project number: 30050315.0301.01
Client project scopereference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics -Folsom
Laboratory submittal: 2009561
Sample date: 2020-09-15
Report received by CADENA: 2020-09-28
Initial Data Verification completed: 2020-09-28
14 Air samples were analyzed for TO-15 parameters.

No data qualifications or sample integrity issues were observed.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) TO-15 Analysis

SDG #2009561

CADENA Verification Report: 2020-09-28

Analyses Performed By:
Eurofins Air Toxics
Folsom, California

Report #38574R
Review Level: Tier III
Project: 30050315.0301.02

DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 2009561 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
2009561	AA-12400BELDEN-01_091520	2009561-01A	Air	9/15/2020		X		
	IAF-12400BELDEN-01_091520	2009561-02A	Air	9/15/2020		X		
	IAF-12400BELDEN-02_091520	2009561-03A	Air	9/15/2020		X		
	IAF-12400BELDEN-07_091520	2009561-04A	Air	9/15/2020		X		
	IAF-12400BELDEN-03_091520	2009561-05A	Air	9/15/2020		X		
	IAF-12400BELDEN-04_091520	2009561-06A	Air	9/15/2020		X		
	IAF-12400BELDEN-05_091520	2009561-07A	Air	9/15/2020		X		
	IAF-12400BELDEN-06_091520	2009561-08A	Air	9/15/2020		X		
	IAF-12400BELDEN-08_091520	2009561-09A	Air	9/15/2020		X		

DATA REVIEW

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
	DUP-12400BELDEN-01_091520	2009561-10A	Air	9/15/2020	IAF-12400BELDEN-08_091520	X		
	IAF-12400BELDEN-09_091520	2009561-11A	Air	9/15/2020		X		
	IAF-12400BELDEN-10_091520	2009561-12A	Air	9/15/2020		X		
	IAF-12400BELDEN-11_091520	2009561-13A	Air	9/15/2020		X		
	IAF-12400BELDEN-12_091520	2009561-14A	Air	9/15/2020		X		

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15 (Full Scan). Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15	Air	30 days from collection to analysis (Canister)	Ambient Temperature	< -2" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 140% or less than 60% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

6. Field Duplicate Sample Analysis

The field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 35% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are not greater than five times the RL, a control limit of three times the RL is applied to the difference between the duplicate sample results.

Results (in $\mu\text{g}/\text{m}^3$) for the field duplicate samples are summarized in the following table.

Sample ID / Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
IAF-12400BELDEN-08_091520/ DUP-12400BELDEN-01_091520	Tetrachloroethene	0.59 J	0.54 J	AC
	trans-1,2-Dichloroethene	1.8	1.8	AC
	Trichloroethene	2.0	1.8	AC

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15 (Full Scan)	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-2"Hg)		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Field Duplicate Sample RPD		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

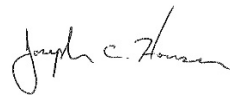
%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:



DATE: October 8, 2020

PEER REVIEW: Dennis Capria

DATE: October 9, 2020



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-12400BELDEN-01_091520	Date/Time Analyzed:	9/24/20 08:45 PM
Lab ID:	2009561-01A	Dilution Factor:	1.79
Date/Time Collected:	9/15/20 03:57 PM	Instrument/Filename:	msd20.i / 20092418
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	Not Detected
Trichloroethene	79-01-6	0.50	0.85	0.96	Not Detected
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	105

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-01_091520	Date/Time Analyzed:	9/24/20 09:24 PM
Lab ID:	2009561-02A	Dilution Factor:	1.75
Date/Time Collected:	9/15/20 04:29 PM	Instrument/Filename:	msd20.i / 20092419
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.39	0.61	0.69	Not Detected
1,4-Dioxane	123-91-1	0.37	0.55	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.61	0.69	Not Detected
Tetrachloroethene	127-18-4	0.46	1.0	1.2	0.61 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.61	0.69	2.1
Trichloroethene	79-01-6	0.49	0.83	0.94	2.2
Vinyl Chloride	75-01-4	0.14	0.39	0.45	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	107

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-02_091520	Date/Time Analyzed:	9/24/20 10:04 PM
Lab ID:	2009561-03A	Dilution Factor:	1.75
Date/Time Collected:	9/15/20 04:03 PM	Instrument/Filename:	msd20.i / 20092420
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.39	0.61	0.69	Not Detected
1,4-Dioxane	123-91-1	0.37	0.55	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.61	0.69	Not Detected
Tetrachloroethene	127-18-4	0.46	1.0	1.2	0.96 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.61	0.69	2.2
Trichloroethene	79-01-6	0.49	0.83	0.94	2.3
Vinyl Chloride	75-01-4	0.14	0.39	0.45	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	105

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: IAF-12400BELDEN-07_091520
Lab ID: 2009561-04A
Date/Time Collected: 9/15/20 04:33 PM
Media: 6 Liter Summa Canister (100% Cert Ambier)

Date/Time Analyzed: 9/24/20 10:43 PM
Dilution Factor: 1.75
Instrument/Filename: msd20.i / 20092421

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.39	0.61	0.69	Not Detected
1,4-Dioxane	123-91-1	0.37	0.55	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.61	0.69	Not Detected
Tetrachloroethene	127-18-4	0.46	1.0	1.2	0.53 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.61	0.69	1.7
Trichloroethene	79-01-6	0.49	0.83	0.94	1.9
Vinyl Chloride	75-01-4	0.14	0.39	0.45	Not Detected

J = Estimated value.
 D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	104

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	IAF-12400BELDEN-03_091520	Date/Time Analyzed:	9/25/20 07:30 AM
Lab ID:	2009561-05A	Dilution Factor:	1.75
Date/Time Collected:	9/15/20 04:30 PM	Instrument/Filename:	msd20.i / 20092422
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.39	0.61	0.69	Not Detected
1,4-Dioxane	123-91-1	0.37	0.55	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.61	0.69	Not Detected
Tetrachloroethene	127-18-4	0.46	1.0	1.2	0.55 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.61	0.69	2.1
Trichloroethene	79-01-6	0.49	0.83	0.94	2.2
Vinyl Chloride	75-01-4	0.14	0.39	0.45	Not Detected

J = Estimated value.
 D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-04_091520	Date/Time Analyzed:	9/25/20 08:09 AM
Lab ID:	2009561-06A	Dilution Factor:	1.79
Date/Time Collected:	9/15/20 04:31 PM	Instrument/Filename:	msd20.i / 20092423
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	0.46 J
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	0.59 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	2.1
Trichloroethene	79-01-6	0.50	0.85	0.96	2.3
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	105

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-05_091520	Date/Time Analyzed:	9/25/20 02:59 PM
Lab ID:	2009561-07A	Dilution Factor:	1.75
Date/Time Collected:	9/15/20 04:33 PM	Instrument/Filename:	msd20.i / 20092509
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.39	0.61	0.69	Not Detected
1,4-Dioxane	123-91-1	0.37	0.55	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.61	0.69	Not Detected
Tetrachloroethene	127-18-4	0.46	1.0	1.2	0.61 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.61	0.69	2.1
Trichloroethene	79-01-6	0.49	0.83	0.94	2.2
Vinyl Chloride	75-01-4	0.14	0.39	0.45	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	105

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-06_091520	Date/Time Analyzed:	9/25/20 03:38 PM
Lab ID:	2009561-08A	Dilution Factor:	1.75
Date/Time Collected:	9/15/20 04:35 PM	Instrument/Filename:	msd20.i / 20092510
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.39	0.61	0.69	Not Detected
1,4-Dioxane	123-91-1	0.37	0.55	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.61	0.69	Not Detected
Tetrachloroethene	127-18-4	0.46	1.0	1.2	0.65 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.61	0.69	2.0
Trichloroethene	79-01-6	0.49	0.83	0.94	2.3
Vinyl Chloride	75-01-4	0.14	0.39	0.45	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	110
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-08_091520	Date/Time Analyzed:	9/25/20 04:17 PM
Lab ID:	2009561-09A	Dilution Factor:	1.79
Date/Time Collected:	9/15/20 04:31 PM	Instrument/Filename:	msd20.i / 20092511
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	0.59 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	1.8
Trichloroethene	79-01-6	0.50	0.85	0.96	2.0
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	DUP-12400BELDEN-01_091520	Date/Time Analyzed:	9/25/20 04:57 PM
Lab ID:	2009561-10A	Dilution Factor:	1.79
Date/Time Collected:	9/15/20 12:00 AM	Instrument/Filename:	msd20.i / 20092512
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	0.54 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	1.8
Trichloroethene	79-01-6	0.50	0.85	0.96	1.8
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-09_091520	Date/Time Analyzed:	9/25/20 05:36 PM
Lab ID:	2009561-11A	Dilution Factor:	1.79
Date/Time Collected:	9/15/20 04:30 PM	Instrument/Filename:	msd20.i / 20092513
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	0.41 J
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	0.59 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	2.3
Trichloroethene	79-01-6	0.50	0.85	0.96	2.2
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	111
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-10_091520	Date/Time Analyzed:	9/25/20 06:15 PM
Lab ID:	2009561-12A	Dilution Factor:	1.61
Date/Time Collected:	9/15/20 04:02 PM	Instrument/Filename:	msd20.i / 20092514
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.36	0.56	0.64	Not Detected
1,4-Dioxane	123-91-1	0.34	0.51	0.58	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.30	0.56	0.64	Not Detected
Tetrachloroethene	127-18-4	0.42	0.96	1.1	0.58 J
trans-1,2-Dichloroethene	156-60-5	0.32	0.56	0.64	2.4
Trichloroethene	79-01-6	0.45	0.76	0.86	2.4
Vinyl Chloride	75-01-4	0.13	0.36	0.41	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-11_091520	Date/Time Analyzed:	9/25/20 06:55 PM
Lab ID:	2009561-13A	Dilution Factor:	1.75
Date/Time Collected:	9/15/20 04:42 PM	Instrument/Filename:	msd20.i / 20092515
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.39	0.61	0.69	Not Detected
1,4-Dioxane	123-91-1	0.37	0.55	0.63	0.45 J
cis-1,2-Dichloroethene	156-59-2	0.33	0.61	0.69	Not Detected
Tetrachloroethene	127-18-4	0.46	1.0	1.2	0.63 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.61	0.69	2.3
Trichloroethene	79-01-6	0.49	0.83	0.94	2.5
Vinyl Chloride	75-01-4	0.14	0.39	0.45	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-12_091520	Date/Time Analyzed:	9/25/20 07:34 PM
Lab ID:	2009561-14A	Dilution Factor:	1.75
Date/Time Collected:	9/15/20 04:00 PM	Instrument/Filename:	msd20.i / 20092516
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.39	0.61	0.69	Not Detected
1,4-Dioxane	123-91-1	0.37	0.55	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.61	0.69	Not Detected
Tetrachloroethene	127-18-4	0.46	1.0	1.2	0.68 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.61	0.69	2.3
Trichloroethene	79-01-6	0.49	0.83	0.94	2.6
Vinyl Chloride	75-01-4	0.14	0.39	0.45	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	102

Analysis Request / Canister Chain of Custody

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
 Phone (800) 985-5955; Fax (916) 351-8279

For Laboratory Use Only
 Workorder # **2009561**

Click links below to view:
[Canister Sampling Guide](#)
[Helium Shroud Video](#)

Client: Ford PID: NA
 Project Name: Ford LTP
 Project Manager: Kris Hinskey P.O.# 30050315.0301.01
 Sampler: Xenia Chan, Patrick Labadie
 Site Name: 12400 BELDEN

Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting

Turnaround Time (Rush surcharges may apply)
 5 Day Turnaround Time

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Lab Use Only		Requested Analysis	
				Date	Time	Date	Time			Receipt	Final (psig) Gas: N ₂ / He	TO-15 (See Special Instructions/Notes)	Do Not Analyze
01A	AA-12400BELDEN-01_091520	6L0207	24671	9/15/2020	8:56	9/15/2020	15:57	-29.5	-6.5			X	
02A	IAF-12400BELDEN-01_091520	6L1195	23419	9/15/2020	9:10	9/15/2020	16:29	-29.5	-6			X	
03A	IAF-12400BELDEN-02_091520	6L2782	23570	9/15/2020	9:08	9/15/2020	16:03	-29.5	-6.5			X	
04A	IAF-12400BELDEN-07_091520	6L2503	24287	9/15/2020	9:16	9/15/2020	16:33	-29.5	-6.5			X	
05A	IAF-12400BELDEN-03_091520	6L1840	24695	9/15/2020	9:14	9/15/2020	16:30	-29.5	-6.5			X	
06A	IAF-12400BELDEN-04_091520	6L2275	25235	9/15/2020	9:22	9/15/2020	16:31	-29	-6.5			X	
07A	IAF-12400BELDEN-05_091520	6L2689	25256	9/15/2020	9:19	9/15/2020	16:33	-29.5	-6.5			X	
08A	IAF-12400BELDEN-06_091520	6L1322	23174	9/15/2020	9:15	9/15/2020	16:35	-29.5	-6.5			X	
09A	IAF-12400BELDEN-08_091520	6L0768	25234	9/15/2020	9:26	9/15/2020	16:31	-29	-7			X	
10A	DUP-12400BELDEN-01_091520	6L0246	24500	9/15/2020	--	9/15/2020	--	-29	-7			X	
11A	IAF-12400BELDEN-09_091520	6L1804	24876	9/15/2020	9:22	9/15/2020	16:30	-29	-7			X	
12A	IAF-12400BELDEN-10_091520	6L0565	23670	9/15/2020	9:11	9/15/2020	16:02	-29.5	-5			X	
13A	IAF-12400BELDEN-11_091520	6L0763	25257	9/15/2020	9:08	9/15/2020	16:42	-29.5	-6			X	
14A	IAF-12400BELDEN-12_091520	6L1415	23443	9/15/2020	9:05	9/15/2020	16:00	-29.5	-6			X	

Relinquished by: (Signature/Affiliation) <i>Xenia Chan / Arcadis</i>	Date 9/17/2020	Time 1600	Received by: (Signature/Affiliation) <i>[Signature]</i>	Date 9/21/20	Time 0956
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Shipper Name: fel Bx Custody Seals Intact? Yes No None GOOD

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

9/28/2020

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 2009565

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 9/21/2020 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 2009565

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30050315.0301.01
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	09/21/2020	CONTACT:	Ausha Scott
DATE COMPLETED:	09/28/2020		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SSMP-12400BELDEN-12_091520	TO-15	5.1 "Hg	14.8 psi
02A	SSMP-12400BELDEN-10_091520	TO-15	5.3 "Hg	15 psi
03A	SSMP-12400BELDEN-01_091520	TO-15	6.1 "Hg	14.6 psi
04A	SSMP-12400BELDEN-02_091520	TO-15	6.1 "Hg	14.8 psi
05A	SSMP-12400BELDEN-03_091520	TO-15	5.7 "Hg	15 psi
06A	SSMP-12400BELDEN-04_091520	TO-15	5.3 "Hg	14.9 psi
07A	SSMP-12400BELDEN-05_091520	TO-15	5.7 "Hg	14.8 psi
08A	SSMP-12400BELDEN-11_091520	TO-15	6.3 "Hg	15.1 psi
09A	SSMP-12400BELDEN-09_091520	TO-15	5.1 "Hg	15.2 psi
10A	SSMP-12400BELDEN-08_091520	TO-15	6.1 "Hg	14.9 psi
11A	SSMP-12400BELDEN-07_091520	TO-15	5.9 "Hg	15.1 psi
12A	SSMP-12400BELDEN-06_091520	TO-15	6.7 "Hg	15 psi
13A	Lab Blank	TO-15	NA	NA
14A	CCV	TO-15	NA	NA
15A	LCS	TO-15	NA	NA
15AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 09/28/20

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209219, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-19-14, UT NELAP – CA009332020-12, VA NELAP - 10615, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005-013, Effective date: 10/18/2019, Expiration date: 10/17/2020.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 2009565

Twelve 1 Liter Summa Canister (100% Certified) samples were received on September 21, 2020. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-12_091520	Date/Time Analyzed:	9/25/20 02:20 PM
Lab ID:	2009565-01A	Dilution Factor:	2.42
Date/Time Collected:	9/15/20 09:56 AM	Instrument/Filename:	msdj.i / j092509
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.6	2.9	4.8	Not Detected
1,4-Dioxane	123-91-1	4.3	6.1	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.2	2.9	4.8	Not Detected
Tetrachloroethene	127-18-4	2.3	4.9	8.2	13
trans-1,2-Dichloroethene	156-60-5	0.96	2.9	4.8	200
Trichloroethene	79-01-6	1.6	3.9	6.5	460
Vinyl Chloride	75-01-4	0.56	1.8	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-10_091520	Date/Time Analyzed:	9/25/20 02:46 PM
Lab ID:	2009565-02A	Dilution Factor:	2.45
Date/Time Collected:	9/15/20 10:35 AM	Instrument/Filename:	msdj.i / j092510
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.6	2.9	4.8	Not Detected
1,4-Dioxane	123-91-1	4.3	6.2	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	2.9	4.8	Not Detected
Tetrachloroethene	127-18-4	2.3	5.0	8.3	25
trans-1,2-Dichloroethene	156-60-5	0.97	2.9	4.8	430
Trichloroethene	79-01-6	1.6	3.9	6.6	900
Vinyl Chloride	75-01-4	0.56	1.9	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-01_091520	Date/Time Analyzed:	9/25/20 03:13 PM
Lab ID:	2009565-03A	Dilution Factor:	2.50
Date/Time Collected:	9/15/20 11:03 AM	Instrument/Filename:	msdj.i / j092511
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.4	6.3	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.5	21
trans-1,2-Dichloroethene	156-60-5	0.99	3.0	5.0	36
Trichloroethene	79-01-6	1.6	4.0	6.7	390
Vinyl Chloride	75-01-4	0.58	1.9	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP



Client ID: SSMP-12400BELDEN-02_091520
Lab ID: 2009565-04A
Date/Time Collected: 9/15/20 11:38 AM
Media: 1 Liter Summa Canister (100% Certified)

Date/Time Analyzed: 9/25/20 03:39 PM
Dilution Factor: 2.52
Instrument/Filename: msdj.i / j092512

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.4	6.4	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.5	13
trans-1,2-Dichloroethene	156-60-5	1.0	3.0	5.0	2.0 J
Trichloroethene	79-01-6	1.6	4.1	6.8	81
Vinyl Chloride	75-01-4	0.58	1.9	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	103

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	SSMP-12400BELDEN-03_091520	Date/Time Analyzed:	9/25/20 04:05 PM
Lab ID:	2009565-05A	Dilution Factor:	2.49
Date/Time Collected:	9/15/20 12:06 PM	Instrument/Filename:	msdj.i / j092513
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	4.9	Not Detected
1,4-Dioxane	123-91-1	4.4	6.3	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	4.9	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.4	13
trans-1,2-Dichloroethene	156-60-5	0.99	3.0	4.9	41
Trichloroethene	79-01-6	1.6	4.0	6.7	340
Vinyl Chloride	75-01-4	0.57	1.9	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	105

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-04_091520	Date/Time Analyzed:	9/25/20 04:31 PM
Lab ID:	2009565-06A	Dilution Factor:	2.44
Date/Time Collected:	9/15/20 12:31 PM	Instrument/Filename:	msdj.i / j092514
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.6	2.9	4.8	Not Detected
1,4-Dioxane	123-91-1	4.3	6.2	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.2	2.9	4.8	Not Detected
Tetrachloroethene	127-18-4	2.3	5.0	8.3	3.7 J
trans-1,2-Dichloroethene	156-60-5	0.97	2.9	4.8	4.1 J
Trichloroethene	79-01-6	1.6	3.9	6.6	32
Vinyl Chloride	75-01-4	0.56	1.9	3.1	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-05_091520	Date/Time Analyzed:	9/25/20 04:58 PM
Lab ID:	2009565-07A	Dilution Factor:	2.48
Date/Time Collected:	9/15/20 12:58 PM	Instrument/Filename:	msdj.i / j092515
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	4.9	2.0 J
1,4-Dioxane	123-91-1	4.4	6.2	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	2.9	4.9	Not Detected
Tetrachloroethene	127-18-4	2.4	5.0	8.4	3.6 J
trans-1,2-Dichloroethene	156-60-5	0.98	2.9	4.9	6.0
Trichloroethene	79-01-6	1.6	4.0	6.7	21
Vinyl Chloride	75-01-4	0.57	1.9	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-11_091520	Date/Time Analyzed:	9/25/20 05:24 PM
Lab ID:	2009565-08A	Dilution Factor:	2.57
Date/Time Collected:	9/15/20 10:25 AM	Instrument/Filename:	msdj.i / j092516
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.1	Not Detected
1,4-Dioxane	123-91-1	4.5	6.5	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.1	1.4 J
Tetrachloroethene	127-18-4	2.4	5.2	8.7	19
trans-1,2-Dichloroethene	156-60-5	1.0	3.0	5.1	820
Trichloroethene	79-01-6	1.6	4.1	6.9	690
Vinyl Chloride	75-01-4	0.59	2.0	3.3	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	104

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-09_091520	Date/Time Analyzed:	9/25/20 08:05 PM
Lab ID:	2009565-09A	Dilution Factor:	2.45
Date/Time Collected:	9/15/20 10:32 AM	Instrument/Filename:	msdj.i / j092517
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.6	2.9	4.8	Not Detected
1,4-Dioxane	123-91-1	4.3	6.2	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	2.9	4.8	1.3 J
Tetrachloroethene	127-18-4	2.3	5.0	8.3	27
trans-1,2-Dichloroethene	156-60-5	0.97	2.9	4.8	320
Trichloroethene	79-01-6	1.6	3.9	6.6	620
Vinyl Chloride	75-01-4	0.56	1.9	3.1	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-08_091520	Date/Time Analyzed:	9/25/20 08:32 PM
Lab ID:	2009565-10A	Dilution Factor:	2.53
Date/Time Collected:	9/15/20 11:26 AM	Instrument/Filename:	msdj.i / j092518
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.5	6.4	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.6	18
trans-1,2-Dichloroethene	156-60-5	1.0	3.0	5.0	95
Trichloroethene	79-01-6	1.6	4.1	6.8	470
Vinyl Chloride	75-01-4	0.58	1.9	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-07_091520	Date/Time Analyzed:	9/25/20 08:58 PM
Lab ID:	2009565-11A	Dilution Factor:	2.52
Date/Time Collected:	9/15/20 12:43 PM	Instrument/Filename:	msdj.i / j092519
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.4	6.4	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.5	9.9
trans-1,2-Dichloroethene	156-60-5	1.0	3.0	5.0	14
Trichloroethene	79-01-6	1.6	4.1	6.8	110
Vinyl Chloride	75-01-4	0.58	1.9	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	103

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-06_091520	Date/Time Analyzed:	9/25/20 09:24 PM
Lab ID:	2009565-12A	Dilution Factor:	2.60
Date/Time Collected:	9/15/20 12:36 PM	Instrument/Filename:	msdj.i / j092520
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.1	5.2	Not Detected
1,4-Dioxane	123-91-1	4.6	6.6	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.1	5.2	Not Detected
Tetrachloroethene	127-18-4	2.5	5.3	8.8	29
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.2	5.8
Trichloroethene	79-01-6	1.7	4.2	7.0	240
Vinyl Chloride	75-01-4	0.60	2.0	3.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	106

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	9/25/20 12:36 PM
Lab ID:	2009565-13A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j092506a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.67	1.2	2.0	Not Detected
1,4-Dioxane	123-91-1	1.8	2.5	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.52	1.2	2.0	Not Detected
Tetrachloroethene	127-18-4	0.95	2.0	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.40	1.2	2.0	Not Detected
Trichloroethene	79-01-6	0.64	1.6	2.7	Not Detected
Vinyl Chloride	75-01-4	0.23	0.77	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	CCV	Date/Time Analyzed:	9/25/20 11:20 AM
Lab ID:	2009565-14A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j092503
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	91
1,4-Dioxane	123-91-1	108
cis-1,2-Dichloroethene	156-59-2	106
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	92
Trichloroethene	79-01-6	91
Vinyl Chloride	75-01-4	93

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	116
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCS	Date/Time Analyzed:	9/25/20 11:45 AM
Lab ID:	2009565-15A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j092504
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	90
1,4-Dioxane	123-91-1	106
cis-1,2-Dichloroethene	156-59-2	106
Tetrachloroethene	127-18-4	98
trans-1,2-Dichloroethene	156-60-5	89
Trichloroethene	79-01-6	92
Vinyl Chloride	75-01-4	94

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	99

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	9/25/20 12:10 PM
Lab ID:	2009565-15AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j092505
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	93
1,4-Dioxane	123-91-1	105
cis-1,2-Dichloroethene	156-59-2	108
Tetrachloroethene	127-18-4	98
trans-1,2-Dichloroethene	156-60-5	89
Trichloroethene	79-01-6	89
Vinyl Chloride	75-01-4	93

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	109
Toluene-d8	2037-26-5	70-130	97

* % Recovery is calculated using unrounded analytical results.



September 28, 2020

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - Soil Gas and Groundwater
Project number: 30050315.0301.01
Client project scopereference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics -Folsom
Laboratory submittal: 2009565
Sample date: 2020-09-15
Report received by CADENA: 2020-09-28
Initial Data Verification completed: 2020-09-28
12 Air samples were analyzed for TO-15 parameters.

No data qualifications or sample integrity issues were observed.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) TO-15 Analysis

SDG #2009565

CADENA Verification Report: 2020-09-28

Analyses Performed By:
Eurofins Air Toxics
Folsom, California

Report #38575R
Review Level: Tier III
Project: 30050315.301.02

DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 2009565 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
2009565	SSMP-12400BELDEN-12_091520	2009565-01A	Air	9/15/2020		X		
	SSMP-12400BELDEN-10_091520	2009565-02A	Air	9/15/2020		X		
	SSMP-12400BELDEN-01_091520	2009565-03A	Air	9/15/2020		X		
	SSMP-12400BELDEN-02_091520	2009565-04A	Air	9/15/2020		X		
	SSMP-12400BELDEN-03_091520	2009565-05A	Air	9/15/2020		X		
	SSMP-12400BELDEN-04_091520	2009565-06A	Air	9/15/2020		X		
	SSMP-12400BELDEN-05_091520	2009565-07A	Air	9/15/2020		X		
	SSMP-12400BELDEN-11_091520	2009565-08A	Air	9/15/2020		X		
	SSMP-12400BELDEN-09_091520	2009565-09A	Air	9/15/2020		X		

DATA REVIEW

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
	SSMP-12400BELDEN-08_091520	2009565-10A	Air	9/15/2020		X		
	SSMP-12400BELDEN-07_091520	2009565-11A	Air	9/15/2020		X		
	SSMP-12400BELDEN-06_091520	2009565-12A	Air	9/15/2020		X		

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15 (Full Scan). Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15	Air	30 days from collection to analysis (Canister)	Ambient Temperature	< -2" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 140% or less than 60% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. All identified compounds met the specified criteria.

6. Field Duplicate Sample Analysis

The field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 35% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are not greater than five times the RL, a control limit of three times the RL is applied to the difference between the duplicate sample results.

A field duplicate was not performed on a sample location within this SDG.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15 (Full Scan)	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-2"Hg)		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Field Duplicate Sample RPD					X
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

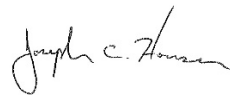
%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:



DATE: October 8, 2020

PEER REVIEW: Dennis Capria

DATE: October 9, 2020



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



**NO CORRECTIONS/QUALIFIERS ADDED
TO SAMPLE ANALYSIS DATA SHEETS**



EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-12_091520	Date/Time Analyzed:	9/25/20 02:20 PM
Lab ID:	2009565-01A	Dilution Factor:	2.42
Date/Time Collected:	9/15/20 09:56 AM	Instrument/Filename:	msdj.i / j092509
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.6	2.9	4.8	Not Detected
1,4-Dioxane	123-91-1	4.3	6.1	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.2	2.9	4.8	Not Detected
Tetrachloroethene	127-18-4	2.3	4.9	8.2	13
trans-1,2-Dichloroethene	156-60-5	0.96	2.9	4.8	200
Trichloroethene	79-01-6	1.6	3.9	6.5	460
Vinyl Chloride	75-01-4	0.56	1.8	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-10_091520	Date/Time Analyzed:	9/25/20 02:46 PM
Lab ID:	2009565-02A	Dilution Factor:	2.45
Date/Time Collected:	9/15/20 10:35 AM	Instrument/Filename:	msdj.i / j092510
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.6	2.9	4.8	Not Detected
1,4-Dioxane	123-91-1	4.3	6.2	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	2.9	4.8	Not Detected
Tetrachloroethene	127-18-4	2.3	5.0	8.3	25
trans-1,2-Dichloroethene	156-60-5	0.97	2.9	4.8	430
Trichloroethene	79-01-6	1.6	3.9	6.6	900
Vinyl Chloride	75-01-4	0.56	1.9	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-01_091520	Date/Time Analyzed:	9/25/20 03:13 PM
Lab ID:	2009565-03A	Dilution Factor:	2.50
Date/Time Collected:	9/15/20 11:03 AM	Instrument/Filename:	msdj.i / j092511
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.4	6.3	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.5	21
trans-1,2-Dichloroethene	156-60-5	0.99	3.0	5.0	36
Trichloroethene	79-01-6	1.6	4.0	6.7	390
Vinyl Chloride	75-01-4	0.58	1.9	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: SSMP-12400BELDEN-02_091520
Lab ID: 2009565-04A
Date/Time Collected: 9/15/20 11:38 AM
Media: 1 Liter Summa Canister (100% Certified)

Date/Time Analyzed: 9/25/20 03:39 PM
Dilution Factor: 2.52
Instrument/Filename: msdj.i / j092512

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.4	6.4	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.5	13
trans-1,2-Dichloroethene	156-60-5	1.0	3.0	5.0	2.0 J
Trichloroethene	79-01-6	1.6	4.1	6.8	81
Vinyl Chloride	75-01-4	0.58	1.9	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	103

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	SSMP-12400BELDEN-03_091520	Date/Time Analyzed:	9/25/20 04:05 PM
Lab ID:	2009565-05A	Dilution Factor:	2.49
Date/Time Collected:	9/15/20 12:06 PM	Instrument/Filename:	msdj.i / j092513
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	4.9	Not Detected
1,4-Dioxane	123-91-1	4.4	6.3	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	4.9	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.4	13
trans-1,2-Dichloroethene	156-60-5	0.99	3.0	4.9	41
Trichloroethene	79-01-6	1.6	4.0	6.7	340
Vinyl Chloride	75-01-4	0.57	1.9	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	105

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-04_091520	Date/Time Analyzed:	9/25/20 04:31 PM
Lab ID:	2009565-06A	Dilution Factor:	2.44
Date/Time Collected:	9/15/20 12:31 PM	Instrument/Filename:	msdj.i / j092514
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.6	2.9	4.8	Not Detected
1,4-Dioxane	123-91-1	4.3	6.2	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.2	2.9	4.8	Not Detected
Tetrachloroethene	127-18-4	2.3	5.0	8.3	3.7 J
trans-1,2-Dichloroethene	156-60-5	0.97	2.9	4.8	4.1 J
Trichloroethene	79-01-6	1.6	3.9	6.6	32
Vinyl Chloride	75-01-4	0.56	1.9	3.1	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-05_091520	Date/Time Analyzed:	9/25/20 04:58 PM
Lab ID:	2009565-07A	Dilution Factor:	2.48
Date/Time Collected:	9/15/20 12:58 PM	Instrument/Filename:	msdj.i / j092515
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	4.9	2.0 J
1,4-Dioxane	123-91-1	4.4	6.2	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	2.9	4.9	Not Detected
Tetrachloroethene	127-18-4	2.4	5.0	8.4	3.6 J
trans-1,2-Dichloroethene	156-60-5	0.98	2.9	4.9	6.0
Trichloroethene	79-01-6	1.6	4.0	6.7	21
Vinyl Chloride	75-01-4	0.57	1.9	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-11_091520	Date/Time Analyzed:	9/25/20 05:24 PM
Lab ID:	2009565-08A	Dilution Factor:	2.57
Date/Time Collected:	9/15/20 10:25 AM	Instrument/Filename:	msdj.i / j092516
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.1	Not Detected
1,4-Dioxane	123-91-1	4.5	6.5	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.1	1.4 J
Tetrachloroethene	127-18-4	2.4	5.2	8.7	19
trans-1,2-Dichloroethene	156-60-5	1.0	3.0	5.1	820
Trichloroethene	79-01-6	1.6	4.1	6.9	690
Vinyl Chloride	75-01-4	0.59	2.0	3.3	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	104

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-09_091520	Date/Time Analyzed:	9/25/20 08:05 PM
Lab ID:	2009565-09A	Dilution Factor:	2.45
Date/Time Collected:	9/15/20 10:32 AM	Instrument/Filename:	msdj.i / j092517
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.6	2.9	4.8	Not Detected
1,4-Dioxane	123-91-1	4.3	6.2	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	2.9	4.8	1.3 J
Tetrachloroethene	127-18-4	2.3	5.0	8.3	27
trans-1,2-Dichloroethene	156-60-5	0.97	2.9	4.8	320
Trichloroethene	79-01-6	1.6	3.9	6.6	620
Vinyl Chloride	75-01-4	0.56	1.9	3.1	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-08_091520	Date/Time Analyzed:	9/25/20 08:32 PM
Lab ID:	2009565-10A	Dilution Factor:	2.53
Date/Time Collected:	9/15/20 11:26 AM	Instrument/Filename:	msdj.i / j092518
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.5	6.4	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.6	18
trans-1,2-Dichloroethene	156-60-5	1.0	3.0	5.0	95
Trichloroethene	79-01-6	1.6	4.1	6.8	470
Vinyl Chloride	75-01-4	0.58	1.9	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-07_091520	Date/Time Analyzed:	9/25/20 08:58 PM
Lab ID:	2009565-11A	Dilution Factor:	2.52
Date/Time Collected:	9/15/20 12:43 PM	Instrument/Filename:	msdj.i / j092519
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.4	6.4	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.5	9.9
trans-1,2-Dichloroethene	156-60-5	1.0	3.0	5.0	14
Trichloroethene	79-01-6	1.6	4.1	6.8	110
Vinyl Chloride	75-01-4	0.58	1.9	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	103

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-06_091520	Date/Time Analyzed:	9/25/20 09:24 PM
Lab ID:	2009565-12A	Dilution Factor:	2.60
Date/Time Collected:	9/15/20 12:36 PM	Instrument/Filename:	msdj.i / j092520
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.1	5.2	Not Detected
1,4-Dioxane	123-91-1	4.6	6.6	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.1	5.2	Not Detected
Tetrachloroethene	127-18-4	2.5	5.3	8.8	29
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.2	5.8
Trichloroethene	79-01-6	1.7	4.2	7.0	240
Vinyl Chloride	75-01-4	0.60	2.0	3.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	106

Analysis Request /Canister Chain of Custody

For Laboratory Use Only

PID: _____ Workorder #: **2009565**

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
Phone (800) 985-5955; Fax (916) 351-8279

Click links below to view:
[Canister Sampling Guide](#)
[Helium Shroud Video](#)

Client: <u>Ford</u>	PID: <u>NA</u>	Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting	Turnaround Time (Rush surcharges may apply)	
Project Name: <u>Ford LTP</u>			5 Day Turnaround Time	
Project Manager: <u>Kris Hinskey</u>	P.O.# <u>30050315.0301.01</u>		Canister Vacuum/Pressure	Requested Analyses
Sampler: <u>Patrick Labadie, Xenia Chan</u>			Lab Use Only	
Site Name: <u>12400 BELDEN</u>				

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N ₂ / He	TO-15 (See Special Instructions/Notes)	Do Not Analyze
				Date	Time	Date	Time						
01A	SSMP-12400BELDEN-12_091520	1L1522	25263	9/15/2020	9:45	9/15/2020	9:56	-29	-6			X	
02A	SSMP-12400BELDEN-10_091520	1L1756	24148	9/15/2020	10:23	9/15/2020	10:35	-29	-5.5			X	
03A	SSMP-12400BELDEN-01_091520	1L1940	23655	9/15/2020	10:51	9/15/2020	11:03	-29	-6.5			X	
04A	SSMP-12400BELDEN-02_091520	1L1890	23609	9/15/2020	11:26	9/15/2020	11:38	-29	-6.5			X	
05A	SSMP-12400BELDEN-03_091520	1L3355	23450	9/15/2020	11:54	9/15/2020	12:06	-29.5	-6			X	
06A	SSMP-12400BELDEN-04_091520	1L1570	23577	9/15/2020	12:19	9/15/2020	12:31	-29	-5.5			X	
07A	SSMP-12400BELDEN-05_091520	1L3850	24680	9/15/2020	12:46	9/15/2020	12:58	-29	-6			X	
08A	SSMP-12400BELDEN-11_091520	1L2709	23499	9/15/2020	10:15	9/15/2020	10:25	-29	-7			X	
09A	SSMP-12400BELDEN-09_091520	1L3817	23506	9/15/2020	10:21	9/15/2020	10:32	-29	-6			X	
10A	SSMP-12400BELDEN-08_091520	1L1744	24874	9/15/2020	11:14	9/15/2020	11:26	-29.5	-6.5			X	
11A	SSMP-12400BELDEN-07_091520	1L3945	25190	9/15/2020	12:32	9/15/2020	12:43	-29.5	-6.5			X	
12A	SSMP-12400BELDEN-06_091520	1L1854	25237	9/15/2020	12:24	9/15/2020	12:36	-29.5	-7			X	
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Relinquished by: (Signature/Affiliation) <i>Christopher Miller</i> /ARCADEIS	Date 9/17/20	Time 1600	Received by: (Signature/Affiliation) <i>Jim East</i>	Date 9/21/20	Time 0956
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Lab Use Only	
Shipper Name: <u>Fed Ex</u>	Custody Seals Intact? <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> None <u>GOOD</u>

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

Daily Log - Ford Off Site VI Investigation - VISIT 1

Project No.: 30050315.0301.02

Site Location: 12400 BELDEN

Personnel Onsite: Xenia Chan, Christina Weaver

Date	Time	Description of Activities
6/15/2020		Purpose: Round 3 Visit 1: Chemical Inventory, Building Survey
		Weather: 62.06 degrees F and Mostly Clear
		Equipment: PID 6157
	9:56	Arrived on-site. Face mask, gloves, safety glasses worn, booties worn.
	10:04	Conducted building survey, requested to have windows and doors shut during visit 2 sampling.
	10:08	Conducted chemical inventory.
	10:25	Arcadis off-site.
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Visit 1 Checklist	
Keeping windows & doors shut during IA/AA sampling was discussed?	<u>yes</u> Field Staff Signature: <u>Xenia Chan</u>
Have background sources of VOCs been removed/isolated?	<u>yes</u>
Is a sump pit present in the building?	<u>no</u>
Location of removed/isolated background VOCs: <u>Chemicals located inside flammable storage cabinet</u>	

Daily Log - Ford Off Site VI Investigation - VISIT 2

Project No.: 30050315.0301.02

Site Location: 12400 BELDEN

Personnel Onsite: Xenia Chan, Patrick Labadie

Date	Time	Description of Activities
6/17/2020		Purpose: Round 3 Visit 2: IA/AA deployment
		Weather: 57, sunny
		Equipment: PID 6157
	7:00	Arcadis on-site. Donned PPE (gloves, mask, safety glasses, booties).
	7:15	PID readings in warehouse sustained 12-13 ppm. Office PID readings 6 ppm. Stop work contact team to discuss work conditions.
	7:29	Deployed IA/AA canisters. Oven and washing machine turned on. Ventilation and fans are running.
	8:23	Arcadis off-site.
	9:28	Arcadis on-site. Asked operations manager of any process changes or chemical use changes during the week. Normal work operations, no processes change throughout the week.
	9:45	Arcadis off-site.
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Visit 2 Checklist

Windows and doors are shut (for IA samples only)? yes

Have background sources of VOCs been removed/isolated? yes

Number of SSMP samples collected: --

Number of indoor/ambient air samples collected: --

Occupancy hours (for commercial properties only): 6am to 4:30pm

Field Staff Signature:
Xenia Chan

Daily Log - Ford Off Site VI Investigation - VISIT 3

Project No.: 30050315.0301.02

Site Location: 12400 BELDEN

Personnel Onsite: 6/18/2020 - Xenia Chan, Patrick Labadie, 6/22/2020 - Xenia Chan, Patrick Labadie, Christina Weaver

Date	Time	Description of Activities
6/18/2020		Purpose: Round 3 Visit 3: IA/AA Collection, Check SSMP conditions
		Weather: 6/18/2020 - 84 sunny, 6/22/2020 - 70 cloudy
		Equipment: PID 6153 and 6157
	14:42	Arcadis on-site. Donned PPE (mask, booties, gloves, safety glasses).
	15:20	Collected IA/AA canisters. Asked to return back for the visit 3 on Monday 6/22/2020 at 7am.
	15:38	Arcadis off-site.
6/22/2020	7:00	Arcadis on-site. Donned PPE (mask, booties, gloves, safety glasses).
	7:09	Used PID to measure background levels before sampling. Determined too high for SSMP sampling. Stop work to consult team.
	7:14	Arcadis off-site.
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Visit 3 Checklist

Windows and doors are shut (for IA samples only)? yes

Have background sources of VOCs been removed/isolated? yes

Number of SSMP samples collected: --

Number of indoor/ambient air samples collected: 13

Occupancy hours (for commercial properties only): 6am-4:30pm

Field Staff Signature: Xenia Chan



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM

Date: ²⁰¹⁴ 1/13/13 ~~13~~ Survey Performed by: E. Conrad
R2: 4-8-19 H. Ladd

1. OCCUPANT:

Rent: Own:

Resident Name: Address Technology Services R1 Todd Buhler

Address: 12700 Belton Court

Telephone: Home: NA Work: 734-523-4806 R3, X.Chan 6/15/2020 C. Weaver

How long have you lived at this location? 16 years

List current occupants/occupation below (attach additional pages if necessary).

Age (if under 18)	Sex (M/F)	Occupation
NA		

No changes since the previous round. Operations manager stated they are no longer using TCE-containing chemicals.

2. OWNER OR LANDLORD: (If same as occupant, check here and go to Item No. 3).

Last Name: International Developer Company First Name: Daryl Rogers

Address: 23179 Telegraph Rd

City and State: Southfield 48035

County: Unknown

Home Phone: NA Office Phone: 248-353-4800



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

3. SENSITIVE POPULATION:

Daycare/Nursing Home/Hospital/School/Other (specify): NA (Industrial)

4. BUILDING CHARACTERISTICS:

Residential/Multi-family Residential/Office/Strip Mall/Commercial/Industrial/School

Describe Building: Finishing Warehouse small office section Year Constructed: ?

Number of floors at or above grade: 1

Number of floors below grade: 0 (full basement/crawl space/slab on grade)

Depth of structure below grade: 0 ft. Basement size: 0 ft²

If the property is residential, what type? (Circle all appropriate responses.) NA

- | | | | |
|-------------|----------|-----------------|-------------------|
| Ranch | 2-Family | 3-Family | Raised Ranch |
| Split Level | Colonial | Cape Cod | Contemporary |
| Mobile Home | Duplex | Apartment House | Townhouses/Condos |
| Modular | Log Home | Other: _____ | |

If multiple units, how many? _____

If the property is commercial:

Business type(s) Repair Industrial Equipment

Does it include residences (i.e., multi-use)? Yes No If yes, how many? _____

5. OCCUPANCY:

Is basement/lowest level occupied? (Circle one)

Full-time

Occasionally

Seldom

Almost Never

8 1 shift 6am-4 30 pm



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Level	General Use (e.g., family room, bedroom, laundry, workshop, storage)
Basement	NA
1 st Floor	Warehouse office
2 nd Floor	NA
3 rd Floor	NA
4 th Floor	NA

(Use additional page(s) as necessary)

6. CONSTRUCTION CHARACTERISTICS: (Circle all that apply.)

a. Above Grade Construction: (Describe type: wood frame, concrete, stone, brick).

Slab-on-base, Under Block Interior Wood Framing/Sheetrock

b. Basement Type: Full Crawlspace **Slab** Other: _____

c. Basement Floor: **Concrete** Dirt Stone Other: _____

d. Finished Basement Floor: Uncovered Covered NA

If covered, what with? _____

e. Foundation Walls: **Poured** Block Stone Other: _____

f. Foundation Walls: **Unsealed** Sealed Sealed with: _____

g. The ^{Slab} Basement is: Wet Damp **Dry**

h. The ^{Slab} Basement is: Finished Unfinished Partially Finished Warehouse

i. Sump Present (Y/N) **(N)** If yes, how many? _____

Where Discharged? NA

Water in Sump? Yes No **Not Applicable**



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Identify all potential soil vapor entry points and estimated size (e.g., cracks, utility parts, drains).

Floor Drains (ties to municipal sewer) - Do smell when they dry out
Pipe Penetrating Plumbing

Are the basement walls or floor sealed with waterproof paint or epoxy coatings? Yes No Unknown

Type of ground cover outside of building: Grass Concrete Asphalt Other _____

Is an existing subsurface depressurization (radon) system in place? Yes No

If yes, is it active, or passive?

Is a sub-slab vapor/moisture barrier in place? Yes No Unknown

Type of barrier: _____

7. HEATING, VENTING, and AIR CONDITIONING

Type of heating system(s) used in this building: (Circle all that apply: Note the primary).

- | | | |
|---------------------------------------|-----------------|---------------------|
| Hot Air Circulation | Heat Pump | Hot Water Baseboard |
| Space Heaters | Steam Radiation | Radiant Floor |
| Electric Baseboard | Wood Stove | Outdoor Wood Boiler |
| Other: <u>Roofing Units (Exhaust)</u> | | |

The primary type of fuel used is:

- | | | |
|--------------------|----------|----------|
| <u>Natural Gas</u> | Fuel Oil | Kerosene |
| Electric | Propane | Solar |
| Wood | Coal | |

Domestic hot water tank fueled by: Electric

Location of Boiler/Furnace: Basement Outdoors Main Floor Other Roof
Roof



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Air Conditioning: Central Air Window Units Open Windows None

Are air distribution ducts present?

Yes No

- oversized ceiling fans present

Is there a whole house fan?

Yes No

- large exhaust fan in process room

Describe the air intake system (outside air supply, cold air return, ductwork, etc.) and its condition where visible. Indicate the locations on the floor plan diagram.

Air Supply on roof

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

a) Is there an attached garage?

Yes No

Van present near loading dock

If yes, does it have a separate heating unit?

Yes No

b) Are any petroleum-powered machines or vehicles stored in an attached garage (e.g., lawn mower, ATV, car)

Yes No

c) Has the building ever had a fire?

Yes No

d) Is there a fuel burning or unvented gas space heater?

Yes No

small individual space heaters (electr.)

e) Is there a workshop or hobby/craft area?

Yes No

If yes, where and what type? _____

f) Is there smoking in the building?

Yes No

If yes, how frequently? _____



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

- g) Have cleaning products been used recently? Yes No
 If yes, when and what type? Solvents, Vines, household cleaners - cleaning company
comes twice/week
- h) Have cosmetic products been used recently? Yes No
 If yes, when and what type? Face Powder
- i) Has there been painting or staining in the last six months? Yes No
 If yes, when and where? Building - No, Painting in part of operation (Spray painting bath)
- j) Is there new carpet, drapes, or other textiles? Yes No
 If yes, when and where? Carpeters replaced 3 years ago
- k) Have air fresheners been used recently? Yes No
 If yes, when and what type? _____
- l) Is there a kitchen exhaust fan? Yes No
 If yes, where is it vented? large exhaust fan in press room
- m) Is there a clothes dryer? Yes No
 If yes, is it vented outside? Yes No
- n) Has there been a pesticide application? Yes No
 If yes, when and what type? Serviced by O.K.M. last year 3-4
year ago - called company to disinfect *Unknown what kind of pesticides*
- o) Are there odors in the building? Yes No
 If yes, please describe: Sweet, woodlike



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

p) Do any of the building occupants use solvents at work (e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetology)?

Yes No

If yes, what types of solvents are used? Parts washer deposits
(See Chemical inventory)

If yes, are their clothes washed at work?

Yes No

q) Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response.)

- No
- Unknown
- Yes, use dry-cleaning regularly (weekly)
- Yes, use dry-cleaning infrequently (monthly or less)
- Yes, work at a dry-cleaning service

- University Servers
uniforms
- Assumers to be regular laundry

r) Is there a radon mitigation system for the building/structure?

Yes No

If yes, what is date of installation? N/A

Active Passive

s) Additional mitigation system information (fan size, location, operating status, liner installed, etc.):

Overizes ceiling fans
Use exhaust fan in process room

t) Is there an irrigation well, or any other well, present at the property:

Yes No

If yes, please describe placement, use, and history below.

Product Inventory Form

i.e. gasoline cans/equipment, kerosene, paints/thinners/strippers, cleaning solvents, hobby supplies (glues), oven cleaner, carpet/upholstery cleaners, household cleaners, moth balls, polishes/waxes, insecticides, furniture/floor polish, hairspray, cologne/perfume, air fresheners, interior fuel tank, wood stove/fireplace, new furniture/upholstery, new carpet/flooring

Location	Product Description	Chemical Ingredients	Quantity	PID Reading (ppb)	Photo	Removed (Y/N)
Between Electric	Solventless Polyter	Flammable vapors	1	5750	✓	N
Shipping	Polyether Polyresin	Polyether Polyresin	1	5715	✓	N
Shipping	Polymeric Isoctane	Polymeric Isoctane	1	5720	✓	N
Shipping	Disinfection Wipes	Alkyl benzyl ammonium chlor	1	5850	✓	N
Shipping	SPONGE	n-ALKYL dimethyl benzylam	10	5750	✓	N
Storage	Waste Battery	Alkali	3	5230	✓	N
Storage	Storage Tank	Polyether Polyresin	1	5850	✓	N
Storage	Storage Tank	Used Oil	4	7350	✓	N
Storage	VACTRA DINA4	way oil	5	5780	✓	N
Storage	WALUBE 30P	Wax Lubricant/Anty Wear	1	5950	✓	N
Storage	Solvent Box	VERBZn Solvent	1	5810	✓	N
Storage	Rando H2O2	Rando H2O2	5	10300	✓	N
Storage	DOLPHON CC-1305	Solventless Polyester Resin	1	5830	✓	N
Storage	Wire Poly-bir	Wax Lubr. Cont	1	6950	✓	N
Storage	Thread Cutting Oil	Cutting Oil	1	7220	✓	N
Storage	Grease	Polyant LENTIE	1	7300	✓	N
Shipping	Cleaner	Cleaning Solutions	1	7650	✓	N
Shipping	Washer	Cleaning Solutions	1	7480	✓	N
Shipping	Aerosol CARV	1,2-transdichloroethene,...	13	14000	✓	N
Matrix Lab	Fluor 16	PERFLUORO	2	13,000	✓	N
Motor Lab	Wax Film Protant	Solvent	1	16,000	✓	N
MOV Lab	Heavy Duty Lub	Lubricant	1	16,000	✓	N
MOV Lab	Matrix Heat Transfer	Heating Oil	1	14,000	✓	N
MOV Lab	Sealant	NO, nand METHYLACRYLATE	1	13,000	✓	N
MOV Lab	Lub Sealant	Sealing Material	2	107,000	✓	N
MOV Lab	Gas Duster	difluoroethane	1	13,000	✓	N
Electronic Lab	Adhesive/seal	t-Butyltinate, polydimethylsiox	2	13,000	✓	N
Electronic Lab	Potting Compound	silicone resins	1	13,000	✓	N
Electronic Lab	Perchloroethylene	Perchloroethylene	1	14,400	✓	N
Electronic Lab	Lubricant	Lubricant (AFB L-2 PART 232)	2	14,000	✓	N
Electronic Lab	Multipurpose oil	Petroleum	1	14,000	✓	N
Electronic Lab	Kitchen Silikon	VOC < 3% w/w (2309/L)	2	14,000	✓	N
Electronic Lab	Pipe Joint Compound	Lubricant	2	14,000	✓	N
Electronic Lab	Part cleaner	Xylene, ethylbenzene	1	14,750	✓	N
Electronic Lab	Solvent/ether	Trichloroethylene	1	14,370	✓	N
Electronic Lab	Gas Vent Solvent	Cumene, Acetone, Ethylene Glycol	1	14,450	✓	N
Electronic Lab	Adhesive oil	Petroleum	1	14,730	✓	N
Electronic Lab	Shell Isidore	Lithium	1	14,000	✓	N
Electronic Lab	Hydraulic oil	Oil	3	13,500	✓	N
Electronic Lab	Hydraulic oil	Oil	7	13,750	✓	N
Process Room	Oil Adsorbent	oil adsorbent	3	10,700	✓	N
Process Room	Lubricant	RDSin, Rosin Acid	1	10,750	✓	N
Process Room	Lacquer fluid	ethanol, Butylacetate	1	10,910	✓	N
Process Room	Water dilute oil	with dilute Chlorinated Paraffin	1	10,900	✓	N
Process Room	Disinfection solvent	dimethyl benzyl ammonium chloride	1	10,900	✓	N
CF, DE Lab	Maintenance cleaner	1,2-transdichloroethene	1	33,000	✓	N
So. nalle Lab	Stearin Gel	Foodgrade	1	25,400	✓	N
Electron Lab	Flux Resin	Flux Resin	2	14,000	✓	N

R2 - Background PID in general warehouse area - 7500 ppb
 - Background PID in process room - 10,500 ppb

- chemicals containing TCE & Trans 1,2 dichloroethene will be in use during sampling. Chemicals cannot be removed per Site S. Batt.

Product Inventory Form

i.e. gasoline cans/equipment, kerosene, paints/thinners/strippers, cleaning solvents, hobby supplies (glues), oven cleaner, carpet/upholstery cleaners, household cleaners, moth balls, polishes/waxes, insecticides, furniture/floor polish, hairspray, cologne/perfume, air fresheners, interior fuel tank, wood stove/fireplace, new furniture/upholstery, new carpet/flooring

Location	Product Description	Chemical Ingredients	Quantity	PID Reading (ppb)	Photo	Removed (Y/N)
Electrician's	5/16" 1/4" Remor	Methylene Chloride	2	1450	✓	Y
#1	Flamm. Cab.	JAY RLY-GUARD FG-2	4	3400	✓	Y
		RV-1000M SPRAY PAINT (SAT N GREEN)	5	3400	✓	Y
		REDFOX ACRYLIC SPRAY PAINT	12	3400	✓	Y
		MAP GUMMERCISE SILICONE	2	3400	✓	Y
		MOTO-MIX BIL ZAD/ENAMEL	6	3400	✓	Y
#2	Flamm. Cab.	EUTOLEUM ETOXY	10	5900	✓	Y
		LEST SPRAY PAINT	8	5900	✓	Y
		REVOLO SPRAY	4	5900	✓	Y
N/A	#2 Flamm. Cab.	~25 gal ACELITE CAN WASTE TRUM	1	5900	✓	Y
		SHIMPE GREEN CLEANER USGAL	1	5900	✓	Y
		DIALING BITHALATE ~SIAL	1	5900	✓	Y
		CAR CONTACT LEANER	1	3400	✓	Y
#1	Flamm. Cab.	CHAMPION ETOXY	2	3400	✓	Y
		CEC SP-350	5	3400	✓	Y
		RUBBER CEMENT	1	3400	✓	Y
		CUTTING FLUID	1	3400	✓	Y
		GRAY PRIMER EUTOLEUM	8	3400	✓	Y
		DOLPHIN LE-750	4	3400	✓	Y
		BRAKE CLEANER	2	3400	✓	Y
		MAGNIA LUBE	17	3400	✓	Y
		L-423 SUPER 910	5	3400	✓	Y
		LUBRICANT LPS	1	3400	✓	Y
		REP	3	3400	✓	Y
		SUNNY SIDE TYROL	1	3400	✓	Y

R3 updated chemical inventory. All chemicals were isolated inside flammables cabinets

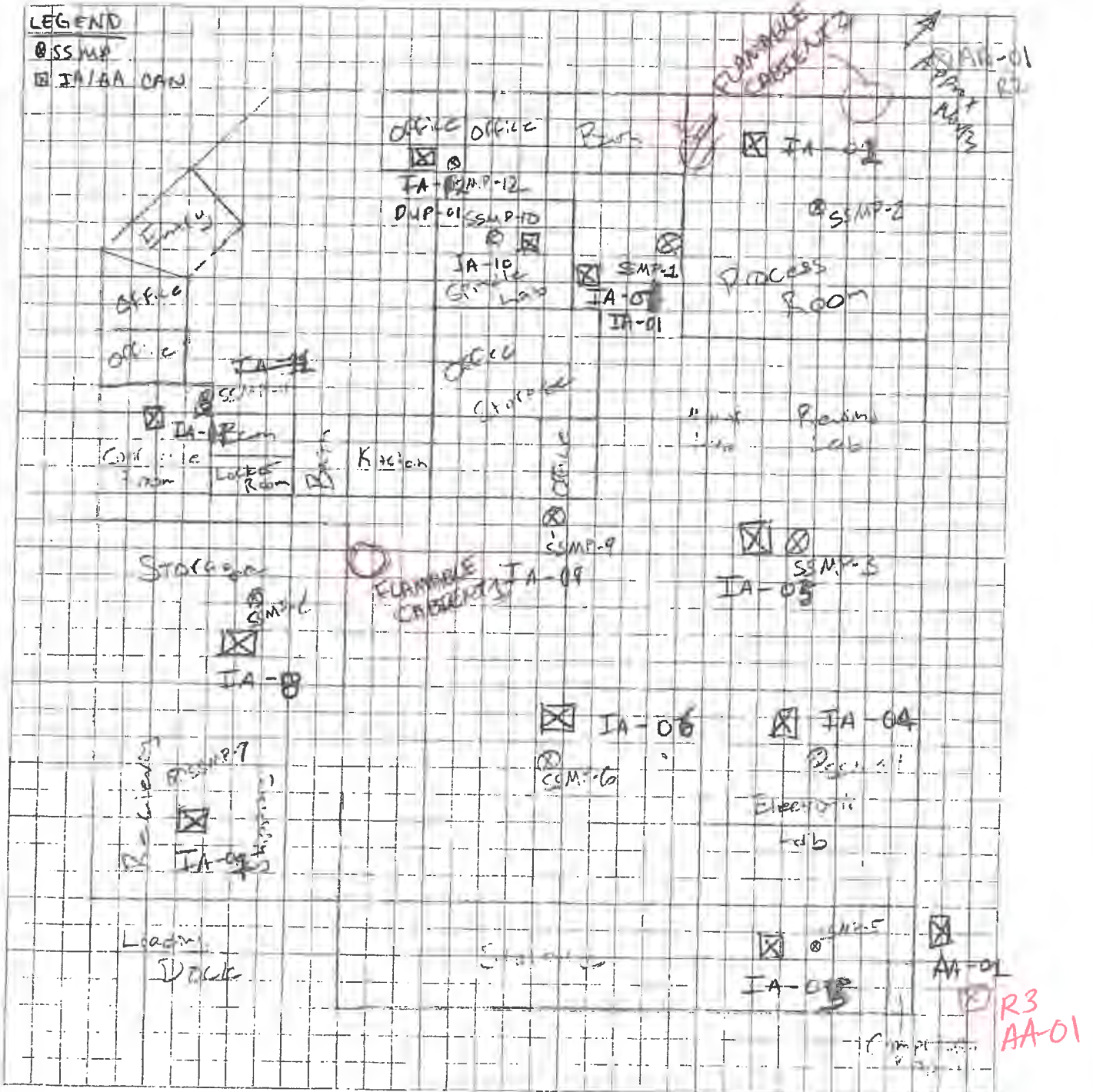
Flammable cabinet #1
PID 3400ppb

Flammable cabinet #2
PID: 5900ppb

Office PID 2330 ppb

They are no longer using "Powersolv" which contained TCE.

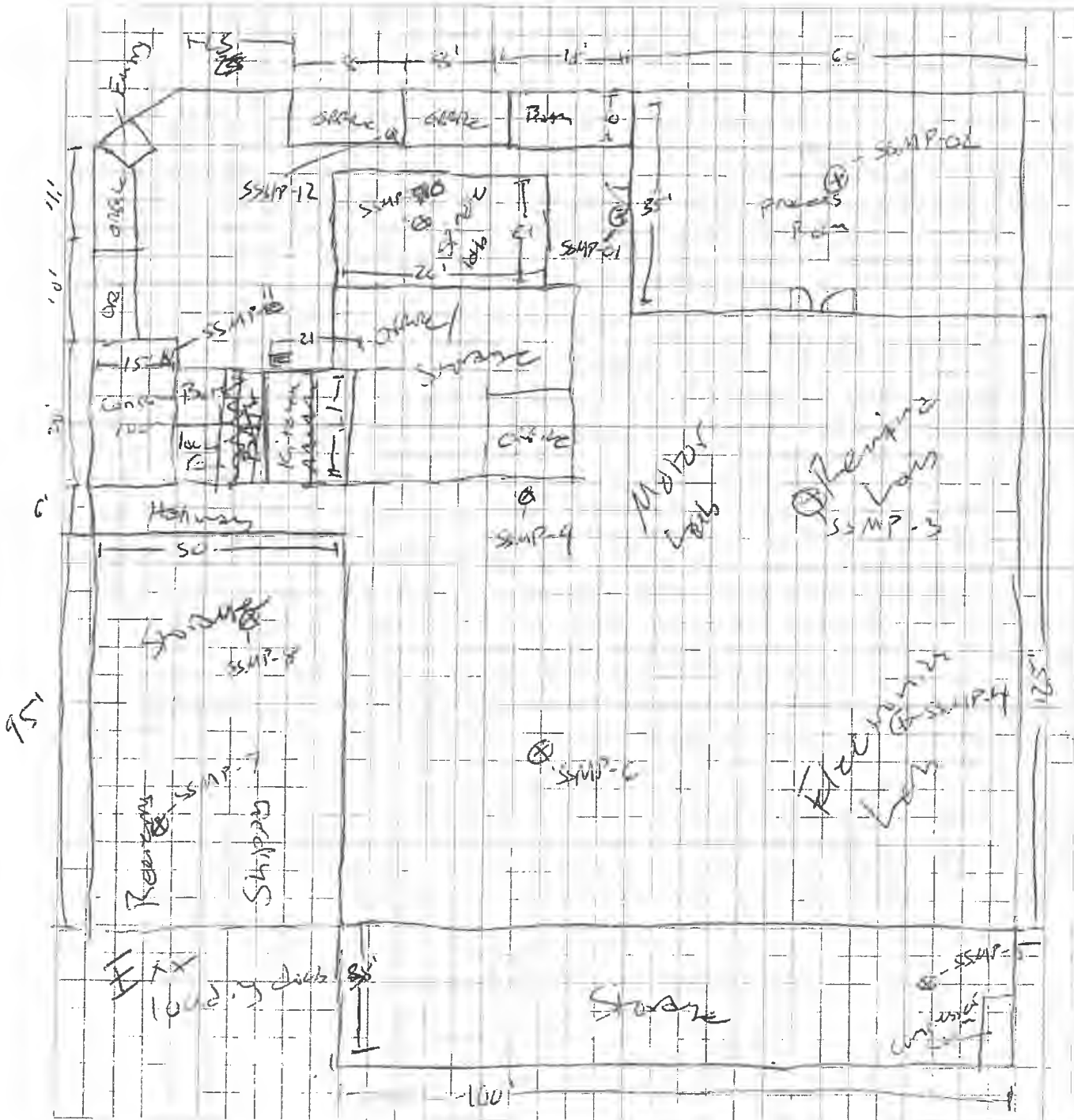
Subject: 2400 Belden Court		Sheet 1 of 2	
Project No. MICO1454.0003			
Calculations By: EL	Date: 11/13/2018	Checked By: AR	Date: 11/13/2018



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Liberaca

Subject			
Project No.		Sheet 2 of 2	
Calculations By	Date	Checked By	Date



Office Name & Address (Reporting Information): Arcadis of Michigan, LLC 28550 Cabot Drive, Suite 500, Novi, MI 48377		Project Name: Ford LTP Off-site Sampling	
Field Manager: Adam Richmond		Project Number: 30042006.0301.02	
Phone Number: 248.994.2240	Special Instructions:	Site Address: 12400 BELDEN	
Email Address for Result Reporting: Kristoffer.Hinskey@arcadis.com	Report ONLY: 1,1-DCE, cis-1,2- DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting.	Sampler Name: Xenia Chan	
Summa Canister Size (1L, 2.7 L, 6L) 6 Liter	Lab: Eurofins		

Sample ID	Sample Location Description	Indoor/ Outdoor	PID in Sampling Area (ppb)	Canister Number	Flow Controller Number	Sample Collection Start Date	Sample Collection Start Time	Beginning Canister Pressure (in. Hg)	Sample Collection End Date	Sample Collection End Time	Ending Canister Pressure (in. Hg)	HVAC System Information						Notes
												HVAC Fan On Start?	HVAC Fan On End?	Heat On Start?	Heat On End?	Temperature Setting (°F) Start	Temperature Setting (°F) End	
IAF-12400BELDEN-11_061720	Conference room	Indoor	11900	6L0251	23691	6/17/2020	7:28	-30	6/17/2020	14:59	-6.5	Yes	yes	Yes	Yes	70	70	--
IAF-12400BELDEN-12_061720	Inside office	Indoor	11970	6L1140	23600	6/17/2020	7:16	-30	6/17/2020	14:59	-5.5	Yes	yes	Yes	Yes	70	70	--
AA-12400BELDEN-01_061720	NE of building	Outdoor	0	6L1999	23714	6/17/2020	7:05	-30	6/17/2020	14:53	-6	--	--	--	--	--	--	--
IAF-12400BELDEN-03_061720	Warehouse, south of process room	Indoor	19620	6L2861	24543	6/17/2020	8:14	-30	6/17/2020	15:04	-7	Yes	yes	Yes	Yes	70	70	--
IAF-12400BELDEN-05_061720	Inside the process room	Indoor	11520	6L1913	23395	6/17/2020	8:11	-30	6/17/2020	15:24	-6.5	Yes	yes	Yes	Yes	70	70	--
IAF-12400BELDEN-04_061720	Electronic lab	Indoor	11540	6L1794	24271	6/17/2020	8:10	-29.5	6/17/2020	15:24	-6	Yes	yes	Yes	Yes	70	70	--
IAF-12400BELDEN-07_061720	Receiving and shipping area	Indoor	11240	6L1195	24558	6/17/2020	7:54	-30	6/17/2020	15:21	-6	Yes	yes	Yes	Yes	70	70	--
IAF-12400BELDEN-06_061720	Warehouse area	Indoor	12150	6L1950	23562	6/17/2020	7:52	-30	6/17/2020	15:05	-7	Yes	yes	Yes	Yes	70	70	--
IAF-12400BELDEN-08_061720	Storage area of warehouse	Indoor	1150	6L0653	24683	6/17/2020	7:34	-30	6/17/2020	15:20	-6	Yes	yes	Yes	Yes	70	70	--
IAF-12400BELDEN-09_061720	S of office storage within warehouse	Indoor	11970	6L2249	23117	6/17/2020	7:50	-30	6/17/2020	15:01	-5	Yes	yes	Yes	Yes	70	70	--
IAF-12400BELDEN-01_061720	Outside of the spindle lab	Indoor	11860	6L0603	24340	6/17/2020	7:48	-30	6/17/2020	15:12	-5.5	Yes	yes	Yes	Yes	70	70	--
IAF-12400BELDEN-02_061720	Inside the process room	Indoor	12840	6L2498	23812	6/17/2020	7:41	-30	6/17/2020	15:20	-6.5	Yes	yes	Yes	Yes	70	70	--
IAF-12400BELDEN-10_061720	Inside spindle lab	Indoor	11650	6L0790	23487	6/17/2020	7:39	-30	6/17/2020	15:22	-6	Yes	yes	Yes	Yes	70	70	--
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Meteorological Data							General Notes or Observations	
Date	Time	Temp. (°F)		Relative Humidity (%)	Barometric Pressure (in. Hg)	Air Speed (mph)	Source of Weather Information	
		Indoor	Outdoor					
6/17/2020	7:29	75	63	59	30.26	NE 3	weather.com app	
6/17/2020	14:52	70	84	78	30.27	NW 2	weather.com app	
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Daily Log - Ford Off Site VI Investigation - VISIT 1

Project No.: 30050315.301.01

Site Location: 12400 BELDEN

Personnel Onsite: Xenia Chan, Patrick Labadie, Allyson Hartz

Date	Time	Description of Activities
9/14/2020		Purpose: Round 3 Visit 1: building survey and chemical inventory
		Weather: 55.94 degrees F and Mostly Cloudy
		Equipment: PID 6153
	8:56	Arcadis on-site. Donned PPE (mask, gloves).
	9:00	Property is vacant. Owner has provided Arcadis with key to access building PID reading of 0 ppb in office and warehouse.
	9:11	Conducted chemical inventory and building walkthrough. No one available to complete survey
	9:17	Arcadis off-site, lock door
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Visit 1 Checklist

Keeping windows & doors shut during IA/AA sampling was discussed? no - Vacant Field Staff Signature: _____

Have background sources of VOCs been removed/isolated? yes *Xenia Chan*

Is a sump pit present in the building? no

Location of removed/isolated background VOCs: Isolated in bin

Daily Log - Ford Off Site VI Investigation - VISIT 2

Project No.: 30050315.0301.01

Site Location: 12400 BELDEN

Personnel Onsite: Xenia Chan, Patrick Labadie

Date	Time	Description of Activities
9/15/2020		Purpose: Round 3 Visit 2: IA/AA and SSMP sampling
		Weather: 50.00 degrees F and Cloudy
		Equipment: GEM, Micromanometer, PID 6153, Helium Detector
	8:52	Arcadis on-site. Donned PPE (masks and gloves.)
	9:25	Deployed IA/AA canisters.
	9:59	Sampled SSMPs.
	12:57	Arcadis off-site, lock door.
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Visit 2 Checklist


Windows and doors are shut (for IA samples only)? yes

Have background sources of VOCs been removed/isolated? yes

Number of SSMP samples collected: 12

Number of indoor/ambient air samples collected: --

Occupancy hours (for commercial properties only): Vacant

Field Staff Signature:


Daily Log - Ford Off Site VI Investigation - VISIT 3

Project No.: 30050315.0301.01

Site Location: 12400 BELDEN

Personnel Onsite: Xenia Chan, Patrick Labadie, Allyson Hartz

Date	Time	Description of Activities
9/16/2020		Purpose: Round 3 Visit 3: IA/AA collection and SSMP measurement collection
		Weather: 68.00 degrees F and Mostly Cloudy
		Equipment: GEM, Micromanometer
	15:55	Arcadis on-site. Donned PPE (masks, gloves).
	16:00	Collected IA/AA canisters.
	16:37	Collected SSMP measurements.
	16:48	Arcadis off-site, lock door.
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Visit 3 Checklist

Windows and doors are shut (for IA samples only)? yes

Have background sources of VOCs been removed/isolated? yes

Number of SSMP samples collected: --

Number of indoor/ambient air samples collected: 14

Occupancy hours (for commercial properties only): Vacant

Field Staff Signature: Xenia Chan



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM

R3.
 Date: ~~9/14/20~~ 9/14/20 Survey Performed by: X. Chan, A. Hartz, P. Labadie
 xC conducted building walkthrough, building vacant
 NO ONE TO SURVEY.

1. OCCUPANT:

Rent: NA Own: NA
 Resident Name: VACANT
 Address: 12900 Belden Court
 Telephone: Home: NA Work: NA
 How long have you lived at this location? NA

List current occupants/occupation below (attach additional pages if necessary):

Age (If under 18)	Sex (M/F)	Occupation
NA	NA	NA
//		

2. OWNER OR LANDLORD: (If same as occupant, check here and go to Item No. 3).

Last Name: NA First Name: Livonia International Development, LLC
 Address: NA
 City and State: NA
 County: NA
 Home Phone: NA Office Phone: NA



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

3. SENSITIVE POPULATION:

Daycare/Nursing Home/Hospital/School/Other (specify): N/A industrial

4. BUILDING CHARACTERISTICS:

Residential/Multi-family Residential/Office/Strip Mall/Commercial/Industrial/School

Describe Building: WAREHOUSE small office portion Year Constructed: ? UNKNOWN

Number of floors at or above grade: 1

Number of floors below grade: 0 (full basement/crawl space/slab on grade)

Depth of structure below grade: 0 ft. Basement size: 0 ft²

If the property is residential, what type? (Circle all appropriate responses.)

- | | | | | |
|-------------|----------|-----------------|-------------------|------------|
| Ranch | 2-Family | 3-Family | Raised Ranch | <u>N/A</u> |
| Split Level | Colonial | Cape Cod | Contemporary | |
| Mobile Home | Duplex | Apartment House | Townhouses/Condos | |
| Modular | Log Home | Other: _____ | | |

If multiple units, how many? NA

If the property is commercial:

Business type(s) vacant

Does it include residences (i.e., multi-use)? Yes No If yes, how many? NA

5. OCCUPANCY:

Is basement/lowest level occupied? (Circle one)

- | | | | | |
|-----------|--------------|--------|--------------|-------------------------|
| Full-time | Occasionally | Seldom | Almost Never | <u>CURRENTLY VACANT</u> |
|-----------|--------------|--------|--------------|-------------------------|



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Level	General Use (e.g., family room, bedroom, laundry, workshop, storage)
Basement	N/A
1st Floor	warehouse office
2nd Floor	N/A
3rd Floor	N/A
4th Floor	N/A

(Use additional page(s) as necessary)

6. CONSTRUCTION CHARACTERISTICS: (Circle all that apply.)

a. Above Grade Construction: (Describe type: wood frame, concrete, stone, brick).

slab on-grade cinder block interior wood frame sheetrock

b. Basement Type: Full Crawl space Slab ^{ON GRADE} Other: _____

c. Basement Floor: Concrete ^{SLAB} Dirt Stone Other: _____

d. Finished Basement Floor: Uncovered Covered N/A

If covered, what with? _____

e. Foundation Walls: Poured Block Stone Other: _____

f. Foundation Walls: Unsealed Sealed Sealed with: _____

g. The ^{slab} Basement is: Wet Damp Dry

h. The ^{slab} Basement is: Finished Unfinished Partially Finished warehouse

i. Sump Present (Y/ N) If yes, how many? _____

Where Discharged? N/A

Water in Sump? Yes No Not Applicable



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Identify all potential soil vapor entry points and estimated size (e.g., cracks, utility parts, drains).

floor drains
pipe penetrating plumbing
cracks in the slab ground

Are the basement walls or floor sealed with waterproof paint or epoxy coatings? Yes No unknown

Type of ground cover outside of building: Grass Concrete Asphalt Other _____

Is an existing subsurface depressurization (radon) system in place? Yes No

If yes, is it active, or passive? NA

Is a sub-slab vapor/moisture barrier in place? Yes No unknown

Type of barrier: NA

7. HEATING, VENTING, and AIR CONDITIONING

Type of heating system(s) used in this building: (Circle all that apply: Note the primary).

- Hot Air Circulation
- Space Heaters
- Electric Baseboard
- Other: rooftop units (exchangers)
- Heat Pump
- Steam Radiation
- Wood Stove
- Hot Water Baseboard
- Radiant Floor
- Outdoor Wood Boiler

The primary type of fuel used is:

- Natural Gas
- Electric
- Wood
- Fuel Oil
- Propane
- Coal
- Kerosene
- Solar

Domestic hot water tank fueled by: electric

Location of Boiler/Furnace: Basement Outdoors Main Floor Other roof



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Air Conditioning: Central Air Window Units Open Windows None

Are air distribution ducts present? Yes No

Is there a whole house fan? Yes No

Describe the air intake system (outside air supply, cold air return, ductwork, etc.) and its condition where visible. Indicate the locations on the floor plan diagram.

AIR SUPPLY ON ROOF, HANGING UNITS IN WAREHOUSE,
DUCT WORK IN FRONT OFFICE NOT VISIBLE.
PORTABLE AC UNIT IN WAREHOUSE OFFICE.

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

a) Is there an attached garage? Yes No

If yes, does it have a separate heating unit? Yes No

b) Are any petroleum-powered machines or vehicles stored in an attached garage (e.g., lawn mower, ATV, car) Yes ^{XC} No

c) Has the building ever had a fire? Yes ^{XC} No

d) Is there a fuel burning or unvented gas space heater? Yes ^{XC} No

e) Is there a workshop or hobby/craft area? Yes No

If yes, where and what type? NA

f) Is there smoking in the building? Yes No

If yes, how frequently? NA - VACANT.



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

- g) Have cleaning products been used recently? Yes No
 If yes, when and what type? NA
- h) Have cosmetic products been used recently? Yes No
 If yes, when and what type? NA
- i) Has there been painting or staining in the last six months? Yes No
 If yes, when and where? NA
- j) Is there new carpet, drapes, or other textiles? Yes No
 If yes, when and where? NA
- k) Have air fresheners been used recently? Yes No
 If yes, when and what type? NA
- l) Is there a kitchen exhaust fan? Yes No
 If yes, where is it vented? NA
- m) Is there a clothes dryer? Yes No
 If yes, is it vented outside? Yes No N/A
- n) Has there been a pesticide application? Yes No
 If yes, when and what type? NA
-
- o) Are there odors in the building? Yes No
 If yes, please describe: NA
-



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

p) Do any of the building occupants use solvents at work (e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetology)?

Yes No N/A

If yes, what types of solvents are used? vacant

If yes, are their clothes washed at work?

Yes No N/A

q) Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response.)

- No Unknown vacant
- Yes, use dry-cleaning regularly (weekly)
- Yes, use dry-cleaning infrequently (monthly or less)
- Yes, work at a dry-cleaning service

r) Is there a radon mitigation system for the building/structure?

Yes No

If yes, what is date of installation? N/A

Active Passive

s) Additional mitigation system information (fan size, location, operating status, liner installed, etc.):

NA

t) Is there an irrigation well, or any other well, present at the property:

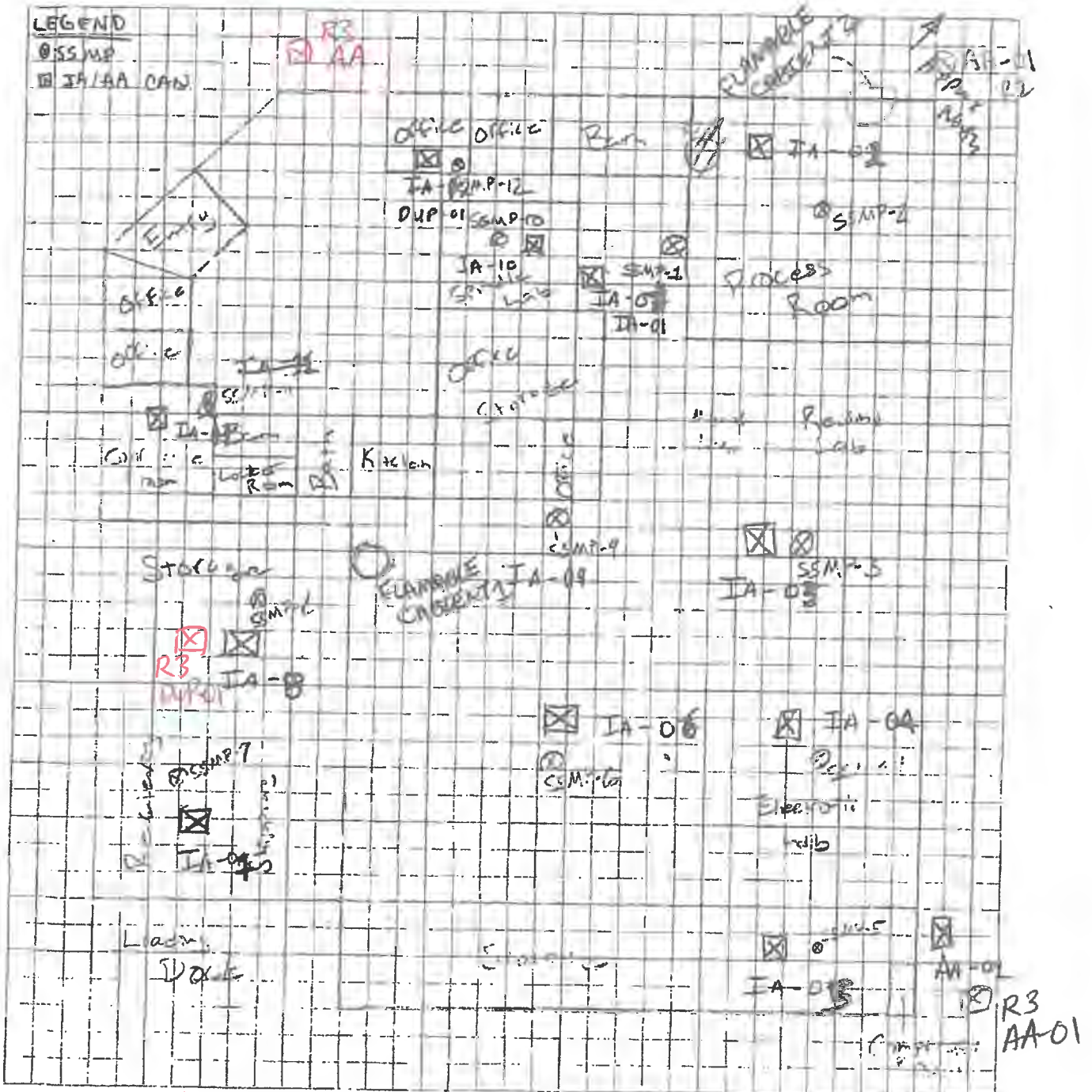
Yes No

If yes, please describe placement, use, and history below.

NA



Subject 12400 Belden Court		Sheet 1 OF 2	
Project No. MI001454.0003			
Calculations By EC	Date 11/13/2018	Checked By AR	Date 11/13/2018



R3: VACANT PROPERTY. NO MACHINES / PRODUCTS / STORAGE.
GENERAL MAP STRUCTURE REMAINS. NO RECENT CONSTRUCTION.

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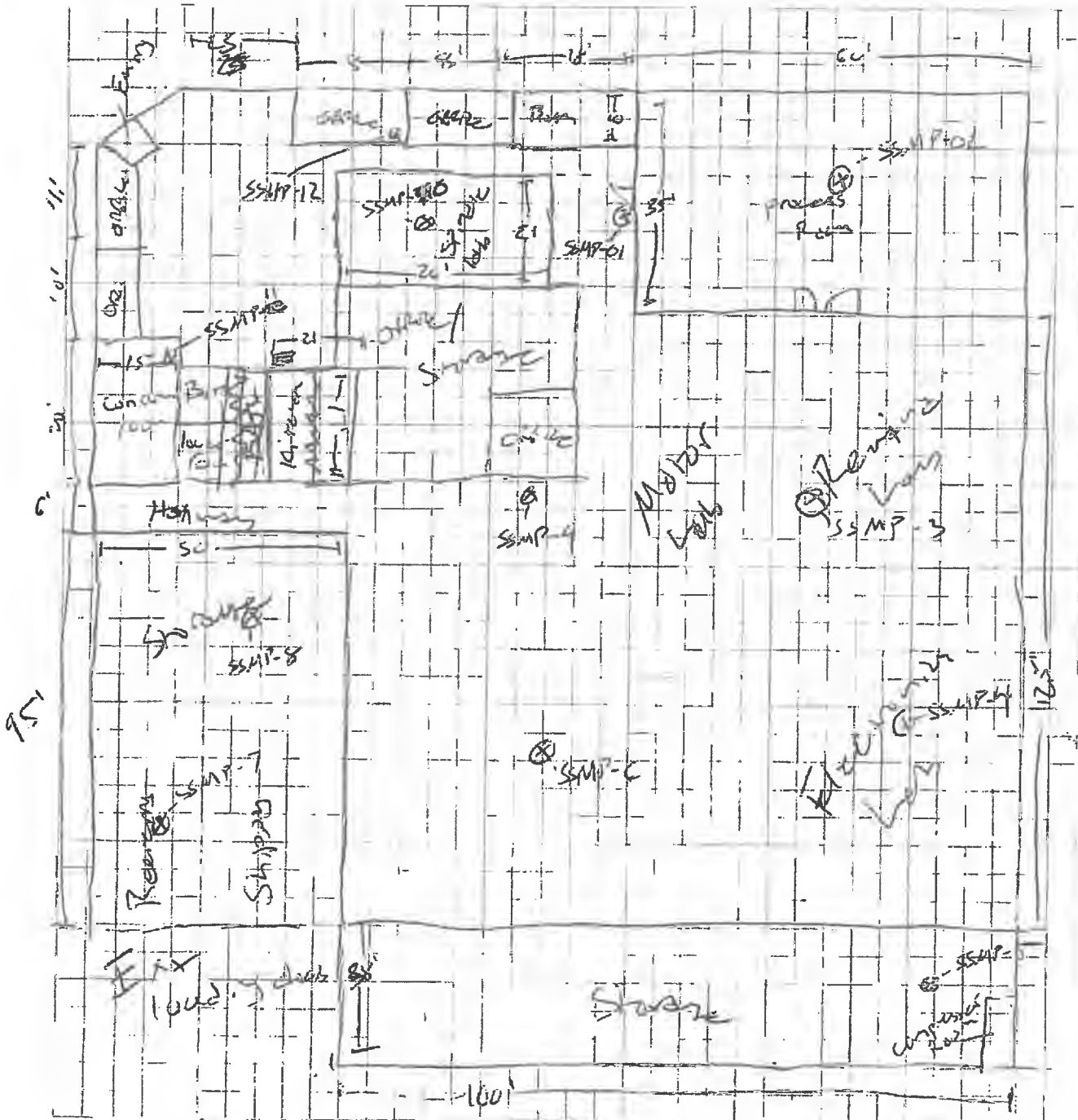
Liberata



ARCADIS

Design & Consultancy
for natural and
built assets

Subject			
Project No.			Sheet 2 of 2
Calculations By	Date	Checked By	Date



R3. VACANT PROPERTY. NO MACHINES / PRODUCTS / STORAGE.
GENERAL MAP STRUCTURES REMAIN. NO RECENT CONSTRUCTION.

Office Name & Address (Reporting Information): Arcadis of Michigan, LLC 28550 Cabot Drive, Suite 500, Novi, MI 48377						Project Name: Ford LTP Off-site Sampling											
Field Manager: Adam Richmond						Project Number: 30050315.0301.01											
Phone Number: 248.994.2240			Special Instructions:			Site Address: 12400 BELDEN											
Email Address for Result Reporting: Kristoffer.Hinskey@arcadis.com			Report ONLY: 1,1-DCE, cis-1,2- DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting.			Sampler Name: Xenia Chan, Patrick Labadie											
Summa Canister Size (1L, 2.7 L, 6L) 6 Liter			Lab: Eurofins														

Sample ID	Sample Location Description	Indoor/ Outdoor	PID in Sampling Area (ppb)	Canister Number	Flow Controller Number	Sample Collection Start Date	Sample Collection Start Time	Beginning Canister Pressure (in. Hg)	Sample Collection End Date	Sample Collection End Time	Ending Canister Pressure (in. Hg)	HVAC System Information						Notes
												HVAC Fan On Start?	HVAC Fan On End?	Heat On Start?	Heat On End?	Temperature Setting (°F) Start	Temperature Setting (°F) End	
AA-12400BELDEN-01_091520	NW of building	Outdoor	0	6L0207	24671	9/15/2020	8:56	-29.5	9/15/2020	15:57	-6.5	--	--	--	--	--	--	--
IAF-12400BELDEN-01_091520	Outside spindle lab	Indoor	0	6L1195	23419	9/15/2020	9:10	-29.5	9/15/2020	16:29	-6	No	no	No	No	52	75	--
IAF-12400BELDEN-02_091520	N corner	Indoor	0	6L2782	23570	9/15/2020	9:08	-29.5	9/15/2020	16:03	-6.5	No	no	No	No	52	75	--
IAF-12400BELDEN-07_091520	N of SW bay door	Indoor	0	6L2503	24287	9/15/2020	9:16	-29.5	9/15/2020	16:33	-6.5	No	no	No	No	52	75	--
IAF-12400BELDEN-03_091520	Middle of the room, NW of the E wall exit door	Indoor	0	6L1840	24695	9/15/2020	9:14	-29.5	9/15/2020	16:30	-6.5	No	no	No	No	52	75	--
IAF-12400BELDEN-04_091520	SW of east wall exit door	Indoor	0	6L2275	25235	9/15/2020	9:22	-29	9/15/2020	16:31	-6.5	No	no	No	No	52	75	--
IAF-12400BELDEN-05_091520	SE corner of the building	Indoor	0	6L2689	25256	9/15/2020	9:19	-29.5	9/15/2020	16:33	-6.5	No	no	No	No	52	75	--
IAF-12400BELDEN-06_091520	Middle of room, south of office area	Indoor	0	6L1322	23174	9/15/2020	9:15	-29.5	9/15/2020	16:35	-6.5	No	no	No	No	52	75	--
IAF-12400BELDEN-08_091520	N of SW bay doors near the far wall	Indoor	0	6L0768	25234	9/15/2020	9:26	-29	9/15/2020	16:31	-7	No	no	No	No	52	75	--
DUP-12400BELDEN-01_091520	N of SW bay doors near the far wall	Indoor	0	6L0246	24500	9/15/2020	9:26	-29	9/15/2020	16:31	-7	No	no	No	No	52	75	--
IAF-12400BELDEN-09_091520	S of office space in the warehouse	Indoor	0	6L1804	24876	9/15/2020	9:22	-29	9/15/2020	16:30	-7	No	no	No	No	52	75	--
IAF-12400BELDEN-10_091520	Inside former spindle lab room	Indoor	0	6L0565	23670	9/15/2020	9:11	-29.5	9/15/2020	16:02	-5	No	no	No	No	52	75	--
IAF-12400BELDEN-11_091520	SW front office	Indoor	0	6L0763	25257	9/15/2020	9:08	-29.5	9/15/2020	16:42	-6	No	no	No	No	52	75	--
IAF-12400BELDEN-12_091520	NW front office	Indoor	0	6L1415	23443	9/15/2020	9:05	-29.5	9/15/2020	16:00	-6	No	no	No	No	52	75	--
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Meteorological Data							General Notes or Observations
Date	Time	Temp. (°F)		Relative Humidity (%)	Barometric Pressure (in. Hg)	Air Speed (mph)	Source of Weather Information
		Indoor	Outdoor				
9/15/2020	8:52	60	52	82	30.34	NW 2	weather.com app
9/15/2020	15:59	75	72	47	30.19	S 10	weather.com app
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--	--	--	--	--	--	--	weather.com app

Office Name & Address (Reporting Information): Arcadis of Michigan, LLC 28550 Cabot Drive, Suite 500, Novi, MI 48377		Project Name: Ford LTP Off-site Sampling	
Field Manager: Adam Richmond		Project Number: 30050315.0301.01	
Phone Number: 248.994.2240	Special Instructions:	Site Address: 12400 BELDEN	
Email Address for Result Reporting: Kristoffer.Hinskey@arcadis.com	Report ONLY: 1,1-DCE, cis-1,2- DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadenacom.com. Cadena #E203631. Level IV Reporting.	Sampler Name: Patrick Labadie, Xenia Chan	
Helium Detector Model Used: Dielectric MGD-2002	Helium Leak Test Method: Bucket Shroud	Summa Canister Size (1L, 2.7 L, 6L): 1 Liter	Lab: Eurofins

Sample ID	Sample Location Description	Date	Pre-Sampling Shut-In / Leak-Down Test Pass/Fail?	Helium Tracer Test - Performed During Sample Point Purge			Purge Volume (mL)	Purge Rate (mL/min)	Canister Number	Flow Controller Number	Sample Collection Start Time	Starting Canister Pressure (in. Hg)	Sample Collection End Time	Ending Canister Pressure (in. Hg)	Post-Sampling CO ₂ Reading from GEM (%)	Post-Sampling O ₂ Reading from GEM (%)	Post-Sampling CH ₄ Reading from GEM (%)	Micromanometer Reading (in. WC)
				Shroud Helium Concentration During Purge (% Helium)	Helium Reading in Purged Vapor (% Helium)	Helium Test Pass/Fail (Purge contains <5% of shroud to pass)?												
SSMP-12400BELDEN-12_091520	Front office	9/15/2020	Pass	42.8	0	Pass	100	100	1L1522	25263	9:45	-29	9:56	-6	1.1	19	0.1	0.00597
SSMP-12400BELDEN-10_091520	Front room	9/15/2020	Pass	47.2	0	Pass	100	100	1L1756	24148	10:23	-29	10:35	-5.5	1.1	19.1	0.1	-0.00121
SSMP-12400BELDEN-01_091520	Near Northern part of warehouse	9/15/2020	Pass	45.4	0	Pass	100	100	1L1940	23655	10:51	-29	11:03	-6.5	1.5	18.6	0	-0.00283
SSMP-12400BELDEN-02_091520	North corner of warehouse	9/15/2020	Pass	45.7	0	Pass	100	100	1L1890	23609	11:26	-29	11:38	-6.5	3	16.2	0	0.00299
SSMP-12400BELDEN-03_091520	Center of warehouse	9/15/2020	Pass	47.5	0	Pass	100	100	1L3355	23450	11:54	-29.5	12:06	-6	3.8	16	0	0.00965
SSMP-12400BELDEN-04_091520	East side of warehouse	9/15/2020	Pass	46.2	0	Pass	100	100	1L1570	23577	12:19	-29	12:31	-5.5	7	11.4	0	0.01482
SSMP-12400BELDEN-05_091520	East corner of warehouse	9/15/2020	Pass	47.5	0	Pass	100	100	1L3850	24680	12:46	-29	12:58	-6	8.6	7.9	0	0.022
SSMP-12400BELDEN-11_091520	Conference room	9/15/2020	Pass	46.4	0	Pass	100	100	1L2709	23499	10:15	-29	10:25	-7	1	19.9	0	0.0055
SSMP-12400BELDEN-09_091520	By office	9/15/2020	Pass	40.8	0	Pass	100	100	1L3817	23506	10:21	-29	10:32	-6	1.9	19.4	0	0.0218
SSMP-12400BELDEN-08_091520	South side of warehouse	9/15/2020	Pass	47	0	Pass	100	100	1L1744	24874	11:14	-29.5	11:26	-6.5	1.2	19.5	0	0.017
SSMP-12400BELDEN-07_091520	South corner of warehouse	9/15/2020	Pass	45.9	0	Pass	100	100	1L3945	25190	12:32	-29.5	12:43	-6.5	1	19.6	0	-0.00107
SSMP-12400BELDEN-06_091520	Near center of warehouse	9/15/2020	Pass	44.9	0	Pass	100	100	1L1854	25237	12:24	-29.5	12:36	-7	2.9	18.3	0	-0.00635
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Meteorological Data						
Date	Time	Temp. (°F)		Relative Humidity (%)	Barometric Pressure (in. Hg)	Source of Weather Information
		Indoor	Outdoor			
9/15/2020	9:31	71	54	87	30.36	weather.com app
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--	--	--	--	--	--	weather.com app
--	--	--	--	--	--	weather.com app
--	--	--	--	--	--	weather.com app
--	--	--	--	--	--	weather.com app

Purge Volume Calculations:
The purge volume for each sample has been pre-calculated using the information below.
For sub-slab soil vapor samples the sample train tubing length is ~54 inches and the interior tubing radius is 0.085".
Three volumes of the sample train is 60 milliliters using the equation for volume of a cylinder (volume = pi * radius² * height) where Volume = 60 ml, radius = 0.085" and height = 54".
To have sufficient volume to conduct helium leak testing 100 milliliters should be purged from each sample point.
For exterior soil vapor sampling 60 milliliters should be used for the above ground sample train.
Each additional foot of sub-grade tubing account for approximately 13 ml.
To have sufficient volume to conduct helium leak testing at least 100 milliliters should be purged from each sample point.

General Notes or Observations

TRANSMITTAL LETTER



To:
Livonia International Development, LLC
Shawn Collins
Brandon Alger (EGLE)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:
January 27, 2021

Subject:
Vapor Intrusion Assessment Data
Package

Arcadis Project No.:

We are sending you copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Delivery Date	Drawing No.	Rev.	Description	Action*
1	1/27/2021			Figure	
1	1/27/2021			Analytical Results	
1	1/27/2021			Field Notes and Drawings	

Action*

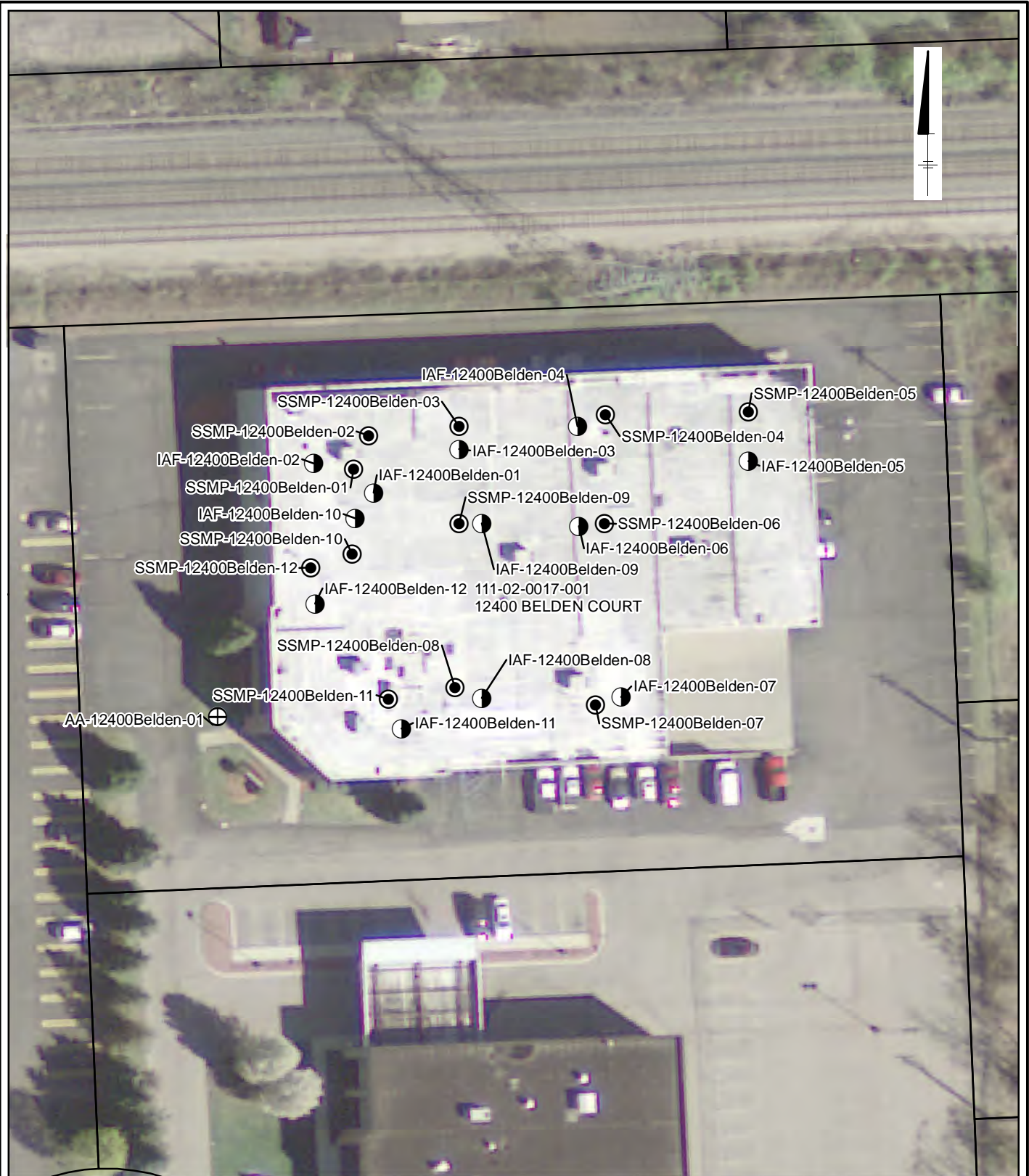
- A Approved CR Correct and Resubmit Resubmit _____ Copies
 AN Approved As Noted F File Return _____ Copies
 AS As Requested FA For Approval Review and Comment
 Other: _____

Mailing Method

- U.S. Postal Service 1st Class Courier/Hand Delivery FedEx Priority Overnight FedEx 2-Day Delivery
 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
 Other: email

Thank you for cooperating with the air sampling at your property on December 22, 2020. Attached is your data package.

CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TR: T. STEVENS TR: P. CURRY PROJECT NUMBER: M001373.0001.00003 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
 Z:\GIS\Projects\ENV\Novi\Brighton_M\Ford\Livonia\GIS\docs\2018-11\12400Belden_2018\1126.mxd PLOTTED: 11/28/2018 2:45:25 PM BY: msmliller



LEGEND:


- INDOOR AIR LOCATION
 - ⊕ AMBIENT AIR LOCATION
 - SUB-SLAB MONITORING POINT LOCATION
 - ▭ BUILDING
 - ▭ PROPERTY BOUNDARIES
- 0 25 50
SCALE IN FEET

FORD MOTOR COMPANY
 LIVONIA TRANSMISSION PLANT
 LIVONIA, MICHIGAN

AIR SAMPLING LOCATIONS



FIGURE 1



1/7/2021

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 2012710

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 12/30/2020 at Eurofins Air Toxics LLC.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics LLC. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,




Ausha Scott
Project Manager

WORK ORDER #: 2012710

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30050315.0301.01
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	12/30/2020	CONTACT:	Ausha Scott
DATE COMPLETED:	01/07/2021		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	AA-12400BELDEN-01_122220	Modified TO-15	8.0 "Hg	5 psi
02A	IAF-12400BELDEN-01_122220	Modified TO-15	8.0 "Hg	5 psi
03A	IAF-12400BELDEN-02_122220	Modified TO-15	8.0 "Hg	5 psi
04A	IAF-12400BELDEN-03_122220	Modified TO-15	7.5 "Hg	5 psi
05A	IAF-12400BELDEN-04_122220	Modified TO-15	8.5 "Hg	5 psi
06A	IAF-12400BELDEN-05_122220	Modified TO-15	7.5 "Hg	5 psi
07A	IAF-12400BELDEN-06_122220	Modified TO-15	7.0 "Hg	5 psi
08A	IAF-12400BELDEN-07_122220	Modified TO-15	6.5 "Hg	5 psi
09A	IAF-12400BELDEN-08_122220	Modified TO-15	8.0 "Hg	5 psi
10A	IAF-12400BELDEN-09_122220	Modified TO-15	7.5 "Hg	5 psi
11A	IAF-12400BELDEN-10_122220	Modified TO-15	8.5 "Hg	5 psi
12A	IAF-12400BELDEN-11_122220	Modified TO-15	7.5 "Hg	5 psi
13A	IAF-12400BELDEN-12_122220	Modified TO-15	8.0 "Hg	5 psi
14A	DUP-12400BELDEN-01_122220	Modified TO-15	8.0 "Hg	5 psi
15A	Lab Blank	Modified TO-15	NA	NA
15B	Lab Blank	Modified TO-15	NA	NA
16A	CCV	Modified TO-15	NA	NA
16B	CCV	Modified TO-15	NA	NA
17A	LCS	Modified TO-15	NA	NA
17AA	LCS	Modified TO-15	NA	NA
17B	LCS	Modified TO-15	NA	NA
17BB	LCS	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 01/07/21

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209220, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-20-16, UT NELAP – CA009332020-12, VA NELAP - 10615, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005-014, Effective date: 10/18/2020, Expiration date: 10/17/2021.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 2012710

Fourteen 6 Liter Summa Canister (100% Cert Ambient) samples were received on December 30, 2020. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the EATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-12400BELDEN-01_122220	Date/Time Analyzed:	12/31/20 01:04 PM
Lab ID:	2012710-01A	Dilution Factor:	1.83
Date/Time Collected:	12/22/20 04:23 PM	Instrument/Filename:	msd20.i / 20123107
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.41	0.64	0.72	Not Detected
1,4-Dioxane	123-91-1	0.38	0.58	0.66	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.64	0.72	Not Detected
Tetrachloroethene	127-18-4	0.48	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.64	0.72	Not Detected
Trichloroethene	79-01-6	0.51	0.86	0.98	Not Detected
Vinyl Chloride	75-01-4	0.15	0.41	0.47	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-01_122220	Date/Time Analyzed:	12/31/20 01:44 PM
Lab ID:	2012710-02A	Dilution Factor:	1.83
Date/Time Collected:	12/22/20 04:06 PM	Instrument/Filename:	msd20.i / 20123108
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.41	0.64	0.72	Not Detected
1,4-Dioxane	123-91-1	0.38	0.58	0.66	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.64	0.72	Not Detected
Tetrachloroethene	127-18-4	0.48	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.64	0.72	Not Detected
Trichloroethene	79-01-6	0.51	0.86	0.98	Not Detected
Vinyl Chloride	75-01-4	0.15	0.41	0.47	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-02_122220	Date/Time Analyzed:	12/31/20 02:48 PM
Lab ID:	2012710-03A	Dilution Factor:	1.83
Date/Time Collected:	12/22/20 04:04 PM	Instrument/Filename:	msd20.i / 20123109
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.41	0.64	0.72	Not Detected
1,4-Dioxane	123-91-1	0.38	0.58	0.66	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.64	0.72	Not Detected
Tetrachloroethene	127-18-4	0.48	1.1	1.2	1.3
trans-1,2-Dichloroethene	156-60-5	0.36	0.64	0.72	Not Detected
Trichloroethene	79-01-6	0.51	0.86	0.98	Not Detected
Vinyl Chloride	75-01-4	0.15	0.41	0.47	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	112
Toluene-d8	2037-26-5	70-130	105

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-03_122220	Date/Time Analyzed:	12/31/20 03:27 PM
Lab ID:	2012710-04A	Dilution Factor:	1.79
Date/Time Collected:	12/22/20 04:06 PM	Instrument/Filename:	msd20.i / 20123110
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	Not Detected
Trichloroethene	79-01-6	0.50	0.85	0.96	Not Detected
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	110
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	IAF-12400BELDEN-04_122220	Date/Time Analyzed:	12/31/20 04:07 PM
Lab ID:	2012710-05A	Dilution Factor:	1.87
Date/Time Collected:	12/22/20 04:08 PM	Instrument/Filename:	msd20.i / 20123111
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.42	0.65	0.74	Not Detected
1,4-Dioxane	123-91-1	0.39	0.59	0.67	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.35	0.65	0.74	Not Detected
Tetrachloroethene	127-18-4	0.49	1.1	1.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.37	0.65	0.74	Not Detected
Trichloroethene	79-01-6	0.52	0.88	1.0	Not Detected
Vinyl Chloride	75-01-4	0.15	0.42	0.48	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	IAF-12400BELDEN-05_122220	Date/Time Analyzed:	12/31/20 04:46 PM
Lab ID:	2012710-06A	Dilution Factor:	1.79
Date/Time Collected:	12/22/20 04:04 PM	Instrument/Filename:	msd20.i / 20123112
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	Not Detected
Trichloroethene	79-01-6	0.50	0.85	0.96	Not Detected
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-06_122220	Date/Time Analyzed:	12/31/20 05:25 PM
Lab ID:	2012710-07A	Dilution Factor:	1.75
Date/Time Collected:	12/22/20 04:11 PM	Instrument/Filename:	msd20.i / 20123113
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.39	0.61	0.69	Not Detected
1,4-Dioxane	123-91-1	0.37	0.55	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.61	0.69	Not Detected
Tetrachloroethene	127-18-4	0.46	1.0	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.35	0.61	0.69	Not Detected
Trichloroethene	79-01-6	0.49	0.83	0.94	Not Detected
Vinyl Chloride	75-01-4	0.14	0.39	0.45	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	110
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-07_122220	Date/Time Analyzed:	12/31/20 06:04 PM
Lab ID:	2012710-08A	Dilution Factor:	1.71
Date/Time Collected:	12/22/20 04:13 PM	Instrument/Filename:	msd20.i / 20123114
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.38	0.60	0.68	Not Detected
1,4-Dioxane	123-91-1	0.36	0.54	0.62	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.32	0.60	0.68	Not Detected
Tetrachloroethene	127-18-4	0.45	1.0	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.34	0.60	0.68	Not Detected
Trichloroethene	79-01-6	0.48	0.81	0.92	Not Detected
Vinyl Chloride	75-01-4	0.14	0.38	0.44	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	109
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-08_122220	Date/Time Analyzed:	12/31/20 08:21 PM
Lab ID:	2012710-09A	Dilution Factor:	1.83
Date/Time Collected:	12/22/20 04:15 PM	Instrument/Filename:	msd20.i / 20123117
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.41	0.64	0.72	Not Detected
1,4-Dioxane	123-91-1	0.38	0.58	0.66	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.64	0.72	Not Detected
Tetrachloroethene	127-18-4	0.48	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.64	0.72	Not Detected
Trichloroethene	79-01-6	0.51	0.86	0.98	Not Detected
Vinyl Chloride	75-01-4	0.15	0.41	0.47	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	IAF-12400BELDEN-09_122220	Date/Time Analyzed:	12/31/20 07:23 PM
Lab ID:	2012710-10A	Dilution Factor:	1.79
Date/Time Collected:	12/22/20 04:17 PM	Instrument/Filename:	msd20.i / 20123116
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	0.62 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	Not Detected
Trichloroethene	79-01-6	0.50	0.85	0.96	Not Detected
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-10_122220	Date/Time Analyzed:	12/31/20 09:00 PM
Lab ID:	2012710-11A	Dilution Factor:	1.87
Date/Time Collected:	12/22/20 03:57 PM	Instrument/Filename:	msd20.i / 20123118
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.42	0.65	0.74	Not Detected
1,4-Dioxane	123-91-1	0.39	0.59	0.67	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.35	0.65	0.74	Not Detected
Tetrachloroethene	127-18-4	0.49	1.1	1.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.37	0.65	0.74	Not Detected
Trichloroethene	79-01-6	0.52	0.88	1.0	0.53 J
Vinyl Chloride	75-01-4	0.15	0.42	0.48	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	108
Toluene-d8	2037-26-5	70-130	104

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-11_122220	Date/Time Analyzed:	12/31/20 09:39 PM
Lab ID:	2012710-12A	Dilution Factor:	1.79
Date/Time Collected:	12/22/20 03:57 PM	Instrument/Filename:	msd20.i / 20123119
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	0.59 J
Trichloroethene	79-01-6	0.50	0.85	0.96	0.57 J
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-12_122220	Date/Time Analyzed:	1/4/21 12:19 PM
Lab ID:	2012710-13A	Dilution Factor:	1.83
Date/Time Collected:	12/22/20 03:57 PM	Instrument/Filename:	msd20.i / 20010407
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.41	0.64	0.72	Not Detected
1,4-Dioxane	123-91-1	0.38	0.58	0.66	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.64	0.72	Not Detected
Tetrachloroethene	127-18-4	0.48	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.64	0.72	Not Detected
Trichloroethene	79-01-6	0.51	0.86	0.98	0.51 J
Vinyl Chloride	75-01-4	0.15	0.41	0.47	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	112
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	DUP-12400BELDEN-01_122220	Date/Time Analyzed:	1/4/21 01:06 PM
Lab ID:	2012710-14A	Dilution Factor:	1.83
Date/Time Collected:	12/22/20 12:00 AM	Instrument/Filename:	msd20.i / 20010408
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.41	0.64	0.72	Not Detected
1,4-Dioxane	123-91-1	0.38	0.58	0.66	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.64	0.72	Not Detected
Tetrachloroethene	127-18-4	0.48	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.64	0.72	Not Detected
Trichloroethene	79-01-6	0.51	0.86	0.98	Not Detected
Vinyl Chloride	75-01-4	0.15	0.41	0.47	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	12/31/20 12:10 PM
Lab ID:	2012710-15A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20123106a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.22	0.35	0.40	Not Detected
1,4-Dioxane	123-91-1	0.21	0.32	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.19	0.35	0.40	Not Detected
Tetrachloroethene	127-18-4	0.26	0.60	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.20	0.35	0.40	Not Detected
Trichloroethene	79-01-6	0.28	0.47	0.54	Not Detected
Vinyl Chloride	75-01-4	0.081	0.22	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	108
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	1/4/21 11:12 AM
Lab ID:	2012710-15B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20010406a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.22	0.35	0.40	Not Detected
1,4-Dioxane	123-91-1	0.21	0.32	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.19	0.35	0.40	Not Detected
Tetrachloroethene	127-18-4	0.26	0.60	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.20	0.35	0.40	Not Detected
Trichloroethene	79-01-6	0.28	0.47	0.54	Not Detected
Vinyl Chloride	75-01-4	0.081	0.22	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	111
4-Bromofluorobenzene	460-00-4	70-130	109
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	12/31/20 09:06 AM
Lab ID:	2012710-16A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20123102
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	91
1,4-Dioxane	123-91-1	119
cis-1,2-Dichloroethene	156-59-2	94
Tetrachloroethene	127-18-4	104
trans-1,2-Dichloroethene	156-60-5	92
Trichloroethene	79-01-6	120
Vinyl Chloride	75-01-4	89

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	106

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	1/4/21 08:06 AM
Lab ID:	2012710-16B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20010402
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	96
1,4-Dioxane	123-91-1	111
cis-1,2-Dichloroethene	156-59-2	97
Tetrachloroethene	127-18-4	103
trans-1,2-Dichloroethene	156-60-5	96
Trichloroethene	79-01-6	116
Vinyl Chloride	75-01-4	94

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	109
Toluene-d8	2037-26-5	70-130	111

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	12/31/20 09:56 AM
Lab ID:	2012710-17A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20123103
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	92
1,4-Dioxane	123-91-1	113
cis-1,2-Dichloroethene	156-59-2	93
Tetrachloroethene	127-18-4	104
trans-1,2-Dichloroethene	156-60-5	92
Trichloroethene	79-01-6	108
Vinyl Chloride	75-01-4	91

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	105

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	12/31/20 10:43 AM
Lab ID:	2012710-17AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20123104
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	92
1,4-Dioxane	123-91-1	110
cis-1,2-Dichloroethene	156-59-2	94
Tetrachloroethene	127-18-4	106
trans-1,2-Dichloroethene	156-60-5	92
Trichloroethene	79-01-6	108
Vinyl Chloride	75-01-4	92

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	103

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	1/4/21 08:54 AM
Lab ID:	2012710-17B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20010403
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	93
1,4-Dioxane	123-91-1	110
cis-1,2-Dichloroethene	156-59-2	95
Tetrachloroethene	127-18-4	106
trans-1,2-Dichloroethene	156-60-5	93
Trichloroethene	79-01-6	107
Vinyl Chloride	75-01-4	92

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	109
Toluene-d8	2037-26-5	70-130	104

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	1/4/21 09:42 AM
Lab ID:	2012710-17BB	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20010404
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	94
1,4-Dioxane	123-91-1	109
cis-1,2-Dichloroethene	156-59-2	96
Tetrachloroethene	127-18-4	104
trans-1,2-Dichloroethene	156-60-5	94
Trichloroethene	79-01-6	106
Vinyl Chloride	75-01-4	93

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	109
Toluene-d8	2037-26-5	70-130	102

* % Recovery is calculated using unrounded analytical results.



January 7, 2021

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - Soil Gas and Groundwater
Project number: 30050315.0301.01
Client project scopereference: Sample COC only was used to define project analytical requirements. Laboratory: Eurofins AirToxics - Folsom
Laboratorysubmittal: 2012710
Sample date: 2020-12-22
Report received byCADENA: 2021-01-07
Initial DataVerification completed: 2021-01-07
14 Air samples were analyzed for TO-15 parameters.

No data qualifications or sample integrity issues were observed.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) TO-15 Analysis

SDG #2012710

CADENA Verification Report: 2021-01-07

Analyses Performed By:
Eurofins Air Toxics
Folsom, California

Report #40013R
Review Level: Tier III
Project: 30050315.301.02



DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 2012710 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
2012710	AA-12400BELDEN-01_122220	2012710-01A	Air	12/22/2020		X		
	IAF-12400BELDEN-01_122220	2012710-02A	Air	12/22/2020		X		
	IAF-12400BELDEN-02_122220	2012710-03A	Air	12/22/2020		X		
	IAF-12400BELDEN-03_122220	2012710-04A	Air	12/22/2020		X		
	IAF-12400BELDEN-04_122220	2012710-05A	Air	12/22/2020		X		
	IAF-12400BELDEN-05_122220	2012710-06A	Air	12/22/2020		X		
	IAF-12400BELDEN-06_122220	2012710-07A	Air	12/22/2020		X		
	IAF-12400BELDEN-07_122220	2012710-08A	Air	12/22/2020		X		
	IAF-12400BELDEN-08_122220	2012710-09A	Air	12/22/2020		X		

DATA REVIEW

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
	IAF-12400BELDEN-09_122220	2012710-10A	Air	12/22/2020		X		
	IAF-12400BELDEN-10_122220	2012710-11A	Air	12/22/2020		X		
	IAF-12400BELDEN-11_122220	2012710-12A	Air	12/22/2020		X		
	IAF-12400BELDEN-12_122220	2012710-13A	Air	12/22/2020		X		
	DUP-12400BELDEN-01_122220	2012710-14A	Air	12/22/2020	IAF-12400BELDEN-10_122220	X		

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15 (Full Scan). Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15	Air	30 days from collection to analysis (Canister)	Ambient Temperature	< -2" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 140% or less than 60% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. All identified compounds met the specified criteria.

6. Field Duplicate Sample Analysis

The field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 35% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are not greater than five times the RL, a control limit of three times the RL is applied to the difference between the duplicate sample results.

Results (in $\mu\text{g}/\text{m}^3$) for the field duplicate samples are summarized in the following table.

Sample ID / Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
IAF-12400BELDEN-10_122220/ DUP-12400BELDEN-01_122220	Trichloroethene	0.53 J	0.98 U	AC

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15 (Full Scan)	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-2"Hg)		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Field Duplicate Sample RPD		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:



DATE: January 22, 2020

PEER REVIEW: Dennis Capria

DATE: January 26, 2021



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



**NO CORRECTIONS/QUALIFIERS ADDED
TO SAMPLE ANALYSIS DATA SHEETS**



MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-12400BELDEN-01_122220	Date/Time Analyzed:	12/31/20 01:04 PM
Lab ID:	2012710-01A	Dilution Factor:	1.83
Date/Time Collected:	12/22/20 04:23 PM	Instrument/Filename:	msd20.i / 20123107
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.41	0.64	0.72	Not Detected
1,4-Dioxane	123-91-1	0.38	0.58	0.66	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.64	0.72	Not Detected
Tetrachloroethene	127-18-4	0.48	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.64	0.72	Not Detected
Trichloroethene	79-01-6	0.51	0.86	0.98	Not Detected
Vinyl Chloride	75-01-4	0.15	0.41	0.47	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP



Client ID:	IAF-12400BELDEN-01_122220	Date/Time Analyzed:	12/31/20 01:44 PM
Lab ID:	2012710-02A	Dilution Factor:	1.83
Date/Time Collected:	12/22/20 04:06 PM	Instrument/Filename:	msd20.i / 20123108
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.41	0.64	0.72	Not Detected
1,4-Dioxane	123-91-1	0.38	0.58	0.66	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.64	0.72	Not Detected
Tetrachloroethene	127-18-4	0.48	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.64	0.72	Not Detected
Trichloroethene	79-01-6	0.51	0.86	0.98	Not Detected
Vinyl Chloride	75-01-4	0.15	0.41	0.47	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	IAF-12400BELDEN-02_122220	Date/Time Analyzed:	12/31/20 02:48 PM
Lab ID:	2012710-03A	Dilution Factor:	1.83
Date/Time Collected:	12/22/20 04:04 PM	Instrument/Filename:	msd20.i / 20123109
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.41	0.64	0.72	Not Detected
1,4-Dioxane	123-91-1	0.38	0.58	0.66	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.64	0.72	Not Detected
Tetrachloroethene	127-18-4	0.48	1.1	1.2	1.3
trans-1,2-Dichloroethene	156-60-5	0.36	0.64	0.72	Not Detected
Trichloroethene	79-01-6	0.51	0.86	0.98	Not Detected
Vinyl Chloride	75-01-4	0.15	0.41	0.47	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	112
Toluene-d8	2037-26-5	70-130	105

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-03_122220	Date/Time Analyzed:	12/31/20 03:27 PM
Lab ID:	2012710-04A	Dilution Factor:	1.79
Date/Time Collected:	12/22/20 04:06 PM	Instrument/Filename:	msd20.i / 20123110
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	Not Detected
Trichloroethene	79-01-6	0.50	0.85	0.96	Not Detected
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	110
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP



Client ID:	IAF-12400BELDEN-04_122220	Date/Time Analyzed:	12/31/20 04:07 PM
Lab ID:	2012710-05A	Dilution Factor:	1.87
Date/Time Collected:	12/22/20 04:08 PM	Instrument/Filename:	msd20.i / 20123111
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.42	0.65	0.74	Not Detected
1,4-Dioxane	123-91-1	0.39	0.59	0.67	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.35	0.65	0.74	Not Detected
Tetrachloroethene	127-18-4	0.49	1.1	1.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.37	0.65	0.74	Not Detected
Trichloroethene	79-01-6	0.52	0.88	1.0	Not Detected
Vinyl Chloride	75-01-4	0.15	0.42	0.48	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	IAF-12400BELDEN-05_122220	Date/Time Analyzed:	12/31/20 04:46 PM
Lab ID:	2012710-06A	Dilution Factor:	1.79
Date/Time Collected:	12/22/20 04:04 PM	Instrument/Filename:	msd20.i / 20123112
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	Not Detected
Trichloroethene	79-01-6	0.50	0.85	0.96	Not Detected
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-06_122220	Date/Time Analyzed:	12/31/20 05:25 PM
Lab ID:	2012710-07A	Dilution Factor:	1.75
Date/Time Collected:	12/22/20 04:11 PM	Instrument/Filename:	msd20.i / 20123113
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.39	0.61	0.69	Not Detected
1,4-Dioxane	123-91-1	0.37	0.55	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.61	0.69	Not Detected
Tetrachloroethene	127-18-4	0.46	1.0	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.35	0.61	0.69	Not Detected
Trichloroethene	79-01-6	0.49	0.83	0.94	Not Detected
Vinyl Chloride	75-01-4	0.14	0.39	0.45	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	110
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-07_122220	Date/Time Analyzed:	12/31/20 06:04 PM
Lab ID:	2012710-08A	Dilution Factor:	1.71
Date/Time Collected:	12/22/20 04:13 PM	Instrument/Filename:	msd20.i / 20123114
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.38	0.60	0.68	Not Detected
1,4-Dioxane	123-91-1	0.36	0.54	0.62	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.32	0.60	0.68	Not Detected
Tetrachloroethene	127-18-4	0.45	1.0	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.34	0.60	0.68	Not Detected
Trichloroethene	79-01-6	0.48	0.81	0.92	Not Detected
Vinyl Chloride	75-01-4	0.14	0.38	0.44	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	109
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-08_122220	Date/Time Analyzed:	12/31/20 08:21 PM
Lab ID:	2012710-09A	Dilution Factor:	1.83
Date/Time Collected:	12/22/20 04:15 PM	Instrument/Filename:	msd20.i / 20123117
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.41	0.64	0.72	Not Detected
1,4-Dioxane	123-91-1	0.38	0.58	0.66	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.64	0.72	Not Detected
Tetrachloroethene	127-18-4	0.48	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.64	0.72	Not Detected
Trichloroethene	79-01-6	0.51	0.86	0.98	Not Detected
Vinyl Chloride	75-01-4	0.15	0.41	0.47	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	IAF-12400BELDEN-09_122220	Date/Time Analyzed:	12/31/20 07:23 PM
Lab ID:	2012710-10A	Dilution Factor:	1.79
Date/Time Collected:	12/22/20 04:17 PM	Instrument/Filename:	msd20.i / 20123116
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	0.62 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	Not Detected
Trichloroethene	79-01-6	0.50	0.85	0.96	Not Detected
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-10_122220	Date/Time Analyzed:	12/31/20 09:00 PM
Lab ID:	2012710-11A	Dilution Factor:	1.87
Date/Time Collected:	12/22/20 03:57 PM	Instrument/Filename:	msd20.i / 20123118
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.42	0.65	0.74	Not Detected
1,4-Dioxane	123-91-1	0.39	0.59	0.67	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.35	0.65	0.74	Not Detected
Tetrachloroethene	127-18-4	0.49	1.1	1.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.37	0.65	0.74	Not Detected
Trichloroethene	79-01-6	0.52	0.88	1.0	0.53 J
Vinyl Chloride	75-01-4	0.15	0.42	0.48	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	108
Toluene-d8	2037-26-5	70-130	104

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-11_122220	Date/Time Analyzed:	12/31/20 09:39 PM
Lab ID:	2012710-12A	Dilution Factor:	1.79
Date/Time Collected:	12/22/20 03:57 PM	Instrument/Filename:	msd20.i / 20123119
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.40	0.62	0.71	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.33	0.62	0.71	Not Detected
Tetrachloroethene	127-18-4	0.47	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.35	0.62	0.71	0.59 J
Trichloroethene	79-01-6	0.50	0.85	0.96	0.57 J
Vinyl Chloride	75-01-4	0.14	0.40	0.46	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12400BELDEN-12_122220	Date/Time Analyzed:	1/4/21 12:19 PM
Lab ID:	2012710-13A	Dilution Factor:	1.83
Date/Time Collected:	12/22/20 03:57 PM	Instrument/Filename:	msd20.i / 20010407
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.41	0.64	0.72	Not Detected
1,4-Dioxane	123-91-1	0.38	0.58	0.66	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.64	0.72	Not Detected
Tetrachloroethene	127-18-4	0.48	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.64	0.72	Not Detected
Trichloroethene	79-01-6	0.51	0.86	0.98	0.51 J
Vinyl Chloride	75-01-4	0.15	0.41	0.47	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	112
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	DUP-12400BELDEN-01_122220	Date/Time Analyzed:	1/4/21 01:06 PM
Lab ID:	2012710-14A	Dilution Factor:	1.83
Date/Time Collected:	12/22/20 12:00 AM	Instrument/Filename:	msd20.i / 20010408
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.41	0.64	0.72	Not Detected
1,4-Dioxane	123-91-1	0.38	0.58	0.66	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.64	0.72	Not Detected
Tetrachloroethene	127-18-4	0.48	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.64	0.72	Not Detected
Trichloroethene	79-01-6	0.51	0.86	0.98	Not Detected
Vinyl Chloride	75-01-4	0.15	0.41	0.47	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	103

Analysis Request / Canister Chain of Custody

For Laboratory Use Only

PID: _____ Workorder #: **2012710**

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
Phone (800) 985-5955; Fax (916) 351-8279

Click links below to view:
[Canister Sampling Guide](#)
[Helium Shroud Video](#)

Client: <u>Ford</u> PID: <u>NA</u>		Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting		Turnaround Time (Rush surcharges may apply)									
Project Name: <u>Ford LTP</u>		P.O.# <u>30050315.0301.01</u>		5 Day Turnaround Time									
Project Manager: <u>Kris Hinskey</u>				Canister Vacuum/Pressure		Requested Analyses							
Sampler: <u>A. Hartz X. Chan</u>				Lab Use Only									
Site Name: <u>12400 BELDEN</u>				Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N ₂ / He						
TO-15 (See Special Instructions/Notes)	Do Not Analyze												
Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N ₂ / He	TO-15 (See Special Instructions/Notes)	Do Not Analyze
				Date	Time	Date	Time						
01A	AA-12400BELDEN-01-122220	6L2085	23385	12/22/20	9:23	12/22/20	16:23	-29	-8.5			X	
02A	IAF-12400BELDEN-01-122220	6L2099	24920		9:08		16:06	-29	-8			X	
03A	IAF-12400BELDEN-02-122220	6L2167	23247		9:09		16:04	-29	-8			X	
04A	IAF-12400BELDEN-03-122220	6L2318	23378		9:12		16:06	-29	-7.5			X	
05A	IAF-12400BELDEN-04-122220	6L2781	2028		9:20		16:08	-29	-8.5			X	
06A	IAF-12400BELDEN-05-122220	6L2794	24011		9:18		16:04	-29	-7.5			X	
07A	IAF-12400BELDEN-06-122220	6L0353	23832		9:18		16:11	-29	-7			X	
08A	IAF-12400BELDEN-07-122220	6L2390	23567		9:14		16:13	-29	-6.5			X	
09A	IAF-12400BELDEN-08-122220	6L1102	24298		9:15		16:15	-29	-8			X	
10A	IAF-12400BELDEN-09-122220	6L1697	23813		9:11		16:17	-29	-7.5			X	
11A	IAF-12400BELDEN-10-122220	6L1841	25259		9:04		15:57	-29	-8			X	
12A	IAF-12400BELDEN-11-122220	6L0295	23322		9:02		15:57	-29	-8			X	
13A	IAF-12400BELDEN-12-122220	6L0359	23255		9:03		15:57	-29	-8			X	
14A	DUP-12400BELDEN-01-122220	6L2644	23201					-29	-8			X	

Relinquished by: (Signature/Affiliation) <u>A. Hartz / Arcadis</u>	Date <u>12/22/20</u>	Time <u>17:00</u>	Received by: (Signature/Affiliation) <u>Navi Warehouse / Arcadis</u>	Date <u>12/22/20</u>	Time <u>17:00</u>
Relinquished by: (Signature/Affiliation) <u>Navi Warehouse / Arcadis</u>	Date <u>12-28-20</u>	Time <u>1400</u>	Received by: (Signature/Affiliation) <u>CR EATL</u>	Date <u>12-30-20</u>	Time <u>1059</u>
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Lab Use Only	
Shipper Name: <u>Folsom</u>	Custody Seals Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> None

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

1/6/2021
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 2012711

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 12/30/2020 at Eurofins Air Toxics LLC.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics LLC. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,




Ausha Scott
Project Manager

WORK ORDER #: 2012711

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30050315.0301.01
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	12/30/2020	CONTACT:	Ausha Scott
DATE COMPLETED:	01/06/2021		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SSMP-12400BELDEN-01_122220	TO-15	6.5 "Hg	15 psi
02A	SSMP-12400BELDEN-02_122220	TO-15	5.5 "Hg	15 psi
03A	SSMP-12400BELDEN-03_122220	TO-15	7.0 "Hg	15 psi
04A	SSMP-12400BELDEN-04_122220	TO-15	6.0 "Hg	15 psi
05A	SSMP-12400BELDEN-05_122220	TO-15	6.5 "Hg	15 psi
06A	SSMP-12400BELDEN-06_122220	TO-15	6.5 "Hg	15 psi
07A	SSMP-12400BELDEN-07_122220	TO-15	6.5 "Hg	15 psi
08A	SSMP-12400BELDEN-08_122220	TO-15	6.0 "Hg	15 psi
09A	SSMP-12400BELDEN-09_122220	TO-15	7.5 "Hg	15 psi
10A	SSMP-12400BELDEN-10_122220	TO-15	6.0 "Hg	15 psi
11A	SSMP-12400BELDEN-11_122220	TO-15	6.0 "Hg	15 psi
12A	SSMP-12400BELDEN-12_122220	TO-15	7.0 "Hg	15 psi
13A	Lab Blank	TO-15	NA	NA
14A	CCV	TO-15	NA	NA
15A	LCS	TO-15	NA	NA
15AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 01/06/21

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209220, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-20-16, UT NELAP – CA009332020-12, VA NELAP - 10615, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005-014, Effective date: 10/18/2020, Expiration date: 10/17/2021.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards
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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 2012711

Twelve 1 Liter Summa Canister (100% Certified) samples were received on December 30, 2020. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: SSMP-12400BELDEN-01_122220
Lab ID: 2012711-01A
Date/Time Collected: 12/22/20 09:52 AM
Media: 1 Liter Summa Canister (100% Certified)

Date/Time Analyzed: 1/5/21 12:16 PM
Dilution Factor: 2.58
Instrument/Filename: msdj.i / j010508

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.1	5.1	Not Detected
1,4-Dioxane	123-91-1	4.6	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.1	5.1	Not Detected
Tetrachloroethene	127-18-4	2.4	5.2	8.8	5.3 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.1	8.0
Trichloroethene	79-01-6	1.7	4.2	6.9	130
Vinyl Chloride	75-01-4	0.59	2.0	3.3	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-02_122220	Date/Time Analyzed:	1/5/21 12:46 PM
Lab ID:	2012711-02A	Dilution Factor:	2.47
Date/Time Collected:	12/22/20 10:12 AM	Instrument/Filename:	msdj.i / j010509
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	2.9	4.9	Not Detected
1,4-Dioxane	123-91-1	4.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	2.9	4.9	Not Detected
Tetrachloroethene	127-18-4	2.3	5.0	8.4	3.4 J
trans-1,2-Dichloroethene	156-60-5	0.98	2.9	4.9	Not Detected
Trichloroethene	79-01-6	1.6	4.0	6.6	26
Vinyl Chloride	75-01-4	0.57	1.9	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-03_122220	Date/Time Analyzed:	1/5/21 01:15 PM
Lab ID:	2012711-03A	Dilution Factor:	2.64
Date/Time Collected:	12/22/20 10:32 AM	Instrument/Filename:	msdj.i / j010510
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.1	5.2	Not Detected
1,4-Dioxane	123-91-1	4.7	13	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.1	5.2	Not Detected
Tetrachloroethene	127-18-4	2.5	5.4	9.0	2.9 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.2	13
Trichloroethene	79-01-6	1.7	4.2	7.1	75
Vinyl Chloride	75-01-4	0.61	2.0	3.4	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12400BELDEN-04_122220	Date/Time Analyzed:	1/5/21 01:44 PM
Lab ID:	2012711-04A	Dilution Factor:	2.52
Date/Time Collected:	12/22/20 10:51 AM	Instrument/Filename:	msdj.i / j010511
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.5	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.0	3.0	5.0	Not Detected
Trichloroethene	79-01-6	1.6	4.1	6.8	7.3
Vinyl Chloride	75-01-4	0.58	1.9	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: SSMP-12400BELDEN-05_122220
Lab ID: 2012711-05A
Date/Time Collected: 12/22/20 11:12 AM
Media: 1 Liter Summa Canister (100% Certified)

Date/Time Analyzed: 1/5/21 02:14 PM
Dilution Factor: 2.58
Instrument/Filename: msdj.i / j010512

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.1	5.1	Not Detected
1,4-Dioxane	123-91-1	4.6	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.1	5.1	Not Detected
Tetrachloroethene	127-18-4	2.4	5.2	8.8	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.1	2.0 J
Trichloroethene	79-01-6	1.7	4.2	6.9	1.9 J
Vinyl Chloride	75-01-4	0.59	2.0	3.3	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: SSMP-12400BELDEN-06_122220
Lab ID: 2012711-06A
Date/Time Collected: 12/22/20 11:36 AM
Media: 1 Liter Summa Canister (100% Certified)

Date/Time Analyzed: 1/5/21 02:43 PM
Dilution Factor: 2.58
Instrument/Filename: msdj.i / j010513

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.1	5.1	Not Detected
1,4-Dioxane	123-91-1	4.6	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.1	5.1	Not Detected
Tetrachloroethene	127-18-4	2.4	5.2	8.8	5.3 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.1	1.4 J
Trichloroethene	79-01-6	1.7	4.2	6.9	59
Vinyl Chloride	75-01-4	0.59	2.0	3.3	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-07_122220	Date/Time Analyzed:	1/5/21 03:12 PM
Lab ID:	2012711-07A	Dilution Factor:	2.58
Date/Time Collected:	12/22/20 11:56 AM	Instrument/Filename:	msdj.i / j010514
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.1	5.1	Not Detected
1,4-Dioxane	123-91-1	4.6	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.1	5.1	Not Detected
Tetrachloroethene	127-18-4	2.4	5.2	8.8	3.0 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.1	2.1 J
Trichloroethene	79-01-6	1.7	4.2	6.9	37
Vinyl Chloride	75-01-4	0.59	2.0	3.3	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-08_122220	Date/Time Analyzed:	1/5/21 03:42 PM
Lab ID:	2012711-08A	Dilution Factor:	2.52
Date/Time Collected:	12/22/20 11:59 AM	Instrument/Filename:	msdj.i / j010515
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.5	3.0 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.0	5.0	8.7
Trichloroethene	79-01-6	1.6	4.1	6.8	50
Vinyl Chloride	75-01-4	0.58	1.9	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-09_122220	Date/Time Analyzed:	1/5/21 04:11 PM
Lab ID:	2012711-09A	Dilution Factor:	2.69
Date/Time Collected:	12/22/20 11:34 AM	Instrument/Filename:	msdj.i / j010516
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.2	5.3	Not Detected
1,4-Dioxane	123-91-1	4.8	13	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.2	5.3	Not Detected
Tetrachloroethene	127-18-4	2.6	5.5	9.1	8.8 J
trans-1,2-Dichloroethene	156-60-5	1.1	3.2	5.3	81
Trichloroethene	79-01-6	1.7	4.3	7.2	240
Vinyl Chloride	75-01-4	0.62	2.1	3.4	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-10_122220	Date/Time Analyzed:	1/5/21 04:40 PM
Lab ID:	2012711-10A	Dilution Factor:	2.52
Date/Time Collected:	12/22/20 11:07 AM	Instrument/Filename:	msdj.i / j010517
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.5	9.3
trans-1,2-Dichloroethene	156-60-5	1.0	3.0	5.0	83
Trichloroethene	79-01-6	1.6	4.1	6.8	400
Vinyl Chloride	75-01-4	0.58	1.9	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-11_122220	Date/Time Analyzed:	1/5/21 07:49 PM
Lab ID:	2012711-11A	Dilution Factor:	2.52
Date/Time Collected:	12/22/20 10:45 AM	Instrument/Filename:	msdj.i / j010521
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.5	5.3 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.0	5.0	130
Trichloroethene	79-01-6	1.6	4.1	6.8	290
Vinyl Chloride	75-01-4	0.58	1.9	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-12_122220	Date/Time Analyzed:	1/5/21 05:35 PM
Lab ID:	2012711-12A	Dilution Factor:	2.64
Date/Time Collected:	12/22/20 10:19 AM	Instrument/Filename:	msdj.i / j010519
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.1	5.2	Not Detected
1,4-Dioxane	123-91-1	4.7	13	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.1	5.2	Not Detected
Tetrachloroethene	127-18-4	2.5	5.4	9.0	4.8 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.2	29
Trichloroethene	79-01-6	1.7	4.2	7.1	140
Vinyl Chloride	75-01-4	0.61	2.0	3.4	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	91
Toluene-d8	2037-26-5	70-130	105

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	1/5/21 11:15 AM
Lab ID:	2012711-13A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j010507a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.67	1.2	2.0	Not Detected
1,4-Dioxane	123-91-1	1.8	4.9	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.52	1.2	2.0	Not Detected
Tetrachloroethene	127-18-4	0.95	2.0	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.40	1.2	2.0	Not Detected
Trichloroethene	79-01-6	0.64	1.6	2.7	Not Detected
Vinyl Chloride	75-01-4	0.23	0.77	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	CCV	Date/Time Analyzed:	1/5/21 08:24 AM
Lab ID:	2012711-14A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j010502
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	92
1,4-Dioxane	123-91-1	102
cis-1,2-Dichloroethene	156-59-2	98
Tetrachloroethene	127-18-4	103
trans-1,2-Dichloroethene	156-60-5	99
Trichloroethene	79-01-6	101
Vinyl Chloride	75-01-4	115

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCS	Date/Time Analyzed:	1/5/21 09:01 AM
Lab ID:	2012711-15A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j010503
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	101
1,4-Dioxane	123-91-1	100
cis-1,2-Dichloroethene	156-59-2	103
Tetrachloroethene	127-18-4	104
trans-1,2-Dichloroethene	156-60-5	103
Trichloroethene	79-01-6	104
Vinyl Chloride	75-01-4	119

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	101

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	1/5/21 09:28 AM
Lab ID:	2012711-15AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j010504
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	94
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	98
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	98
Trichloroethene	79-01-6	100
Vinyl Chloride	75-01-4	108

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	98

* % Recovery is calculated using unrounded analytical results.



January 6, 2021

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - Soil Gas and Groundwater
Project number: 30050315.0301.01
Client project scopereference: Sample COC only was used to define project analytical requirements. Laboratory: Eurofins AirToxics - Folsom
Laboratorysubmittal: 2012711
Sample date: 2020-12-22
Report received byCADENA: 2021-01-06
Initial DataVerification completed: 2021-01-06
12 Air samples were analyzed for TO-15 parameters.

No data qualifications or sample integrity issues were observed.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) TO-15 Analysis

SDG #2012711

CADENA Verification Report: 2021-01-06

Analyses Performed By:
Eurofins Air Toxics
Folsom, California

Report #40014R
Review Level: Tier III
Project: 30050315.301.02

DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 2012711 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
2012711	SSMP-12400BELDEN-01_122220	2012711-01A	Air	12/22/2020		X		
	SSMP-12400BELDEN-02_122220	2012711-02A	Air	12/22/2020		X		
	SSMP-12400BELDEN-03_122220	2012711-03A	Air	12/22/2020		X		
	SSMP-12400BELDEN-04_122220	2012711-04A	Air	12/22/2020		X		
	SSMP-12400BELDEN-05_122220	2012711-05A	Air	12/22/2020		X		
	SSMP-12400BELDEN-06_122220	2012711-06A	Air	12/22/2020		X		
	SSMP-12400BELDEN-07_122220	2012711-07A	Air	12/22/2020		X		
	SSMP-12400BELDEN-08_122220	2012711-08A	Air	12/22/2020		X		
	SSMP-12400BELDEN-09_122220	2012711-09A	Air	12/22/2020		X		

DATA REVIEW

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
	SSMP-12400BELDEN-10_122220	2012711-10A	Air	12/22/2020		X		
	SSMP-12400BELDEN-11_122220	2012711-11A	Air	12/22/2020		X		
	SSMP-12400BELDEN-12_122220	2012711-12A	Air	12/22/2020		X		

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15 (Full Scan). Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15	Air	30 days from collection to analysis (Canister)	Ambient Temperature	< -2" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 140% or less than 60% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. All identified compounds met the specified criteria.

6. Field Duplicate Sample Analysis

The field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 35% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are not greater than five times the RL, a control limit of three times the RL is applied to the difference between the duplicate sample results.

A field duplicate was not performed on a sample location within this SDG.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15 (Full Scan)	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-2"Hg)		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Field Duplicate Sample RPD					X
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

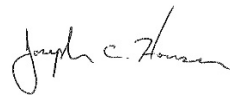
%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:



DATE: January 22, 2021

PEER REVIEW: Dennis Capria

DATE: January 26, 2021



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



**NO CORRECTIONS/QUALIFIERS ADDED
TO SAMPLE ANALYSIS DATA SHEETS**



EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-01_122220	Date/Time Analyzed:	1/5/21 12:16 PM
Lab ID:	2012711-01A	Dilution Factor:	2.58
Date/Time Collected:	12/22/20 09:52 AM	Instrument/Filename:	msdj.i / j010508
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.1	5.1	Not Detected
1,4-Dioxane	123-91-1	4.6	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.1	5.1	Not Detected
Tetrachloroethene	127-18-4	2.4	5.2	8.8	5.3 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.1	8.0
Trichloroethene	79-01-6	1.7	4.2	6.9	130
Vinyl Chloride	75-01-4	0.59	2.0	3.3	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: SSMP-12400BELDEN-02_122220
Lab ID: 2012711-02A
Date/Time Collected: 12/22/20 10:12 AM
Media: 1 Liter Summa Canister (100% Certified)

Date/Time Analyzed: 1/5/21 12:46 PM
Dilution Factor: 2.47
Instrument/Filename: msdj.i / j010509

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	2.9	4.9	Not Detected
1,4-Dioxane	123-91-1	4.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	2.9	4.9	Not Detected
Tetrachloroethene	127-18-4	2.3	5.0	8.4	3.4 J
trans-1,2-Dichloroethene	156-60-5	0.98	2.9	4.9	Not Detected
Trichloroethene	79-01-6	1.6	4.0	6.6	26
Vinyl Chloride	75-01-4	0.57	1.9	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: SSMP-12400BELDEN-03_122220
Lab ID: 2012711-03A
Date/Time Collected: 12/22/20 10:32 AM
Media: 1 Liter Summa Canister (100% Certified)

Date/Time Analyzed: 1/5/21 01:15 PM
Dilution Factor: 2.64
Instrument/Filename: msdj.i / j010510

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.1	5.2	Not Detected
1,4-Dioxane	123-91-1	4.7	13	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.1	5.2	Not Detected
Tetrachloroethene	127-18-4	2.5	5.4	9.0	2.9 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.2	13
Trichloroethene	79-01-6	1.7	4.2	7.1	75
Vinyl Chloride	75-01-4	0.61	2.0	3.4	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-04_122220	Date/Time Analyzed:	1/5/21 01:44 PM
Lab ID:	2012711-04A	Dilution Factor:	2.52
Date/Time Collected:	12/22/20 10:51 AM	Instrument/Filename:	msdj.i / j010511
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.5	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.0	3.0	5.0	Not Detected
Trichloroethene	79-01-6	1.6	4.1	6.8	7.3
Vinyl Chloride	75-01-4	0.58	1.9	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	SSMP-12400BELDEN-05_122220	Date/Time Analyzed:	1/5/21 02:14 PM
Lab ID:	2012711-05A	Dilution Factor:	2.58
Date/Time Collected:	12/22/20 11:12 AM	Instrument/Filename:	msdj.i / j010512
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.1	5.1	Not Detected
1,4-Dioxane	123-91-1	4.6	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.1	5.1	Not Detected
Tetrachloroethene	127-18-4	2.4	5.2	8.8	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.1	2.0 J
Trichloroethene	79-01-6	1.7	4.2	6.9	1.9 J
Vinyl Chloride	75-01-4	0.59	2.0	3.3	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: SSMP-12400BELDEN-06_122220
Lab ID: 2012711-06A
Date/Time Collected: 12/22/20 11:36 AM
Media: 1 Liter Summa Canister (100% Certified)

Date/Time Analyzed: 1/5/21 02:43 PM
Dilution Factor: 2.58
Instrument/Filename: msdj.i / j010513

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.1	5.1	Not Detected
1,4-Dioxane	123-91-1	4.6	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.1	5.1	Not Detected
Tetrachloroethene	127-18-4	2.4	5.2	8.8	5.3 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.1	1.4 J
Trichloroethene	79-01-6	1.7	4.2	6.9	59
Vinyl Chloride	75-01-4	0.59	2.0	3.3	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-07_122220	Date/Time Analyzed:	1/5/21 03:12 PM
Lab ID:	2012711-07A	Dilution Factor:	2.58
Date/Time Collected:	12/22/20 11:56 AM	Instrument/Filename:	msdj.i / j010514
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.1	5.1	Not Detected
1,4-Dioxane	123-91-1	4.6	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.1	5.1	Not Detected
Tetrachloroethene	127-18-4	2.4	5.2	8.8	3.0 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.1	2.1 J
Trichloroethene	79-01-6	1.7	4.2	6.9	37
Vinyl Chloride	75-01-4	0.59	2.0	3.3	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-08_122220	Date/Time Analyzed:	1/5/21 03:42 PM
Lab ID:	2012711-08A	Dilution Factor:	2.52
Date/Time Collected:	12/22/20 11:59 AM	Instrument/Filename:	msdj.i / j010515
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.5	3.0 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.0	5.0	8.7
Trichloroethene	79-01-6	1.6	4.1	6.8	50
Vinyl Chloride	75-01-4	0.58	1.9	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-09_122220	Date/Time Analyzed:	1/5/21 04:11 PM
Lab ID:	2012711-09A	Dilution Factor:	2.69
Date/Time Collected:	12/22/20 11:34 AM	Instrument/Filename:	msdj.i / j010516
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.2	5.3	Not Detected
1,4-Dioxane	123-91-1	4.8	13	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.2	5.3	Not Detected
Tetrachloroethene	127-18-4	2.6	5.5	9.1	8.8 J
trans-1,2-Dichloroethene	156-60-5	1.1	3.2	5.3	81
Trichloroethene	79-01-6	1.7	4.3	7.2	240
Vinyl Chloride	75-01-4	0.62	2.1	3.4	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-10_122220	Date/Time Analyzed:	1/5/21 04:40 PM
Lab ID:	2012711-10A	Dilution Factor:	2.52
Date/Time Collected:	12/22/20 11:07 AM	Instrument/Filename:	msdj.i / j010517
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.5	9.3
trans-1,2-Dichloroethene	156-60-5	1.0	3.0	5.0	83
Trichloroethene	79-01-6	1.6	4.1	6.8	400
Vinyl Chloride	75-01-4	0.58	1.9	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-11_122220	Date/Time Analyzed:	1/5/21 07:49 PM
Lab ID:	2012711-11A	Dilution Factor:	2.52
Date/Time Collected:	12/22/20 10:45 AM	Instrument/Filename:	msdj.i / j010521
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.4	5.1	8.5	5.3 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.0	5.0	130
Trichloroethene	79-01-6	1.6	4.1	6.8	290
Vinyl Chloride	75-01-4	0.58	1.9	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12400BELDEN-12_122220	Date/Time Analyzed:	1/5/21 05:35 PM
Lab ID:	2012711-12A	Dilution Factor:	2.64
Date/Time Collected:	12/22/20 10:19 AM	Instrument/Filename:	msdj.i / j010519
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.1	5.2	Not Detected
1,4-Dioxane	123-91-1	4.7	13	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.1	5.2	Not Detected
Tetrachloroethene	127-18-4	2.5	5.4	9.0	4.8 J
trans-1,2-Dichloroethene	156-60-5	1.0	3.1	5.2	29
Trichloroethene	79-01-6	1.7	4.2	7.1	140
Vinyl Chloride	75-01-4	0.61	2.0	3.4	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	91
Toluene-d8	2037-26-5	70-130	105

Analysis Request / Canister Chain of Custody

For Laboratory Use Only

PID: _____ Workorder #: **2012711**

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
Phone (800) 985-5955; Fax (916) 351-8279

Click links below to view:

- [Canister Sampling Guide](#)
- [Helium Shroud Video](#)

Client: <u>Ford</u>	PID: <u>NA</u>	Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting	Turnaround Time (Rush surcharges may apply)	
Project Name: <u>Ford LTP</u>			5 Day Turnaround Time	
Project Manager: <u>Kris Hinskey</u>	P.O.# <u>30050315.0301.01</u>		Canister Vacuum/Pressure	Requested Analyses
Sampler: <u>A. Hartz X. Chan</u>				
Site Name: <u>12400 BELDEN</u>				

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Lab Use Only		TO-15 (See Special Instructions/Notes)	Do Not Analyze
				Date	Time	Date	Time			Receipt	Final (psig) Gas: N ₂ / He		
01A	SSMP-12400BELDEN-01-122220	112800	23229	12/22/20	9:40	12/22/20	9:52	-29	-7			X	
02A	SSMP-12400BELDEN-02-122220	112930	24031		10:00		10:12	-29	-6			X	
03A	SSMP-12400BELDEN-03-122220	112545	21906		10:21		10:32	-29	-7.5			X	
04A	SSMP-12400BELDEN-04-122220	40863	24038		10:40		10:51	-29	-6.5			X	
05A	SSMP-12400BELDEN-05-122220	111871	23188		11:01		11:12	-29	-6			X	
06A	SSMP-12400BELDEN-06-122220	113271	24307		11:24		11:36	-29	-6.5			X	
07A	SSMP-12400BELDEN-07-122220	113881	23295		11:46		11:56	-29	-5.5			X	
08A	SSMP-12400BELDEN-08-122220	113852	24376		11:48		11:59	-29	-6			X	
09A	SSMP-12400BELDEN-09-122220	11735	24312		11:22		11:34	-29	-7			X	
10A	SSMP-12400BELDEN-10-122220	112533	23713		10:56		11:07	-29	-6			X	
11A	SSMP-12400BELDEN-11-122220	113858	23225		10:33		10:45	-29	-6			X	
12A	SSMP-12400BELDEN-12-122220	112343	23131		10:06		10:19	-29	-7			X	

Relinquished by: (Signature/Affiliation) <u>Arcadis</u>	Date <u>12/22/20</u>	Time <u>17:00</u>	Received by: (Signature/Affiliation) <u>Novi Warehouse/Arcadis</u>	Date <u>12/22/20</u>	Time <u>17:00</u>
Relinquished by: (Signature/Affiliation) <u>Novi Warehouse/Arcadis</u>	Date <u>12-28-20</u>	Time <u>1400</u>	Received by: (Signature/Affiliation) <u>Novi Warehouse/Arcadis</u>	Date <u>12-29-20</u>	Time <u>1059</u>
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date <u>30</u>	Time

Lab Use Only

Shipper Name: Fed Ex Custody Seals Intact? Yes No None

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

Daily Log - Ford Off Site VI Investigation - VISIT 1

Project No.: 30050315.0301.01

Site Location: 12400 BELDEN

Personnel Onsite: Xenia Chan, Allyson Hartz

Date	Time	Description of Activities
12/18/2020		Purpose: Round 4 Visit 1: building survey and chemical inventory
		Weather: 26.96 degrees F and Fog/Mist
		Equipment: PID
	10:56	Arcadis onsite.
	11:05	Conducted building survey and chemical inventory.
	11:09	Arcadis offsite.
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Visit 1 Checklist		
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Keeping windows & doors shut during IA/AA sampling was discussed? yes Field Staff Signature: _____

Have background sources of VOCs been removed/isolated? yes *Xenia Chan*

Is a sump pit present in the building? no

Number of SSMP samples collected: --

Number of indoor/ambient air samples collected: --

Occupancy hours (for commercial properties only): --

Location of removed/isolated background VOCs: Tote in front of office

Daily Log - Ford Off Site VI Investigation - VISIT 2

Project No.: 30050315.0301.01

Site Location: 12400 BELDEN

Personnel Onsite: Xenia Chan, Allyson Hartz

Date	Time	Description of Activities
12/22/2020		Purpose: Round 4 Visit 2: IA/AA canister deployment and SSMP sampling
		Weather: 35.96 degrees F and Cloudy
		Equipment: GEM, PID, Helium Detector
	8:54	Arcadis onsite.
	9:14	IA/AA canister deployment. Property is vacant, doors and windows are shut.
	9:58	SSMP sampling.
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Visit 2 Checklist

Windows and doors are shut (for IA samples only)? yes

Have background sources of VOCs been removed/isolated? yes

Number of SSMP samples collected: 12

Number of indoor/ambient air samples collected: --

Occupancy hours (for commercial properties only): Vacant

Field Staff Signature:
Xenia Chan

Daily Log - Ford Off Site VI Investigation - VISIT 3

Project No.: 30050315.0301.01

Site Location: 12400 BELDEN

Personnel Onsite: Xenia Chan, Allyson Hartz

Date	Time	Description of Activities
12/22/2020		Purpose: Round 4 Visit 3: IA/AA collection and SSMP measurements
		Weather: 39.02 degrees F and Cloudy
		Equipment: Micromanometer
	15:54	Arcadis onsite.
	16:18	Collected IA/AA canisters.
	16:24	Collected SSMP measurements and returned chemicals.
	16:43	Arcadis offsite.
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Visit 3 Checklist

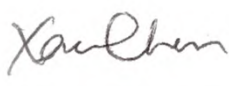
Windows and doors are shut (for IA samples only)? yes

Have background sources of VOCs been removed/isolated? yes

Number of SSMP samples collected: --

Number of indoor/ambient air samples collected: 14

Occupancy hours (for commercial properties only): Vacant

Field Staff Signature:




Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM

R3.
 Date: ~~9/14/20~~ 9/14/20 Survey Performed by: X. Chan, A. Hartz, P. Labadie
 xc

conducted building walkthrough, building vacant
 NO ONE TO SURVEY.

1. OCCUPANT:

Rent: NA Own: NA

R4 12/18/220: X. Chan and A. Hartz conducted building survey with Tony Ford. NO changes since the building was vacated

Resident Name: VACANT

Address: 12900 Belden Court

Telephone: Home: NA Work: NA

How long have you lived at this location? NA

List current occupants/occupation below (attach additional pages if necessary):

Age (If under 18)	Sex (M/F)	Occupation
NA	NA	NA
xc		

2. OWNER OR LANDLORD: (If same as occupant, check here and go to Item No. 3).

Last Name: NA First Name: Lilonia International Development, LLC

Address: NA

City and State: NA

County: NA

Home Phone: NA Office Phone: NA



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

3. SENSITIVE POPULATION:

Daycare/Nursing Home/Hospital/School/Other (specify): N/A industrial

4. BUILDING CHARACTERISTICS:

Residential/Multi-family Residential/Office/Strip Mall/Commercial/Industrial/School

Describe Building: warehouse small office Year Constructed: ? UNKNOWN
portion

Number of floors at or above grade: 1

Number of floors below grade: 0 (full basement/crawl space/slab on grade)

Depth of structure below grade: 0 ft. Basement size: 0 ft²

If the property is residential, what type? (Circle all appropriate responses.)

Ranch	2-Family	3-Family	Raised Ranch	<u>N/A</u>
Split Level	Colonial	Cape Cod	Contemporary	
Mobile Home	Duplex	Apartment House	Townhouses/Condos	
Modular	Log Home	Other: _____		

If multiple units, how many? NA

If the property is commercial:

Business type(s) vacant

Does it include residences (i.e., multi-use)? Yes No If yes, how many? NA

5. OCCUPANCY:

Is basement/lowest level occupied? (Circle one)

Full-time Occasionally Seldom Almost Never CURRENTLY VACANT



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Level	General Use (e.g., family room, bedroom, laundry, workshop, storage)
Basement	N/A
1st Floor	warehouse office
2nd Floor	N/A
3rd Floor	N/A
4th Floor	N/A

(Use additional page(s) as necessary)

6. CONSTRUCTION CHARACTERISTICS: (Circle all that apply.)

a. Above Grade Construction: (Describe type: wood frame, concrete, stone, brick).

slab on-grade cinder block, interior wood frame / sheetrock

b. Basement Type: Full Crawlspace Slab ^{ON GRADE} Other: _____

c. Basement Floor: Concrete ^{SLAB} Dirt Stone Other: _____

d. Finished Basement Floor: Uncovered Covered N/A

If covered, what with? _____

e. Foundation Walls: Poured Block Stone Other: _____

f. Foundation Walls: Unsealed Sealed Sealed with: _____

g. The ^{slab} Basement is: Wet Damp Dry

h. The ^{slab} Basement is: Finished Unfinished Partially Finished warehouse

i. Sump Present (Y / N) If yes, how many? _____

Where Discharged? N/A

Water in Sump? Yes No Not Applicable



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Identify all potential soil vapor entry points and estimated size (e.g., cracks, utility parts, drains).

floor drains
pipe penetrating plumbing
cracks in the slab ground

Are the basement walls or floor sealed with waterproof paint or epoxy coatings? Yes No unknown

Type of ground cover outside of building: Grass Concrete Asphalt Other _____

Is an existing subsurface depressurization (radon) system in place? Yes No

If yes, is it active, or passive? NA

Is a sub-slab vapor/moisture barrier in place? Yes No unknown

Type of barrier: NA

7. HEATING, VENTING, and AIR CONDITIONING

Type of heating system(s) used in this building: (Circle all that apply: Note the primary).

- Hot Air Circulation
- Space Heaters
- Electric Baseboard
- Other: rooftop units (exchangers)
- Heat Pump
- Steam Radiation
- Wood Stove
- Hot Water Baseboard
- Radiant Floor
- Outdoor Wood Boiler

The primary type of fuel used is:

- Natural Gas
- Electric
- Wood
- Fuel Oil
- Propane
- Coal
- Kerosene
- Solar

Domestic hot water tank fueled by: electric

Location of Boiler/Furnace: Basement Outdoors Main Floor Other roof



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Air Conditioning: Central Air Window Units Open Windows None

Are air distribution ducts present? Yes No

Is there a whole house fan? Yes No

Describe the air intake system (outside air supply, cold air return, ductwork, etc.) and its condition where visible. Indicate the locations on the floor plan diagram.

AIR SUPPLY ON ROOF, HANGING UNITS IN WAREHOUSE,
DUCT WORK IN FRONT OFFICE, NOT VISIBLE.
PORTABLE AC UNIT IN WAREHOUSE OFFICE.

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

a) Is there an attached garage? Yes No

If yes, does it have a separate heating unit? Yes No

b) Are any petroleum-powered machines or vehicles stored in an attached garage (e.g., lawn mower, ATV, car) Yes No

c) Has the building ever had a fire? Yes No

d) Is there a fuel burning or unvented gas space heater? Yes No

e) Is there a workshop or hobby/craft area? Yes No

If yes, where and what type? NA

f) Is there smoking in the building? Yes No

If yes, how frequently? NA - VACANT.



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

- g) Have cleaning products been used recently? Yes No
If yes, when and what type? NA
- h) Have cosmetic products been used recently? Yes No
If yes, when and what type? NA
- i) Has there been painting or staining in the last six months? Yes No
If yes, when and where? NA
- j) Is there new carpet, drapes, or other textiles? Yes No
If yes, when and where? NA
- k) Have air fresheners been used recently? Yes No
If yes, when and what type? NA
- l) Is there a kitchen exhaust fan? Yes No
If yes, where is it vented? NA
- m) Is there a clothes dryer? Yes No
If yes, is it vented outside? Yes No N/A
- n) Has there been a pesticide application? Yes No
If yes, when and what type? NA
- o) Are there odors in the building? Yes No
If yes, please describe: NA



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

p) Do any of the building occupants use solvents at work (e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetology)?

Yes No N/A

If yes, what types of solvents are used? vacant

If yes, are their clothes washed at work?

Yes No N/A

q) Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response.)

No Unknown

vacant

Yes, use dry-cleaning regularly (weekly)

Yes, use dry-cleaning infrequently (monthly or less)

Yes, work at a dry-cleaning service

r) Is there a radon mitigation system for the building/structure?

Yes No

If yes, what is date of installation? N/A

Active Passive

s) Additional mitigation system information (fan size, location, operating status, liner installed, etc.):

NA

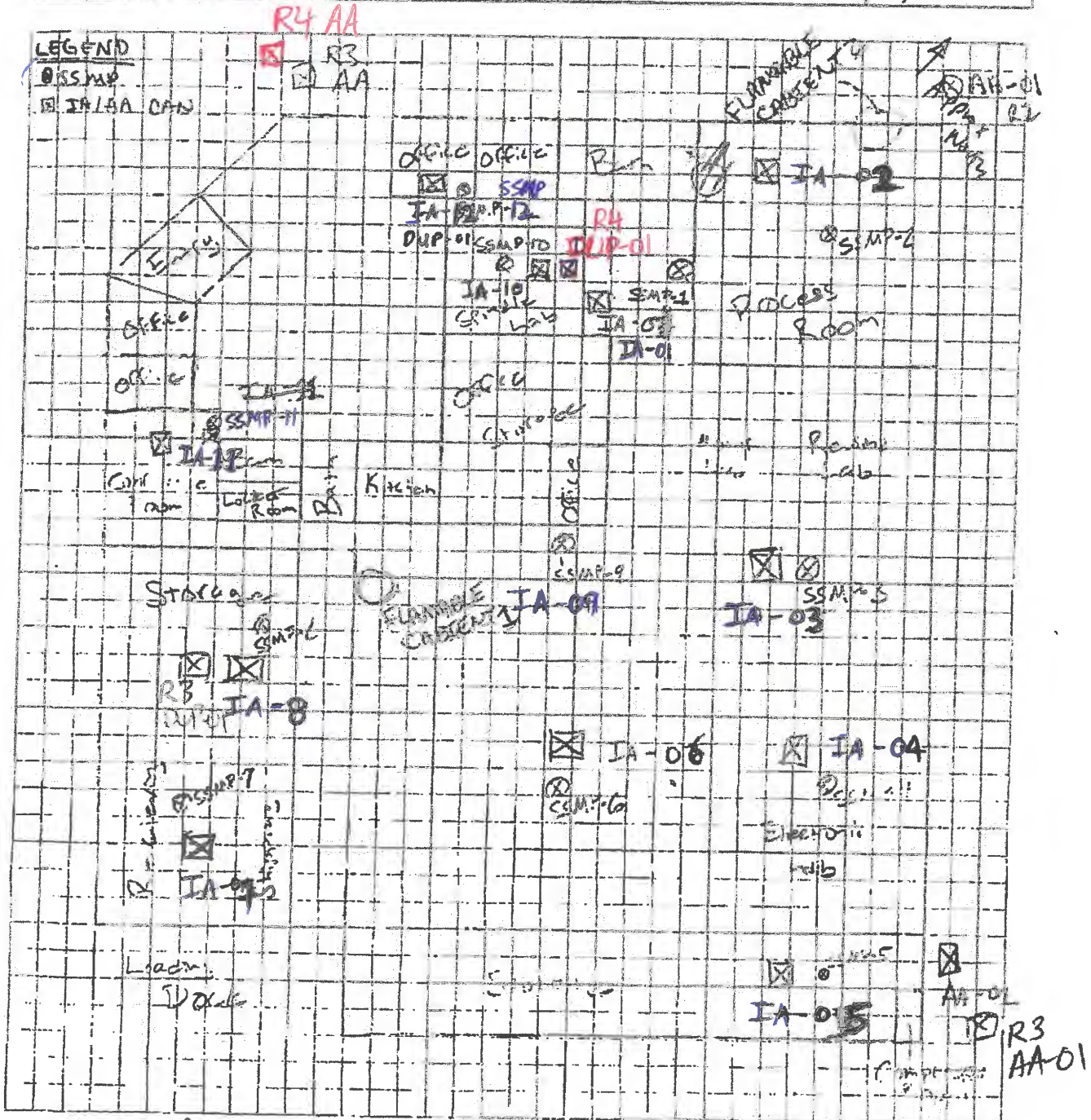
t) Is there an irrigation well, or any other well, present at the property:

Yes No

If yes, please describe placement, use, and history below.

NA

Subject: 2400 Belden Court			
Project No. MIC01454.0003		Sheet 1 of 2	
Calculations By: <i>EL</i>	Date: 11/13/2018	Checked By: <i>AR</i>	Date: 11/13/2018



R3 VACANT PROPERTY. NO MACHINES / PRODUCTS / STORAGE.
 GENERAL MAP STRUCTURE REMAINS. NO RECENT CONSTRUCTION.
 R4: property still vacant, no changes since R3.

Office Name & Address (Reporting Information): Arcadis of Michigan, LLC 28550 Cabot Drive, Suite 500, Novi, MI 48377						Project Name: Ford LTP Off-site Sampling											
Field Manager: Adam Richmond						Project Number: 30050315.0301.01											
Phone Number: 248.994.2240			Special Instructions:			Site Address: 12400 BELDEN											
Email Address for Result Reporting: Kristoffer.Hinskey@arcadis.com			Report ONLY: 1,1-DCE, cis-1,2- DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting.			Sampler Name: Xenia Chan, Allyson Hartz											
Summa Canister Size (1L, 2.7 L, 6L) 6 Liter			Lab: Eurofins														

Sample ID	Sample Location Description	Indoor/ Outdoor	PID in Sampling Area (ppb)	Canister Number	Flow Controller Number	Sample Collection Start Date	Sample Collection Start Time	Beginning Canister Pressure (in. Hg)	Sample Collection End Date	Sample Collection End Time	Ending Canister Pressure (in. Hg)	HVAC System Information						Notes
												HVAC Fan On Start?	HVAC Fan On End?	Heat On Start?	Heat On End?	Temperature Setting (°F) Start	Temperature Setting (°F) End	
IAF-12400BELDEN-11_122220	South side front office	Indoor	177	6L0295	23322	12/22/2020	9:02	-29	12/22/2020	15:57	-8	Yes	yes	No	No	50	50	--
IAF-12400BELDEN-12_122220	North side front office	Indoor	161	6L0359	23255	12/22/2020	9:03	-29	12/22/2020	15:57	-8	Yes	yes	No	No	50	50	--
IAF-12400BELDEN-10_122220	Spindle lab	Indoor	157	6L1841	25259	12/22/2020	9:04	-29	12/22/2020	15:57	-8	Yes	yes	No	No	50	50	--
DUP-12400BELDEN-01_122220	Spindle lab	Indoor	173	6L2644	23201	12/22/2020	9:05	-29	12/22/2020	15:56	-8	Yes	yes	No	No	50	50	--
AA-12400BELDEN-01_122220	NW of building	Outdoor	0	6L2085	23385	12/22/2020	9:23	-29	12/22/2020	16:23	-8.5	--	--	--	--	--	--	--
IAF-12400BELDEN-01_122220	Next to spindle lab	Indoor	107	6L2049	24920	12/22/2020	9:08	-29	12/22/2020	16:06	-8	Yes	yes	No	No	50	50	--
IAF-12400BELDEN-02_122220	N side of warehouse	Indoor	116	6L2167	23247	12/22/2020	9:09	-29	12/22/2020	16:04	-8	Yes	yes	No	No	50	50	--
IAF-12400BELDEN-03_122220	NE side of warehouse	Indoor	124	6L2318	23378	12/22/2020	9:12	-29	12/22/2020	16:06	-7.5	Yes	yes	No	No	50	50	--
IAF-12400BELDEN-04_122220	South of northern side exit door	Indoor	129	6L2781	2028	12/22/2020	9:20	-29	12/22/2020	16:08	-8.5	Yes	yes	No	No	50	50	--
IAF-12400BELDEN-05_122220	North of electrical boxes	Indoor	145	6L2794	24011	12/22/2020	9:18	-29	12/22/2020	16:04	-7.5	Yes	yes	No	No	50	50	--
IAF-12400BELDEN-06_122220	North of bay doors	Indoor	137	6L0353	23832	12/22/2020	9:18	-29	12/22/2020	16:11	-7	Yes	yes	No	No	50	50	--
IAF-12400BELDEN-07_122220	In front of S side bay doors	Indoor	120	6L2390	23567	12/22/2020	9:14	-29	12/22/2020	16:13	-6.5	Yes	yes	No	No	50	50	--
IAF-12400BELDEN-08_122220	West side of warehouse	Indoor	161	6L1102	24298	12/22/2020	9:15	-29	12/22/2020	16:15	-8	Yes	yes	No	No	50	50	--
IAF-12400BELDEN-09_122220	South of warehouse office	Indoor	167	6L1697	23813	12/22/2020	9:11	-29	12/22/2020	16:17	-7.5	Yes	yes	No	No	50	50	--
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Meteorological Data							General Notes or Observations
Date	Time	Temp. (°F)		Relative Humidity (%)	Barometric Pressure (in. Hg)	Air Speed (mph)	Source of Weather Information
		Indoor	Outdoor				
12/22/2020	8:57	50	36	76	30.08	NW 8	weather.com app
12/22/2020	15:55	50	37	63	30.18	W 12	weather.com app
--	--	--	--	--	--	--	weather.com app
--	--	--	--	--	--	--	weather.com app

Office Name & Address (Reporting Information): Arcadis of Michigan, LLC 28550 Cabot Drive, Suite 500, Novi, MI 48377		Project Name: Ford LTP Off-site Sampling	
Field Manager: Adam Richmond		Project Number: 30050315.0301.01	
Phone Number: 248.994.2240	Special Instructions:	Site Address: 12400 BELDEN	
Email Address for Result Reporting: Kristoffer.Hinskey@arcadis.com	Report ONLY: 1,1-DCE, cis-1,2- DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadenacom.com. Cadena #E203631. Level IV Reporting.	Sampler Name: Allyson Hartz, Xenia Chan	
Helium Detector Model Used: Dielectric MGD-2002	Helium Leak Test Method: Bucket Shroud	Summa Canister Size (1L, 2.7 L, 6L): 1 Liter	Lab: Eurofins

Sample ID	Sample Location Description	Date	Pre-Sampling Shut-In / Leak-Down Test Pass/Fail?	Helium Tracer Test - Performed During Sample Point Purge			Purge Volume (mL)	Purge Rate (mL/min)	Canister Number	Flow Controller Number	Sample Collection Start Time	Starting Canister Pressure (in. Hg)	Sample Collection End Time	Ending Canister Pressure (in. Hg)	Post-Sampling CO ₂ Reading from GEM (%)	Post-Sampling O ₂ Reading from GEM (%)	Post-Sampling CH ₄ Reading from GEM (%)	Micromanometer Reading (in. WC)
				Shroud Helium Concentration During Purge (% Helium)	Helium Reading in Purged Vapor (% Helium)	Helium Test Pass/Fail (Purge contains <5% of shroud to pass)?												
SSMP-12400BELDEN-01_122220	Warehouse	12/22/2020	Pass	47.3	0	Pass	100	100	1L2860	23229	9:40	-29	9:52	-7	1.1	20	0	-0.002
SSMP-12400BELDEN-02_122220	Warehouse	12/22/2020	Pass	45.9	0	Pass	100	100	1L2930	24031	10:00	-29	10:12	-6	2.2	18.9	0	-0.002
SSMP-12400BELDEN-03_122220	Warehouse	12/22/2020	Pass	44.9	0	Pass	100	100	1L1545	21966	10:21	-29	10:32	-7.5	2.7	18	0	0.004
SSMP-12400BELDEN-04_122220	Warehouse	12/22/2020	Pass	43.9	0	Pass	100	100	40863	24038	10:40	-29	10:51	-6.5	4.8	15.4	0	-0.002
SSMP-12400BELDEN-05_122220	Warehouse	12/22/2020	Pass	46.2	0	Pass	100	100	1L1871	23188	11:01	-29	11:12	-6	6.9	12.1	0	-0.005
SSMP-12400BELDEN-06_122220	Warehouse	12/22/2020	Pass	42.1	0	Pass	100	100	1L3271	24307	11:24	-29	11:36	-6.5	1.4	19.5	0	-0.006
SSMP-12400BELDEN-07_122220	Warehouse	12/22/2020	Pass	46.1	0	Pass	100	100	1L3881	23295	11:46	-29	11:56	-5.5	0.5	20.8	0.5	-0.01
SSMP-12400BELDEN-08_122220	Warehouse	12/22/2020	Pass	47.4	0	Pass	100	100	1L3852	24376	11:48	-29	11:59	-6	0.7	20.3	0	-0.006
SSMP-12400BELDEN-09_122220	Warehouse	12/22/2020	Pass	46.6	0	Pass	100	100	LC735	24312	11:22	-29	11:34	-7	1	19.9	0	-0.005
SSMP-12400BELDEN-10_122220	Front office area	12/22/2020	Pass	54	0	Pass	100	100	1L2533	23713	10:56	-29	11:07	-6	0.8	20.3	0	-0.006
SSMP-12400BELDEN-11_122220	Front office area	12/22/2020	Pass	47.3	0	Pass	100	100	1L3858	23225	10:33	-29	10:45	-6	0.6	20.6	0	-0.007
SSMP-12400BELDEN-12_122220	Front office area	12/22/2020	Pass	47.6	0	Pass	100	100	1L2343	23131	10:06	-29	10:19	-7	0.7	20.8	0	-0.005
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Meteorological Data							
Date	Time	Temp. (°F)		Relative Humidity (%)	Barometric Pressure (in. Hg)	Source of Weather Information	Purge Volume Calculations: The purge volume for each sample has been pre-calculated using the information below. For sub-slab soil vapor samples the sample train tubing length is ~54 inches and the interior tubing radius is 0.085". Three volumes of the sample train is 60 milliliters using the equation for volume of a cylinder (volume = pi * radius ² * height) where Volume = 60 ml, radius = 0.85" and height = 54". To have sufficient volume to conduct helium leak testing 100 milliliters should be purged from each sample point. For exterior soil vapor sampling 60 milliliters should be used for the above ground sample train. Each additional foot of sub-grade tubing account for approximately 13 ml. To have sufficient volume to conduct helium leak testing at least 100 milliliters should be purged from each sample point.
		Indoor	Outdoor				
12/22/2020	9:34	50	31	77	30.10	weather.com app	General Notes or Observations
--	--	--	--	--	--	weather.com app	
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--	--	--	--	--	--	weather.com app	

MATERIAL SAFETY DATA SHEET

This MSDS complies with OSHA'S Hazard Communication Standard 29 CFR 1910.1200 and OSHA Form 174

IDENTITY AND MANUFACTURER'S INFORMATION	
NFPA Rating: Health-1; Flammability-2; Reactivity-0; Special-None HMS Rating: Health-1; Flammability-2; Reactivity-0; Personal Protection-B	
Manufacturer By: Amrep Automotive Products Group Address: 990 Industrial Park Drive Marietta, GA 30062	DOT Description: Consumer Commodity ORM-D Identity (trade name as used on label): <b style="text-align: center;">AUTO ZONE HD ENGINE DEGREASER
Date Prepared: 8/17/04 Prepared By: LMA	MSDS Number: 501700469 Revision: 1
Information Calls: (770) 422-2071 DOT EMERGENCY RESPONSE PHONE NUMBER: (800) 424-9300	NOTICE: JUDGEMENT BASED ON INDIRECT TEST DATA

SECTION 1 - MATERIAL IDENTIFICATION AND INFORMATION					
COMPONENTS-CHEMICAL NAMES AND COMMON NAMES (Hazardous Components 1% or greater; Carcinogens 0.1% or greater)	CAS Number	SARA III LIST	OSHA PEL (ppm)	ACGIH TLV (ppm)	Carcinogen Ref. Source ***
AROMATIC PETROLEUM DISTILLATE	64742-94-5	Yes*	N/E	N/E	d
PETROLEUM DISTILLATE	8008-20-6	No	5mg/M3 as mineral oil mist	100mg/M3 (skin)	d
ALIPHATIC PETROLEUM DISTILLATE (Mfr. Recommends PEL=100 ppm)	64742-47-8	No	N/E	N/E	d
2-BUTOXYETHANOL	111-76-2	Yes**	50 (skin)	25 (skin)	d
NAPHTHENIC OIL	64742-52-5	No	5mg/M3 as mineral oil mist	5mg/M3 as mineral oil mist	d
CARBON DIOXIDE (propellant)	124-38-9	No	5000	5000	d
*Contains ~9% Naphthalene CAS#91-20-3					
**Glycol Ethers Category					

SECTION 2 - PHYSICAL/CHEMICAL CHARACTERISTICS	
Boiling Point: 300-580°F (range for the concentrate)	Specific Gravity (H2O=1): 0.94 (for the concentrate only)
Vapor Pressure (PSIG @ 70°F) (Aerosols): 85-100	Vapor Pressure (Non-Aerosols) (mm Hg and Temperature): N/Ap
Vapor Density (Air = 1): N/E	Evaporation Rate (butyl Acetate = 1): N/E
Solubility in Water: Partial	Water Reactive: No
Appearance and Odor: Amber color; solvent odor.	VOC (Federal EPA Definition) = 4.85% (by weight)

SECTION 3 - FIRE AND EXPLOSION HAZARD DATA		
Flammability as per USA Flame Projection Test (aerosols): <b style="text-align: center;">NONFLAMMABLE	Auto Ignition Temperature: N/E	Flammability Limits in Air by % in Volume: % LEL: N/E % UEL: N/E
FLASH POINT AND METHOD USED (non-aerosols): N/Ap	EXTINGUISHER MEDIA: Foam, dry chemical; use water spray to cool exposed surfaces.	
SPECIAL FIRE FIGHTING PROCEDURES: Self-contained breathing apparatus.		
Unusual Fire & Explosion Hazards: Do not expose aerosols to temperatures above 120°F or the container may rupture.		

SECTION 4 - REACTIVITY HAZARD DATA	
STABILITY <input checked="" type="checkbox"/> STABLE <input type="checkbox"/> UNSTABLE	HAZARDOUS POLYMERIZATION <input type="checkbox"/> WILL <input checked="" type="checkbox"/> WILL NOT OCCUR
Incompatibility (materials to avoid): Acids and strong oxidizers.	Conditions to Avoid: Open flame, welding arcs, heat, sparks.
Hazardous Decomposition Products: Includes, but not limited to smoke, fumes, carbon monoxide, carbon dioxide, various hydrocarbons.	

SECTION 5 - HEALTH HAZARD DATA	
PRIMARY ROUTES OF ENTRY: <input checked="" type="checkbox"/> INHALATION <input type="checkbox"/> INGESTION <input checked="" type="checkbox"/> SKIN ABSORPTION <input checked="" type="checkbox"/> EYE <input type="checkbox"/> NOT HAZARDOUS	
ACUTE EFFECTS:	
Inhalation: May cause headache, dizziness, asphyxia, anesthetic effects (CNS depression), and possible unconsciousness.	
Eye Contact: Irritation.	Skin Contact: May irritate and/or cause dermatitis.
Ingestion: Nausea, vomiting, and diarrhea; possible chemical pneumonitis if aspirated into lungs.	
CHRONIC EFFECTS: Chronic overexposure to 2-Butoxyethanol may cause mild, reversible liver and kidney effects and blood abnormalities.	
Medical Conditions Generally Aggravated by Exposure: May aggravate existing eye, skin or upper respiratory conditions.	

EMERGENCY FIRST AID PROCEDURES	
Eye Contact: Flush with water for at least 15 minutes. If irritated, seek medical attention.	
Skin Contact: Remove contaminated clothing; launder before re-use. Wash skin with soap and water; if irritated, seek medical attention.	
Inhalation: Remove to fresh air; resuscitate if necessary. Administer oxygen if breathing is difficult. Seek medical attention.	
Ingestion: DO NOT INDUCE VOMITING. Seek immediate medical attention.	

SECTION 6 - CONTROL AND PROTECTIVE MEASURES	
Respiratory Protection (specify type): If vapor concentration exceeds TLV, use respirator approved by MSHA/NIOSH for organic vapor.	
Protective Gloves: Disposable nitrile gloves are suggested.	Eye Protection: Safety glasses recommended.
Ventilation Requirements: Adequate ventilation to keep vapor concentration below TLV.	
Other Protective Clothing & Equipment: Eyewash station.	
Hygienic Work Practices: Do not eat, drink or smoke in work areas. Wash hands after handling.	

SECTION 7 - PRECAUTIONS FOR SAFE HANDLING AND USE	
Steps To Be Taken If Material Is Spilled Or Released: Absorb spilled liquid with suitable medium. Do NOT flush to sewers or drains. Dispose according to local, state and federal regulations.	
Waste Disposal Methods: Aerosol cans, when vented to atmospheric pressure through normal use, pose no disposal hazard.	
Precautions To Be Taken In Handling & Storage: Do not puncture or incinerate containers. Do not store at temperatures above 120°F.	
Other Precautions &/or Special Hazards: KEEP OUT OF REACH OF CHILDREN. Read and follow all label directions. Remove ignition sources. Avoid breathing vapors. Avoid food contamination.	

We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind.

*** Chemical Listed as Carcinogen or Potential Carcinogen. [a] NTP [b] IARC Monograph [c] OSHA [d] Not Listed [e] Animal Data Only

Issue date 11-Apr-2018

Revision date 13-Aug-2020

Revision Number 4

1. IDENTIFICATION

Product identification

Product identifier	Lawson Brake Klean Non-Chlorinated Brake Parts Cleaner
Other means of identification	54474
Recommended use	Cleaner, Solvent
Restrictions on use	For industrial use only

Supplier

Corporate Headquarters:
Lawson Products, Inc.
8770 W. Bryn Mawr Ave., Suite 900
Chicago, IL 60631
(866) 837-9908

Canadian Distribution Center:
Lawson Canada
7315 Rapistan Court
Mississauga, ON L5N 5Z4
(800) 323-5922

24 Hour Emergency Phone Number (888) 426-4851 (Prosar)

Website <https://www.lawsonproducts.com>

2. HAZARD(S) IDENTIFICATION

Hazard Classification This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), WHMIS 2015 and GHS Regulations.

Skin corrosion/irritation	Category 3
Serious eye damage/eye irritation	Category 2A
Carcinogenicity	Category 2
Aspiration toxicity	Category 1
Flammable aerosols	Category 1
Gases under pressure	Dissolved gas

Symbol



Signal word DANGER

Hazard statements
H222 - Extremely flammable aerosol
H280 - Contains gas under pressure; may explode if heated
H304 - May be fatal if swallowed and enters airways

H316 - Causes mild skin irritation
H319 - Causes serious eye irritation
H351 - Suspected of causing cancer

Precautionary statements

General

P101 - If medical advice is needed, have product container or label at hand
P102 - Keep out of reach of children
P103 - Read label before use.

Prevention

P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P211 - Do not spray on an open flame or other ignition source
P251 - Pressurized container: Do not pierce or burn, even after use
P264 - Wash hands thoroughly after handling
P280 - Wear protective gloves/protective clothing and eye/face protection

Response

General

P308 + P313 - IF exposed or concerned: Get medical advice/attention

Eyes

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337 + P313 - If eye irritation persists: Get medical advice/attention

Skin

P332 + P313 - If skin irritation occurs: Get medical advice/attention

Ingestion

P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P331 - Do NOT induce vomiting

Storage

P405 - Store locked up
P410 - Protect from sunlight
P412 - Do not expose to temperatures exceeding 50 °C/122 °F
P403 - Store in a well-ventilated place

Disposal

P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

Hazard(s) Not Otherwise Classified (HNOC)

None known.

Physical Hazards Not Otherwise Classified (PHNOC)

None known.

Unknown acute toxicity

unknown toxicity: 55% inhalation, 55%dermal, 16% oral.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Composition

Mixture.

Chemical name	CAS-No	Weight %
Acetone	67-64-1	35-45
Xylene (mix)	1330-20-7	35-40
Petroleum distillates, hydrotreated light	64742-47-8	5-15
Ethyl benzene	100-41-4	5-10
Carbon Dioxide	124-38-9	5-10

Volatile Organic Compounds (VOC's): 44%

4. FIRST-AID MEASURES

Necessary first-aid measures

Inhalation

Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Ingestion

Get medical attention immediately. Call a POISON CENTER or doctor. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact

Flush contaminated skin with plenty of water. Remove contaminated clothing and footwear. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Eye contact

Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Most important symptoms (acute)

Causes serious eye irritation. Harmful if inhaled. Can cause Central Nervous System depression. Causes skin irritation. May cause respiratory irritation. May cause drowsiness or dizziness. May be fatal if swallowed and enters airways. Irritating to mouth, throat and stomach.

Most important symptoms (over-exposure)

Adverse symptoms may include the following: eye pain, redness, and watering. Respiratory tract irritation. Coughing. Nausea or vomiting. Headache. Drowsiness/fatigue. Dizziness/vertigo. Unconsciousness. Skin irritation. Redness. Ingestion may cause nausea or vomiting.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. No action shall be taken involving any personal risk or without suitable training. If it is suspected that vapors or fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. See section 11 for toxicological information.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media

None known.

Specific hazards

Extremely Flammable Aerosol. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Gas may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back, causing fire or explosion. Bursting aerosol containers may be propelled from a fire at high

speed. Runoff to sewer may cause fire or explosion hazard. Hazardous Thermal Decomposition Products: Carbon dioxide. Carbon monoxide.

Special protective equipment for fire-fighters

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if you can do it without risk. Use water spray to keep fire-exposed containers cool. Fire fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering the area. In the case of aerosols being ruptured, care should be taken due to the rapid escape of the pressurized contents and propellant. If a large number of containers are ruptured, treat as a bulk material spillage according to the instructions in the clean-up section. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in the hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment. If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information for 'non-emergency personnel'. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small Spill: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large Spill: Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry in sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Use spark-proof tools and explosion proof equipment. See section 1 for emergency contact information and section 13 for disposal information.

7. HANDLING AND STORAGE

Precautions for safe handling

Put on appropriate personal protective equipment (see section 8). Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes, on skin, or on clothing. Do not breathe vapors or spray mist. Do not take internally. Avoid breathing dust/fume/gas/mist/vapors/spray. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical/ventilating/lighting/equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking, and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store away from direct sunlight in dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Protect from sunlight. Store locked up. Eliminate all sources of ignition. Use appropriate containment to avoid environmental contamination.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Chemical name	OSHA PEL (TWA)	ACGIH OEL (TWA)	NIOSH - TWA
Acetone	1000 ppm TWA 2400 mg/m ³ TWA	250 ppm TWA	250 ppm TWA 590 mg/m ³ TWA
Xylene (mix)	100 ppm TWA 435 mg/m ³ TWA	100 ppm TWA	-
Petroleum distillates, hydrotreated light	-	-	-
Ethyl benzene	100 ppm TWA 435 mg/m ³ TWA	20 ppm TWA	100 ppm TWA 435 mg/m ³ TWA
Carbon Dioxide	5000 ppm TWA 9000 mg/m ³ TWA	5000 ppm TWA	5000 ppm TWA 9000 mg/m ³ TWA

Appropriate engineering controls

Ensure adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment. Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures, such as personal protective equipment

Eye protection

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin and body protection

Chemical-resistant, impervious gloves (Nitrile or Viton) complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use the the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves. Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection

Use a properly fitted, air-purifying (Organic vapor) or supplied air respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Canadian Province Occupational Exposure Limits

Chemical name	AB	BC	MB	NB	NL	NS	ON	PE	QC	SK
Acetone	500 ppm TWA	250 ppm TWA	250 ppm TWA	500 ppm TWA	250 ppm TWA	250 ppm TWA	250 ppm TWA	250 ppm TWA	500 ppm TWA/EV	500 ppm TWA

Chemical name	AB	BC	MB	NB	NL	NS	ON	PE	QC	SK
	1200 mg/m ³ TWA			1188 mg/m ³ TWA					1190 mg/m ³ TWAEV	
Xylene (mix)	100 ppm TWA 434 mg/m ³ TWA	100 ppm TWA	100 ppm TWA	100 ppm TWA 434 mg/m ³ TWA	100 ppm TWA	100 ppm TWA	100 ppm TWA	100 ppm TWA	100 ppm TWAEV 434 mg/m ³ TWAEV	100 ppm TWA
Petroleum distillates, hydrotreated light	-	200 mg/m ³ TWA	-	-	-	-	-	-	-	-
Ethyl benzene	100 ppm TWA 434 mg/m ³ TWA	20 ppm TWA	20 ppm TWA	100 ppm TWA 434 mg/m ³ TWA	20 ppm TWA	20 ppm TWA	20 ppm TWA	20 ppm TWA	100 ppm TWAEV 434 mg/m ³ TWAEV	100 ppm TWA
Carbon Dioxide	5000 ppm TWA 9000 mg/m ³ TWA	5000 ppm TWA	5000 ppm TWA	5000 ppm TWA 9000 mg/m ³ TWA	5000 ppm TWA	5000 ppm TWA	5000 ppm TWA	5000 ppm TWA	5000 ppm TWAEV 9000 mg/m ³ TWAEV	5000 ppm TWA

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	Liquid
Odor	Not available
Odor threshold	Not available
pH	Not available
Melting point/range °C	Not available
Melting point/range °F	Not available
Boiling point/range °C	Not available
Boiling point/range °F	Not available
Flash point °C	13
Flash point °F	55.4
Flash point method used	Pensky-Martens C.C.
Evaporation rate	5.6 (Butyl Acetate = 1)
Flammability (Solid, Gas)	Not available
Lower explosion limit	0.7 %
Upper explosion limit	12.8 %
Vapor pressure	13.5 kPa (101.325mm Hg) [at 20°C]
Vapor density	2(Air=1)
Relative density	0.83
Solubility	Not available
Partition coefficient (n-octanol/water)	Not available

Autoignition temperature °C	Not available
Autoignition temperature °F	Not available
Decomposition temperature °C	Not available
Decomposition temperature °F	Not available
Viscosity	Kinematic (room temperature): <0.07 cm ² /s (<7 cSt) Kinematic (40°C (104°F)): <0.07cm ² /s (<7 cSt)

10. STABILITY AND REACTIVITY

Reactivity	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	Stable.
Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	Avoid heat, sparks, and other sources of ignition.
Incompatible materials	No specific data.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure	Dermal. Inhalation. Ingestion. Eyes.
Symptoms	Causes serious eye irritation. Harmful if inhaled. Can cause Central Nervous System depression. Vapors may cause drowsiness and dizziness. May cause respiratory irritation. Causes skin irritation. May be fatal if swallowed and enters airways. Irritating to mouth, throat and stomach. Adverse symptoms may include the following: eye pain, redness, and watering. Respiratory tract irritation. Coughing. Nausea. Vomiting. Headache. Drowsiness. Dizziness/vertigo. Unconsciousness. Fatigue. Skin irritation. Redness. Ingestion may cause nausea or vomiting.
Delayed and immediate effects as well as chronic effects from short and long-term exposure	May cause damage to organs through prolonged or repeated exposure. Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.

Numerical measures of toxicity

Chemical name	Inhalation LC50:	Dermal LD50:	Oral LD50:
Acetone	50100 mg/m ³ Rat	= 5800 mg/kg Rat >15700 mg/kg Rabbit	5800 mg/kg Rat > 15700 mg/kg Rabbit
Xylene (mix)	29.08 mg/L Rat >5.04 mg/L Rat	= 3500 mg/kg Rat = 4820 mg/kg Rat >4350 mg/kg Rabbit >2000 mg/kg Rabbit	3500 mg/kg Rat 4820 mg/kg Rat > 1700 mg/kg Rabbit > 4350 mg/kg Rabbit > 2000 mg/kg Rabbit
Petroleum distillates, hydrotreated light	>5.2 mg/L Rat	> 5000 mg/kg Rat >2000 mg/kg Rabbit	>5000 mg/kg Rat > 2000 mg/kg Rabbit
Ethyl benzene	17.4 mg/L Rat >5.04 mg/L Rat	= 3500 mg/kg Rat = 4820 mg/kg Rat 15400 mg/kg Rabbit	3500 mg/kg Rat 4820 mg/kg Rat = 15400 mg/kg Rabbit

Chemical name	Inhalation LC50:	Dermal LD50:	Oral LD50:
Carbon Dioxide	-	>2000 mg/kg Rabbit	> 2000 mg/kg Rabbit

ATEmix (dermal)	Not available
ATEmix (oral)	7771.2 mg/kg
ATEmix (inhalation-gas)	10998.6 ppm
ATEmix (inhalation-vapor)	Not available
ATEmix (inhalation-dust/mist)	Not available

Carcinogenicity

Chemical name	ACGIH OEL - Carcinogens	IARC	OSHA Carcinogens	NTP
Acetone	A4	-	-	-
Xylene (mix)	A4	Group 3	-	-
Petroleum distillates, hydrotreated light	-	-	-	-
Ethyl benzene	A3	Group 2B	Present	-
Carbon Dioxide	-	-	-	-

Canadian Province carcinogenicity limits

Chemical name	Alberta - Carcinogen	British Columbia - Carcinogen	Manitoba - Carcinogen	New Brunswick - Carcinogen	Nova Scotia - Carcinogen	Quebec - Carcinogen
Acetone	-	-	ACGIH A4	ACGIH A4	ACGIH A4	-
Xylene (mix)	-	-	ACGIH A4	ACGIH A4	ACGIH A4	-
Petroleum distillates, hydrotreated light	-	-	-	-	-	-
Ethyl benzene	-	IARC 2B	ACGIH A3	-	ACGIH A3	-
Carbon Dioxide	-	-	-	-	-	-

12. ECOLOGICAL INFORMATION

Ecotoxicity

Chemical name	Algae/aquatic plants	Fish LC50
Acetone	-	4.74 - 6.33mL/L Oncorhynchus mykiss 96h 6210 - 8120mg/L Pimephales promelas 96h = 8300mg/L Lepomis macrochirus 96h
Xylene (mix)	=11mg/L Pseudokirchneriella subcapitata 72h	13.1 - 16.5mg/L Lepomis macrochirus 96h 13.5 - 17.3mg/L Oncorhynchus mykiss 96h 2.661 - 4.093mg/L Oncorhynchus mykiss 96h 23.53 - 29.97mg/L Pimephales promelas 96h 30.26 - 40.75mg/L Poecilia reticulata 96h 7.711 - 9.591mg/L Lepomis macrochirus 96h = 13.4mg/L Pimephales promelas 96h = 19mg/L Lepomis macrochirus 96h = 780mg/L Cyprinus carpio 96h

Chemical name	Algae/aquatic plants	Fish LC50
		> 780mg/L <i>Cyprinus carpio</i> 96h
Petroleum distillates, hydrotreated light	-	= 2.2mg/L <i>Lepomis macrochirus</i> 96h = 2.4mg/L <i>Oncorhynchus mykiss</i> 96h = 45mg/L <i>Pimephales promelas</i> 96h
Ethyl benzene	=4.6mg/L <i>Pseudokirchneriella subcapitata</i> 72h >438mg/L <i>Pseudokirchneriella subcapitata</i> 96h 2.6 - 11.3mg/L <i>Pseudokirchneriella subcapitata</i> 72h 1.7 - 7.6mg/L <i>Pseudokirchneriella subcapitata</i> 96h =11mg/L <i>Pseudokirchneriella subcapitata</i> 72h	11.0 - 18.0mg/L <i>Oncorhynchus mykiss</i> 96h 7.55 - 11mg/L <i>Pimephales promelas</i> 96h 9.1 - 15.6mg/L <i>Pimephales promelas</i> 96h = 32mg/L <i>Lepomis macrochirus</i> 96h = 4.2mg/L <i>Oncorhynchus mykiss</i> 96h = 9.6mg/L <i>Poecilia reticulata</i> 96h
Carbon Dioxide	-	-

Persistence and degradability Not available.

Bioaccumulation

Chemical name	CAS-No	Partition coefficient (log Kow)	Bioconcentration factor (BCF)
Acetone 67-64-1	67-64-1	-0.24	0.69 species: fish
Xylene (mix) 1330-20-7	1330-20-7	2.77 - 3.15	0.6 - 15
Petroleum distillates, hydrotreated light 64742-47-8	64742-47-8	-	61 - 159 species: fish
Ethyl benzene 100-41-4	100-41-4	3.2 (EU2016/266)	15 species: fish
Carbon Dioxide 124-38-9	124-38-9	-	no bioaccumulation

Mobility in soil Not available.

Other adverse effects No known significant effects or critical hazards.

13. DISPOSAL CONSIDERATIONS

Disposal information The generation of waste should be avoided or minimized whenever possible. Disposal of this product, solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Contaminated packaging Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its containers must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate.

14. TRANSPORTATION INFORMATION

Shipping Descriptions

DOT
ID-No UN1950
Proper shipping name Aerosols
Hazard Class(es) 2.1
Subsidiary Risk
Packing group

Special Provisions LTD QTY

TDG

ID-No UN1950
Proper shipping name Aerosols
Hazard Class(es) 2.1
Packing group
Special Provisions LTD QTY

IATA

ID-No UN1950
Proper shipping name Aerosols, flammable
Hazard Class(es) 2.1
Subsidiary Risk
Packing group
Special Provisions LTD QTY

IMDG/IMO

ID-No UN1950
Proper shipping name Aerosols
Hazard Class(es) 2.1
Packing group
EmS No F-D, S-U
Special Provisions LTD QTY

Marine Pollutants

Chemical name	CAS-No	USDOT Marine Pollutant	Canada TDG Marine Pollutant	IMDG Marine Pollutant
Acetone	67-64-1	-	-	-
Xylene (mix)	1330-20-7	-	-	-
Petroleum distillates, hydrotreated light	64742-47-8	-	-	-
Ethyl benzene	100-41-4	-	-	-
Carbon Dioxide	124-38-9	-	-	-

Special Precautions

Multi-modal shipping descriptions are provided for informational purposes and do not consider container size. The presence of a shipping description for a particular mode of transport (sea, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport. People loading and unloading dangerous goods must be trained on all of the risks deriving from the substances and on all actions in case of emergency situations.

15. REGULATORY INFORMATION

State regulations

U.S. state Right-to-Know regulations

Chemical name	CAS-No	Massachusetts - RTK	New Jersey - RTK	Pennsylvania - RTK
Acetone	67-64-1	X	X	X
Xylene (mix)	1330-20-7	X	X	X
Petroleum distillates, hydrotreated light	64742-47-8	-	-	-
Ethyl benzene	100-41-4	X	X	X
Carbon Dioxide	124-38-9	X	X	X

California Prop. 65

WARNING: This product contains a chemical(s) known to the state of California to cause cancer

Chemical name	CAS-No	California Prop. 65
Acetone	67-64-1	-
Xylene (mix)	1330-20-7	-
Petroleum distillates, hydrotreated light	64742-47-8	-
Ethyl benzene	100-41-4	Carcinogen
Carbon Dioxide	124-38-9	-

U.S. Federal Regulations

US EPA SARA 313

Chemical name	CAS-No	CERCLA/SARA Hazardous Substances RQ	SARA 313 - Threshold Values
Acetone	67-64-1	5000 lb 2270 kg	-
Xylene (mix)	1330-20-7	100 lb 45.4 kg	1.0 %
Petroleum distillates, hydrotreated light	64742-47-8	-	-
Ethyl benzene	100-41-4	1000 lb 454 kg	0.1 %
Carbon Dioxide	124-38-9	-	-

**US EPA SARA 311/312
hazardous categorization**

Not available

TSCA and Canadian Inventories

Chemical name	Inventory - United States - Section 8(b) Inventory (TSCA)	U.S. - TSCA (Toxic Substances Control Act) - Section 12(b) - Export Notification	DSL	NDSL
Acetone	X	-	X	-
Xylene (mix)	X	-	X	-
Petroleum distillates, hydrotreated light	X	-	X	-
Ethyl benzene	X	-	X	-
Carbon Dioxide	X	-	X	-

Legend X - Listed

16. OTHER INFORMATION

NFPA

Health Not available
Flammability Not available
Instability Not available

HMIS

Health 2 *
Flammability 3

Physical hazards	0
Personal protection	To be determined by customer.

Notice: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA).

Prepared by Regulatory Affairs

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Revision note

Key to abbreviations

- ACGIH (American Conference of Governmental Industrial Hygienists)
- ATE (Average Toxicity Estimate)
- DSL/NDSL (Domestic Substance List/Non-Domestic Substance List)
- HMIS (Hazardous Materials Identification System)
- IARC (International Agency for Research on Cancer)
- IATA (International Air Transport Association)
- IMDG/IMO (International Maritime Dangerous Goods/International Maritime Organization)
- NFPA (National Fire Protection Association)
- NTP (National Toxicology Program)
- OEL (Occupational Exposure Level)
- OSHA (Occupational Safety and Health Administration of the US Department of Labor)
- PEL (Permissible Exposure Limit)
- TSCA (Toxic Substance Control Act)
- USEPA (United States Environmental Protection Agency)

Disclaimer

The information accumulated herein is believed to be accurate, but is not warranted to be, whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.

End of Safety Data Sheet



Safety Data Sheet

Material Name: ArmaKleen 4 in 1 Cleaner – Cleaning Solution

SDS ID: 820070

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name

ArmaKleen 4 in 1 Cleaner – Cleaning Solution

Product Code

Not available.

Synonyms

Not available.

Product Use

Aqueous, alkaline cleaner that has been diluted with water for cleaning aluminum, magnesium, titanium, ferrous and non-ferrous alloys as well as plastic, glass, and composite materials. If this product is used in combination with other products, refer to the Safety Data Sheet for those products.

Restrictions on Use

For professional use only

Details of the supplier of the safety data sheet

MANUFACTURER

Church & Dwight
The ArmaKleen™ Company
469 North Harrison Street
Princeton, NJ 08543
Phone: (800) 332-5424
www.churchdwight.com

SUPPLIER

Safety-Kleen Systems, Inc.
2600 North Central Expressway
Suite 200
Richardson, TX 75080
Phone: 1-800-669-5740
www.safety-kleen.com

IMPORTER/DISTRIBUTOR

Safety-Kleen Canada Inc.
25 Regan Road
Brampton, Ontario, Canada L1A 1B2
Phone: 1-800-669-5740

Emergency Telephone Number

Medical: 1-888-234-1828 Chemical: 1-800-424-9300 (CHEMTREC)

Issue Date

March 6, 2017

Supersedes Issue Date

April 27, 2015

Original Issue Date

October 22, 2009

Section 2 - HAZARDS IDENTIFICATION

Classification in accordance with Schedule 1 of Canada's Hazardous Products Regulations (HPR) (SOR/2015-17) and paragraph (d) of 29 CFR 1910.1200 in the United States

None needed according to classification criteria

GHS Label Elements

Symbol(s)

None needed according to classification criteria

Signal Word

None needed according to classification criteria

Hazard Statement(s)

None needed according to classification criteria.

Safety Data Sheet

Material Name: ArmaKleen 4 in 1 Cleaner – Cleaning Solution

SDS ID: 820070

Precautionary Statement(s)

Prevention

None needed according to classification criteria.

Response

None needed according to classification criteria.

Storage

None needed according to classification criteria. Do not store below 40°F.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

Other hazards

Repeated exposure may cause skin dryness or cracking. Contact with heated material may cause serious thermal burns.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Component Name	Percent
7732-18-5	Water	93-99
124-07-2	Octanoic Acid	0.25-0.27
68429-46-3	Alcohols, C9-11, ethoxylated	0.19-0.21
68987-81-5	Alcohols, C6-10, ethoxylated and propoxylated	0.14-0.16
61791-26-2	Amines, tallow, alkyl, ethoxylated	0.14-0.16

Section 4 - FIRST AID MEASURES

Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention, if needed.

Skin

IF ON SKIN: Remove contaminated clothing and shoes. Wash with plenty of soap and water. Get medical attention if needed.

Eyes

IF IN EYES: If irritation or redness from exposure to vapor or mist develops, move away from exposure and rinse cautiously with water for 5 minutes. Upon direct contact with liquid, immediately flush eyes with plenty of lukewarm water, holding eyelids apart, for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention, if needed.

Ingestion

IF SWALLOWED: Call a POISON CENTER or doctor/physician. Never give anything by mouth to an unconscious person.

Most Important Symptoms/Effects

Acute

May cause skin irritation. May cause eye irritation. May cause respiratory irritation.

Delayed

Repeated exposure may cause skin dryness or cracking.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically and supportively.

Safety Data Sheet

Material Name: ArmaKleen 4 in 1 Cleaner – Cleaning Solution

SDS ID: 820070

Section 5 - FIRE FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media

Use extinguishing agents appropriate for surrounding fire.

Unsuitable Extinguishing Media

Do not use high-pressure water streams. Avoid using a direct stream of water. Directly spraying water or foam onto hot burning product may cause frothing.

Special Hazards Arising from the Chemical

Negligible fire hazard. Avoid friction, static electricity and sparks.

Hazardous Combustion Products

Burning may produce oxides of carbon.

Advice for firefighters

Use water spray to keep fire-exposed containers cool.

Fire Fighting Measures

A positive-pressure, self-contained breathing apparatus (SCBA) and full-body protective equipment are required for fire emergencies.

Special Protective Equipment and Precautions for Firefighters

Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Wear personal protective clothing and equipment, see Section 8. Avoid release to the environment.

Methods and Materials for Containment and Cleaning Up

Spilled product is slippery. Do not touch or walk through spilled product. Stop leak if you can do it without risk. Wear protective equipment and provide engineering controls as specified in SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Ventilate area and avoid breathing vapor or mist. Contain spill away from surface water and sewers. Contain spill as a liquid for possible recovery, or sorb with compatible sorbent material and shovel with a clean, spark proof tool into a sealable container for disposal. Additionally, for large spills: Dike far ahead of liquid spill for collection and later disposal. There may be specific federal regulatory reporting requirements associated with spills, leaks, or releases of this product. Also see SECTION 15: REGULATORY INFORMATION.

Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling

Keep away from heat, sparks and naked flames. Where flammable mixtures may be present, equipment safe for such locations should be used. Use clean tools and explosion-proof equipment. Use in a well ventilated area. Avoid contact with eyes Skin clothing shoes.

Conditions for Safe Storage, Including any Incompatibilities

Additional information: Storage. Keep container tightly closed when not in use and during transport. Store containers in a cool, dry place. Do not pressurize, cut, weld, braze, solder, drill, or grind containers. Keep containers away from flame, sparks, static electricity, or other sources of ignition. Empty product containers may retain product residue and can be dangerous. Do not store below 40°F.

Incompatible Materials

Oxidizers, reducing agents, acids.

Safety Data Sheet

Material Name: ArmaKleen 4 in 1 Cleaner – Cleaning Solution

SDS ID: 820070

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

Canada and ACGIH have not developed exposure limits for any of this product's components.

ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)

There are no biological limit values for any of this product's components.

Engineering Controls

Provide general ventilation needed to maintain concentration of vapor or mist below applicable exposure limits. Where adequate general ventilation is unavailable, use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below applicable exposure limits.

Individual Protection Measures, such as Personal Protective Equipment

Eye/face protection

Wear safety glasses. Additional protection like goggles, face shields, or respirators may be needed dependent upon anticipated use and concentrations of mists or vapors. Eye wash fountain and emergency showers are recommended. Contact lens use is not recommended.

Respiratory Protection

A respiratory protection program which meets USA's OSHA General Industry Standard 29 CFR 1910.134 or Canada's CSA Standard Z94.4-M1982 requirements must be followed whenever workplace conditions warrant a respirator's use. Consult a qualified Industrial Hygienist or Safety Professional for respirator selection guidance.

Glove Recommendations

Where skin contact is likely, wear neoprene, nitrile, or equivalent protective gloves; use of natural rubber or equivalent gloves is not recommended.

Protective Materials

Personal protective equipment should be selected based upon the conditions under which this material is used. A hazard assessment of the work area for PPE requirements should be conducted by a qualified professional pursuant to regulatory requirements. The following PPE should be considered the minimum required: Safety glasses, gloves, and lab coat or apron.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Clear, amber liquid	Physical State	Liquid
Odor	Mild	Color	Amber
Odor Threshold	Not available	pH	2.5% Solution: 10.4 5% Solution: 10.5 10% Solution: 11.0
Melting Point	0 °C (32)	Boiling Point	100 °C (212°F)
Boiling Point Range	Not available	Freezing point	Not available
Evaporation Rate	<1 (butyl acetate = 1)	Flammability (solid, gas)	Not available
Autoignition Temperature	Not available	Flash Point	>100 °C (212°F)
Lower Explosive Limit	Not available	Decomposition temperature	Not available
Upper Explosive Limit	Not available	Vapor Pressure	17.5 mm Hg @ 20 °C (approximately)

Safety Data Sheet

Material Name: ArmaKleen 4 in 1 Cleaner – Cleaning Solution

SDS ID: 820070

Vapor Density (air=1)	<1 (Air.)	Specific Gravity (water=1)	1.005
Water Solubility	(complete)	Partition coefficient: n-octanol/water	Not available
Viscosity	Not available	Solubility (Other)	Not available
Density	0.9	Physical Form	Liquid.
Molecular Weight	Not available		
Volatile Organic Compounds (As regulated)	2.5% Solution 5.0% Solution 10% Solution Product Vapor Pressure @20°C = 17.5 mmHg; Product does not contain photochemically reactive solvents	0.51 WT%; 0.044 LB/US gal; 5.25 g/L; As per 40 CFR Part 51.100(s) 1.02 WT%; 0.088 LB/US gal; 10.5 g/L; As per 40 CFR Part 51.100(s) VOC Vapor Pressure @38°C = 0.644 mmHg 2.04 WT%; 0.175 LB/US gal; 21g/L; As per 40 CFR Part 51.100(s) VOC Vapor Pressure @38°C = 0.734 mmHg	

Other Information

No additional information is available.

Section 10 - STABILITY AND REACTIVITY

Reactivity

No reactivity hazard is expected.

Chemical Stability

Stable under normal temperatures and pressures.

Possibility of Hazardous Reactions

Will not polymerize.

Conditions to Avoid

Avoid heat, flames, sparks and other sources of ignition

Incompatible Materials

Oxidizers, acids, reducing agents.

Hazardous decomposition products

None under normal temperatures and pressures.

Thermal decomposition products

Oxides of carbon.

Section 11 - TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation

May cause respiratory irritation.

Skin Contact

May cause skin irritation. Repeated exposure may cause skin dryness or cracking.

Eye Contact

May cause eye irritation.

Ingestion

Large amounts may cause gastrointestinal disturbances.

Safety Data Sheet

Material Name: ArmaKleen 4 in 1 Cleaner – Cleaning Solution

SDS ID: 820070

Acute and Chronic Toxicity

Component Analysis - LD50/LC50

The components of this material have been reviewed in various sources and no selected endpoints have been identified

Product Toxicity Data

Acute Toxicity Estimate

No data available.

Immediate Effects

May cause skin irritation. May cause eye irritation. May cause respiratory irritation.

Delayed Effects

Repeated exposure may cause skin dryness or cracking.

Irritation/Corrosivity Data

May cause skin irritation. May cause eye irritation. May cause respiratory irritation.

Respiratory Sensitization

No information available for the product.

Dermal Sensitization

No information available for the product.

Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, NTP, DFG or OSHA

Germ Cell Mutagenicity

No information available for the product.

Tumorigenic Data

No data available

Reproductive Toxicity

No information available for the product.

Specific Target Organ Toxicity - Single Exposure

No information on significant adverse effects.

Specific Target Organ Toxicity - Repeated Exposure

No information on significant adverse effects.

Aspiration hazard

No information available for the product.

Medical Conditions Aggravated by Exposure

Individuals with pre-existing respiratory tract (nose, throat, and lungs), eye, and/or skin disorders may have increased susceptibility to the effects of exposure.

Section 12 - ECOLOGICAL INFORMATION

Component Analysis - Aquatic Toxicity

No LOLI ecotoxicity data are available for this product's components

Persistence and Degradability

No information available for the product.

Bioaccumulative Potential

No information available for the product.

Mobility

No information available for the product.

Other Toxicity

No additional information is available.

Safety Data Sheet

Material Name: ArmaKleen 4 in 1 Cleaner – Cleaning Solution

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Section 13 - DISPOSAL CONSIDERATIONS

Disposal Methods

The U.S; EPA has not published waste numbers for this product's components. Dispose in accordance with federal, state, provincial, and local regulations. Regulations may also apply to empty containers. The responsibility for proper waste disposal lies with the owner of the waste. Contact ArmaKleen regarding proper recycling or disposal.

Section 14 - TRANSPORT INFORMATION

US DOT Information: Not regulated for transport.
IATA Information: Not regulated for transport.
TDG Information: Not regulated for transport.

Section 15 - REGULATORY INFORMATION

Canada Regulations

CEPA - Priority Substances List

None of this product's components are on the list.

Ozone Depleting Substances

None of this product's components are on the list

Council of Ministers of the Environment - Soil Quality Guidelines

None of this product's components are on the list

Council of Ministers of the Environment - Water Quality Guidelines

None of this product's components are on the list

U.S. Federal Regulations

None of this products components are listed under SARA Sections 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), or require an OSHA process safety plan.

SARA Section 311/312 (40 CFR 370 Subparts B and C)

Acute Health: No **Chronic Health:** No **Fire:** No **Pressure:** No **Reactivity:** No

Component Analysis - Inventory

No information is available.

Not listed under California Proposition 65.

Section 16 - OTHER INFORMATION

NFPA Ratings

Health: 1 Fire: 0 Reactivity: 0

Hazard Scale: 0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe

Summary of Changes

Revision to comply with WHMIS 2015.

Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CA/MA/MN/NJ/PA - California/Massachusetts/Minnesota/New Jersey/Pennsylvania*; CAS - Chemical Abstracts Service; CFR - Code of Federal Regulations (US); CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CLP - Classification, Labelling, and Packaging; CPR - Controlled Products Regulations; DOT - Department of Transportation; DSL - Domestic Substances List; EPA - Environmental Protection Agency; F - Fahrenheit; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of LIsts™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NDSL - Non-Domestic Substance List (Canada); NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade

Safety Data Sheet

Material Name: ArmaKleen 4 in 1 Cleaner – Cleaning Solution

SDS ID: 820070

Secret Registry; NTP - National Toxicology Program; OSHA - Occupational Safety and Health Administration; PEL - Permissible Exposure Limit; RCRA - Resource Conservation and Recovery Act; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TLV - Threshold Limit Value; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; UN/NA - United Nations /North American; US - United States; WHMIS - Workplace Hazardous Materials Information System (Canada).

Other Information

This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200 and Canada's Hazardous Product Regulations (HPR)

Disclaimer:

User assumes all risks incident to the use of this product. To the best of our knowledge, the information contained herein is accurate. However, ArmaKleen assumes no liability whatsoever for the accuracy or completeness of the information contained herein. No representations or warranties, either expressed or implied, of merchantability, fitness for a particular purpose or of any other nature are made hereunder with respect to the information or the product to which the information refers. The data contained on this sheet apply to the product as supplied to the user.

Section 1: IDENTIFICATION**Product Name:** Simple Green® Industrial Cleaner & Degreaser**Additional Names:****Manufacturer's Part Number:** *Please refer to Section 16**Recommended Use:** Cleaner & Degreaser for water tolerant surfaces.**Restrictions on Use:** Do not use on non-rinsable surfaces.**Company:** Sunshine Makers, Inc.
15922 Pacific Coast Highway
Huntington Beach, CA 92649 USA**Telephone:** 800-228-0709 • 562-795-6000 *Mon – Fri, 8am – 5pm PST***Fax:** 562-592-3830**Email:** info@simplegreen.com**Emergency Phone:** Chem-Tel 24-Hour Emergency Service: 800-255-3924**Section 2: HAZARDS IDENTIFICATION****This product is not classified as hazardous under 2012 OSHA Hazard Communication Standards (29 CFR 1910.1200).**OSHA HCS 2012Label Elements**Signal Word:** None**Hazard Symbol(s)/Pictogram(s):** None required**Hazard Statements:** None**Precautionary Statements:** None**Hazards Not Otherwise Classified (HNOC):** None**Other Information:** None Known**Section 3: COMPOSITION/INFORMATION ON INGREDIENTS**

<u>Ingredient</u>	<u>CAS Number</u>	<u>Percent Range</u>
Water	7732-18-5	> 84.998%*
Ethoxylated Alcohol	68439-46-3	< 5%*
Sodium Citrate	68-04-2	< 5%*
Tetrasodium <i>N,N</i> -bis(carboxymethyl)-L-glutamate	51981-21-6	< 1%*
Sodium Carbonate	497-19-8	< 1%*
Citric Acid	77-92-9	< 1%*
Isothiazolinone mixture	55965-84-9	0.002%
Fragrance	Proprietary Mixture	< 1%*
Colorant	Proprietary Mixture	< 1%*

*specific percentages of composition are being withheld as a trade secret

Section 4: FIRST-AID MEASURES**Inhalation:** Not expected to cause respiratory irritation. If adverse effect occurs, move to fresh air.**Skin Contact:** Not expected to cause skin irritation. If adverse effect occurs, rinse skin with water.**Eye Contact:** Not expected to cause eye irritation. If adverse effect occurs, flush eyes with water.**Ingestion:** May cause upset stomach. Drink plenty of water to dilute. See section 11.**Most Important Symptoms/Effects, Acute and Delayed:** None known.**Indication of Immediate Medical Attention and Special Treatment Needed, if necessary:** Treat symptomatically

Section 5: FIRE-FIGHTING MEASURES

Suitable & Unsuitable Extinguishing Media: Use Dry chemical, CO₂, water spray or “alcohol” foam. Avoid high volume jet water.
Specific Hazards Arising from Chemical: In event of fire, fire created carbon oxides may be formed.
Special Protective Actions for Fire-Fighters: Wear positive pressure self-contained breathing apparatus; Wear full protective clothing.

This product is non-flammable. See Section 9 for Physical Properties.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures: *For non-emergency and emergency personnel:* See section 8 – personal protection. Avoid eye contact. Safety goggles suggested.

Environmental Precautions: Do not allow into open waterways and ground water systems.

Methods and Materials for Containment and Clean Up: Dike or soak up with inert absorbent material. See section 13 for disposal considerations.

Section 7: HANDLING AND STORAGE

Precautions for Safe Handling: Ensure adequate ventilation. Keep out of reach of children. Keep away from heat, sparks, open flame and direct sunlight. Do not pierce any part of the container. Do not mix or contaminate with any other chemical. Do not eat, drink or smoke while using this product.

Conditions for Safe Storage including Incompatibilities: Keep container tightly closed. Keep in cool dry area. Avoid prolonged exposure to sunlight. Do not store at temperatures above 109°F (42.7°C). If separation occurs, mix the product for reconstitution.

Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limit Values: No components listed with TWA or STEL values under OSHA or ACGIH.

Appropriate Engineering Controls: Showers, eyewash stations, ventilation systems

Individual Protection Measures / Personal Protective Equipment (PPE)

Eye Contact: Use protective glasses or safety goggles if splashing or spray-back is likely.
Respiratory: Use in well ventilated areas or local exhaust ventilations when cleaning small spaces.
Skin Contact: Use protective gloves (any material) when used for prolonged periods or dermally sensitive.
General Hygiene Considerations: Wash thoroughly after handling and before eating or drinking.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Green Liquid	Partition Coefficient: n-octanol/water:	Not determined
Odor:	Added sassafras odor	Autoignition Temperature:	Non-flammable
Odor Threshold:	Not determined	Decomposition Temperature:	109°F
pH ASTM D-1293:	8.5 – 9.5	Viscosity:	Like water
Freezing Point ASTM D-1177:	0-3.33°C (32-38°F)	Specific Gravity ASTM D-891:	1.01 – 1.03
Boiling Point & Range ASTM D-1120:	101°C (213.8°F)	VOCs:	<i>**Water & fragrance exemption in calculation</i>
Flash Point ASTM D-93:	> 212°F	SCAQMD 304-91 / EPA 24:	0 g/L 0 lb/gal 0%
Evaporation Rate ASTM D-1901:	½ Butyl Acetate @ 25°C	CARB Method 310**:	2.5 g/L 0.021 lb/gal 0.25%
Flammability (solid, gas):	Not applicable	SCAQMD Method 313:	Not tested
Upper/Lower Flammability or Explosive Limits:	Not applicable	VOC Composite Partial Pressure:	Not determined
Vapor Pressure ASTM D-323:	0.60 PSI @77°F, 2.05 PSI @100°F	Relative Density ASTM D-4017:	8.34 – 8.42 lb/gal
Vapor Density:	Not determined	Solubility:	100% in water

Section 10: STABILITY AND REACTIVITY

Reactivity:	Non-reactive.
Chemical Stability:	Stable under normal conditions 70°F (21°C) and 14.7 psig (760 mmHg).
Possibility of Hazardous Reactions:	None known.
Conditions to Avoid:	Excessive heat or cold.
Incompatible Materials:	Do not mix with oxidizers, acids, bathroom cleaners, or disinfecting agents.
Hazardous Decomposition Products:	Normal products of combustion - CO, CO ₂ .

Section 11: TOXICOLOGICAL INFORMATION

Likely Routes of Exposure:	Inhalation -	Overexposure may cause headache.
	Skin Contact -	Not expected to cause irritation, repeated contact may cause dry skin.
	Eye Contact -	Not expected to cause irritation.
	Ingestion -	May cause upset stomach.

Symptoms related to the physical, chemical and toxicological characteristics: no symptoms expected under typical use conditions.

Delayed and immediate effects and or chronic effects from short term exposure: no symptoms expected under typical use conditions.

Delayed and immediate effects and or chronic effects from long term exposure: headache, dry skin, or skin irritation may occur.

Interactive effects: Not known.

Numerical Measures of Toxicity

Acute Toxicity:	Oral LD ₅₀ (rat)	> 5 g/kg body weight
	Dermal LD ₅₀ (rabbit)	> 5 g/kg body weight

Calculated via OSHA HCS 2012 / Globally Harmonized System of Classification and Labelling of Chemicals

Skin Corrosion/Irritation:	Non-irritant per Dermal Irritation® assay modeling. No animal testing performed.
Eye Damage/Irritation:	Minimal irritant per Ocular Irritation® assay modeling. No animal testing performed.
Germ Cell Mutagenicity:	Mixture does not classify under this category.
Carcinogenicity:	No ingredients trigger or classify under this category under NTP, IARC or OSHA.
Reproductive Toxicity:	Mixture does not classify under this category.
STOT-Single Exposure:	Mixture does not classify under this category.
STOT-Repeated Exposure:	Mixture does not classify under this category.
Aspiration Hazard:	Mixture does not classify under this category.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity:	Volume of ingredients used does not trigger toxicity classifications under the Globally Harmonized System of Classification and Labelling of Chemicals.
Aquatic:	Aquatic Toxicity - Low, based on OECD 201, 202, 203 + Microtox: EC ₅₀ & IC ₅₀ ≥100 mg/L. Volume of ingredients used does not trigger toxicity classifications under the Globally Harmonized System of Classification and Labelling of Chemicals.
Terrestrial:	Not tested on finished formulation.
Persistence and Degradability:	Readily Biodegradable per OCED 301D, Closed Bottle Test
Bioaccumulative Potential:	No data available.
Mobility in Soil:	No data available.
Other Adverse Effects:	No data available.

Section 13: DISPOSAL CONSIDERATIONS

Unused or Used Liquid: May be considered hazardous in your area depending on usage and tonnage of disposal – check with local, regional, and or national regulations for appropriate methods of disposal.

Empty Containers: May be offered for recycling.

Never dispose of used degreasing rinsates into lakes, streams, and open bodies of water or storm drains.

Section 14: TRANSPORT INFORMATION

U.N. Number: Not applicable **U.N. Proper Shipping Name:** Cleaning Compound, Liquid NOI
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Marine Pollutant - NO
Transport in Bulk (according to Annex II of MARPOL 73/78 and IBC Code): Unknown.
Special precautions which user needs to be aware of/comply with, in connection with transport or conveyance either within or outside their premises: None known.
U.S. (DOT) / Canadian TDG: Not Regulated for shipping. **ICAO/ IATA:** Not classified as Hazardous
IMO / IDMG: Not classified as Hazardous **ADR/RID:** Not classified as Hazardous

Section 15: REGULATORY INFORMATION

All components are listed on: TSCA and DSL Inventory.
SARA Title III: Sections 311/312 Hazard Categories – Not applicable.
 Sections 313 Superfunds Amendments and Reauthorizations Act of 1986 – Not applicable.
 Sections 302 – Not applicable.
Clean Air Act (CAA): Not applicable
Clean Water Act (CWA): Not applicable
State Right To Know Lists: No ingredients listed
California Proposition 65: No ingredients listed

Texas ESL:

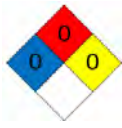
Ethoxylated Alcohol	68439-46-3	60 µg/m³ long term	600 µg/m³ short term
Sodium Citrate	68-04-2	5 µg/m³ long term	50 µg/m³ short term
Sodium Carbonate	497-19-8	5 µg/m³ long term	50 µg/m³ short term
Citric Acid	77-92-9	10 µg/m³ long term	100 µg/m³ short term

Section 16: OTHER INFORMATION

Size	UPC	Size	UPC
22 oz. Trigger	043318130229	2.5 Gallon	043318000041
24 oz. Trigger	043318000034	5 Gallon	043318000010
32 oz.	043318130328	55 Gallon	043318000027
1 Gallon	043318000003	15 Gallon	043318000225
1 Gallon w/ Dilution Bottle	043318001253	260 Gallon	043318130663
1 Gallon w/ Dilution Bottle	043318480416	275 Gallon	043318000102
1 Gallon w/ Dilution Bottle	043318000003		

USA items listed only. Not all items listed. USA items may not be valid for international sale.

NFPA:
 Health – None
 Flammability – Non-flammable
 Stability – Stable
 Special - None



Acronyms

NTP	National Toxicology Program	IARC	International Agency for Research on Cancer
OSHA	Occupational Safety and Health Administration	CPSC	Consumer Product Safety Commission
TSCA	Toxic Substances Control Act	DSL	Domestic Substances List

Prepared / Revised By: Sunshine Makers, Inc., Regulatory Department.
This SDS has been revised in the following sections: Exact Isothiazolinone amount disclosed

DISCLAIMER: The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

SAFETY DATA SHEET



Techspray Blue Shower® G3®

Section 1. Identification

GHS product identifier : Techspray Blue Shower® G3®
Product code : 1630-16S
Other means of identification : Not available. Aerosol.
Product type : Aerosol.

Relevant identified uses of the substance or mixture and uses advised against

Not applicable.

Supplier's details : Techspray
8125 Cobb Center Drive
Kennesaw, GA 30152
Tel: 678-819-1408
Toll free: 1-800-858-4043
Fax: 1 806-372-8750

Emergency telephone number (with hours of operation) : Chemtrec - 1-800-424-9300
CANUTEC (Canadian Transportation): (613) 996-6666
Emergency phone: (800) 858-4043
24/7

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : SKIN CORROSION/IRRITATION - Category 2
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A
GASES UNDER PRESSURE Compressed gas
Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 2%

GHS label elements

Hazard pictograms :



Signal word : Warning

Hazard statements : Causes serious eye irritation.
Causes skin irritation.
Contains gas under pressure; may explode if heated.

Precautionary statements

Prevention : Wear protective gloves. Wear eye or face protection. Wash hands thoroughly after handling.

Response : IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Storage : Protect from sunlight. Store in well-ventilated place.

Disposal : Not applicable.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture
Other means of identification : Not available. Aerosol.

Ingredient name	%	CAS number
trans-dichloroethylene	≥25 - ≤50	156-60-5
ethanol	≤5	64-17-5

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : Causes skin irritation.
- Ingestion** : No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
 pain or irritation
 watering
 redness
- Inhalation** : Adverse symptoms may include the following:
 respiratory tract irritation
 coughing

Section 4. First aid measures

- Skin contact** : Adverse symptoms may include the following:
irritation
redness
- Ingestion** : Adverse symptoms may include the following:
Irritating to mouth, throat and stomach.

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

Specific hazards arising from the chemical : In a fire or if heated, a pressure increase will occur and the container may burst. Bursting aerosol containers may be propelled from a fire at high speed.

- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
halogenated compounds
carbonyl halides

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. In the case of aerosols being ruptured, care should be taken due to the rapid escape of the pressurized contents and propellant. If a large number of containers are ruptured, treat as a bulk material spillage according to the instructions in the clean-up section. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Section 6. Accidental release measures

Methods and materials for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Empty containers retain product residue and can be hazardous.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
trans-dichloroethylene	ACGIH TLV (United States, 3/2015). TWA: 200 ppm 8 hours. TWA: 793 mg/m ³ 8 hours.
ethanol	ACGIH TLV (United States, 3/2015). STEL: 1000 ppm 15 minutes. NIOSH REL (United States, 10/2013). TWA: 1900 mg/m ³ 10 hours. TWA: 1000 ppm 10 hours. OSHA PEL (United States, 2/2013). TWA: 1900 mg/m ³ 8 hours. TWA: 1000 ppm 8 hours. OSHA PEL 1989 (United States, 3/1989). TWA: 1900 mg/m ³ 8 hours. TWA: 1000 ppm 8 hours.

- Appropriate engineering controls** : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Section 8. Exposure controls/personal protection

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance

- Physical state** : Liquid. [Aerosol.]
- Color** : Clear. Colorless.
- Odor** : Ethereal. [Slight]
- Odor threshold** : Not available.
- pH** : Not available.
- Melting point** : Not available.
- Boiling point** : Not available.
- Flash point** : Not available.
- Evaporation rate** : >1 (butyl acetate = 1)
- Flammability (solid, gas)** : Not available.
- Lower and upper explosive (flammable) limits** : Not available.
- Vapor pressure** : 122.7 kPa (920.45 mm Hg) [room temperature]
- Vapor density** : Not available.
- Relative density** : 1.229
- Solubility** : Not available.
- Solubility in water** : Not available.
- Partition coefficient: n-octanol/water** : Not available.

Section 9. Physical and chemical properties

Auto-ignition temperature : Not available.
Decomposition temperature : Not available.
Viscosity : Not available.
Flow time (ISO 2431) : Not available.

Aerosol product

Type of aerosol : Spray
Heat of combustion : 0.84 kJ/g
Ignition distance : 0 cm
Enclosed space ignition - Time equivalent : 429 s/m³
Enclosed space ignition - Deflagration density : 1781 g/m³

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Incompatible materials : No specific data.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
trans-dichloroethylene	LC50 Inhalation Gas. LD50 Dermal	Rat Rabbit	24100 ppm >5 g/kg	4 hours -
ethanol	LD50 Oral LC50 Inhalation Vapor LD50 Oral	Rat Rat Rat	1235 mg/kg 124700 mg/m ³ 7 g/kg	- 4 hours -

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
trans-dichloroethylene	Eyes - Moderate irritant Skin - Moderate irritant	Rabbit Rabbit	- -	10 milligrams 24 hours 500 milligrams	- -
ethanol	Eyes - Mild irritant Eyes - Moderate irritant Eyes - Moderate irritant Eyes - Severe irritant Skin - Mild irritant	Rabbit Rabbit Rabbit Rabbit Rabbit	- - - - -	24 hours 500 milligrams 0.06666667 minutes 100 milligrams 100 microliters 500 milligrams 400 milligrams	- - - - -

Section 11. Toxicological information

	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
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Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Classification

Product/ingredient name	OSHA	IARC	NTP
ethanol	None.	-	-

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : Causes skin irritation.
- Ingestion** : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
- Ingestion** : Adverse symptoms may include the following:
Irritating to mouth, throat and stomach.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Section 11. Toxicological information

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral	2744.4 mg/kg

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
trans-dichloroethylene	Acute LC50 220000 to 290000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
ethanol	Acute EC50 17.921 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute EC50 2000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 25500 µg/l Marine water	Crustaceans - Artemia franciscana - Larvae	48 hours
	Acute LC50 42000 µg/l Fresh water	Fish - Oncorhynchus mykiss	4 days
	Chronic NOEC 4.995 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Chronic NOEC 100 µl/L Fresh water	Daphnia - Daphnia magna - Neonate	21 days
Chronic NOEC 0.375 µl/L Fresh water	Fish - Gambusia holbrooki - Larvae	12 weeks	

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
trans-dichloroethylene	2.09	-	low
ethanol	-0.35	-	low

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations




Disposal methods

: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

United States - RCRA Toxic hazardous waste "U" List

Ingredient	CAS #	Status	Reference number
1,2-Dichloroethylene; Ethene, 1,2-dichloro-, (E)-	156-60-5	Listed	U079

Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	ADR/RID	IMDG	IATA
UN number	-	-	-	UN1950	UN1950	ID8000
UN proper shipping name	Consumer commodity ORM-D	Consumer commodity ORM-D	Consumer commodity ORM-D	Aerosols, non-flammable	AEROSOLS IN LIMITED QUANTITIES OF CLASS 2	Consumer commodity ID8000
Transport hazard class(es)	ORM-D	ORM-D	ORM-D	2 	2.2 	9 
Packing group	-	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.	No.
Additional information	Reportable quantity 2222.2 lbs / 1008.9 kg [216.86 gal / 820.9 L] Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.	Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2).	-	Tunnel code (E)	-	-

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 14. Transport information

Transport in bulk according to Annex II of MARPOL and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 5(a)2 final significant new use rules:** Pentane, 1,1,1,2,2,3,4,5,5,5-decafluoro-
TSCA 8(a) CDR Exempt/Partial exemption: Not determined
TSCA 12(b) one-time export: Pentane, 1,1,1,2,2,3,4,5,5,5-decafluoro-
United States inventory (TSCA 8b): All components are listed or exempted.
Clean Water Act (CWA) 307: trans-dichloroethylene

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Immediate (acute) health hazard

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
trans-dichloroethylene	≥25 - ≤50	Yes.	No.	No.	Yes.	No.
ethanol	≤5	Yes.	No.	No.	Yes.	No.

State regulations

Massachusetts : The following components are listed: DICHLOROETHYLENE-TRANS; ETHYL ALCOHOL; DENATURED ALCOHOL; CARBON DIOXIDE

New York : The following components are listed: Ethene, trans-1,2-dichloro-; Dichloroethylene

New Jersey : The following components are listed: ETHYL ALCOHOL; ALCOHOL; CARBON DIOXIDE; CARBONIC ACID GAS

Pennsylvania : The following components are listed: ETHENE, 1,2-DICHLORO-, (E)-; DENATURED ALCOHOL; ETHANOL; CARBON DIOXIDE

California Prop. 65

WARNING: This product contains less than 1% of a chemical known to the State of California to cause birth defects or other reproductive harm.

Section 15. Regulatory information

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
ethanol methanol	No. No.	No. Yes.	Yes. No.	No. 23000 µg/day (ingestion) 47000 µg/day (inhalation)

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

International lists

National inventory

Australia	: All components are listed or exempted.
Canada	: All components are listed or exempted.
China	: All components are listed or exempted.
Europe	: Not determined.
Japan	: Japan inventory (ENCS) : All components are listed or exempted. Japan inventory (ISHL) : Not determined.
Malaysia	: Not determined.
New Zealand	: All components are listed or exempted.
Philippines	: All components are listed or exempted.
Republic of Korea	: All components are listed or exempted.
Taiwan	: All components are listed or exempted.
Turkey	: Not determined.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health	*	2
Flammability		2
Physical hazards		0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)

Section 16. Other information



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Procedure used to derive the classification

Classification	Justification
SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A	Calculation method Calculation method

History

Date of printing : 12/5/2018

Date of issue/Date of revision : 12/5/2018

Date of previous issue : No previous validation

Version : 1

Key to abbreviations

: ATE = Acute Toxicity Estimate
 BCF = Bioconcentration Factor
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 IATA = International Air Transport Association
 IBC = Intermediate Bulk Container
 IMDG = International Maritime Dangerous Goods
 LogPow = logarithm of the octanol/water partition coefficient
 MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
 UN = United Nations

References : Not available.

☑ Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

ZEP POWER SOLV II AERO DZ

Version 3.1

Revision Date 09/28/2017

Print Date 11/30/2018

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Material name : ZEP POWER SOLV II AERO DZ

Material number : 00000000000020301

Manufacturer or supplier's details

Company : Zep Inc.

Address : 350 Joe Frank Harris Parkway, SE
Emerson, GA 30137

Telephone : 404-352-1680

Emergency telephone numbers
For SDS Information : Compliance Services 1-877-428-9937

For a Medical Emergency : 877-541-2016 Toll Free - All Calls Recorded

For a Transportation Emergency : CHEMTREC: 800-424-9300 - All Calls Recorded.
In the District of Columbia 202-483-7616

Recommended use of the chemical and restrictions on use

Recommended use : Degreaser

SECTION 2. HAZARDS IDENTIFICATION
Emergency Overview

Appearance	Aerosol containing a compressed gas
Colour	colourless
Odour	mild

GHS Classification

Gases under pressure : Compressed gas
 Skin irritation : Category 2
 Eye irritation : Category 2A
 Carcinogenicity : Category 1B
 Specific target organ toxicity - single exposure : Category 3 (Central nervous system)

GHS label elements

Hazard pictograms : 

Signal word : Danger

Hazard statements : H280 Contains gas under pressure; may explode if heated.
 H315 Causes skin irritation.
 H319 Causes serious eye irritation.
 H336 May cause drowsiness or dizziness.
 H350 May cause cancer.

ZEP POWER SOLV II AERO DZ

Version 3.1

Revision Date 09/28/2017

Print Date 11/30/2018

Precautionary statements : **Prevention:**
 P201 Obtain special instructions before use.
 P202 Do not handle until all safety precautions have been read and understood.
 P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
 P264 Wash skin thoroughly after handling.
 P271 Use only outdoors or in a well-ventilated area.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
 P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 P251 Pressurized container: Do not pierce or burn, even after use.

Response:
 P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
 P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P308 + P313 IF exposed or concerned: Get medical advice/ attention.
 P332 + P313 If skin irritation occurs: Get medical advice/ attention.
 P337 + P313 If eye irritation persists: Get medical advice/ attention.
 P362 Take off contaminated clothing and wash before reuse.

Storage:
 P410 + P403 Protect from sunlight. Store in a well-ventilated place.
 P412 Do not expose to temperatures exceeding 50 °C/ 122 °F.

Disposal:
 Dispose of contents/container in accordance with local regulation.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration [%]
trichloroethylene	79-01-6	>= 90 - <= 100
carbon dioxide	124-38-9	>= 1 - < 5

The exact percentages of disclosed substances are withheld as trade secrets.

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
 Show this safety data sheet to the doctor in attendance.
 Do not leave the victim unattended.

ZEP POWER SOLV II AERO DZ

Version 3.1

Revision Date 09/28/2017

Print Date 11/30/2018

If inhaled	: Remove person to fresh air. If signs/symptoms continue, get medical attention.
In case of skin contact	: If skin irritation persists, call a physician. Wash off immediately with plenty of water for at least 15 minutes. If on clothes, remove clothes.
In case of eye contact	: Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist. Rinse immediately with plenty of water for at least 15 minutes.
If swallowed	: DO NOT induce vomiting unless directed to do so by a physician or poison control center. Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.
Most important symptoms and effects, both acute and delayed	: Effects are immediate and delayed. Symptoms may include blistering, irritation, burns, and pain. Chronic effects are delayed and symptoms may not be observed during an exposure. Effects are dependent on exposure (dose, concentration, contact time). Causes serious eye damage. Suspected of causing cancer. Review section 2 of SDS to see all potential hazards.
Notes to physician	: Treat symptomatically. Symptoms may be delayed.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	: Dry chemical Water spray jet Alcohol-resistant foam Carbon dioxide (CO ₂)
Unsuitable extinguishing media	: High volume water jet
Specific hazards during firefighting	: Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	: Carbon dioxide (CO ₂) Carbon monoxide Smoke Chlorine compounds
Specific extinguishing methods	: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Further information	: Fire residues and contaminated fire extinguishing water must

ZEP POWER SOLV II AERO DZ

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be disposed of in accordance with local regulations.
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Prevent fire extinguishing water from contaminating surface water or the ground water system.
For safety reasons in case of fire, cans should be stored separately in closed containments.

Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Ensure adequate ventilation.
Refer to protective measures listed in sections 7 and 8.
Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
Evacuate personnel to safe areas.
Remove all sources of ignition.

Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for containment and cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

SECTION 7. HANDLING AND STORAGE

Advice on safe handling : Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Provide sufficient air exchange and/or exhaust in work rooms.
Always replace cap after use.
Dispose of rinse water in accordance with local and national regulations.
Do not breathe vapours or spray mist.
Take precautionary measures against static discharges.

Conditions for safe storage : BEWARE: Aerosol is pressurized. Keep away from direct sun exposure and temperatures over 50 °C. Do not open by force or throw into fire even after use. Do not spray on flames or red-hot objects.
Observe label precautions.
Keep in a dry, cool and well-ventilated place.
Electrical installations / working materials must comply with the technological safety standards.
No smoking.

Materials to avoid : Oxidizing agents

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SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION
Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
trichloroethylene	79-01-6	TWA	10 ppm	ACGIH
		STEL	25 ppm	ACGIH
		TWA	100 ppm	OSHA Z-2
		CEIL	200 ppm	OSHA Z-2
		Peak	300 ppm	OSHA Z-2
		TWA	50 ppm 270 mg/m ³	OSHA P0
		STEL	200 ppm 1,080 mg/m ³	OSHA P0
		STEL	100 ppm 537 mg/m ³	CAL PEL
		C	300 ppm	CAL PEL
		PEL	25 ppm 135 mg/m ³	CAL PEL
carbon dioxide	124-38-9	TWA	5,000 ppm	ACGIH
		STEL	30,000 ppm	ACGIH
		TWA	5,000 ppm 9,000 mg/m ³	NIOSH REL
		ST	30,000 ppm 54,000 mg/m ³	NIOSH REL
		TWA	5,000 ppm 9,000 mg/m ³	OSHA Z-1
		TWA	10,000 ppm 18,000 mg/m ³	OSHA P0
		STEL	30,000 ppm 54,000 mg/m ³	OSHA P0
		PEL	5,000 ppm 9,000 mg/m ³	CAL PEL
		STEL	30,000 ppm 54,000 mg/m ³	CAL PEL

Biological occupational exposure limits

Component	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
TRICHLOROETHENE	79-01-6	Trichloroacetic acid	Urine	End of shift at end of workweek	15 mg/l	ACGIH BEI
TRICHLOROETHENE		Trichloroethanol	In blood	End of shift at end of workweek	0.5 mg/l	ACGIH BEI
TRICHLOROETHENE		Trichloroethylene	In end-exhaled air	End of shift at		ACGIH BEI

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				end of workweek		
--	--	--	--	--------------------	--	--

Engineering measures : effective ventilation in all processing areas

Personal protective equipment

Respiratory protection : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.

Hand protection

Material

: Protective gloves

Remarks

: The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection

: Ensure that eyewash stations and safety showers are close to the workstation location.

Tightly fitting safety goggles

Skin and body protection

: Impervious clothing

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures

: When using do not eat or drink.

When using do not smoke.

Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Aerosol containing a compressed gas

Colour : colourless

Odour : mild

Odour Threshold : No data available

pH : Not applicable

Melting point/freezing point : Not applicable

Boiling point : 87.22 °C

Flash point :
Not applicable

Evaporation rate : < 1

Flammability (solid, gas) : The product is not flammable.

Upper explosion limit : Not applicable

Lower explosion limit : Not applicable

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Vapour pressure	: Not applicable
Relative vapour density	: No data available
Density	: 1.46 g/cm ³
Solubility(ies)	
Water solubility	: insoluble
Solubility in other solvents	: not determined
Partition coefficient: n-octanol/water	: No data available
Auto-ignition temperature	: not determined
Thermal decomposition	: No data available
Viscosity	
Viscosity, kinematic	: No data available
Heat of combustion	: 6.98 kJ/g

SECTION 10. STABILITY AND REACTIVITY

Reactivity	: Stable
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: Vapours may form explosive mixture with air. No decomposition if stored and applied as directed.
Conditions to avoid	: Heat, flames and sparks. Extremes of temperature and direct sunlight.
Incompatible materials	: Oxidizing agents Light and/or alkaline metals
Hazardous decomposition products	: Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke). Phosgene Hydrogen chloride gas

SECTION 11. TOXICOLOGICAL INFORMATION**Potential Health Effects**

Aggravated Medical Condition	: None known.
Symptoms of Overexposure	: Effects are immediate and delayed. Symptoms may include blistering, irritation, burns, and pain. Chronic effects are delayed and symptoms may not be

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observed during an exposure.
Effects are dependent on exposure (dose, concentration, contact time).

Carcinogenicity:

IARC	Group 1: Carcinogenic to humans	
	trichloroethylene	79-01-6
ACGIH	Suspected human carcinogen	
	trichloroethylene	79-01-6
OSHA	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.	
NTP	Reasonably anticipated to be a human carcinogen	
	trichloroethylene	79-01-6

Acute toxicity**Product:**

Acute oral toxicity : Acute toxicity estimate : > 5,000 mg/kg
Method: Calculation method

Components:**trichloroethylene:**

Acute oral toxicity : LD50 Oral Rat: 4,920 mg/kg

Acute inhalation toxicity : LC50 Mouse: 8450 ppm
Exposure time: 4 h

Acute dermal toxicity : LD50 Dermal Rabbit: > 20,000 mg/kg

Skin corrosion/irritation**Product:**

Remarks: May cause skin irritation in susceptible persons.

Serious eye damage/eye irritation**Product:**

Remarks: May cause irreversible eye damage.

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

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No data available

STOT - single exposure

No data available

STOT - repeated exposure

No data available

Aspiration toxicity

No data available

Further information**Product:**

Remarks: No data available

Remarks: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting., Concentrations substantially above the TLV value may cause narcotic effects., Solvents may degrease the skin.

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity**

No data available

Persistence and degradability

No data available

Bioaccumulative potential**Product:**

Partition coefficient: n-octanol/water : Remarks: No data available

Components:

trichloroethylene :
Partition coefficient: n-octanol/water : log Pow: 2.29

Mobility in soil

No data available

Other adverse effects

No data available

Product:

Regulation 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances

Remarks This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S.

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Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information : No data available

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

- Waste from residues : The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Dispose of in accordance with local regulations.
- Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.
Do not burn, or use a cutting torch on, the empty drum.

SECTION 14. TRANSPORT INFORMATION

Transportation Regulation: 49 CFR (USA):
ORM-D, CONSUMER COMMODITY

Transportation Regulation: IMDG (Vessel):
UN1950, AEROSOLS, NON-FLAMMABLE, 2.2, - Limited quantity

Transportation Regulation: IATA (Cargo Air):
UN1950, AEROSOLS, NON-FLAMMABLE, 2.2, - Limited quantity

Transportation Regulation: IATA (Passenger Air):
UN1950, AEROSOLS, NON-FLAMMABLE, 2.2, - Limited quantity

Transportation Regulation: TDG (Canada):
UN1950, AEROSOLS, NON-FLAMMABLE, 2.2, - Limited quantity

The product as delivered to the customer conforms to packaging requirements for shipment by road under US Department of Transportation (DOT) regulations. Additional transportation classifications noted above are for reference only, and not a certification or warranty of the suitability of the packaging for shipment under these alternative transport regulations.

SECTION 15. REGULATORY INFORMATION

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TSCA list : The following substance(s) is/are subject to a Significant New Use Rule:
trichloroethylene 79-01-6

The following substance(s) is/are subject to TSCA 12(b) export notification requirements:
trichloroethylene 79-01-6

EPCRA - Emergency Planning and Community Right-to-Know Act
CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
trichloroethylene	79-01-6	100	103

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Gases under pressure
Skin corrosion or irritation
Serious eye damage or eye irritation
Carcinogenicity
Specific target organ toxicity (single or repeated exposure)

SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:
trichloroethylene 79-01-6 96.83 %

California Prop. 65


WARNING: This product can expose you to chemicals including trichloroethylene, which is/are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

The components of this product are reported in the following inventories:

TSCA On TSCA Inventory
DSL All components of this product are on the Canadian DSL

For information on the country notification status for other regions please contact the manufacturer's regulatory group.

Inventory Acronym and Validity Area Legend:

TSCA (USA), DSL (Canada), NDSL (Canada)

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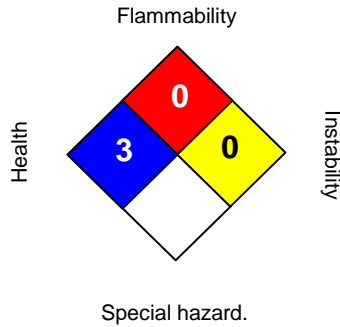
Revision Date 09/28/2017

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SECTION 16. OTHER INFORMATION

Further information

NFPA:



HMIS III:

HEALTH	3*
FLAMMABILITY	0
PHYSICAL HAZARD	2

0 = not significant, 1 =Slight,
 2 = Moderate, 3 = High
 4 = Extreme, * = Chronic

OSHA - GHS Label Information:

Hazard pictograms :



Signal word :

Danger:

Hazard statements :

Contains gas under pressure; may explode if heated. Causes skin irritation. Causes serious eye irritation. May cause drowsiness or dizziness. May cause cancer.

Precautionary statements :

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. Wash skin thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves/ protective clothing/ eye protection/ face protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Pressurized container: Do not pierce or burn, even after use.
Response: IF ON SKIN: Wash with plenty of soap and water. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Get medical advice/ attention. If skin irritation occurs: Get medical advice/ attention. If eye irritation persists: Get medical advice/ attention. Take off contaminated clothing and wash before reuse.
Storage: Protect from sunlight. Store in a well-ventilated place. Do not expose to temperatures exceeding 50 °C/ 122 °F.
Disposal: Dispose of contents/container in accordance with local regulation.

Version:	3.1
Revision Date:	09/28/2017
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We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind. The information in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. Users should make their own investigations to determine the suitability and applicability of the information for their particular purposes.

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This SDS has been prepared by the Compliance Services organization supporting this manufacturer, supplier or distributor.

Zep Inc. markets products under well recognized and established brand names such as Zep®, Zep Commercial®, Zep Professional®, Enforcer®, National Chemical™, Selig™, Misty®, Next Dimension™, Petro®, i-Chem®, TimeMist®, TimeWick™, MicrobeMax®, Country Vet®, Konk®, Original Bike Spirits®, Blue Coral®, Black Magic®, Rain-X®, Niagara National™, FC Forward Chemicals®, Rexodan®, Mykal™, and a number of private labeled brands.

Photograph Log

12400 Belden Court
Ford Motor Company LTP
30050315



Photograph: 1

Description: Product used by tenant containing trans-1,2-dichloroethene (trans-1,2-DCE).



Photograph: 2

Description: Supplies of aerosols (including products shown in Exhibits 1 through 3) being stored and used by previous tenant.

Photograph Log

12400 Belden Court
Ford Motor Company LTP
30050315



Photograph: 3

Description:
Degreaser drum (there were at least 3).

Photograph Log

12400 Belden Court
Ford Motor Company LTP
30050315



Photograph: 4

Description: A scrap metal bin (there were at least three) with various products for recycling, including those presented in Exhibits 1 through 4.



Photograph: 5

Description: A scrap metal bin (there were at least three) with various products for recycling in the aerosol recycler, including those presented in Exhibits 1 through 4.

Photograph Log

12400 Belden Court
Ford Motor Company LTP
30050315



Photograph: 6

Description: Aerosol recycler/can crusher.

Photograph Log

12400 Belden Court
Ford Motor Company LTP
30050315



Photograph: 7

Description: Waste solvent drum.



Photograph: 8

Description: Staining near sink in September 2020.

Photograph Log

12400 Belden Court
Ford Motor Company LTP
30050315



Photograph: 9

Description: Staining near sink in December 2020.



Photograph: 10

Description: Sink with pipe penetrating the slab.

Photograph Log

12400 Belden Court
Ford Motor Company LTP
30050315



Photograph: 11

Description:
Locations where pipes formerly penetrated the slab and a floor drain.

Attachment 2

**11675 Belden Court – Analytical Laboratory Reports,
24-hr Notices, Data Packages, Safety Data Sheets, and
Photo Log**

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

TestAmerica Job ID: 320-16043-1
Client Project/Site: Ford Livonia Transmission Plant
Revision: 1

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
12/15/2015 3:15:29 PM

Linda C. Laver, Project Manager II
(916)374-4362
linda.laver@testamericainc.com

LINKS

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results through
TotalAccess

Have a Question?



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www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford Livonia Transmission Plant

TestAmerica Job ID: 320-16043-1

Qualifiers

Air - GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford Livonia Transmission Plant

TestAmerica Job ID: 320-16043-1

Job ID: 320-16043-1

Laboratory: TestAmerica Sacramento

Narrative

Job Narrative 320-16043-1 Rev (1)

Revision 1

Data was originally reported in ppb v/v units. Client requested units to be revised to ug/m3.

Receipt

The samples were received on 11/19/2015 10:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice.

Air - GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford Livonia Transmission Plant

TestAmerica Job ID: 320-16043-1

Client Sample ID: SSMP-10R-02(111515)

Lab Sample ID: 320-16043-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	23	J	140	13	ug/m3	6		TO-15 MOD	Total/NA
Chloroethane	470		63	24	ug/m3	6		TO-15 MOD	Total/NA
1,1-Dichloroethane	3000		36	8.7	ug/m3	6		TO-15 MOD	Total/NA
1,1-Dichloroethene	100		95	8.6	ug/m3	6		TO-15 MOD	Total/NA
Methylene Chloride	9.4	J	42	7.5	ug/m3	6		TO-15 MOD	Total/NA
Tetrachloroethene	18	J	81	10	ug/m3	6		TO-15 MOD	Total/NA
1,1,1-Trichloroethane	1000		49	11	ug/m3	6		TO-15 MOD	Total/NA
Trichloroethene	17	J	64	17	ug/m3	6		TO-15 MOD	Total/NA
1,1,2-Trichloro-1,2,2-trifluoroethane	85	J	92	37	ug/m3	6		TO-15 MOD	Total/NA
m,p-Xylene	17	J B	100	13	ug/m3	6		TO-15 MOD	Total/NA
o-Xylene	8.6	J B	52	7.0	ug/m3	6		TO-15 MOD	Total/NA

Client Sample ID: SVMP-15-01(111615)

Lab Sample ID: 320-16043-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	24		24	2.1	ug/m3	1		TO-15 MOD	Total/NA
Carbon disulfide	18		12	1.2	ug/m3	1		TO-15 MOD	Total/NA
Dichlorodifluoromethane	12		9.9	3.6	ug/m3	1		TO-15 MOD	Total/NA
1,1-Dichloroethane	4.0	J	6.1	1.5	ug/m3	1		TO-15 MOD	Total/NA
Ethylbenzene	19		8.7	1.4	ug/m3	1		TO-15 MOD	Total/NA
4-Ethyltoluene	8.7	J	9.8	4.6	ug/m3	1		TO-15 MOD	Total/NA
Tetrachloroethene	310		14	1.7	ug/m3	1		TO-15 MOD	Total/NA
Toluene	27		7.5	0.96	ug/m3	1		TO-15 MOD	Total/NA
1,1,1-Trichloroethane	9.3		8.2	1.8	ug/m3	1		TO-15 MOD	Total/NA
Trichlorofluoromethane	68		11	5.5	ug/m3	1		TO-15 MOD	Total/NA
1,1,2-Trichloro-1,2,2-trifluoroethane	8.3	J	15	6.2	ug/m3	1		TO-15 MOD	Total/NA
1,2,4-Trimethylbenzene	13	J	20	4.0	ug/m3	1		TO-15 MOD	Total/NA
1,3,5-Trimethylbenzene	7.3	J	9.8	3.1	ug/m3	1		TO-15 MOD	Total/NA
m,p-Xylene	70	B	17	2.2	ug/m3	1		TO-15 MOD	Total/NA
o-Xylene	21	B	8.7	1.2	ug/m3	1		TO-15 MOD	Total/NA

Client Sample ID: SVMP-15-02

Lab Sample ID: 320-16043-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon disulfide	120	J	180	18	ug/m3	14.8		TO-15 MOD	Total/NA
Chloroethane	1800		160	60	ug/m3	14.8		TO-15 MOD	Total/NA
1,1-Dichloroethane	4700		90	22	ug/m3	14.8		TO-15 MOD	Total/NA
1,1-Dichloroethene	28	J	230	21	ug/m3	14.8		TO-15 MOD	Total/NA
cis-1,2-Dichloroethene	64	J	120	26	ug/m3	14.8		TO-15 MOD	Total/NA
1,1,1-Trichloroethane	12000		120	26	ug/m3	14.8		TO-15 MOD	Total/NA
Trichloroethene	240		160	42	ug/m3	14.8		TO-15 MOD	Total/NA

Client Sample ID: SVMP-15-03

Lab Sample ID: 320-16043-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	24		24	2.1	ug/m3	1		TO-15 MOD	Total/NA
Benzene	1.7	J	6.4	1.3	ug/m3	1		TO-15 MOD	Total/NA
2-Butanone (MEK)	15		12	2.9	ug/m3	1		TO-15 MOD	Total/NA
Carbon disulfide	2.2	J	12	1.2	ug/m3	1		TO-15 MOD	Total/NA
Chloroform	4.6	J	7.3	2.3	ug/m3	1		TO-15 MOD	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford Livonia Transmission Plant

TestAmerica Job ID: 320-16043-1

Client Sample ID: SVMP-15-03 (Continued)

Lab Sample ID: 320-16043-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	3.1	J	6.1	1.5	ug/m3	1		TO-15 MOD	Total/NA
Ethylbenzene	3.2	J	8.7	1.4	ug/m3	1		TO-15 MOD	Total/NA
Tetrachloroethene	7.3	J	14	1.7	ug/m3	1		TO-15 MOD	Total/NA
Toluene	12		7.5	0.96	ug/m3	1		TO-15 MOD	Total/NA
1,1,1-Trichloroethane	8.5		8.2	1.8	ug/m3	1		TO-15 MOD	Total/NA
m,p-Xylene	11	J B	17	2.2	ug/m3	1		TO-15 MOD	Total/NA
o-Xylene	2.6	J B	8.7	1.2	ug/m3	1		TO-15 MOD	Total/NA

Client Sample ID: SVMP-15-04

Lab Sample ID: 320-16043-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	21	J	24	2.1	ug/m3	1		TO-15 MOD	Total/NA
Benzene	1.6	J	6.4	1.3	ug/m3	1		TO-15 MOD	Total/NA
2-Butanone (MEK)	5.1	J	12	2.9	ug/m3	1		TO-15 MOD	Total/NA
Chloroform	13		7.3	2.3	ug/m3	1		TO-15 MOD	Total/NA
Ethylbenzene	8.7		8.7	1.4	ug/m3	1		TO-15 MOD	Total/NA
4-Ethyltoluene	9.2	J	9.8	4.6	ug/m3	1		TO-15 MOD	Total/NA
Toluene	19		7.5	0.96	ug/m3	1		TO-15 MOD	Total/NA
1,2,4-Trimethylbenzene	13	J	20	4.0	ug/m3	1		TO-15 MOD	Total/NA
m,p-Xylene	49	B	17	2.2	ug/m3	1		TO-15 MOD	Total/NA
o-Xylene	12	B	8.7	1.2	ug/m3	1		TO-15 MOD	Total/NA

Client Sample ID: SVMP-15-05

Lab Sample ID: 320-16043-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	17	J	24	2.1	ug/m3	1		TO-15 MOD	Total/NA
Benzene	1.4	J	6.4	1.3	ug/m3	1		TO-15 MOD	Total/NA
2-Butanone (MEK)	4.0	J	12	2.9	ug/m3	1		TO-15 MOD	Total/NA
Chloroform	16		7.3	2.3	ug/m3	1		TO-15 MOD	Total/NA
Ethylbenzene	7.0	J	8.7	1.4	ug/m3	1		TO-15 MOD	Total/NA
4-Ethyltoluene	6.8	J	9.8	4.6	ug/m3	1		TO-15 MOD	Total/NA
Tetrachloroethene	4.0	J	14	1.7	ug/m3	1		TO-15 MOD	Total/NA
Toluene	15		7.5	0.96	ug/m3	1		TO-15 MOD	Total/NA
1,2,4-Trimethylbenzene	11	J	20	4.0	ug/m3	1		TO-15 MOD	Total/NA
m,p-Xylene	37	B	17	2.2	ug/m3	1		TO-15 MOD	Total/NA
o-Xylene	9.4	B	8.7	1.2	ug/m3	1		TO-15 MOD	Total/NA

Client Sample ID: SVMP-15-06

Lab Sample ID: 320-16043-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	16	J	24	2.1	ug/m3	1		TO-15 MOD	Total/NA
Benzene	2.1	J	6.4	1.3	ug/m3	1		TO-15 MOD	Total/NA
Chloroform	3.0	J	7.3	2.3	ug/m3	1		TO-15 MOD	Total/NA
Ethylbenzene	8.2	J	8.7	1.4	ug/m3	1		TO-15 MOD	Total/NA
4-Ethyltoluene	4.8	J	9.8	4.6	ug/m3	1		TO-15 MOD	Total/NA
Toluene	22		7.5	0.96	ug/m3	1		TO-15 MOD	Total/NA
1,1,1-Trichloroethane	2.9	J	8.2	1.8	ug/m3	1		TO-15 MOD	Total/NA
Trichlorofluoromethane	7.7	J	11	5.5	ug/m3	1		TO-15 MOD	Total/NA
1,1,2-Trichloro-1,2,2-trifluoroethane	48		15	6.2	ug/m3	1		TO-15 MOD	Total/NA
1,2,4-Trimethylbenzene	7.8	J	20	4.0	ug/m3	1		TO-15 MOD	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford Livonia Transmission Plant

TestAmerica Job ID: 320-16043-1

Client Sample ID: SVMP-15-06 (Continued)

Lab Sample ID: 320-16043-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
m,p-Xylene	41	B	17	2.2	ug/m3	1		TO-15 MOD	Total/NA
o-Xylene	9.5	B	8.7	1.2	ug/m3	1		TO-15 MOD	Total/NA

Client Sample ID: SVMP-15-07

Lab Sample ID: 320-16043-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	6.9	J	24	2.1	ug/m3	1		TO-15 MOD	Total/NA
Benzene	1.7	J	6.4	1.3	ug/m3	1		TO-15 MOD	Total/NA
Ethylbenzene	8.6	J	8.7	1.4	ug/m3	1		TO-15 MOD	Total/NA
4-Ethyltoluene	5.5	J	9.8	4.6	ug/m3	1		TO-15 MOD	Total/NA
Toluene	25		7.5	0.96	ug/m3	1		TO-15 MOD	Total/NA
1,2,4-Trimethylbenzene	9.2	J	20	4.0	ug/m3	1		TO-15 MOD	Total/NA
m,p-Xylene	41	B	17	2.2	ug/m3	1		TO-15 MOD	Total/NA
o-Xylene	9.6	B	8.7	1.2	ug/m3	1		TO-15 MOD	Total/NA

Client Sample ID: SVMP-15-08

Lab Sample ID: 320-16043-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
trans-1,2-Dichloroethene	1300		770	190	ug/m3	97.1		TO-15 MOD	Total/NA
Trichloroethene	39000		1000	270	ug/m3	97.1		TO-15 MOD	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford Livonia Transmission Plant

TestAmerica Job ID: 320-16043-1

Client Sample ID: SSMP-10R-02(111515)

Lab Sample ID: 320-16043-1

Date Collected: 11/16/15 10:51

Matrix: Air

Date Received: 11/19/15 10:10

Sample Container: Summa Canister 6L

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	23	J	140	13	ug/m3			12/03/15 21:32	6
Benzene	ND		38	7.6	ug/m3			12/03/15 21:32	6
Benzyl chloride	ND		120	25	ug/m3			12/03/15 21:32	6
Bromodichloromethane	ND		60	13	ug/m3			12/03/15 21:32	6
Bromoform	ND		120	22	ug/m3			12/03/15 21:32	6
Bromomethane	ND		93	39	ug/m3			12/03/15 21:32	6
2-Butanone (MEK)	ND		71	18	ug/m3			12/03/15 21:32	6
Carbon disulfide	ND		75	7.3	ug/m3			12/03/15 21:32	6
Carbon tetrachloride	ND		150	12	ug/m3			12/03/15 21:32	6
Chlorobenzene	ND		41	8.8	ug/m3			12/03/15 21:32	6
Dibromochloromethane	ND		100	20	ug/m3			12/03/15 21:32	6
Chloroethane	470		63	24	ug/m3			12/03/15 21:32	6
Chloroform	ND		44	14	ug/m3			12/03/15 21:32	6
Chloromethane	ND		50	12	ug/m3			12/03/15 21:32	6
1,2-Dibromoethane (EDB)	ND		180	17	ug/m3			12/03/15 21:32	6
1,2-Dichlorobenzene	ND		72	23	ug/m3			12/03/15 21:32	6
1,3-Dichlorobenzene	ND		72	20	ug/m3			12/03/15 21:32	6
1,4-Dichlorobenzene	ND		72	27	ug/m3			12/03/15 21:32	6
Dichlorodifluoromethane	ND		59	22	ug/m3			12/03/15 21:32	6
1,1-Dichloroethane	3000		36	8.7	ug/m3			12/03/15 21:32	6
1,2-Dichloroethane	ND		97	11	ug/m3			12/03/15 21:32	6
1,1-Dichloroethene	100		95	8.6	ug/m3			12/03/15 21:32	6
cis-1,2-Dichloroethene	ND		48	11	ug/m3			12/03/15 21:32	6
trans-1,2-Dichloroethene	ND		48	12	ug/m3			12/03/15 21:32	6
1,2-Dichloropropane	ND		55	33	ug/m3			12/03/15 21:32	6
cis-1,3-Dichloropropene	ND		54	14	ug/m3			12/03/15 21:32	6
trans-1,3-Dichloropropene	ND		54	12	ug/m3			12/03/15 21:32	6
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		84	33	ug/m3			12/03/15 21:32	6
Ethylbenzene	ND		52	8.2	ug/m3			12/03/15 21:32	6
4-Ethyltoluene	ND		59	28	ug/m3			12/03/15 21:32	6
Hexachlorobutadiene	ND		640	140	ug/m3			12/03/15 21:32	6
2-Hexanone	ND		49	11	ug/m3			12/03/15 21:32	6
Methylene Chloride	9.4	J	42	7.5	ug/m3			12/03/15 21:32	6
4-Methyl-2-pentanone (MIBK)	ND		49	17	ug/m3			12/03/15 21:32	6
Styrene	ND		51	7.5	ug/m3			12/03/15 21:32	6
1,1,2,2-Tetrachloroethane	ND		82	14	ug/m3			12/03/15 21:32	6
Tetrachloroethene	18	J	81	10	ug/m3			12/03/15 21:32	6
Toluene	ND		45	5.8	ug/m3			12/03/15 21:32	6
1,2,4-Trichlorobenzene	ND		450	97	ug/m3			12/03/15 21:32	6
1,1,1-Trichloroethane	1000		49	11	ug/m3			12/03/15 21:32	6
1,1,2-Trichloroethane	ND		65	11	ug/m3			12/03/15 21:32	6
Trichloroethene	17	J	64	17	ug/m3			12/03/15 21:32	6
Trichlorofluoromethane	ND		67	33	ug/m3			12/03/15 21:32	6
1,1,2-Trichloro-1,2,2-trifluoroethane	85	J	92	37	ug/m3			12/03/15 21:32	6
1,2,4-Trimethylbenzene	ND		120	24	ug/m3			12/03/15 21:32	6
1,3,5-Trimethylbenzene	ND		59	18	ug/m3			12/03/15 21:32	6
Vinyl acetate	ND		85	15	ug/m3			12/03/15 21:32	6

TestAmerica Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford Livonia Transmission Plant

TestAmerica Job ID: 320-16043-1

Client Sample ID: SSMP-10R-02(111515)

Lab Sample ID: 320-16043-1

Date Collected: 11/16/15 10:51

Matrix: Air

Date Received: 11/19/15 10:10

Sample Container: Summa Canister 6L

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		31	9.2	ug/m3			12/03/15 21:32	6
m,p-Xylene	17	J B	100	13	ug/m3			12/03/15 21:32	6
o-Xylene	8.6	J B	52	7.0	ug/m3			12/03/15 21:32	6
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		70 - 130					12/03/15 21:32	6
1,2-Dichloroethane-d4 (Surr)	108		70 - 130					12/03/15 21:32	6
Toluene-d8 (Surr)	95		70 - 130					12/03/15 21:32	6

Client Sample ID: SVMP-15-01(111615)

Lab Sample ID: 320-16043-2

Date Collected: 11/16/15 16:12

Matrix: Air

Date Received: 11/19/15 10:10

Sample Container: Summa Canister 6L

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	24		24	2.1	ug/m3			12/03/15 22:24	1
Benzene	ND		6.4	1.3	ug/m3			12/03/15 22:24	1
Benzyl chloride	ND		21	4.2	ug/m3			12/03/15 22:24	1
Bromodichloromethane	ND		10	2.2	ug/m3			12/03/15 22:24	1
Bromoform	ND		21	3.6	ug/m3			12/03/15 22:24	1
Bromomethane	ND		16	6.5	ug/m3			12/03/15 22:24	1
2-Butanone (MEK)	ND		12	2.9	ug/m3			12/03/15 22:24	1
Carbon disulfide	18		12	1.2	ug/m3			12/03/15 22:24	1
Carbon tetrachloride	ND		25	2.0	ug/m3			12/03/15 22:24	1
Chlorobenzene	ND		6.9	1.5	ug/m3			12/03/15 22:24	1
Dibromochloromethane	ND		17	3.4	ug/m3			12/03/15 22:24	1
Chloroethane	ND		11	4.1	ug/m3			12/03/15 22:24	1
Chloroform	ND		7.3	2.3	ug/m3			12/03/15 22:24	1
Chloromethane	ND		8.3	2.0	ug/m3			12/03/15 22:24	1
1,2-Dibromoethane (EDB)	ND		31	2.9	ug/m3			12/03/15 22:24	1
1,2-Dichlorobenzene	ND		12	3.9	ug/m3			12/03/15 22:24	1
1,3-Dichlorobenzene	ND		12	3.3	ug/m3			12/03/15 22:24	1
1,4-Dichlorobenzene	ND		12	4.5	ug/m3			12/03/15 22:24	1
Dichlorodifluoromethane	12		9.9	3.6	ug/m3			12/03/15 22:24	1
1,1-Dichloroethane	4.0	J	6.1	1.5	ug/m3			12/03/15 22:24	1
1,2-Dichloroethane	ND		16	1.8	ug/m3			12/03/15 22:24	1
1,1-Dichloroethene	ND		16	1.4	ug/m3			12/03/15 22:24	1
cis-1,2-Dichloroethene	ND		7.9	1.8	ug/m3			12/03/15 22:24	1
trans-1,2-Dichloroethene	ND		7.9	2.0	ug/m3			12/03/15 22:24	1
1,2-Dichloropropane	ND		9.2	5.5	ug/m3			12/03/15 22:24	1
cis-1,3-Dichloropropene	ND		9.1	2.4	ug/m3			12/03/15 22:24	1
trans-1,3-Dichloropropene	ND		9.1	2.0	ug/m3			12/03/15 22:24	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		14	5.4	ug/m3			12/03/15 22:24	1
Ethylbenzene	19		8.7	1.4	ug/m3			12/03/15 22:24	1
4-Ethyltoluene	8.7	J	9.8	4.6	ug/m3			12/03/15 22:24	1
Hexachlorobutadiene	ND		110	23	ug/m3			12/03/15 22:24	1
2-Hexanone	ND		8.2	1.8	ug/m3			12/03/15 22:24	1
Methylene Chloride	ND		6.9	1.3	ug/m3			12/03/15 22:24	1

TestAmerica Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford Livonia Transmission Plant

TestAmerica Job ID: 320-16043-1

Client Sample ID: SVMP-15-01(111615)

Lab Sample ID: 320-16043-2

Date Collected: 11/16/15 16:12

Matrix: Air

Date Received: 11/19/15 10:10

Sample Container: Summa Canister 6L

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Methyl-2-pentanone (MIBK)	ND		8.2	2.8	ug/m3			12/03/15 22:24	1
Styrene	ND		8.5	1.3	ug/m3			12/03/15 22:24	1
1,1,2,2-Tetrachloroethane	ND		14	2.4	ug/m3			12/03/15 22:24	1
Tetrachloroethene	310		14	1.7	ug/m3			12/03/15 22:24	1
Toluene	27		7.5	0.96	ug/m3			12/03/15 22:24	1
1,2,4-Trichlorobenzene	ND		74	16	ug/m3			12/03/15 22:24	1
1,1,1-Trichloroethane	9.3		8.2	1.8	ug/m3			12/03/15 22:24	1
1,1,2-Trichloroethane	ND		11	1.8	ug/m3			12/03/15 22:24	1
Trichloroethene	ND		11	2.8	ug/m3			12/03/15 22:24	1
Trichlorofluoromethane	68		11	5.5	ug/m3			12/03/15 22:24	1
1,1,2-Trichloro-1,2,2-trifluoroethane	8.3 J		15	6.2	ug/m3			12/03/15 22:24	1
1,2,4-Trimethylbenzene	13 J		20	4.0	ug/m3			12/03/15 22:24	1
1,3,5-Trimethylbenzene	7.3 J		9.8	3.1	ug/m3			12/03/15 22:24	1
Vinyl acetate	ND		14	2.6	ug/m3			12/03/15 22:24	1
Vinyl chloride	ND		5.1	1.5	ug/m3			12/03/15 22:24	1
m,p-Xylene	70 B		17	2.2	ug/m3			12/03/15 22:24	1
o-Xylene	21 B		8.7	1.2	ug/m3			12/03/15 22:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		70 - 130					12/03/15 22:24	1
1,2-Dichloroethane-d4 (Surr)	105		70 - 130					12/03/15 22:24	1
Toluene-d8 (Surr)	93		70 - 130					12/03/15 22:24	1

Client Sample ID: SVMP-15-02

Lab Sample ID: 320-16043-3

Date Collected: 11/16/15 17:45

Matrix: Air

Date Received: 11/19/15 10:10

Sample Container: Summa Canister 6L

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		350	31	ug/m3			12/03/15 23:16	14.8
Benzene	ND		95	19	ug/m3			12/03/15 23:16	14.8
Benzyl chloride	ND		310	62	ug/m3			12/03/15 23:16	14.8
Bromodichloromethane	ND		150	33	ug/m3			12/03/15 23:16	14.8
Bromoform	ND		310	54	ug/m3			12/03/15 23:16	14.8
Bromomethane	ND		230	96	ug/m3			12/03/15 23:16	14.8
2-Butanone (MEK)	ND		170	43	ug/m3			12/03/15 23:16	14.8
Carbon disulfide	120 J		180	18	ug/m3			12/03/15 23:16	14.8
Carbon tetrachloride	ND		370	30	ug/m3			12/03/15 23:16	14.8
Chlorobenzene	ND		100	22	ug/m3			12/03/15 23:16	14.8
Dibromochloromethane	ND		250	50	ug/m3			12/03/15 23:16	14.8
Chloroethane	1800		160	60	ug/m3			12/03/15 23:16	14.8
Chloroform	ND		110	34	ug/m3			12/03/15 23:16	14.8
Chloromethane	ND		120	30	ug/m3			12/03/15 23:16	14.8
1,2-Dibromoethane (EDB)	ND		450	43	ug/m3			12/03/15 23:16	14.8
1,2-Dichlorobenzene	ND		180	58	ug/m3			12/03/15 23:16	14.8
1,3-Dichlorobenzene	ND		180	49	ug/m3			12/03/15 23:16	14.8
1,4-Dichlorobenzene	ND		180	66	ug/m3			12/03/15 23:16	14.8

TestAmerica Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford Livonia Transmission Plant

TestAmerica Job ID: 320-16043-1

Client Sample ID: SVMP-15-02

Lab Sample ID: 320-16043-3

Date Collected: 11/16/15 17:45

Matrix: Air

Date Received: 11/19/15 10:10

Sample Container: Summa Canister 6L

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	ND		150	53	ug/m3			12/03/15 23:16	14.8
1,1-Dichloroethane	4700		90	22	ug/m3			12/03/15 23:16	14.8
1,2-Dichloroethane	ND		240	26	ug/m3			12/03/15 23:16	14.8
1,1-Dichloroethene	28 J		230	21	ug/m3			12/03/15 23:16	14.8
cis-1,2-Dichloroethene	64 J		120	26	ug/m3			12/03/15 23:16	14.8
trans-1,2-Dichloroethene	ND		120	29	ug/m3			12/03/15 23:16	14.8
1,2-Dichloropropane	ND		140	82	ug/m3			12/03/15 23:16	14.8
cis-1,3-Dichloropropene	ND		130	35	ug/m3			12/03/15 23:16	14.8
trans-1,3-Dichloropropene	ND		130	30	ug/m3			12/03/15 23:16	14.8
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		210	80	ug/m3			12/03/15 23:16	14.8
Ethylbenzene	ND		130	20	ug/m3			12/03/15 23:16	14.8
4-Ethyltoluene	ND		150	68	ug/m3			12/03/15 23:16	14.8
Hexachlorobutadiene	ND		1600	340	ug/m3			12/03/15 23:16	14.8
2-Hexanone	ND		120	26	ug/m3			12/03/15 23:16	14.8
Methylene Chloride	ND		100	19	ug/m3			12/03/15 23:16	14.8
4-Methyl-2-pentanone (MIBK)	ND		120	41	ug/m3			12/03/15 23:16	14.8
Styrene	ND		130	19	ug/m3			12/03/15 23:16	14.8
1,1,2,2-Tetrachloroethane	ND		200	35	ug/m3			12/03/15 23:16	14.8
Tetrachloroethene	ND		200	26	ug/m3			12/03/15 23:16	14.8
Toluene	ND		110	14	ug/m3			12/03/15 23:16	14.8
1,2,4-Trichlorobenzene	ND		1100	240	ug/m3			12/03/15 23:16	14.8
1,1,1-Trichloroethane	12000		120	26	ug/m3			12/03/15 23:16	14.8
1,1,2-Trichloroethane	ND		160	27	ug/m3			12/03/15 23:16	14.8
Trichloroethene	240		160	42	ug/m3			12/03/15 23:16	14.8
Trichlorofluoromethane	ND		170	81	ug/m3			12/03/15 23:16	14.8
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		230	92	ug/m3			12/03/15 23:16	14.8
1,2,4-Trimethylbenzene	ND		290	59	ug/m3			12/03/15 23:16	14.8
1,3,5-Trimethylbenzene	ND		150	45	ug/m3			12/03/15 23:16	14.8
Vinyl acetate	ND		210	38	ug/m3			12/03/15 23:16	14.8
Vinyl chloride	ND		76	23	ug/m3			12/03/15 23:16	14.8
m,p-Xylene	ND		260	32	ug/m3			12/03/15 23:16	14.8
o-Xylene	ND		130	17	ug/m3			12/03/15 23:16	14.8

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	84		70 - 130		12/03/15 23:16	14.8
1,2-Dichloroethane-d4 (Surr)	107		70 - 130		12/03/15 23:16	14.8
Toluene-d8 (Surr)	96		70 - 130		12/03/15 23:16	14.8

Client Sample ID: SVMP-15-03

Lab Sample ID: 320-16043-4

Date Collected: 11/17/15 15:27

Matrix: Air

Date Received: 11/19/15 10:10

Sample Container: Summa Canister 6L

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	24		24	2.1	ug/m3			12/04/15 00:08	1
Benzene	1.7 J		6.4	1.3	ug/m3			12/04/15 00:08	1
Benzyl chloride	ND		21	4.2	ug/m3			12/04/15 00:08	1
Bromodichloromethane	ND		10	2.2	ug/m3			12/04/15 00:08	1

TestAmerica Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford Livonia Transmission Plant

TestAmerica Job ID: 320-16043-1

Client Sample ID: SVMP-15-03

Lab Sample ID: 320-16043-4

Date Collected: 11/17/15 15:27

Matrix: Air

Date Received: 11/19/15 10:10

Sample Container: Summa Canister 6L

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromoform	ND		21	3.6	ug/m3			12/04/15 00:08	1
Bromomethane	ND		16	6.5	ug/m3			12/04/15 00:08	1
2-Butanone (MEK)	15		12	2.9	ug/m3			12/04/15 00:08	1
Carbon disulfide	2.2	J	12	1.2	ug/m3			12/04/15 00:08	1
Carbon tetrachloride	ND		25	2.0	ug/m3			12/04/15 00:08	1
Chlorobenzene	ND		6.9	1.5	ug/m3			12/04/15 00:08	1
Dibromochloromethane	ND		17	3.4	ug/m3			12/04/15 00:08	1
Chloroethane	ND		11	4.1	ug/m3			12/04/15 00:08	1
Chloroform	4.6	J	7.3	2.3	ug/m3			12/04/15 00:08	1
Chloromethane	ND		8.3	2.0	ug/m3			12/04/15 00:08	1
1,2-Dibromoethane (EDB)	ND		31	2.9	ug/m3			12/04/15 00:08	1
1,2-Dichlorobenzene	ND		12	3.9	ug/m3			12/04/15 00:08	1
1,3-Dichlorobenzene	ND		12	3.3	ug/m3			12/04/15 00:08	1
1,4-Dichlorobenzene	ND		12	4.5	ug/m3			12/04/15 00:08	1
Dichlorodifluoromethane	ND		9.9	3.6	ug/m3			12/04/15 00:08	1
1,1-Dichloroethane	3.1	J	6.1	1.5	ug/m3			12/04/15 00:08	1
1,2-Dichloroethane	ND		16	1.8	ug/m3			12/04/15 00:08	1
1,1-Dichloroethene	ND		16	1.4	ug/m3			12/04/15 00:08	1
cis-1,2-Dichloroethene	ND		7.9	1.8	ug/m3			12/04/15 00:08	1
trans-1,2-Dichloroethene	ND		7.9	2.0	ug/m3			12/04/15 00:08	1
1,2-Dichloropropane	ND		9.2	5.5	ug/m3			12/04/15 00:08	1
cis-1,3-Dichloropropene	ND		9.1	2.4	ug/m3			12/04/15 00:08	1
trans-1,3-Dichloropropene	ND		9.1	2.0	ug/m3			12/04/15 00:08	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		14	5.4	ug/m3			12/04/15 00:08	1
Ethylbenzene	3.2	J	8.7	1.4	ug/m3			12/04/15 00:08	1
4-Ethyltoluene	ND		9.8	4.6	ug/m3			12/04/15 00:08	1
Hexachlorobutadiene	ND		110	23	ug/m3			12/04/15 00:08	1
2-Hexanone	ND		8.2	1.8	ug/m3			12/04/15 00:08	1
Methylene Chloride	ND		6.9	1.3	ug/m3			12/04/15 00:08	1
4-Methyl-2-pentanone (MIBK)	ND		8.2	2.8	ug/m3			12/04/15 00:08	1
Styrene	ND		8.5	1.3	ug/m3			12/04/15 00:08	1
1,1,2,2-Tetrachloroethane	ND		14	2.4	ug/m3			12/04/15 00:08	1
Tetrachloroethene	7.3	J	14	1.7	ug/m3			12/04/15 00:08	1
Toluene	12		7.5	0.96	ug/m3			12/04/15 00:08	1
1,2,4-Trichlorobenzene	ND		74	16	ug/m3			12/04/15 00:08	1
1,1,1-Trichloroethane	8.5		8.2	1.8	ug/m3			12/04/15 00:08	1
1,1,2-Trichloroethane	ND		11	1.8	ug/m3			12/04/15 00:08	1
Trichloroethene	ND		11	2.8	ug/m3			12/04/15 00:08	1
Trichlorofluoromethane	ND		11	5.5	ug/m3			12/04/15 00:08	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		15	6.2	ug/m3			12/04/15 00:08	1
1,2,4-Trimethylbenzene	ND		20	4.0	ug/m3			12/04/15 00:08	1
1,3,5-Trimethylbenzene	ND		9.8	3.1	ug/m3			12/04/15 00:08	1
Vinyl acetate	ND		14	2.6	ug/m3			12/04/15 00:08	1
Vinyl chloride	ND		5.1	1.5	ug/m3			12/04/15 00:08	1
m,p-Xylene	11	J B	17	2.2	ug/m3			12/04/15 00:08	1
o-Xylene	2.6	J B	8.7	1.2	ug/m3			12/04/15 00:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		70 - 130		12/04/15 00:08	1

TestAmerica Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford Livonia Transmission Plant

TestAmerica Job ID: 320-16043-1

Client Sample ID: SVMP-15-03

Lab Sample ID: 320-16043-4

Date Collected: 11/17/15 15:27

Matrix: Air

Date Received: 11/19/15 10:10

Sample Container: Summa Canister 6L

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		70 - 130		12/04/15 00:08	1
Toluene-d8 (Surr)	99		70 - 130		12/04/15 00:08	1

Client Sample ID: SVMP-15-04

Lab Sample ID: 320-16043-5

Date Collected: 11/17/15 14:11

Matrix: Air

Date Received: 11/19/15 10:10

Sample Container: Summa Canister 6L

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	21	J	24	2.1	ug/m3			12/04/15 01:00	1
Benzene	1.6	J	6.4	1.3	ug/m3			12/04/15 01:00	1
Benzyl chloride	ND		21	4.2	ug/m3			12/04/15 01:00	1
Bromodichloromethane	ND		10	2.2	ug/m3			12/04/15 01:00	1
Bromoform	ND		21	3.6	ug/m3			12/04/15 01:00	1
Bromomethane	ND		16	6.5	ug/m3			12/04/15 01:00	1
2-Butanone (MEK)	5.1	J	12	2.9	ug/m3			12/04/15 01:00	1
Carbon disulfide	ND		12	1.2	ug/m3			12/04/15 01:00	1
Carbon tetrachloride	ND		25	2.0	ug/m3			12/04/15 01:00	1
Chlorobenzene	ND		6.9	1.5	ug/m3			12/04/15 01:00	1
Dibromochloromethane	ND		17	3.4	ug/m3			12/04/15 01:00	1
Chloroethane	ND		11	4.1	ug/m3			12/04/15 01:00	1
Chloroform	13		7.3	2.3	ug/m3			12/04/15 01:00	1
Chloromethane	ND		8.3	2.0	ug/m3			12/04/15 01:00	1
1,2-Dibromoethane (EDB)	ND		31	2.9	ug/m3			12/04/15 01:00	1
1,2-Dichlorobenzene	ND		12	3.9	ug/m3			12/04/15 01:00	1
1,3-Dichlorobenzene	ND		12	3.3	ug/m3			12/04/15 01:00	1
1,4-Dichlorobenzene	ND		12	4.5	ug/m3			12/04/15 01:00	1
Dichlorodifluoromethane	ND		9.9	3.6	ug/m3			12/04/15 01:00	1
1,1-Dichloroethane	ND		6.1	1.5	ug/m3			12/04/15 01:00	1
1,2-Dichloroethane	ND		16	1.8	ug/m3			12/04/15 01:00	1
1,1-Dichloroethene	ND		16	1.4	ug/m3			12/04/15 01:00	1
cis-1,2-Dichloroethene	ND		7.9	1.8	ug/m3			12/04/15 01:00	1
trans-1,2-Dichloroethene	ND		7.9	2.0	ug/m3			12/04/15 01:00	1
1,2-Dichloropropane	ND		9.2	5.5	ug/m3			12/04/15 01:00	1
cis-1,3-Dichloropropene	ND		9.1	2.4	ug/m3			12/04/15 01:00	1
trans-1,3-Dichloropropene	ND		9.1	2.0	ug/m3			12/04/15 01:00	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		14	5.4	ug/m3			12/04/15 01:00	1
Ethylbenzene	8.7		8.7	1.4	ug/m3			12/04/15 01:00	1
4-Ethyltoluene	9.2	J	9.8	4.6	ug/m3			12/04/15 01:00	1
Hexachlorobutadiene	ND		110	23	ug/m3			12/04/15 01:00	1
2-Hexanone	ND		8.2	1.8	ug/m3			12/04/15 01:00	1
Methylene Chloride	ND		6.9	1.3	ug/m3			12/04/15 01:00	1
4-Methyl-2-pentanone (MIBK)	ND		8.2	2.8	ug/m3			12/04/15 01:00	1
Styrene	ND		8.5	1.3	ug/m3			12/04/15 01:00	1
1,1,2,2-Tetrachloroethane	ND		14	2.4	ug/m3			12/04/15 01:00	1
Tetrachloroethene	ND		14	1.7	ug/m3			12/04/15 01:00	1
Toluene	19		7.5	0.96	ug/m3			12/04/15 01:00	1

TestAmerica Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford Livonia Transmission Plant

TestAmerica Job ID: 320-16043-1

Client Sample ID: SVMP-15-04

Lab Sample ID: 320-16043-5

Date Collected: 11/17/15 14:11

Matrix: Air

Date Received: 11/19/15 10:10

Sample Container: Summa Canister 6L

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		74	16	ug/m3			12/04/15 01:00	1
1,1,1-Trichloroethane	ND		8.2	1.8	ug/m3			12/04/15 01:00	1
1,1,2-Trichloroethane	ND		11	1.8	ug/m3			12/04/15 01:00	1
Trichloroethene	ND		11	2.8	ug/m3			12/04/15 01:00	1
Trichlorofluoromethane	ND		11	5.5	ug/m3			12/04/15 01:00	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		15	6.2	ug/m3			12/04/15 01:00	1
1,2,4-Trimethylbenzene	13	J	20	4.0	ug/m3			12/04/15 01:00	1
1,3,5-Trimethylbenzene	ND		9.8	3.1	ug/m3			12/04/15 01:00	1
Vinyl acetate	ND		14	2.6	ug/m3			12/04/15 01:00	1
Vinyl chloride	ND		5.1	1.5	ug/m3			12/04/15 01:00	1
m,p-Xylene	49	B	17	2.2	ug/m3			12/04/15 01:00	1
o-Xylene	12	B	8.7	1.2	ug/m3			12/04/15 01:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		70 - 130					12/04/15 01:00	1
1,2-Dichloroethane-d4 (Surr)	110		70 - 130					12/04/15 01:00	1
Toluene-d8 (Surr)	98		70 - 130					12/04/15 01:00	1

Client Sample ID: SVMP-15-05

Lab Sample ID: 320-16043-6

Date Collected: 11/17/15 13:01

Matrix: Air

Date Received: 11/19/15 10:10

Sample Container: Summa Canister 6L

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	17	J	24	2.1	ug/m3			12/04/15 01:52	1
Benzene	1.4	J	6.4	1.3	ug/m3			12/04/15 01:52	1
Benzyl chloride	ND		21	4.2	ug/m3			12/04/15 01:52	1
Bromodichloromethane	ND		10	2.2	ug/m3			12/04/15 01:52	1
Bromoform	ND		21	3.6	ug/m3			12/04/15 01:52	1
Bromomethane	ND		16	6.5	ug/m3			12/04/15 01:52	1
2-Butanone (MEK)	4.0	J	12	2.9	ug/m3			12/04/15 01:52	1
Carbon disulfide	ND		12	1.2	ug/m3			12/04/15 01:52	1
Carbon tetrachloride	ND		25	2.0	ug/m3			12/04/15 01:52	1
Chlorobenzene	ND		6.9	1.5	ug/m3			12/04/15 01:52	1
Dibromochloromethane	ND		17	3.4	ug/m3			12/04/15 01:52	1
Chloroethane	ND		11	4.1	ug/m3			12/04/15 01:52	1
Chloroform	16		7.3	2.3	ug/m3			12/04/15 01:52	1
Chloromethane	ND		8.3	2.0	ug/m3			12/04/15 01:52	1
1,2-Dibromoethane (EDB)	ND		31	2.9	ug/m3			12/04/15 01:52	1
1,2-Dichlorobenzene	ND		12	3.9	ug/m3			12/04/15 01:52	1
1,3-Dichlorobenzene	ND		12	3.3	ug/m3			12/04/15 01:52	1
1,4-Dichlorobenzene	ND		12	4.5	ug/m3			12/04/15 01:52	1
Dichlorodifluoromethane	ND		9.9	3.6	ug/m3			12/04/15 01:52	1
1,1-Dichloroethane	ND		6.1	1.5	ug/m3			12/04/15 01:52	1
1,2-Dichloroethane	ND		16	1.8	ug/m3			12/04/15 01:52	1
1,1-Dichloroethene	ND		16	1.4	ug/m3			12/04/15 01:52	1
cis-1,2-Dichloroethene	ND		7.9	1.8	ug/m3			12/04/15 01:52	1
trans-1,2-Dichloroethene	ND		7.9	2.0	ug/m3			12/04/15 01:52	1

TestAmerica Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford Livonia Transmission Plant

TestAmerica Job ID: 320-16043-1

Client Sample ID: SVMP-15-05

Lab Sample ID: 320-16043-6

Date Collected: 11/17/15 13:01

Matrix: Air

Date Received: 11/19/15 10:10

Sample Container: Summa Canister 6L

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloropropane	ND		9.2	5.5	ug/m3			12/04/15 01:52	1
cis-1,3-Dichloropropene	ND		9.1	2.4	ug/m3			12/04/15 01:52	1
trans-1,3-Dichloropropene	ND		9.1	2.0	ug/m3			12/04/15 01:52	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		14	5.4	ug/m3			12/04/15 01:52	1
Ethylbenzene	7.0	J	8.7	1.4	ug/m3			12/04/15 01:52	1
4-Ethyltoluene	6.8	J	9.8	4.6	ug/m3			12/04/15 01:52	1
Hexachlorobutadiene	ND		110	23	ug/m3			12/04/15 01:52	1
2-Hexanone	ND		8.2	1.8	ug/m3			12/04/15 01:52	1
Methylene Chloride	ND		6.9	1.3	ug/m3			12/04/15 01:52	1
4-Methyl-2-pentanone (MIBK)	ND		8.2	2.8	ug/m3			12/04/15 01:52	1
Styrene	ND		8.5	1.3	ug/m3			12/04/15 01:52	1
1,1,2,2-Tetrachloroethane	ND		14	2.4	ug/m3			12/04/15 01:52	1
Tetrachloroethene	4.0	J	14	1.7	ug/m3			12/04/15 01:52	1
Toluene	15		7.5	0.96	ug/m3			12/04/15 01:52	1
1,2,4-Trichlorobenzene	ND		74	16	ug/m3			12/04/15 01:52	1
1,1,1-Trichloroethane	ND		8.2	1.8	ug/m3			12/04/15 01:52	1
1,1,2-Trichloroethane	ND		11	1.8	ug/m3			12/04/15 01:52	1
Trichloroethene	ND		11	2.8	ug/m3			12/04/15 01:52	1
Trichlorofluoromethane	ND		11	5.5	ug/m3			12/04/15 01:52	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		15	6.2	ug/m3			12/04/15 01:52	1
1,2,4-Trimethylbenzene	11	J	20	4.0	ug/m3			12/04/15 01:52	1
1,3,5-Trimethylbenzene	ND		9.8	3.1	ug/m3			12/04/15 01:52	1
Vinyl acetate	ND		14	2.6	ug/m3			12/04/15 01:52	1
Vinyl chloride	ND		5.1	1.5	ug/m3			12/04/15 01:52	1
m,p-Xylene	37	B	17	2.2	ug/m3			12/04/15 01:52	1
o-Xylene	9.4	B	8.7	1.2	ug/m3			12/04/15 01:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		70 - 130					12/04/15 01:52	1
1,2-Dichloroethane-d4 (Surr)	106		70 - 130					12/04/15 01:52	1
Toluene-d8 (Surr)	94		70 - 130					12/04/15 01:52	1

Client Sample ID: SVMP-15-06

Lab Sample ID: 320-16043-7

Date Collected: 11/17/15 11:54

Matrix: Air

Date Received: 11/19/15 10:10

Sample Container: Summa Canister 6L

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	16	J	24	2.1	ug/m3			12/04/15 02:44	1
Benzene	2.1	J	6.4	1.3	ug/m3			12/04/15 02:44	1
Benzyl chloride	ND		21	4.2	ug/m3			12/04/15 02:44	1
Bromodichloromethane	ND		10	2.2	ug/m3			12/04/15 02:44	1
Bromoform	ND		21	3.6	ug/m3			12/04/15 02:44	1
Bromomethane	ND		16	6.5	ug/m3			12/04/15 02:44	1
2-Butanone (MEK)	ND		12	2.9	ug/m3			12/04/15 02:44	1
Carbon disulfide	ND		12	1.2	ug/m3			12/04/15 02:44	1
Carbon tetrachloride	ND		25	2.0	ug/m3			12/04/15 02:44	1
Chlorobenzene	ND		6.9	1.5	ug/m3			12/04/15 02:44	1

TestAmerica Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford Livonia Transmission Plant

TestAmerica Job ID: 320-16043-1

Client Sample ID: SVMP-15-06

Lab Sample ID: 320-16043-7

Date Collected: 11/17/15 11:54

Matrix: Air

Date Received: 11/19/15 10:10

Sample Container: Summa Canister 6L

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibromochloromethane	ND		17	3.4	ug/m3			12/04/15 02:44	1
Chloroethane	ND		11	4.1	ug/m3			12/04/15 02:44	1
Chloroform	3.0	J	7.3	2.3	ug/m3			12/04/15 02:44	1
Chloromethane	ND		8.3	2.0	ug/m3			12/04/15 02:44	1
1,2-Dibromoethane (EDB)	ND		31	2.9	ug/m3			12/04/15 02:44	1
1,2-Dichlorobenzene	ND		12	3.9	ug/m3			12/04/15 02:44	1
1,3-Dichlorobenzene	ND		12	3.3	ug/m3			12/04/15 02:44	1
1,4-Dichlorobenzene	ND		12	4.5	ug/m3			12/04/15 02:44	1
Dichlorodifluoromethane	ND		9.9	3.6	ug/m3			12/04/15 02:44	1
1,1-Dichloroethane	ND		6.1	1.5	ug/m3			12/04/15 02:44	1
1,2-Dichloroethane	ND		16	1.8	ug/m3			12/04/15 02:44	1
1,1-Dichloroethene	ND		16	1.4	ug/m3			12/04/15 02:44	1
cis-1,2-Dichloroethene	ND		7.9	1.8	ug/m3			12/04/15 02:44	1
trans-1,2-Dichloroethene	ND		7.9	2.0	ug/m3			12/04/15 02:44	1
1,2-Dichloropropane	ND		9.2	5.5	ug/m3			12/04/15 02:44	1
cis-1,3-Dichloropropene	ND		9.1	2.4	ug/m3			12/04/15 02:44	1
trans-1,3-Dichloropropene	ND		9.1	2.0	ug/m3			12/04/15 02:44	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		14	5.4	ug/m3			12/04/15 02:44	1
Ethylbenzene	8.2	J	8.7	1.4	ug/m3			12/04/15 02:44	1
4-Ethyltoluene	4.8	J	9.8	4.6	ug/m3			12/04/15 02:44	1
Hexachlorobutadiene	ND		110	23	ug/m3			12/04/15 02:44	1
2-Hexanone	ND		8.2	1.8	ug/m3			12/04/15 02:44	1
Methylene Chloride	ND		6.9	1.3	ug/m3			12/04/15 02:44	1
4-Methyl-2-pentanone (MIBK)	ND		8.2	2.8	ug/m3			12/04/15 02:44	1
Styrene	ND		8.5	1.3	ug/m3			12/04/15 02:44	1
1,1,2,2-Tetrachloroethane	ND		14	2.4	ug/m3			12/04/15 02:44	1
Tetrachloroethene	ND		14	1.7	ug/m3			12/04/15 02:44	1
Toluene	22		7.5	0.96	ug/m3			12/04/15 02:44	1
1,2,4-Trichlorobenzene	ND		74	16	ug/m3			12/04/15 02:44	1
1,1,1-Trichloroethane	2.9	J	8.2	1.8	ug/m3			12/04/15 02:44	1
1,1,2-Trichloroethane	ND		11	1.8	ug/m3			12/04/15 02:44	1
Trichloroethene	ND		11	2.8	ug/m3			12/04/15 02:44	1
Trichlorofluoromethane	7.7	J	11	5.5	ug/m3			12/04/15 02:44	1
1,1,2-Trichloro-1,2,2-trifluoroethane	48		15	6.2	ug/m3			12/04/15 02:44	1
1,2,4-Trimethylbenzene	7.8	J	20	4.0	ug/m3			12/04/15 02:44	1
1,3,5-Trimethylbenzene	ND		9.8	3.1	ug/m3			12/04/15 02:44	1
Vinyl acetate	ND		14	2.6	ug/m3			12/04/15 02:44	1
Vinyl chloride	ND		5.1	1.5	ug/m3			12/04/15 02:44	1
m,p-Xylene	41	B	17	2.2	ug/m3			12/04/15 02:44	1
o-Xylene	9.5	B	8.7	1.2	ug/m3			12/04/15 02:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		70 - 130					12/04/15 02:44	1
1,2-Dichloroethane-d4 (Surr)	109		70 - 130					12/04/15 02:44	1
Toluene-d8 (Surr)	95		70 - 130					12/04/15 02:44	1

TestAmerica Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford Livonia Transmission Plant

TestAmerica Job ID: 320-16043-1

Client Sample ID: SVMP-15-07

Lab Sample ID: 320-16043-8

Date Collected: 11/17/15 10:38

Matrix: Air

Date Received: 11/19/15 10:10

Sample Container: Summa Canister 6L

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	6.9	J	24	2.1	ug/m3			12/04/15 03:36	1
Benzene	1.7	J	6.4	1.3	ug/m3			12/04/15 03:36	1
Benzyl chloride	ND		21	4.2	ug/m3			12/04/15 03:36	1
Bromodichloromethane	ND		10	2.2	ug/m3			12/04/15 03:36	1
Bromoform	ND		21	3.6	ug/m3			12/04/15 03:36	1
Bromomethane	ND		16	6.5	ug/m3			12/04/15 03:36	1
2-Butanone (MEK)	ND		12	2.9	ug/m3			12/04/15 03:36	1
Carbon disulfide	ND		12	1.2	ug/m3			12/04/15 03:36	1
Carbon tetrachloride	ND		25	2.0	ug/m3			12/04/15 03:36	1
Chlorobenzene	ND		6.9	1.5	ug/m3			12/04/15 03:36	1
Dibromochloromethane	ND		17	3.4	ug/m3			12/04/15 03:36	1
Chloroethane	ND		11	4.1	ug/m3			12/04/15 03:36	1
Chloroform	ND		7.3	2.3	ug/m3			12/04/15 03:36	1
Chloromethane	ND		8.3	2.0	ug/m3			12/04/15 03:36	1
1,2-Dibromoethane (EDB)	ND		31	2.9	ug/m3			12/04/15 03:36	1
1,2-Dichlorobenzene	ND		12	3.9	ug/m3			12/04/15 03:36	1
1,3-Dichlorobenzene	ND		12	3.3	ug/m3			12/04/15 03:36	1
1,4-Dichlorobenzene	ND		12	4.5	ug/m3			12/04/15 03:36	1
Dichlorodifluoromethane	ND		9.9	3.6	ug/m3			12/04/15 03:36	1
1,1-Dichloroethane	ND		6.1	1.5	ug/m3			12/04/15 03:36	1
1,2-Dichloroethane	ND		16	1.8	ug/m3			12/04/15 03:36	1
1,1-Dichloroethene	ND		16	1.4	ug/m3			12/04/15 03:36	1
cis-1,2-Dichloroethene	ND		7.9	1.8	ug/m3			12/04/15 03:36	1
trans-1,2-Dichloroethene	ND		7.9	2.0	ug/m3			12/04/15 03:36	1
1,2-Dichloropropane	ND		9.2	5.5	ug/m3			12/04/15 03:36	1
cis-1,3-Dichloropropene	ND		9.1	2.4	ug/m3			12/04/15 03:36	1
trans-1,3-Dichloropropene	ND		9.1	2.0	ug/m3			12/04/15 03:36	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		14	5.4	ug/m3			12/04/15 03:36	1
Ethylbenzene	8.6	J	8.7	1.4	ug/m3			12/04/15 03:36	1
4-Ethyltoluene	5.5	J	9.8	4.6	ug/m3			12/04/15 03:36	1
Hexachlorobutadiene	ND		110	23	ug/m3			12/04/15 03:36	1
2-Hexanone	ND		8.2	1.8	ug/m3			12/04/15 03:36	1
Methylene Chloride	ND		6.9	1.3	ug/m3			12/04/15 03:36	1
4-Methyl-2-pentanone (MIBK)	ND		8.2	2.8	ug/m3			12/04/15 03:36	1
Styrene	ND		8.5	1.3	ug/m3			12/04/15 03:36	1
1,1,2,2-Tetrachloroethane	ND		14	2.4	ug/m3			12/04/15 03:36	1
Tetrachloroethene	ND		14	1.7	ug/m3			12/04/15 03:36	1
Toluene	25		7.5	0.96	ug/m3			12/04/15 03:36	1
1,2,4-Trichlorobenzene	ND		74	16	ug/m3			12/04/15 03:36	1
1,1,1-Trichloroethane	ND		8.2	1.8	ug/m3			12/04/15 03:36	1
1,1,2-Trichloroethane	ND		11	1.8	ug/m3			12/04/15 03:36	1
Trichloroethene	ND		11	2.8	ug/m3			12/04/15 03:36	1
Trichlorofluoromethane	ND		11	5.5	ug/m3			12/04/15 03:36	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		15	6.2	ug/m3			12/04/15 03:36	1
1,2,4-Trimethylbenzene	9.2	J	20	4.0	ug/m3			12/04/15 03:36	1
1,3,5-Trimethylbenzene	ND		9.8	3.1	ug/m3			12/04/15 03:36	1
Vinyl acetate	ND		14	2.6	ug/m3			12/04/15 03:36	1
Vinyl chloride	ND		5.1	1.5	ug/m3			12/04/15 03:36	1

TestAmerica Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford Livonia Transmission Plant

TestAmerica Job ID: 320-16043-1

Client Sample ID: SVMP-15-07

Lab Sample ID: 320-16043-8

Date Collected: 11/17/15 10:38

Matrix: Air

Date Received: 11/19/15 10:10

Sample Container: Summa Canister 6L

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m,p-Xylene	41	B	17	2.2	ug/m3			12/04/15 03:36	1
o-Xylene	9.6	B	8.7	1.2	ug/m3			12/04/15 03:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		70 - 130					12/04/15 03:36	1
1,2-Dichloroethane-d4 (Surr)	108		70 - 130					12/04/15 03:36	1
Toluene-d8 (Surr)	96		70 - 130					12/04/15 03:36	1

Client Sample ID: SVMP-15-08

Lab Sample ID: 320-16043-9

Date Collected: 11/17/15 09:25

Matrix: Air

Date Received: 11/19/15 10:10

Sample Container: Summa Canister 6L

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		2300	210	ug/m3			12/04/15 04:28	97.1
Benzene	ND		620	120	ug/m3			12/04/15 04:28	97.1
Benzyl chloride	ND		2000	410	ug/m3			12/04/15 04:28	97.1
Bromodichloromethane	ND		980	210	ug/m3			12/04/15 04:28	97.1
Bromoform	ND		2000	350	ug/m3			12/04/15 04:28	97.1
Bromomethane	ND		1500	630	ug/m3			12/04/15 04:28	97.1
2-Butanone (MEK)	ND		1100	280	ug/m3			12/04/15 04:28	97.1
Carbon disulfide	ND		1200	120	ug/m3			12/04/15 04:28	97.1
Carbon tetrachloride	ND		2400	200	ug/m3			12/04/15 04:28	97.1
Chlorobenzene	ND		670	140	ug/m3			12/04/15 04:28	97.1
Dibromochloromethane	ND		1700	330	ug/m3			12/04/15 04:28	97.1
Chloroethane	ND		1000	390	ug/m3			12/04/15 04:28	97.1
Chloroform	ND		710	230	ug/m3			12/04/15 04:28	97.1
Chloromethane	ND		800	200	ug/m3			12/04/15 04:28	97.1
1,2-Dibromoethane (EDB)	ND		3000	280	ug/m3			12/04/15 04:28	97.1
1,2-Dichlorobenzene	ND		1200	380	ug/m3			12/04/15 04:28	97.1
1,3-Dichlorobenzene	ND		1200	320	ug/m3			12/04/15 04:28	97.1
1,4-Dichlorobenzene	ND		1200	430	ug/m3			12/04/15 04:28	97.1
Dichlorodifluoromethane	ND		960	350	ug/m3			12/04/15 04:28	97.1
1,1-Dichloroethane	ND		590	140	ug/m3			12/04/15 04:28	97.1
1,2-Dichloroethane	ND		1600	170	ug/m3			12/04/15 04:28	97.1
1,1-Dichloroethene	ND		1500	140	ug/m3			12/04/15 04:28	97.1
cis-1,2-Dichloroethene	ND		770	170	ug/m3			12/04/15 04:28	97.1
trans-1,2-Dichloroethene	1300		770	190	ug/m3			12/04/15 04:28	97.1
1,2-Dichloropropane	ND		900	540	ug/m3			12/04/15 04:28	97.1
cis-1,3-Dichloropropene	ND		880	230	ug/m3			12/04/15 04:28	97.1
trans-1,3-Dichloropropene	ND		880	190	ug/m3			12/04/15 04:28	97.1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		1400	530	ug/m3			12/04/15 04:28	97.1
Ethylbenzene	ND		840	130	ug/m3			12/04/15 04:28	97.1
4-Ethyltoluene	ND		950	450	ug/m3			12/04/15 04:28	97.1
Hexachlorobutadiene	ND		10000	2200	ug/m3			12/04/15 04:28	97.1
2-Hexanone	ND		800	170	ug/m3			12/04/15 04:28	97.1
Methylene Chloride	ND		670	120	ug/m3			12/04/15 04:28	97.1
4-Methyl-2-pentanone (MIBK)	ND		800	270	ug/m3			12/04/15 04:28	97.1

TestAmerica Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford Livonia Transmission Plant

TestAmerica Job ID: 320-16043-1

Client Sample ID: SVMP-15-08

Lab Sample ID: 320-16043-9

Date Collected: 11/17/15 09:25

Matrix: Air

Date Received: 11/19/15 10:10

Sample Container: Summa Canister 6L

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Styrene	ND		830	120	ug/m3			12/04/15 04:28	97.1
1,1,2,2-Tetrachloroethane	ND		1300	230	ug/m3			12/04/15 04:28	97.1
Tetrachloroethene	ND		1300	170	ug/m3			12/04/15 04:28	97.1
Toluene	ND		730	93	ug/m3			12/04/15 04:28	97.1
1,2,4-Trichlorobenzene	ND		7200	1600	ug/m3			12/04/15 04:28	97.1
1,1,1-Trichloroethane	ND		790	170	ug/m3			12/04/15 04:28	97.1
1,1,2-Trichloroethane	ND		1100	180	ug/m3			12/04/15 04:28	97.1
Trichloroethene	39000		1000	270	ug/m3			12/04/15 04:28	97.1
Trichlorofluoromethane	ND		1100	530	ug/m3			12/04/15 04:28	97.1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1500	610	ug/m3			12/04/15 04:28	97.1
1,2,4-Trimethylbenzene	ND		1900	390	ug/m3			12/04/15 04:28	97.1
1,3,5-Trimethylbenzene	ND		950	300	ug/m3			12/04/15 04:28	97.1
Vinyl acetate	ND		1400	250	ug/m3			12/04/15 04:28	97.1
Vinyl chloride	ND		500	150	ug/m3			12/04/15 04:28	97.1
m,p-Xylene	ND		1700	210	ug/m3			12/04/15 04:28	97.1
o-Xylene	ND		840	110	ug/m3			12/04/15 04:28	97.1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	72		70 - 130		12/04/15 04:28	97.1
1,2-Dichloroethane-d4 (Surr)	108		70 - 130		12/04/15 04:28	97.1
Toluene-d8 (Surr)	98		70 - 130		12/04/15 04:28	97.1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford Livonia Transmission Plant

TestAmerica Job ID: 320-16043-1

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air

Matrix: Air

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB	12DCE	TOL
		(70-130)	(70-130)	(70-130)
320-16043-1	SSMP-10R-02(111515)	89	108	95
320-16043-2	SVMP-15-01(111615)	93	105	93
320-16043-3	SVMP-15-02	84	107	96
320-16043-4	SVMP-15-03	90	104	99
320-16043-5	SVMP-15-04	95	110	98
320-16043-6	SVMP-15-05	96	106	94
320-16043-7	SVMP-15-06	96	109	95
320-16043-8	SVMP-15-07	95	108	96
320-16043-9	SVMP-15-08	72	108	98
LCS 320-94402/4	Lab Control Sample	109	113	95
MB 320-94402/7	Method Blank	90	105	94

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

12DCE = 1,2-Dichloroethane-d4 (Surr)

TOL = Toluene-d8 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford Livonia Transmission Plant

TestAmerica Job ID: 320-16043-1

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air

Lab Sample ID: MB 320-94402/7

Matrix: Air

Analysis Batch: 94402

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		24	2.1	ug/m3			12/03/15 20:40	1
Benzene	ND		6.4	1.3	ug/m3			12/03/15 20:40	1
Benzyl chloride	ND		21	4.2	ug/m3			12/03/15 20:40	1
Bromodichloromethane	ND		10	2.2	ug/m3			12/03/15 20:40	1
Bromoform	ND		21	3.6	ug/m3			12/03/15 20:40	1
Bromomethane	ND		16	6.5	ug/m3			12/03/15 20:40	1
2-Butanone (MEK)	ND		12	2.9	ug/m3			12/03/15 20:40	1
Carbon disulfide	ND		12	1.2	ug/m3			12/03/15 20:40	1
Carbon tetrachloride	ND		25	2.0	ug/m3			12/03/15 20:40	1
Chlorobenzene	ND		6.9	1.5	ug/m3			12/03/15 20:40	1
Dibromochloromethane	ND		17	3.4	ug/m3			12/03/15 20:40	1
Chloroethane	ND		11	4.1	ug/m3			12/03/15 20:40	1
Chloroform	ND		7.3	2.3	ug/m3			12/03/15 20:40	1
Chloromethane	ND		8.3	2.0	ug/m3			12/03/15 20:40	1
1,2-Dibromoethane (EDB)	ND		31	2.9	ug/m3			12/03/15 20:40	1
1,2-Dichlorobenzene	ND		12	3.9	ug/m3			12/03/15 20:40	1
1,3-Dichlorobenzene	ND		12	3.3	ug/m3			12/03/15 20:40	1
1,4-Dichlorobenzene	ND		12	4.5	ug/m3			12/03/15 20:40	1
Dichlorodifluoromethane	ND		9.9	3.6	ug/m3			12/03/15 20:40	1
1,1-Dichloroethane	ND		6.1	1.5	ug/m3			12/03/15 20:40	1
1,2-Dichloroethane	ND		16	1.8	ug/m3			12/03/15 20:40	1
1,1-Dichloroethene	ND		16	1.4	ug/m3			12/03/15 20:40	1
cis-1,2-Dichloroethene	ND		7.9	1.8	ug/m3			12/03/15 20:40	1
trans-1,2-Dichloroethene	ND		7.9	2.0	ug/m3			12/03/15 20:40	1
1,2-Dichloropropane	ND		9.2	5.5	ug/m3			12/03/15 20:40	1
cis-1,3-Dichloropropene	ND		9.1	2.4	ug/m3			12/03/15 20:40	1
trans-1,3-Dichloropropene	ND		9.1	2.0	ug/m3			12/03/15 20:40	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		14	5.4	ug/m3			12/03/15 20:40	1
Ethylbenzene	ND		8.7	1.4	ug/m3			12/03/15 20:40	1
4-Ethyltoluene	ND		9.8	4.6	ug/m3			12/03/15 20:40	1
Hexachlorobutadiene	ND		110	23	ug/m3			12/03/15 20:40	1
2-Hexanone	ND		8.2	1.8	ug/m3			12/03/15 20:40	1
Methylene Chloride	ND		6.9	1.3	ug/m3			12/03/15 20:40	1
4-Methyl-2-pentanone (MIBK)	ND		8.2	2.8	ug/m3			12/03/15 20:40	1
Styrene	ND		8.5	1.3	ug/m3			12/03/15 20:40	1
1,1,2,2-Tetrachloroethane	ND		14	2.4	ug/m3			12/03/15 20:40	1
Tetrachloroethene	ND		14	1.7	ug/m3			12/03/15 20:40	1
Toluene	ND		7.5	0.96	ug/m3			12/03/15 20:40	1
1,2,4-Trichlorobenzene	ND		74	16	ug/m3			12/03/15 20:40	1
1,1,1-Trichloroethane	ND		8.2	1.8	ug/m3			12/03/15 20:40	1
1,1,2-Trichloroethane	ND		11	1.8	ug/m3			12/03/15 20:40	1
Trichloroethene	ND		11	2.8	ug/m3			12/03/15 20:40	1
Trichlorofluoromethane	ND		11	5.5	ug/m3			12/03/15 20:40	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		15	6.2	ug/m3			12/03/15 20:40	1
1,2,4-Trimethylbenzene	ND		20	4.0	ug/m3			12/03/15 20:40	1
1,3,5-Trimethylbenzene	ND		9.8	3.1	ug/m3			12/03/15 20:40	1
Vinyl acetate	ND		14	2.6	ug/m3			12/03/15 20:40	1
Vinyl chloride	ND		5.1	1.5	ug/m3			12/03/15 20:40	1

TestAmerica Sacramento

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford Livonia Transmission Plant

TestAmerica Job ID: 320-16043-1

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 320-94402/7

Matrix: Air

Analysis Batch: 94402

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m,p-Xylene	2.38	J	17	2.2	ug/m3			12/03/15 20:40	1
o-Xylene	1.38	J	8.7	1.2	ug/m3			12/03/15 20:40	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		70 - 130		12/03/15 20:40	1
1,2-Dichloroethane-d4 (Surr)	105		70 - 130		12/03/15 20:40	1
Toluene-d8 (Surr)	94		70 - 130		12/03/15 20:40	1

Lab Sample ID: LCS 320-94402/4

Matrix: Air

Analysis Batch: 94402

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	238	241		ug/m3		102	71 - 131
Benzene	319	261		ug/m3		82	68 - 128
Benzyl chloride	518	387		ug/m3		75	58 - 120
Bromodichloromethane	670	630		ug/m3		94	65 - 130
Bromoform	1030	1080		ug/m3		104	64 - 144
Bromomethane	388	358		ug/m3		92	70 - 131
2-Butanone (MEK)	295	279		ug/m3		95	71 - 131
Carbon disulfide	311	245		ug/m3		79	63 - 123
Carbon tetrachloride	629	678		ug/m3		108	67 - 127
Chlorobenzene	460	439		ug/m3		95	70 - 132
Dibromochloromethane	852	842		ug/m3		99	68 - 128
Chloroethane	264	248		ug/m3		94	70 - 131
Chloroform	488	456		ug/m3		93	69 - 129
Chloromethane	207	187		ug/m3		90	67 - 127
1,2-Dibromoethane (EDB)	768	715		ug/m3		93	68 - 131
1,2-Dichlorobenzene	601	663		ug/m3		110	73 - 143
1,3-Dichlorobenzene	601	698		ug/m3		116	77 - 136
1,4-Dichlorobenzene	601	766		ug/m3		127	73 - 143
Dichlorodifluoromethane	495	468		ug/m3		95	69 - 129
1,1-Dichloroethane	405	327		ug/m3		81	65 - 125
1,2-Dichloroethane	405	422		ug/m3		104	71 - 131
1,1-Dichloroethene	396	327		ug/m3		83	53 - 128
cis-1,2-Dichloroethene	396	337		ug/m3		85	68 - 128
trans-1,2-Dichloroethene	396	343		ug/m3		86	70 - 130
1,2-Dichloropropane	462	488		ug/m3		106	74 - 128
cis-1,3-Dichloropropene	454	434		ug/m3		96	78 - 132
trans-1,3-Dichloropropene	454	389		ug/m3		86	56 - 136
1,2-Dichloro-1,1,2,2-tetrafluoroethane	699	692		ug/m3		99	64 - 124
Ethylbenzene	434	416		ug/m3		96	76 - 136
4-Ethyltoluene	492	494		ug/m3		101	62 - 136
Hexachlorobutadiene	1070	956		ug/m3		90	42 - 150
2-Hexanone	410	426		ug/m3		104	70 - 128
Methylene Chloride	347	284		ug/m3		82	65 - 125
4-Methyl-2-pentanone (MIBK)	410	446		ug/m3		109	73 - 133

TestAmerica Sacramento

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford Livonia Transmission Plant

TestAmerica Job ID: 320-16043-1

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 320-94402/4

Matrix: Air

Analysis Batch: 94402

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Styrene	426	439		ug/m3		103	76 - 144
1,1,2,2-Tetrachloroethane	687	603		ug/m3		88	75 - 135
Tetrachloroethene	678	653		ug/m3		96	56 - 138
Toluene	377	343		ug/m3		91	71 - 132
1,2,4-Trichlorobenzene	742	827		ug/m3		111	59 - 150
1,1,1-Trichloroethane	546	527		ug/m3		97	65 - 124
1,1,2-Trichloroethane	546	506		ug/m3		93	71 - 131
Trichloroethene	537	507		ug/m3		94	64 - 127
Trichlorofluoromethane	562	585		ug/m3		104	68 - 128
1,1,2-Trichloro-1,2,2-trifluoroethane	766	633		ug/m3		83	50 - 132
1,2,4-Trimethylbenzene	492	617		ug/m3		125	61 - 145
1,3,5-Trimethylbenzene	492	507		ug/m3		103	65 - 136
Vinyl acetate	352	383		ug/m3		109	77 - 134
Vinyl chloride	256	236		ug/m3		92	69 - 129
m,p-Xylene	868	885		ug/m3		102	75 - 138
o-Xylene	434	445		ug/m3		102	77 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	109		70 - 130
1,2-Dichloroethane-d4 (Surr)	113		70 - 130
Toluene-d8 (Surr)	95		70 - 130

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford Livonia Transmission Plant

TestAmerica Job ID: 320-16043-1

Air - GC/MS VOA

Analysis Batch: 94402

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-16043-1	SSMP-10R-02(111515)	Total/NA	Air	TO-15 MOD	
320-16043-2	SVMP-15-01(111615)	Total/NA	Air	TO-15 MOD	
320-16043-3	SVMP-15-02	Total/NA	Air	TO-15 MOD	
320-16043-4	SVMP-15-03	Total/NA	Air	TO-15 MOD	
320-16043-5	SVMP-15-04	Total/NA	Air	TO-15 MOD	
320-16043-6	SVMP-15-05	Total/NA	Air	TO-15 MOD	
320-16043-7	SVMP-15-06	Total/NA	Air	TO-15 MOD	
320-16043-8	SVMP-15-07	Total/NA	Air	TO-15 MOD	
320-16043-9	SVMP-15-08	Total/NA	Air	TO-15 MOD	
LCS 320-94402/4	Lab Control Sample	Total/NA	Air	TO-15 MOD	
MB 320-94402/7	Method Blank	Total/NA	Air	TO-15 MOD	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford Livonia Transmission Plant

TestAmerica Job ID: 320-16043-1

Client Sample ID: SSMP-10R-02(111515)

Lab Sample ID: 320-16043-1

Date Collected: 11/16/15 10:51

Matrix: Air

Date Received: 11/19/15 10:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15 MOD		6	50 mL	250 mL	94402	12/03/15 21:32	AP1	TAL SAC

Client Sample ID: SVMP-15-01(111615)

Lab Sample ID: 320-16043-2

Date Collected: 11/16/15 16:12

Matrix: Air

Date Received: 11/19/15 10:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15 MOD		1	50 mL	250 mL	94402	12/03/15 22:24	AP1	TAL SAC

Client Sample ID: SVMP-15-02

Lab Sample ID: 320-16043-3

Date Collected: 11/16/15 17:45

Matrix: Air

Date Received: 11/19/15 10:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15 MOD		14.8	50 mL	250 mL	94402	12/03/15 23:16	AP1	TAL SAC

Client Sample ID: SVMP-15-03

Lab Sample ID: 320-16043-4

Date Collected: 11/17/15 15:27

Matrix: Air

Date Received: 11/19/15 10:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15 MOD		1	50 mL	250 mL	94402	12/04/15 00:08	AP1	TAL SAC

Client Sample ID: SVMP-15-04

Lab Sample ID: 320-16043-5

Date Collected: 11/17/15 14:11

Matrix: Air

Date Received: 11/19/15 10:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15 MOD		1	50 mL	250 mL	94402	12/04/15 01:00	AP1	TAL SAC

Client Sample ID: SVMP-15-05

Lab Sample ID: 320-16043-6

Date Collected: 11/17/15 13:01

Matrix: Air

Date Received: 11/19/15 10:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15 MOD		1	50 mL	250 mL	94402	12/04/15 01:52	AP1	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford Livonia Transmission Plant

TestAmerica Job ID: 320-16043-1

Client Sample ID: SVMP-15-06

Date Collected: 11/17/15 11:54

Date Received: 11/19/15 10:10

Lab Sample ID: 320-16043-7

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15 MOD		1	50 mL	250 mL	94402	12/04/15 02:44	AP1	TAL SAC

Client Sample ID: SVMP-15-07

Date Collected: 11/17/15 10:38

Date Received: 11/19/15 10:10

Lab Sample ID: 320-16043-8

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15 MOD		1	50 mL	250 mL	94402	12/04/15 03:36	AP1	TAL SAC

Client Sample ID: SVMP-15-08

Date Collected: 11/17/15 09:25

Date Received: 11/19/15 10:10

Lab Sample ID: 320-16043-9

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15 MOD		97.1	50 mL	250 mL	94402	12/04/15 04:28	AP1	TAL SAC

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Certification Summary

Client: ARCADIS U.S., Inc.
 Project/Site: Ford Livonia Transmission Plant

TestAmerica Job ID: 320-16043-1

Laboratory: TestAmerica Sacramento

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2928-01	01-31-16
Alaska (UST)	State Program	10	UST-055	12-18-16
Arizona	State Program	9	AZ0708	08-11-16
Arkansas DEQ	State Program	6	88-0691	06-17-16
California	State Program	9	2897	01-31-16
Colorado	State Program	8	N/A	08-31-16
Connecticut	State Program	1	PH-0691	06-30-17
Florida	NELAP	4	E87570	06-30-16
Hawaii	State Program	9	N/A	01-29-16
Illinois	NELAP	5	200060	03-17-16
Kansas	NELAP	7	E-10375	01-31-16
Louisiana	NELAP	6	30612	06-30-16
Michigan	State Program	5	9947	01-31-16
Nevada	State Program	9	CA44	07-31-16
New Jersey	NELAP	2	CA005	06-30-16
New York	NELAP	2	11666	04-01-16
Oregon	NELAP	10	CA200005	01-29-16
Pennsylvania	NELAP	3	9947	03-31-16
Texas	NELAP	6	T104704399-15-9	05-31-16
US Fish & Wildlife	Federal		LE148388-0	02-28-16
USDA	Federal		P330-11-00436	12-30-17
USEPA UCMR	Federal	1	CA00044	11-06-16
Utah	NELAP	8	QUAN1	02-28-16
Virginia	NELAP Secondary AB	3	460278	03-14-16
Washington	State Program	10	C581	05-04-16
West Virginia (DW)	State Program	3	9930C	12-31-15
Wyoming	State Program	8	8TMS-Q	01-29-16

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford Livonia Transmission Plant

TestAmerica Job ID: 320-16043-1

Method	Method Description	Protocol	Laboratory
TO-15 MOD	Volatile Organic Compounds in Ambient Air	EPA	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

- 1
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- 15

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford Livonia Transmission Plant

TestAmerica Job ID: 320-16043-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-16043-1	SSMP-10R-02(111515)	Air	11/16/15 10:51	11/19/15 10:10
320-16043-2	SVMP-15-01(111615)	Air	11/16/15 16:12	11/19/15 10:10
320-16043-3	SVMP-15-02	Air	11/16/15 17:45	11/19/15 10:10
320-16043-4	SVMP-15-03	Air	11/17/15 15:27	11/19/15 10:10
320-16043-5	SVMP-15-04	Air	11/17/15 14:11	11/19/15 10:10
320-16043-6	SVMP-15-05	Air	11/17/15 13:01	11/19/15 10:10
320-16043-7	SVMP-15-06	Air	11/17/15 11:54	11/19/15 10:10
320-16043-8	SVMP-15-07	Air	11/17/15 10:38	11/19/15 10:10
320-16043-9	SVMP-15-08	Air	11/17/15 09:25	11/19/15 10:10



TestAmerica Sacramento
880 Riverside Parkway

West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467.7248

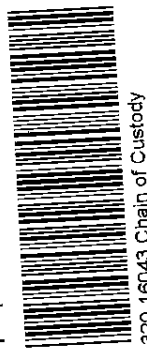
Canister Samples Chain of Custody Record

TestAmerica Laboratories, Inc. assumes no liability with respect to the collection and shipment of these samples.



TestAmerica Laboratories, Inc.

Client Contact Information		Project Manager: Lori Lever		Samples Collected By: Kaitlyn Trestroll		COC No. 1 of 1 COCs															
Company Name: Arcadis of Michigan		Phone: 916-374-4362		Other (Please specify in notes section)		For Lab Use Only:															
Address: 28550 Cabot Dr, Suite 500		Email:		Landfill Gas		Walk-in Client															
City/State/Zip: Novi, MI 48377		Site Contact: Patrick Curry 734.355.2809		Soil Gas		Lab Sampling:															
Phone: 248-994-2240		TA Contact: Kris Hinskey 269.832.7478		Ambient Air		Job / SDG No.															
FAX: 248-994-2241		Analysis Turnaround Time		Indoor Air		(See below for Add'l Items)															
Site/Location: Livonia, MI		Standard (Specific): Business Days		Sample Type		Sample Specific Notes:															
P.O. # M1001304.0001 00003		Rush (Specify):		Other (Please specify in notes section)																	
Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, 'Hg (Start)	Canister Vacuum in Field, 'Hg (Stop)	Flow Controller ID	Canister ID	TO-15 (Med / Std / Low / SIM)	MA-APH	EPA 3C	EPA 25C / 25.3	ASTM D-1946 / 1945 / 3588	EPA 15/16	TO-3	Other (Please specify in notes section)	Ambient Air	Indoor Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)	
																					Temperature (Fahrenheit) Ambient
SSMP-10R-02(111615)	11/16/2015	1012	1051	-30	-10	7502	NA	X													
SVMP-15-01(111615)	11/16/15	1510	1612	-30	-7	7445	12633	X													
SVMP-16-02	11/16/15	1650	1745	-30	-5	7375	6556	X													
SVMP-15-03	11/17/15	1431	1527	-29	-5	7214	1025	X													
SVMP-16-04	11/17/15	1321	1411	-29	-5	7233	1081C	X													
SVMP-15-05	11/17/15	1217	1301	-30	-5	7231	C8480	X													
SVMP-15-06	11/17/15	1102	1154	-29	-5	7128	C8359	X													
SVMP-15-07	11/17/15	0948	1038	-29	-5	7776	C8315	X													
SVMP-15-08	11/17/15	0825	925	-30	-6	7123	C8294	X													
All samples collected in Michigan in Eastern Time Zone		Start / Stop		Interior		Temperature (Fahrenheit) Ambient															
Special Instructions/QC Requirements & Comments:		Start / Stop		Interior		Temperature (Fahrenheit) Ambient															
Samples Shipped by: TestAmerica - Brighton Service Center		Date / Time:		Date / Time:		Date / Time:		Date / Time:		Date / Time:		Date / Time:		Date / Time:		Date / Time:		Date / Time:		Date / Time:	
Samples Relinquished by: Angela DeGrandis (Arcadie)		11/18/15 13:15		11/18/15 13:15		11/18/15 13:15		11/18/15 13:15		11/18/15 13:15		11/18/15 13:15		11/18/15 13:15		11/18/15 13:15		11/18/15 13:15		11/18/15 13:15	
Relinquished by:		11/18/15 14:00		11/18/15 14:00		11/18/15 14:00		11/18/15 14:00		11/18/15 14:00		11/18/15 14:00		11/18/15 14:00		11/18/15 14:00		11/18/15 14:00		11/18/15 14:00	
Lab Use Only:		Shipper Name:		Shipper Name:		Shipper Name:		Shipper Name:		Shipper Name:		Shipper Name:		Shipper Name:		Shipper Name:		Shipper Name:		Shipper Name:	



Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 320-16043-1

Login Number: 16043
List Number: 1
Creator: Nelson, Kym D

List Source: TestAmerica Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	N/A	
Cooler Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



[REDACTED]

12/10/2018
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1812015

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 12/3/2018 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

[REDACTED]

Ausha Scott
Project Manager

WORK ORDER #: 1812015

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0003.0001
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	12/03/2018	CONTACT:	Ausha Scott
DATE COMPLETED:	12/10/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	AA-11675Belden-01_112918	Modified TO-15	3.1 "Hg	5.1 psi
02A	IAF-11675Belden-01_112918	Modified TO-15	5.5 "Hg	5.3 psi
03A	IAF-11675Belden-02_112918	Modified TO-15	6.7 "Hg	5.1 psi
04A	IAF-11675Belden-03_112918	Modified TO-15	6.3 "Hg	5.1 psi
05A	IAF-11675Belden-04_112918	Modified TO-15	5.5 "Hg	5.1 psi
06A	IAF-11675Belden-05_112918	Modified TO-15	6.7 "Hg	5 psi
07A	Lab Blank	Modified TO-15	NA	NA
08A	CCV	Modified TO-15	NA	NA
09A	LCS	Modified TO-15	NA	NA
09AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY:



Technical Director

DATE: 12/10/18

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 1812015

Six 6 Liter Summa Canister (100% Certified) samples were received on December 03, 2018. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

Dilution was performed on samples IAF-11675Belden-01_112918, IAF-11675Belden-02_112918, IAF-11675Belden-03_112918, IAF-11675Belden-04_112918 and IAF-11675Belden-05_112918 due to the presence of high level target species.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-11675Belden-01_112918	Date/Time Analyzed:	12/4/18 07:12 PM
Lab ID:	1812015-01A	Dilution Factor:	1.50
Date/Time Collected:	11/29/18 03:59 PM	Instrument/Filename:	msdv.i / v120413
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.29	0.54	0.59	Not Detected
1,4-Dioxane	123-91-1	0.32	0.49	0.54	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.36	0.54	0.59	Not Detected
Tetrachloroethene	127-18-4	0.51	0.92	1.0	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.50	0.54	0.59	Not Detected
Trichloroethene	79-01-6	0.37	0.72	0.81	Not Detected
Vinyl Chloride	75-01-4	0.29	0.34	0.38	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	96

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675Belden-01_112918	Date/Time Analyzed:	12/4/18 08:25 PM
Lab ID:	1812015-02A	Dilution Factor:	3.34
Date/Time Collected:	11/29/18 03:08 PM	Instrument/Filename:	msdv.i / v120414
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.64	1.2	1.3	Not Detected
1,4-Dioxane	123-91-1	0.70	1.1	1.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.80	1.2	1.3	Not Detected
Tetrachloroethene	127-18-4	1.1	2.0	2.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.1	1.2	1.3	Not Detected
Trichloroethene	79-01-6	0.82	1.6	1.8	630
Vinyl Chloride	75-01-4	0.65	0.77	0.85	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	106

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	IAF-11675Belden-02_112918	Date/Time Analyzed:	12/4/18 09:40 PM
Lab ID:	1812015-03A	Dilution Factor:	3.48
Date/Time Collected:	11/29/18 03:52 PM	Instrument/Filename:	msdv.i / v120416
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.67	1.2	1.4	Not Detected
1,4-Dioxane	123-91-1	0.73	1.1	1.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.84	1.2	1.4	Not Detected
Tetrachloroethene	127-18-4	1.2	2.1	2.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.2	1.2	1.4	Not Detected
Trichloroethene	79-01-6	0.86	1.7	1.9	380
Vinyl Chloride	75-01-4	0.67	0.80	0.89	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675Belden-03_112918	Date/Time Analyzed:	12/4/18 10:18 PM
Lab ID:	1812015-04A	Dilution Factor:	3.42
Date/Time Collected:	11/29/18 03:55 PM	Instrument/Filename:	msdv.i / v120417
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.66	1.2	1.4	Not Detected
1,4-Dioxane	123-91-1	0.72	1.1	1.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.82	1.2	1.4	Not Detected
Tetrachloroethene	127-18-4	1.2	2.1	2.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.1	1.2	1.4	Not Detected
Trichloroethene	79-01-6	0.84	1.6	1.8	350
Vinyl Chloride	75-01-4	0.66	0.79	0.87	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	108
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675Belden-04_112918	Date/Time Analyzed:	12/4/18 10:55 PM
Lab ID:	1812015-05A	Dilution Factor:	5.50
Date/Time Collected:	11/29/18 03:56 PM	Instrument/Filename:	msdv.i / v120418
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.0	2.0	2.2	Not Detected
1,4-Dioxane	123-91-1	1.2	1.8	2.0	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	2.0	2.2	Not Detected
Tetrachloroethene	127-18-4	1.9	3.4	3.7	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.8	2.0	2.2	Not Detected
Trichloroethene	79-01-6	1.4	2.7	3.0	730
Vinyl Chloride	75-01-4	1.1	1.3	1.4	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	91
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675Belden-05_112918	Date/Time Analyzed:	12/5/18 06:17 AM
Lab ID:	1812015-06A	Dilution Factor:	4.32
Date/Time Collected:	11/29/18 03:57 PM	Instrument/Filename:	msdv.i / v120419
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.83	1.5	1.7	Not Detected
1,4-Dioxane	123-91-1	0.91	1.4	1.6	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	1.5	1.7	Not Detected
Tetrachloroethene	127-18-4	1.5	2.6	2.9	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.4	1.5	1.7	Not Detected
Trichloroethene	79-01-6	1.1	2.1	2.3	700
Vinyl Chloride	75-01-4	0.84	0.99	1.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	107

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	12/4/18 12:58 PM
Lab ID:	1812015-07A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdv.i / v120405c
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.19	0.36	0.40	Not Detected
1,4-Dioxane	123-91-1	0.21	0.32	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.24	0.36	0.40	Not Detected
Tetrachloroethene	127-18-4	0.34	0.61	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.34	0.36	0.40	Not Detected
Trichloroethene	79-01-6	0.25	0.48	0.54	Not Detected
Vinyl Chloride	75-01-4	0.19	0.23	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	12/4/18 09:38 AM
Lab ID:	1812015-08A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdv.i / v120402
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	87
1,4-Dioxane	123-91-1	73
cis-1,2-Dichloroethene	156-59-2	94
Tetrachloroethene	127-18-4	92
trans-1,2-Dichloroethene	156-60-5	88
Trichloroethene	79-01-6	99
Vinyl Chloride	75-01-4	89

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	12/4/18 11:01 AM
Lab ID:	1812015-09A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdv.i / v120403
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	92
1,4-Dioxane	123-91-1	73
cis-1,2-Dichloroethene	156-59-2	90
Tetrachloroethene	127-18-4	92
trans-1,2-Dichloroethene	156-60-5	100
Trichloroethene	79-01-6	94
Vinyl Chloride	75-01-4	95

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	102

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	12/4/18 11:55 AM
Lab ID:	1812015-09AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdv.i / v120404
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	90
1,4-Dioxane	123-91-1	72
cis-1,2-Dichloroethene	156-59-2	90
Tetrachloroethene	127-18-4	94
trans-1,2-Dichloroethene	156-60-5	100
Trichloroethene	79-01-6	94
Vinyl Chloride	75-01-4	97

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	101

* % Recovery is calculated using unrounded analytical results.

4/9/2019
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1904045

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 4/2/2019 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,




Ausha Scott
Project Manager

WORK ORDER #: 1904045

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0003
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	04/02/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	04/09/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	AA-11675BELDEN-01_032819	Modified TO-15	8.5 "Hg	5 psi
02A	IAF-11675BELDEN-01_032819	Modified TO-15	8.0 "Hg	5 psi
03A	IAF-11675BELDEN-02_032819	Modified TO-15	7.0 "Hg	5 psi
04A	IAF-11675BELDEN-03_032819	Modified TO-15	7.0 "Hg	5 psi
05A	IAF-11675BELDEN-04_032819	Modified TO-15	8.0 "Hg	5 psi
06A	IAF-11675BELDEN-05_032819	Modified TO-15	7.5 "Hg	5 psi
07A	DUP-11675BELDEN-01_032819	Modified TO-15	7.5 "Hg	5 psi
08A	Lab Blank	Modified TO-15	NA	NA
09A	CCV	Modified TO-15	NA	NA
10A	LCS	Modified TO-15	NA	NA
10AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 04/09/19

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 1904045

Seven 6 Liter Summa Canister (100% Certified) samples were received on April 02, 2019. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per project specific client request the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. All The canisters used for this project have been certified to the Reporting Limit for the target analytes included in this workorder. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-11675BELDEN-01_032819	Date/Time Analyzed:	4/4/19 03:05 PM
Lab ID:	1904045-01A	Dilution Factor:	1.87
Date/Time Collecte	3/28/19 03:05 PM	Instrument/Filename:	msd21.i / 21040408
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.089	0.37	0.74	Not Detected
1,4-Dioxane	123-91-1	0.10	0.34	0.67	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.082	0.37	0.74	Not Detected
Tetrachloroethene	127-18-4	0.089	0.63	1.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.058	0.37	0.74	Not Detected
Trichloroethene	79-01-6	0.14	0.50	1.0	Not Detected
Vinyl Chloride	75-01-4	0.038	0.24	0.48	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	118
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-01_032819	Date/Time Analyzed:	4/4/19 05:25 PM
Lab ID:	1904045-02A	Dilution Factor:	1.83
Date/Time Collecte	3/28/19 03:09 PM	Instrument/Filename:	msd21.i / 21040412
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.087	0.36	0.72	Not Detected
1,4-Dioxane	123-91-1	0.099	0.33	0.66	0.14 J
cis-1,2-Dichloroethene	156-59-2	0.081	0.36	0.72	Not Detected
Tetrachloroethene	127-18-4	0.088	0.62	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.056	0.36	0.72	Not Detected
Trichloroethene	79-01-6	0.14	0.49	0.98	7.0
Vinyl Chloride	75-01-4	0.037	0.23	0.47	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	115
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-02_032819	Date/Time Analyzed:	4/4/19 03:40 PM
Lab ID:	1904045-03A	Dilution Factor:	1.75
Date/Time Collecte	3/28/19 03:11 PM	Instrument/Filename:	msd21.i / 21040409
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.083	0.35	0.69	Not Detected
1,4-Dioxane	123-91-1	0.094	0.32	0.63	0.23 J
cis-1,2-Dichloroethene	156-59-2	0.077	0.35	0.69	Not Detected
Tetrachloroethene	127-18-4	0.084	0.59	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.054	0.35	0.69	Not Detected
Trichloroethene	79-01-6	0.13	0.47	0.94	4.4
Vinyl Chloride	75-01-4	0.035	0.22	0.45	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	115
4-Bromofluorobenzene	460-00-4	70-130	108
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-03_032819	Date/Time Analyzed:	4/4/19 04:15 PM
Lab ID:	1904045-04A	Dilution Factor:	1.75
Date/Time Collecte	3/28/19 03:12 PM	Instrument/Filename:	msd21.i / 21040410
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.083	0.35	0.69	Not Detected
1,4-Dioxane	123-91-1	0.094	0.32	0.63	0.12 J
cis-1,2-Dichloroethene	156-59-2	0.077	0.35	0.69	Not Detected
Tetrachloroethene	127-18-4	0.084	0.59	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.054	0.35	0.69	Not Detected
Trichloroethene	79-01-6	0.13	0.47	0.94	3.8
Vinyl Chloride	75-01-4	0.035	0.22	0.45	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-04_032819	Date/Time Analyzed:	4/4/19 04:50 PM
Lab ID:	1904045-05A	Dilution Factor:	1.83
Date/Time Collecte	3/28/19 03:14 PM	Instrument/Filename:	msd21.i / 21040411
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.087	0.36	0.72	Not Detected
1,4-Dioxane	123-91-1	0.099	0.33	0.66	0.16 J
cis-1,2-Dichloroethene	156-59-2	0.081	0.36	0.72	Not Detected
Tetrachloroethene	127-18-4	0.088	0.62	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.056	0.36	0.72	Not Detected
Trichloroethene	79-01-6	0.14	0.49	0.98	8.8
Vinyl Chloride	75-01-4	0.037	0.23	0.47	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	123
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	104

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-05_032819	Date/Time Analyzed:	4/4/19 06:00 PM
Lab ID:	1904045-06A	Dilution Factor:	1.79
Date/Time Collecte	3/28/19 03:15 PM	Instrument/Filename:	msd21.i / 21040413
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.085	0.35	0.71	Not Detected
1,4-Dioxane	123-91-1	0.096	0.32	0.64	0.23 J
cis-1,2-Dichloroethene	156-59-2	0.079	0.35	0.71	Not Detected
Tetrachloroethene	127-18-4	0.086	0.61	1.2	0.47 J
trans-1,2-Dichloroethene	156-60-5	0.055	0.35	0.71	Not Detected
Trichloroethene	79-01-6	0.13	0.48	0.96	14
Vinyl Chloride	75-01-4	0.036	0.23	0.46	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	118
4-Bromofluorobenzene	460-00-4	70-130	108
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	DUP-11675BELDEN-01_032819	Date/Time Analyzed:	4/4/19 06:35 PM
Lab ID:	1904045-07A	Dilution Factor:	1.79
Date/Time Collecte	3/28/19 12:00 AM	Instrument/Filename:	msd21.i / 21040414
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.085	0.35	0.71	Not Detected
1,4-Dioxane	123-91-1	0.096	0.32	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.079	0.35	0.71	Not Detected
Tetrachloroethene	127-18-4	0.086	0.61	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.055	0.35	0.71	Not Detected
Trichloroethene	79-01-6	0.13	0.48	0.96	Not Detected
Vinyl Chloride	75-01-4	0.036	0.23	0.46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	118
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	99

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	4/4/19 01:14 PM
Lab ID:	1904045-08A	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd21.i / 21040406a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.047	0.20	0.40	Not Detected
1,4-Dioxane	123-91-1	0.054	0.18	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.044	0.20	0.40	Not Detected
Tetrachloroethene	127-18-4	0.048	0.34	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.031	0.20	0.40	Not Detected
Trichloroethene	79-01-6	0.074	0.27	0.54	Not Detected
Vinyl Chloride	75-01-4	0.020	0.13	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	122
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	99

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	4/4/19 09:51 AM
Lab ID:	1904045-09A	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd21.i / 21040402
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	96
1,4-Dioxane	123-91-1	124
cis-1,2-Dichloroethene	156-59-2	99
Tetrachloroethene	127-18-4	91
trans-1,2-Dichloroethene	156-60-5	102
Trichloroethene	79-01-6	101
Vinyl Chloride	75-01-4	100

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	108
4-Bromofluorobenzene	460-00-4	70-130	114
Toluene-d8	2037-26-5	70-130	111

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	4/4/19 10:58 AM
Lab ID:	1904045-10A	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd21.i / 21040403
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	92
1,4-Dioxane	123-91-1	116
cis-1,2-Dichloroethene	156-59-2	102
Tetrachloroethene	127-18-4	86
trans-1,2-Dichloroethene	156-60-5	81
Trichloroethene	79-01-6	89
Vinyl Chloride	75-01-4	97

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	107
4-Bromofluorobenzene	460-00-4	70-130	108
Toluene-d8	2037-26-5	70-130	106

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	4/4/19 11:33 AM
Lab ID:	1904045-10AA	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd21.i / 21040404
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	90
1,4-Dioxane	123-91-1	116
cis-1,2-Dichloroethene	156-59-2	99
Tetrachloroethene	127-18-4	83
trans-1,2-Dichloroethene	156-60-5	80
Trichloroethene	79-01-6	92
Vinyl Chloride	75-01-4	94

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	105

* % Recovery is calculated using unrounded analytical results.

8/5/2019

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #: MI001454.0003 / 30016344
Workorder #: 1907645

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 7/29/2019 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1907645

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0004.0001B
FAX:		PROJECT #	MI001454.0003 / 30016344 Ford LTP
DATE RECEIVED:	07/29/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	08/05/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	IAF-11675BELDEN-05_072419	Modified TO-15	7.5 "Hg	5 psi
02A	IAF-11675BELDEN-04_072419	Modified TO-15	5.0 "Hg	5 psi
03A	IAF-11675BELDEN-03_072419	Modified TO-15	7.5 "Hg	5 psi
04A	AA-11675BELDEN-01_072419	Modified TO-15	6.5 "Hg	5 psi
05A	IAF-11675BELDEN-01_072419	Modified TO-15	6.5 "Hg	5 psi
06A	IAF-11675BELDEN-02_072419	Modified TO-15	6.0 "Hg	5 psi
07A	Lab Blank	Modified TO-15	NA	NA
08A	CCV	Modified TO-15	NA	NA
09A	LCS	Modified TO-15	NA	NA
09AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 08/05/19

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 1907645

Six 6 Liter Summa Canister (100% Cert Ambient) samples were received on July 29, 2019. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	$\leq 30\%$ RSD with 2 compounds allowed out to <math>< 40\%</math> RSD	$\leq 30\%$ RSD with 4 compounds allowed out to <math>< 40\%</math> RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

- B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).
- J - Estimated value.
- E - Exceeds instrument calibration range.
- S - Saturated peak.
- Q - Exceeds quality control limits.
- U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.
- UJ- Non-detected compound associated with low bias in the CCV
- N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates

as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-05_072419	Date/Time Analyzed:	8/1/19 08:06 PM
Lab ID:	1907645-01A	Dilution Factor:	1.79
Date/Time Collected:	7/24/19 05:00 PM	Instrument/Filename:	msd20.i / 20080118
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.17	0.64	0.71	Not Detected
1,4-Dioxane	123-91-1	0.52	0.58	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.38	0.64	0.71	Not Detected
Tetrachloroethene	127-18-4	0.75	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.40	0.64	0.71	Not Detected
Trichloroethene	79-01-6	0.47	0.86	0.96	5.5
Vinyl Chloride	75-01-4	0.15	0.41	0.46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-04_072419	Date/Time Analyzed:	8/1/19 08:55 PM
Lab ID:	1907645-02A	Dilution Factor:	1.61
Date/Time Collected:	7/24/19 04:14 PM	Instrument/Filename:	msd20.i / 20080119
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.15	0.57	0.64	Not Detected
1,4-Dioxane	123-91-1	0.47	0.52	0.58	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.57	0.64	Not Detected
Tetrachloroethene	127-18-4	0.68	0.98	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.57	0.64	Not Detected
Trichloroethene	79-01-6	0.42	0.78	0.86	4.5
Vinyl Chloride	75-01-4	0.13	0.37	0.41	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	IAF-11675BELDEN-03_072419	Date/Time Analyzed:	8/1/19 09:35 PM
Lab ID:	1907645-03A	Dilution Factor:	1.79
Date/Time Collected:	7/24/19 05:05 PM	Instrument/Filename:	msd20.i / 20080120
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.17	0.64	0.71	Not Detected
1,4-Dioxane	123-91-1	0.52	0.58	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.38	0.64	0.71	Not Detected
Tetrachloroethene	127-18-4	0.75	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.40	0.64	0.71	Not Detected
Trichloroethene	79-01-6	0.47	0.86	0.96	4.2
Vinyl Chloride	75-01-4	0.15	0.41	0.46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	97

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-11675BELDEN-01_072419	Date/Time Analyzed:	8/1/19 10:15 PM
Lab ID:	1907645-04A	Dilution Factor:	1.71
Date/Time Collected:	7/24/19 04:06 PM	Instrument/Filename:	msd20.i / 20080121
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.16	0.61	0.68	Not Detected
1,4-Dioxane	123-91-1	0.50	0.55	0.62	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.36	0.61	0.68	Not Detected
Tetrachloroethene	127-18-4	0.72	1.0	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.38	0.61	0.68	Not Detected
Trichloroethene	79-01-6	0.45	0.83	0.92	Not Detected
Vinyl Chloride	75-01-4	0.14	0.39	0.44	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-01_072419	Date/Time Analyzed:	8/1/19 10:54 PM
Lab ID:	1907645-05A	Dilution Factor:	1.71
Date/Time Collected:	7/24/19 04:46 PM	Instrument/Filename:	msd20.i / 20080122
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.16	0.61	0.68	Not Detected
1,4-Dioxane	123-91-1	0.50	0.55	0.62	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.36	0.61	0.68	Not Detected
Tetrachloroethene	127-18-4	0.72	1.0	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.38	0.61	0.68	Not Detected
Trichloroethene	79-01-6	0.45	0.83	0.92	5.5
Vinyl Chloride	75-01-4	0.14	0.39	0.44	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-02_072419	Date/Time Analyzed:	8/1/19 11:34 PM
Lab ID:	1907645-06A	Dilution Factor:	1.68
Date/Time Collected:	7/24/19 04:11 PM	Instrument/Filename:	msd20.i / 20080123
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.16	0.60	0.67	Not Detected
1,4-Dioxane	123-91-1	0.49	0.54	0.60	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.36	0.60	0.67	Not Detected
Tetrachloroethene	127-18-4	0.71	1.0	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.37	0.60	0.67	Not Detected
Trichloroethene	79-01-6	0.44	0.81	0.90	4.1
Vinyl Chloride	75-01-4	0.14	0.39	0.43	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	97

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	8/1/19 12:05 PM
Lab ID:	1907645-07A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20080107a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.095	0.36	0.40	Not Detected
1,4-Dioxane	123-91-1	0.29	0.32	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.21	0.36	0.40	Not Detected
Tetrachloroethene	127-18-4	0.42	0.61	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.22	0.36	0.40	Not Detected
Trichloroethene	79-01-6	0.26	0.48	0.54	Not Detected
Vinyl Chloride	75-01-4	0.082	0.23	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	8/1/19 07:00 AM
Lab ID:	1907645-08A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20080102
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	90
1,4-Dioxane	123-91-1	100
cis-1,2-Dichloroethene	156-59-2	92
Tetrachloroethene	127-18-4	101
trans-1,2-Dichloroethene	156-60-5	92
Trichloroethene	79-01-6	97
Vinyl Chloride	75-01-4	92

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	8/1/19 09:19 AM
Lab ID:	1907645-09A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20080104
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	92
1,4-Dioxane	123-91-1	105
cis-1,2-Dichloroethene	156-59-2	86
Tetrachloroethene	127-18-4	98
trans-1,2-Dichloroethene	156-60-5	101
Trichloroethene	79-01-6	93
Vinyl Chloride	75-01-4	94

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	100

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	8/1/19 10:08 AM
Lab ID:	1907645-09AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20080105
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	89
1,4-Dioxane	123-91-1	102
cis-1,2-Dichloroethene	156-59-2	85
Tetrachloroethene	127-18-4	97
trans-1,2-Dichloroethene	156-60-5	101
Trichloroethene	79-01-6	93
Vinyl Chloride	75-01-4	92

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	101

* % Recovery is calculated using unrounded analytical results.

11/21/2019
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1911304

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 11/14/2019 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1911304

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30016344.0002B
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	11/14/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	11/21/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SSMP-11675BELDEN-04_111219	TO-15	6.0 "Hg	15 psi
02A	SSMP-11675BELDEN-05_111219	TO-15	5.5 "Hg	15 psi
03A	SSMP-11675BELDEN-06_111219	TO-15	7.0 "Hg	15 psi
04A	SSMP-11675BELDEN-01_111219	TO-15	6.5 "Hg	15 psi
05A	SSMP-11675BELDEN-02_111219	TO-15	6.0 "Hg	15 psi
06A	SSMP-11675BELDEN-03_111219	TO-15	6.5 "Hg	15 psi
07A	Lab Blank	TO-15	NA	NA
08A	CCV	TO-15	NA	NA
09A	LCS	TO-15	NA	NA
09AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 11/20/19

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP – CA009332019-11, VA NELAP - 460197, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005-011, Effective date: 10/18/2019, Expiration date: 10/17/2020.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1911304

Six 1 Liter Summa Canister (100% Certified) samples were received on November 14, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-11675BELDEN-04_111219	Date/Time Analyzed:	11/18/19 11:13 PM
Lab ID:	1911304-01A	Dilution Factor:	2.52
Date/Time Collected:	11/12/19 08:54 AM	Instrument/Filename:	msdj.i / j111823
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.0	5.0	Not Detected
1,4-Dioxane	123-91-1	3.9	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.3	4.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.3	6.8	8.5	Not Detected
trans-1,2-Dichloroethene	156-60-5	2.8	4.0	5.0	Not Detected
Trichloroethene	79-01-6	2.5	5.4	6.8	14
Vinyl Chloride	75-01-4	2.3	2.6	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	88
4-Bromofluorobenzene	460-00-4	70-130	90
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-11675BELDEN-05_111219	Date/Time Analyzed:	11/18/19 06:42 PM
Lab ID:	1911304-02A	Dilution Factor:	2.47
Date/Time Collected:	11/12/19 09:14 AM	Instrument/Filename:	msdj.i / j111817
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.4	3.9	4.9	Not Detected
1,4-Dioxane	123-91-1	3.9	13	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.2	3.9	4.9	3.6 J
Tetrachloroethene	127-18-4	2.2	6.7	8.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	2.8	3.9	4.9	Not Detected
Trichloroethene	79-01-6	2.5	5.3	6.6	16
Vinyl Chloride	75-01-4	2.2	2.5	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	86
Toluene-d8	2037-26-5	70-130	103

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP



Client ID:	SSMP-11675BELDEN-06_111219	Date/Time Analyzed:	11/18/19 07:08 PM
Lab ID:	1911304-03A	Dilution Factor:	2.64
Date/Time Collected:	11/12/19 09:38 AM	Instrument/Filename:	msdj.i / j111818
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.6	4.2	5.2	Not Detected
1,4-Dioxane	123-91-1	4.1	14	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.4	4.2	5.2	Not Detected
Tetrachloroethene	127-18-4	2.4	7.2	9.0	3.0 J
trans-1,2-Dichloroethene	156-60-5	3.0	4.2	5.2	Not Detected
Trichloroethene	79-01-6	2.6	5.7	7.1	5.6 J
Vinyl Chloride	75-01-4	2.4	2.7	3.4	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	86
Toluene-d8	2037-26-5	70-130	96

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-11675BELDEN-01_111219	Date/Time Analyzed:	11/18/19 11:40 PM
Lab ID:	1911304-04A	Dilution Factor:	2.58
Date/Time Collected:	11/12/19 09:01 AM	Instrument/Filename:	msdj.i / j111824
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.1	5.1	Not Detected
1,4-Dioxane	123-91-1	4.0	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.3	4.1	5.1	Not Detected
Tetrachloroethene	127-18-4	2.4	7.0	8.8	Not Detected
trans-1,2-Dichloroethene	156-60-5	2.9	4.1	5.1	Not Detected
Trichloroethene	79-01-6	2.6	5.5	6.9	180
Vinyl Chloride	75-01-4	2.4	2.6	3.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	89
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-11675BELDEN-02_111219	Date/Time Analyzed:	11/19/19 12:06 AM
Lab ID:	1911304-05A	Dilution Factor:	2.52
Date/Time Collected:	11/12/19 09:27 AM	Instrument/Filename:	msdj.i / j111825
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.0	5.0	Not Detected
1,4-Dioxane	123-91-1	3.9	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.3	4.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.3	6.8	8.5	Not Detected
trans-1,2-Dichloroethene	156-60-5	2.8	4.0	5.0	Not Detected
Trichloroethene	79-01-6	2.5	5.4	6.8	20
Vinyl Chloride	75-01-4	2.3	2.6	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	91
4-Bromofluorobenzene	460-00-4	70-130	86
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-11675BELDEN-03_111219	Date/Time Analyzed:	11/19/19 12:32 AM
Lab ID:	1911304-06A	Dilution Factor:	2.58
Date/Time Collected:	11/12/19 09:55 AM	Instrument/Filename:	msdj.i / j111826
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.1	5.1	Not Detected
1,4-Dioxane	123-91-1	4.0	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.3	4.1	5.1	Not Detected
Tetrachloroethene	127-18-4	2.4	7.0	8.8	Not Detected
trans-1,2-Dichloroethene	156-60-5	2.9	4.1	5.1	Not Detected
Trichloroethene	79-01-6	2.6	5.5	6.9	Not Detected
Vinyl Chloride	75-01-4	2.4	2.6	3.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	91
4-Bromofluorobenzene	460-00-4	70-130	87
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	11/18/19 02:21 PM
Lab ID:	1911304-07A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j111808c
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.59	1.6	2.0	Not Detected
1,4-Dioxane	123-91-1	1.6	5.4	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.90	1.6	2.0	Not Detected
Tetrachloroethene	127-18-4	0.91	2.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.1	1.6	2.0	Not Detected
Trichloroethene	79-01-6	1.0	2.1	2.7	Not Detected
Vinyl Chloride	75-01-4	0.91	1.0	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	84
Toluene-d8	2037-26-5	70-130	106

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	CCV	Date/Time Analyzed:	11/18/19 09:49 AM
Lab ID:	1911304-08A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j111802
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	91
1,4-Dioxane	123-91-1	99
cis-1,2-Dichloroethene	156-59-2	102
Tetrachloroethene	127-18-4	99
trans-1,2-Dichloroethene	156-60-5	103
Trichloroethene	79-01-6	91
Vinyl Chloride	75-01-4	95

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCS	Date/Time Analyzed:	11/18/19 10:13 AM
Lab ID:	1911304-09A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j111803
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	89
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	89
Tetrachloroethene	127-18-4	97
trans-1,2-Dichloroethene	156-60-5	116
Trichloroethene	79-01-6	93
Vinyl Chloride	75-01-4	96

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	100

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	11/18/19 10:39 AM
Lab ID:	1911304-09AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j111804
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	90
1,4-Dioxane	123-91-1	96
cis-1,2-Dichloroethene	156-59-2	96
Tetrachloroethene	127-18-4	95
trans-1,2-Dichloroethene	156-60-5	116
Trichloroethene	79-01-6	92
Vinyl Chloride	75-01-4	100

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	100

* % Recovery is calculated using unrounded analytical results.

11/25/2019
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1911413R1

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 11/18/2019 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1911413R1

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30016344.0002B
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	11/18/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	11/25/2019		
DATE REISSUED:	11/25/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	AA-11675BELDEN-01_111219	Modified TO-15	4.0 "Hg	5 psi
02A	IAF-11675BELDEN-01_111219	Modified TO-15	6.0 "Hg	5 psi
03A	IAF-11675BELDEN-02_111219	Modified TO-15	6.5 "Hg	5 psi
04A	IAF-11675BELDEN-03_111219	Modified TO-15	5.5 "Hg	5 psi
05A	DUP-11675BELDEN-01_111219	Modified TO-15	5.5 "Hg	5 psi
06A	IAF-11675BELDEN-04_111219	Modified TO-15	5.5 "Hg	5 psi
07A	IAF-11675BELDEN-05_111219	Modified TO-15	5.5 "Hg	5 psi
08A	Lab Blank	Modified TO-15	NA	NA
08B	Lab Blank	Modified TO-15	NA	NA
09A	CCV	Modified TO-15	NA	NA
09B	CCV	Modified TO-15	NA	NA
10A	LCS	Modified TO-15	NA	NA
10AA	LCSD	Modified TO-15	NA	NA
10B	LCS	Modified TO-15	NA	NA
10BB	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 
 Technical Director

DATE: 11/25/19

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP – CA009332019-11, VA NELAP - 460197, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005-011, Effective date: 10/18/2019, Expiration date: 10/17/2020.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 1911413R1

Seven 6 Liter Summa Canister (100% Cert Ambient) samples were received on November 18, 2019. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the EATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Due to laboratory error, the work order was reissued on 11/25/19 to correct the dilution factor used to quantitate results for sample DUP-11675BELDEN-01_111219.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-11675BELDEN-01_111219	Date/Time Analyzed:	11/21/19 09:32 PM
Lab ID:	1911413R1-01A	Dilution Factor:	1.55
Date/Time Collected:	11/12/19 04:02 PM	Instrument/Filename:	msd21.i / 21112121
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.22	0.58	0.61	Not Detected
1,4-Dioxane	123-91-1	0.093	0.53	0.56	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.22	0.58	0.61	Not Detected
Tetrachloroethene	127-18-4	0.56	1.0	1.0	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.32	0.58	0.61	Not Detected
Trichloroethene	79-01-6	0.19	0.79	0.83	Not Detected
Vinyl Chloride	75-01-4	0.16	0.38	0.40	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	123
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	90

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-01_111219	Date/Time Analyzed:	11/21/19 10:07 PM
Lab ID:	1911413R1-02A	Dilution Factor:	1.68
Date/Time Collected:	11/12/19 04:09 PM	Instrument/Filename:	msd21.i / 21112122
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.24	0.63	0.67	Not Detected
1,4-Dioxane	123-91-1	0.10	0.58	0.60	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.24	0.63	0.67	Not Detected
Tetrachloroethene	127-18-4	0.61	1.1	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.34	0.63	0.67	Not Detected
Trichloroethene	79-01-6	0.20	0.86	0.90	2.1
Vinyl Chloride	75-01-4	0.17	0.41	0.43	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	126
4-Bromofluorobenzene	460-00-4	70-130	91
Toluene-d8	2037-26-5	70-130	91

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	IAF-11675BELDEN-02_111219	Date/Time Analyzed:	11/21/19 10:42 PM
Lab ID:	1911413R1-03A	Dilution Factor:	1.71
Date/Time Collected:	11/12/19 04:08 PM	Instrument/Filename:	msd21.i / 21112123
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.25	0.64	0.68	Not Detected
1,4-Dioxane	123-91-1	0.10	0.58	0.62	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.24	0.64	0.68	Not Detected
Tetrachloroethene	127-18-4	0.62	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.35	0.64	0.68	Not Detected
Trichloroethene	79-01-6	0.21	0.87	0.92	1.4
Vinyl Chloride	75-01-4	0.18	0.42	0.44	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	118
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	90

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-03_111219	Date/Time Analyzed:	11/21/19 11:17 PM
Lab ID:	1911413R1-04A	Dilution Factor:	1.64
Date/Time Collected:	11/12/19 04:04 PM	Instrument/Filename:	msd21.i / 21112124
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.24	0.62	0.65	Not Detected
1,4-Dioxane	123-91-1	0.098	0.56	0.59	0.11 J
cis-1,2-Dichloroethene	156-59-2	0.24	0.62	0.65	Not Detected
Tetrachloroethene	127-18-4	0.60	1.0	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.34	0.62	0.65	Not Detected
Trichloroethene	79-01-6	0.20	0.84	0.88	1.2
Vinyl Chloride	75-01-4	0.17	0.40	0.42	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	119
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	91

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	DUP-11675BELDEN-01_111219	Date/Time Analyzed:	11/22/19 07:00 AM
Lab ID:	1911413R1-05A	Dilution Factor:	1.64
Date/Time Collected:	11/12/19 12:00 AM	Instrument/Filename:	msd21.i / 21112125r1
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.24	0.62	0.65	Not Detected
1,4-Dioxane	123-91-1	0.098	0.56	0.59	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.24	0.62	0.65	Not Detected
Tetrachloroethene	127-18-4	0.60	1.0	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.34	0.62	0.65	Not Detected
Trichloroethene	79-01-6	0.20	0.84	0.88	1.1
Vinyl Chloride	75-01-4	0.17	0.40	0.42	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	118
4-Bromofluorobenzene	460-00-4	70-130	90
Toluene-d8	2037-26-5	70-130	92

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-04_111219	Date/Time Analyzed:	11/22/19 02:03 PM
Lab ID:	1911413R1-06A	Dilution Factor:	1.64
Date/Time Collected:	11/12/19 04:14 PM	Instrument/Filename:	msd21.i / 21112207
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.24	0.62	0.65	Not Detected
1,4-Dioxane	123-91-1	0.098	0.56	0.59	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.24	0.62	0.65	Not Detected
Tetrachloroethene	127-18-4	0.60	1.0	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.34	0.62	0.65	Not Detected
Trichloroethene	79-01-6	0.20	0.84	0.88	2.6
Vinyl Chloride	75-01-4	0.17	0.40	0.42	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	89

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-05_111219	Date/Time Analyzed:	11/22/19 08:21 AM
Lab ID:	1911413R1-07A	Dilution Factor:	1.64
Date/Time Collected:	11/12/19 04:15 PM	Instrument/Filename:	msd21.i / 21112127
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.24	0.62	0.65	Not Detected
1,4-Dioxane	123-91-1	0.098	0.56	0.59	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.24	0.62	0.65	Not Detected
Tetrachloroethene	127-18-4	0.60	1.0	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.34	0.62	0.65	Not Detected
Trichloroethene	79-01-6	0.20	0.84	0.88	5.1
Vinyl Chloride	75-01-4	0.17	0.40	0.42	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	124
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	96

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	11/21/19 12:19 PM
Lab ID:	1911413R1-08A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21112106c
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.14	0.38	0.40	Not Detected
1,4-Dioxane	123-91-1	0.060	0.34	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.14	0.38	0.40	Not Detected
Tetrachloroethene	127-18-4	0.36	0.64	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.20	0.38	0.40	Not Detected
Trichloroethene	79-01-6	0.12	0.51	0.54	Not Detected
Vinyl Chloride	75-01-4	0.10	0.24	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	116
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	97

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	11/22/19 12:44 PM
Lab ID:	1911413R1-08B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21112206a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.14	0.38	0.40	Not Detected
1,4-Dioxane	123-91-1	0.060	0.34	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.14	0.38	0.40	Not Detected
Tetrachloroethene	127-18-4	0.36	0.64	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.20	0.38	0.40	Not Detected
Trichloroethene	79-01-6	0.12	0.51	0.54	Not Detected
Vinyl Chloride	75-01-4	0.10	0.24	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	128
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	90

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	11/21/19 09:24 AM
Lab ID:	1911413R1-09A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21112102
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	99
1,4-Dioxane	123-91-1	97
cis-1,2-Dichloroethene	156-59-2	104
Tetrachloroethene	127-18-4	82
trans-1,2-Dichloroethene	156-60-5	96
Trichloroethene	79-01-6	91
Vinyl Chloride	75-01-4	95

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	115
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	11/22/19 09:34 AM
Lab ID:	1911413R1-09B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21112202
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	94
1,4-Dioxane	123-91-1	101
cis-1,2-Dichloroethene	156-59-2	98
Tetrachloroethene	127-18-4	85
trans-1,2-Dichloroethene	156-60-5	93
Trichloroethene	79-01-6	94
Vinyl Chloride	75-01-4	93

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	110
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	11/21/19 10:11 AM
Lab ID:	1911413R1-10A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21112103
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	101
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	97
Tetrachloroethene	127-18-4	81
trans-1,2-Dichloroethene	156-60-5	109
Trichloroethene	79-01-6	85
Vinyl Chloride	75-01-4	99

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	119
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	100

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	11/21/19 10:54 AM
Lab ID:	1911413R1-10AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21112104
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	91
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	88
Tetrachloroethene	127-18-4	87
trans-1,2-Dichloroethene	156-60-5	100
Trichloroethene	79-01-6	82
Vinyl Chloride	75-01-4	91

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	101

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	11/22/19 10:09 AM
Lab ID:	1911413R1-10B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21112203
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	93
1,4-Dioxane	123-91-1	102
cis-1,2-Dichloroethene	156-59-2	91
Tetrachloroethene	127-18-4	94
trans-1,2-Dichloroethene	156-60-5	102
Trichloroethene	79-01-6	86
Vinyl Chloride	75-01-4	93

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	96

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	11/22/19 10:43 AM
Lab ID:	1911413R1-10BB	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21112204
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	93
1,4-Dioxane	123-91-1	103
cis-1,2-Dichloroethene	156-59-2	88
Tetrachloroethene	127-18-4	88
trans-1,2-Dichloroethene	156-60-5	98
Trichloroethene	79-01-6	86
Vinyl Chloride	75-01-4	90

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	96

* % Recovery is calculated using unrounded analytical results.

12/10/2018
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1812016

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 12/3/2018 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1812016

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0003.0001
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	12/03/2018	CONTACT:	Ausha Scott
DATE COMPLETED:	12/10/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SSMP-11675Belden-01_112918	TO-15	3.9 "Hg	15.1 psi
02A	SSMP-11675Belden-02_112918	TO-15	3.3 "Hg	14.9 psi
03A	SSMP-11675Belden-03_112918	TO-15	8 "Hg	15.1 psi
04A	SSMP-11675Belden-04_112918	TO-15	4.5 "Hg	15 psi
05A	SSMP-11675Belden-05_112918	TO-15	4.7 "Hg	14.9 psi
06A	SSMP-11675Belden-06_112918	TO-15	4.3 "Hg	14.7 psi
07A	Lab Blank	TO-15	NA	NA
08A	CCV	TO-15	NA	NA
09A	LCS	TO-15	NA	NA
09AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 12/10/18

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

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LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1812016

Six 1 Liter Summa Canister samples were received on December 03, 2018. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified (0.2 ppbv for compounds reported at 0.5 ppbv and 0.8 ppbv for compounds reported at 2.0 ppbv) may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-11675Belden-01_112918	Date/Time Analyzed:	12/6/18 05:26 PM
Lab ID:	1812016-01A	Dilution Factor:	2.33
Date/Time Collected:	11/29/18 08:56 AM	Instrument/Filename:	msda.i / a120613
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.7	4.6	Not Detected
1,4-Dioxane	123-91-1	3.4	8.4	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.7	4.6	Not Detected
Tetrachloroethene	127-18-4	1.4	6.3	7.9	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.3	3.7	4.6	Not Detected
Trichloroethene	79-01-6	2.0	5.0	6.3	34
Vinyl Chloride	75-01-4	1.1	2.4	3.0	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	112
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-11675Belden-02_112918	Date/Time Analyzed:	12/6/18 09:29 PM
Lab ID:	1812016-02A	Dilution Factor:	2.26
Date/Time Collected:	11/29/18 10:02 AM	Instrument/Filename:	msda.i / a120614
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.6	4.5	Not Detected
1,4-Dioxane	123-91-1	3.2	8.1	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.6	4.5	Not Detected
Tetrachloroethene	127-18-4	1.4	6.1	7.7	1.6 J
trans-1,2-Dichloroethene	156-60-5	1.2	3.6	4.5	Not Detected
Trichloroethene	79-01-6	1.9	4.8	6.1	110
Vinyl Chloride	75-01-4	1.1	2.3	2.9	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	110
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	SSMP-11675Belden-03_112918	Date/Time Analyzed:	12/6/18 09:56 PM
Lab ID:	1812016-03A	Dilution Factor:	2.76
Date/Time Collected:	11/29/18 09:27 AM	Instrument/Filename:	msda.i / a120615
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.1	4.4	5.5	Not Detected
1,4-Dioxane	123-91-1	4.0	9.9	20	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.6	4.4	5.5	Not Detected
Tetrachloroethene	127-18-4	1.7	7.5	9.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.5	4.4	5.5	Not Detected
Trichloroethene	79-01-6	2.4	5.9	7.4	280
Vinyl Chloride	75-01-4	1.3	2.8	3.5	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	91
4-Bromofluorobenzene	460-00-4	70-130	113
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-11675Belden-04_112918	Date/Time Analyzed:	12/6/18 10:22 PM
Lab ID:	1812016-04A	Dilution Factor:	2.38
Date/Time Collected:	11/29/18 10:08 AM	Instrument/Filename:	msda.i / a120616
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.8	4.7	Not Detected
1,4-Dioxane	123-91-1	3.4	8.6	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.8	4.7	Not Detected
Tetrachloroethene	127-18-4	1.4	6.4	8.1	1.5 J
trans-1,2-Dichloroethene	156-60-5	1.3	3.8	4.7	Not Detected
Trichloroethene	79-01-6	2.0	5.1	6.4	110
Vinyl Chloride	75-01-4	1.2	2.4	3.0	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	112
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-11675Belden-05_112918	Date/Time Analyzed:	12/6/18 10:48 PM
Lab ID:	1812016-05A	Dilution Factor:	2.39
Date/Time Collected:	11/29/18 09:47 AM	Instrument/Filename:	msda.i / a120617
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.8	4.7	Not Detected
1,4-Dioxane	123-91-1	3.4	8.6	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.8	4.7	Not Detected
Tetrachloroethene	127-18-4	1.4	6.5	8.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.3	3.8	4.7	Not Detected
Trichloroethene	79-01-6	2.0	5.1	6.4	74
Vinyl Chloride	75-01-4	1.2	2.4	3.0	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-11675Belden-06_112918	Date/Time Analyzed:	12/6/18 11:15 PM
Lab ID:	1812016-06A	Dilution Factor:	2.33
Date/Time Collected:	11/29/18 09:18 AM	Instrument/Filename:	msda.i / a120618
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.7	4.6	Not Detected
1,4-Dioxane	123-91-1	3.4	8.4	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.7	4.6	Not Detected
Tetrachloroethene	127-18-4	1.4	6.3	7.9	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.3	3.7	4.6	Not Detected
Trichloroethene	79-01-6	2.0	5.0	6.3	57
Vinyl Chloride	75-01-4	1.1	2.4	3.0	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	119
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	12/6/18 11:36 AM
Lab ID:	1812016-07A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a120605a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.75	1.6	2.0	Not Detected
1,4-Dioxane	123-91-1	1.4	3.6	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.59	1.6	2.0	Not Detected
Tetrachloroethene	127-18-4	0.61	2.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.56	1.6	2.0	Not Detected
Trichloroethene	79-01-6	0.86	2.1	2.7	Not Detected
Vinyl Chloride	75-01-4	0.48	1.0	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	CCV	Date/Time Analyzed:	12/6/18 10:19 AM
Lab ID:	1812016-08A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a120602
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	93
1,4-Dioxane	123-91-1	100
cis-1,2-Dichloroethene	156-59-2	98
Tetrachloroethene	127-18-4	109
trans-1,2-Dichloroethene	156-60-5	98
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	85

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	113
Toluene-d8	2037-26-5	70-130	96

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCS	Date/Time Analyzed:	12/6/18 10:44 AM
Lab ID:	1812016-09A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a120603
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	95
1,4-Dioxane	123-91-1	100
cis-1,2-Dichloroethene	156-59-2	93
Tetrachloroethene	127-18-4	108
trans-1,2-Dichloroethene	156-60-5	103
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	90

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	98

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	12/6/18 11:10 AM
Lab ID:	1812016-09AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a120604
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	92
1,4-Dioxane	123-91-1	100
cis-1,2-Dichloroethene	156-59-2	84
Tetrachloroethene	127-18-4	104
trans-1,2-Dichloroethene	156-60-5	101
Trichloroethene	79-01-6	99
Vinyl Chloride	75-01-4	86

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	91
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	97

* % Recovery is calculated using unrounded analytical results.

4/8/2019

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #: MI001454.0003
Workorder #: 1904040

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 4/2/2019 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1904040

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0004.0001B
FAX:		PROJECT #	MI001454.0003 Ford LTP
DATE RECEIVED:	04/02/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	04/08/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SSMP-11675BELDEN-01_032819	TO-15	5.5 "Hg	15.1 psi
02A	SSMP-11675BELDEN-02_032819	TO-15	5.1 "Hg	15 psi
03A	SSMP-11675BELDEN-03_032819	TO-15	5.5 "Hg	15.1 psi
04A	SSMP-11675BELDEN-04_032819	TO-15	5.3 "Hg	15 psi
05A	SSMP-11675BELDEN-05_032819	TO-15	4.9 "Hg	15.4 psi
06A	SSMP-11675BELDEN-06_032819	TO-15	5.7 "Hg	14.8 psi
07A	Lab Blank	TO-15	NA	NA
08A	CCV	TO-15	NA	NA
09A	LCS	TO-15	NA	NA
09AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 04/08/19

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.

Eurofins Air Toxics Inc. certifies that the test results contained in this report meet all requirements of the NELAC standards

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 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1904040

Six 1 Liter Summa Canister (100% Certified) samples were received on April 02, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified (0.2 ppbv for compounds reported at 0.5 ppbv and 0.8 ppbv for compounds reported at 2.0 ppbv) may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675BELDEN-01_032819	Date/Time Analyzed:	4/4/19 10:05 PM
Lab ID:	1904040-01A	Dilution Factor:	2.48
Date/Time Collecte	3/28/19 09:07 AM	Instrument/Filename:	msdp.i / p040419
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.9	4.4	4.9	Not Detected
1,4-Dioxane	123-91-1	2.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.2	4.4	4.9	Not Detected
Tetrachloroethene	127-18-4	1.6	7.6	8.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	3.0	4.4	4.9	Not Detected
Trichloroethene	79-01-6	0.87	6.0	6.7	13
Vinyl Chloride	75-01-4	0.75	2.8	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675BELDEN-02_032819	Date/Time Analyzed:	4/5/19 01:10 AM
Lab ID:	1904040-02A	Dilution Factor:	2.43
Date/Time Collecte	3/28/19 09:15 AM	Instrument/Filename:	msdp.i / p040426
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	4.3	4.8	Not Detected
1,4-Dioxane	123-91-1	2.3	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.2	4.3	4.8	Not Detected
Tetrachloroethene	127-18-4	1.6	7.4	8.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	3.0	4.3	4.8	Not Detected
Trichloroethene	79-01-6	0.86	5.9	6.5	54
Vinyl Chloride	75-01-4	0.74	2.8	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675BELDEN-03_032819	Date/Time Analyzed:	4/5/19 01:36 AM
Lab ID:	1904040-03A	Dilution Factor:	2.48
Date/Time Collecte	3/28/19 09:45 AM	Instrument/Filename:	msdp.i / p040427
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.9	4.4	4.9	Not Detected
1,4-Dioxane	123-91-1	2.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.2	4.4	4.9	Not Detected
Tetrachloroethene	127-18-4	1.6	7.6	8.4	2.9 J
trans-1,2-Dichloroethene	156-60-5	3.0	4.4	4.9	Not Detected
Trichloroethene	79-01-6	0.87	6.0	6.7	250
Vinyl Chloride	75-01-4	0.75	2.8	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675BELDEN-04_032819	Date/Time Analyzed:	4/5/19 02:03 AM
Lab ID:	1904040-04A	Dilution Factor:	2.45
Date/Time Collecte	3/28/19 10:11 AM	Instrument/Filename:	msdp.i / p040428
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	4.4	4.8	Not Detected
1,4-Dioxane	123-91-1	2.3	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.2	4.4	4.8	Not Detected
Tetrachloroethene	127-18-4	1.6	7.5	8.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	3.0	4.4	4.8	Not Detected
Trichloroethene	79-01-6	0.86	5.9	6.6	39
Vinyl Chloride	75-01-4	0.74	2.8	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675BELDEN-05_032819	Date/Time Analyzed:	4/5/19 02:29 AM
Lab ID:	1904040-05A	Dilution Factor:	2.45
Date/Time Collecte	3/28/19 10:10 AM	Instrument/Filename:	msdp.i / p040429
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	4.4	4.8	Not Detected
1,4-Dioxane	123-91-1	2.3	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.2	4.4	4.8	Not Detected
Tetrachloroethene	127-18-4	1.6	7.5	8.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	3.0	4.4	4.8	Not Detected
Trichloroethene	79-01-6	0.86	5.9	6.6	6.4 J
Vinyl Chloride	75-01-4	0.74	2.8	3.1	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675BELDEN-06_032819	Date/Time Analyzed:	4/5/19 06:48 AM
Lab ID:	1904040-06A	Dilution Factor:	2.48
Date/Time Collecte	3/28/19 09:42 AM	Instrument/Filename:	msdp.i / p040430
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.9	4.4	4.9	Not Detected
1,4-Dioxane	123-91-1	2.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.2	4.4	4.9	Not Detected
Tetrachloroethene	127-18-4	1.6	7.6	8.4	3.3 J
trans-1,2-Dichloroethene	156-60-5	3.0	4.4	4.9	Not Detected
Trichloroethene	79-01-6	0.87	6.0	6.7	16
Vinyl Chloride	75-01-4	0.75	2.8	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	4/4/19 01:38 PM
Lab ID:	1904040-07A	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msdp.i / p040408c
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.75	1.8	2.0	Not Detected
1,4-Dioxane	123-91-1	0.95	5.0	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.90	1.8	2.0	Not Detected
Tetrachloroethene	127-18-4	0.64	3.0	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.2	1.8	2.0	Not Detected
Trichloroethene	79-01-6	0.35	2.4	2.7	Not Detected
Vinyl Chloride	75-01-4	0.30	1.1	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	4/4/19 09:17 AM
Lab ID:	1904040-08A	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msdp.i / p040402
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	101
1,4-Dioxane	123-91-1	114
cis-1,2-Dichloroethene	156-59-2	102
Tetrachloroethene	127-18-4	105
trans-1,2-Dichloroethene	156-60-5	104
Trichloroethene	79-01-6	112
Vinyl Chloride	75-01-4	126

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	104

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	4/4/19 11:31 AM
Lab ID:	1904040-09A	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msdp.i / p040403
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	99
1,4-Dioxane	123-91-1	108
cis-1,2-Dichloroethene	156-59-2	110
Tetrachloroethene	127-18-4	106
trans-1,2-Dichloroethene	156-60-5	87
Trichloroethene	79-01-6	105
Vinyl Chloride	75-01-4	127

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	101

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	4/4/19 11:56 AM
Lab ID:	1904040-09AA	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msdp.i / p040404
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	99
1,4-Dioxane	123-91-1	109
cis-1,2-Dichloroethene	156-59-2	109
Tetrachloroethene	127-18-4	103
trans-1,2-Dichloroethene	156-60-5	85
Trichloroethene	79-01-6	104
Vinyl Chloride	75-01-4	123

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	101

* % Recovery is calculated using unrounded analytical results.

8/5/2019

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #: MI001454.0003 / 30016344
Workorder #: 1907642

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 7/29/2019 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1907642

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0004.0001B
FAX:		PROJECT #	MI001454.0003 / 30016344 Ford LTP
DATE RECEIVED:	07/29/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	08/05/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	DUP-11675BELDEN-01_072419	TO-15	6.0 "Hg	15 psi
02A	SSMP-11675BELDEN-02_072419	TO-15	4.0 "Hg	15 psi
03A	SSMP-11675BELDEN-01_072419	TO-15	5.5 "Hg	15 psi
04A	SSMP-11675BELDEN-04_072419	TO-15	6.5 "Hg	15 psi
05A	SSMP-11675BELDEN-05_072419	TO-15	6.5 "Hg	15 psi
06A	SSMP-11675BELDEN-06_072419	TO-15	6.0 "Hg	15 psi
07A	SSMP-11675BELDEN-03_072419	TO-15	6.0 "Hg	15 psi
08A	Lab Blank	TO-15	NA	NA
09A	CCV	TO-15	NA	NA
10A	LCS	TO-15	NA	NA
10AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 08/05/19

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1907642

Seven 1 Liter Summa Canister (100% Certified) samples were received on July 29, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	DUP-11675BELDEN-01_072419	Date/Time Analyzed:	7/31/19 02:50 PM
Lab ID:	1907642-01A	Dilution Factor:	2.52
Date/Time Collected:	7/24/19 12:00 AM	Instrument/Filename:	msda.i / a073106
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.0	5.0	Not Detected
1,4-Dioxane	123-91-1	2.6	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	4.0	5.0	Not Detected
Tetrachloroethene	127-18-4	1.0	6.8	8.5	1.6 J
trans-1,2-Dichloroethene	156-60-5	1.9	4.0	5.0	Not Detected
Trichloroethene	79-01-6	0.68	5.4	6.8	2.7 J
Vinyl Chloride	75-01-4	0.64	2.6	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	85
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	96

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-11675BELDEN-02_072419	Date/Time Analyzed:	7/31/19 03:17 PM
Lab ID:	1907642-02A	Dilution Factor:	2.33
Date/Time Collected:	7/24/19 09:56 AM	Instrument/Filename:	msda.i / a073107
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.4	3.7	4.6	Not Detected
1,4-Dioxane	123-91-1	2.4	12	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.92	3.7	4.6	Not Detected
Tetrachloroethene	127-18-4	0.95	6.3	7.9	3.7 J
trans-1,2-Dichloroethene	156-60-5	1.8	3.7	4.6	Not Detected
Trichloroethene	79-01-6	0.63	5.0	6.3	62
Vinyl Chloride	75-01-4	0.60	2.4	3.0	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	87
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP



Client ID: SSMP-11675BELDEN-01_072419
Lab ID: 1907642-03A
Date/Time Collected: 7/24/19 09:04 AM
Media: 1 Liter Summa Canister (100% Certified)

Date/Time Analyzed: 7/31/19 03:44 PM
Dilution Factor: 2.47
Instrument/Filename: msda.i / a073108

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	3.9	4.9	Not Detected
1,4-Dioxane	123-91-1	2.6	13	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.98	3.9	4.9	Not Detected
Tetrachloroethene	127-18-4	1.0	6.7	8.4	1.5 J
trans-1,2-Dichloroethene	156-60-5	1.9	3.9	4.9	Not Detected
Trichloroethene	79-01-6	0.66	5.3	6.6	8.9
Vinyl Chloride	75-01-4	0.63	2.5	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	86
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-11675BELDEN-04_072419	Date/Time Analyzed:	7/31/19 04:10 PM
Lab ID:	1907642-04A	Dilution Factor:	2.58
Date/Time Collected:	7/24/19 09:05 AM	Instrument/Filename:	msda.i / a073109
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.1	5.1	Not Detected
1,4-Dioxane	123-91-1	2.7	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	4.1	5.1	Not Detected
Tetrachloroethene	127-18-4	1.0	7.0	8.8	2.6 J
trans-1,2-Dichloroethene	156-60-5	1.9	4.1	5.1	Not Detected
Trichloroethene	79-01-6	0.69	5.5	6.9	27
Vinyl Chloride	75-01-4	0.66	2.6	3.3	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	87
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-11675BELDEN-05_072419	Date/Time Analyzed:	7/31/19 04:37 PM
Lab ID:	1907642-05A	Dilution Factor:	2.58
Date/Time Collected:	7/24/19 09:30 AM	Instrument/Filename:	msda.i / a073110
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.1	5.1	Not Detected
1,4-Dioxane	123-91-1	2.7	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	4.1	5.1	Not Detected
Tetrachloroethene	127-18-4	1.0	7.0	8.8	1.9 J
trans-1,2-Dichloroethene	156-60-5	1.9	4.1	5.1	Not Detected
Trichloroethene	79-01-6	0.69	5.5	6.9	2.8 J
Vinyl Chloride	75-01-4	0.66	2.6	3.3	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	86
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-11675BELDEN-06_072419	Date/Time Analyzed:	7/31/19 05:04 PM
Lab ID:	1907642-06A	Dilution Factor:	2.52
Date/Time Collected:	7/24/19 09:42 AM	Instrument/Filename:	msda.i / a073111
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.0	5.0	Not Detected
1,4-Dioxane	123-91-1	2.6	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	4.0	5.0	Not Detected
Tetrachloroethene	127-18-4	1.0	6.8	8.5	1.2 J
trans-1,2-Dichloroethene	156-60-5	1.9	4.0	5.0	Not Detected
Trichloroethene	79-01-6	0.68	5.4	6.8	7.5
Vinyl Chloride	75-01-4	0.64	2.6	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	83
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	96

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-11675BELDEN-03_072419	Date/Time Analyzed:	7/31/19 05:30 PM
Lab ID:	1907642-07A	Dilution Factor:	2.52
Date/Time Collected:	7/24/19 10:11 AM	Instrument/Filename:	msda.i / a073112
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.0	5.0	Not Detected
1,4-Dioxane	123-91-1	2.6	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	4.0	5.0	Not Detected
Tetrachloroethene	127-18-4	1.0	6.8	8.5	2.8 J
trans-1,2-Dichloroethene	156-60-5	1.9	4.0	5.0	Not Detected
Trichloroethene	79-01-6	0.68	5.4	6.8	270
Vinyl Chloride	75-01-4	0.64	2.6	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	85
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	7/31/19 12:34 PM
Lab ID:	1907642-08A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a073105a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.59	1.6	2.0	Not Detected
1,4-Dioxane	123-91-1	1.0	5.4	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.40	1.6	2.0	Not Detected
Tetrachloroethene	127-18-4	0.41	2.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.75	1.6	2.0	Not Detected
Trichloroethene	79-01-6	0.27	2.1	2.7	Not Detected
Vinyl Chloride	75-01-4	0.26	1.0	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	89
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	96

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	CCV	Date/Time Analyzed:	7/31/19 11:18 AM
Lab ID:	1907642-09A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a073102
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	94
1,4-Dioxane	123-91-1	87
cis-1,2-Dichloroethene	156-59-2	89
Tetrachloroethene	127-18-4	101
trans-1,2-Dichloroethene	156-60-5	86
Trichloroethene	79-01-6	93
Vinyl Chloride	75-01-4	89

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCS	Date/Time Analyzed:	7/31/19 11:43 AM
Lab ID:	1907642-10A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a073103
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	97
1,4-Dioxane	123-91-1	89
cis-1,2-Dichloroethene	156-59-2	102
Tetrachloroethene	127-18-4	104
trans-1,2-Dichloroethene	156-60-5	79
Trichloroethene	79-01-6	97
Vinyl Chloride	75-01-4	92

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	87
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	98

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	7/31/19 12:08 PM
Lab ID:	1907642-10AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a073104
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	97
1,4-Dioxane	123-91-1	93
cis-1,2-Dichloroethene	156-59-2	102
Tetrachloroethene	127-18-4	104
trans-1,2-Dichloroethene	156-60-5	79
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	92

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	87
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	97

* % Recovery is calculated using unrounded analytical results.

Martin, Michele

From: Hinskey, Kristoffer
Sent: Tuesday, December 11, 2018 2:46 PM
To: Brandon Alger (AlgerB@michigan.gov)
Cc: 'Vens, Beth (DEQ)'; 'Quiggle, Lisa (DHHS)'; 'RafalskiA@michigan.gov'; 'CoochA@michigan.gov'; Walton, Todd (T.M.); Pinter, Chuck (C.H.); Quinnan, Joseph
Subject: Livonia Transmission Plant - 24 Hr Notice
Attachments: E203631_1812015_20181129_report.pdf; E203631_1812015_MI001454.0002_3_4.00002_2B_3B_2018-12-10_verification.pdf; E203631_1812016_20181129_report.pdf; E203631_1812016_MI001454.0002_3_4.00002_2B_3B_2018-12-10_verification.pdf

Brandon –

This email serves as the 24-hour notification for an exceedance as it relates to offsite vapor intrusion assessment conducted under the approval letter provided by the MDEQ for the VI RespAP.

Analytical results within a commercial building located at 11675 Belden Court indicated that detections were present for TCE and PCE collected from the sub-slab monitoring points (SSMP) beneath the building. Sub-slab soil gas results for TCE exceeded the soil gas criteria of 130 $\mu\text{g}/\text{m}^3$ in 1 of 6 collected samples. TCE was detected in all 6 of the sub-slab soil vapor samples at concentrations ranging from 34 $\mu\text{g}/\text{m}^3$ to 280 $\mu\text{g}/\text{m}^3$. Tetrachloroethene (PCE) was the only other chlorinated compound detected in sub-slab soil vapor. PCE was detected in 2 of 6 samples at concentrations of 1.5J and 1.6J $\mu\text{g}/\text{m}^3$, which is below the screening level of 2,700 $\mu\text{g}/\text{m}^3$ provided by the MDEQ were noted.

Indoor air analytical results were compared to the *Volatilization to Indoor Air Recommendations of Interim Action Screening Levels and Time Sensitive Interim Action Screening Level* and indicated exceedances for TCE. TCE was detected in all 5 indoor air samples collected with concentrations ranging from 350 to 730 $\mu\text{g}/\text{m}^3$. The Time-Sensitive Recommended Interim Action Screening Level (TRIASL₁₂) for a commercial building for TCE is 12 $\mu\text{g}/\text{m}^3$.

A detailed chemical inventory was completed at the facility. The team identified the use of TCE inside the facility during the processing of asphalt sampling in support of civil engineering work conducted in the building. Based on the documented use of TCE inside the space, MIOSHA standards for indoor air exposure may be more appropriate for use than the RIASLs. In addition, TCE has not been detected in groundwater or soil gas collected near 11675 Belden Court.

Arcadis will be provide a response memo providing additional information for the property, similar to previous submittals. The property owner is being provided the data package, that contained the analytical results.

Thank you

Pictures are provided below.





MASTER LIST
LIVONIA LABORATORY / EQUIPMENT CHEMICALS

Material Codes: I = Irritant, P = Acute Toxic, S = Irritant, W = Water Reactive, C = Carcinogenic (cancer causing), E = Explosive, and T = affects a specific target organ.

Name	Description	Date
SA Red	Red powder, odorless, solid	10/05/15
Alcohol 8101-S-A	Clear volatile-like liquid	06/19/12
Alcohol 8101-S-B	Clear volatile-like liquid	07/02/12
Asbestos	Clear, odorless, viscous liquid, mild like odor	09/27/16
Ascorbic	Light yellow liquid, odorless	12/10/15
Ammonium Carbonate	Colorless crystal or white powder w/ ammonia odor	04/30/14
Asphalt Cement, NF grades	Brown to black liquid, sour tar-like odor	10/02/14
Bentonite Clay	Eye Irrigant/Cryostatine Saline, Bentonite Clay	02/09/15
Benzene	Clear, colorless liquid, sweetish odor, aromatic	12/04/14
BIODACT AE-O	Light yellow liquid with citrus odor	03/09/04
Buffered Eyelet	Clear, colorless, nearly odorless liquid	EXEMPT
Buffer Solutions - pH 4.01	Light red, colorless liquid	05/18/15
Buffer Solutions - pH 7.0	Light yellow, colorless liquid	05/18/15
Buffer Solutions - pH 10.0	Light blue, colorless liquid	05/18/15
Calcium Carbonate	Fine white powder, odorless	05/13/14
Calcium Sulfate, Anhydrous	White granules or powder, odorless	05/05/15
Cesium Chloride	White or gray-white granules, odorless	02/26/14
Chlorobenzene Check Gas (002103)	Colorless, Malodorous Gas	06/24/16
Chlorobenzene Check Gas Mixture (002253)	Colorless, odorless gas mixture	04/19/13
Chlorobenzene Check Gas (Calgas)	Colorless, gas, rotten egg odor	10/03/16
Firefly's Causing Compound	Dark solid with no perceptible odor	06/06/15
Block-Set Molecular Cement Dissolver	Clear, odorless liquid	01/02/17
Durapack Heavy MSDS Cement based Mortar	Gray powder, odorless	03/04/15
Conductivity Standard Solutions	Clear, colorless liquid, odorless	05/21/15
Deionized Water	Clear, odorless liquid, odorless	02/16/15
Indicating ORBITAL	Blue granules, odorless	01/25/17
Evo Sonic Safety Horn	Colorless liquefied gas, slight odor	05/26/15
Empro-AE	Clear liquid, etheral/acetol like odor	02/17/15
Ethyl Alcohol, Deionized	Colorless liquid, mild odor	10/29/14
Evapo-Rust	Yellow liquid, slight odor	03/24/15
Eveready® Alkaline Batteries	Solid Battery	01/01/14
Exel Clean HD Hand Cleaner	Clear, light amber colored liquid, citrus odor	04/09/15
Eucalyptus Solution	Colorless liquid with no discernible odor	07/02/15
Fault Finder Penetrant (discontinued)	Red liquid with aromatic hydrocarbon odor	01/08/03
Fly Ash (Blomhouse coal fly and bottom ash)	Grey/black or brownish powder w/oxidized masses	04/21/15
Granite	Angular particles, salt & pepper colored, brittle	06/01/15
Hydrochloric Acid	Colorless to light yellow liquid, pungent, irritating odor	01/10/17
Instant Ice Pack	Powder contained in pouch	EXEMPT
Lime, Hydrated	White powder	06/04/15
Liquid Hammer	Clear, colorless liquid, faint glycol (burnt sugar) odor	04/04/11
Liquid Spray Developer LDI (Kodak) (discontinued)	White volatile, mobile liquid suspension	07/17/06
Liquinox	Pale yellow liquid, odorless	03/10/16
Magniflex Magnest: Particle SA Red	Reddish brown dusty powder	09/24/14
Marking Paint (Blue)	Color varies, solvent based odor	05/02/16
Marking Paint (Survey)	Color varies, solvent based odor	06/07/15
Mean Sheek® Waterproof Marking Stick	Red, Black, Yellow or White, either or	EXEMPT
Mercury	Silver-white, heavy, mobile, liquid metal	09/20/14
Molykote® 44 High Temp. Bearing Grease, Light	White, slight odor	11/02/16
Nitrogen	Colorless compressed gas	05/26/16
Peel Away ST-1	Blue paste, odorless	03/03/15
Phenolphthalein Solutions 0.1-5.0% in 95% alcohol	Clear, colorless to slight pink liquid	05/01/15
MFG-A Compound (Polymeric MDI)	Dark brown, viscous liquid with slight odor	
Polyether polyol based 8-Component Polymeric MDI	Clear, colorless liquid, odorless to slightly	

Portland Cement	Solid gray, off white, white powder	04/23/15
Potassium Chloride Aqueous Solution, Dilute	Colorless, odorless liquid	05/01/15
Potassium Hydrogen Phthalate	Clear, colorless liquid, no odor	11/24/15
Red Insulating Varnish	Red liquid	10/20/15
Rust-oilium Rust Reformer	Aerosol, liquid, solvent like odor	07/24/15
Sand	Solid, particles of granular mixture	09/01/15
Self-Adhering Rubberized Asphalt Membrane	Black rubberized asphalt on silver aluminum foil, petrol odor	08/11/15
LSP Heavy-Duty Silicone Lubricant	White milky liquid with mild odor	07/02/15
Smoke Tube	Slightly yellowish clear liquid	09/24/13
Sodium Hexametaphosphate	White powder or plates	03/01/15
Sodium Bicarbonate, Aqueous Solutions	Clear, odorless liquid	05/01/15
Sodium Thiosulfate Pentahydrate	Colorless/white solid, odorless	06/25/15
3M Spray Adhesive	Clear aerosol, sweet fruity odor	04/07/16
Travel-Tack Spray Adhesive	Clear aerosol	10/01/15
Triacetin	Colorless liquid, fatty odor	04/02/14
Trichloroethylene	Clear, colorless liquid, chloroform-like odor	04/28/15
Ultr-Sonix (couplant compound)	Light blue green, high viscosity liquid, mild odor	05/22/15
Premium (High) Vacuum Pump Oil	Light amber liquid, mild petroleum odor	04/20/15
WD-40, (aerosol)	Light amber liquid, mild odor	07/20/14
WD-40, (bulk)	Light amber liquid, mild odor	08/25/15
Wipes	Opaque white liquid saturated unto towel, citrus odor	06/01/15
XSORB Rock Solid Paint Hardener	White, buff aggregate or powder solid, odorless	12/23/14
XYPEX Cementitious Products	Gray solid, odorless	03/31/15
XYPEX Xycrylic Admix	Milky white liquid, ammonia like odor	06/01/15
Zero Oxygen Solution	Colorless, odorless	05/18/15

Martin, Michele

From: Hinskey, Kristoffer
Sent: Thursday, June 13, 2019 10:35 AM
To: Brandon Alger (AlgerB@michigan.gov)
Cc: Vens, Beth (DEQ); Quiggle, Lisa (DHHS); Rafalski, Alexandra (DHHS); Cooch, Aaron (DHHS-Contractor); Walton, Todd (T.M.); Pinter, Chuck (C.H.); Quinnan, Joseph
Subject: Livonia Transmission Plant - 24 Hr Notification 11675 Belden Court
Attachments: 11675 Belden Data Package.pdf

Brandon -

This email serves as the notification for an exceedance as it relates to offsite vapor intrusion assessment conducted under the approval letter provided by the MDEQ for the VI RespAP.

Analytical results from the commercial property at 11675 Belden Court indicated that TCE was detected in indoor air collected from the property above the *Volatilization to Indoor Air Interim Action Screening Levels and Time Sensitive Interim Action Screening Level*. TCE was detected in all 5 indoor air samples collected with concentrations ranging from 3.8 to 14 $\mu\text{g}/\text{m}^3$. TCE was detected in all sub-slab soil gas samples collected from below the slab, however only one detection exceeded the screening level.

This property was originally sampled in November 2018 and TCE was noted at higher concentrations in the first round of sampling. A detailed chemical inventory was completed at this property and a number of potential sources of VOCs were encountered including products containing TCE. These products were left in place during the first round of sampling but were removed prior to the second round of sampling. This resulted in a noticeable reduction of TCE concentrations in indoor air, however exceedances of the screening level persisted through both rounds.

The property owner was provided the data package (attached), that contains the analytical results.

Thank you

Kris Hinskey | Certified Project Manager | kristoffer.hinskey@arcadis.com

Arcadis | Arcadis of Michigan, LLC

28550 Cabot Drive Suite 500 Novi MI | 48377 | USA

T. +1 269 579 5402

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Be green, leave it on the screen.

Martin, Michele

From: Hinskey, Kristoffer
Sent: Thursday, August 15, 2019 2:28 PM
To: Brandon Alger (AlgerB@michigan.gov)
Cc: Vens, Beth (DEQ); Quiggle, Lisa (DHHS); Rafalski, Alexandra (DHHS); Cooch, Aaron (DHHS-Contractor); Merritt, Lawrence (L.H.); Walton, Todd (T.M.); Pinter, Chuck (C.H.); Quinnan, Joseph
Subject: Livonia Transmission Plant - 24 Hr Notification 11675 Belden Court
Attachments: 11675 Belden Data Package.pdf

Brandon –

This email serves as the notification for an exceedance as it relates to offsite vapor intrusion assessment conducted under the approval letter provided by EGLE for the VI RespAP.

Analytical results from the third round of sampling at commercial property at 11675 Belden Court indicated that TCE was detected in indoor air collected from the property above the *Volatilization to Indoor Air Interim Action Screening Level* for non-residential exposures (i.e., RIASL₁₂) of 4 µg/m³. TCE was detected in all 5 indoor air samples collected with concentrations ranging from 4.1 to 5.5 µg/m³. TCE was detected in all sub-slab soil gas samples collected from below the slab, however only one detection exceeded the screening level.

This property was originally sampled in November 2018 and TCE was noted at higher concentrations in the first round of sampling. A detailed chemical inventory was completed at this property and a number of potential sources of VOCs were encountered including products containing TCE. These products were left in place during the first round of sampling but were removed prior to the second and third rounds of sampling. The removal of products containing TCE resulted in a noticeable reduction of TCE concentrations in indoor air, however exceedances of the screening level persist.

The property owner was provided the data package (attached), that contains the analytical results.

Thank you

Kris Hinskey | Certified Project Manager | kristoffer.hinskey@arcadis.com

Arcadis | Arcadis of Michigan, LLC

28550 Cabot Drive Suite 500 Novi MI | 48377 | USA

T. +1 269 579 5402

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Be green, leave it on the screen.

Martin, Michele

From: Hinskey, Kristoffer
Sent: Friday, December 6, 2019 9:12 AM
To: Brandon Alger (AlgerB@michigan.gov); Vens, Beth (DEQ); Rafalski, Alexandra (DHHS); Cooch, Aaron (DHHS-Contractor); Merritt, Lawrence (L.H.); Walton, Todd (T.M.); Pinter, Chuck (C.H.)
Cc: Quinnan, Joseph
Subject: Livonia Transmission Plant - 24 Hr Notification 11675 Belden Court
Attachments: 11675 Belden Data Package.pdf; Livonia Transmission Plant - 24 Hr Notice

Brandon –

This email serves as the notification for an exceedance as it relates to offsite vapor intrusion assessment conducted under the approval letter provided by EGLE for the VI RespAP.

Analytical results from the fourth round of sampling at commercial property at 11675 Belden Court indicated that TCE was detected in indoor air collected from the property above the *Volatilization to Indoor Air Interim Action Screening Level* for non-residential exposures (i.e., RIASL₁₂) of 4 µg/m³. TCE was detected in all 6 indoor air samples collected with concentrations ranging from 1.1 to 5.1 µg/m³. TCE was detected in 5 of the 6 sub-slab soil gas samples collected from below the slab, however only one detection exceeded the screening level.

This property was originally sampled in November 2018 and TCE was noted at higher concentrations in the first round of sampling. A detailed chemical inventory was completed at this property and a number of potential sources of VOCs were encountered including products containing TCE, the original notification is attached. These products were left in place during the first round of sampling but were removed prior to the second, third, and fourth rounds of sampling. The removal of products containing TCE has resulted in a continuous reduction of TCE concentrations in indoor air and sub slab soil gas.

The property owner was provided the data package (attached), that contains the analytical results.

Thank you

Kris Hinskey | Certified Project Manager | kristoffer.hinskey@arcadis.com

Arcadis | Arcadis of Michigan, LLC
28550 Cabot Drive Suite 500 Novi MI | 48377 | USA
T. +1 269 579 5402

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Be green, leave it on the screen.

TRANSMITTAL LETTER



To:
Industrial Properties LLC
Shawn Collins
Brandon Alger (MDEQ)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:
December 11, 2018

Subject:
Vapor Intrusion Assessment
Data Package

Arcadis Project No.:

We are sending you hard copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Delivery Date	Drawing No.	Rev.	Description	Action*
1	12/12/2018			Figure	
1	12/12/2018			Analytical Results	
1	12/12/2018			Field Notes and Drawings	

Action*

- A Approved CR Correct and Resubmit Resubmit _____ Copies
 AN Approved As Noted F File Return _____ Copies
 AS As Requested FA For Approval Review and Comment
 Other: _____

Mailing Method

- U.S. Postal Service 1st Class Courier/Hand Delivery FedEx Priority Overnight FedEx 2-Day Delivery
 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
 Other: email

Thank you for cooperating with the air sampling at your property on November 29, 2018. Attached is your data package.

CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: T. STEVENS TR: P. CURRY PROJECT NUMBER: M001373.0001.00003 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
 Z:\GIS\Projects_ENV\Novi\Brighton_MIV\Ford\Livonia\GIS\docs\2018-11\11675Belden.mxd PLOTTED: 11/30/2018 12:29:10 PM BY: msmiller



LEGEND:

- INDOOR AIR LOCATION
- ⊕ AMBIENT AIR LOCATION
- SUB-SLAB MONITORING POINT LOCATION
- ▭ BUILDING
- ▭ PROPERTY BOUNDARIES



FORD MOTOR COMPANY
 LIVONIA TRANSMISSION PLANT
 LIVONIA, MICHIGAN

AIR SAMPLING LOCATIONS



FIGURE
1

12/10/2018
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1812015

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 12/3/2018 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1812015

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0003.0001
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	12/03/2018	CONTACT:	Ausha Scott
DATE COMPLETED:	12/10/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	AA-11675Belden-01_112918	Modified TO-15	3.1 "Hg	5.1 psi
02A	IAF-11675Belden-01_112918	Modified TO-15	5.5 "Hg	5.3 psi
03A	IAF-11675Belden-02_112918	Modified TO-15	6.7 "Hg	5.1 psi
04A	IAF-11675Belden-03_112918	Modified TO-15	6.3 "Hg	5.1 psi
05A	IAF-11675Belden-04_112918	Modified TO-15	5.5 "Hg	5.1 psi
06A	IAF-11675Belden-05_112918	Modified TO-15	6.7 "Hg	5 psi
07A	Lab Blank	Modified TO-15	NA	NA
08A	CCV	Modified TO-15	NA	NA
09A	LCS	Modified TO-15	NA	NA
09AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY:



Technical Director

DATE: 12/10/18

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 1812015

Six 6 Liter Summa Canister (100% Certified) samples were received on December 03, 2018. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

Dilution was performed on samples IAF-11675Belden-01_112918, IAF-11675Belden-02_112918, IAF-11675Belden-03_112918, IAF-11675Belden-04_112918 and IAF-11675Belden-05_112918 due to the presence of high level target species.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-11675Belden-01_112918	Date/Time Analyzed:	12/4/18 07:12 PM
Lab ID:	1812015-01A	Dilution Factor:	1.50
Date/Time Collected:	11/29/18 03:59 PM	Instrument/Filename:	msdv.i / v120413
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.29	0.54	0.59	Not Detected
1,4-Dioxane	123-91-1	0.32	0.49	0.54	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.36	0.54	0.59	Not Detected
Tetrachloroethene	127-18-4	0.51	0.92	1.0	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.50	0.54	0.59	Not Detected
Trichloroethene	79-01-6	0.37	0.72	0.81	Not Detected
Vinyl Chloride	75-01-4	0.29	0.34	0.38	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	96

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675Belden-01_112918	Date/Time Analyzed:	12/4/18 08:25 PM
Lab ID:	1812015-02A	Dilution Factor:	3.34
Date/Time Collected:	11/29/18 03:08 PM	Instrument/Filename:	msdv.i / v120414
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.64	1.2	1.3	Not Detected
1,4-Dioxane	123-91-1	0.70	1.1	1.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.80	1.2	1.3	Not Detected
Tetrachloroethene	127-18-4	1.1	2.0	2.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.1	1.2	1.3	Not Detected
Trichloroethene	79-01-6	0.82	1.6	1.8	630
Vinyl Chloride	75-01-4	0.65	0.77	0.85	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	106

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675Belden-02_112918	Date/Time Analyzed:	12/4/18 09:40 PM
Lab ID:	1812015-03A	Dilution Factor:	3.48
Date/Time Collected:	11/29/18 03:52 PM	Instrument/Filename:	msdv.i / v120416
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.67	1.2	1.4	Not Detected
1,4-Dioxane	123-91-1	0.73	1.1	1.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.84	1.2	1.4	Not Detected
Tetrachloroethene	127-18-4	1.2	2.1	2.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.2	1.2	1.4	Not Detected
Trichloroethene	79-01-6	0.86	1.7	1.9	380
Vinyl Chloride	75-01-4	0.67	0.80	0.89	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675Belden-03_112918	Date/Time Analyzed:	12/4/18 10:18 PM
Lab ID:	1812015-04A	Dilution Factor:	3.42
Date/Time Collected:	11/29/18 03:55 PM	Instrument/Filename:	msdv.i / v120417
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.66	1.2	1.4	Not Detected
1,4-Dioxane	123-91-1	0.72	1.1	1.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.82	1.2	1.4	Not Detected
Tetrachloroethene	127-18-4	1.2	2.1	2.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.1	1.2	1.4	Not Detected
Trichloroethene	79-01-6	0.84	1.6	1.8	350
Vinyl Chloride	75-01-4	0.66	0.79	0.87	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	108
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675Belden-04_112918	Date/Time Analyzed:	12/4/18 10:55 PM
Lab ID:	1812015-05A	Dilution Factor:	5.50
Date/Time Collected:	11/29/18 03:56 PM	Instrument/Filename:	msdv.i / v120418
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.0	2.0	2.2	Not Detected
1,4-Dioxane	123-91-1	1.2	1.8	2.0	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	2.0	2.2	Not Detected
Tetrachloroethene	127-18-4	1.9	3.4	3.7	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.8	2.0	2.2	Not Detected
Trichloroethene	79-01-6	1.4	2.7	3.0	730
Vinyl Chloride	75-01-4	1.1	1.3	1.4	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	91
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675Belden-05_112918	Date/Time Analyzed:	12/5/18 06:17 AM
Lab ID:	1812015-06A	Dilution Factor:	4.32
Date/Time Collected:	11/29/18 03:57 PM	Instrument/Filename:	msdv.i / v120419
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.83	1.5	1.7	Not Detected
1,4-Dioxane	123-91-1	0.91	1.4	1.6	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	1.5	1.7	Not Detected
Tetrachloroethene	127-18-4	1.5	2.6	2.9	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.4	1.5	1.7	Not Detected
Trichloroethene	79-01-6	1.1	2.1	2.3	700
Vinyl Chloride	75-01-4	0.84	0.99	1.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	107

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	12/4/18 12:58 PM
Lab ID:	1812015-07A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdv.i / v120405c
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.19	0.36	0.40	Not Detected
1,4-Dioxane	123-91-1	0.21	0.32	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.24	0.36	0.40	Not Detected
Tetrachloroethene	127-18-4	0.34	0.61	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.34	0.36	0.40	Not Detected
Trichloroethene	79-01-6	0.25	0.48	0.54	Not Detected
Vinyl Chloride	75-01-4	0.19	0.23	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	12/4/18 09:38 AM
Lab ID:	1812015-08A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdv.i / v120402
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	87
1,4-Dioxane	123-91-1	73
cis-1,2-Dichloroethene	156-59-2	94
Tetrachloroethene	127-18-4	92
trans-1,2-Dichloroethene	156-60-5	88
Trichloroethene	79-01-6	99
Vinyl Chloride	75-01-4	89

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	12/4/18 11:01 AM
Lab ID:	1812015-09A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdv.i / v120403
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	92
1,4-Dioxane	123-91-1	73
cis-1,2-Dichloroethene	156-59-2	90
Tetrachloroethene	127-18-4	92
trans-1,2-Dichloroethene	156-60-5	100
Trichloroethene	79-01-6	94
Vinyl Chloride	75-01-4	95

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	102

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	12/4/18 11:55 AM
Lab ID:	1812015-09AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdv.i / v120404
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	90
1,4-Dioxane	123-91-1	72
cis-1,2-Dichloroethene	156-59-2	90
Tetrachloroethene	127-18-4	94
trans-1,2-Dichloroethene	156-60-5	100
Trichloroethene	79-01-6	94
Vinyl Chloride	75-01-4	97

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	101

* % Recovery is calculated using unrounded analytical results.



December 10, 2018

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: MI001454.0002/3/4.00002/2B/3B
Client project scope reference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics - Folsom
Laboratory submittal: 1812015
Sample date: 2018-11-29
Report received by CADENA: 2018-12-10
Initial Data Verification completed by CADENA: 2018-12-10

6 Air samples were analyzed for TO-15 parameters.

There were no significant QC anomalies or exceptions to report.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

12/10/2018
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1812016

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 12/3/2018 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1812016

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0003.0001
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	12/03/2018	CONTACT:	Ausha Scott
DATE COMPLETED:	12/10/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SSMP-11675Belden-01_112918	TO-15	3.9 "Hg	15.1 psi
02A	SSMP-11675Belden-02_112918	TO-15	3.3 "Hg	14.9 psi
03A	SSMP-11675Belden-03_112918	TO-15	8 "Hg	15.1 psi
04A	SSMP-11675Belden-04_112918	TO-15	4.5 "Hg	15 psi
05A	SSMP-11675Belden-05_112918	TO-15	4.7 "Hg	14.9 psi
06A	SSMP-11675Belden-06_112918	TO-15	4.3 "Hg	14.7 psi
07A	Lab Blank	TO-15	NA	NA
08A	CCV	TO-15	NA	NA
09A	LCS	TO-15	NA	NA
09AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 12/10/18

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1812016

Six 1 Liter Summa Canister samples were received on December 03, 2018. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified (0.2 ppbv for compounds reported at 0.5 ppbv and 0.8 ppbv for compounds reported at 2.0 ppbv) may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675Belden-01_112918	Date/Time Analyzed:	12/6/18 05:26 PM
Lab ID:	1812016-01A	Dilution Factor:	2.33
Date/Time Collected:	11/29/18 08:56 AM	Instrument/Filename:	msda.i / a120613
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.7	4.6	Not Detected
1,4-Dioxane	123-91-1	3.4	8.4	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.7	4.6	Not Detected
Tetrachloroethene	127-18-4	1.4	6.3	7.9	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.3	3.7	4.6	Not Detected
Trichloroethene	79-01-6	2.0	5.0	6.3	34
Vinyl Chloride	75-01-4	1.1	2.4	3.0	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	112
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675Belden-02_112918	Date/Time Analyzed:	12/6/18 09:29 PM
Lab ID:	1812016-02A	Dilution Factor:	2.26
Date/Time Collected:	11/29/18 10:02 AM	Instrument/Filename:	msda.i / a120614
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.6	4.5	Not Detected
1,4-Dioxane	123-91-1	3.2	8.1	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.6	4.5	Not Detected
Tetrachloroethene	127-18-4	1.4	6.1	7.7	1.6 J
trans-1,2-Dichloroethene	156-60-5	1.2	3.6	4.5	Not Detected
Trichloroethene	79-01-6	1.9	4.8	6.1	110
Vinyl Chloride	75-01-4	1.1	2.3	2.9	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	110
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-11675Belden-03_112918	Date/Time Analyzed:	12/6/18 09:56 PM
Lab ID:	1812016-03A	Dilution Factor:	2.76
Date/Time Collected:	11/29/18 09:27 AM	Instrument/Filename:	msda.i / a120615
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.1	4.4	5.5	Not Detected
1,4-Dioxane	123-91-1	4.0	9.9	20	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.6	4.4	5.5	Not Detected
Tetrachloroethene	127-18-4	1.7	7.5	9.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.5	4.4	5.5	Not Detected
Trichloroethene	79-01-6	2.4	5.9	7.4	280
Vinyl Chloride	75-01-4	1.3	2.8	3.5	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	91
4-Bromofluorobenzene	460-00-4	70-130	113
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675Belden-04_112918	Date/Time Analyzed:	12/6/18 10:22 PM
Lab ID:	1812016-04A	Dilution Factor:	2.38
Date/Time Collected:	11/29/18 10:08 AM	Instrument/Filename:	msda.i / a120616
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.8	4.7	Not Detected
1,4-Dioxane	123-91-1	3.4	8.6	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.8	4.7	Not Detected
Tetrachloroethene	127-18-4	1.4	6.4	8.1	1.5 J
trans-1,2-Dichloroethene	156-60-5	1.3	3.8	4.7	Not Detected
Trichloroethene	79-01-6	2.0	5.1	6.4	110
Vinyl Chloride	75-01-4	1.2	2.4	3.0	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	112
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675Belden-05_112918	Date/Time Analyzed:	12/6/18 10:48 PM
Lab ID:	1812016-05A	Dilution Factor:	2.39
Date/Time Collected:	11/29/18 09:47 AM	Instrument/Filename:	msda.i / a120617
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.8	4.7	Not Detected
1,4-Dioxane	123-91-1	3.4	8.6	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.8	4.7	Not Detected
Tetrachloroethene	127-18-4	1.4	6.5	8.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.3	3.8	4.7	Not Detected
Trichloroethene	79-01-6	2.0	5.1	6.4	74
Vinyl Chloride	75-01-4	1.2	2.4	3.0	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-11675Belden-06_112918	Date/Time Analyzed:	12/6/18 11:15 PM
Lab ID:	1812016-06A	Dilution Factor:	2.33
Date/Time Collected:	11/29/18 09:18 AM	Instrument/Filename:	msda.i / a120618
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.7	4.6	Not Detected
1,4-Dioxane	123-91-1	3.4	8.4	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.7	4.6	Not Detected
Tetrachloroethene	127-18-4	1.4	6.3	7.9	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.3	3.7	4.6	Not Detected
Trichloroethene	79-01-6	2.0	5.0	6.3	57
Vinyl Chloride	75-01-4	1.1	2.4	3.0	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	119
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	12/6/18 11:36 AM
Lab ID:	1812016-07A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a120605a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.75	1.6	2.0	Not Detected
1,4-Dioxane	123-91-1	1.4	3.6	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.59	1.6	2.0	Not Detected
Tetrachloroethene	127-18-4	0.61	2.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.56	1.6	2.0	Not Detected
Trichloroethene	79-01-6	0.86	2.1	2.7	Not Detected
Vinyl Chloride	75-01-4	0.48	1.0	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	12/6/18 10:19 AM
Lab ID:	1812016-08A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a120602
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	93
1,4-Dioxane	123-91-1	100
cis-1,2-Dichloroethene	156-59-2	98
Tetrachloroethene	127-18-4	109
trans-1,2-Dichloroethene	156-60-5	98
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	85

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	113
Toluene-d8	2037-26-5	70-130	96

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	12/6/18 10:44 AM
Lab ID:	1812016-09A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a120603
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	95
1,4-Dioxane	123-91-1	100
cis-1,2-Dichloroethene	156-59-2	93
Tetrachloroethene	127-18-4	108
trans-1,2-Dichloroethene	156-60-5	103
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	90

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	98

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	12/6/18 11:10 AM
Lab ID:	1812016-09AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a120604
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	92
1,4-Dioxane	123-91-1	100
cis-1,2-Dichloroethene	156-59-2	84
Tetrachloroethene	127-18-4	104
trans-1,2-Dichloroethene	156-60-5	101
Trichloroethene	79-01-6	99
Vinyl Chloride	75-01-4	86

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	91
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	97

* % Recovery is calculated using unrounded analytical results.



December 10, 2018

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: MI001454.0002/3/4.00002/2B/3B
Client project scope reference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics - Folsom
Laboratory submittal: 1812016
Sample date: 2018-11-29
Report received by CADENA: 2018-12-10
Initial Data Verification completed by CADENA: 2018-12-10

6 Air samples were analyzed for TO-15 parameters.

There were no significant QC anomalies or exceptions to report.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Comm: 2582
 Starting: 102-0922
 Ending: 102-0951

DAILY LOG

Project No.: MI001454.0003

Page 1 of 1

Site Location: Livonia, MI 11675 Bellers Ct

Prepared By: Hayden Lohr

Date	Time	Description of Activities
11-21-18		Purpose: Visit 1 - Pkg Survey/Sketch & SSMP Installation (6 total)
		Arcadis: Hayden Lohr, Christian Weaver; GPRS: Evan Soto
		Weather: Cloudy - mid 30s
	0800	Arcadis & GPRS on site
	0805	Site walk through
	0810	Christian begins site sketch
	0815	Hayden conducts interview (DEQ survey form)
	0845	Conduct chemical inventory - Jeff will store chemicals in Radioactive Material Room
		Chemicals will also be stored in chem. closet in warehouse.
	0930	Install SSMP-01 in Warehouse (SW side)
	0945	Install SSMP-02 in Warehouse (W side)
	1000	Install SSMP-03 in Warehouse (N side)
	1010	Install SSMP-04 in office (N side)
	1020	Install SSMP-05 in office closet
	1035	Install SSMP-06, next to printer in office
	1115	Arcadis off site
		<p>Notes - Soil samples will be processed during sampling - high potential for soil off-gassing</p> <ul style="list-style-type: none"> - Large volumes of TCE stored in warehouse - used for asphalt extraction - Chemicals to be stored in Radioactive material room and chemical cabinet - SOIL BORING NOT COMPLETED PER PROPERTY OWNERS REQUEST.

DAILY LOG

Camera: 2582

Starting: 102-0992

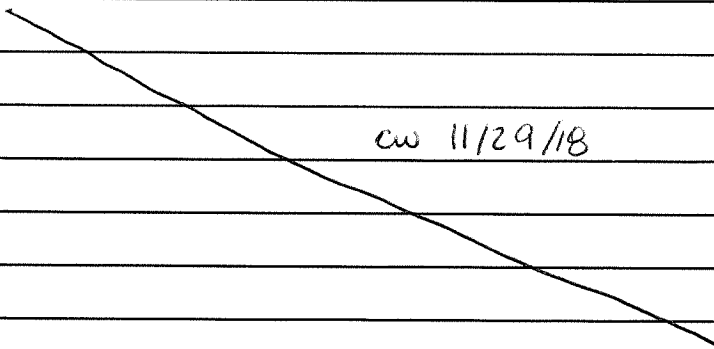
Ending: 102-0997

Project No.: MI001454.0003

Page 1 of 1

Site Location: Livonia, MI 11675 Belden Court

Prepared By: Christina Weaver

Date	Time	Description of Activities
11-29-18		Purpose: Visit 2 - Air canister deploy, SSMP
		Sampling (6 SSMP) (6 Air Canister - 8hr)
		Accadis: Hayden Ladd, Christina Weaver
		Weather: Cloudy, 22°F, 50% chance snow
	0800	Accadis on site
	0810	Deploy Air Canisters
	0825	Finish Deployment,
	0827	Begin SSMP sampling (SSMP 1-3 done by C. Weaver 4-6 done by H. Ladd)
		Note: Bay doors inside warehouse ^{may} be opened through out the day. Fans ^{10:17} may be on. Soil samples ^{potentially} offgassing
	1020	Accadis off site
	1500	Accadis on site for visit 3 - Retrieving air canisters and sampling w/ gem & micromanometer (8172) (495-1001)
	1605	Finish sampling vapor pins and retrieval OFF site
		
		cw 11/29/18

Utilities and Structures Checklist

THIS FORM MUST BE COMPLETED IN ENTIRETY PRIOR TO BEGINNING ANY INTRUSIVE WORK

Project: Ford LTP 11675 Belden
 Project Number: ME 00 2454.0003
 Form Completion Date: 11/21/18 Form Expiration Date: 11/13/18
 (15 business days post form completion date)

Pre-Field Work

Required: One Call or "811" notified 48-72 hours in advance of work? #: NO MISSING NO DTW
 Ticket Expiration Date NA (Review State Requirements)
 Utility companies notified during the One Call process See attached ticket

List any other utilities requiring notification: None

Private Locator Contacted Yes No

Plan private utility clearance subcontractor assignments, areas, required clearance equipment, depth of clearance needed, types of utilities. When possible re-clear 811 markings to confirm utility locations.

Client provided utility maps or "as built" drawings showing utilities? Yes No

Field Work - This must be completed on site, by staff who have a minimum of one year of field experience in identifying utilities. Review Check list with PM or designee prior to beginning intrusive work.

List Soil Boring / Well IDs or Excavation Locations applicable to this clearance checklist:

SSMPs

3 Reliable Lines of Evidence Required Prior to Starting any Subsurface Intrusive Work

- One Call/"811" (Reliable as a line of evidence when working in public right of way or easement)
 Utility Markings Present: Paint Pin flags/stakes Other None
- Client Provided Maps/Drawings **OR** Maps/Drawings requested but not provided
- Client Clearance Name(s)/Affiliation(s)
- Interview(s): Name(s)/Affiliation(s) ~~Stromstein~~ w/ 11/21/18 Jeff / Tenant

Did person(s) interviewed indicate depths of any utilities in the subsurface?
 Yes, depths provided: Did not know or refused to answer
 Additional Comments:

- Site Inspection (Complete Page 2 & Photo Document Marked Utilities & Utility Structures)
- Public Records / Maps / Asbuilts
- Private Locator: (Name and Company) GPRS Evan Soto
- Ground Penetrating Radar (GPR)
- Radiofrequency (RFLoc)
- Electromagnetic (EM)
- Metal Detector

Tips for Successful Utility Location:

1. Don't forget to look up
2. Be on site with Private Utility Locators
3. Ask Private Locators to "confirm" other's markings
4. Select alternate/backup locations during clearance process
5. Mark out all known utilities. Leave nothing to question
6. No hammering - no pickaxes - no digging bars - no shortcutting
7. No excessive turning or downward force of hand augers/shovels
8. Utilities may run in or directly under asphalt/concrete

Soft Dig Methods

- Termination Depth _____ ft. bgs
- Potholing / Vacuum Extraction
- Air-Knife Hydro-Knife
- Probing
- Hand Auguring

Other: _____
 Marine Locator: (Name and Company) _____

Utilities and Structures Checklist



During the site inspection look for the following: ("YES" requires additional investigation and the utility must be marked properly prior to beginning subsurface intrusive work):

Site Inspection	Utility Color Codes	Present	
a) Natural gas line present (evidence of a gas meter)?	Yellow	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
i) Feeder Lines to buildings or homes?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
b) Evidence of electric lines:	Red		
i) Conduits to ground from electric meter or along wall?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iii) Conduits from power poles running into ground?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
ii) Light poles, electric devices with no overhead lines?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iii) Overhead electric lines present? (See Section I)		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
c) Evidence of sewer drains:	Green		
i) Restrooms or kitchen on site?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
ii) Sewer cleanouts present?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
iii) Combined sewer /storm lines or multiple sewer lines?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
d) Evidence of water lines:	Blue		
i) Water meter on site or multiple water lines?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
ii) Fire hydrants in vicinity of work?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
iii) Irrigation systems? (Sprinkler heads, valve boxes, controls in building)		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
e) Evidence of storm drains:	Green		
i) Open curbside or slotted grate storm drains		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
ii) Gutter down spouts going into ground		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
f) Evidence of telecommunication lines:	Orange		
i) Fiber optic warning signs in areas?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iv) Aboveground cable boxes or housings or wires in work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
g) Underground storage tanks:			
i) Tank pit present, tank vent present?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
ii) Product lines running to dispensers/buildings?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
h) Do utilities enter or exit existing structures/buildings?			
If Yes, confirm the utility markings outside of structure/building match up.		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
i) Proposed excavation marked in white?	White	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
j) Unclassed utilities / anomalies marked in pink?	Pink	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
k) Overhead Utilities/Communication Lines - Look Up:			
i) Overhead electrical conduit, pipe chases, cable trays, product lines?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
ii) Overhead fire sprinkler system?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
l) Overhead Power lines in or near the work area:			
i) < 50 kV within 10 ft. of work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
ii) >50 - 200 kV within 15 ft. of work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iii) >200-350 kV within 20 ft. of work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iv) >350-500 kV within 25 ft. of work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
v) >500-750 kV within 35 ft. or work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
vi) >750-1000 kV within 45 ft. of work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
m) Other:			
i) Evidence of linear asphalt or concrete repair?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
ii) Evidence of linear ground subsidence or change in vegetation?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iii) Unmarked manholes or valve covers in work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iv) Warning signs ("Call Before you Dig", etc.) on or adjacent to site?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
v) Utility color markings not illustrated in this checklist?	i.e. Purple	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
n) Has the Utilities & Structures Checklist been reviewed by the PM or Designee		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

PM or Designee Name: Kris Hinstley

Name and Signature of person completing the checklist:

Date: 11/21/18

Donald Richmond / D. Din

Do not perform mechanized intrusive work within 30 inches of a utility marking without receiving pre-approval by Corporate H&S .





Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM

Date: 11-21-18 Survey Performed by: Hayden Lahl

1. OCCUPANT:

Rent: Own:

Resident Name: Liz Kritzman

Address: 11675 Belden Ct.

Telephone: Home: _____ Work: (248) 662-2680

How long have you lived at this location? 10 years

List current occupants/occupation below (attach additional pages if necessary):

Age (If under 18)	Sex (M/F)	Occupation
/	/	~ 5 consultants in office at all times

2. OWNER OR LANDLORD: (If same as occupant, check here and go to Item No. 3).

Last Name: Blumenstein First Name: Ricky

Address: Na

City and State: Na

County: Na

Home Phone: Na Office Phone: Na



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

3. SENSITIVE POPULATION:

Daycare/Nursing Home/Hospital/School/Other (specify): None

4. BUILDING CHARACTERISTICS:

Residential/Multi-family Residential/Office/Strip Mall/Commercial/Industrial/School

Describe Building: Commercial-Civil/Env consultants Year Constructed: NA

Number of floors at or above grade: 1

Number of floors below grade: 0 (full basement/crawl space/slab on grade)

Depth of structure below grade: 0 ft. Basement size: 0 ft²

If the property is residential, what type? (Circle all appropriate responses.)

- | | | | |
|-------------|----------|------------------|-------------------|
| Ranch | 2-Family | 3-Family | Raised Ranch |
| Split Level | Colonial | Cape Cod | Contemporary |
| Mobile Home | Duplex | Apartment House | Townhouses/Condos |
| Modular | Log Home | Other: <u>NA</u> | |

If multiple units, how many? NA

If the property is commercial:

Business type(s) Civil/Environmental Consultants

Does it include residences (i.e., multi-use)? Yes No If yes, how many? NA

5. OCCUPANCY:

Is basement/lowest level occupied? (Circle one)

- | | | | | |
|-----------|--------------|--------|--------------|-----------|
| Full-time | Occasionally | Seldom | Almost Never | <u>NA</u> |
|-----------|--------------|--------|--------------|-----------|



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Level	General Use (e.g., family room, bedroom, laundry, workshop, storage)
Basement	NA
1 st Floor	Office / Warehouse (in back)
2 nd Floor	_____
3 rd Floor	_____
4 th Floor	_____

(Use additional page(s) as necessary)

6. CONSTRUCTION CHARACTERISTICS: (Circle all that apply.)

a. Above Grade Construction: (Describe type: wood frame, concrete, stone, brick).

Cinder block

b. Basement Type: Full Crawlspace Slab Other: _____

c. Basement Floor: Concrete Dirt Stone Other: _____

d. Finished Basement Floor: Uncovered Covered

If covered, what with? NA

e. Foundation Walls: Poured Block Stone Other: _____

f. Foundation Walls: Unsealed Sealed Sealed with: NA

g. The Basement is: Wet Damp Dry NA

h. The Basement is: Finished Unfinished Partially Finished NA

i. Sump Present (Y/N) If yes, how many? NA

Where Discharged? NA

Water in Sump? Yes No Not Applicable



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Identify all potential soil vapor entry points and estimated size (e.g., cracks, utility parts, drains).

Drains in bathrooms - Some cracks in slab floor in warehouse

Are the basement walls or floor sealed with waterproof paint or epoxy coatings? Yes No

Type of ground cover outside of building: Grass Concrete Asphalt Other _____

Is an existing subsurface depressurization (radon) system in place? Yes No

If yes, is it active, or passive?

Is a sub-slab vapor/moisture barrier in place? Yes No NA

Type of barrier: unknown

7. HEATING, VENTING, and AIR CONDITIONING

Type of heating system(s) used in this building: (Circle all that apply: Note the primary).

- | | | |
|---|--|--|
| <input checked="" type="checkbox"/> Hot Air Circulation | <input type="checkbox"/> Heat Pump | <input type="checkbox"/> Hot Water Baseboard |
| <input type="checkbox"/> Space Heaters | <input type="checkbox"/> Steam Radiation | <input type="checkbox"/> Radiant Floor |
| <input type="checkbox"/> Electric Baseboard | <input type="checkbox"/> Wood Stove | <input type="checkbox"/> Outdoor Wood Boiler |
| Other: _____ | | |

The primary type of fuel used is:

- | | | |
|---|-----------------------------------|-----------------------------------|
| <input checked="" type="checkbox"/> Natural Gas | <input type="checkbox"/> Fuel Oil | <input type="checkbox"/> Kerosene |
| <input type="checkbox"/> Electric | <input type="checkbox"/> Propane | <input type="checkbox"/> Solar |
| <input type="checkbox"/> Wood | <input type="checkbox"/> Coal | |

Domestic hot water tank fueled by: Natural gas

Location of Boiler/Furnace: Basement Outdoors Main Floor Other Roof



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Air Conditioning: Central Air Window Units Open Windows None

Are air distribution ducts present? Yes No

Is there a whole house fan? Yes No

Describe the air intake system (outside air supply, cold air return, ductwork, etc.) and its condition where visible. Indicate the locations on the floor plan diagram.

Ductwork in good condition - some new ductwork in rear of building.

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

- a) Is there an attached garage? Yes No ^{warehouse attached}
- If yes, does it have a separate heating unit? Yes No
- b) Are any petroleum-powered machines or vehicles stored in an attached garage (e.g., lawn mower, ATV, car) Yes No
- c) Has the building ever had a fire? Yes No
- d) Is there a fuel burning or unvented gas space heater? Yes No
- e) Is there a workshop or hobby/craft area? Yes No
- If yes, where and what type? Warehouse in rear
- f) Is there smoking in the building? Yes No
- If yes, how frequently? NA



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

- g) Have cleaning products been used recently? Yes No
 If yes, when and what type? general purpose cleaning - Asphalt extraction using tri chloroethylene (TCE)
- h) Have cosmetic products been used recently? Yes No
 If yes, when and what type? —
- i) Has there been painting or staining in the last six months? Yes No
 If yes, when and where? —
- j) Is there new carpet, drapes, or other textiles? Yes No
 If yes, when and where? —
- k) Have air fresheners been used recently? Yes No
 If yes, when and what type? Spays in the bathrooms
- l) Is there a kitchen exhaust fan? Yes No
 If yes, where is it vented? —
- m) Is there a clothes dryer? Yes No
 If yes, is it vented outside? Yes No NA
- n) Has there been a pesticide application? Yes No
 If yes, when and what type? In frequent use
- o) Are there odors in the building? Yes No
 If yes, please describe: —



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

p) Do any of the building occupants use solvents at work (e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetology)?

Yes No

If yes, what types of solvents are used? Tri chloro ethylene for Asphalt extraction

If yes, are their clothes washed at work?

Yes No

q) Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response.)

No Unknown

- Yes, use dry-cleaning regularly (weekly)
- Yes, use dry-cleaning infrequently (monthly or less)
- Yes, work at a dry-cleaning service

r) Is there a radon mitigation system for the building/structure?

Yes No

If yes, what is date of installation?

Active Passive NA

s) Additional mitigation system information (fan size, location, operating status, liner installed, etc.):

Fume hood that vents outdoor for Asphalt extraction

t) Is there an irrigation well, or any other well, present at the property:

Yes No

If yes, please describe placement, use, and history below.

Product Inventory Form

i.e. gasoline cans/equipment, kerosene, paints/thinners/strippers, cleaning solvents, hobby supplies (glues), oven cleaner, carpet/upholstery cleaners, household cleaners, moth balls, polishes/waxes, insecticides, furniture/floor polish, hairspray, cologne/perfume, air fresheners, interior fuel tank, wood stove/fireplace, new furniture/upholstery, new carpet/flooring

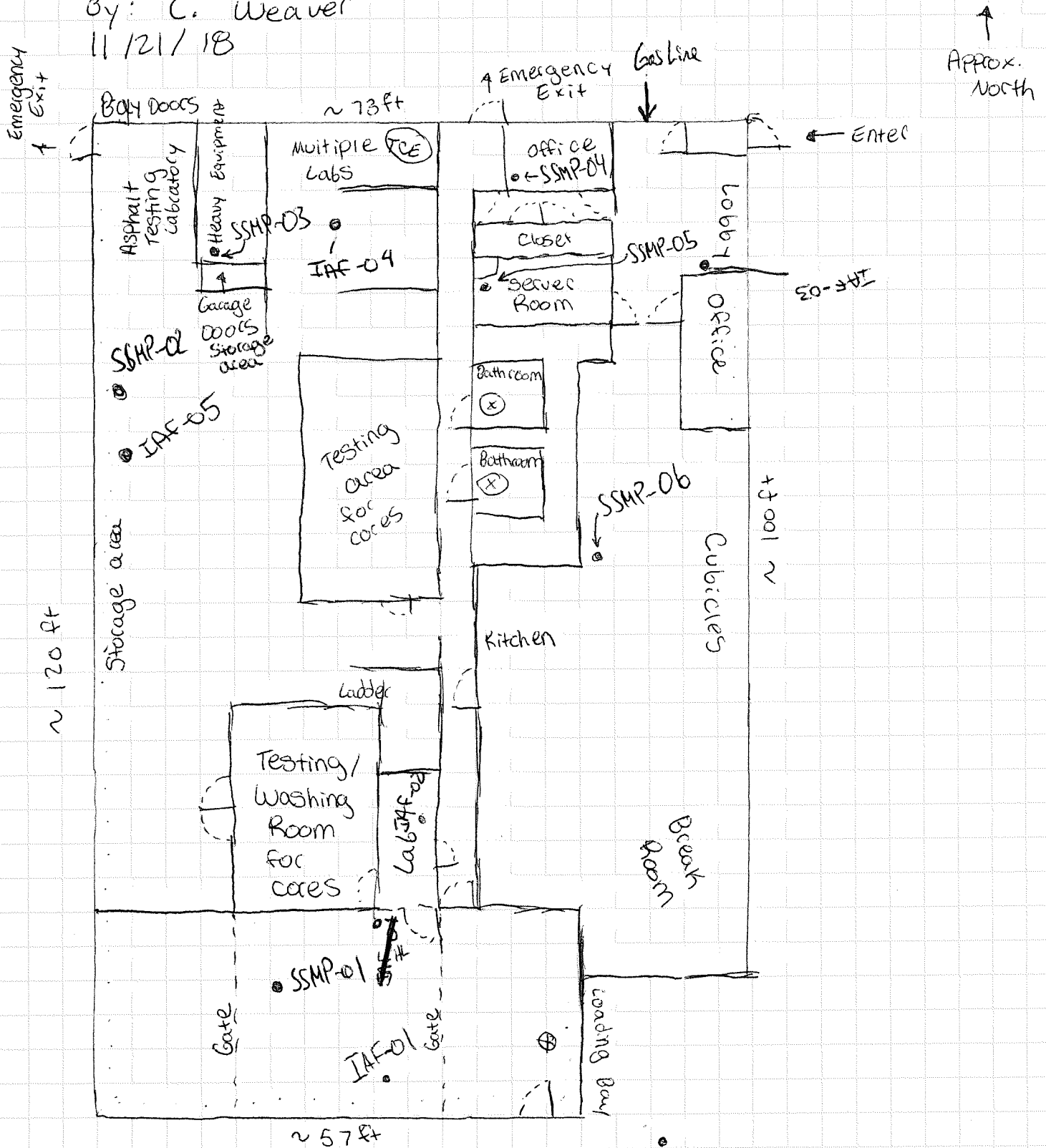
Location	Product Description	Chemical Ingredients	Quantity	PID Reading (ppb)	Photo	Removed (Y/N)	
warehouse	Rust-oleum	xylene, Acetone	HTI	722	Y	Y	
	Bard	d-Heptan, 2-dimethyl-3-(2-methyl)	1	260	Y	Y	
	Aerosee marking		HTI	528	Y	Y	
	Krylon spray paint	Ketones, Toluene	III	571	Y	Y	
	Seafoam motor	Auto marine Fleet	II	371	Y	Y	
	Rainex	Ice-free windshield washer	HTII	390	Y	Y	
	3 in 1	Multipurpose oil	II	431	Y	Y	
	Washing ton	Propane	I	460	Y	Y	
	Pledge Clean and shine	furniture polish	I	414	Y	Y	
	W40	Various sizes	HT III	406	Y	Y	
	OFFICE DEPOT	Multipurpose anti static cleaner	I	400	Y	Y	
	Bathroom	Arc Wick Aerosols	Grade	HTI	402	Y	Y
	Bathroom	Ly Sol Disinfectant Spray		III	453	Y	Y
	warehouse	Kilz	up shot overhead stain sealer	II	431	Y	Y
Seymour		Galvanized coatings corrosion	I	428	Y	Y	
Prestone		Premium Slating Fluid	I	431	Y	Y	
Mörsenböcker's		lift off adhesives grease	I	445	Y	Y	
3M		Multipurpose adhesive spray	I	970	Y	Y	
xyrylic Admix		cement mortar Fortifier	2I	276	Y	N	
Liquinox		critical-cleaning liquid Detergent	I	310	Y	N	
Liqui-box		Clear bottle various sizes	HTHT II	290	Y	N	
REPEL		Insect Repellent 40% Deet	II	300	Y	Y	
Spectracide Pro		wasp, hornet killer	HT	322	Y	Y	
Coxey		purple primer and rubber cement	HT III	742	N	Y	
Hot Shot		roach killer	II	431	Y	Y	
PEM		penetrating oil	I	804	Y	N	
Sprayon		insulating varnish	III	932	Y	N	
Laquer		Thinner, Kleen-stop	II	5,290	Y	N	
Contractors grade		glazing compound	III	1,893	Y	N	
Strait-line		masking chart	HTI	777	Y	N	
AERVOE		Spray paint cabinet	multiple	1895	Y	N	
		Solvents and cleaners bottom cabinet	multiple	219	Y	N	
		2 Barrels of TCE	2	1,897	Y	N	

Notes: 55 gallon drums TCE will likely be used during sampling
 Soil will be processed on site that will be off gassing
 Chemicals to be stored in Radio active lab area.

11675 Belden Court, Industrial Properties LLC

By: C. Weaver

11/21/18



- Not to Scale

Legend

- = SSMP
- = IAF, AIT
- ⊗ = Drain
- = Gate
- = Door

Notes

Many Storage Racks
Within Warehouse
area.

Real Time Exposure Monitoring Data Collection Form

Document all air monitoring conducted on the Site below. Keep this form with the project file.

Site Name: 11675 Belden Ct Date: 11-21-18
 Instrument: PIED Model: ppb PAE 3000 Serial #: -

Calibration Method: (Material used settings, etc.)	Isobutylene (100ppm)
Calibration Results:	Pass
Calibrated By:	Hayden Ladd

Activity Being Monitored	Compounds/Hazards Monitored	Time	ppb Reading	Action Required? Y/N
Site Walk through	VOCs	0705	260	N
Chemical Inventory	VOCs	0845	1,897	N
SSMP Install	VOCs	0930	300	N

Describe Any Actions Taken as a Result of this Air Monitoring and Why (does it match Table 5-1):

Office Name & Address (Reporting Information) 28550 Cabot Drive Suite 500 Novi, MI 48377			Project Name Ford		
Field Manager Adam Richmond			Project Number MI001454.0003.		
Phone (248) 994-2240		Fax —	Address: 11675 Belden Court Livonia, MI		
Special Instructions —		Sampler Name, Phone Number, Email C. Weaver, H. Ladd			
Email Address for Result Reporting Kristoffer.Hinskey@arcadis.com		Summa Canister Size (1L, 2.7 L, 6L) 6 L			
Lab Eurofins					

Sample ID	Sample Location Description	Indoor/Outdoor	PID in sampling area (ppm) PPM	Date	Canister Number	Flow Controller Number	Sample Collection Start Time	Beginning Canister Pressure (in. Hg)	Sample Collection End Time	Ending Canister Pressure (in. Hg)	Heating, Ventilation, and Air Conditioning System Information				Notes
											HVAC Fan On?	Heat On?	Temperature Setting (°F) (start/end)	Flow Rate (cfm) (start/end)	
AA-11675 Belden-01-112918	South end of building near loading bay hanging on fence	Outdoor	0	11-29-18	6L1245	23503	0807	-25	1559	-5.5	—	—	—	—	
IAF-11675 Belden-01-112918	South side of warehouse between gates, near lab	Indoor	700	11-29-18	6L0862	23650	0813	-28.5	1508	-5	Y	Y	—	—	Bay doors may periodically be opened through sample
IAF-11675 Belden-02-112918	South side of building inside radio active lab	Indoor	622	11-29-18	6L482	23771	0818	-29	1552	-6.5			—	—	
IAF-11675 Belden-03-112918	North side of building East side of lobby	Indoor	232	11-29-18	6L1577	23327	0819	-27	1555	-7.5			—	—	
IAF-11675 Belden-04-112918	NW side of warehouse Near labs	Indoor	190	11-29-18	6L1887	23275	0820	-30	1556	-7			—	—	Bay doors may periodically be opened through sample. Soil testing nearby.
IAF-11675 Belden-05-112918	West side of warehouse	Indoor	189	11-29-18	6L1663	24299	0821	-28	1557	-6	▼	▼	—	—	Bay doors may periodically be opened through sample. Soil testing nearby

Meteorological Data						General Notes or Observations
Date	Time	Temp. (°F)		% Humidity	Barometric Pressure (in.)	Air Speed (mph)
		Indoor	Outdoor			
11-29-18	0800	~70	22	100	29.9	6 - South

Soil Vapor Collection Log Sheet

Office Name & Address (Reporting Information)
 Arcadis of Michigan, LLC
 28550 Cassin Drive, Suite 500, Novi, MI 48333

Field Manager
 Adam Holmwood

Phone Number
 248.594.2346

Email Address for Result Reporting
 khristopher.hinckley@arcadis.com

Helium Detector Model Used
 Onhelec MGD-2002

Special Instructions

Helium Leak Test Method:
 Bucket Shroud

Project Name: Fixed LTP On-site Sampling

Project Number: M801434 0003

Site Address:

11675 BELDEN COURT, LIVONIA, MI

Sampler Name, Phone Number, Email: C. WEAVER, A. LADD

Summa Canister Size (L): 2.7 L (8L)
 1 Liter

Lab:
 Eurofins

Sample ID	Sample Location Description	Date	Pre-Sampling Shut-In / Leak-Down Test Pass/Fail?	RHUM Track Test - Performed During Sample Pump Purge			Purge Volume (mL)	Purge Rate (mL/min)	Canister Number	Flow Controller Number	Sample Collection Start Time	Starting Canister Pressure (in. Hg)	Sample Collection End Time	Ending Canister Pressure (in. Hg)	Pre-Sampling O ₂ Reading from GEM (%)	Post-Sampling O ₂ Reading from GEM (%)	Micromanometer Reading (in. WC)
				Stroud Helium Concentration During Purge (% Helium)	Helium Reading in Purged Vapor (% Helium)	Helium Test Pass/Fail (Purge contains <=5% of stroud in pass?)											
SSMP-11675 BELDEN -01-112918	S. SIDE OF WAREHOUSE BETWEEN GATES	11/29/18	PASS	33.2	0	PASS	150	120	1L2326	23329	0845	-29.5	0856	-5	2.0	17.6	0.00795
SSMP-11675 BELDEN -02-112918	WEST WALL OF WAREHOUSE STORAGE	11/29/18	PASS	33.7	0	PASS	150	120	1L2461	23638	0946	-29.5	1002	-5	2.2	16.7	0.00158
SSMP-11675 BELDEN -03-112918	NW CORNER OF WAREHOUSE EQUIPMENT RM	11/29/18	PASS	30.5	<.1	PASS	150	120	00000 1034	23117	0916	-27	0927	-5	3.5	15.4	0.00080
SSMP-11675 BELDEN -04-112918	NE SIDE OF BLDG. WEST SIDE OF OFFICE	11/29/18	PASS	30.8	0	PASS	150	120	000000 3040	23356	0959	-30	1008	-5	2.8	16.5	0.00357
SSMP-11675 BELDEN -05-112918	W SIDE OF SERVER ROOM	11/29/18	PASS	28.0	0	PASS	150	120	1L2648	23637	0935	-30	0947	-5	2.8	17.5	0.00366
SSMP-11675 BELDEN -06-112918	E SIDE OF BLDG. NEAR KITCHEN	11/29/18	PASS	30.0	0	PASS	150	120	1L2798	23589	0905	-29	0918	-5	2.7	17.7	0.00542

Meteorological Data

Date	Time	Temp. (°F)		Relative Humidity (%)	Barometric Pressure (in. Hg)	Source of Weather Information
		Indoor	Outdoor			
11.29.18	0922	68	23	100	29.9	WEATHER.COM APP

Purge Volume Calculations
 The purge volume for each sample has been pre-calculated using the information below.
 For sub-slab soil vapor samples the sample train tubing length is ~54 inches and the interior piping radius is 0.185".
 Three volumes of the sample train is 60 milliliters using the equation for volume of a cylinder (volume = pi * radius² * height) where volume = 60 ml, radius = 0.185" and height = 54".
 To have sufficient volume to conduct helium leak testing 100 milliliters should be purged from each sampling point.
 For exterior soil vapor sampling 60 milliliters should be used for the above ground sample train.
 Each additional foot of sub-grade tubing account for approximately 15 ml.
 To have sufficient volume to conduct helium leak testing at least 100 milliliters should be purged from each sample point.

General Notes or Observations
 NONE

Air Toxics

For Laboratory Use Only

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
 Phone (800) 985-5955; Fax (916) 351-8279

PID: _____
 Workorder #: _____
 Click links below to view:
[Canister Sampling Guide](#)
[Helium Shroud Video](#)

Client: Ford PID: _____
 Project Name: Ford LTP
 Project Manager: Kris Hinskey P.O.# MI001454-0003, 00001
 Sampler: C. Weavee, H. Ladd
 Site Name: 11675 Beiden Livonia, MI
 Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Lab Use Only		Requested Analyses
				Date	Time	Date	Time			Receipt	Final (psig) Gas: N ₂ /He	
	AA-11675 Beiden-01-112918	661245	23503	11/29/18	0807	11/29/18	1551	-25	-5.5			10-15*
	IAF-11675 Beiden-01-112918	640862	23650	11/29/18	0813	11/29/18	1508	-25	-5			
	IAF-11675 Beiden-02-112918	641462	23771	11/29/18	0818	11/29/18	1552	-29	-6.5			
	IAF-11675 Beiden-03-112918	641577	23827	11/29/18	0819	11/29/18	1555	-27	-7.5			
	IAF-11675 Beiden-04-112918	641887	23275	11/29/18	0820	11/29/18	1556	-30	-7			
	IAF-11675 Beiden-05-112918	641663	24299	11/29/18	0821	11/29/18	1557	-28	-6			
	SSMP-11675 Beiden-01-112918	112326	23329	11/29/18	0845	11/29/18	0856	-29.5	-5			
	SSMP-11675 Beiden-02-112918	112461	23638	11/29/18	0946	11/29/18	1002	-29.5	-5			
	SSMP-11675 Beiden-03-112918	00001034	23117	11/29/18	0916	11/29/18	0927	-27	-5			
	SSMP-11675 Beiden-04-112918	000003040	23356	11/29/18	0959	11/29/18	1008	-30	-5			
	SSMP-11675 Beiden-05-112918	112648	23637	11/29/18	0935	11/29/18	0947	-30	-5			
	SSMP-11675 Beiden-06-112918	112798	23589	11/29/18	0905	11/29/18	0918	-29	-5			
Relinquished by: (Signature/Affiliation)				Date	Time	Received by: (Signature/Affiliation)		Date	Time			
<u>Jim Weavee / Arcadis</u>				11/29/18	1631							
Relinquished by: (Signature/Affiliation)				Date	Time	Received by: (Signature/Affiliation)		Date	Time			
Relinquished by: (Signature/Affiliation)				Date	Time	Received by: (Signature/Affiliation)		Date	Time			

Turnaround Time (Rush surcharges may apply) 10-day 5 day

Shipper Name: _____

Custody Seals Intact? Yes No None

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T Hotline (800) 467-4922

TRANSMITTAL LETTER



To:
Industrial Properties LLC
Shawn Collins
Brandon Alger (MDEQ)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:

June 13, 2019

Subject:

Arcadis Project No.:

Vapor Intrusion Assessment
Data Package

We are sending you hard copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Delivery Date	Drawing No.	Rev.	Description	Action*
1	6/14/19			Figure	
1	6/14/19			Analytical Results	
1	6/14/19			Field Notes and Drawings	

Action*

- A Approved CR Correct and Resubmit Resubmit _____ Copies
 AN Approved As Noted F File Return _____ Copies
 AS As Requested FA For Approval Review and Comment
 Other: _____

Mailing Method

- U.S. Postal Service 1st Class Courier/Hand Delivery FedEx Priority Overnight FedEx 2-Day Delivery
 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
 Other: email

Thank you for cooperating with the air sampling at your property on March 28, 2019. Attached is your data package.

CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: T. STEVENS TR: P. CURRY PROJECT NUMBER: M001373.0001.00003 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
 Z:\GIS\Projects_ENV\Novi\Brighton_MIV\Ford\Livonia\GIS\docs\2018-11\11675Belden.mxd PLOTTED: 11/30/2018 12:29:10 PM BY: msmiller



LEGEND:

- INDOOR AIR LOCATION
- ⊕ AMBIENT AIR LOCATION
- SUB-SLAB MONITORING POINT LOCATION
- ▭ BUILDING
- ▭ PROPERTY BOUNDARIES



FORD MOTOR COMPANY
 LIVONIA TRANSMISSION PLANT
 LIVONIA, MICHIGAN

AIR SAMPLING LOCATIONS



FIGURE
1

4/9/2019
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1904045

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 4/2/2019 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1904045

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0003
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	04/02/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	04/09/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	AA-11675BELDEN-01_032819	Modified TO-15	8.5 "Hg	5 psi
02A	IAF-11675BELDEN-01_032819	Modified TO-15	8.0 "Hg	5 psi
03A	IAF-11675BELDEN-02_032819	Modified TO-15	7.0 "Hg	5 psi
04A	IAF-11675BELDEN-03_032819	Modified TO-15	7.0 "Hg	5 psi
05A	IAF-11675BELDEN-04_032819	Modified TO-15	8.0 "Hg	5 psi
06A	IAF-11675BELDEN-05_032819	Modified TO-15	7.5 "Hg	5 psi
07A	DUP-11675BELDEN-01_032819	Modified TO-15	7.5 "Hg	5 psi
08A	Lab Blank	Modified TO-15	NA	NA
09A	CCV	Modified TO-15	NA	NA
10A	LCS	Modified TO-15	NA	NA
10AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

DATE: 04/09/19

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 1904045

Seven 6 Liter Summa Canister (100% Certified) samples were received on April 02, 2019. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per project specific client request the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. All The canisters used for this project have been certified to the Reporting Limit for the target analytes included in this workorder. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-11675BELDEN-01_032819	Date/Time Analyzed:	4/4/19 03:05 PM
Lab ID:	1904045-01A	Dilution Factor:	1.87
Date/Time Collecte	3/28/19 03:05 PM	Instrument/Filename:	msd21.i / 21040408
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.089	0.37	0.74	Not Detected
1,4-Dioxane	123-91-1	0.10	0.34	0.67	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.082	0.37	0.74	Not Detected
Tetrachloroethene	127-18-4	0.089	0.63	1.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.058	0.37	0.74	Not Detected
Trichloroethene	79-01-6	0.14	0.50	1.0	Not Detected
Vinyl Chloride	75-01-4	0.038	0.24	0.48	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	118
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-01_032819	Date/Time Analyzed:	4/4/19 05:25 PM
Lab ID:	1904045-02A	Dilution Factor:	1.83
Date/Time Collecte	3/28/19 03:09 PM	Instrument/Filename:	msd21.i / 21040412
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.087	0.36	0.72	Not Detected
1,4-Dioxane	123-91-1	0.099	0.33	0.66	0.14 J
cis-1,2-Dichloroethene	156-59-2	0.081	0.36	0.72	Not Detected
Tetrachloroethene	127-18-4	0.088	0.62	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.056	0.36	0.72	Not Detected
Trichloroethene	79-01-6	0.14	0.49	0.98	7.0
Vinyl Chloride	75-01-4	0.037	0.23	0.47	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	115
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	102



MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-02_032819	Date/Time Analyzed:	4/4/19 03:40 PM
Lab ID:	1904045-03A	Dilution Factor:	1.75
Date/Time Collecte	3/28/19 03:11 PM	Instrument/Filename:	msd21.i / 21040409
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.083	0.35	0.69	Not Detected
1,4-Dioxane	123-91-1	0.094	0.32	0.63	0.23 J
cis-1,2-Dichloroethene	156-59-2	0.077	0.35	0.69	Not Detected
Tetrachloroethene	127-18-4	0.084	0.59	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.054	0.35	0.69	Not Detected
Trichloroethene	79-01-6	0.13	0.47	0.94	4.4
Vinyl Chloride	75-01-4	0.035	0.22	0.45	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	115
4-Bromofluorobenzene	460-00-4	70-130	108
Toluene-d8	2037-26-5	70-130	103



MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-03_032819	Date/Time Analyzed:	4/4/19 04:15 PM
Lab ID:	1904045-04A	Dilution Factor:	1.75
Date/Time Collecte	3/28/19 03:12 PM	Instrument/Filename:	msd21.i / 21040410
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.083	0.35	0.69	Not Detected
1,4-Dioxane	123-91-1	0.094	0.32	0.63	0.12 J
cis-1,2-Dichloroethene	156-59-2	0.077	0.35	0.69	Not Detected
Tetrachloroethene	127-18-4	0.084	0.59	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.054	0.35	0.69	Not Detected
Trichloroethene	79-01-6	0.13	0.47	0.94	3.8
Vinyl Chloride	75-01-4	0.035	0.22	0.45	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	100



MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-04_032819	Date/Time Analyzed:	4/4/19 04:50 PM
Lab ID:	1904045-05A	Dilution Factor:	1.83
Date/Time Collecte	3/28/19 03:14 PM	Instrument/Filename:	msd21.i / 21040411
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.087	0.36	0.72	Not Detected
1,4-Dioxane	123-91-1	0.099	0.33	0.66	0.16 J
cis-1,2-Dichloroethene	156-59-2	0.081	0.36	0.72	Not Detected
Tetrachloroethene	127-18-4	0.088	0.62	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.056	0.36	0.72	Not Detected
Trichloroethene	79-01-6	0.14	0.49	0.98	8.8
Vinyl Chloride	75-01-4	0.037	0.23	0.47	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	123
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	104



MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-05_032819	Date/Time Analyzed:	4/4/19 06:00 PM
Lab ID:	1904045-06A	Dilution Factor:	1.79
Date/Time Collecte	3/28/19 03:15 PM	Instrument/Filename:	msd21.i / 21040413
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.085	0.35	0.71	Not Detected
1,4-Dioxane	123-91-1	0.096	0.32	0.64	0.23 J
cis-1,2-Dichloroethene	156-59-2	0.079	0.35	0.71	Not Detected
Tetrachloroethene	127-18-4	0.086	0.61	1.2	0.47 J
trans-1,2-Dichloroethene	156-60-5	0.055	0.35	0.71	Not Detected
Trichloroethene	79-01-6	0.13	0.48	0.96	14
Vinyl Chloride	75-01-4	0.036	0.23	0.46	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	118
4-Bromofluorobenzene	460-00-4	70-130	108
Toluene-d8	2037-26-5	70-130	101



MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	DUP-11675BELDEN-01_032819	Date/Time Analyzed:	4/4/19 06:35 PM
Lab ID:	1904045-07A	Dilution Factor:	1.79
Date/Time Collecte	3/28/19 12:00 AM	Instrument/Filename:	msd21.i / 21040414
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.085	0.35	0.71	Not Detected
1,4-Dioxane	123-91-1	0.096	0.32	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.079	0.35	0.71	Not Detected
Tetrachloroethene	127-18-4	0.086	0.61	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.055	0.35	0.71	Not Detected
Trichloroethene	79-01-6	0.13	0.48	0.96	Not Detected
Vinyl Chloride	75-01-4	0.036	0.23	0.46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	118
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	99



MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	4/4/19 01:14 PM
Lab ID:	1904045-08A	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd21.i / 21040406a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.047	0.20	0.40	Not Detected
1,4-Dioxane	123-91-1	0.054	0.18	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.044	0.20	0.40	Not Detected
Tetrachloroethene	127-18-4	0.048	0.34	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.031	0.20	0.40	Not Detected
Trichloroethene	79-01-6	0.074	0.27	0.54	Not Detected
Vinyl Chloride	75-01-4	0.020	0.13	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	122
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	99

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	4/4/19 09:51 AM
Lab ID:	1904045-09A	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd21.i / 21040402
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	96
1,4-Dioxane	123-91-1	124
cis-1,2-Dichloroethene	156-59-2	99
Tetrachloroethene	127-18-4	91
trans-1,2-Dichloroethene	156-60-5	102
Trichloroethene	79-01-6	101
Vinyl Chloride	75-01-4	100

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	108
4-Bromofluorobenzene	460-00-4	70-130	114
Toluene-d8	2037-26-5	70-130	111



MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	4/4/19 10:58 AM
Lab ID:	1904045-10A	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd21.i / 21040403
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	92
1,4-Dioxane	123-91-1	116
cis-1,2-Dichloroethene	156-59-2	102
Tetrachloroethene	127-18-4	86
trans-1,2-Dichloroethene	156-60-5	81
Trichloroethene	79-01-6	89
Vinyl Chloride	75-01-4	97

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	107
4-Bromofluorobenzene	460-00-4	70-130	108
Toluene-d8	2037-26-5	70-130	106

* % Recovery is calculated using unrounded analytical results.



MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	4/4/19 11:33 AM
Lab ID:	1904045-10AA	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msd21.i / 21040404
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	90
1,4-Dioxane	123-91-1	116
cis-1,2-Dichloroethene	156-59-2	99
Tetrachloroethene	127-18-4	83
trans-1,2-Dichloroethene	156-60-5	80
Trichloroethene	79-01-6	92
Vinyl Chloride	75-01-4	94

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	105

* % Recovery is calculated using unrounded analytical results.



April 09, 2019

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: MI001454.0002/3/4.00002/2B/3B
Client project scope reference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics - Folsom
Laboratory submittal: 1904045
Sample date: 2019-03-28
Report received by CADENA: 2019-04-09
Initial Data Verification completed by CADENA: 2019-04-09

7 Air samples were analyzed for TO-15 parameters.

There were no significant QC anomalies or exceptions to report.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) TO-15 Analysis

SDG #1904045

CADENA Verification Report: 2019-04-09

Analyses Performed By:
Eurofins Air Toxics
Folsom, California

Report #32475R
Review Level: Tier III
Project: MI001454.0003.00001

DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 1904045 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
1904045	AA-11675BELDEN-01_032819	1904045-01A	Air	3/28/2019		X		
	IAF-11675BELDEN-01_032819	1904045-02A	Air	3/28/2019		X		
	IAF-11675BELDEN-02_032819	1904045-03A	Air	3/28/2019		X		
	IAF-11675BELDEN-03_032819	1904045-04A	Air	3/28/2019		X		
	IAF-11675BELDEN-04_032819	1904045-05A	Air	3/28/2019		X		
	IAF-11675BELDEN-05_032819	1904045-06A	Air	3/28/2019		X		
	DUP-11675BELDEN-01_032819	1904045-07A	Air	3/28/2019	AA-11675BELDEN-01_032819	X		

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15 (Full Scan). Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15	Air	30 days from collection to analysis (Canister)	Ambient Temperature	< -2" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 140% or less than 60% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. All identified compounds met the specified criteria.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15 (Full Scan)	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-2"Hg)		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:



DATE: April 22, 2019

PEER REVIEW: Dennis Capria

DATE: April 23, 2019



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-11675BELDEN-01_032819	Date/Time Analyzed:	4/4/19 03:05 PM
Lab ID:	1904045-01A	Dilution Factor:	1.87
Date/Time Collecte	3/28/19 03:05 PM	Instrument/Filename:	msd21.i / 21040408
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.089	0.37	0.74	Not Detected
1,4-Dioxane	123-91-1	0.10	0.34	0.67	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.082	0.37	0.74	Not Detected
Tetrachloroethene	127-18-4	0.089	0.63	1.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.058	0.37	0.74	Not Detected
Trichloroethene	79-01-6	0.14	0.50	1.0	Not Detected
Vinyl Chloride	75-01-4	0.038	0.24	0.48	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	118
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-01_032819	Date/Time Analyzed:	4/4/19 05:25 PM
Lab ID:	1904045-02A	Dilution Factor:	1.83
Date/Time Collecte	3/28/19 03:09 PM	Instrument/Filename:	msd21.i / 21040412
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.087	0.36	0.72	Not Detected
1,4-Dioxane	123-91-1	0.099	0.33	0.66	0.14 J
cis-1,2-Dichloroethene	156-59-2	0.081	0.36	0.72	Not Detected
Tetrachloroethene	127-18-4	0.088	0.62	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.056	0.36	0.72	Not Detected
Trichloroethene	79-01-6	0.14	0.49	0.98	7.0
Vinyl Chloride	75-01-4	0.037	0.23	0.47	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	115
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-02_032819	Date/Time Analyzed:	4/4/19 03:40 PM
Lab ID:	1904045-03A	Dilution Factor:	1.75
Date/Time Collecte	3/28/19 03:11 PM	Instrument/Filename:	msd21.i / 21040409
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.083	0.35	0.69	Not Detected
1,4-Dioxane	123-91-1	0.094	0.32	0.63	0.23 J
cis-1,2-Dichloroethene	156-59-2	0.077	0.35	0.69	Not Detected
Tetrachloroethene	127-18-4	0.084	0.59	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.054	0.35	0.69	Not Detected
Trichloroethene	79-01-6	0.13	0.47	0.94	4.4
Vinyl Chloride	75-01-4	0.035	0.22	0.45	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	115
4-Bromofluorobenzene	460-00-4	70-130	108
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-03_032819	Date/Time Analyzed:	4/4/19 04:15 PM
Lab ID:	1904045-04A	Dilution Factor:	1.75
Date/Time Collecte	3/28/19 03:12 PM	Instrument/Filename:	msd21.i / 21040410
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.083	0.35	0.69	Not Detected
1,4-Dioxane	123-91-1	0.094	0.32	0.63	0.12 J
cis-1,2-Dichloroethene	156-59-2	0.077	0.35	0.69	Not Detected
Tetrachloroethene	127-18-4	0.084	0.59	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.054	0.35	0.69	Not Detected
Trichloroethene	79-01-6	0.13	0.47	0.94	3.8
Vinyl Chloride	75-01-4	0.035	0.22	0.45	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-04_032819	Date/Time Analyzed:	4/4/19 04:50 PM
Lab ID:	1904045-05A	Dilution Factor:	1.83
Date/Time Collecte	3/28/19 03:14 PM	Instrument/Filename:	msd21.i / 21040411
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.087	0.36	0.72	Not Detected
1,4-Dioxane	123-91-1	0.099	0.33	0.66	0.16 J
cis-1,2-Dichloroethene	156-59-2	0.081	0.36	0.72	Not Detected
Tetrachloroethene	127-18-4	0.088	0.62	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.056	0.36	0.72	Not Detected
Trichloroethene	79-01-6	0.14	0.49	0.98	8.8
Vinyl Chloride	75-01-4	0.037	0.23	0.47	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	123
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	104

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-05_032819	Date/Time Analyzed:	4/4/19 06:00 PM
Lab ID:	1904045-06A	Dilution Factor:	1.79
Date/Time Collecte	3/28/19 03:15 PM	Instrument/Filename:	msd21.i / 21040413
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.085	0.35	0.71	Not Detected
1,4-Dioxane	123-91-1	0.096	0.32	0.64	0.23 J
cis-1,2-Dichloroethene	156-59-2	0.079	0.35	0.71	Not Detected
Tetrachloroethene	127-18-4	0.086	0.61	1.2	0.47 J
trans-1,2-Dichloroethene	156-60-5	0.055	0.35	0.71	Not Detected
Trichloroethene	79-01-6	0.13	0.48	0.96	14
Vinyl Chloride	75-01-4	0.036	0.23	0.46	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	118
4-Bromofluorobenzene	460-00-4	70-130	108
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	DUP-11675BELDEN-01_032819	Date/Time Analyzed:	4/4/19 06:35 PM
Lab ID:	1904045-07A	Dilution Factor:	1.79
Date/Time Collecte	3/28/19 12:00 AM	Instrument/Filename:	msd21.i / 21040414
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.085	0.35	0.71	Not Detected
1,4-Dioxane	123-91-1	0.096	0.32	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.079	0.35	0.71	Not Detected
Tetrachloroethene	127-18-4	0.086	0.61	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.055	0.35	0.71	Not Detected
Trichloroethene	79-01-6	0.13	0.48	0.96	Not Detected
Vinyl Chloride	75-01-4	0.036	0.23	0.46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	118
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	99

Analysis Request /Canister Chain of Custody

For Laboratory Use Only

PID: _____ Workorder #: 1904045

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
Phone (800) 985-5955; Fax (916) 351-8279

Click links below to view:

[Canister Sampling Guide](#)
[Helium Shroud Video](#)

Client: <u>Ford</u> PID: <u>NA</u>		Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting				Turnaround Time (Rush surcharges may apply)								
Project Name: <u>Ford LTP</u>						5 Day Turnaround Time								
Project Manager: <u>Kris Hinskey</u> P.O.# <u>MI001454.0003</u>						Canister Vacuum/Pressure			Requested Analyses					
Sampler: <u>E. Redner/S. Johnson</u>						Lab Use Only			TO-15 (See Special Instructions/Notes)					
Site Name: <u>11675 Belden</u>		Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N ₂ / He									
Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N ₂ / He	TO-15 (See Special Instructions/Notes)		
				Date	Time	Date	Time							
01A	AA-11675BELDEN-01_032819	6L1559	24206	3/28/19	0822	3/28/19	1509	-28.5	-7.5			X		
02A	IAF-11675BELDEN-01_032819	6L0406	23463	3/28/19	0824	3/28/19	1509	-29	-6.5			X		
03A	IAF-11675BELDEN-02_032819	6L1606	23373	3/28/19	0825	3/28/19	1511	-28.5	-6			X		
04A	IAF-11675BELDEN-03_032819	6L1452	24377	3/28/19	0827	3/28/19	1512	-28.5	-6			X		
05A	IAF-11675BELDEN-04_032819	6L0852	23415	3/28/19	0829	3/28/19	1514	-28.5	-6.5			X		
06A	IAF-11675BELDEN-05_032819	6L0357	23514	3/28/19	0830	3/28/19	1515	-28.5	-6.5			X		
07A	DVP-11675Belden-01_032819	6L0959	23267	3/28/19	—	3/28/19	—	-28.5	-6.5			X		
Relinquished by: (Signature/Affiliation)				Date	Time	Received by: (Signature/Affiliation)				Date	Time			
<i>Marina R. Stamp / Arcadis</i>				3/28/19	1600	<i>[Signature]</i>				4/2/19	1030			
Relinquished by: (Signature/Affiliation)				Date	Time	Received by: (Signature/Affiliation)				Date	Time			
Relinquished by: (Signature/Affiliation)				Date	Time	Received by: (Signature/Affiliation)				Date	Time			
Lab Use Only														
Shipper Name: <u>Fed Ex</u>		Custody Seals Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> None												
<p>Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T Hotline (800) 467-4922</p>														

4/8/2019

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #: MI001454.0003
Workorder #: 1904040

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 4/2/2019 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1904040

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0004.0001B
FAX:		PROJECT #	MI001454.0003 Ford LTP
DATE RECEIVED:	04/02/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	04/08/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SSMP-11675BELDEN-01_032819	TO-15	5.5 "Hg	15.1 psi
02A	SSMP-11675BELDEN-02_032819	TO-15	5.1 "Hg	15 psi
03A	SSMP-11675BELDEN-03_032819	TO-15	5.5 "Hg	15.1 psi
04A	SSMP-11675BELDEN-04_032819	TO-15	5.3 "Hg	15 psi
05A	SSMP-11675BELDEN-05_032819	TO-15	4.9 "Hg	15.4 psi
06A	SSMP-11675BELDEN-06_032819	TO-15	5.7 "Hg	14.8 psi
07A	Lab Blank	TO-15	NA	NA
08A	CCV	TO-15	NA	NA
09A	LCS	TO-15	NA	NA
09AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 04/08/19

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1904040

Six 1 Liter Summa Canister (100% Certified) samples were received on April 02, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified (0.2 ppbv for compounds reported at 0.5 ppbv and 0.8 ppbv for compounds reported at 2.0 ppbv) may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675BELDEN-01_032819	Date/Time Analyzed:	4/4/19 10:05 PM
Lab ID:	1904040-01A	Dilution Factor:	2.48
Date/Time Collecte	3/28/19 09:07 AM	Instrument/Filename:	msdp.i / p040419
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.9	4.4	4.9	Not Detected
1,4-Dioxane	123-91-1	2.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.2	4.4	4.9	Not Detected
Tetrachloroethene	127-18-4	1.6	7.6	8.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	3.0	4.4	4.9	Not Detected
Trichloroethene	79-01-6	0.87	6.0	6.7	13
Vinyl Chloride	75-01-4	0.75	2.8	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675BELDEN-02_032819	Date/Time Analyzed:	4/5/19 01:10 AM
Lab ID:	1904040-02A	Dilution Factor:	2.43
Date/Time Collecte	3/28/19 09:15 AM	Instrument/Filename:	msdp.i / p040426
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	4.3	4.8	Not Detected
1,4-Dioxane	123-91-1	2.3	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.2	4.3	4.8	Not Detected
Tetrachloroethene	127-18-4	1.6	7.4	8.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	3.0	4.3	4.8	Not Detected
Trichloroethene	79-01-6	0.86	5.9	6.5	54
Vinyl Chloride	75-01-4	0.74	2.8	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675BELDEN-03_032819	Date/Time Analyzed:	4/5/19 01:36 AM
Lab ID:	1904040-03A	Dilution Factor:	2.48
Date/Time Collecte	3/28/19 09:45 AM	Instrument/Filename:	msdp.i / p040427
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.9	4.4	4.9	Not Detected
1,4-Dioxane	123-91-1	2.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.2	4.4	4.9	Not Detected
Tetrachloroethene	127-18-4	1.6	7.6	8.4	2.9 J
trans-1,2-Dichloroethene	156-60-5	3.0	4.4	4.9	Not Detected
Trichloroethene	79-01-6	0.87	6.0	6.7	250
Vinyl Chloride	75-01-4	0.75	2.8	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675BELDEN-04_032819	Date/Time Analyzed:	4/5/19 02:03 AM
Lab ID:	1904040-04A	Dilution Factor:	2.45
Date/Time Collecte	3/28/19 10:11 AM	Instrument/Filename:	msdp.i / p040428
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	4.4	4.8	Not Detected
1,4-Dioxane	123-91-1	2.3	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.2	4.4	4.8	Not Detected
Tetrachloroethene	127-18-4	1.6	7.5	8.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	3.0	4.4	4.8	Not Detected
Trichloroethene	79-01-6	0.86	5.9	6.6	39
Vinyl Chloride	75-01-4	0.74	2.8	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675BELDEN-05_032819	Date/Time Analyzed:	4/5/19 02:29 AM
Lab ID:	1904040-05A	Dilution Factor:	2.45
Date/Time Collecte	3/28/19 10:10 AM	Instrument/Filename:	msdp.i / p040429
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	4.4	4.8	Not Detected
1,4-Dioxane	123-91-1	2.3	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.2	4.4	4.8	Not Detected
Tetrachloroethene	127-18-4	1.6	7.5	8.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	3.0	4.4	4.8	Not Detected
Trichloroethene	79-01-6	0.86	5.9	6.6	6.4 J
Vinyl Chloride	75-01-4	0.74	2.8	3.1	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675BELDEN-06_032819	Date/Time Analyzed:	4/5/19 06:48 AM
Lab ID:	1904040-06A	Dilution Factor:	2.48
Date/Time Collecte	3/28/19 09:42 AM	Instrument/Filename:	msdp.i / p040430
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.9	4.4	4.9	Not Detected
1,4-Dioxane	123-91-1	2.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.2	4.4	4.9	Not Detected
Tetrachloroethene	127-18-4	1.6	7.6	8.4	3.3 J
trans-1,2-Dichloroethene	156-60-5	3.0	4.4	4.9	Not Detected
Trichloroethene	79-01-6	0.87	6.0	6.7	16
Vinyl Chloride	75-01-4	0.75	2.8	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	4/4/19 01:38 PM
Lab ID:	1904040-07A	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msdp.i / p040408c
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.75	1.8	2.0	Not Detected
1,4-Dioxane	123-91-1	0.95	5.0	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.90	1.8	2.0	Not Detected
Tetrachloroethene	127-18-4	0.64	3.0	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.2	1.8	2.0	Not Detected
Trichloroethene	79-01-6	0.35	2.4	2.7	Not Detected
Vinyl Chloride	75-01-4	0.30	1.1	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	4/4/19 09:17 AM
Lab ID:	1904040-08A	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msdp.i / p040402
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	101
1,4-Dioxane	123-91-1	114
cis-1,2-Dichloroethene	156-59-2	102
Tetrachloroethene	127-18-4	105
trans-1,2-Dichloroethene	156-60-5	104
Trichloroethene	79-01-6	112
Vinyl Chloride	75-01-4	126

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	104

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	4/4/19 11:31 AM
Lab ID:	1904040-09A	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msdp.i / p040403
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	99
1,4-Dioxane	123-91-1	108
cis-1,2-Dichloroethene	156-59-2	110
Tetrachloroethene	127-18-4	106
trans-1,2-Dichloroethene	156-60-5	87
Trichloroethene	79-01-6	105
Vinyl Chloride	75-01-4	127

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	101

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	4/4/19 11:56 AM
Lab ID:	1904040-09AA	Dilution Factor:	1.00
Date/Time Collecte	NA - Not Applicable	Instrument/Filename:	msdp.i / p040404
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	99
1,4-Dioxane	123-91-1	109
cis-1,2-Dichloroethene	156-59-2	109
Tetrachloroethene	127-18-4	103
trans-1,2-Dichloroethene	156-60-5	85
Trichloroethene	79-01-6	104
Vinyl Chloride	75-01-4	123

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	101

* % Recovery is calculated using unrounded analytical results.



April 09, 2019

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: MI001454.0002/3/4.00002/2B/3B
Client project scope reference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics - Folsom
Laboratory submittal: 1904040
Sample date: 2019-03-28
Report received by CADENA: 2019-04-08
Initial Data Verification completed by CADENA: 2019-04-09

6 Air samples were analyzed for TO-15 parameters.

There were no significant QC anomalies or exceptions to report.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) TO-15 Analysis

SDG #1904040

CADENA Verification Report: 2019-04-09

Analyses Performed By:
Eurofins Air Toxics
Folsom, California

Report #32474R
Review Level: Tier III
Project: MI001454.0003.00001

DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 1904040 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
1904040	SSMP-11675BELDEN-01_032819	1904040-01A	Air	3/28/2019		X		
	SSMP-11675BELDEN-02_032819	1904040-02A	Air	3/28/2019		X		
	SSMP-11675BELDEN-03_032819	1904040-03A	Air	3/28/2019		X		
	SSMP-11675BELDEN-04_032819	1904040-04A	Air	3/28/2019		X		
	SSMP-11675BELDEN-05_032819	1904040-05A	Air	3/28/2019		X		
	SSMP-11675BELDEN-06_032819	1904040-06A	Air	3/28/2019		X		

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15 (Full Scan). Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15	Air	30 days from collection to analysis (Canister)	Ambient Temperature	< -2" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 140% or less than 60% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15 (Full Scan)	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-2"Hg)		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:



DATE: April 22, 2019

PEER REVIEW: Dennis Capria

DATE: April 23, 2019



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675BELDEN-01_032819	Date/Time Analyzed:	4/4/19 10:05 PM
Lab ID:	1904040-01A	Dilution Factor:	2.48
Date/Time Collecte	3/28/19 09:07 AM	Instrument/Filename:	msdp.i / p040419
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.9	4.4	4.9	Not Detected
1,4-Dioxane	123-91-1	2.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.2	4.4	4.9	Not Detected
Tetrachloroethene	127-18-4	1.6	7.6	8.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	3.0	4.4	4.9	Not Detected
Trichloroethene	79-01-6	0.87	6.0	6.7	13
Vinyl Chloride	75-01-4	0.75	2.8	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675BELDEN-02_032819	Date/Time Analyzed:	4/5/19 01:10 AM
Lab ID:	1904040-02A	Dilution Factor:	2.43
Date/Time Collecte	3/28/19 09:15 AM	Instrument/Filename:	msdp.i / p040426
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	4.3	4.8	Not Detected
1,4-Dioxane	123-91-1	2.3	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.2	4.3	4.8	Not Detected
Tetrachloroethene	127-18-4	1.6	7.4	8.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	3.0	4.3	4.8	Not Detected
Trichloroethene	79-01-6	0.86	5.9	6.5	54
Vinyl Chloride	75-01-4	0.74	2.8	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675BELDEN-03_032819	Date/Time Analyzed:	4/5/19 01:36 AM
Lab ID:	1904040-03A	Dilution Factor:	2.48
Date/Time Collecte	3/28/19 09:45 AM	Instrument/Filename:	msdp.i / p040427
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.9	4.4	4.9	Not Detected
1,4-Dioxane	123-91-1	2.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.2	4.4	4.9	Not Detected
Tetrachloroethene	127-18-4	1.6	7.6	8.4	2.9 J
trans-1,2-Dichloroethene	156-60-5	3.0	4.4	4.9	Not Detected
Trichloroethene	79-01-6	0.87	6.0	6.7	250
Vinyl Chloride	75-01-4	0.75	2.8	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675BELDEN-04_032819	Date/Time Analyzed:	4/5/19 02:03 AM
Lab ID:	1904040-04A	Dilution Factor:	2.45
Date/Time Collecte	3/28/19 10:11 AM	Instrument/Filename:	msdp.i / p040428
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	4.4	4.8	Not Detected
1,4-Dioxane	123-91-1	2.3	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.2	4.4	4.8	Not Detected
Tetrachloroethene	127-18-4	1.6	7.5	8.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	3.0	4.4	4.8	Not Detected
Trichloroethene	79-01-6	0.86	5.9	6.6	39
Vinyl Chloride	75-01-4	0.74	2.8	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675BELDEN-05_032819	Date/Time Analyzed:	4/5/19 02:29 AM
Lab ID:	1904040-05A	Dilution Factor:	2.45
Date/Time Collecte	3/28/19 10:10 AM	Instrument/Filename:	msdp.i / p040429
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	4.4	4.8	Not Detected
1,4-Dioxane	123-91-1	2.3	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.2	4.4	4.8	Not Detected
Tetrachloroethene	127-18-4	1.6	7.5	8.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	3.0	4.4	4.8	Not Detected
Trichloroethene	79-01-6	0.86	5.9	6.6	6.4 J
Vinyl Chloride	75-01-4	0.74	2.8	3.1	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675BELDEN-06_032819	Date/Time Analyzed:	4/5/19 06:48 AM
Lab ID:	1904040-06A	Dilution Factor:	2.48
Date/Time Collecte	3/28/19 09:42 AM	Instrument/Filename:	msdp.i / p040430
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.9	4.4	4.9	Not Detected
1,4-Dioxane	123-91-1	2.4	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.2	4.4	4.9	Not Detected
Tetrachloroethene	127-18-4	1.6	7.6	8.4	3.3 J
trans-1,2-Dichloroethene	156-60-5	3.0	4.4	4.9	Not Detected
Trichloroethene	79-01-6	0.87	6.0	6.7	16
Vinyl Chloride	75-01-4	0.75	2.8	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	102

Analysis Request /Canister Chain of Custody

For Laboratory Use Only

1904040

PID: _____ Workorder #: _____

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
Phone (800) 985-5955; Fax (916) 351-8279

Click links below to view:

- [Canister Sampling Guide](#)
- [Helium Shroud Video](#)

Client: <u>Ford</u>	PID: <u>NA</u>	Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting	Turnaround Time (Rush surcharges may apply)		
Project Name: <u>Ford LTP</u>			5 Day Turnaround Time		
Project Manager: <u>Kris Hinskey</u>	P.O.# <u>MI001454.0003</u>		Canister Vacuum/Pressure		Requested Analyses
Sampler: <u>E. Redner / S. Johnson</u>			Lab Use Only		
Site Name: <u>11675 Belden</u>					

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N ₂ / He	TO-15 (See Special Instructions/Notes)	Requested Analyses		
				Date	Time	Date	Time								
01A	SSMP-11675BELDEN-01_032819	1L2439	24287	3/28/19	0856	3/28/19	0907	-29.5	-5.5			X			
02A	SSMP-11675BELDEN-02_032819	1L3154	23716	3/28/19	0902	3/28/19	0915	-29.5	-5.5			X			
03A	SSMP-11675BELDEN-03_032819	1L2590	23823	3/28/19	0931	3/28/19	0945	-29	-6			X			
04A	SSMP-11675BELDEN-04_032819	1L2870	23138	3/28/19	0959	3/28/19	1011	-29.5	-5.5			X			
05A	SSMP-11675BELDEN-05_032819	1L2369	23257	3/28/19	0958	3/28/19	1010	-29.5	-5			X			
06A	SSMP-11675BELDEN-06_032819	1L2981	23181	3/28/19	0930	3/28/19	0942	-29.5	-6			X			

Relinquished by: (Signature/Affiliation) <i>Marina R. Stamp / Arcadis</i>	Date 3/29/19	Time 1600	Received by: (Signature/Affiliation) <i>John T. ...</i>	Date 4/2/19	Time 1030
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Lab Use Only

Shipper Name: Fed Ex Custody Seals Intact? Yes No None

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

Daily Log - Ford Off Site VI Investigation - VISIT 1

Project No.: MI001454.0003 Page 1 of 1
 Site Location: 11675 Belden Livonia, MI
 Prepared By: Nayden Ladd

Date	Time	Description of Activities
3-26-19		Purpose: R2-Visit 1 DEQ Bldg Survey, Chem Inventory, Sump Inspection
		Arcadis: H. Ladd, E. Palmer
		Weather: Sunny - high 30s
		Equipment: PID camera
	1200	Arcadis on Site
	1205	conduct building survey, chemical inventory, check sump points
	1254	Arcadis off site
		Note: All TCE has been removed from site, chemicals will be locked in radioactive storage room. Chlorinated solvent cans will be stored off site in their company vehicle outside.
		HML

Visit 1 Checklist

Background sources of VOCs have been removed/isolated? Yes No NA
 Location of background sources of VOCs that have been removed/isolated: company vehicle
 Sump pit is present? Yes No NA Radioactive storage room

Daily Log - Ford Off Site VI Investigation - VISIT 2 & 3

Project No.: MI001454.0003 Page 4 of 11
 Site Location: 11675 Beiden Livonia, MI
 Prepared By: E. Redner

Date	Time	Description of Activities
3/28/14		Purpose: R2, V2 Deploy canisters collect SSMP samples; V3
		Arcadis: E. Redner / S. Johnson / A. Richmond
		Weather: 44°F cloudy, light mist/rain
		SUNMA cans Equipment: 78 hr (1500 ^{includ}), 6 10-min
	0805	Arcadis on site
	0807	to project ER Deploy canisters, collect SSMP samples, remind occupants to keep windows/doors to outside closed as much as possible
	1025	Arcadis off site
	1500	ARCADIS on site
	1505	collect canisters, collect SSMP data
	1545	Arcadis off site
		<i>E. Redner</i>

Visit 2 & 3 Checklist

Background sources of VOCs have been removed/isolated? Yes No NA

Number of SSMP samples collected: 6

Number of indoor/ambient air samples collected: 78 hr (1500^{includ}), 6 10-min

Occupancy hours (for commercial properties only): 8-5



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM

Date: 11-21-18 Survey Performed by: Hayden Ladd
R2: 3-26-19 Hayden Ladd

1. OCCUPANT:

Rent: Own:
 Resident Name: Liz Kritzman (Paul Newton R2)
 Address: 11675 Belden Ct.
 Telephone: Home: _____ Work: (248) 662-2680
 How long have you lived at this location? 10 years

List current occupants/occupation below (attach additional pages if necessary):

Age (if under 18)	Sex (M/F)	Occupation
/	/	~ 5 consultants in office at all times
/	/	
/	/	
/	/	
/	/	
/	/	

2. OWNER OR LANDLORD: (If same as occupant, check here and go to Item No. 3).

Last Name: Blumenstein First Name: Ricky
 Address: Na
 City and State: Na
 County: Na
 Home Phone: Na Office Phone: Na



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

3. SENSITIVE POPULATION:

Daycare/Nursing Home/Hospital/School/Other (specify): None

4. BUILDING CHARACTERISTICS:

Residential/Multi-family Residential/Office/Strip Mall/Commercial/Industrial/School

Describe Building: Commercial - Civil/Env consultant Year Constructed: NA

Number of floors at or above grade: 1

Number of floors below grade: 0 (full basement/crawl space/stab on grade)

Depth of structure below grade: 0 ft. Basement size: 0 ft²

If the property is residential, what type? (Circle all appropriate responses.)

- | | | | |
|-------------|----------|------------------|-------------------|
| Ranch | 2-Family | 3-Family | Raised Ranch |
| Split Level | Colonial | Cape Cod | Contemporary |
| Mobile Home | Duplex | Apartment House | Townhouses/Condos |
| Modular | Log Home | Other: <u>NA</u> | |

If multiple units, how many? NA

If the property is commercial:

Business type(s) Civil/Environmental Consultants

Does it include residences (i.e., multi-use)? Yes No If yes, how many? NA

5. OCCUPANCY:

Is basement/lowest level occupied? (Circle one)

- Full-time Occasionally Seldom Almost Never NA



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Level	General Use (e.g., family room, bedroom, laundry, workshop, storage)
Basement	NA
1 st Floor	Office / Warehouse (in back)
2 nd Floor	
3 rd Floor	
4 th Floor	

(Use additional page(s) as necessary)

5. CONSTRUCTION CHARACTERISTICS: (Circle all that apply.)

a. Above Grade Construction: (Describe type: wood frame, concrete, stone, brick.)

Center block

b. Basement Type: Full CrawlSpace Slab Other: _____

c. Basement Floor: Concrete Dirt Stone Other: _____

d. Finished Basement Floor: Uncovered Covered

If covered, what with? NA

e. Foundation Walls: Poured Block Stone Other: _____

f. Foundation Walls: Unsealed Sealed Sealed with: NA

g. The Basement is: Wet Damp Dry NA

h. The Basement is: Finished Unfinished Partially Finished NA

i. Sump Present (Y/N) If yes, how many? NA

Where Discharged? NA

Water in Sump? Yes No Not Applicable



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Identify all potential soil vapor entry points and estimated size (e.g., cracks, utility parts, drains).

Drains in bathrooms - Some cracks in slab floor in warehouse

Are the basement walls or floor sealed with waterproof paint or epoxy coatings? Yes No

Type of ground cover outside of building: Grass Concrete Asphalt Other _____

Is an existing subsurface depressurization (radon) system in place? Yes No

If yes, is it active, or passive?

Is a sub-slab vapor/moisture barrier in place? Yes No NA

Type of barrier: unknown

7. HEATING, VENTING, and AIR CONDITIONING

Type of heating system(s) used in this building: (Circle all that apply: Note the primary).

- | | | |
|---|--|--|
| <input checked="" type="checkbox"/> Hot Air Circulation | <input type="checkbox"/> Heat Pump | <input type="checkbox"/> Hot Water Baseboard |
| <input type="checkbox"/> Space Heaters | <input type="checkbox"/> Steam Radiation | <input type="checkbox"/> Radiant Floor |
| <input type="checkbox"/> Electric Baseboard | <input type="checkbox"/> Wood Stove | <input type="checkbox"/> Outdoor Wood Boiler |
| Other: _____ | | |

The primary type of fuel used is:

- | | | |
|---|-----------------------------------|-----------------------------------|
| <input checked="" type="checkbox"/> Natural Gas | <input type="checkbox"/> Fuel Oil | <input type="checkbox"/> Kerosene |
| <input type="checkbox"/> Electric | <input type="checkbox"/> Propane | <input type="checkbox"/> Solar |
| <input type="checkbox"/> Wood | <input type="checkbox"/> Coal | |

Domestic hot water tank fueled by: Natural gas

Location of Boiler/Furnace: Basement Outdoors Main Floor Other Roof



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Air Conditioning: Central Air Window Units Open Windows None

Are air distribution ducts present? Yes No

Is there a whole house fan? Yes No

Describe the air intake system (outside air supply, cold air return, ductwork, etc.) and its condition where visible. Indicate the locations on the floor plan diagram.

Ductwork in good condition - some new ductwork in rear of building. New oven is being installed including new ductwork

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

a) Is there an attached garage?

warehouse attached

Yes No ^{HL}

If yes, does it have a separate heating unit?

Yes No

b) Are any petroleum-powered machines or vehicles stored in an attached garage (e.g., lawn mower, ATV, car)?

Yes No

c) Has the building ever had a fire?

Yes No

d) Is there a fuel burning or unvented gas space heater?

Yes No

e) Is there a workshop or hobby/craft area?

Yes No

If yes, where and what type? *Warehouse in rear*

f) Is there smoking in the building?

Yes No

If yes, how frequently? *NA*



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

- g) Have cleaning products been used recently? Yes No
 If yes, when and what type? general purpose cleaning - Asphalt extraction using tri-chloroethylene *TCE is no longer used.*
- h) Have cosmetic products been used recently? Yes No
 If yes, when and what type? --- *(TCE)*
- i) Has there been painting or staining in the last six months? Yes No
 If yes, when and where? ---
- j) Is there new carpet, drapes, or other textiles? Yes No
 If yes, when and where? ---
- k) Have air fresheners been used recently? Yes No
 If yes, when and what type? Spays in the bathrooms
- l) Is there a kitchen exhaust fan? Yes No
 If yes, where is it vented? ---
- m) Is there a clothes dryer? Yes No
 If yes, is it vented outside? Yes No *NA*
- n) Has there been a pesticide application? Yes No
 If yes, when and what type? In frequent use
- o) Are there odors in the building? Yes No
 If yes, please describe: ---



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

p) Do any of the building occupants use solvents at work (e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetology)?

Yes No

If yes, what types of solvents are used? Tri chloro ethylene for Asphalt extraction. TCE has been removed from site.

If yes, are their clothes washed at work?

Yes No

q) Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response.)

- No
- Unknown
- Yes, use dry-cleaning regularly (weekly)
- Yes, use dry-cleaning infrequently (monthly or less)
- Yes, work at a dry-cleaning service

r) Is there a radon mitigation system for the building/structure?

Yes No

If yes, what is date of installation?

Active Passive NA

s) Additional mitigation system information (fan size, location, operating status, liner installed, etc.):

Fume hood that vents outdoor for Asphalt extraction.
Fume hoods are no longer in use as TCE has been permanently removed

t) Is there an irrigation well, or any other well, present at the property:

Yes No

If yes, please describe placement, use, and history below.

Product Inventory Form

i.e. gasoline cans/equipment, kerosene, paints/thinners/stripers, cleaning solvents, hobby supplies (glues), oven cleaner, carpet/upholstery cleaners, household cleaners, moth balls, polishes/waxes, insecticides, furniture/floor polish, hairspray, cologne/perfume, air fresheners, interior fuel tank, wood stove/fireplace, new furniture/upholstery, new carpet/flooring

Location	Product Description	Chemical Ingredients	Quantity	PID Reading (ppb)	Photo	Removed (Y/N)	
Warehouse	Rust-oleum	xylene, Acetone	HTI ✓	722	Y	Y	
	Baid	d-thereothrin, 2-dimethyl-3-(2-methyl)	✓	360	Y	Y	
	Aerocoe mopping		HTI	528	Y	Y	
	Kylon spray paint	Ketenes, Toluene	III	571	Y	Y	
	seafoam motor	Auto marine, Fleet	II	371	Y	Y	
	Rainex De-icer	Windshield washer	HTII	390	Y	Y	
	3 in 1	Multipurpose oil	II	431	Y	Y	
	Working ton	Propane	I	460	Y	Y	
	Pledge Clean and shine	Furniture polish	I	414	Y	Y	
	W040	Various sizes	HT III B	406	Y	Y	
Bathroom	OFFICE DEPOT Multipurpose anti static duster		I	400	Y	Y	
Bathroom	Air Wick Aerosols, Glade		HTI ✓	402	Y	Y	
Warehouse	Ly Sol Disinfectant Spray		II "	453	Y	Y	
	Kilz Up Shot overhead stain sealer		II	431	Y	Y	
	Seymour Galvanized coatings corrosion		I	428	Y	Y	
	PeeStone Premium Starting Fluid		I	431	Y	Y	
	Mörsendörcker's lift off adhesives, grease		I	445	Y	Y	
	3M Multipurpose adhesive spray		I	970	Y	Y	
	Xycrylic Admix cement mortar Fortifier		II 2	276 98	Y	N	
	Liquinox Critical-cleaning Liquid Detergent		I	310	Y	N	
	Liquinox - Clear bottle various sizes		HTHT II	290	Y	N	
	REPEL Insect Repellent 4oz Deet		II ✓	300	Y	Y	
	Spectracide Pro, wasp, hornet killer		HT ✓	322	Y	Y	
	One purple primer and cutter cement		HT III ✓	742	N	Y	
	Hot Shot roach killer		II	431	Y	Y	
	PEM Penetrating oil		I	804	Y	N	
	Sprayon Insulating Varnish		III ✓	932	Y	N	
	Loquer Thinner, Klean-Stop		II	5,290	Y	N	
	Contractors grade grouting compound		III	1,893	Y	N	
	Strait-line, marking chart		HTI	777	Y	N	
	AERUBE Spray paint cabinet		Multiple ✓	1895	Y	N	
	Solvents and cleaners bottom cabinet		Multiple	219	Y	N	
	2 Barrels of TCE			1,897	Y	N	
	Gas cans	4AS		4	88	Y	Y
	Spray paint			16	26.08 ppm	Y	Y
	TEL (radioactive) residue containers			1	100	Y	Y
	Spectracide - wasp/hornet killer			4	80	Y	Y
Pittsburgh - Thinner			1	2092 ppm	Y	Y	
Density withthane foam A			1	248	Y	Y	
Density withthane foam B			1	265	Y	Y	
Perma-Glue with silicone			1	150	Y	Y	
Master glue with moisture			1	79	Y	Y	
Stain clean solvent grease			1		Y	Y	
Multipurpose duster			1		Y	Y	
Great stuff - insulating foam			2		Y	Y	

125 ppb

Notes: 55 gallon drums TCE will likely be used during sampling
 Soil will be processed on site that will be off gassing
 Chemicals to be stored in Radio active lab area.

Notes: Chlorinated solvents stored in company vehicle outside remaining (Nominally stored in (1000+1000) indoor inventory radiopress)

Office Name & Address (Reporting Information): Arcadis of Michigan, LLC 28550 Cabot Drive, Suite 500, Novi, MI 48377		Project Name: Ford LTP Off-site Sampling	
Field Manager: Adam Richmond		Project Number: MI001454.0003	
Phone Number: 248.994.2240	Special Instructions:	Site Address: 11675 Belden	
Email Address for Result Reporting: Kristoffer.Hinskey@arcadis.com		Sampler Name: E. Redner / S. Johnson	
Summa Canister Size (1L, 2.7 L, 6L) 6 Liter	Lab: Eurofins		

Sample ID	Sample Location Description	Indoor/Outdoor	PID in Sampling Area (ppb)	Canister Number	Flow Controller Number	Sample Collection Start Date	Sample Collection Start Time	Beginning Canister Pressure (in. Hg)	Sample Collection End Date	Sample Collection End Time	Ending Canister Pressure (in. Hg)	HVAC System Information			Notes
												HVAC Fan On?	Heat On?	Temperature Setting (°F) (start/end)	
AA-11675BELDEN-01_032819	S side of building centered along wall	O	0	6L1554	24206	3/28/19	0822	-28.5	3/28/19	1505	-7.5	-	-	-	
IAF-11675BELDEN-01_032819	South side of warehouse w/ gates on tank	I	81	6L0406	23463	3/28/19	0824	-29	3/28/19	1509	-6.5	Y	Y	69/69	
IAF-11675BELDEN-02_032819	South side of building in workroom	I	262	6L1600	23373	3/28/19	0825	-28.5	3/28/19	1511	-6	Y	Y	72/72	
IAF-11675BELDEN-03_032819	North side of building, East side of lobby	I	166	6L1452	24377	3/28/19	0827	-28.5	3/28/19	1512	-6	Y	Y	72/72	
IAF-11675BELDEN-04_032819	NW side of warehouse of middle of lab table	I	91	6L0852	23415	3/28/19	0829	-28.5	3/28/19	1514	-6.5	Y	Y	69/69	
IAF-11675BELDEN-05_032819	Western side of building middle of storage/work area	I	108	6L0357	23514	3/28/19	0830	-28.5	3/28/19	1515	-6.5	Y	Y	69/69	
DUP-11675BELDEN-01-032819	S side of building centered along wall	O	0	6L0959	23267	3/28/19	0822	-28.5	3/28/19	1505	-6.5	-	-	-	

Meteorological Data							General Notes or Observations
Date	Time	Temp. (°F)		Relative Humidity (%)	Barometric Pressure (in. Hg)	Air Speed (mph)	
		Indoor	Outdoor				
3/28/19	0817	69/72	44	74	30.09	SSW 10	weather.com app
3/28/19	1453	69/72	65	46	30.00	SW 15	weather.com app
							weather.com app
							weather.com app

Office Name & Address (Reporting Information): Arcadis of Michigan, LLC 28550 Cabot Drive, Suite 500, Novi, MI 48377		Project Name: Ford LTP Off-site Sampling	
Field Manager: Adam Richmond		Project Number: MI001454.0003.00001	
Phone Number: 248.994.2240		Site Address: 11675 Belden	
Email Address for Result Reporting: Kristoffer.Hinskey@arcadis.com		Sampler Name: E. Redner / S. Johnson	
Helium Detector Model Used: Dielectric MGD-2002		Summa Canister Size (1L, 2.7 L, 6L): 1 Liter	
Special Instructions:		Lab: Eurofins	

Sample ID	Sample Location Description	Date	Pre-Sampling Shut-In / Leak-Down Test Pass/Fail?	Helium Tracer Test - Performed During Sample Point Purge			Purge Volume (mL)	Purge Rate (mL/min)	Canister Number	Flow Controller Number	Sample Collection Start Time	Starting Canister Pressure (in. Hg)	Sample Collection End Time	Ending Canister Pressure (in. Hg)	Post-Sampling CO ₂ Reading from GEM (%)	Post-Sampling O ₂ Reading from GEM (%)	Micromanometer Reading (in. WC)
				Shroud Helium Concentration During Purge (% Helium)	Helium Reading in Purged Vapor (% Helium)	Helium Test Pass/Fail (Purge contains <5% of shroud to pass)?											
SSMP-11675BELDEN-01_032819	S side of warehouse in b/t gates	3/28/19	PASS	57.7	0	PASS	100 mL	100 ml/min	1L2939	24287	0856	-29.5	0907	-5.5	1.5	19.0	0.00703
SSMP-11675BELDEN-02_032819	WEST wall of warehouse storage/work area	3/28/19	PASS	49.8	0	PASS	100 mL	100 ml/min	1L3154	23716	0902	-29.5	0915	-5.5	1.2	19.0	-0.00762
SSMP-11675BELDEN-03_032819	NW corner of warehouse in equipment room	3/28/19	PASS	54.8	0	PASS	100 mL	100 ml/min	1L2540	23823	0931	-29	0945	-6	2.7	18.0	-0.00310
SSMP-11675BELDEN-04_032819	NE side of building W side of office underneath desk	3/28/19	PASS	45.0	0	PASS	100 mL	100 ml/min	1L2870	23138	0959	-29.5	1011	-5.5	2.0	18.8	0.00718
SSMP-11675BELDEN-05_032819	W side of server room	3/28/19	PASS	47.2	0	PASS	100 mL	100 ml/min	1L2309	23217	0958	-29.5	1010	-5	2.6	18.4	0.0030
SSMP-11675BELDEN-06_032819	E side of building near kitchen	3/28/19	PASS	49.8	0	PASS	100 mL	100 ml/min	1L2981	23181	0930	-29.5	0942	-6	2.1	18.9	0.00299
							100 mL	100 ml/min									
							100 mL	100 ml/min									
							100 mL	100 ml/min									
							100 mL	100 ml/min									

Date	Time	Temp. (°F)		Relative Humidity (%)	Barometric Pressure (in. Hg)	Source of Weather Information	Purge Volume Calculations: The purge volume for each sample has been pre-calculated using the information below. For sub-slab soil vapor samples the sample train tubing length is ~54 inches and the interior tubing radius is 0.085". Three volumes of the sample train is 60 milliliters using the equation for volume of a cylinder (volume = pi * radius ² * height) where Volume = 60 ml, radius = 0.85" and height = 54". To have sufficient volume to conduct helium leak testing 100 milliliters should be purged from each sample point. For exterior soil vapor sampling 60 milliliters should be used for the above ground sample train. Each additional foot of sub-grade tubing account for approximately 13 ml. To have sufficient volume to conduct helium leak testing at least 100 milliliters should be purged from each sample point.
		Indoor	Outdoor				
3/28/19	0817	69/72	44	74	30.09	weather.com app	General Notes or Observations:
3/28/19	1453	69/72	65	40	30.06	weather.com app	
						weather.com app	
						weather.com app	
						weather.com app	

TRANSMITTAL LETTER



To:
Industrial Properties LLC
Shawn Collins
Brandon Alger (EGLE)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:
August 15, 2019

Subject:

Arcadis Project No.:

Vapor Intrusion Assessment
Data Package

We are sending you hard copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Delivery Date	Drawing No.	Rev.	Description	Action*
1	8/16/2019			Figure	
1	8/16/2019			Analytical Results	
1	8/16/2019			Field Notes and Drawings	

Action*

- A Approved CR Correct and Resubmit Resubmit _____ Copies
 AN Approved As Noted F File Return _____ Copies
 AS As Requested FA For Approval Review and Comment
 Other: _____

Mailing Method

- U.S. Postal Service 1st Class Courier/Hand Delivery FedEx Priority Overnight FedEx 2-Day Delivery
 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
 Other: email

Thank you for cooperating with the air sampling at your property on July 24, 2019. Attached is your data package.

CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: T. STEVENS TR: P. CURRY PROJECT NUMBER: M001373.0001.00003 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
 Z:\GIS\Projects_ENV\Novi\Brighton_MIV\Ford\Livonia\GIS\docs\2018-11\11675Belden.mxd PLOTTED: 11/30/2018 12:29:10 PM BY: msmiller



LEGEND:

- INDOOR AIR LOCATION
- ⊕ AMBIENT AIR LOCATION
- SUB-SLAB MONITORING POINT LOCATION
- ▭ BUILDING
- ▭ PROPERTY BOUNDARIES



FORD MOTOR COMPANY
 LIVONIA TRANSMISSION PLANT
 LIVONIA, MICHIGAN

AIR SAMPLING LOCATIONS



FIGURE
1

8/5/2019

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #: MI001454.0003 / 30016344
Workorder #: 1907645

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 7/29/2019 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1907645

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0004.0001B
FAX:		PROJECT #	MI001454.0003 / 30016344 Ford LTP
DATE RECEIVED:	07/29/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	08/05/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	IAF-11675BELDEN-05_072419	Modified TO-15	7.5 "Hg	5 psi
02A	IAF-11675BELDEN-04_072419	Modified TO-15	5.0 "Hg	5 psi
03A	IAF-11675BELDEN-03_072419	Modified TO-15	7.5 "Hg	5 psi
04A	AA-11675BELDEN-01_072419	Modified TO-15	6.5 "Hg	5 psi
05A	IAF-11675BELDEN-01_072419	Modified TO-15	6.5 "Hg	5 psi
06A	IAF-11675BELDEN-02_072419	Modified TO-15	6.0 "Hg	5 psi
07A	Lab Blank	Modified TO-15	NA	NA
08A	CCV	Modified TO-15	NA	NA
09A	LCS	Modified TO-15	NA	NA
09AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY:



Technical Director

DATE: 08/05/19

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 1907645

Six 6 Liter Summa Canister (100% Cert Ambient) samples were received on July 29, 2019. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

- B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).
- J - Estimated value.
- E - Exceeds instrument calibration range.
- S - Saturated peak.
- Q - Exceeds quality control limits.
- U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.
- UJ- Non-detected compound associated with low bias in the CCV
- N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates

as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-05_072419	Date/Time Analyzed:	8/1/19 08:06 PM
Lab ID:	1907645-01A	Dilution Factor:	1.79
Date/Time Collected:	7/24/19 05:00 PM	Instrument/Filename:	msd20.i / 20080118
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.17	0.64	0.71	Not Detected
1,4-Dioxane	123-91-1	0.52	0.58	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.38	0.64	0.71	Not Detected
Tetrachloroethene	127-18-4	0.75	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.40	0.64	0.71	Not Detected
Trichloroethene	79-01-6	0.47	0.86	0.96	5.5
Vinyl Chloride	75-01-4	0.15	0.41	0.46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-04_072419	Date/Time Analyzed:	8/1/19 08:55 PM
Lab ID:	1907645-02A	Dilution Factor:	1.61
Date/Time Collected:	7/24/19 04:14 PM	Instrument/Filename:	msd20.i / 20080119
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.15	0.57	0.64	Not Detected
1,4-Dioxane	123-91-1	0.47	0.52	0.58	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.57	0.64	Not Detected
Tetrachloroethene	127-18-4	0.68	0.98	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.57	0.64	Not Detected
Trichloroethene	79-01-6	0.42	0.78	0.86	4.5
Vinyl Chloride	75-01-4	0.13	0.37	0.41	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-03_072419	Date/Time Analyzed:	8/1/19 09:35 PM
Lab ID:	1907645-03A	Dilution Factor:	1.79
Date/Time Collected:	7/24/19 05:05 PM	Instrument/Filename:	msd20.i / 20080120
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.17	0.64	0.71	Not Detected
1,4-Dioxane	123-91-1	0.52	0.58	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.38	0.64	0.71	Not Detected
Tetrachloroethene	127-18-4	0.75	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.40	0.64	0.71	Not Detected
Trichloroethene	79-01-6	0.47	0.86	0.96	4.2
Vinyl Chloride	75-01-4	0.15	0.41	0.46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	97

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-11675BELDEN-01_072419	Date/Time Analyzed:	8/1/19 10:15 PM
Lab ID:	1907645-04A	Dilution Factor:	1.71
Date/Time Collected:	7/24/19 04:06 PM	Instrument/Filename:	msd20.i / 20080121
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.16	0.61	0.68	Not Detected
1,4-Dioxane	123-91-1	0.50	0.55	0.62	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.36	0.61	0.68	Not Detected
Tetrachloroethene	127-18-4	0.72	1.0	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.38	0.61	0.68	Not Detected
Trichloroethene	79-01-6	0.45	0.83	0.92	Not Detected
Vinyl Chloride	75-01-4	0.14	0.39	0.44	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-01_072419	Date/Time Analyzed:	8/1/19 10:54 PM
Lab ID:	1907645-05A	Dilution Factor:	1.71
Date/Time Collected:	7/24/19 04:46 PM	Instrument/Filename:	msd20.i / 20080122
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.16	0.61	0.68	Not Detected
1,4-Dioxane	123-91-1	0.50	0.55	0.62	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.36	0.61	0.68	Not Detected
Tetrachloroethene	127-18-4	0.72	1.0	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.38	0.61	0.68	Not Detected
Trichloroethene	79-01-6	0.45	0.83	0.92	5.5
Vinyl Chloride	75-01-4	0.14	0.39	0.44	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-02_072419	Date/Time Analyzed:	8/1/19 11:34 PM
Lab ID:	1907645-06A	Dilution Factor:	1.68
Date/Time Collected:	7/24/19 04:11 PM	Instrument/Filename:	msd20.i / 20080123
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.16	0.60	0.67	Not Detected
1,4-Dioxane	123-91-1	0.49	0.54	0.60	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.36	0.60	0.67	Not Detected
Tetrachloroethene	127-18-4	0.71	1.0	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.37	0.60	0.67	Not Detected
Trichloroethene	79-01-6	0.44	0.81	0.90	4.1
Vinyl Chloride	75-01-4	0.14	0.39	0.43	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	97

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	8/1/19 12:05 PM
Lab ID:	1907645-07A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20080107a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.095	0.36	0.40	Not Detected
1,4-Dioxane	123-91-1	0.29	0.32	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.21	0.36	0.40	Not Detected
Tetrachloroethene	127-18-4	0.42	0.61	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.22	0.36	0.40	Not Detected
Trichloroethene	79-01-6	0.26	0.48	0.54	Not Detected
Vinyl Chloride	75-01-4	0.082	0.23	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	8/1/19 07:00 AM
Lab ID:	1907645-08A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20080102
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	90
1,4-Dioxane	123-91-1	100
cis-1,2-Dichloroethene	156-59-2	92
Tetrachloroethene	127-18-4	101
trans-1,2-Dichloroethene	156-60-5	92
Trichloroethene	79-01-6	97
Vinyl Chloride	75-01-4	92

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	8/1/19 09:19 AM
Lab ID:	1907645-09A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20080104
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	92
1,4-Dioxane	123-91-1	105
cis-1,2-Dichloroethene	156-59-2	86
Tetrachloroethene	127-18-4	98
trans-1,2-Dichloroethene	156-60-5	101
Trichloroethene	79-01-6	93
Vinyl Chloride	75-01-4	94

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	100

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	8/1/19 10:08 AM
Lab ID:	1907645-09AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20080105
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	89
1,4-Dioxane	123-91-1	102
cis-1,2-Dichloroethene	156-59-2	85
Tetrachloroethene	127-18-4	97
trans-1,2-Dichloroethene	156-60-5	101
Trichloroethene	79-01-6	93
Vinyl Chloride	75-01-4	92

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	101

* % Recovery is calculated using unrounded analytical results.



August 05, 2019

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: MI001454.0002/3/4.00002/2B/3B
Client project scope reference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics - Folsom
Laboratory submittal: 1907645
Sample date: 2019-07-24
Report received by CADENA: 2019-08-05
Initial Data Verification completed by CADENA: 2019-08-05

6 Air samples were analyzed for TO-15 parameters.

There were no significant QC anomalies or exceptions to report.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) TO-15 Analysis

SDG #1907645

CADENA Verification Report: 2019-08-05

Analyses Performed By:
Eurofins Air Toxics
Folsom, California

Report #33754R
Review Level: Tier III
Project: MI001454.0004.00002 (30016346)

DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 1907645 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
1907645	IAF-11675BELDEN-05_072419	1907645-01A	Air	7/24/2019		X		
	IAF-11675BELDEN-04_072419	1907645-02A	Air	7/24/2019		X		
	IAF-11675BELDEN-03_072419	1907645-03A	Air	7/24/2019		X		
	AA-11675BELDEN-01_072419	1907645-04A	Air	7/24/2019		X		
	IAF-11675BELDEN-01_072419	1907645-05A	Air	7/24/2019		X		
	IAF-11675BELDEN-02_072419	1907645-06A	Air	7/24/2019		X		

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15 (Full Scan). Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15	Air	30 days from collection to analysis (Canister)	Ambient Temperature	< -2" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 140% or less than 60% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. All identified compounds met the specified criteria.

6. Field Duplicate Sample Analysis

The field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 35% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are not greater than five times the RL, a control limit of one times the RL is applied to the difference between the duplicate sample results.

A field duplicate was not performed on a sample location within this SDG.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15 (Full Scan)	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-2"Hg)		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Field Duplicate Sample RPD					X
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:



DATE: August 7, 2019

PEER REVIEW: Dennis Capria

DATE: August 9, 2019



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-05_072419	Date/Time Analyzed:	8/1/19 08:06 PM
Lab ID:	1907645-01A	Dilution Factor:	1.79
Date/Time Collected:	7/24/19 05:00 PM	Instrument/Filename:	msd20.i / 20080118
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.17	0.64	0.71	Not Detected
1,4-Dioxane	123-91-1	0.52	0.58	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.38	0.64	0.71	Not Detected
Tetrachloroethene	127-18-4	0.75	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.40	0.64	0.71	Not Detected
Trichloroethene	79-01-6	0.47	0.86	0.96	5.5
Vinyl Chloride	75-01-4	0.15	0.41	0.46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-04_072419	Date/Time Analyzed:	8/1/19 08:55 PM
Lab ID:	1907645-02A	Dilution Factor:	1.61
Date/Time Collected:	7/24/19 04:14 PM	Instrument/Filename:	msd20.i / 20080119
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.15	0.57	0.64	Not Detected
1,4-Dioxane	123-91-1	0.47	0.52	0.58	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.57	0.64	Not Detected
Tetrachloroethene	127-18-4	0.68	0.98	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.57	0.64	Not Detected
Trichloroethene	79-01-6	0.42	0.78	0.86	4.5
Vinyl Chloride	75-01-4	0.13	0.37	0.41	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-03_072419	Date/Time Analyzed:	8/1/19 09:35 PM
Lab ID:	1907645-03A	Dilution Factor:	1.79
Date/Time Collected:	7/24/19 05:05 PM	Instrument/Filename:	msd20.i / 20080120
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.17	0.64	0.71	Not Detected
1,4-Dioxane	123-91-1	0.52	0.58	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.38	0.64	0.71	Not Detected
Tetrachloroethene	127-18-4	0.75	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.40	0.64	0.71	Not Detected
Trichloroethene	79-01-6	0.47	0.86	0.96	4.2
Vinyl Chloride	75-01-4	0.15	0.41	0.46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	97

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-11675BELDEN-01_072419	Date/Time Analyzed:	8/1/19 10:15 PM
Lab ID:	1907645-04A	Dilution Factor:	1.71
Date/Time Collected:	7/24/19 04:06 PM	Instrument/Filename:	msd20.i / 20080121
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.16	0.61	0.68	Not Detected
1,4-Dioxane	123-91-1	0.50	0.55	0.62	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.36	0.61	0.68	Not Detected
Tetrachloroethene	127-18-4	0.72	1.0	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.38	0.61	0.68	Not Detected
Trichloroethene	79-01-6	0.45	0.83	0.92	Not Detected
Vinyl Chloride	75-01-4	0.14	0.39	0.44	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-01_072419	Date/Time Analyzed:	8/1/19 10:54 PM
Lab ID:	1907645-05A	Dilution Factor:	1.71
Date/Time Collected:	7/24/19 04:46 PM	Instrument/Filename:	msd20.i / 20080122
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.16	0.61	0.68	Not Detected
1,4-Dioxane	123-91-1	0.50	0.55	0.62	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.36	0.61	0.68	Not Detected
Tetrachloroethene	127-18-4	0.72	1.0	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.38	0.61	0.68	Not Detected
Trichloroethene	79-01-6	0.45	0.83	0.92	5.5
Vinyl Chloride	75-01-4	0.14	0.39	0.44	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-02_072419	Date/Time Analyzed:	8/1/19 11:34 PM
Lab ID:	1907645-06A	Dilution Factor:	1.68
Date/Time Collected:	7/24/19 04:11 PM	Instrument/Filename:	msd20.i / 20080123
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.16	0.60	0.67	Not Detected
1,4-Dioxane	123-91-1	0.49	0.54	0.60	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.36	0.60	0.67	Not Detected
Tetrachloroethene	127-18-4	0.71	1.0	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.37	0.60	0.67	Not Detected
Trichloroethene	79-01-6	0.44	0.81	0.90	4.1
Vinyl Chloride	75-01-4	0.14	0.39	0.43	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	97

Analysis Request / Canister Chain of Custody

For Laboratory Use Only
 PID: _____ Workorder #: **1907645**

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
 Phone (800) 985-5955; Fax (916) 351-8279

Click links below to view:
[Canister Sampling Guide](#)
[Helium Shroud Video](#)

Client: <u>Ford</u>	PID: <u>NA</u>	Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting	Turnaround Time (Rush surcharges may apply) 5 Day Turnaround Time
Project Name: <u>Ford LTP</u>	MI001454.0003 /		Canister Vacuum/Pressure Requested Analyses
Project Manager: <u>Kris Hinskey</u>	P.O.# <u>30016344</u>		
Sampler: <u>Seth Turner</u>	Site Name: <u>11675 BELDEN</u>		

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Lab Use Only		TO-15 (See Special Instructions/Notes)	Do Not Analyze
				Date	Time	Date	Time			Receipt	Final (psig) Gas: N ₂ / He		
01A	IAF-11675BELDEN-05_072419	6L2011	23538	7/24/2019	8:36	7/24/2019	17:00	-29	-7.5			X	
02A	IAF-11675BELDEN-04_072419	6L0617	23497	7/24/2019	8:32	7/24/2019	16:14	-29	-4			X	
02A	IAF-11675BELDEN-03_072419	6L2333	23211 ^H	7/24/2019	8:31	7/24/2019	17:05	-29	-7			X	
04A	AA-11675BELDEN-01_072419	6L0832	23712	7/24/2019	9:12	7/24/2019	16:06	-29	-6			X	
05A	IAF-11675BELDEN-01_072419	6L0377	23362	7/24/2019	8:28	7/24/2019	16:46	-29	-6			X	
06A	IAF-11675BELDEN-02_072419	6L0350	23481	7/24/2019	8:30	7/24/2019	16:11	-29	-6			X	

Relinquished by: (Signature/Affiliation) <i>[Signature]</i> / Acadis	Date: <u>7-25-19</u>	Time: <u>1600</u>	Received by: (Signature/Affiliation) <i>[Signature]</i> / EAST	Date: <u>7/29/19</u>	Time: <u>0935</u>
Relinquished by: (Signature/Affiliation)	Date:	Time:	Received by: (Signature/Affiliation)	Date:	Time:
Relinquished by: (Signature/Affiliation)	Date:	Time:	Received by: (Signature/Affiliation)	Date:	Time:

Lab Use Only

Shipper Name: FedEx Custody Seals Intact? Yes No None (600)

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

8/5/2019

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #: MI001454.0003 / 30016344
Workorder #: 1907642

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 7/29/2019 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1907642

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0004.0001B
FAX:		PROJECT #	MI001454.0003 / 30016344 Ford LTP
DATE RECEIVED:	07/29/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	08/05/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	DUP-11675BELDEN-01_072419	TO-15	6.0 "Hg	15 psi
02A	SSMP-11675BELDEN-02_072419	TO-15	4.0 "Hg	15 psi
03A	SSMP-11675BELDEN-01_072419	TO-15	5.5 "Hg	15 psi
04A	SSMP-11675BELDEN-04_072419	TO-15	6.5 "Hg	15 psi
05A	SSMP-11675BELDEN-05_072419	TO-15	6.5 "Hg	15 psi
06A	SSMP-11675BELDEN-06_072419	TO-15	6.0 "Hg	15 psi
07A	SSMP-11675BELDEN-03_072419	TO-15	6.0 "Hg	15 psi
08A	Lab Blank	TO-15	NA	NA
09A	CCV	TO-15	NA	NA
10A	LCS	TO-15	NA	NA
10AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 08/05/19

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1907642

Seven 1 Liter Summa Canister (100% Certified) samples were received on July 29, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	DUP-11675BELDEN-01_072419	Date/Time Analyzed:	7/31/19 02:50 PM
Lab ID:	1907642-01A	Dilution Factor:	2.52
Date/Time Collected:	7/24/19 12:00 AM	Instrument/Filename:	msda.i / a073106
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.0	5.0	Not Detected
1,4-Dioxane	123-91-1	2.6	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	4.0	5.0	Not Detected
Tetrachloroethene	127-18-4	1.0	6.8	8.5	1.6 J
trans-1,2-Dichloroethene	156-60-5	1.9	4.0	5.0	Not Detected
Trichloroethene	79-01-6	0.68	5.4	6.8	2.7 J
Vinyl Chloride	75-01-4	0.64	2.6	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	85
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	96

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675BELDEN-02_072419	Date/Time Analyzed:	7/31/19 03:17 PM
Lab ID:	1907642-02A	Dilution Factor:	2.33
Date/Time Collected:	7/24/19 09:56 AM	Instrument/Filename:	msda.i / a073107
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.4	3.7	4.6	Not Detected
1,4-Dioxane	123-91-1	2.4	12	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.92	3.7	4.6	Not Detected
Tetrachloroethene	127-18-4	0.95	6.3	7.9	3.7 J
trans-1,2-Dichloroethene	156-60-5	1.8	3.7	4.6	Not Detected
Trichloroethene	79-01-6	0.63	5.0	6.3	62
Vinyl Chloride	75-01-4	0.60	2.4	3.0	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	87
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675BELDEN-01_072419	Date/Time Analyzed:	7/31/19 03:44 PM
Lab ID:	1907642-03A	Dilution Factor:	2.47
Date/Time Collected:	7/24/19 09:04 AM	Instrument/Filename:	msda.i / a073108
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	3.9	4.9	Not Detected
1,4-Dioxane	123-91-1	2.6	13	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.98	3.9	4.9	Not Detected
Tetrachloroethene	127-18-4	1.0	6.7	8.4	1.5 J
trans-1,2-Dichloroethene	156-60-5	1.9	3.9	4.9	Not Detected
Trichloroethene	79-01-6	0.66	5.3	6.6	8.9
Vinyl Chloride	75-01-4	0.63	2.5	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	86
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675BELDEN-04_072419	Date/Time Analyzed:	7/31/19 04:10 PM
Lab ID:	1907642-04A	Dilution Factor:	2.58
Date/Time Collected:	7/24/19 09:05 AM	Instrument/Filename:	msda.i / a073109
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.1	5.1	Not Detected
1,4-Dioxane	123-91-1	2.7	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	4.1	5.1	Not Detected
Tetrachloroethene	127-18-4	1.0	7.0	8.8	2.6 J
trans-1,2-Dichloroethene	156-60-5	1.9	4.1	5.1	Not Detected
Trichloroethene	79-01-6	0.69	5.5	6.9	27
Vinyl Chloride	75-01-4	0.66	2.6	3.3	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	87
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675BELDEN-05_072419	Date/Time Analyzed:	7/31/19 04:37 PM
Lab ID:	1907642-05A	Dilution Factor:	2.58
Date/Time Collected:	7/24/19 09:30 AM	Instrument/Filename:	msda.i / a073110
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.1	5.1	Not Detected
1,4-Dioxane	123-91-1	2.7	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	4.1	5.1	Not Detected
Tetrachloroethene	127-18-4	1.0	7.0	8.8	1.9 J
trans-1,2-Dichloroethene	156-60-5	1.9	4.1	5.1	Not Detected
Trichloroethene	79-01-6	0.69	5.5	6.9	2.8 J
Vinyl Chloride	75-01-4	0.66	2.6	3.3	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	86
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675BELDEN-06_072419	Date/Time Analyzed:	7/31/19 05:04 PM
Lab ID:	1907642-06A	Dilution Factor:	2.52
Date/Time Collected:	7/24/19 09:42 AM	Instrument/Filename:	msda.i / a073111
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.0	5.0	Not Detected
1,4-Dioxane	123-91-1	2.6	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	4.0	5.0	Not Detected
Tetrachloroethene	127-18-4	1.0	6.8	8.5	1.2 J
trans-1,2-Dichloroethene	156-60-5	1.9	4.0	5.0	Not Detected
Trichloroethene	79-01-6	0.68	5.4	6.8	7.5
Vinyl Chloride	75-01-4	0.64	2.6	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	83
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	96

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675BELDEN-03_072419	Date/Time Analyzed:	7/31/19 05:30 PM
Lab ID:	1907642-07A	Dilution Factor:	2.52
Date/Time Collected:	7/24/19 10:11 AM	Instrument/Filename:	msda.i / a073112
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.0	5.0	Not Detected
1,4-Dioxane	123-91-1	2.6	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	4.0	5.0	Not Detected
Tetrachloroethene	127-18-4	1.0	6.8	8.5	2.8 J
trans-1,2-Dichloroethene	156-60-5	1.9	4.0	5.0	Not Detected
Trichloroethene	79-01-6	0.68	5.4	6.8	270
Vinyl Chloride	75-01-4	0.64	2.6	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	85
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	7/31/19 12:34 PM
Lab ID:	1907642-08A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a073105a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.59	1.6	2.0	Not Detected
1,4-Dioxane	123-91-1	1.0	5.4	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.40	1.6	2.0	Not Detected
Tetrachloroethene	127-18-4	0.41	2.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.75	1.6	2.0	Not Detected
Trichloroethene	79-01-6	0.27	2.1	2.7	Not Detected
Vinyl Chloride	75-01-4	0.26	1.0	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	89
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	96

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	7/31/19 11:18 AM
Lab ID:	1907642-09A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a073102
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	94
1,4-Dioxane	123-91-1	87
cis-1,2-Dichloroethene	156-59-2	89
Tetrachloroethene	127-18-4	101
trans-1,2-Dichloroethene	156-60-5	86
Trichloroethene	79-01-6	93
Vinyl Chloride	75-01-4	89

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	7/31/19 11:43 AM
Lab ID:	1907642-10A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a073103
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	97
1,4-Dioxane	123-91-1	89
cis-1,2-Dichloroethene	156-59-2	102
Tetrachloroethene	127-18-4	104
trans-1,2-Dichloroethene	156-60-5	79
Trichloroethene	79-01-6	97
Vinyl Chloride	75-01-4	92

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	87
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	98

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	7/31/19 12:08 PM
Lab ID:	1907642-10AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a073104
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	97
1,4-Dioxane	123-91-1	93
cis-1,2-Dichloroethene	156-59-2	102
Tetrachloroethene	127-18-4	104
trans-1,2-Dichloroethene	156-60-5	79
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	92

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	87
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	97

* % Recovery is calculated using unrounded analytical results.



August 05, 2019

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: MI001454.0002/3/4.00002/2B/3B
Client project scope reference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics - Folsom
Laboratory submittal: 1907642
Sample date: 2019-07-24
Report received by CADENA: 2019-08-05
Initial Data Verification completed by CADENA: 2019-08-05

7 Air samples were analyzed for TO-15 parameters.

There were no significant QC anomalies or exceptions to report.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) TO-15 Analysis

SDG #1907642

CADENA Verification Report: 2019-08-05

Analyses Performed By:
Eurofins Air Toxics
Folsom, California

Report #33753R
Review Level: Tier III
Project: MI001454.0004.00002 (30016346)

DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 1907642 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
1907642	DUP-11675BELDEN-01_072419	1907642-01A	Air	7/24/2019	SSMP-11675BELDEN-05_072419	X		
	SSMP-11675BELDEN-02_072419	1907642-02A	Air	7/24/2019		X		
	SSMP-11675BELDEN-01_072419	1907642-03A	Air	7/24/2019		X		
	SSMP-11675BELDEN-04_072419	1907642-04A	Air	7/24/2019		X		
	SSMP-11675BELDEN-05_072419	1907642-05A	Air	7/24/2019		X		
	SSMP-11675BELDEN-06_072419	1907642-06A	Air	7/24/2019		X		
	SSMP-11675BELDEN-03_072419	1907642-07A	Air	7/24/2019		X		

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15 (Full Scan). Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15	Air	30 days from collection to analysis (Canister)	Ambient Temperature	< -2" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 140% or less than 60% of the area counts of the associated continuing calibration standard.

DATA REVIEW

All internal standard responses were within control limits.

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

6. Field Duplicate Sample Analysis

The field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 35% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are not greater than five times the RL, a control limit of one times the RL is applied to the difference between the duplicate sample results.

Results (in $\mu\text{g}/\text{m}^3$) for the field duplicate samples are summarized in the following table.

Sample ID / Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
SSMP-11675BELDEN-05_072419/ DUP-11675BELDEN-01_072419	Tetrachloroethene	1.9 J	1.6 J	AC
	Trichloroethene	2.8 J	2.7 J	AC

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15 (Full Scan)	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-2"Hg)		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Field Duplicate Sample RPD		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:



DATE: August 7, 2019

PEER REVIEW: Dennis Capria

DATE: August 9, 2019



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	DUP-11675BELDEN-01_072419	Date/Time Analyzed:	7/31/19 02:50 PM
Lab ID:	1907642-01A	Dilution Factor:	2.52
Date/Time Collected:	7/24/19 12:00 AM	Instrument/Filename:	msda.i / a073106
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.0	5.0	Not Detected
1,4-Dioxane	123-91-1	2.6	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	4.0	5.0	Not Detected
Tetrachloroethene	127-18-4	1.0	6.8	8.5	1.6 J
trans-1,2-Dichloroethene	156-60-5	1.9	4.0	5.0	Not Detected
Trichloroethene	79-01-6	0.68	5.4	6.8	2.7 J
Vinyl Chloride	75-01-4	0.64	2.6	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	85
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	96

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675BELDEN-02_072419	Date/Time Analyzed:	7/31/19 03:17 PM
Lab ID:	1907642-02A	Dilution Factor:	2.33
Date/Time Collected:	7/24/19 09:56 AM	Instrument/Filename:	msda.i / a073107
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.4	3.7	4.6	Not Detected
1,4-Dioxane	123-91-1	2.4	12	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.92	3.7	4.6	Not Detected
Tetrachloroethene	127-18-4	0.95	6.3	7.9	3.7 J
trans-1,2-Dichloroethene	156-60-5	1.8	3.7	4.6	Not Detected
Trichloroethene	79-01-6	0.63	5.0	6.3	62
Vinyl Chloride	75-01-4	0.60	2.4	3.0	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	87
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675BELDEN-01_072419	Date/Time Analyzed:	7/31/19 03:44 PM
Lab ID:	1907642-03A	Dilution Factor:	2.47
Date/Time Collected:	7/24/19 09:04 AM	Instrument/Filename:	msda.i / a073108
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	3.9	4.9	Not Detected
1,4-Dioxane	123-91-1	2.6	13	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.98	3.9	4.9	Not Detected
Tetrachloroethene	127-18-4	1.0	6.7	8.4	1.5 J
trans-1,2-Dichloroethene	156-60-5	1.9	3.9	4.9	Not Detected
Trichloroethene	79-01-6	0.66	5.3	6.6	8.9
Vinyl Chloride	75-01-4	0.63	2.5	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	86
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675BELDEN-04_072419	Date/Time Analyzed:	7/31/19 04:10 PM
Lab ID:	1907642-04A	Dilution Factor:	2.58
Date/Time Collected:	7/24/19 09:05 AM	Instrument/Filename:	msda.i / a073109
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.1	5.1	Not Detected
1,4-Dioxane	123-91-1	2.7	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	4.1	5.1	Not Detected
Tetrachloroethene	127-18-4	1.0	7.0	8.8	2.6 J
trans-1,2-Dichloroethene	156-60-5	1.9	4.1	5.1	Not Detected
Trichloroethene	79-01-6	0.69	5.5	6.9	27
Vinyl Chloride	75-01-4	0.66	2.6	3.3	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	87
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675BELDEN-05_072419	Date/Time Analyzed:	7/31/19 04:37 PM
Lab ID:	1907642-05A	Dilution Factor:	2.58
Date/Time Collected:	7/24/19 09:30 AM	Instrument/Filename:	msda.i / a073110
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.1	5.1	Not Detected
1,4-Dioxane	123-91-1	2.7	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	4.1	5.1	Not Detected
Tetrachloroethene	127-18-4	1.0	7.0	8.8	1.9 J
trans-1,2-Dichloroethene	156-60-5	1.9	4.1	5.1	Not Detected
Trichloroethene	79-01-6	0.69	5.5	6.9	2.8 J
Vinyl Chloride	75-01-4	0.66	2.6	3.3	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	86
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675BELDEN-06_072419	Date/Time Analyzed:	7/31/19 05:04 PM
Lab ID:	1907642-06A	Dilution Factor:	2.52
Date/Time Collected:	7/24/19 09:42 AM	Instrument/Filename:	msda.i / a073111
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.0	5.0	Not Detected
1,4-Dioxane	123-91-1	2.6	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	4.0	5.0	Not Detected
Tetrachloroethene	127-18-4	1.0	6.8	8.5	1.2 J
trans-1,2-Dichloroethene	156-60-5	1.9	4.0	5.0	Not Detected
Trichloroethene	79-01-6	0.68	5.4	6.8	7.5
Vinyl Chloride	75-01-4	0.64	2.6	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	83
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	96

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-11675BELDEN-03_072419	Date/Time Analyzed:	7/31/19 05:30 PM
Lab ID:	1907642-07A	Dilution Factor:	2.52
Date/Time Collected:	7/24/19 10:11 AM	Instrument/Filename:	msda.i / a073112
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.0	5.0	Not Detected
1,4-Dioxane	123-91-1	2.6	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	4.0	5.0	Not Detected
Tetrachloroethene	127-18-4	1.0	6.8	8.5	2.8 J
trans-1,2-Dichloroethene	156-60-5	1.9	4.0	5.0	Not Detected
Trichloroethene	79-01-6	0.68	5.4	6.8	270
Vinyl Chloride	75-01-4	0.64	2.6	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	85
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	97

Analysis Request /Canister Chain of Custody

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
 Phone (800) 985-5955; Fax (916) 351-8279

For Laboratory Use Only
 PID: _____ Workorder #: 1907642

Click links below to view:
[Canister Sampling Guide](#)
[Helium Shroud Video](#)

Client:	Ford	PID:	NA	Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting	Turnaround Time (Rush surcharges may apply) 5 Day Turnaround Time	
Project Name:	Ford LTP		MI001454.0003 /		Canister Vacuum/Pressure	Requested Analyses
Project Manager:	Kris Hinskey	P.O.#	30016344			
Sampler:	Seth Turner				Lab Use Only	
Site Name:	11675 BELDEN					

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N ₂ / He	TO-15 (See Special Instructions/Notes)	Do Not Analyze
				Date	Time	Date	Time						
01A	DUP-11675BELDEN-01_072419	1L2756	23652	7/24/2019	--	7/24/2019	--	-29.5	-6			X	
02A	SSMP-11675BELDEN-02_072419	1L2896	23814	7/24/2019	9:45	7/24/2019	9:56	-29	-4			X	
03A	SSMP-11675BELDEN-01_072419	1L1736	23454	7/24/2019	8:52	7/24/2019	9:04	-29.5	-5.5			X	
04A	SSMP-11675BELDEN-04_072419	1L2319	23501	7/24/2019	8:53	7/24/2019	9:05	-29.5	-6			X	
05A	SSMP-11675BELDEN-05_072419	1L3806	24346	7/24/2019	9:19	7/24/2019	9:30	-29.5	-6			X	
06A	SSMP-11675BELDEN-06_072419	1L2413	23195	7/24/2019	9:32	7/24/2019	9:42	-29	-6			X	
07A	SSMP-11675BELDEN-03_072419	1L3802	23130	7/24/2019	10:00	7/24/2019	10:11	-29.5	-6			X	

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
<i>[Signature]</i> Arcadis	7/25/19	1600	<i>[Signature]</i> LEATL	7/29/19	0935
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Shipper Name: <i>Fed Ex</i>	Custody Seals Intact?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> None	6000
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Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

Daily Log - Ford Off Site VI Investigation - VISIT 1

Project No.: MI001454.0003 Page 1 of 1
 Site Location: 11675 Belden Livonia, MI
 Prepared By: D. Craig

Date	Time	Description of Activities
7/22/19	—	Purpose: R3 Visit 1, Bldg Survey, Chemical Inventory
	—	Arcadis: D. Craig, P. Kabadie
	—	Weather: 80°F, Cloudy
	—	Equipment: PID, Comets
	1500	Arcadis on site
	1507	Conducted Bldg Survey
	—	- No changes to property or building since R2
	1510	Conducted chemical inventory
	—	- chemicals removed to radioactive storage room. Generators
	—	will be moved outside, and solvents will be stored
	—	outside in company vehicle
	—	- Reminder card left with tenant, went over procedure
	—	about learn doors/windows shut.
	1550	Arcadis off site
		DWC

Visit 1 Checklist

Background sources of VOCs have been removed/isolated? Yes No NA

Location of background sources of VOCs that have been removed/isolated: Removed to radioactive storage room, outside, and inside company vehicle.

Sump pit is present? Yes No NA

Daily Log - Ford Off Site VI Investigation - VISIT 2 & 3

Project No.: MI001454.0003 Page 1 of 1
 Site Location: 11675 BELDEN Livonia, MI
 Prepared By: S. JANDON

Date	Time	Description of Activities
7/24/19	-	Purpose: RS VISIT 2 + 3
	-	Arcadis: S JANDON, S TURNER
	-	Weather: 57°, <u>SUNNY</u>
	-	Equipment: CAMERA, PID
	0800	ARCADIS ON SITE
	0805	Employee shows us chemical and
	-	generators were removed
	0825	conduct canister deployment
	0850	conduct SSMP sampling
	1035	Arcadis offsite: Reminded not to open doors
	-	+ windows
	1600	Arcadis onsite
	1605	conduct canister collection
	1650	conduct GEM/MM Readings
	1700	Arcadis offsite
<i>S. Jandon</i>		

Visit 2 & 3 Checklist

Background sources of VOCs have been removed/isolated? Yes No NA
 Number of SSMP samples collected: 7 (including 1 Dup)
 Number of indoor/ambient air samples collected: 6
 Occupancy hours (for commercial properties only): 8-5 pm



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM

R3: 7/22/14

David Craig

Date: 11-21-18

Survey Performed by: Hayden Ladd
Hayden Ladd

R2: 3-26-19

1. OCCUPANT:

Rent:

Own:

Resident Name:

Liz Kritzman (Paul Newton R2)

(Jeff Stampler - R3)

Address:

11675 Belden Ct.

Telephone:

Home:

Work: (248) 662-2680

- No changes to building or property since R2

How long have you lived at this location? 10 years

List current occupants/occupation below (attach additional pages if necessary):

Age (if under 18)	Sex (M/F)	Occupation
		~ 5 consultants in office at all times

2. OWNER OR LANDLORD: (if same as occupant, check here and go to Item No. 3).

Last Name: Blumenstein First Name: Ricky

Address: Na

City and State: Na

County: Na

Home Phone: Na

Office Phone: Na



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

3. SENSITIVE POPULATION:

Daycare/Nursing Home/Hospital/School/Other (specify): None

4. BUILDING CHARACTERISTICS:

Residential/Multi-family Residential/Office/Strip Mall/Commercial/Industrial/School

Describe Building: Commercial-Env/Ev consult Year Constructed: NA

Number of floors at or above grade: 1

Number of floors below grade: 0 (full basement/crawl space/slab on grade)

Depth of structure below grade: 0 ft. Basement size: 0 ft²

If the property is residential, what type? (Circle all appropriate responses.)

- | | | | |
|-------------|----------|------------------|-------------------|
| Ranch | 2-Family | 3-Family | Raised Ranch |
| Split Level | Colonial | Cape Cod | Contemporary |
| Mobile Home | Duplex | Apartment House | Townhouses/Condos |
| Modular | Log Home | Other: <u>NA</u> | |

If multiple units, how many? NA

If the property is commercial:

Business type(s) Civil/Environmental Consultants

Does it include residences (i.e., multi-use)? Yes No If yes, how many? NA

5. OCCUPANCY:

Is basement/lowest level occupied? (Circle one)

Full-time Occasionally Seldom Almost Never NA



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Level	General Use (e.g., family room, bedroom, laundry, workshop, storage)
Basement	NA
1 st Floor	Office / Warehouse (in back)
2 nd Floor	
3 rd Floor	
4 th Floor	

(Use additional page(s) as necessary)

6. CONSTRUCTION CHARACTERISTICS: (Circle all that apply.)

a. Above Grade Construction: (Describe type: wood frame, concrete, stone, brick)
Conder block

b. Basement Type: Full Crawlspace Slab Other: _____

c. Basement Floor: Concrete Dirt Stone Other: _____

d. Finished Basement Floor: Uncovered Covered
 If covered, what with? NA

e. Foundation Walls: Poured Block Stone Other: _____

f. Foundation Walls: Unsealed Sealed Sealed with: NA

g. The Basement is: Wet Damp Dry NA

h. The Basement is: Finished Unfinished Partially Finished NA

i. Sump Present (N) If yes, how many? NA

Where Discharged? NA

Water in Sump? Yes No Not Applicable



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Identify all potential soil vapor entry points and estimated size (e.g., cracks, utility parts, drains).

Drains in bathrooms - Some cracks in slab floor in warehouse

Are the basement walls or floor sealed with waterproof paint or epoxy coatings? Yes No

Type of ground cover outside of building: Grass Concrete Asphalt Other _____

Is an existing subsurface depressurization (radon) system in place? Yes No

If yes, is it active, or passive?

Is a sub-slab vapor/moisture barrier in place? Yes No NA

Type of barrier: unknown

7. HEATING, VENTING, and AIR CONDITIONING

Type of heating system(s) used in this building: (Circle all that apply: Note the primary).

- | | | |
|--|---------------------------------------|---|
| <input checked="" type="radio"/> Hot Air Circulation | <input type="radio"/> Heat Pump | <input type="radio"/> Hot Water Baseboard |
| <input type="radio"/> Space Heaters | <input type="radio"/> Steam Radiation | <input type="radio"/> Radiant Floor |
| <input type="radio"/> Electric Baseboard | <input type="radio"/> Wood Stove | <input type="radio"/> Outdoor Wood Boiler |
| Other: _____ | | |

The primary type of fuel used is:

- | | | |
|--|--------------------------------|--------------------------------|
| <input checked="" type="radio"/> Natural Gas | <input type="radio"/> Fuel Oil | <input type="radio"/> Kerosene |
| <input type="radio"/> Electric | <input type="radio"/> Propane | <input type="radio"/> Solar |
| <input type="radio"/> Wood | <input type="radio"/> Coal | |

Domestic hot water tank fueled by: Natural gas

Location of Boiler/Furnace: Basement Outdoors Main Floor Other Roof



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Air Conditioning: Central Air Window Units Open Windows None
 Are air distribution ducts present? Yes No
 Is there a whole house fan? Yes No

Describe the air intake system (outside air supply, cold air return, ductwork, etc.) and its condition where visible. Indicate the locations on the floor plan diagram.

Ductwork in good condition - some new ductwork in rear of building. New oven is being installed including new ductwork

B. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

- a) Is there an attached garage? Yes No ^{warehouse attached}
 If yes, does it have a separate heating unit? Yes No
- b) Are any petroleum-powered machines or vehicles stored in an attached garage (e.g., lawn mower, ATV, car) Yes No
- c) Has the building ever had a fire? Yes No
- d) Is there a fuel burning or unvented gas space heater? Yes No
- e) Is there a workshop or hobby/craft area? Yes No
 If yes, where and what type? Warehouse in rear
- f) Is there smoking in the building? Yes No
 If yes, how frequently? NA



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

- g) Have cleaning products been used recently? Yes No
 If yes, when and what type? general purpose cleaning - Asphalt extraction using trichloroethylene (TCE) is no longer used.
- h) Have cosmetic products been used recently? Yes No
 If yes, when and what type? ---
- i) Has there been painting or staining in the last six months? Yes No
 If yes, when and where? ---
- j) Is there new carpet, drapes, or other textiles? Yes No
 If yes, when and where? ---
- k) Have air fresheners been used recently? Yes No
 If yes, when and what type? Sprays in the bathrooms
- l) Is there a kitchen exhaust fan? Yes No
 If yes, where is it vented? ---
- m) Is there a clothes dryer? Yes No
 If yes, is it vented outside? Yes No NA
- n) Has there been a pesticide application? Yes No
 If yes, when and what type? In frequent use
- o) Are there odors in the building? Yes No
 If yes, please describe: ---



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

p) Do any of the building occupants use solvents at work (e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetology)?

Yes No

If yes, what types of solvents are used? Tri chloro ethylene for Asphalt extraction. TCE has been removed from site.

If yes, are their clothes washed at work?

Yes No

q) Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response.)

No Unknown

Yes, use dry-cleaning regularly (weekly)

Yes, use dry-cleaning infrequently (monthly or less)

Yes, work at a dry-cleaning service

r) Is there a radon mitigation system for the building/structure?

Yes No

If yes, what is date of installation?

Active Passive NA

s) Additional mitigation system information (fan size, location, operating status, liner installed, etc.):

Flame hood that vents outdoor for Asphalt extraction.
Flame hoods are no longer in use as TCE has been
permanently removed

t) Is there an irrigation well, or any other well, present at the property?

Yes No

If yes, please describe placement, use, and history below.

R3 PID in warehouse range 115 ppb - 841 ppb

Generators moved outside

metal flay moved outside to company vehicle

other chemicals stored in tubs in radioactive storage room

Product Inventory Form

i.e. gasoline cans/equipment, kerosene, paints/thinners/strippers, cleaning solvents, hobby supplies (glues), oven cleaner, carpet/upholstery cleaners, household cleaners, moth balls, polishes/waxes, insecticides, furniture/floor polish, hairspray, cologne/perfume, air fresheners, interior fuel tank, wood stove/fireplace, new furniture/upholstery, new carpet/flooring

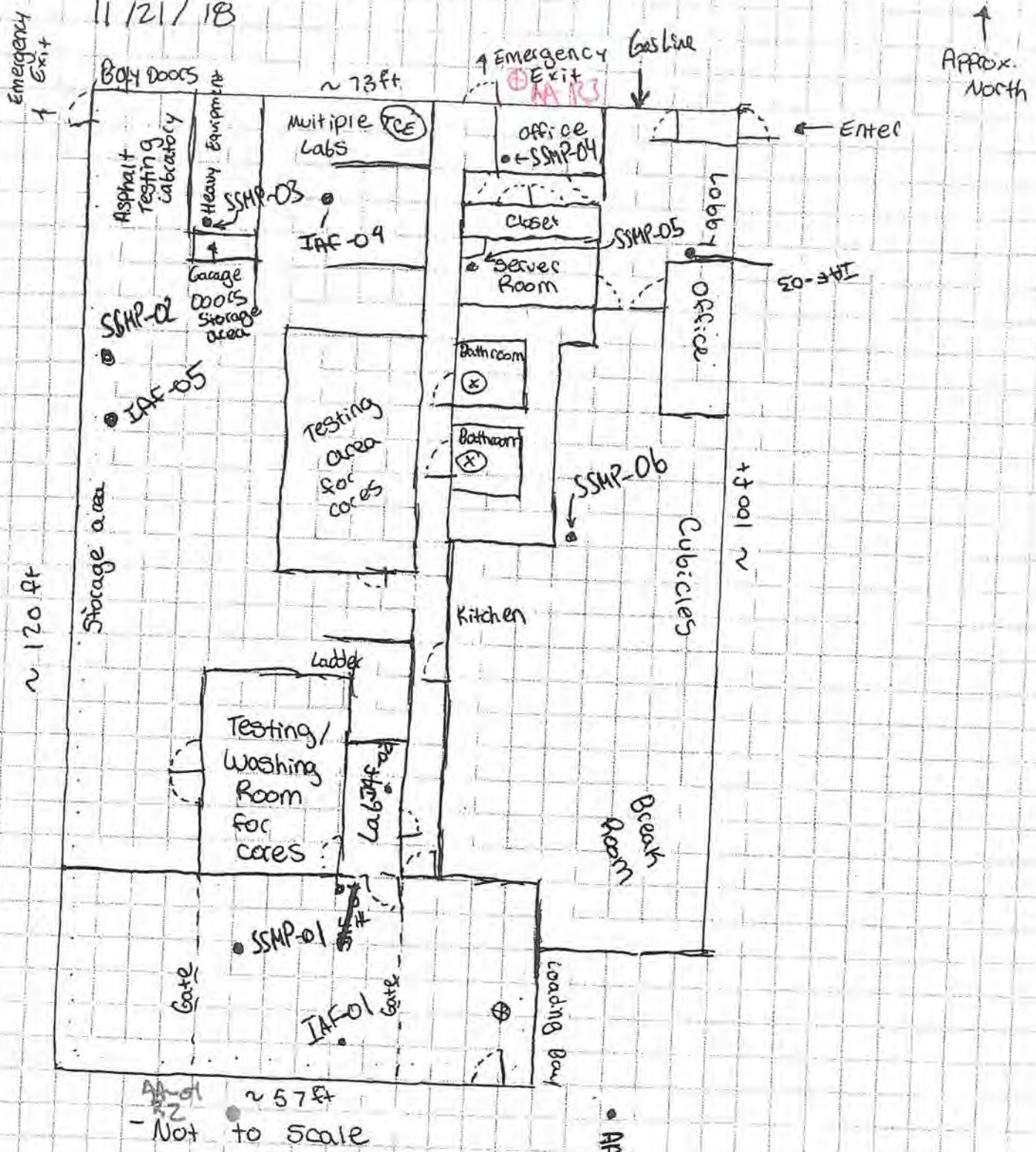
Location	Product Description	Chemical Ingredients	Quantity	PID Reading (ppb)	Photo	Removed (Y/N)	
warehouse	Rust-Crem	xylene, Acetone	HTI ✓	722	Y	Y	
	Baid	d-heothin, 2-dimethyl-3-(2-methyl)	HTI ✓	360	Y	Y	
	Aesvce mixing		HTI	528	Y	Y	
	Krylon spray paint	Ketones, Toluene	III	571	Y	Y	
	Seafoam motor	Auto marine, Fleet	II	371	Y	Y	
	Bainex	De-ziner windshield washer	HTII	390	Y	Y	
	3 in 1	Multipurpose oil	II	431	Y	Y	
	Working ton	Propane	I	460	Y	Y	
	Pledge	Clean and shine furniture polish	I	414	Y	Y	
	WOLFO	Various sizes	HT III B	406	Y	Y	
	OFFICE DEPOT	Multipurpose anti static dust	I	400	Y	Y	
	Bathroom	Air Wick Aerosols, Glade	HT ✓	402	Y	Y	
	Bathroom	Ly Sol Disinfectant Spray	III "	453	Y	Y	
	warehouse	Kitz	up shot overhead strain sealer	II	431	Y	Y
		Seymour	Galvanized coatings corrosion	I	428	Y	Y
PorStone		Premium Shaktite Fluid	I	431	Y	Y	
Mörsenböcker's		wit off adhesives, grease	I	445	Y	Y	
3M		Multipurpose adhesive spray	I	970	Y	Y	
Xycrylic		Admix cement mortar fortifier	2 2	276 98	Y	N	
Liquinox		Carpet-cleaning Liquid Detergent	I	310	Y	N	
Liqui-Box		Clear bottle, various sizes	HTHT II	290	Y	N	
REPEL		Insect Repellent 4oz Deet	II ✓	300	Y	Y	
Spectroside Pro		wasp, hornet killer	HT ✓	322	Y	Y	
Carb		purple primer and rubber cement	HT III ✓	742	441 ppb	Y	
Hot Shot		rodent killer	II	431	Y	Y	
PEM		penetrating oil	I	804	Y	N	
Sprayon		insulating varnish	III ✓	932	Y	N	
Laquer		Thinner, Kleen-Stop	II	5290	Y	N	
Contractors		grade glazing compound	III	1,893	Y	N	
Strait-line		masking chit	HTI	777	Y	N	
AERUOE		Spray paint cabinet	Multiple ✓	1895	Y	N	
Solvents		and cleaners bottom cabinet	Multiple	219	Y	N	
2 Barrels		of TCE	2	1,897	Y	N	
Gas cans		gas	4	88	Y	Y	
Spray paint			16	26.05ppm	Y	Y	
Tel-prox		rodent repellent	I	100	Y	Y	
Spectroside		wasp hornet killer	4	80	Y	Y	
Stipend		thinner	I	2012 ppm	Y	Y	
Density		isothane foam A	I	246	Y	Y	
Density		isothane foam B	I	265	Y	Y	
Permaco		new dry silicone	I	100	Y	Y	
Prostar		silicon sealant	I	79	Y	Y	
Stark		flam resist grease	I		Y	Y	
Onyprase		grease	I		Y	Y	
Great stuff		insulating foam	2		Y	Y	
ASTEC		DISOL PLUS	III	21 ppm	Y	Y	

125 ppb
 11-31-16
 11-31-16

Notes: 55 gallon drums TCE will likely be used during sampling
 Soil will be processed on site that will be off gassing
 Chemicals to be stored in Radio active lab area.

Notes: (contaminated solvents stored in lumping vehicle outside remaining (11/31/16 stored in radioactive lab area (11/31/16))

11675 Belden Court, Industrial Properties LLC
 By: C. Weaver
 11/21/18



Legend

- = SSMP
- ⊗ = Drain
- - - = Gate
- = Door
- = IAF, AR

Notes

Many storage Racks
 Within warehouse
 area.





Indoor/Ambient Air Collection Log Sheet

Office Name & Address (Reporting Information): Arcadis of Michigan, LLC 28550 Cabot Drive, Suite 500, Novi, MI 48377 Field Manager: Adam Richmond Phone Number: 248.994.2240 Email Address for Result Reporting: Kristoffer.Hinskey@arcadis.com		Project Name: Ford LTP Off-site Sampling Project Number: MI001454.0003 / 30016344 Site Address: 11675 BELDEN Sampler Name: Seth Turner , Shantel Johnson
Summa Canister Size (1L, 2.7 L, 6L) 6 Liter	Special Instructions: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting.	Lab: Eurofins

Sample ID	Sample Location Description	Indoor/Outdoor	PID in Sampling Area (ppb)	Canister Number	Flow Controller Number	Sample Collection Start Date	Sample Collection Start Time	Beginning Canister Pressure (in. Hg)	Sample Collection End Date	Sample Collection End Time	Ending Canister Pressure (in. Hg)	HVAC System Information						Notes	
												HVAC Fan On Start?	HVAC Fan On End?	Heat On Start?	Heat On End?	Temperature Setting (°F) Start	Temperature Setting (°F) End		
IAF-11675BELDEN-05_072419	Western side of building middle of storage/w	Indoor	0	6L2011	23538	7/24/2019	8:36	-29	7/24/2019	17:00	-7.5	Yes	yes	No	No	68	68	--	
IAF-11675BELDEN-04_072419	NW side of warehouse, middle of lab table	Indoor	0	6L0617	23497	7/24/2019	8:32	-29	7/24/2019	16:14	-4	Yes	yes	No	No	68	68	--	
IAF-11675BELDEN-03_072419	North side of building, east side of lobby	Indoor	0	6L2333	2311	7/24/2019	8:31	-29	7/24/2019	17:05	-7	Yes	yes	No	No	68	68	--	
AA-11675BELDEN-01_072419	N side of building	Outdoor	0	6L0832	23712	7/24/2019	9:12	-29	7/24/2019	16:06	-6	--	--	--	--	--	--	--	
IAF-11675BELDEN-01_072419	South side of warehouse b/t gates on table	Indoor	0	6L0377	23362	7/24/2019	8:28	-29	7/24/2019	16:46	-6	Yes	yes	No	No	68	68	--	
IAF-11675BELDEN-02_072419	South side of building in workroom	Indoor	0	6L0350	23481	7/24/2019	8:30	-29	7/24/2019	16:11	-6	Yes	yes	No	No	68	68	--	
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Meteorological Data							General Notes or Observations	
Date	Time	Temp. (°F)		Relative Humidity (%)	Barometric Pressure (in. Hg)	Air Speed (mph)	Source of Weather Information	
		Indoor	Outdoor					
7/24/2019	8:00	68	63	87	30.01	N 4	weather.com app	
7/24/2019	16:00	68	80	34	30.07	NNW 7	weather.com app	
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--	--	--	--	--	--	--	weather.com app	



Soil Vapor Collection Log Sheet

Office Name & Address (Reporting Information): Arcadis of Michigan, LLC 28550 Cabot Drive, Suite 500, Novi, MI 48377		Project Name: Ford LTP Off-site Sampling	
Field Manager: Adam Richmond		Project Number: MI001454.0003 / 30016344	
Phone Number: 248.994.2240		Site Address: 11675 BELDEN	
Email Address for Result Reporting: Kristoffer.Hinskey@arcadis.com		Special Instructions: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadenacom. Cadena #E203631. Level IV Reporting.	
Helium Detector Model Used: Dielectric MGD-2002		Helium Leak Test Method: Bucket Shroud	
		Sampler Name: Seth Turner	
		Summa Canister Size (1L, 2.7 L, 6L): 1 Liter	
		Lab: Eurofins	

Sample ID	Sample Location Description	Date	Pre-Sampling Shut-In / Leak-Down Test Pass/Fail?	Helium Tracer Test - Performed During Sample Point Purge			Purge Volume (mL)	Purge Rate (mL/min)	Canister Number	Flow Controller Number	Sample Collection Start Time	Starting Canister Pressure (in. Hg)	Sample Collection End Time	Ending Canister Pressure (in. Hg)	Post-Sampling CO ₂ Reading from GEM (%)	Post-Sampling O ₂ Reading from GEM (%)	Micromanometer Reading (in. WC)
				Shroud Helium Concentration During Purge (% Helium)	Helium Reading in Purged Vapor (% Helium)	Helium Test Pass/Fail (Purge contains <5% of shroud to pass)?											
DUP-11675BELDEN-01_072419	W side of server room	7/24/2019	Pass	45.4	0	Pass	100	100	1L2756	23652	9:19	-29.5	9:30	-6	0	0	0
SSMP-11675BELDEN-02_072419	W wall of warehouse storage/work area	7/24/2019	Pass	44.7	0	Pass	100	100	1L2896	23814	9:45	-29	9:56	-4	2.3	17	0.00264
SSMP-11675BELDEN-01_072419	S side of warehouse in bit gates	7/24/2019	Pass	52.9	0	Pass	100	100	1L1736	23454	8:52	-29.5	9:04	-5.5	2.5	17.6	-0.00256
SSMP-11675BELDEN-04_072419	NE side of building W side of office underneath desk	7/24/2019	Pass	41.7	0	Pass	100	100	1L2319	23501	8:53	-29.5	9:05	-6	2.8	17.4	0.00046
SSMP-11675BELDEN-05_072419	W side of server room	7/24/2019	Pass	45.4	0	Pass	100	100	1L3806	24346	9:19	-29.5	9:30	-6	3	17.4	0.00231
SSMP-11675BELDEN-06_072419	E. Side of building near kitchen	7/24/2019	Pass	41.7	0	Pass	100	100	1L2413	23195	9:32	-29	9:42	-6	2.5	18.1	0.00214
SSMP-11675BELDEN-03_072419	NW corner of warehouse in equipment room	7/24/2019	Pass	49.7	0	Pass	100	100	1L3802	23130	10:00	-29.5	10:11	-6	3.2	16.7	0.00017
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Date	Time	Temp. (°F)		Relative Humidity (%)	Barometric Pressure (in. Hg)	Source of Weather Information	Purge Volume Calculations: The purge volume for each sample has been pre-calculated using the information below. For sub-slab soil vapor samples the sample train tubing length is ~54 inches and the interior tubing radius is 0.085". Three volumes of the sample train is 60 milliliters using the equation for volume of a cylinder (volume = pi * radius ² * height) where Volume = 60 ml, radius = 0.85" and height = 54". To have sufficient volume to conduct helium leak testing 100 milliliters should be purged from each sample point. For exterior soil vapor sampling 60 milliliters should be used for the above ground sample train. Each additional foot of sub-grade tubing account for approximately 13 ml. To have sufficient volume to conduct helium leak testing at least 100 milliliters should be purged from each sample point.
		Indoor	Outdoor				
7/24/2019	# # #	68	63	87	30.01	weather.com app	
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--	--	--	--	--	--	weather.com app	
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General Notes or Observations

TRANSMITTAL LETTER



To:
Industrial Properties LLC
Shawn Collins
Brandon Alger (EGLE)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:
December 5, 2019

Subject:
Vapor Intrusion Assessment
Data Package

Arcadis Project No.:

We are sending you hard copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Delivery Date	Drawing No.	Rev.	Description	Action*
1	12/6/2019			Figure	
1	12/6/2019			Analytical Results	
1	12/6/2019			Field Notes and Drawings	

Action*

- A Approved CR Correct and Resubmit Resubmit _____ Copies
 AN Approved As Noted F File Return _____ Copies
 AS As Requested FA For Approval Review and Comment
 Other: _____

Mailing Method

- U.S. Postal Service 1st Class Courier/Hand Delivery FedEx Priority Overnight FedEx 2-Day Delivery
 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
 Other: email

Thank you for cooperating with the air sampling at your property on November 12, 2019. Attached is your data package.

CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: T. STEVENS TR: P. CURRY PROJECT NUMBER: M001373.0001.00003 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
 Z:\GIS\Projects_ENV\Novi\Brighton_MIV\Ford\Livonia\GIS\docs\2018-11\11675Belden.mxd PLOTTED: 11/30/2018 12:29:10 PM BY: msmiller



LEGEND:

- INDOOR AIR LOCATION
- ⊕ AMBIENT AIR LOCATION
- SUB-SLAB MONITORING POINT LOCATION
- ▭ BUILDING
- ▭ PROPERTY BOUNDARIES



FORD MOTOR COMPANY
 LIVONIA TRANSMISSION PLANT
 LIVONIA, MICHIGAN

AIR SAMPLING LOCATIONS



FIGURE
1



11/21/2019
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1911304


Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 11/14/2019 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1911304

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30016344.0002B
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	11/14/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	11/21/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SSMP-11675BELDEN-04_111219	TO-15	6.0 "Hg	15 psi
02A	SSMP-11675BELDEN-05_111219	TO-15	5.5 "Hg	15 psi
03A	SSMP-11675BELDEN-06_111219	TO-15	7.0 "Hg	15 psi
04A	SSMP-11675BELDEN-01_111219	TO-15	6.5 "Hg	15 psi
05A	SSMP-11675BELDEN-02_111219	TO-15	6.0 "Hg	15 psi
06A	SSMP-11675BELDEN-03_111219	TO-15	6.5 "Hg	15 psi
07A	Lab Blank	TO-15	NA	NA
08A	CCV	TO-15	NA	NA
09A	LCS	TO-15	NA	NA
09AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 11/20/19

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP – CA009332019-11, VA NELAP - 460197, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005-011, Effective date: 10/18/2019, Expiration date: 10/17/2020.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1911304

Six 1 Liter Summa Canister (100% Certified) samples were received on November 14, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-11675BELDEN-04_111219	Date/Time Analyzed:	11/18/19 11:13 PM
Lab ID:	1911304-01A	Dilution Factor:	2.52
Date/Time Collected:	11/12/19 08:54 AM	Instrument/Filename:	msdj.i / j111823
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.0	5.0	Not Detected
1,4-Dioxane	123-91-1	3.9	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.3	4.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.3	6.8	8.5	Not Detected
trans-1,2-Dichloroethene	156-60-5	2.8	4.0	5.0	Not Detected
Trichloroethene	79-01-6	2.5	5.4	6.8	14
Vinyl Chloride	75-01-4	2.3	2.6	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	88
4-Bromofluorobenzene	460-00-4	70-130	90
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-11675BELDEN-05_111219	Date/Time Analyzed:	11/18/19 06:42 PM
Lab ID:	1911304-02A	Dilution Factor:	2.47
Date/Time Collected:	11/12/19 09:14 AM	Instrument/Filename:	msdj.i / j111817
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.4	3.9	4.9	Not Detected
1,4-Dioxane	123-91-1	3.9	13	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.2	3.9	4.9	3.6 J
Tetrachloroethene	127-18-4	2.2	6.7	8.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	2.8	3.9	4.9	Not Detected
Trichloroethene	79-01-6	2.5	5.3	6.6	16
Vinyl Chloride	75-01-4	2.2	2.5	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	86
Toluene-d8	2037-26-5	70-130	103

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP



Client ID:	SSMP-11675BELDEN-06_111219	Date/Time Analyzed:	11/18/19 07:08 PM
Lab ID:	1911304-03A	Dilution Factor:	2.64
Date/Time Collected:	11/12/19 09:38 AM	Instrument/Filename:	msdj.i / j111818
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.6	4.2	5.2	Not Detected
1,4-Dioxane	123-91-1	4.1	14	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.4	4.2	5.2	Not Detected
Tetrachloroethene	127-18-4	2.4	7.2	9.0	3.0 J
trans-1,2-Dichloroethene	156-60-5	3.0	4.2	5.2	Not Detected
Trichloroethene	79-01-6	2.6	5.7	7.1	5.6 J
Vinyl Chloride	75-01-4	2.4	2.7	3.4	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	86
Toluene-d8	2037-26-5	70-130	96

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-11675BELDEN-01_111219	Date/Time Analyzed:	11/18/19 11:40 PM
Lab ID:	1911304-04A	Dilution Factor:	2.58
Date/Time Collected:	11/12/19 09:01 AM	Instrument/Filename:	msdj.i / j111824
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.1	5.1	Not Detected
1,4-Dioxane	123-91-1	4.0	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.3	4.1	5.1	Not Detected
Tetrachloroethene	127-18-4	2.4	7.0	8.8	Not Detected
trans-1,2-Dichloroethene	156-60-5	2.9	4.1	5.1	Not Detected
Trichloroethene	79-01-6	2.6	5.5	6.9	180
Vinyl Chloride	75-01-4	2.4	2.6	3.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	89
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-11675BELDEN-02_111219	Date/Time Analyzed:	11/19/19 12:06 AM
Lab ID:	1911304-05A	Dilution Factor:	2.52
Date/Time Collected:	11/12/19 09:27 AM	Instrument/Filename:	msdj.i / j111825
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.0	5.0	Not Detected
1,4-Dioxane	123-91-1	3.9	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.3	4.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.3	6.8	8.5	Not Detected
trans-1,2-Dichloroethene	156-60-5	2.8	4.0	5.0	Not Detected
Trichloroethene	79-01-6	2.5	5.4	6.8	20
Vinyl Chloride	75-01-4	2.3	2.6	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	91
4-Bromofluorobenzene	460-00-4	70-130	86
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-11675BELDEN-03_111219	Date/Time Analyzed:	11/19/19 12:32 AM
Lab ID:	1911304-06A	Dilution Factor:	2.58
Date/Time Collected:	11/12/19 09:55 AM	Instrument/Filename:	msdj.i / j111826
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.1	5.1	Not Detected
1,4-Dioxane	123-91-1	4.0	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.3	4.1	5.1	Not Detected
Tetrachloroethene	127-18-4	2.4	7.0	8.8	Not Detected
trans-1,2-Dichloroethene	156-60-5	2.9	4.1	5.1	Not Detected
Trichloroethene	79-01-6	2.6	5.5	6.9	Not Detected
Vinyl Chloride	75-01-4	2.4	2.6	3.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	91
4-Bromofluorobenzene	460-00-4	70-130	87
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	11/18/19 02:21 PM
Lab ID:	1911304-07A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j111808c
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.59	1.6	2.0	Not Detected
1,4-Dioxane	123-91-1	1.6	5.4	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.90	1.6	2.0	Not Detected
Tetrachloroethene	127-18-4	0.91	2.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.1	1.6	2.0	Not Detected
Trichloroethene	79-01-6	1.0	2.1	2.7	Not Detected
Vinyl Chloride	75-01-4	0.91	1.0	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	84
Toluene-d8	2037-26-5	70-130	106

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	CCV	Date/Time Analyzed:	11/18/19 09:49 AM
Lab ID:	1911304-08A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j111802
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	91
1,4-Dioxane	123-91-1	99
cis-1,2-Dichloroethene	156-59-2	102
Tetrachloroethene	127-18-4	99
trans-1,2-Dichloroethene	156-60-5	103
Trichloroethene	79-01-6	91
Vinyl Chloride	75-01-4	95

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCS	Date/Time Analyzed:	11/18/19 10:13 AM
Lab ID:	1911304-09A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j111803
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	89
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	89
Tetrachloroethene	127-18-4	97
trans-1,2-Dichloroethene	156-60-5	116
Trichloroethene	79-01-6	93
Vinyl Chloride	75-01-4	96

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	100

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	11/18/19 10:39 AM
Lab ID:	1911304-09AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j111804
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	90
1,4-Dioxane	123-91-1	96
cis-1,2-Dichloroethene	156-59-2	96
Tetrachloroethene	127-18-4	95
trans-1,2-Dichloroethene	156-60-5	116
Trichloroethene	79-01-6	92
Vinyl Chloride	75-01-4	100

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	100

* % Recovery is calculated using unrounded analytical results.



November 21, 2019

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: 30016344.0002B
Client project scope reference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics -Folsom
Laboratory submittal: 1911304
Sample date: 2019-11-12
Report received by CADENA: 2019-11-21
Initial Data Verification completed: 2019-11-21
6 Air samples were analyzed for TO-15 parameters.

No data qualifications or sample integrity issues were observed.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) TO-15 Analysis

SDG #1911304

CADENA Verification Report: 2019-11-21

Analyses Performed By:
Eurofins Air Toxics
Folsom, California

Report #35031R
Review Level: Tier III
Project: 30016344.00006

DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 1911304 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
1911304	SSMP-11675BELDEN-04_111219	1911304-01A	Air	11/12/2019		X		
	SSMP-11675BELDEN-05_111219	1911304-02A	Air	11/12/2019		X		
	SSMP-11675BELDEN-06_111219	1911304-03A	Air	11/12/2019		X		
	SSMP-11675BELDEN-01_111219	1911304-04A	Air	11/12/2019		X		
	SSMP-11675BELDEN-02_111219	1911304-05A	Air	11/12/2019		X		
	SSMP-11675BELDEN-03_111219	1911304-06A	Air	11/12/2019		X		

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15 (Full Scan). Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15	Air	30 days from collection to analysis (Canister)	Ambient Temperature	< -2" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 140% or less than 60% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. All identified compounds met the specified criteria.

6. Field Duplicate Sample Analysis

The field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 35% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are not greater than five times the RL, a control limit of one times the RL is applied to the difference between the duplicate sample results.

A field duplicate was not performed on a sample location within this SDG.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15 (Full Scan)	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-2"Hg)		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Field Duplicate Sample RPD					X
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

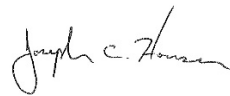
%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:



DATE: December 4, 2019

PEER REVIEW: Andrew Korycinski

DATE: December 4, 2019



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



**NO CORRECTIONS/QUALIFIERS ADDED
TO SAMPLE ANALYSIS DATA SHEETS**



EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-11675BELDEN-04_111219	Date/Time Analyzed:	11/18/19 11:13 PM
Lab ID:	1911304-01A	Dilution Factor:	2.52
Date/Time Collected:	11/12/19 08:54 AM	Instrument/Filename:	msdj.i / j111823
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.0	5.0	Not Detected
1,4-Dioxane	123-91-1	3.9	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.3	4.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.3	6.8	8.5	Not Detected
trans-1,2-Dichloroethene	156-60-5	2.8	4.0	5.0	Not Detected
Trichloroethene	79-01-6	2.5	5.4	6.8	14
Vinyl Chloride	75-01-4	2.3	2.6	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	88
4-Bromofluorobenzene	460-00-4	70-130	90
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-11675BELDEN-05_111219	Date/Time Analyzed:	11/18/19 06:42 PM
Lab ID:	1911304-02A	Dilution Factor:	2.47
Date/Time Collected:	11/12/19 09:14 AM	Instrument/Filename:	msdj.i / j111817
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.4	3.9	4.9	Not Detected
1,4-Dioxane	123-91-1	3.9	13	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.2	3.9	4.9	3.6 J
Tetrachloroethene	127-18-4	2.2	6.7	8.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	2.8	3.9	4.9	Not Detected
Trichloroethene	79-01-6	2.5	5.3	6.6	16
Vinyl Chloride	75-01-4	2.2	2.5	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	86
Toluene-d8	2037-26-5	70-130	103

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP



Client ID:	SSMP-11675BELDEN-06_111219	Date/Time Analyzed:	11/18/19 07:08 PM
Lab ID:	1911304-03A	Dilution Factor:	2.64
Date/Time Collected:	11/12/19 09:38 AM	Instrument/Filename:	msdj.i / j111818
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.6	4.2	5.2	Not Detected
1,4-Dioxane	123-91-1	4.1	14	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.4	4.2	5.2	Not Detected
Tetrachloroethene	127-18-4	2.4	7.2	9.0	3.0 J
trans-1,2-Dichloroethene	156-60-5	3.0	4.2	5.2	Not Detected
Trichloroethene	79-01-6	2.6	5.7	7.1	5.6 J
Vinyl Chloride	75-01-4	2.4	2.7	3.4	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	86
Toluene-d8	2037-26-5	70-130	96

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-11675BELDEN-01_111219	Date/Time Analyzed:	11/18/19 11:40 PM
Lab ID:	1911304-04A	Dilution Factor:	2.58
Date/Time Collected:	11/12/19 09:01 AM	Instrument/Filename:	msdj.i / j111824
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.1	5.1	Not Detected
1,4-Dioxane	123-91-1	4.0	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.3	4.1	5.1	Not Detected
Tetrachloroethene	127-18-4	2.4	7.0	8.8	Not Detected
trans-1,2-Dichloroethene	156-60-5	2.9	4.1	5.1	Not Detected
Trichloroethene	79-01-6	2.6	5.5	6.9	180
Vinyl Chloride	75-01-4	2.4	2.6	3.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	89
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-11675BELDEN-02_111219	Date/Time Analyzed:	11/19/19 12:06 AM
Lab ID:	1911304-05A	Dilution Factor:	2.52
Date/Time Collected:	11/12/19 09:27 AM	Instrument/Filename:	msdj.i / j111825
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.0	5.0	Not Detected
1,4-Dioxane	123-91-1	3.9	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.3	4.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.3	6.8	8.5	Not Detected
trans-1,2-Dichloroethene	156-60-5	2.8	4.0	5.0	Not Detected
Trichloroethene	79-01-6	2.5	5.4	6.8	20
Vinyl Chloride	75-01-4	2.3	2.6	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	91
4-Bromofluorobenzene	460-00-4	70-130	86
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-11675BELDEN-03_111219	Date/Time Analyzed:	11/19/19 12:32 AM
Lab ID:	1911304-06A	Dilution Factor:	2.58
Date/Time Collected:	11/12/19 09:55 AM	Instrument/Filename:	msdj.i / j111826
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.1	5.1	Not Detected
1,4-Dioxane	123-91-1	4.0	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.3	4.1	5.1	Not Detected
Tetrachloroethene	127-18-4	2.4	7.0	8.8	Not Detected
trans-1,2-Dichloroethene	156-60-5	2.9	4.1	5.1	Not Detected
Trichloroethene	79-01-6	2.6	5.5	6.9	Not Detected
Vinyl Chloride	75-01-4	2.4	2.6	3.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	91
4-Bromofluorobenzene	460-00-4	70-130	87
Toluene-d8	2037-26-5	70-130	102

Analysis Request / Canister Chain of Custody

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
 Phone (800) 985-5955; Fax (916) 351-8279

For Laboratory Use Only
 PID: _____ Workorder #: **1911304**

Click links below to view:
[Canister Sampling Guide](#)
[Helium Shroud Video](#)

Client: <u>Ford</u>	PID: <u>NA</u>	Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting	Turnaround Time (Rush surcharges may apply)	
Project Name: <u>Ford LTP</u>			5 Day Turnaround Time	
Project Manager: <u>Kris Hinskey</u>	P.O.# <u>30016344.0002B</u>		Canister Vacuum/Pressure	
Sampler: <u>Seth Turner, Patrick Labadie</u>			Requested Analyses	
Site Name: <u>11675 BELDEN</u>			Lab Use Only	

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N ₂ / He	TO-15 (See Special Instructions/Notes)	Do Not Analyze
				Date	Time	Date	Time						
01A	SSMP-11675BELDEN-04_111219	0000003253	24741	11/12/2019	8:42	11/12/2019	8:54	-29.9	-6			X	
02A	SSMP-11675BELDEN-05_111219	1L2370	24328	11/12/2019	9:01	11/12/2019	9:14	-29.9	-5			X	
03A	SSMP-11675BELDEN-06_111219	1L3159	23333	11/12/2019	9:25	11/12/2019	9:38	-29.9	-6.5			X	
04A	SSMP-11675BELDEN-01_111219	0000003004	23660	11/12/2019	8:49	11/12/2019	9:01	-29.9	-6.5			X	
05A	SSMP-11675BELDEN-02_111219	1L3076	23260	11/12/2019	9:15	11/12/2019	9:27	-29.9	-6			X	
06A	SSMP-11675BELDEN-03_111219	1L2823	24329	11/12/2019	9:41	11/12/2019	9:55	-29.9	-6.5			X	
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Relinquished by: (Signature/Affiliation) <i>[Signature]</i> / Arcadis	Date 11/12/2019	Time 1630	Received by: (Signature/Affiliation) <i>[Signature]</i> / GWD	Date 11/14/19	Time 1010
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Lab Use Only			
Shipper Name: <u>Fed Ex</u>	Custody Seals Intact? <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> None		<u>GWD</u>

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

11/25/2019
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1911413R1

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 11/18/2019 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1911413R1

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30016344.0002B
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	11/18/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	11/25/2019		
DATE REISSUED:	11/25/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	AA-11675BELDEN-01_111219	Modified TO-15	4.0 "Hg	5 psi
02A	IAF-11675BELDEN-01_111219	Modified TO-15	6.0 "Hg	5 psi
03A	IAF-11675BELDEN-02_111219	Modified TO-15	6.5 "Hg	5 psi
04A	IAF-11675BELDEN-03_111219	Modified TO-15	5.5 "Hg	5 psi
05A	DUP-11675BELDEN-01_111219	Modified TO-15	5.5 "Hg	5 psi
06A	IAF-11675BELDEN-04_111219	Modified TO-15	5.5 "Hg	5 psi
07A	IAF-11675BELDEN-05_111219	Modified TO-15	5.5 "Hg	5 psi
08A	Lab Blank	Modified TO-15	NA	NA
08B	Lab Blank	Modified TO-15	NA	NA
09A	CCV	Modified TO-15	NA	NA
09B	CCV	Modified TO-15	NA	NA
10A	LCS	Modified TO-15	NA	NA
10AA	LCSD	Modified TO-15	NA	NA
10B	LCS	Modified TO-15	NA	NA
10BB	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 
 Technical Director

DATE: 11/25/19

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP – CA009332019-11, VA NELAP - 460197, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005-011, Effective date: 10/18/2019, Expiration date: 10/17/2020.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 1911413R1

Seven 6 Liter Summa Canister (100% Cert Ambient) samples were received on November 18, 2019. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the EATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Due to laboratory error, the work order was reissued on 11/25/19 to correct the dilution factor used to quantitate results for sample DUP-11675BELDEN-01_111219.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

- B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).
- J - Estimated value.
- E - Exceeds instrument calibration range.
- S - Saturated peak.
- Q - Exceeds quality control limits.
- U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.
- UJ- Non-detected compound associated with low bias in the CCV
- N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

- a-File was requantified
- b-File was quantified by a second column and detector
- r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-11675BELDEN-01_111219	Date/Time Analyzed:	11/21/19 09:32 PM
Lab ID:	1911413R1-01A	Dilution Factor:	1.55
Date/Time Collected:	11/12/19 04:02 PM	Instrument/Filename:	msd21.i / 21112121
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.22	0.58	0.61	Not Detected
1,4-Dioxane	123-91-1	0.093	0.53	0.56	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.22	0.58	0.61	Not Detected
Tetrachloroethene	127-18-4	0.56	1.0	1.0	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.32	0.58	0.61	Not Detected
Trichloroethene	79-01-6	0.19	0.79	0.83	Not Detected
Vinyl Chloride	75-01-4	0.16	0.38	0.40	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	123
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	90

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-01_111219	Date/Time Analyzed:	11/21/19 10:07 PM
Lab ID:	1911413R1-02A	Dilution Factor:	1.68
Date/Time Collected:	11/12/19 04:09 PM	Instrument/Filename:	msd21.i / 21112122
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.24	0.63	0.67	Not Detected
1,4-Dioxane	123-91-1	0.10	0.58	0.60	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.24	0.63	0.67	Not Detected
Tetrachloroethene	127-18-4	0.61	1.1	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.34	0.63	0.67	Not Detected
Trichloroethene	79-01-6	0.20	0.86	0.90	2.1
Vinyl Chloride	75-01-4	0.17	0.41	0.43	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	126
4-Bromofluorobenzene	460-00-4	70-130	91
Toluene-d8	2037-26-5	70-130	91

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	IAF-11675BELDEN-02_111219	Date/Time Analyzed:	11/21/19 10:42 PM
Lab ID:	1911413R1-03A	Dilution Factor:	1.71
Date/Time Collected:	11/12/19 04:08 PM	Instrument/Filename:	msd21.i / 21112123
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.25	0.64	0.68	Not Detected
1,4-Dioxane	123-91-1	0.10	0.58	0.62	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.24	0.64	0.68	Not Detected
Tetrachloroethene	127-18-4	0.62	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.35	0.64	0.68	Not Detected
Trichloroethene	79-01-6	0.21	0.87	0.92	1.4
Vinyl Chloride	75-01-4	0.18	0.42	0.44	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	118
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	90

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-03_111219	Date/Time Analyzed:	11/21/19 11:17 PM
Lab ID:	1911413R1-04A	Dilution Factor:	1.64
Date/Time Collected:	11/12/19 04:04 PM	Instrument/Filename:	msd21.i / 21112124
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.24	0.62	0.65	Not Detected
1,4-Dioxane	123-91-1	0.098	0.56	0.59	0.11 J
cis-1,2-Dichloroethene	156-59-2	0.24	0.62	0.65	Not Detected
Tetrachloroethene	127-18-4	0.60	1.0	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.34	0.62	0.65	Not Detected
Trichloroethene	79-01-6	0.20	0.84	0.88	1.2
Vinyl Chloride	75-01-4	0.17	0.40	0.42	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	119
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	91

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	DUP-11675BELDEN-01_111219	Date/Time Analyzed:	11/22/19 07:00 AM
Lab ID:	1911413R1-05A	Dilution Factor:	1.64
Date/Time Collected:	11/12/19 12:00 AM	Instrument/Filename:	msd21.i / 21112125r1
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.24	0.62	0.65	Not Detected
1,4-Dioxane	123-91-1	0.098	0.56	0.59	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.24	0.62	0.65	Not Detected
Tetrachloroethene	127-18-4	0.60	1.0	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.34	0.62	0.65	Not Detected
Trichloroethene	79-01-6	0.20	0.84	0.88	1.1
Vinyl Chloride	75-01-4	0.17	0.40	0.42	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	118
4-Bromofluorobenzene	460-00-4	70-130	90
Toluene-d8	2037-26-5	70-130	92

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-04_111219	Date/Time Analyzed:	11/22/19 02:03 PM
Lab ID:	1911413R1-06A	Dilution Factor:	1.64
Date/Time Collected:	11/12/19 04:14 PM	Instrument/Filename:	msd21.i / 21112207
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.24	0.62	0.65	Not Detected
1,4-Dioxane	123-91-1	0.098	0.56	0.59	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.24	0.62	0.65	Not Detected
Tetrachloroethene	127-18-4	0.60	1.0	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.34	0.62	0.65	Not Detected
Trichloroethene	79-01-6	0.20	0.84	0.88	2.6
Vinyl Chloride	75-01-4	0.17	0.40	0.42	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	89

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-05_111219	Date/Time Analyzed:	11/22/19 08:21 AM
Lab ID:	1911413R1-07A	Dilution Factor:	1.64
Date/Time Collected:	11/12/19 04:15 PM	Instrument/Filename:	msd21.i / 21112127
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.24	0.62	0.65	Not Detected
1,4-Dioxane	123-91-1	0.098	0.56	0.59	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.24	0.62	0.65	Not Detected
Tetrachloroethene	127-18-4	0.60	1.0	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.34	0.62	0.65	Not Detected
Trichloroethene	79-01-6	0.20	0.84	0.88	5.1
Vinyl Chloride	75-01-4	0.17	0.40	0.42	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	124
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	96

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	11/21/19 12:19 PM
Lab ID:	1911413R1-08A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21112106c
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.14	0.38	0.40	Not Detected
1,4-Dioxane	123-91-1	0.060	0.34	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.14	0.38	0.40	Not Detected
Tetrachloroethene	127-18-4	0.36	0.64	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.20	0.38	0.40	Not Detected
Trichloroethene	79-01-6	0.12	0.51	0.54	Not Detected
Vinyl Chloride	75-01-4	0.10	0.24	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	116
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	97

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	11/22/19 12:44 PM
Lab ID:	1911413R1-08B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21112206a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.14	0.38	0.40	Not Detected
1,4-Dioxane	123-91-1	0.060	0.34	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.14	0.38	0.40	Not Detected
Tetrachloroethene	127-18-4	0.36	0.64	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.20	0.38	0.40	Not Detected
Trichloroethene	79-01-6	0.12	0.51	0.54	Not Detected
Vinyl Chloride	75-01-4	0.10	0.24	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	128
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	90

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	11/21/19 09:24 AM
Lab ID:	1911413R1-09A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21112102
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	99
1,4-Dioxane	123-91-1	97
cis-1,2-Dichloroethene	156-59-2	104
Tetrachloroethene	127-18-4	82
trans-1,2-Dichloroethene	156-60-5	96
Trichloroethene	79-01-6	91
Vinyl Chloride	75-01-4	95

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	115
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	11/22/19 09:34 AM
Lab ID:	1911413R1-09B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21112202
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	94
1,4-Dioxane	123-91-1	101
cis-1,2-Dichloroethene	156-59-2	98
Tetrachloroethene	127-18-4	85
trans-1,2-Dichloroethene	156-60-5	93
Trichloroethene	79-01-6	94
Vinyl Chloride	75-01-4	93

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	110
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	11/21/19 10:11 AM
Lab ID:	1911413R1-10A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21112103
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	101
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	97
Tetrachloroethene	127-18-4	81
trans-1,2-Dichloroethene	156-60-5	109
Trichloroethene	79-01-6	85
Vinyl Chloride	75-01-4	99

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	119
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	100

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	11/21/19 10:54 AM
Lab ID:	1911413R1-10AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21112104
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	91
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	88
Tetrachloroethene	127-18-4	87
trans-1,2-Dichloroethene	156-60-5	100
Trichloroethene	79-01-6	82
Vinyl Chloride	75-01-4	91

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	101

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	11/22/19 10:09 AM
Lab ID:	1911413R1-10B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21112203
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	93
1,4-Dioxane	123-91-1	102
cis-1,2-Dichloroethene	156-59-2	91
Tetrachloroethene	127-18-4	94
trans-1,2-Dichloroethene	156-60-5	102
Trichloroethene	79-01-6	86
Vinyl Chloride	75-01-4	93

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	96

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	11/22/19 10:43 AM
Lab ID:	1911413R1-10BB	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21112204
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	93
1,4-Dioxane	123-91-1	103
cis-1,2-Dichloroethene	156-59-2	88
Tetrachloroethene	127-18-4	88
trans-1,2-Dichloroethene	156-60-5	98
Trichloroethene	79-01-6	86
Vinyl Chloride	75-01-4	90

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	96

* % Recovery is calculated using unrounded analytical results.



REVISED REPORT: November 25, 2019

REVISION SUMMARY: Sample -005 results revised due to lab error associated with dilution factor.

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631

Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater

Project number: 30016344.0002B

Client project scope reference: Sample COC only was used to define project analytical requirements.

Laboratory: Eurofins Air Toxics -Folsom

Laboratory submittal: 1911413

Sample date: 2019-11-12

Report received by CADENA: 2019-11-25

Initial Data Verification completed: 2019-11-25

7 Air samples were analyzed for TO-15 parameters.

No data qualifications or sample integrity issues were observed.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) TO-15 Analysis

SDG #1911413R1

CADENA Verification Report: 2019-11-25

Analyses Performed By:
Eurofins Air Toxics
Folsom, California

Report #35032R
Review Level: Tier III
Project: 30016344.00006



DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 1911413R1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
1911413R1	AA-11675BELDEN-01_111219	1911413R1-01A	Air	11/12/2019		X		
	IAF-11675BELDEN-01_111219	1911413R1-02A	Air	11/12/2019		X		
	IAF-11675BELDEN-02_111219	1911413R1-03A	Air	11/12/2019		X		
	IAF-11675BELDEN-03_111219	1911413R1-04A	Air	11/12/2019		X		
	DUP-11675BELDEN-01_111219	1911413R1-05A	Air	11/12/2019	IAF-11675BELDEN-03_111219	X		
	IAF-11675BELDEN-04_111219	1911413R1-06A	Air	11/12/2019		X		
	IAF-11675BELDEN-05_111219	1911413R1-07A	Air	11/12/2019		X		

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15 (Full Scan). Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15	Air	30 days from collection to analysis (Canister)	Ambient Temperature	< -2" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 140% or less than 60% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. All identified compounds met the specified criteria.

6. Field Duplicate Sample Analysis

The field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 35% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are not greater than five times the RL, a control limit of one times the RL is applied to the difference between the duplicate sample results.

Results (in $\mu\text{g}/\text{m}^3$) for the field duplicate samples are summarized in the following table.

Sample ID / Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
IAF-11675BELDEN-03_111219/ DUP-11675BELDEN-01_111219	1,4-Dioxane	0.11 J	0.59 U	AC
	Trichloroethene	1.2	1.1	AC

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15 (Full Scan)	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-2"Hg)		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Field Duplicate Sample RPD		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

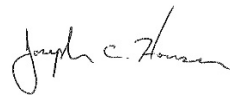
%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:



DATE: December 4, 2019

PEER REVIEW: Andrew Korycinski

DATE: December 4, 2019



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



**NO CORRECTIONS/QUALIFIERS ADDED
TO SAMPLE ANALYSIS DATA SHEETS**



MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-11675BELDEN-01_111219	Date/Time Analyzed:	11/21/19 09:32 PM
Lab ID:	1911413R1-01A	Dilution Factor:	1.55
Date/Time Collected:	11/12/19 04:02 PM	Instrument/Filename:	msd21.i / 21112121
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.22	0.58	0.61	Not Detected
1,4-Dioxane	123-91-1	0.093	0.53	0.56	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.22	0.58	0.61	Not Detected
Tetrachloroethene	127-18-4	0.56	1.0	1.0	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.32	0.58	0.61	Not Detected
Trichloroethene	79-01-6	0.19	0.79	0.83	Not Detected
Vinyl Chloride	75-01-4	0.16	0.38	0.40	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	123
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	90

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-01_111219	Date/Time Analyzed:	11/21/19 10:07 PM
Lab ID:	1911413R1-02A	Dilution Factor:	1.68
Date/Time Collected:	11/12/19 04:09 PM	Instrument/Filename:	msd21.i / 21112122
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.24	0.63	0.67	Not Detected
1,4-Dioxane	123-91-1	0.10	0.58	0.60	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.24	0.63	0.67	Not Detected
Tetrachloroethene	127-18-4	0.61	1.1	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.34	0.63	0.67	Not Detected
Trichloroethene	79-01-6	0.20	0.86	0.90	2.1
Vinyl Chloride	75-01-4	0.17	0.41	0.43	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	126
4-Bromofluorobenzene	460-00-4	70-130	91
Toluene-d8	2037-26-5	70-130	91

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	IAF-11675BELDEN-02_111219	Date/Time Analyzed:	11/21/19 10:42 PM
Lab ID:	1911413R1-03A	Dilution Factor:	1.71
Date/Time Collected:	11/12/19 04:08 PM	Instrument/Filename:	msd21.i / 21112123
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.25	0.64	0.68	Not Detected
1,4-Dioxane	123-91-1	0.10	0.58	0.62	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.24	0.64	0.68	Not Detected
Tetrachloroethene	127-18-4	0.62	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.35	0.64	0.68	Not Detected
Trichloroethene	79-01-6	0.21	0.87	0.92	1.4
Vinyl Chloride	75-01-4	0.18	0.42	0.44	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	118
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	90

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-03_111219	Date/Time Analyzed:	11/21/19 11:17 PM
Lab ID:	1911413R1-04A	Dilution Factor:	1.64
Date/Time Collected:	11/12/19 04:04 PM	Instrument/Filename:	msd21.i / 21112124
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.24	0.62	0.65	Not Detected
1,4-Dioxane	123-91-1	0.098	0.56	0.59	0.11 J
cis-1,2-Dichloroethene	156-59-2	0.24	0.62	0.65	Not Detected
Tetrachloroethene	127-18-4	0.60	1.0	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.34	0.62	0.65	Not Detected
Trichloroethene	79-01-6	0.20	0.84	0.88	1.2
Vinyl Chloride	75-01-4	0.17	0.40	0.42	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	119
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	91

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	DUP-11675BELDEN-01_111219	Date/Time Analyzed:	11/22/19 07:00 AM
Lab ID:	1911413R1-05A	Dilution Factor:	1.64
Date/Time Collected:	11/12/19 12:00 AM	Instrument/Filename:	msd21.i / 21112125r1
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.24	0.62	0.65	Not Detected
1,4-Dioxane	123-91-1	0.098	0.56	0.59	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.24	0.62	0.65	Not Detected
Tetrachloroethene	127-18-4	0.60	1.0	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.34	0.62	0.65	Not Detected
Trichloroethene	79-01-6	0.20	0.84	0.88	1.1
Vinyl Chloride	75-01-4	0.17	0.40	0.42	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	118
4-Bromofluorobenzene	460-00-4	70-130	90
Toluene-d8	2037-26-5	70-130	92

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-04_111219	Date/Time Analyzed:	11/22/19 02:03 PM
Lab ID:	1911413R1-06A	Dilution Factor:	1.64
Date/Time Collected:	11/12/19 04:14 PM	Instrument/Filename:	msd21.i / 21112207
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.24	0.62	0.65	Not Detected
1,4-Dioxane	123-91-1	0.098	0.56	0.59	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.24	0.62	0.65	Not Detected
Tetrachloroethene	127-18-4	0.60	1.0	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.34	0.62	0.65	Not Detected
Trichloroethene	79-01-6	0.20	0.84	0.88	2.6
Vinyl Chloride	75-01-4	0.17	0.40	0.42	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	89

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-11675BELDEN-05_111219	Date/Time Analyzed:	11/22/19 08:21 AM
Lab ID:	1911413R1-07A	Dilution Factor:	1.64
Date/Time Collected:	11/12/19 04:15 PM	Instrument/Filename:	msd21.i / 21112127
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.24	0.62	0.65	Not Detected
1,4-Dioxane	123-91-1	0.098	0.56	0.59	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.24	0.62	0.65	Not Detected
Tetrachloroethene	127-18-4	0.60	1.0	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.34	0.62	0.65	Not Detected
Trichloroethene	79-01-6	0.20	0.84	0.88	5.1
Vinyl Chloride	75-01-4	0.17	0.40	0.42	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	124
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	96

Analysis Request / Canister Chain of Custody

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
 Phone (800) 985-5955; Fax (916) 351-8279

For Laboratory Use Only
 PID: _____ Workorder #: **1911413**

Click links below to view:
[Canister Sampling Guide](#)
[Helium Shroud Video](#)

Client: <u>Ford</u>	PID: <u>NA</u>	Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting	Turnaround Time (Rush surcharges may apply)	
Project Name: <u>Ford LTP</u>			5 Day Turnaround Time	
Project Manager: <u>Kris Hinskey</u>	P.O.# <u>30016344.0002B</u>		Canister Vacuum/Pressure	Requested Analyses
Sampler: <u>Patrick Labadie, Seth Turner</u>				
Site Name: <u>11675 BELDEN</u>				

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Lab Use Only		TO-15 (See Special Instructions/Notes)	Do Not Analyze
				Date	Time	Date	Time			Receipt	Final (psig) Gas: N ₂ / He		
<u>01A</u>	AA-11675BELDEN-01_111219	6L2472	23670	11/12/2019	8:29	11/12/2019	16:02	-29.8	-6.5			X	
<u>02A</u>	IAF-11675BELDEN-01_111219	6L2483	23233	11/12/2019	8:18	11/12/2019	16:09	-29.8	-6.5			X	
<u>03A</u>	IAF-11675BELDEN-02_111219	6L2171	24705	11/12/2019	8:13	11/12/2019	16:08	-29.7	-7			X	
<u>04A</u>	IAF-11675BELDEN-03_111219	6L1555	24212	11/12/2019	8:07	11/12/2019	16:04	-28	-6			X	
<u>05A</u>	DUP-11675BELDEN-01_111219	6L2050	24122	11/12/2019	--	11/12/2019	--	-28	-6			X	
<u>06A</u>	IAF-11675BELDEN-04_111219	6L2060	24263	11/12/2019	8:20	11/12/2019	16:14	-29.8	-6			X	
<u>07A</u>	IAF-11675BELDEN-05_111219	6L2162	24746	11/12/2019	8:10	11/12/2019	16:15	-29.8	-6			X	

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
	11/18/19	0945		11/18/19	0945
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Shipper Name: Fedex Lab Use Only Custody Seals Intact? Yes No None

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

Daily Log - Ford Off Site VI Investigation - VISIT 1

 Project No.: MI001454.0003.00001 / 30016344

 Site Location: 11675 belden

 Personnel Onsite: Seth Turner, Patrick Labadie

Date	Time	Description of Activities
11/11/2019		Purpose: R4 V1, building survey, chemical inventory
		Weather: 34 F and snowing
		Equipment: PID 6153
	9:00	Arcadis onsite
	9:05	Conduct building survey and chem inventory; request doors and windows shut during sampling
	9:20	Arcadis offsite
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Visit 1 Checklist

Keeping windows & doors shut during IA/AA sampling was discussed? yes Field Staff Signature: _____
 Have background sources of VOCs been removed/isolated? yes *seth turner*
 Is a sump pit present in the building? no
 Location of removed/isolated background VOCs: In bin taken offsite

Daily Log - Ford Off Site VI Investigation - VISIT 2

Project No.: MI001454.0003.00001 / 30016344

Site Location: 11675 belden

Personnel Onsite: Seth Turner, Patrick Labadie

Date	Time	Description of Activities
11/12/2019		Purpose: R4 V2; Canister Deployment
		Weather: 24.98 degrees F and Partly Cloudy
		Equipment: PID 6153
	8:00	Arcadis Onsite
	8:05	Conduct canister deployment
	8:35	Conduct ssmp sampling
	10:10	Arcadis Offsite
	16:00	Arcadis Onsite
	16:02	Conduct Canister Collection
	16:30	Arcadis Offsite
	--	--
	--	--
	--	--
	--	--
	--	--
	--	--
	--	--

Visit 2 Checklist

Windows and doors are shut (for IA samples only)? yes

Have background sources of VOCs been removed/isolated? yes

Number of SSMP samples collected: 6

Number of indoor/ambient air samples collected: 7

Occupancy hours (for commercial properties only): 8-5

Field Staff Signature:





Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM

R3: 7/22/14

David Craig

Date: 11-21-18

Survey Performed by:

Hayden Ladd

R2: 3-26-19

Hayden Ladd

1. OCCUPANT:

R4: 11-12-19

Seb Turner

Rent:

Own:

Resident Name:

Liz Kritzman (Paul Newton R2)

(Jeff Stammer - R3)

Address:

11675 Belden Ct.

Telephone:

Home:

Work: (248) 662-2680

- no changes to building or property since R2

How long have you lived at this location? 10 years

List current occupants/occupation below (attach additional pages if necessary):

Age (If under 18)	Sex (M/F)	Occupation
		~ 5 consultants in office at all times

R4 NO changes since R3 except that TCE is no longer used and hysol is used instead

2. OWNER OR LANDLORD: (If same as occupant, check here and go to Item No. 3).

Last Name:

Blumenstein

First Name:

Ricky

Address:

Na

City and State:

Na

County:

Na

Home Phone:

Na

Office Phone:

Na

R4: PID: Office: 109 PPb

warehouse: 227 PPb



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

3. SENSITIVE POPULATION:

Daycare/Nursing Home/Hospital/School/Other (specify): None

4. BUILDING CHARACTERISTICS:

Residential/Multi-family Residential/Office/Strip Mall/Commercial/Industrial/School

Describe Building: Commercial - Civil/Env consultant Year Constructed: NA

Number of floors at or above grade: 1

Number of floors below grade: 0 (full basement/crawl space/slab on grade)

Depth of structure below grade: 0 ft. Basement size: 0 ft²

If the property is residential, what type? (Circle all appropriate responses.)

- | | | | |
|-------------|----------|------------------|-------------------|
| Ranch | 2-Family | 3-Family | Raised Ranch |
| Split Level | Colonial | Cape Cod | Contemporary |
| Mobile Home | Duplex | Apartment House | Townhouses/Condos |
| Modular | Log Home | Other: <u>NA</u> | |

If multiple units, how many? NA

If the property is commercial:

Business type(s) Civil/Environmental Consultants

Does it include residences (i.e., multi-use)? Yes No If yes, how many? NA

5. OCCUPANCY:

Is basement/lowest level occupied? (Circle one)

- Full-time Occasionally Seldom Almost Never NA



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Level	General Use (e.g., family room, bedroom, laundry, workshop, storage)
Basement	NA
1 st Floor	Office / Warehouse (in back)
2 nd Floor	
3 rd Floor	
4 th Floor	

(Use additional page(s) as necessary)

6. CONSTRUCTION CHARACTERISTICS: (Circle all that apply.)

a. Above Grade Construction: (Describe type: wood frame, concrete, stone, brick.)

Center block

b. Basement Type: Full Crawlspace Slab Other: _____

c. Basement Floor: Concrete Dirt Stone Other: _____

d. Finished Basement Floor: Uncovered Covered

If covered, what with? NA

e. Foundation Walls: Poured Block Stone Other: _____

f. Foundation Walls: Unsealed Sealed Sealed with: NA

g. The Basement is: Wet Damp Dry NA

h. The Basement is: Finished Unfinished Partially Finished NA

i. Sump Present (Y/N) (N) If yes, how many? NA

Where Discharged? NA

Water in Sump? Yes No Not Applicable



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Identify all potential soil vapor entry points and estimated size (e.g., cracks, utility parts, drains).

Drains in bathrooms - Some cracks in slab floor in warehouse

Are the basement walls or floor sealed with waterproof paint or epoxy coatings? Yes No

Type of ground cover outside of building: Grass Concrete Asphalt Other _____

Is an existing subsurface depressurization (radon) system in place? Yes No

If yes, is it active, or passive?

Is a sub-slab vapor/moisture barrier in place? Yes No NA

Type of barrier: unknown

7. HEATING, VENTING, and AIR CONDITIONING

Type of heating system(s) used in this building: (Circle all that apply: Note the primary).

- Hot Air Circulation
- Space Heaters
- Electric Baseboard
- Other: _____
- Heat Pump
- Steam Radiation
- Wood Stove
- Hot Water Baseboard
- Radiant Floor
- Outdoor Wood Boiler

The primary type of fuel used is:

- Natural Gas
- Electric
- Wood
- Fuel Oil
- Propane
- Coal
- Kerosene
- Solar

Domestic hot water tank fueled by: Natural gas

Location of Boiler/Furnace: Basement Outdoors Main Floor Other Roof



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Air Conditioning: Central Air Window Units Open Windows None

Are air distribution ducts present? Yes No

Is there a whole house fan? Yes No

Describe the air intake system (outside air supply, cold air return, ductwork, etc.) and its condition where visible. Indicate the locations on the floor plan diagram.

Ductwork in good condition - some new ductwork in rear of building. New oven is being installed including new ductwork

B. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

a) Is there an attached garage?

warehouse attached

Yes No

If yes, does it have a separate heating unit?

Yes No

b) Are any petroleum-powered machines or vehicles stored in an attached garage (e.g., lawn mower, ATV, car)

Yes No

c) Has the building ever had a fire?

Yes No

d) Is there a fuel burning or unvented gas space heater?

Yes No

e) Is there a workshop or hobby/craft area?

Yes No

If yes, where and what type? *Warehouse in rear*

f) Is there smoking in the building?

Yes No

If yes, how frequently? *NA*



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

- g) Have cleaning products been used recently? Yes No *TCE is no longer used.*
If yes, when and what type? *general purpose cleaning - Asphalt extraction using trichloroethylene (TCE)*
- h) Have cosmetic products been used recently? Yes No
If yes, when and what type? *—*
- i) Has there been painting or staining in the last six months? Yes No
If yes, when and where? *—*
- j) Is there new carpet, drapes, or other textiles? Yes No
If yes, when and where? *—*
- k) Have air fresheners been used recently? Yes No
If yes, when and what type? *Sprays in the bathrooms*
- l) Is there a kitchen exhaust fan? Yes No
If yes, where is it vented? *—*
- m) Is there a clothes dryer? Yes No
If yes, is it vented outside? Yes No *NA*
- n) Has there been a pesticide application? Yes No
If yes, when and what type? *In frequent use*
- o) Are there odors in the building? Yes No
If yes, please describe: *—*



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

p) Do any of the building occupants use solvents at work (e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetology)?

Yes No

If yes, what types of solvents are used? Tri chloro ethylene for Asphalt extraction. TCE has been removed from site.

If yes, are their clothes washed at work?

Yes No

q) Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response.)

No Unknown

- Yes, use dry-cleaning regularly (weekly)
- Yes, use dry-cleaning infrequently (monthly or less)
- Yes, work at a dry-cleaning service

r) Is there a radon mitigation system for the building/structure?

Yes No

If yes, what is date of installation?

Active Passive

s) Additional mitigation system information (fan size, location, operating status, liner installed, etc.):

Fume hood that vents outdoor for Asphalt extraction.
Fume hoods are no longer in use as TCE has been permanently removed

t) Is there an irrigation well, or any other well, present at the property:

Yes No

If yes, please describe placement, use, and history below.

R4 no changes to the chemical inventory.

R3: PID in warehouse range 115 ppb - 44 ppm

Generators moved outside

Misc Plus moved outside to company vehicle

Other: chemicals stored in tube in radioactive storage room

Product Inventory Form

i.e. gasoline cans/equipment, kerosene, paints/thinners/strippers, cleaning solvents, hobby supplies (glues), oven cleaner, carpet/upholstery cleaners, household cleaners, moth balls, polishes/waxes, insecticides, furniture/floor polish, hairspray, cologne/perfume, air fresheners, interior fuel tank, wood stove/fireplace, new furniture/upholstery, new carpet/flooring

Location	Product Description	Chemical Ingredients	Quantity	PID Reading (ppb)	Photo	Removed (Y/N)
warehouse	Rust-cream	xylene, Acetone	HTI ✓	722	Y	Y
	Bard	d-thaonin, 2-dimethyl-3-(2-methyl)	1 ✓	360	Y	Y
	Aerobor masonry	Ketchnes, Toluene	HTI	528	Y	Y
	Krylon spray paint	Auto marine, Fleet	III	571	Y	Y
	Seafloam mator	3 in 1 Multipurpose oil	II	371	Y	Y
	Rainox	Propane	HTII	390	Y	Y
	3 in 1	Furniture polish	II	431	Y	Y
	Workington	various sizes	I	460	Y	Y
	Pledge	multiple	I	414	Y	Y
	WOFO	anti static dust	HT III	406	Y	Y
	OFFICE DEPOT	Air Wick Aergosols, Glade	I	400	Y	Y
	Bathroom	Ly Sol Disinfectant Spray	HT ✓	402	Y	Y
warehouse	Kilz	up shot overhead stain sealer	III	453	Y	Y
	Seymour	Galvanized coatings corrosion	II	431	Y	Y
	Perstone	Premium Slabbing Fluid	I	428	Y	Y
	Mörsendöcker's	Lift off adhesives, grease	I	431	Y	Y
	3M	Multipurpose adhesive spray	I	445	Y	Y
	Xycrylic	Admix cement mortar fortifier	I	970	Y	Y
	Liquinox	cleaning liquid Detergent	I	276.98	Y	N
	Liquor-Nox	Clear bottle various sizes	I	310	Y	N
	REPEL	Insect Repellent 40lb case	HTHT II	290	Y	N
	Spectracide Pro	wasp, hornet killer	II ✓	300	Y	Y
	Conroy	purple primer and rubber cement	HT ✓	322	Y	Y
	Hot Shot	Coach killer	HT III ✓	742	44 ppm	Y
	PEM	penetrating oil	II	431	Y	Y
	Sprayon	insulating varnish	I	804	Y	N
	Lacquer	Thinner, Klean-Strip	III ✓	932	Y	N
	Contractors	grade glazing compound	II	5,290	Y	N
	Strait-line	masking chact	III	1,893	Y	N
	AERUOE	Spray paint cabinet	Multiple	777	Y	N
	Solvents	and cleaners bottom cabinet	Multiple	1895	Y	N
	2 Barrels	of TCE	Multiple	219	Y	N
	Gas cans	gas	2	5,897	Y	N
	Spray paint		4	83	Y	Y
	Tec	rocky grey residue remover	16	26.05 ppm	Y	Y
	Spectracide	Wasp/hornet killer	1	100	Y	Y
	Pittsburgh	Thinner	4	80	Y	Y
	Density	of ethane foam A	1	2,042 ppm	Y	Y
	Density	of ethane foam B	1	248	Y	Y
	Perichs	max duty silicone	1	265	Y	Y
	Best	silicon cement	1	150	Y	Y
	Sink	chain metal grease	1	70	Y	Y
	Onyx	base grease	1		Y	Y
	Great	stuff-insulating foam	2		Y	Y
ASTEC	Misc Plus	III	21 ppm	Y	Y	

Notes: 55 gallon drums TCE will likely be used during sampling
 Soil will be processed on site that will be off gassing
 Chemicals to be stored in Radio active lab area.

Notes: chlorinated solvents stored in company vehicle outside remaining (Methanol stored in closed truck in indoor radioactive lab area)

Product Inventory Form R3

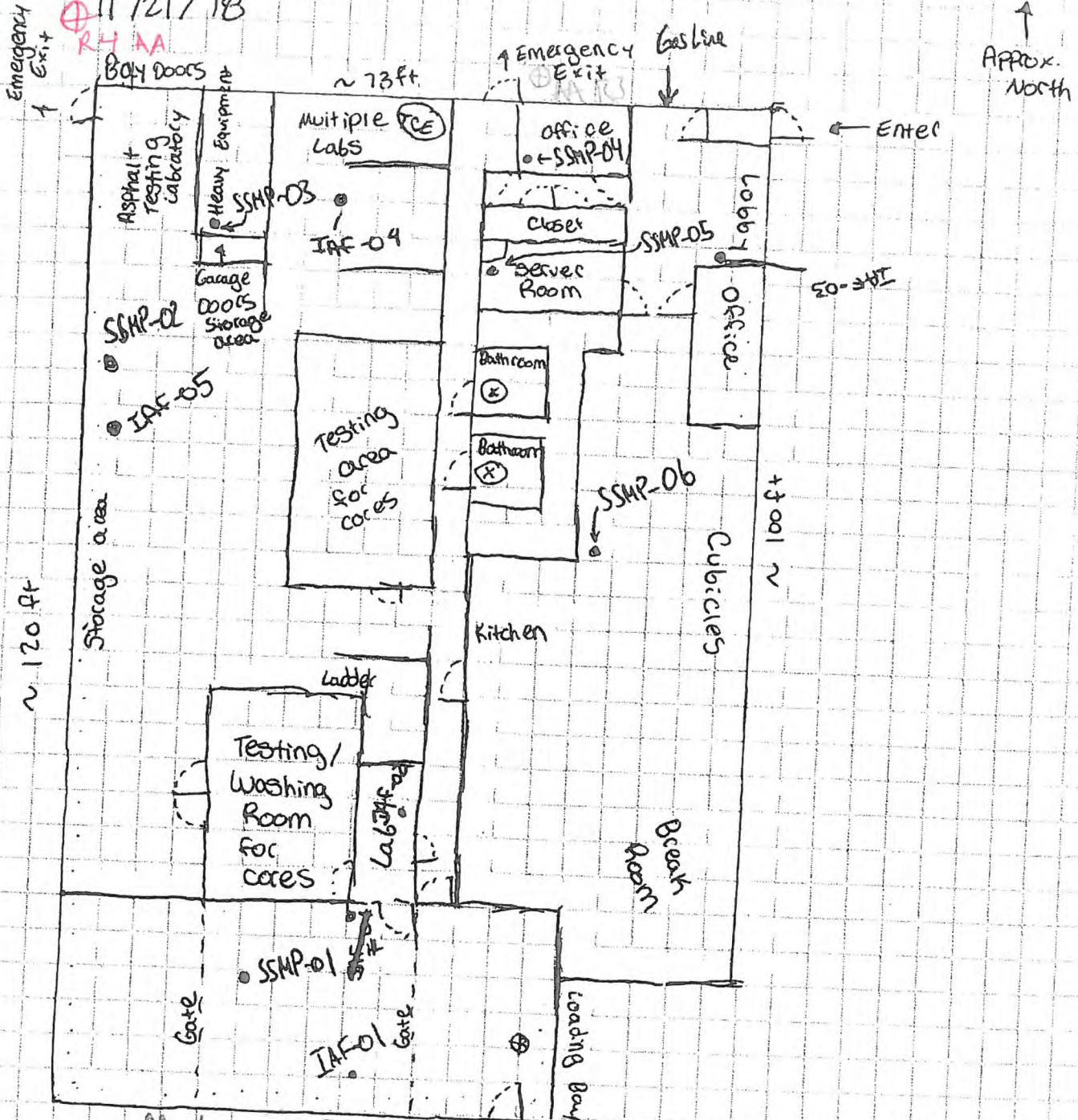
i.e. gasoline cans/equipment, kerosene, paints/thinners/strippers, cleaning solvents, hobby supplies (glues), oven cleaner, carpet/upholstery cleaners, household cleaners, moth balls, polishes/waxes, insecticides, furniture/floor polish, hairspray, cologne/perfume, air fresheners, interior fuel tank, wood stove/fireplace, new furniture/upholstery, new carpet/flooring

Location	Product Description	Chemical Ingredients	Quantity	PID Reading (ppb)	Photo	Removed (Y/N)
Warehouse	Cyclo Electric Motor Cleaner		11	137	Y	Y
Warehouse	Wire Drill		1	147	Y	Y
Warehouse	Sprayer Red Insulation Joint		1	128	Y	Y
Warehouse	Insul. Lube		1	151	Y	Y

11675 Belden Court, Industrial Properties LLC
 By: C. Weaver

11/21/18

R4 AA



~ 57ft
 - Not to scale

Legend

- = SSMP
- ⊗ = Drain
- - - = Gate
- = Door
- = IAF, AA

Notes

Many storage racks within warehouse area.



Office Name & Address (Reporting Information): Arcadis of Michigan, LLC 28550 Cabot Drive, Suite 500, Novi, MI 48377		Project Name: Ford LTP Off-site Sampling	
Field Manager: Adam Richmond		Project Number: MI001454.0003 / 30016344	
Phone Number: 248.994.2240		Site Address: 11675 belden	
Special Instructions: Report ONLY: 1,1-DCE, cis-1,2- DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting.		Sampler Name: Patrick Labadie, Seth Turner	
Email Address for Result Reporting: Kristoffer.Hinskey@arcadis.com		Summa Canister Size (1L, 2.7 L, 6L) 6 Liter	
Lab: Eurofins			

Sample ID	Sample Location Description	Indoor/ Outdoor	PID in Sampling Area (ppb)	Canister Number	Flow Controller Number	Sample Collection Start Date	Sample Collection Start Time	Beginning Canister Pressure (in. Hg)	Sample Collection End Date	Sample Collection End Time	Ending Canister Pressure (in. Hg)	HVAC System Information						Notes
												HVAC Fan On Start?	HVAC Fan On End?	Heat On Start?	Heat On End?	Temperature Setting (°F) Start	Temperature Setting (°F) End	
AA-11675BELDEN-01_111219	NE of building	Outdoor	0	6L2472	23670	11/12/2019	8:29	-29.8	11/12/2019	16:02	-6.5	--	--	--	--	--	--	--
IAF-11675BELDEN-01_111219	South side of warehouse between gates, near lab.	Indoor	82	6L2483	23233	11/12/2019	8:18	-29.8	11/12/2019	16:09	-6.5	Yes	Yes	Yes	Yes	68	68	--
IAF-11675BELDEN-02_111219	South side of building inside radioactive lab	Indoor	294	6L2171	24705	11/12/2019	8:13	-29.7	11/12/2019	16:08	-7	Yes	Yes	Yes	Yes	68	68	--
IAF-11675BELDEN-03_111219	North side of building east side of lobby	Indoor	70	6L1555	24212	11/12/2019	8:07	-28	11/12/2019	16:04	-6	Yes	Yes	Yes	Yes	68	68	--
DUP-11675BELDEN-01_111219	North side of building east side of lobby	Indoor	70	6L2050	24122	11/12/2019	8:07	-28	11/12/2019	16:04	-6	Yes	Yes	Yes	Yes	68	68	--
IAF-11675BELDEN-04_111219	NW side of warehouse near labs	Indoor	85	6L2060	24263	11/12/2019	8:20	-29.8	11/12/2019	16:14	-6	Yes	Yes	Yes	Yes	68	68	--
IAF-11675BELDEN-05_111219	West side of warehouse	Indoor	93	6L2162	24746	11/12/2019	8:10	-29.8	11/12/2019	16:15	-6	Yes	Yes	Yes	Yes	68	68	--
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Meteorological Data							General Notes or Observations
Date	Time	Temp. (°F)		Relative Humidity (%)	Barometric Pressure (in. Hg)	Air Speed (mph)	Source of Weather Information
		Indoor	Outdoor				
11/12/2019	8:02	68	20	61	30.28	11 NE	weather.com app
11/12/2019	16:02	68	24	60	30.18	10 NE	weather.com app
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--	--	--	--	--	--	--	weather.com app

Office Name & Address (Reporting Information): Arcadis of Michigan, LLC 28550 Cabot Drive, Suite 500, Novi, MI 48377			Project Name: Ford LTP Off-site Sampling		
Field Manager: Adam Richmond			Project Number: MI001454.0003 / 30016344		
Phone Number: 248.994.2240		Special Instructions: Report ONLY: 1,1-DCE, cis-1,2- DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting.	Site Address: 11675 belden		
Email Address for Result Reporting: Kristoffer.Hinskey@arcadis.com		Helium Detector Model Used: Dielectric MGD-2002	Helium Leak Test Method: Bucket Shroud	Summa Canister Size (1L, 2.7 L, 6L): 1 Liter	
				Lab: Eurofins	

Sample ID	Sample Location Description	Date	Pre-Sampling Shut-In / Leak-Down Test Pass/Fail?	Helium Tracer Test - Performed During Sample Point Purge			Purge Volume (mL)	Purge Rate (mL/min)	Canister Number	Flow Controller Number	Sample Collection Start Time	Starting Canister Pressure (in. Hg)	Sample Collection End Time	Ending Canister Pressure (in. Hg)	Post-Sampling CO ₂ Reading from GEM (%)	Post-Sampling O ₂ Reading from GEM (%)	Micromanometer Reading (in. WC)
				Shroud Helium Concentration During Purge (% Helium)	Helium Reading in Purged Vapor (% Helium)	Helium Test Pass/Fail (Purge contains <5% of shroud to pass)?											
SSMP-11675BELDEN-04_111219	NE side of building west side of office	11/12/2019	Pass	41.6	0	Pass	100	100	000003253	24741	8:42	-29.9	8:54	-6	3.1	17.1	0.00136
SSMP-11675BELDEN-05_111219	W side of server room	11/12/2019	Pass	43.2	0	Pass	100	100	1L2370	24328	9:01	-29.9	9:14	-5	3.5	16.8	0.00231
SSMP-11675BELDEN-06_111219	E side of building near kitchen	11/12/2019	Pass	44.1	0	Pass	100	100	1L3159	23333	9:25	-29.9	9:38	-6.5	3.4	17.1	0.00132
SSMP-11675BELDEN-01_111219	S side of warehouse in between gates	11/12/2019	Pass	45.2	0	Pass	100	100	000003004	23660	8:49	-29.9	9:01	-6.5	1.3	21.1	0.0006
SSMP-11675BELDEN-02_111219	West wall of warehouse storage	11/12/2019	Pass	41.9	0	Pass	100	100	1L3076	23260	9:15	-29.9	9:27	-6	2.5	18.2	0.00495
SSMP-11675BELDEN-03_111219	NW corner of warehouse in equipment room	11/12/2019	Pass	46.5	0	Pass	100	100	1L2823	24329	9:41	-29.9	9:55	-6.5	3.4	16.8	-0.00142
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Date	Time	Temp. (°F)		Relative Humidity (%)	Barometric Pressure (in. Hg)	Source of Weather Information	Purge Volume Calculations: The purge volume for each sample has been pre-calculated using the information below. For sub-slab soil vapor samples the sample train tubing length is ~54 inches and the interior tubing radius is 0.085". Three volumes of the sample train is 60 milliliters using the equation for volume of a cylinder (volume = pi * radius ² * height) where Volume = 60 ml, radius = 0.085" and height = 54". To have sufficient volume to conduct helium leak testing 100 milliliters should be purged from each sample point. For exterior soil vapor sampling 60 milliliters should be used for the above ground sample train. Each additional foot of sub-grade tubing account for approximately 13 ml. To have sufficient volume to conduct helium leak testing at least 100 milliliters should be purged from each sample point.
		Indoor	Outdoor				
11/12/2019	8:38	68	21	45	29.31	weather.com app	
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--	--	--	--	--	--	weather.com app	

General Notes or Observations

[Home](#) / [Chemicals](#) / [Techtride® TCE](#)

Techtride TCE

Techtride® - TCE is a chlorinated solvent that can be used for vapor degreasing.

Features:

- no flash point.
- stable and non-corrosive solvent.
- available in both virgin and reclaim form.
- clear, water-white liquid at ordinary temperatures. It is volatile,
- sweet-smelling, and completely miscible with most organic liquids.

Specs:

- Boiling point = 188.4° F
- Specific Gravity = 1.460
- Acid Acceptance = 0.165
- pH = 6.75 to 7.5
- Flash Point = None
- Water Content = <100pp



Get In Touch

We are here to help you with all of your parts cleaning and chemical services need. Get started today and let us help you.

Contact Us 



Univar USA Inc Material Safety Data Sheet

MSDS No:

Version No:

Order No:

Univar USA Inc., 17425 NE Union Hill Rd., Redmond WA 98052
(425) 889 3400

Emergency Assistance

For emergency assistance involving chemicals call
Chemtrec - (800) 424-9300

The Version Date and Number for this MSDS is : 11/09/2007 - #010

PRODUCT NAME: TRICHLOROETHYLENE
MSDS NUMBER: DZ40174
DATE ISSUED: 03/09/2007
SUPERSEDES: 06/26/2006
ISSUED BY: 008360

Material Safety Data Sheet

1. Product and Company Identification

Product Name
TRICHLOROETHYLENE

Distributed by:
Univar USA Inc.
17425 NE Union Hill Road
Redmond, WA 98052
425-889-3400

2. Hazards Identification

Emergency Overview
Color: Colorless
Physical State: Liquid
Odor: Characteristic

Hazards of product:
WARNING! May cause central nervous system effects; can cause death if too much is breathed. Harmful if inhaled. Harmful if swallowed. May cause eye irritation. May cause skin irritation. Aspiration hazard. Can enter lungs and cause damage. May cause irregular heartbeats based on animal data. Isolate area. Keep upwind of spill. Stay out of low areas. Toxic fumes may be released in fire situations.

OSHA Hazard Communication Standard
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Potential Health Effects

Annotation:

Eye Contact: May cause pain disproportionate to the level of irritation to eye tissues. May cause slight eye irritation. Corneal injury is unlikely. Vapor may cause eye irritation experienced as mild discomfort and redness.

Skin Contact: Prolonged or repeated contact may cause skin irritation. May cause drying and flaking of the skin. May cause more severe response on covered skin (under clothing, gloves). Skin Absorption: Prolonged skin contact is unlikely to result in absorption of harmful amounts. Trichloroethylene may be absorbed through the skin and may cause numbness in fingers immersed in the liquid.

Inhalation: In confined or poorly ventilated areas, vapor can readily accumulate and can cause unconsciousness and death. Excessive exposure may cause irritation to upper respiratory tract (nose and throat). Excessive exposure may increase sensitivity to epinephrine and increase myocardial irritability (irregular heartbeats). May cause alcohol intolerance often manifested by temporary reddening of the skin called 'degreaser's flush'. Minimal anesthetic or irritant effects may be seen around 200-400 ppm trichloroethylene. Levels in the range of 1000-2000 ppm may rapidly cause dizziness and drunkenness. Progressively higher levels or longer exposure may cause unconsciousness and death and may be immediately hazardous to life.

Ingestion: Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause serious injury, even death. Aspiration into the lungs may occur during ingestion or vomiting, resulting in rapid absorption and injury to other body systems.

Effects of Repeated Exposure: In animals, effects have been reported on the following organs: Kidney. Liver. Central nervous system. Peripheral nervous system. Alcohol consumed before or after exposure may increase adverse effects. Trichloroethylene is reported to have caused hearing loss in laboratory animals upon repeated exposure to 2500 ppm or higher (orders of magnitude greater than the current occupational exposure standards). However, the relevance of this to humans is unknown.

Cancer Information: Tumors were observed in mice given large doses of trichloroethylene. Data suggest a nongenotoxic mechanism for tumor formation that implies that nontoxic doses of trichloroethylene should pose little or no carcinogenic hazard. A very low incidence of tumors has been observed in male rats at high levels of trichloroethylene which caused reduced survival, rendering these studies inadequate. Limited epidemiology data have shown a weak association between trichloroethylene exposure and renal cancer.

Birth Defects/Developmental Effects: Did not cause birth defects in laboratory animals. Has been toxic to the fetus in lab animals at doses toxic to the mother.

3. Composition Information

Component	CAS #	Amount
-----------	-------	--------

Annotation:

1,1,2-Trichloroethylene

79-01-6

99.9 %

4. First-aid measures

Eye Contact: Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

Skin Contact: Wash skin with plenty of water.

Inhalation: Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

Ingestion: Do not induce vomiting. Call a physician and/or transport to emergency facility immediately.

Notes to Physician: Because rapid absorption may occur through the lungs if aspirated and cause systemic effects, the decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. Maintain adequate ventilation and oxygenation of the patient. Exposure may increase "myocardial irritability". Do not administer sympathomimetic drugs such as epinephrine unless absolutely necessary. Alcohol consumed before or after exposure may increase adverse effects. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

Medical Conditions Aggravated by Exposure: Skin contact may aggravate preexisting dermatitis.

5. Fire Fighting Measures

Extinguishing Media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Water fog, applied gently may be used as a blanket for fire extinguishment.

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Water fog, applied gently may be used as a blanket for fire extinguishment. Contain fire water run-off if possible. Fire water runoff, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special Protective Equipment for Firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing

Annotation:

(includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

Unusual Fire and Explosion Hazards: Container may vent and/or rupture due to fire. Although this material does not have a flash point, it can burn at room temperature. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas.

Hazardous Combustion Products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Hydrogen chloride. Carbon monoxide. Carbon dioxide. Combustion products may include trace amounts of: Phosgene. Chlorine.

6. Accidental Release Measures

Steps to be Taken if Material is Released or Spilled: Small spills: Contain spilled material if possible. Absorb with materials such as: Vermiculite. Bentonite. Sawdust. Collect in suitable and properly labeled containers. Large spills: Dike area to contain spill. Pump into suitable and properly labeled containers. Suitable containers include: Metal drums. See Section 13, Disposal Considerations, for additional information.

Personal Precautions: Evacuate area. Keep personnel out of low areas. Keep personnel out of confined or poorly ventilated areas. Keep upwind of spill. Ventilate area of leak or spill. Only trained and properly protected personnel must be involved in clean-up operations. Confined space entry procedures must be followed before entering the area. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. Refer to Section 7, Handling, for additional precautionary measures.

Environmental Precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

7. Handling and Storage

Handling

General Handling: Handling in closed systems is recommended. Avoid breathing vapor. Do not swallow. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Do not enter confined spaces unless adequately ventilated. To avoid uncontrolled emissions, vent vapor from container to storage tank. Vapors of this product are heavier than air and lethal concentrations of vapors can collect in low, confined and unventilated spaces such as tanks, pits, small rooms and even in equipment (degreasers) that is used for degreasing metal parts. Do not enter these confined spaces where vapors of this product are suspected unless special breathing apparatus is

Annotation:

used and an observer is present for assistance. When using do not eat, drink or smoke. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Other Precautions: When appropriate, unique handling information for containers can be found on the product label.

Storage

Store in a cool, dry place. Store away from direct sunlight. Do not store in: Zinc. Aluminum. Aluminum alloys. Plastic. Product should not be packaged in aluminum aerosol cans or with finely divided aluminum or its alloys in an aerosol can.

8. Exposure Controls / Personal Protection

Exposure Limits

Component	List	Type	Value
1,1,2-Trichloroethylene	ACGIH	TWA	52 mg/m3 10 ppm
	ACGIH	STEL	135 mg/m3 25 ppm
	OSHA/Z2	TWA	100 ppm
	OSHA/Z2	Ceiling	200 ppm
	OSHA/Z2	MAX CONC	300 ppm 5 minutes in any 2 hours
	Dow IHG	TWA	5 ppm

Personal Protection

Eye/Face Protection: Use chemical goggles. If exposure causes eye discomfort, use a full-face respirator.

Skin Protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse or dispose of properly.

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Viton. Polyvinyl alcohol ("PVA"). Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Butyl rubber. Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Avoid gloves made of: Polyvinyl chloride ("PVC" or "vinyl"). **NOTICE:** The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Respiratory Protection: Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required, use an approved air-purifying or positive-pressure supplied-air respirator depending on the potential airborne concentration. For emergency and other conditions where

Annotation:

the exposure guideline may be exceeded, use an approved positive-pressure self-contained breathing apparatus or positive-pressure air line with auxiliary self-contained air supply. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained air supply. The following should be effective types of air-purifying respirators: Organic vapor cartridge.

Ingestion: Avoid ingestion of even very small amounts; do not consume or store food or tobacco in the work area; wash hands and face before smoking or eating.

Engineering Controls

Ventilation: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines. Lethal concentrations may exist in areas with poor ventilation.

9. Physical and Chemical Properties

Physical State	Liquid
Color	Colorless
Odor	Characteristic
Flash Point - Closed Cup	Tag Closed Cup ASTM D56 (none)
Flammable Limits In Air	Lower: 8.0 %(V) Literature Upper: 44.8 %(V) Literature
Autoignition Temperature	420 C (788 F) Literature
Vapor Pressure	7.233 kPa @ 20 C Literature 54.25 mmHg @ 20 C Literature
Boiling Point (760 mmHg)	87 C (189 F) Literature .
Vapor Density (air = 1)	4.5 Literature
Specific Gravity (H2O=1)	1.46 25 C/25 C Literature
Freezing Point	-87 C (-125 F) Literature
Melting Point	Not applicable
Solubility in Water (by weight)	0.1 % @ 25 C Literature
pH	Not applicable
Molecular Weight	131.4 g/mol Literature
Octanol/Water Partition	2.42 Measured Coefficient
Percent Volatiles	100 %(m) Literature
Kinematic Viscosity	0.391 cSt Calculated

10. Stability and Reactivity

Stability/Instability

Stable under recommended storage conditions. See Storage, Section 7.

Conditions to Avoid: Exposure to elevated temperatures can cause product to decompose. Avoid open flames, welding arcs, or other high temperature sources which induce thermal decomposition. Avoid direct sunlight or ultraviolet sources.

Incompatible Materials: Avoid contact with: Strong bases. Strong oxidizers.
Reaction with strong alkali metal hydroxides will form dichloroacetylene

Annotation:

which can spontaneously ignite in air. Avoid contact with metals such as:
Zinc powders. Aluminum powders. Magnesium powders. Potassium. Sodium. Avoid
prolonged contact with or storage in aluminum or its alloys. Avoid unintended
contact with: Amines.

Hazardous Polymerization
Will not occur.

Thermal Decomposition
Decomposition products depend upon temperature, air supply and the presence
of other materials. Decomposition products can include and are not limited
to: Hydrogen chloride. Decomposition products can include trace amounts of:
Chlorine. Phosgene.

11. Toxicological Information

Acute Toxicity

Ingestion
LD50, Rat 4,920 mg/kg

Skin Absorption
Approximate. LD50, Rabbit 10,000 mg/kg

Inhalation
LC50, 4 h, Vapor, Rat 12,500 ppm

Repeated Dose Toxicity
In animals, effects have been reported on the following organs: Kidney.
Liver. Central nervous system. Peripheral nervous system. Alcohol consumed
before or after exposure may increase adverse effects. Trichloroethylene is
reported to have caused hearing loss in laboratory animals upon repeated
exposure to 2500 ppm or higher (orders of magnitude greater than the current
occupational exposure standards). However, the relevance of this to humans is
unknown.

Chronic Toxicity and Carcinogenicity
Tumors were observed in mice given large doses of trichloroethylene. Data
suggest a nongenotoxic mechanism for tumor formation that implies that
nontoxic doses of trichloroethylene should pose little or no carcinogenic
hazard. A very low incidence of tumors has been observed in male rats at high
levels of trichloroethylene which caused reduced survival, rendering these
studies inadequate. Limited epidemiology data have shown a weak association
between trichloroethylene exposure and renal cancer.

Carcinogenicity Classifications:

Component	List	Classification
1,1,2-Trichloroethylene	ACGIH	Suspected carcinogen; Group A2
	NTP	Anticipated carcinogen.
	IARC	Probable carcinogen; 2A

Annotation:

Developmental Toxicity

Did not cause birth defects in laboratory animals. Has been toxic to the fetus in lab animals at doses toxic to the mother.

Reproductive Toxicity

In animal studies, did not interfere with reproduction.

Genetic Toxicology

The data presented are for the following material: Trichloroethylene. In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were predominantly negative. Pure trichloroethylene (without additives) lacks genetic toxicity potential in most tests.

12. Ecological Information

CHEMICAL FATE

Movement & Partitioning

Bioconcentration potential is low (BCF less than 100 or log Pow less than 3).
Potential for mobility in soil is high (Koc between 50 and 150).
Henry's Law Constant (H): 1.03E-2 atm*m3/mole Measured
Partition coefficient, n-octanol/water (log Pow): 2.42 Measured
Partition coefficient, soil organic carbon/water (Koc): 41 - 150 Estimated
Bioconcentration Factor (BCF): 17 - 90; fish; Measured

Persistence and Degradability

Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.
Biodegradation rate may increase in soil and/or water with acclimation.
Biodegradation may occur under both aerobic and anaerobic conditions (in the presence or absence of oxygen).

Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
8.05e-13 cm3/s	13 d	Estimated

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method
2.4 %	14 d	OECD 301C Test

Chemical Oxygen Demand: 0.19 mg/mg

Theoretical Oxygen Demand: 0.55 mg/mg

ECOTOXICITY

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in most sensitive species tested).

Fish Acute & Prolonged Toxicity

LC50, fathead minnow (Pimephales promelas), 96 h: 41 - 67 mg/l

Aquatic Invertebrate Acute Toxicity

Annotation:

LC50, water flea Daphnia magna, 48 h: 2.2 - 100 mg/l
LC50, grass shrimp (Palaemonetes pugio), 96 h: 2 mg/l
Aquatic Plant Toxicity
EC50, algae, 24 h: 410 mg/l
Toxicity to Micro-organisms
EC50; activated sludge, respiration inhibition: 260 mg/l

13. Disposal Considerations

DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. VENDOR HAS NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Recycler. Reclaimer. Incinerator or other thermal destruction device.

DISPOSAL OF CONTACT WATER: Process water in contact with solvent and/or water separators of cleaning or distillation equipment should be treated as hazardous waste. Do not discharge water from water separators to drain.

14. Transport Information

DOT Non-Bulk

Proper Shipping Name: TRICHLOROETHYLENE
Hazard Class: 6.1 ID Number: UN1710 Packing Group: PG III

DOT Bulk

Proper Shipping Name: TRICHLOROETHYLENE
Hazard Class: 6.1 ID Number: UN1710 Packing Group: PG III

IMDG

Proper Shipping Name: TRICHLOROETHYLENE
Hazard Class: 6.1 ID Number: UN1710 Packing Group: PG III
EMS Number: F-A,S-A
Marine pollutant: No

ICAO/IATA

Proper Shipping Name: TRICHLOROETHYLENE
Hazard Class: 6.1 ID Number: UN1710 Packing Group: PG III
Cargo Packing Instruction: 612
Passenger Packing Instruction: 605

Additional Information

Reportable quantity: 100 lb - TRICHLOROETHYLENE

Annotation:

This information is not intended to convey all specific regulatory or Operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. Regulatory Information

OSHA Hazard Communication Standard

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Immediate (Acute) Health Hazard	Yes
Delayed (Chronic) Health Hazard	Yes
Fire Hazard	No
Reactive Hazard	No
Sudden Release of Pressure Hazard	No

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

This product contains the following substances which are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and which are listed in 40 CFR 372.

Component	CAS #	Amount
1,1,2-Trichloroethylene	79-01-6	99.9%

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Hazardous Substances List and/or Pennsylvania Environmental Hazardous Substance List:

The following product components are cited in the Pennsylvania Hazardous Substance List and/or the Pennsylvania Environmental Substance List, and are present at levels which require reporting.

Component	CAS #	Amount
1,1,2-Trichloroethylene	79-01-6	99.9%

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Special Hazardous Substances List:

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103

This product contains the following substances which are subject to CERCLA Section 103 reporting requirements and which are listed in 40 CFR 302.4.

Component	CAS #	Amount
1,1,2-Trichloroethylene	79-01-6	99.9%

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of

Annotation:

1986) WARNING: This product contains a chemical(s) known to the State of California to cause cancer.

Component	CAS #	Amount
1,1, 2-Trichloroethylene	79-01-6	99.9%

US. Toxic Substances Control Act

All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

16. Other Information

Hazard Rating System

NFPA	Health	Fire	Reactivity
	2	1	0

Recommended Uses and Restrictions

Industrial solvent. Vendor does NOT recommend the use of this product in applications where: - soil or ground water contamination is likely (direct applications to the ground, sink drains, sewers, or septic tanks). - where over exposure is likely (small rooms or confined space, or where there would be inadequate ventilation). - where skin contact is likely (adhesive tape removal from skin or as hand cleaner to remove oils and greases). - where there is direct food contact. - where vapor concentrations would be in the flammable range. - where disposal of waste would pose an environmental or health risk. - where chemical reactivity poses a danger (contact with strong alkali, or in areas where welding is done).

Legend

N/A Not available
W/W Weight/Weight
OEL Occupational Exposure Limit
STEL Short Term Exposure Limit
TWA Time Weighted Average
ACGIH American Conference of Governmental Industrial Hygienists, Inc.
DOW IHG Dow Industrial Hygiene Guideline
WEEL Workplace Environmental Exposure Level
HAZ_DES Hazard Designation
Action Level A value set by OSHA that is lower than the PEL which will trigger the need for activities such as exposure monitoring and medical surveillance if exceeded.

Univar USA Inc Material Safety Data Sheet

For Additional Information contact MSDS Coordinator during business hours, Pacific time: (425) 889-3400

Notice

Univar USA Inc. ("Univar") expressly disclaims all express or implied warranties of merchantability and fitness for a particular purpose, with respect to the product or information provided herein, and shall under no circumstances be liable for incidental or consequential damages.

Do not use ingredient information and/or ingredient percentages in this MSDS as a product specification. For product specification information refer to a product specification sheet and/or a certificate of analysis. These can be obtained from your local Univar sales office.

All information appearing herein is based upon data obtained from the manufacturer and/or recognized technical sources. While the information is believed to be accurate, Univar makes no representations as to its accuracy or sufficiency. Conditions of use are beyond Univar's control and therefore users are responsible to verify this data under their own operating conditions to determine whether the product is suitable for their particular purposes and they assume all risks of their use, handling, and disposal of the product, or from the publication or use of, or reliance upon, information contained herein.

This information relates only to the product designated herein, and does not relate to its use in combination with any other material or in any other process

Photograph Log

11675 Belden Court
Ford Motor Company LTP
30050315



Photograph: 1

Description:
Additional drums
containing TCE.

Photograph Log

11675 Belden Court
Ford Motor Company LTP
30050315

MASTER LIST
LIVONIA LABORATORY / EQUIPMENT CHEMICALS

Hazard Codes: I = irritant, F = flammable, B = biohazard, V = very toxic, C = carcinogen (some labeling), E = explosive, and T = other specific hazard origin.

Name	Description	Date
AA Red	Red powder, odorless, solid	10/29/15
Alcohol 101-5 A	Clear, nonoxidizing fluid	06/19/12
Alcohol 101-5 B	Clear, nonoxidizing fluid	07/20/12
Acetone	Clear, odorless, volatile liquid, irritant-like odor	09/27/15
Acetone	Light yellow liquid, odorless	12/10/15
Ammonium Carbonate	Colorless, crystalline white powder, ammoniacal odor	04/30/14
Asphalt Cement, NP grade	Brown to black fluid, sticky tar-like odor	10/22/14
Bentonite Clay	Super Absorbent Crystalline Silicon, Bentonite Clay	02/09/15
Bioactive	Clear, colorless liquid, sweetish odor, aromatic	12/04/14
BOAC 10-D	Light yellow liquid with strong odor	02/26/14
Butylated Etylene	Clear, colorless, easily absorbent liquid	EXEMPT
Butyl Ethylene - pH 9.0	Light red, odorless liquid	05/19/15
Butyl Solution - pH 7.0	Light yellow, odorless liquid	05/18/15
Butyl Solution - pH 10.0	Light blue, odorless liquid	05/18/15
Calcium Carbonate	White, granular or powder, odorless	05/13/14
Calcium Sulfate, Anhydrous	White, gray-white granular, odorless	05/05/15
Calcium Chloride	White, gray-white granular, odorless	02/28/14
Chloroform Check Gas (022100)	Colorless, non-flammable gas	05/24/16
Chloroform Check Gas (02225)	Colorless, odorless gas mixture	04/18/13
Chloroform Check Gas (Calgas)	Colorless, gas, odorless odor	10/03/16
Chlorine Gas (Calgas)	Dark acid with no perceptible odor	05/06/15
Chlorine Gas (Calgas)	Clear, odorless liquid	01/26/17
Chlorine Gas (Calgas)	Clear, odorless liquid	03/04/15
Chlorine Gas (Calgas)	Clear, colorless liquid, odorless	05/21/15
Chlorine Gas (Calgas)	Clear, colorless liquid, odorless	00/00/00
Chlorine Gas (Calgas)	Blue granules, odorless	01/29/17
Chlorine Gas (Calgas)	Colorless liquid, slight odor	05/20/15
Chlorine Gas (Calgas)	Clear liquid, afterproduct like odor	02/17/15
Chlorine Gas (Calgas)	Colorless liquid, mild odor	10/20/14
Chlorine Gas (Calgas)	Yellow liquid, slight odor	03/24/15
Chlorine Gas (Calgas)	Solid Battery	01/01/14
Chlorine Gas (Calgas)	Clear, light amber colored liquid, slight odor	04/09/15
Chlorine Gas (Calgas)	Colorless liquid with no discernible odor	07/02/15
Chlorine Gas (Calgas)	Red liquid with acromatic, hydrocarbon odor	01/05/03
Chlorine Gas (Calgas)	Crystalline or powdery powder, unsifted masses	04/21/15
Chlorine Gas (Calgas)	Angular particles, tan & purple colored, odorless	06/01/15
Chlorine Gas (Calgas)	Colorless to light yellow liquid, pungent, irritating odor	01/10/17
Chlorine Gas (Calgas)	Powder contained in pouch	EXEMPT
Chlorine Gas (Calgas)	White powder	05/24/15
Chlorine Gas (Calgas)	Clear, colorless liquid, faint glycol (burnt sugar) odor	04/04/11
Chlorine Gas (Calgas)	White, colorless, mobile liquid suspension	07/17/08
Chlorine Gas (Calgas)	Pale yellow liquid, odorless	03/10/15
Chlorine Gas (Calgas)	Reddish brown dusty powder	09/24/14
Chlorine Gas (Calgas)	Color varies, solvent based odor	05/02/15
Chlorine Gas (Calgas)	Color varies, solvent based odor	08/07/15
Chlorine Gas (Calgas)	Red, Black, Yellow or White, either odor	EXEMPT
Chlorine Gas (Calgas)	Silver-white, heavy, mobile, liquid, mild odor	05/20/14
Chlorine Gas (Calgas)	White, slight odor	11/02/16
Chlorine Gas (Calgas)	Colorless compressed gas	05/26/16
Chlorine Gas (Calgas)	Blue paste, odorless	03/03/16
Chlorine Gas (Calgas)	Clear, colorless to slight pink liquid	05/01/15
Chlorine Gas (Calgas)	Dark brown, viscous liquid with slight odor	
Chlorine Gas (Calgas)	Clear, colorless liquid, odorless to slight	

Revised 8/24

Photograph: 2

Description: Master List of chemicals being used at the property with TCE listed.

Photograph Log

11675 Belden Court
 Ford Motor Company LTP
 30050315

Portland Cement	Solid gray, off white, white powder	04/23/15
Potassium Chloride Aqueous Solution, Dilute	Colorless, odorless liquid	05/01/15
Potassium Hydrogen Phthalate	Clear, colorless liquid, no odor	11/24/15
Red Insulating Varnish	Red liquid	10/20/15
Rust-oleum Rust Reformer	Aerosol, liquid, solvent like odor	07/24/15
Sand	Solid, particles of granular mixture	06/01/15
Self-Adhering Rubberized Asphalt Membrane	Black rubberized asphalt on silver aluminum foil, petrol odor	06/11/15
LSP Heavy-Duty Silicone Lubricant	White milky liquid with mild odor	07/02/15
Smoke Tube	Slightly yellowish clear liquid	09/24/13
Sodium Hexametaphosphate	White powder or plates	03/01/15
Sodium Bicarbonate, Aqueous Solutions	Clear, odorless liquid	05/01/15
Sodium Thiosulfate Pentahydrate	Colorless/white solid, odorless	06/25/15
3M Spray Adhesive	Clear aerosol, sweet fruity odor	04/07/16
Travel-Tack Spray Adhesive	Clear aerosol	10/01/15
Triacetin	Colorless liquid, fatty odor	04/02/14
Trichloroethylene	Clear, colorless liquid, chloroform-like odor	04/28/15
Ultrasonix (couplant compound)	Light blue green, high viscosity liquid, mild odor	05/22/15
Premium (High) Vacuum Pump Oil	Light amber liquid, mild petroleum odor	04/20/15
WD-40, (aerosol)	Light amber liquid, mild odor	07/20/14
WD-40, (bulk)	Light amber liquid, mild odor	08/25/15
Wipes	Opaque white liquid saturated unto towel, citrus odor	06/01/15
XSORB Rock Solid Paint Hardener	White, buff aggregate or powder solid, odorless	12/23/14
XYPEX Cementitious Products	Gray solid, odorless	03/31/15
XYPEX Xycrylic Admix	Milky white liquid, ammonia like odor	06/01/15
Zero Oxygen Solution	Colorless, odorless	05/18/15

Photograph: 3

Description: Master List of chemicals being used at the property with TCE listed.

Photograph Log

11675 Belden Court
Ford Motor Company LTP
30050315



Photograph: 4

Description: Floor drain.

Attachment 3

**12001 Stark Road – Analytical Laboratory Reports,
24-hr Notices, Data Packages, Safety Data Sheet, and
Photo Log**

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

TestAmerica Job ID: 240-108557-1

Client Project/Site: Ford LTP Livonia MI - E203631

For:

ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
2/28/2019 3:11:28 PM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

LINKS

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results through
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Have a Question?



Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108557-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108557-1

Job ID: 240-108557-1

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Livonia MI - E203631

Report Number: 240-108557-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control sample was within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, sample was diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The sample was received on 2/27/2019 8:20 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.8° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Sample MW-167S_022519 (240-108557-1) was analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The sample was analyzed on 02/27/2019.

There was an MS/MSD analyzed in batch 240-369594 but could not be reported because the associated sample needed reanalyzed in a different batch: MW-167S_022519 (240-108557-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-167S_022519 (240-108557-1) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 02/27/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108557-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108557-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-108557-1	MW-167S_022519	Water	02/25/19 11:40	02/27/19 08:20

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108557-1

Client Sample ID: MW-167S_022519

Lab Sample ID: 240-108557-1

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108557-1

Client Sample ID: MW-167S_022519

Lab Sample ID: 240-108557-1

Date Collected: 02/25/19 11:40

Matrix: Water

Date Received: 02/27/19 08:20

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			02/27/19 13:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		63 - 125					02/27/19 13:47	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/27/19 15:57	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/27/19 15:57	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/27/19 15:57	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/27/19 15:57	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/27/19 15:57	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/27/19 15:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		70 - 121					02/27/19 15:57	1
4-Bromofluorobenzene (Surr)	89		59 - 120					02/27/19 15:57	1
Toluene-d8 (Surr)	94		70 - 123					02/27/19 15:57	1
Dibromofluoromethane (Surr)	95		75 - 128					02/27/19 15:57	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108557-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-121)	BFB (59-120)	TOL (70-123)	DBFM (75-128)
240-108557-1	MW-167S_022519	112	89	94	95
LCS 240-369594/4	Lab Control Sample	98	105	101	87
MB 240-369594/7	Method Blank	109	89	96	93

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (63-125)
240-108557-1	MW-167S_022519	86
500-159168-B-2 MS	Matrix Spike	88
500-159168-B-2 MSD	Matrix Spike Duplicate	86
LCS 240-369608/4	Lab Control Sample	83
MB 240-369608/5	Method Blank	84

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108557-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-369594/7
Matrix: Water
Analysis Batch: 369594

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/27/19 15:05	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/27/19 15:05	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/27/19 15:05	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/27/19 15:05	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/27/19 15:05	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/27/19 15:05	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		70 - 121		02/27/19 15:05	1
4-Bromofluorobenzene (Surr)	89		59 - 120		02/27/19 15:05	1
Toluene-d8 (Surr)	96		70 - 123		02/27/19 15:05	1
Dibromofluoromethane (Surr)	93		75 - 128		02/27/19 15:05	1

Lab Sample ID: LCS 240-369594/4
Matrix: Water
Analysis Batch: 369594

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	9.07		ug/L		91	65 - 139
cis-1,2-Dichloroethene	10.0	9.01		ug/L		90	76 - 128
Tetrachloroethene	10.0	8.40		ug/L		84	74 - 130
trans-1,2-Dichloroethene	10.0	9.21		ug/L		92	78 - 133
Trichloroethene	10.0	7.95		ug/L		80	76 - 125
Vinyl chloride	10.0	10.8		ug/L		108	58 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		70 - 121
4-Bromofluorobenzene (Surr)	105		59 - 120
Toluene-d8 (Surr)	101		70 - 123
Dibromofluoromethane (Surr)	87		75 - 128

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-369608/5
Matrix: Water
Analysis Batch: 369608

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			02/27/19 12:32	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		63 - 125		02/27/19 12:32	1

TestAmerica Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108557-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-369608/4
Matrix: Water
Analysis Batch: 369608

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	11.2		ug/L		112	59 - 131
Surrogate	%Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	83		63 - 125				

Lab Sample ID: 500-159168-B-2 MS
Matrix: Water
Analysis Batch: 369608

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	10.0	11.4		ug/L		114	52 - 129
Surrogate	%Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	88		63 - 125						

Lab Sample ID: 500-159168-B-2 MSD
Matrix: Water
Analysis Batch: 369608

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	2.0	U	10.0	11.3		ug/L		113	52 - 129	1	13
Surrogate	%Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	86		63 - 125								

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108557-1

GC/MS VOA

Analysis Batch: 369594

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-108557-1	MW-167S_022519	Total/NA	Water	8260B	
MB 240-369594/7	Method Blank	Total/NA	Water	8260B	
LCS 240-369594/4	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 369608

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-108557-1	MW-167S_022519	Total/NA	Water	8260B SIM	
MB 240-369608/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-369608/4	Lab Control Sample	Total/NA	Water	8260B SIM	
500-159168-B-2 MS	Matrix Spike	Total/NA	Water	8260B SIM	
500-159168-B-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108557-1

Client Sample ID: MW-167S_022519

Lab Sample ID: 240-108557-1

Date Collected: 02/25/19 11:40

Matrix: Water

Date Received: 02/27/19 08:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	369594	02/27/19 15:57	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	369608	02/27/19 13:47	SAM	TAL CAN

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108557-1

Laboratory: TestAmerica Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-19 *
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19
Illinois	NELAP	5	200004	07-31-19
Kansas	NELAP	7	E-10336	04-30-19
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19
New York	NELAP	2	10975	03-31-19 *
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Canton


1.0/00.8

Sampler: K. Koboski Lab PM: DelMonico, Michael Carrier Tracking No(s): 240-58422-24977.10
 Phone: E-Mail: michael.delmonico@testamericainc.com Page: 10 of 13 Job #: 1/1

Client Information
 Company: ARCADIS U.S., Inc. Address: 28550 Cabot Drive Suite 500 City: Novi State, Zip: MI, 48377 Phone:
 Email: angela.degrandis@arcadis-us.com Project Name: Ford LTP Livonia MI - E203631 Site:

Due Date Requested: TAT Requested (days): 1 day / 24-HR
 PO #: M1001454.0003.00002 WO #: Cadena #: E203631 Project #: 24015353 SSOW#:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=wastewater, BT=tissue, A=air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs (Short List)	8260B - SIM - 1,4-Dioxane	Analysis Requested	
									Preservation Code	Total Number of Containers
MW-167s-022519	2/25/19	1140	G	Water	X	A	A	A		6
				Water						
				Water						
				Water						
				Water						
				Water						
				Water						
				Water						
				Water						
				Water						

 240-108557 Chain of Custody

Special Instructions/Note: 6 SUBMIT ALL RESULT THROUGH. JIM.TOMALUA @ CADENA.COM

Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological
 Deliverable Requested: I, II, III, IV, Other (specify) LEVEL IV REPORTING

Empty Kit Relinquished by: Date:
 Relinquished by: Date: 2/25/19 1730
 Relinquished by: Date: 02/26/19 1415
 Relinquished by: Date: 2/24/19 15:53

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For Months

Special Instructions/OC Requirements:

Company	Date/Time	Received by	Company	Date/Time	Received by	Company
ARCADIS	2/25/19 1730	NOVI COLD STORAGE	ARCADIS	2/25/19 1730	JAL	ARCADIS
ARCADIS	02/26/19 1415		ARCADIS	2/24/19 1415	JAL	ARCADIS
ARCADIS	2/24/19 15:53		ARCADIS	2/27/19 820	JAL	ARCADIS

Custody Seals Intact: Custody Seal No.:
 Yes No

Temperature(s): and Other Remarks:



TestAmerica Canton Sample Receipt Form/Narrative

Login # : 108557

Canton Facility

Client Arcadis

Site Name

Cooler unpacked by:

Cooler Received on 2/27/19

Opened on 2/27/19

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time

Storage Location

TestAmerica Cooler # FA Foam Box Client Cooler Box Other
Packing material used: Bubble Wrap Foam Plastic Bag None Other
COOLANT: Wet Ice Blue Ice Dry Ice Water None

- 1. Cooler temperature upon receipt
IR GUN# IR-8 (CF -0.2 °C) Observed Cooler Temp. 1.0 °C Corrected Cooler Temp. 0.8 °C
IR GUN #36 (CF +0.7°C) Observed Cooler Temp. °C Corrected Cooler Temp. °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
-Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
-Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC861525
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? Larger than this. Yes No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # Yes No
16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving: VOAs Oil and Grease TOC

Contacted PM Date by via Verbal Voice Mail Other

Concerning

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

JR

18. SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired.
Sample(s) were received in a broken container.
Sample(s) were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory.
Time preserved: Preservative(s) added/Lot number(s):

VOA Sample Preservation - Date/Time VOAs Frozen:

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-113066-1
Client Project/Site: Ford LTP Livonia MI - E203631

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
6/6/2019 3:27:49 PM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113066-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113066-1

Job ID: 240-113066-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Livonia MI - E203631

Report Number: 240-113066-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The sample was received on 5/22/2019 9:45 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.2° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Sample MW-167S_052019 (240-113066-1) was analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The sample was analyzed on 05/31/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-167S_052019 (240-113066-1) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 05/29/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113066-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113066-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-113066-1	MW-167S_052019	Water	05/20/19 10:17	05/22/19 09:45	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113066-1

Client Sample ID: MW-167S_052019

Lab Sample ID: 240-113066-1

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113066-1

Client Sample ID: MW-167S_052019

Lab Sample ID: 240-113066-1

Date Collected: 05/20/19 10:17

Matrix: Water

Date Received: 05/22/19 09:45

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			05/29/19 17:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		63 - 125		05/29/19 17:01	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			05/31/19 21:21	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			05/31/19 21:21	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			05/31/19 21:21	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			05/31/19 21:21	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			05/31/19 21:21	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			05/31/19 21:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		70 - 121		05/31/19 21:21	1
4-Bromofluorobenzene (Surr)	89		59 - 120		05/31/19 21:21	1
Toluene-d8 (Surr)	86		70 - 123		05/31/19 21:21	1
Dibromofluoromethane (Surr)	97		75 - 128		05/31/19 21:21	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113066-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-121)	BFB (59-120)	TOL (70-123)	DBFM (75-128)
240-113065-I-1 MS	Matrix Spike	105	104	92	116
240-113065-L-1 MSD	Matrix Spike Duplicate	100	97	90	107
240-113066-1	MW-167S_052019	100	89	86	97
LCS 240-383915/4	Lab Control Sample	97	106	98	111
MB 240-383915/6	Method Blank	98	101	97	103

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (63-125)
240-113065-C-1 MS	Matrix Spike	89
240-113065-C-1 MSD	Matrix Spike Duplicate	91
240-113066-1	MW-167S_052019	87
LCS 240-383493/4	Lab Control Sample	88
MB 240-383493/5	Method Blank	86

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113066-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-383915/6
Matrix: Water
Analysis Batch: 383915

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			05/31/19 13:29	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			05/31/19 13:29	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			05/31/19 13:29	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			05/31/19 13:29	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			05/31/19 13:29	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			05/31/19 13:29	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		70 - 121		05/31/19 13:29	1
4-Bromofluorobenzene (Surr)	101		59 - 120		05/31/19 13:29	1
Toluene-d8 (Surr)	97		70 - 123		05/31/19 13:29	1
Dibromofluoromethane (Surr)	103		75 - 128		05/31/19 13:29	1

Lab Sample ID: LCS 240-383915/4
Matrix: Water
Analysis Batch: 383915

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	9.82		ug/L		98	65 - 139
cis-1,2-Dichloroethene	10.0	10.4		ug/L		104	76 - 128
Tetrachloroethene	10.0	11.0		ug/L		110	74 - 130
trans-1,2-Dichloroethene	10.0	9.51		ug/L		95	78 - 133
Trichloroethene	10.0	11.3		ug/L		113	76 - 125
Vinyl chloride	10.0	10.6		ug/L		106	58 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	97		70 - 121
4-Bromofluorobenzene (Surr)	106		59 - 120
Toluene-d8 (Surr)	98		70 - 123
Dibromofluoromethane (Surr)	111		75 - 128

Lab Sample ID: 240-113065-I-1 MS
Matrix: Water
Analysis Batch: 383915

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U	10.0	10.0		ug/L		100	53 - 140
cis-1,2-Dichloroethene	1.0	U	10.0	8.62		ug/L		86	64 - 130
Tetrachloroethene	1.0	U	10.0	10.1		ug/L		101	51 - 136
trans-1,2-Dichloroethene	1.0	U	10.0	10.2		ug/L		102	68 - 133
Trichloroethene	1.0	U	10.0	9.97		ug/L		100	55 - 131
Vinyl chloride	1.0	U	10.0	10.5		ug/L		105	43 - 154

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	105		70 - 121
4-Bromofluorobenzene (Surr)	104		59 - 120
Toluene-d8 (Surr)	92		70 - 123

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113066-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-113065-I-1 MS
Matrix: Water
Analysis Batch: 383915

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	116		75 - 128

Lab Sample ID: 240-113065-L-1 MSD
Matrix: Water
Analysis Batch: 383915

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	10.0	10.6		ug/L		106	53 - 140	6	35
cis-1,2-Dichloroethene	1.0	U	10.0	8.67		ug/L		87	64 - 130	1	21
Tetrachloroethene	1.0	U	10.0	9.17		ug/L		92	51 - 136	10	23
trans-1,2-Dichloroethene	1.0	U	10.0	9.12		ug/L		91	68 - 133	11	24
Trichloroethene	1.0	U	10.0	10.7		ug/L		107	55 - 131	7	23
Vinyl chloride	1.0	U	10.0	10.2		ug/L		102	43 - 154	3	29

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	100		70 - 121
4-Bromofluorobenzene (Surr)	97		59 - 120
Toluene-d8 (Surr)	90		70 - 123
Dibromofluoromethane (Surr)	107		75 - 128

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-383493/5
Matrix: Water
Analysis Batch: 383493

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			05/29/19 11:59	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		63 - 125		05/29/19 11:59	1

Lab Sample ID: LCS 240-383493/4
Matrix: Water
Analysis Batch: 383493

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	11.6		ug/L		116	59 - 131

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	88		63 - 125

Lab Sample ID: 240-113065-C-1 MS
Matrix: Water
Analysis Batch: 383493

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	10.0	11.8		ug/L		118	52 - 129

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113066-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>MS</i> <i>%Recovery</i>	<i>MS</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	89		63 - 125

Lab Sample ID: 240-113065-C-1 MSD
Matrix: Water
Analysis Batch: 383493

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

<i>Analyte</i>	<i>Sample</i> <i>Result</i>	<i>Sample</i> <i>Qualifier</i>	<i>Spike</i> <i>Added</i>	<i>MSD</i> <i>Result</i>	<i>MSD</i> <i>Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec.</i> <i>Limits</i>	<i>RPD</i>	<i>RPD</i> <i>Limit</i>
1,4-Dioxane	2.0	U	10.0	11.8		ug/L		118	52 - 129	0	13

<i>Surrogate</i>	<i>MSD</i> <i>%Recovery</i>	<i>MSD</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	91		63 - 125

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QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113066-1

GC/MS VOA

Analysis Batch: 383493

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-113066-1	MW-167S_052019	Total/NA	Water	8260B SIM	
MB 240-383493/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-383493/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-113065-C-1 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-113065-C-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 383915

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-113066-1	MW-167S_052019	Total/NA	Water	8260B	
MB 240-383915/6	Method Blank	Total/NA	Water	8260B	
LCS 240-383915/4	Lab Control Sample	Total/NA	Water	8260B	
240-113065-I-1 MS	Matrix Spike	Total/NA	Water	8260B	
240-113065-L-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113066-1

Client Sample ID: MW-167S_052019

Lab Sample ID: 240-113066-1

Date Collected: 05/20/19 10:17

Matrix: Water

Date Received: 05/22/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	383915	05/31/19 21:21	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	383493	05/29/19 17:01	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113066-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19 *
Illinois	NELAP	5	200004	07-31-19 *
Iowa	State Program	7	421	06-01-21
Kansas	NELAP	7	E-10336	04-30-20
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19 *
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19 *
New York	NELAP	2	10975	03-31-20
Ohio VAP	State Program	5	CL0024	09-06-19 *
Oregon	NELAP	10	4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19 *
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19 *
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Canton

Client Information
 Client Contact: Caitlin O'Neill
 Company: ARCADIS U.S. Inc.
 Address: 28550 Cabot Drive Suite 500
 City: Novi
 State, Zip: MI, 48377
 Phone: [Blank]
 Email: Caitlin.O'Neill@arcadis.com
 Project Name: Ford LTP Livonia MI - E203631
 Site: [Blank]

Sampler: S. JOHNSON
 Lab PM: DeilMonico, Michael
 E-Mail: michael.delmonico@lestamericainc.com

COC No: 240-60548-25803.4
 Page: Page 4 of 4
 Job #: 16

Analysis Requested

Carrier Tracking No(s): [Blank]

Due Date Requested: [Blank]
 TAT Requested (days): 10
 PO #: MI001318.0002.00002
 WO #: Cadena #: E203631
 Project #: 24015353
 SSOW#: [Blank]

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Solid, Organitol, BTP-Tissue, Air/Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B, 8260B SIM	8260B - VOCs (Short List)	Total Number of Containers	Special Instructions/Note:	
										Preservation Code:	Other:
WW-1675-052619	5-20-19	1617	G	Water	X	X	A	A	6		
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							

Barcode: 240-113066 Chain of Custody

Possible Hazard Identification
 Non-Hazard
 Flammable
 Skin Irritant
 Poison B
 Unknown
 Radiological
 Deliverable Requested: I, II, III, IV, Other (specify)

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client
 Disposal By Lab
 Archive For _____ Months

Empty Kit Requisitioned by: [Signature]
 Relinquished by: [Signature]
 Relinquished by: [Signature]
 Relinquished by: [Signature]

Company: ARCADIS / ARCADIS / ARCADIS / ETA
Date/Time: 5-20-19 / 1830 / 5/21/19 1000 / 5-21-19 1500
Received by: [Signature]
Relinquished by: [Signature]
Relinquished by: [Signature]

Company: ARCADIS / ARCADIS / ARCADIS / ETA
Date/Time: 5-20-19 / 1830 / 5-21-19 1000 / 5-22-19 945
Received by: [Signature]
Relinquished by: [Signature]
Relinquished by: [Signature]

Custody Seal No.: A Yes A No
 Cooler Temperature(s) °C and Other Remarks: [Blank]

TestAmerica Canton Sample Receipt Form/Narrative

Login #: 113066

Canton Facility

Client Arcadis Site Name

Cooler unpacked by:

Cooler Received on 5-22-19 Opened on 5-22-19

FedEx: 1st Grd (Exp) UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # 72 Foam Box Client Cooler Box Other

Packing material used: Bubble Wrap Foam Plastic Bag None Other

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt IR GUN# IR-8 (CF -0.2 °C) Observed Cooler Temp. 1.4 °C Corrected Cooler Temp. 1.2 °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No

3. Shippers' packing slip attached to the cooler(s)? Yes No

4. Did custody papers accompany the sample(s)? Yes No

5. Were the custody papers relinquished & signed in the appropriate place? Yes No

6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No

7. Did all bottles arrive in good condition (Unbroken)? Yes No

8. Could all bottle labels be reconciled with the COC? Yes No

9. Were correct bottle(s) used for the test(s) indicated? Yes No

10. Sufficient quantity received to perform indicated analyses? Yes No

11. Are these work share samples? Yes No

If yes, Questions 12-16 have been checked at the originating laboratory.

12. Were all preserved sample(s) at the correct pH upon receipt? Yes No (NA) pH Strip Lot# HC984738

13. Were VOAs on the COC? Yes No

14. Were air bubbles >6 mm in any VOA vials? Yes No (NA) Larger than this.

15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # Yes No

16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving: VOAs Oil and Grease TOC

Contacted PM Date by via Verbal Voice Mail Other

Concerning

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

18. SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired. Sample(s) were received in a broken container. Sample(s) were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory. Time preserved: Preservative(s) added/Lot number(s):

VOA Sample Preservation - Date/Time VOAs Frozen:

DATA VERIFICATION REPORT



June 07, 2019

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: MI001454.0002/3/4.00002/2B/3B
Event Specific Scope of Work References: Sample COC
Laboratory: TestAmerica - North Canton
Laboratory submittal: 113066-1
Sample date: 2019-05-20
Report received by CADENA: 2019-06-06
Initial Data Verification completed by CADENA: 2019-06-07
Number of Samples: 1
Sample Matrices: Water
Test Categories: GCMS VOC

Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

There were no significant QC anomalies or exceptions to report.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

SAMPLING AND ANALYSIS SUMMARY

CADENA Project ID: E203631

Laboratory: TestAmerica-North Canton

Laboratory Submittal: 113066-1

Lab Sample ID	Sample ID	Collection Date (mm/yy/dd)	Collection Time (hh:mm:ss)	Volatile Organics by GCMS	8260B with Single Ion Monitoring	Comment
2401130661	MW-167S_052019	5/20/2019	10:17:00	X	X	

Analytical Results Summary

Reportable Results Only

CADENA Project ID: E203631

Laboratory: TestAmerica - North Canton

Laboratory Submittal: 113066-1

Sample Name: MW-167S_052019

Lab Sample ID: 2401130661

Sample Date: 5/20/2019

Analyte	Cas No.	Result	Report		Valid	
			Limit	Units		Qualifier
GC/MS VOC						
<u>OSW-8260B</u>						
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	
Trichloroethene	79-01-6	ND	1.0	ug/l	---	
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	
<u>OSW-8260BBSim</u>						
1,4-Dioxane	123-91-1	ND	2.0	ug/l	---	

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-119327-1
Client Project/Site: Ford LTP Livonia MI - E203631

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
10/8/2019 1:58:26 PM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

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results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119327-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119327-1

Job ID: 240-119327-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Livonia MI - E203631

Report Number: 240-119327-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 9/24/2019 9:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.9° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples MW-167S_092019 (240-119327-1) and TRIP BLANK (240-119327-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 10/02/2019.

No MS/MSD in batch 403654 due to an instrument fault: MW-167S_092019 (240-119327-1) and TRIP BLANK (240-119327-2).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-167S_092019 (240-119327-1) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 09/27/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119327-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119327-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-119327-1	MW-167S_092019	Water	09/20/19 10:31	09/24/19 09:40	
240-119327-2	TRIP BLANK	Water	09/20/19 00:00	09/24/19 09:40	

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- 10
- 11
- 12
- 13
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Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119327-1

Client Sample ID: MW-167S_092019

Lab Sample ID: 240-119327-1

No Detections.

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-119327-2

No Detections.

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- 11
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This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119327-1

Client Sample ID: MW-167S_092019

Lab Sample ID: 240-119327-1

Date Collected: 09/20/19 10:31

Matrix: Water

Date Received: 09/24/19 09:40

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			09/27/19 15:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		63 - 125		09/27/19 15:30	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/02/19 16:31	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/02/19 16:31	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/02/19 16:31	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/02/19 16:31	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/02/19 16:31	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/02/19 16:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		70 - 121		10/02/19 16:31	1
4-Bromofluorobenzene (Surr)	91		59 - 120		10/02/19 16:31	1
Toluene-d8 (Surr)	96		70 - 123		10/02/19 16:31	1
Dibromofluoromethane (Surr)	83		75 - 128		10/02/19 16:31	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119327-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-119327-2

Date Collected: 09/20/19 00:00

Matrix: Water

Date Received: 09/24/19 09:40

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/02/19 16:53	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/02/19 16:53	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/02/19 16:53	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/02/19 16:53	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/02/19 16:53	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/02/19 16:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		70 - 121		10/02/19 16:53	1
4-Bromofluorobenzene (Surr)	97		59 - 120		10/02/19 16:53	1
Toluene-d8 (Surr)	101		70 - 123		10/02/19 16:53	1
Dibromofluoromethane (Surr)	87		75 - 128		10/02/19 16:53	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119327-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-121)	BFB (59-120)	TOL (70-123)	DBFM (75-128)
240-119327-1	MW-167S_092019	111	91	96	83
240-119327-2	TRIP BLANK	113	97	101	87
LCS 240-403654/4	Lab Control Sample	106	95	93	85
MB 240-403654/6	Method Blank	118	99	103	83

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (63-125)
240-119310-A-3 MS	Matrix Spike	103
240-119310-A-3 MSD	Matrix Spike Duplicate	102
240-119327-1	MW-167S_092019	100
LCS 240-402867/4	Lab Control Sample	97
MB 240-402867/5	Method Blank	99

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119327-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-403654/6
Matrix: Water
Analysis Batch: 403654

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/02/19 12:27	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/02/19 12:27	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/02/19 12:27	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/02/19 12:27	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/02/19 12:27	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/02/19 12:27	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	118		70 - 121		10/02/19 12:27	1
4-Bromofluorobenzene (Surr)	99		59 - 120		10/02/19 12:27	1
Toluene-d8 (Surr)	103		70 - 123		10/02/19 12:27	1
Dibromofluoromethane (Surr)	83		75 - 128		10/02/19 12:27	1

Lab Sample ID: LCS 240-403654/4
Matrix: Water
Analysis Batch: 403654

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	8.95		ug/L		90	65 - 139
cis-1,2-Dichloroethene	10.0	10.2		ug/L		102	76 - 128
Tetrachloroethene	10.0	9.12		ug/L		91	74 - 130
trans-1,2-Dichloroethene	10.0	9.83		ug/L		98	78 - 133
Trichloroethene	10.0	8.45		ug/L		84	76 - 125
Vinyl chloride	10.0	7.66		ug/L		77	58 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	106		70 - 121
4-Bromofluorobenzene (Surr)	95		59 - 120
Toluene-d8 (Surr)	93		70 - 123
Dibromofluoromethane (Surr)	85		75 - 128

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-402867/5
Matrix: Water
Analysis Batch: 402867

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			09/27/19 12:36	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		63 - 125		09/27/19 12:36	1

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119327-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-402867/4
Matrix: Water
Analysis Batch: 402867

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	11.7		ug/L		117	59 - 131
Surrogate	%Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	97		63 - 125				

Lab Sample ID: 240-119310-A-3 MS
Matrix: Water
Analysis Batch: 402867

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	10.0	10.6		ug/L		106	52 - 129
Surrogate	%Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	103		63 - 125						

Lab Sample ID: 240-119310-A-3 MSD
Matrix: Water
Analysis Batch: 402867

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	2.0	U	10.0	10.4		ug/L		104	52 - 129	1	13
Surrogate	%Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	102		63 - 125								

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119327-1

GC/MS VOA

Analysis Batch: 402867

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119327-1	MW-167S_092019	Total/NA	Water	8260B SIM	
MB 240-402867/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-402867/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-119310-A-3 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-119310-A-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 403654

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119327-1	MW-167S_092019	Total/NA	Water	8260B	
240-119327-2	TRIP BLANK	Total/NA	Water	8260B	
MB 240-403654/6	Method Blank	Total/NA	Water	8260B	
LCS 240-403654/4	Lab Control Sample	Total/NA	Water	8260B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119327-1

Client Sample ID: MW-167S_092019

Lab Sample ID: 240-119327-1

Date Collected: 09/20/19 10:31

Matrix: Water

Date Received: 09/24/19 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	403654	10/02/19 16:31	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	402867	09/27/19 15:30	SAM	TAL CAN

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-119327-2

Date Collected: 09/20/19 00:00

Matrix: Water

Date Received: 09/24/19 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	403654	10/02/19 16:53	LEE	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119327-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-20
Connecticut	State	PH-0590	12-31-19
Florida	NELAP	E87225	06-30-20
Georgia	State	4062	02-23-20
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-20
Kansas	NELAP	E-10336	04-30-20
Kentucky (UST)	State	112225	02-23-20
Kentucky (WW)	State	KY98016	12-31-19
Minnesota	NELAP	OH00048	12-31-19
Minnesota (Petrofund)	State Program	3506	07-31-21
New Jersey	NELAP	OH001	06-30-20
New York	NELAP	10975	03-31-20
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-23-20
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-16-00404	12-28-19
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-20
West Virginia DEP	State	210	12-31-19

Chain of Custody Record

TestAmerica Laboratory location: Brighton --- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Client Contact Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240 Project Name: Ford LTP Project Number: M1001454.0004.0002B PO # M1001454.0004.0002B		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other	
Client Project Manager: Rachel Bielik Telephone: 248-946-6331 Email: kristoffer.hinskey@arcadis.com		Lab Contact: Mike DeMonico Telephone: 330-497-9396	
Analysis Turnaround Time TAT if different from below <input type="checkbox"/> 3 weeks <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Analysis Walk-in client Lab sampling Job/SDG No:	
Method of Shipment/Carrier: Shipping/Tracking No:		Filtered Sample (Y/N) Composite C / Grab C 1,1-DCE 8260B 6is-1,2-DCE 8260B Trans-1,2-DCE 8260B PCE 8260B TCE 8260B Vinyl Chloride 8260B 1,4-Dioxane 8260B SIM	
Matrix Air <input type="checkbox"/> Aqueous <input type="checkbox"/> Sediment <input type="checkbox"/> Solid <input type="checkbox"/> Other:		Containers & Preservatives HCl <input type="checkbox"/> NaOH <input type="checkbox"/> ZnAc <input type="checkbox"/> LiPtra <input type="checkbox"/> Other:	
Sample Date 9/20/19 ---	Sample Time 1031 ---	Sample Specific Notes / Special Instructions: 6 CONTAINERS 1 CONTAINERS	



Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal By Lab Archive For Months

Special Instructions/QC Requirements & Comments:
 Submit all results through Cadena at jim.tomalia@cadena.com, Cadena #E203631
 Level IV Reporting requested.

Relinquished by: SHARTEL HINSEY	Date/Time: 9/20/19/1520	Company: ARCADIS	Received by: Jodie McElroy	Date/Time: 9/20/19/1600	Company: Arcadis
Relinquished by: Jodie McElroy	Date/Time: 9/20/19/1600	Company: Arcadis	Received by: Novi Gold Storey	Date/Time: 9/23/19/110	Company: ARCADIS
Relinquished by: Jodie McElroy	Date/Time: 9/23/19/1145	Company: ARCADIS	Received in Laboratory by: Maddy Mason	Date/Time: 9-24-19	Company: ARCADIS



Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 119327

Client Arcadis Site Name _____
 Cooler Received on 9-24-19 Opened on 9-24-19 940

Cooler unpacked by:
Ryan Gruber

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # TA Foam Box Client Cooler Box Other _____
 Packing material used: Bubble Wrap Foam Plastic Bag None Other _____
 COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. 1.2 °C Corrected Cooler Temp. 1.9 °C
 IR GUN #IR-11 (CF +0.9°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No No
4. Did custody papers accompany the sample(s)? Yes No No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No No
8. Could all bottle labels be reconciled with the COC? Yes No No
9. Were correct bottle(s) used for the test(s) indicated? Yes No No
10. Sufficient quantity received to perform indicated analyses? Yes No No
11. Are these work share samples? Yes No
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC991818
13. Were VOAs on the COC? Yes No No
14. Were air bubbles >6 mm in any VOA vials? Larger than this. Yes No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 58506 Yes No No
16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:
 VOAs
 Oil and Grease
 TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

RC

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-125918-1
Client Project/Site: Ford LTP Off Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
2/19/2020 3:39:32 PM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-125918-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-125918-1

Job ID: 240-125918-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Off Site

Report Number: 240-125918-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 2/7/2020 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.7° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-125918-1) and MW-167S_020520 (240-125918-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 02/10/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-167S_020520 (240-125918-2) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 02/11/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-125918-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-125918-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-125918-1	TRIP BLANK	Water	02/05/20 00:00	02/07/20 11:20	
240-125918-2	MW-167S_020520	Water	02/05/20 11:10	02/07/20 11:20	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-125918-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-125918-1

No Detections.

Client Sample ID: MW-167S_020520

Lab Sample ID: 240-125918-2

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off Site

Job ID: 240-125918-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-125918-1

Date Collected: 02/05/20 00:00

Matrix: Water

Date Received: 02/07/20 11:20

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/10/20 19:11	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/10/20 19:11	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/10/20 19:11	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/10/20 19:11	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/10/20 19:11	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/10/20 19:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		75 - 130		02/10/20 19:11	1
4-Bromofluorobenzene (Surr)	69		47 - 134		02/10/20 19:11	1
Toluene-d8 (Surr)	89		69 - 122		02/10/20 19:11	1
Dibromofluoromethane (Surr)	121		78 - 129		02/10/20 19:11	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-125918-1

Client Sample ID: MW-167S_020520

Lab Sample ID: 240-125918-2

Date Collected: 02/05/20 11:10

Matrix: Water

Date Received: 02/07/20 11:20

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			02/11/20 21:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		70 - 133		02/11/20 21:04	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/10/20 20:46	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/10/20 20:46	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/10/20 20:46	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/10/20 20:46	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/10/20 20:46	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/10/20 20:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		75 - 130		02/10/20 20:46	1
4-Bromofluorobenzene (Surr)	68		47 - 134		02/10/20 20:46	1
Toluene-d8 (Surr)	88		69 - 122		02/10/20 20:46	1
Dibromofluoromethane (Surr)	115		78 - 129		02/10/20 20:46	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-125918-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-125898-D-5 MS	Matrix Spike	102	96	100	102
240-125898-E-5 MSD	Matrix Spike Duplicate	89	94	98	103
240-125918-1	TRIP BLANK	108	69	89	121
240-125918-2	MW-167S_020520	109	68	88	115
LCS 240-422133/4	Lab Control Sample	94	100	102	104
MB 240-422133/7	Method Blank	111	78	97	126

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-133)
240-125898-A-5 MS	Matrix Spike	98
240-125898-A-5 MSD	Matrix Spike Duplicate	99
240-125918-2	MW-167S_020520	102
LCS 240-422331/4	Lab Control Sample	95
MB 240-422331/5	Method Blank	96

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-125918-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-422133/7
Matrix: Water
Analysis Batch: 422133

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/10/20 12:50	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/10/20 12:50	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/10/20 12:50	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/10/20 12:50	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/10/20 12:50	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/10/20 12:50	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		75 - 130		02/10/20 12:50	1
4-Bromofluorobenzene (Surr)	78		47 - 134		02/10/20 12:50	1
Toluene-d8 (Surr)	97		69 - 122		02/10/20 12:50	1
Dibromofluoromethane (Surr)	126		78 - 129		02/10/20 12:50	1

Lab Sample ID: LCS 240-422133/4
Matrix: Water
Analysis Batch: 422133

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	10.4		ug/L		104	73 - 129
cis-1,2-Dichloroethene	10.0	10.8		ug/L		108	75 - 124
Tetrachloroethene	10.0	10.1		ug/L		101	70 - 125
trans-1,2-Dichloroethene	10.0	11.3		ug/L		113	74 - 130
Trichloroethene	10.0	10.1		ug/L		101	71 - 121
Vinyl chloride	10.0	7.67		ug/L		77	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	94		75 - 130
4-Bromofluorobenzene (Surr)	100		47 - 134
Toluene-d8 (Surr)	102		69 - 122
Dibromofluoromethane (Surr)	104		78 - 129

Lab Sample ID: 240-125898-D-5 MS
Matrix: Water
Analysis Batch: 422133

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U	10.0	10.4		ug/L		104	64 - 132
cis-1,2-Dichloroethene	0.20	J	10.0	11.0		ug/L		108	68 - 121
Tetrachloroethene	1.0	U	10.0	10.4		ug/L		104	52 - 129
trans-1,2-Dichloroethene	1.0	U	10.0	11.2		ug/L		112	69 - 126
Trichloroethene	1.0	U	10.0	10.4		ug/L		104	56 - 124
Vinyl chloride	1.0	U	10.0	7.64		ug/L		76	49 - 136

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	102		75 - 130
4-Bromofluorobenzene (Surr)	96		47 - 134
Toluene-d8 (Surr)	100		69 - 122

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QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-125918-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-125898-D-5 MS
Matrix: Water
Analysis Batch: 422133

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	102		78 - 129

Lab Sample ID: 240-125898-E-5 MSD
Matrix: Water
Analysis Batch: 422133

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	10.0	9.95		ug/L		100	64 - 132	4	35
cis-1,2-Dichloroethene	0.20	J	10.0	10.0		ug/L		98	68 - 121	9	35
Tetrachloroethene	1.0	U	10.0	9.47		ug/L		95	52 - 129	10	35
trans-1,2-Dichloroethene	1.0	U	10.0	11.2		ug/L		112	69 - 126	1	35
Trichloroethene	1.0	U	10.0	9.74		ug/L		97	56 - 124	7	35
Vinyl chloride	1.0	U	10.0	7.56		ug/L		76	49 - 136	1	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	89		75 - 130
4-Bromofluorobenzene (Surr)	94		47 - 134
Toluene-d8 (Surr)	98		69 - 122
Dibromofluoromethane (Surr)	103		78 - 129

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-422331/5
Matrix: Water
Analysis Batch: 422331

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			02/11/20 12:04	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		70 - 133		02/11/20 12:04	1

Lab Sample ID: LCS 240-422331/4
Matrix: Water
Analysis Batch: 422331

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	10.2		ug/L		102	80 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	95		70 - 133

Lab Sample ID: 240-125898-A-5 MS
Matrix: Water
Analysis Batch: 422331

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	10.0	9.37		ug/L		94	46 - 170

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QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off Site

Job ID: 240-125918-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>MS</i> <i>%Recovery</i>	<i>MS</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	98		70 - 133

Lab Sample ID: 240-125898-A-5 MSD
 Matrix: Water
 Analysis Batch: 422331

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Total/NA

<i>Analyte</i>	<i>Sample</i> <i>Result</i>	<i>Sample</i> <i>Qualifier</i>	<i>Spike</i> <i>Added</i>	<i>MSD</i> <i>Result</i>	<i>MSD</i> <i>Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec.</i> <i>Limits</i>	<i>RPD</i>	<i>RPD</i> <i>Limit</i>
1,4-Dioxane	2.0	U	10.0	9.61		ug/L		96	46 - 170	3	26

<i>Surrogate</i>	<i>MSD</i> <i>%Recovery</i>	<i>MSD</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	99		70 - 133

- 1
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- 13
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QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-125918-1

GC/MS VOA

Analysis Batch: 422133

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-125918-1	TRIP BLANK	Total/NA	Water	8260B	
240-125918-2	MW-167S_020520	Total/NA	Water	8260B	
MB 240-422133/7	Method Blank	Total/NA	Water	8260B	
LCS 240-422133/4	Lab Control Sample	Total/NA	Water	8260B	
240-125898-D-5 MS	Matrix Spike	Total/NA	Water	8260B	
240-125898-E-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Analysis Batch: 422331

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-125918-2	MW-167S_020520	Total/NA	Water	8260B SIM	
MB 240-422331/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-422331/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-125898-A-5 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-125898-A-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-125918-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-125918-1

Date Collected: 02/05/20 00:00

Matrix: Water

Date Received: 02/07/20 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	422133	02/10/20 19:11	LRW	TAL CAN

Client Sample ID: MW-167S_020520

Lab Sample ID: 240-125918-2

Date Collected: 02/05/20 11:10

Matrix: Water

Date Received: 02/07/20 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	422133	02/10/20 20:46	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	422331	02/11/20 21:04	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-125918-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-20 *
Connecticut	State	PH-0590	12-31-19 *
Florida	NELAP	E87225	06-30-20
Georgia	State	4062	02-23-20 *
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-20
Kentucky (UST)	State	112225	02-23-20
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-20
New York	NELAP	10975	03-31-20
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-23-20 *
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-16-00404	12-28-19 *
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

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1.0/1.7

TestAmerica Laboratory location: Brighton -- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Client Contact Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240 Project Name: Ford LTP Off-Site Project Number: 30042006.0402.02 PO # 30042006.0402.02		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other		Client Project Manager: Kris Hinskey Telephone: 248-994-2240 Email: kristoffer.hinskey@arcadis.com Sampler Name: <i>Jon Lust</i> Method of Shipment/Carrier: Shipping/Tracking No:		Site Contact: Julia McClafferty Telephone: 734-644-5131 Analysis Turnaround Time TAT is different from below <input type="checkbox"/> 3 weeks <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Lab Contact: Mike DeMontico Telephone: 330-497-9396 Filtered Sample (Y / N) Composite C / Grab G 1,1-DCE 8260B cis-1,2-DCE 8260B Trans-1,2-DCE 8260B PCE 8260B TCE 8260B Vinyl Chloride 8260B 1,4-Dioxane 8260B SIM		TestAmerica Laboratories, Inc. COC No: For lab use only Walk-in client Lab sampling Job/SDG No: Sample Specific Notes / Special Instructions:	
Sample Identification TRIP BLANK MW-167S-070570		Matrix Air Aqueous Sediment Solid Other:		Containers & Preservatives HCl HNO3 H2SO4 NaOH ZnAc Other:		Analysis 1,1-DCE 8260B cis-1,2-DCE 8260B Trans-1,2-DCE 8260B PCE 8260B TCE 8260B Vinyl Chloride 8260B 1,4-Dioxane 8260B SIM		Date/Time: 2-5-20 / 1800 Date/Time: 2/6/20 1037 Date/Time: 2/6/20 435		Date/Time: 2-5-20 / 1800 Date/Time: 2/6/20 1037 Date/Time: 2-7-20 0900	
Sample Date: 2-5-20 Sample Time: 1110		Company: Arcadis Company: Arcadis Company: Arcadis-MI		Received by: <i>Jon Lust</i> Received by: <i>Molly Hinskey</i> Received in Laboratory by: <i>Ashley James</i>		Company: Arcadis Company: Arcadis Company: Arcadis-MI		Date/Time: 2-5-20 / 1800 Date/Time: 2/6/20 1037 Date/Time: 2-7-20 0900		Company: Arcadis Company: Arcadis-MI Company: Arcadis	
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		Special Instructions/QC Requirements & Comments: Submit all results through Cadena at jormalia@cadenaco.com. Cadena #E203631 Level IV Reporting requested.		Retinquired by: <i>Jon Lust</i> Retinquired by: <i>RACHEL BIEBE for Jon Lust</i> Retinquired by: <i>Molly Hinskey</i>		Retinquired by: <i>Jon Lust</i> Retinquired by: <i>Molly Hinskey</i> Retinquired by: <i>Ashley James</i>		Retinquired by: <i>Jon Lust</i> Retinquired by: <i>Molly Hinskey</i> Retinquired by: <i>Ashley James</i>	

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Eurofins TestAmerica Canton Sample Receipt Form/Narrative

Login #: 175918

Canton Facility

Client Arcadis Site Name

Cooler unpacked by:

Cooler Received on 2-7-20 Opened on 2-7-20

Adam Jensen

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time

Storage Location

TestAmerica Cooler # JA Foam Box Client Cooler Box Other
Packing material used: Bubble Wrap Foam Plastic Bag None Other
COOLANT: Wet Ice Blue Ice Dry Ice Water None

- 1. Cooler temperature upon receipt
IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. 1.0 °C Corrected Cooler Temp. 1.7 °C
IR GUN #IR-11 (CF +0.9 °C) Observed Cooler Temp. °C Corrected Cooler Temp. °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
- Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
- Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
- Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC995364
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? Larger than this. Yes No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 01172016 Yes No
16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving: VOAs Oil and Grease TOC

Contacted PM Date by via Verbal Voice Mail Other

Concerning

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

AG

18. SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired.
Sample(s) were received in a broken container.
Sample(s) were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory.
Time preserved: Preservative(s) added/Lot number(s):

VOA Sample Preservation - Date/Time VOAs Frozen:

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-139777-1
Client Project/Site: Ford LTP - Off Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
11/23/2020 10:51:50 AM

Michael DelMonico, Project Manager I
(330)497-9396
Michael.DelMonico@Eurofinset.com

LINKS

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results through
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www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139777-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139777-1

Job ID: 240-139777-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP - Off Site

Report Number: 240-139777-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 11/7/2020 9:40 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.9° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-139777-1) and MW-167S_110520 (240-139777-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/18/2020.

The continuing calibration verification (CCV) for analytical batch 461535 exceeded control criteria for one or multiple compounds. The samples associated with this CCV were non-detect for the affected analytes. In accordance with the laboratory SOP, a low level CCV at the reporting limit (labeled as an MRL) was analyzed and the affected compounds were detected; therefore the data has been reported. No further corrective action was required: TRIP BLANK (240-139777-1) and MW-167S_110520 (240-139777-2).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-167S_110520 (240-139777-2) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 11/12/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139777-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139777-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-139777-1	TRIP BLANK	Water	11/05/20 00:00	11/07/20 09:40	
240-139777-2	MW-167S_110520	Water	11/05/20 10:10	11/07/20 09:40	

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Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139777-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-139777-1

No Detections.

Client Sample ID: MW-167S_110520

Lab Sample ID: 240-139777-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	0.13	J	1.0	0.10	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

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Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP - Off Site

Job ID: 240-139777-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-139777-1

Date Collected: 11/05/20 00:00

Matrix: Water

Date Received: 11/07/20 09:40

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/18/20 19:25	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/18/20 19:25	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/18/20 19:25	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/18/20 19:25	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/18/20 19:25	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/18/20 19:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		75 - 130		11/18/20 19:25	1
4-Bromofluorobenzene (Surr)	75		47 - 134		11/18/20 19:25	1
Toluene-d8 (Surr)	98		69 - 122		11/18/20 19:25	1
Dibromofluoromethane (Surr)	95		78 - 129		11/18/20 19:25	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP - Off Site

Job ID: 240-139777-1

Client Sample ID: MW-167S_110520

Lab Sample ID: 240-139777-2

Date Collected: 11/05/20 10:10

Matrix: Water

Date Received: 11/07/20 09:40

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/12/20 17:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		70 - 133		11/12/20 17:09	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/18/20 19:47	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/18/20 19:47	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/18/20 19:47	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/18/20 19:47	1
Trichloroethene	0.13	J	1.0	0.10	ug/L			11/18/20 19:47	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/18/20 19:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		75 - 130		11/18/20 19:47	1
4-Bromofluorobenzene (Surr)	75		47 - 134		11/18/20 19:47	1
Toluene-d8 (Surr)	97		69 - 122		11/18/20 19:47	1
Dibromofluoromethane (Surr)	93		78 - 129		11/18/20 19:47	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139777-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA	BFB	TOL	DBFM
		(75-130)	(47-134)	(69-122)	(78-129)
240-139669-B-15 MS	Matrix Spike	95	99	106	83
240-139669-B-15 MSD	Matrix Spike Duplicate	98	101	105	83
240-139777-1	TRIP BLANK	113	75	98	95
240-139777-2	MW-167S_110520	112	75	97	93
LCS 240-461535/4	Lab Control Sample	95	100	104	81
MB 240-461535/7	Method Blank	104	80	99	84

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA
		(70-133)
240-139757-A-3 MS	Matrix Spike	113
240-139757-A-3 MSD	Matrix Spike Duplicate	114
240-139777-2	MW-167S_110520	107
LCS 240-460682/4	Lab Control Sample	105
MB 240-460682/5	Method Blank	105

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139777-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-461535/7
Matrix: Water
Analysis Batch: 461535

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/18/20 11:46	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/18/20 11:46	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/18/20 11:46	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/18/20 11:46	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/18/20 11:46	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/18/20 11:46	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		75 - 130		11/18/20 11:46	1
4-Bromofluorobenzene (Surr)	80		47 - 134		11/18/20 11:46	1
Toluene-d8 (Surr)	99		69 - 122		11/18/20 11:46	1
Dibromofluoromethane (Surr)	84		78 - 129		11/18/20 11:46	1

Lab Sample ID: LCS 240-461535/4
Matrix: Water
Analysis Batch: 461535

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	8.09		ug/L		81	73 - 129
cis-1,2-Dichloroethene	10.0	10.3		ug/L		103	75 - 124
Tetrachloroethene	10.0	8.90		ug/L		89	70 - 125
trans-1,2-Dichloroethene	10.0	10.3		ug/L		103	74 - 130
Trichloroethene	10.0	7.79		ug/L		78	71 - 121
Vinyl chloride	10.0	8.91		ug/L		89	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	95		75 - 130
4-Bromofluorobenzene (Surr)	100		47 - 134
Toluene-d8 (Surr)	104		69 - 122
Dibromofluoromethane (Surr)	81		78 - 129

Lab Sample ID: 240-139669-B-15 MS
Matrix: Water
Analysis Batch: 461535

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	33	U F1	333	212	F1	ug/L		63	64 - 132
cis-1,2-Dichloroethene	600		333	879		ug/L		84	68 - 121
Tetrachloroethene	33	U	333	227		ug/L		68	52 - 129
trans-1,2-Dichloroethene	23	J	333	287		ug/L		79	69 - 126
Trichloroethene	21	J	333	225		ug/L		61	56 - 124
Vinyl chloride	33	U F2	333	204		ug/L		61	49 - 136

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	95		75 - 130
4-Bromofluorobenzene (Surr)	99		47 - 134
Toluene-d8 (Surr)	106		69 - 122

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139777-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-139669-B-15 MS
Matrix: Water
Analysis Batch: 461535

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	83		78 - 129

Lab Sample ID: 240-139669-B-15 MSD
Matrix: Water
Analysis Batch: 461535

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	33	U F1	333	247		ug/L		74	64 - 132	15	35
cis-1,2-Dichloroethene	600		333	878		ug/L		83	68 - 121	0	35
Tetrachloroethene	33	U	333	247		ug/L		74	52 - 129	8	35
trans-1,2-Dichloroethene	23	J	333	304		ug/L		84	69 - 126	6	35
Trichloroethene	21	J	333	237		ug/L		65	56 - 124	5	35
Vinyl chloride	33	U F2	333	293	F2	ug/L		88	49 - 136	36	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		75 - 130
4-Bromofluorobenzene (Surr)	101		47 - 134
Toluene-d8 (Surr)	105		69 - 122
Dibromofluoromethane (Surr)	83		78 - 129

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-460682/5
Matrix: Water
Analysis Batch: 460682

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/12/20 15:42	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		70 - 133		11/12/20 15:42	1

Lab Sample ID: LCS 240-460682/4
Matrix: Water
Analysis Batch: 460682

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	11.5		ug/L		115	80 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	105		70 - 133

Lab Sample ID: 240-139757-A-3 MS
Matrix: Water
Analysis Batch: 460682

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	3.1		10.0	14.0		ug/L		109	46 - 170

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP - Off Site

Job ID: 240-139777-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>MS</i> <i>%Recovery</i>	<i>MS</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	113		70 - 133

Lab Sample ID: 240-139757-A-3 MSD
Matrix: Water
Analysis Batch: 460682

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

<i>Analyte</i>	<i>Sample</i> <i>Result</i>	<i>Sample</i> <i>Qualifier</i>	<i>Spike</i> <i>Added</i>	<i>MSD</i> <i>Result</i>	<i>MSD</i> <i>Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec.</i> <i>Limits</i>	<i>RPD</i>	<i>RPD</i> <i>Limit</i>
1,4-Dioxane	3.1		10.0	14.2		ug/L		111	46 - 170	2	26

<i>Surrogate</i>	<i>MSD</i> <i>%Recovery</i>	<i>MSD</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	114		70 - 133

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QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139777-1

GC/MS VOA

Analysis Batch: 460682

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-139777-2	MW-167S_110520	Total/NA	Water	8260B SIM	
MB 240-460682/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-460682/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-139757-A-3 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-139757-A-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 461535

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-139777-1	TRIP BLANK	Total/NA	Water	8260B	
240-139777-2	MW-167S_110520	Total/NA	Water	8260B	
MB 240-461535/7	Method Blank	Total/NA	Water	8260B	
LCS 240-461535/4	Lab Control Sample	Total/NA	Water	8260B	
240-139669-B-15 MS	Matrix Spike	Total/NA	Water	8260B	
240-139669-B-15 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139777-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-139777-1

Date Collected: 11/05/20 00:00

Matrix: Water

Date Received: 11/07/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	461535	11/18/20 19:25	LEE	TAL CAN

Client Sample ID: MW-167S_110520

Lab Sample ID: 240-139777-2

Date Collected: 11/05/20 10:10

Matrix: Water

Date Received: 11/07/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	461535	11/18/20 19:47	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	460682	11/12/20 17:09	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139777-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-21
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-21
Texas	NELAP	T104704517-18-10	08-31-21
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-21
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

Chain of Custody Record

TestAmerica Laboratory location: Brighton --- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Regulatory program: DW NPDES RCRA Other

Client Contact: Arcadis
Address: 28550 Cahot Drive, Suite 500
City/State/Zip: Novi, MI, 48377
Phone: 248-994-2240
Project Name: Ford LTP OH-Site
Project Number: 30050315.402.04
PO # 30050315.402.04

Client Project Manager: Kris Hinskey
Telephone: 248-994-2240
Email: kristoffer.hinskey@arcadis.com

Site Contact: Julia McClafferty
Telephone: 734-644-5131

Lab Contact: Mike DeMonico
Telephone: 330-497-9396

Sampler Name: **ALINSON HARTZ**
Method of Shipment/Carrier:
Shipping/Tracking No:

Analysis Turnaround Time
TAT (if different from below)
10 day
 3 weeks
 2 weeks
 1 week
 2 days
 1 day

Containers & Preservatives
Matrix: Aqueous, Solid, Other
H2SO4, HNO3, HCl, NaOH, ZnOH, Umpres, Other
Filtered Sample (Y/N)
Composite C/Grab G

Sample Identification	Sample Date	Sample Time	Air	Aqueous	Sediment	Solid	Other	H2SO4	HNO3	HCl	NaOH	ZnOH	Umpres	Other	1,1-DCE 8260B	cis-1,2-DCE 8260B	Trans-1,2-DCE 8260B	PCE 8260B	TCE 8260B	Vinyl Chloride 8260B	1,4-Dioxane 8260B SIM	Analyses	Special Specific Notes / Special Instructions:
TRIP BLANK																							TRIP BLANK
MW-1675-110520	11/5/20	10:10																					3 VOLS FOR 8260B 3 VOLS FOR 8260B SIM

Possible Hazard Identification
 Non-Hazard Irritant Flammable Corrosive Toxic

Special Instructions/QC Requirements & Comments:
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal By Lab Archive For _____ Months

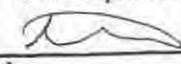

Relinquished by: *[Signature]* Date/Time: 11/5/20 15:45 Company: Arcadis
Relinquished by: *[Signature]* Date/Time: 11/6/20 0915 Company: Arcadis
Relinquished by: *[Signature]* Date/Time: 11-6-20 0925 Company: ETA

Received by: *[Signature]* Date/Time: 11-7-20 9:40 Company: TA

MICHIGAN 190

Submit all results through Cadena at jtomalia@cadenaco.com, Cadena #E203631
Level IV Reporting requested.



Eurofins TestAmerica Canton Sample Receipt Form/Narrative		Login # : <u>39777</u>
Canton Facility		
Client <u>Arcadis</u>	Site Name _____	Cooler unpacked by: 
Cooler Received on <u>11-7-20</u>	Opened on <u>11-9-20</u>	
FedEx: 1 st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____		
Receipt After-hours: Drop-off Date/Time _____		Storage Location _____
TestAmerica Cooler # <u>TA</u>	Foam Box _____	Client Cooler _____
Packing material used: <u>Bubble</u> Wrap _____	Foam _____	Plastic Bag _____
COOLANT: <u>Wet Ice</u>	Blue Ice _____	Dry Ice _____
	Water _____	None _____
1. Cooler temperature upon receipt <input type="checkbox"/> See Multiple Cooler Form		
IR GUN# IR-11 (CF +0.9 °C)	Observed Cooler Temp. <u>1.0</u> °C	Corrected Cooler Temp. <u>1.9</u> °C
IR GUN #IR-12 (CF +0.5°C)	Observed Cooler Temp. _____ °C	Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity _____		Yes <input checked="" type="radio"/> No <input checked="" type="radio"/>
-Were the seals on the outside of the cooler(s) signed & dated?		Yes <input checked="" type="radio"/> No <input checked="" type="radio"/> NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?		Yes <input checked="" type="radio"/> No <input checked="" type="radio"/>
-Were tamper/custody seals intact and uncompromised?		Yes <input checked="" type="radio"/> No <input checked="" type="radio"/> NA
3. Shippers' packing slip attached to the cooler(s)?		Yes <input checked="" type="radio"/> No <input checked="" type="radio"/>
4. Did custody papers accompany the sample(s)?		Yes <input checked="" type="radio"/> No <input checked="" type="radio"/>
5. Were the custody papers relinquished & signed in the appropriate place?		Yes <input checked="" type="radio"/> No <input checked="" type="radio"/>
6. Was/were the person(s) who collected the samples clearly identified on the COC?		Yes <input checked="" type="radio"/> No <input checked="" type="radio"/>
7. Did all bottles arrive in good condition (Unbroken)?		Yes <input checked="" type="radio"/> No <input checked="" type="radio"/>
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC?		Yes <input checked="" type="radio"/> No <input checked="" type="radio"/>
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?		Yes <input checked="" type="radio"/> No <input checked="" type="radio"/>
10. Were correct bottle(s) used for the test(s) indicated?		Yes <input checked="" type="radio"/> No <input checked="" type="radio"/>
11. Sufficient quantity received to perform indicated analyses?		Yes <input checked="" type="radio"/> No <input checked="" type="radio"/>
12. Are these work share samples and all listed on the COC?		Yes <input checked="" type="radio"/> No <input checked="" type="radio"/>
If yes, Questions 13-17 have been checked at the originating laboratory.		
13. Were all preserved sample(s) at the correct pH upon receipt?		Yes <input checked="" type="radio"/> No <input checked="" type="radio"/> NA pH Strip Lot# <u>HC907861</u>
14. Were VOAs on the COC?		Yes <input checked="" type="radio"/> No <input checked="" type="radio"/>
15. Were air bubbles >6 mm in any VOA vials?  Larger than this.		Yes <input checked="" type="radio"/> No <input checked="" type="radio"/> NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____		Yes <input checked="" type="radio"/> No <input checked="" type="radio"/>
17. Was a LL Hg or Me Hg trip blank present? _____		Yes <input checked="" type="radio"/> No <input checked="" type="radio"/>
Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____		
Concerning _____		
18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES <input type="checkbox"/> additional next page		Samples processed by: _____
_____ _____ _____		
19. SAMPLE CONDITION		
Sample(s) _____ were received after the recommended holding time had expired.		
Sample(s) _____ were received in a broken container.		
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)		
20. SAMPLE PRESERVATION		
Sample(s) _____ were further preserved in the laboratory.		
Time preserved: _____ Preservative(s) added/Lot number(s): _____		
VOA Sample Preservation - Date/Time VOAs Frozen: _____		

ANALYTICAL REPORT

Eurofins TestAmerica, Edison
777 New Durham Road
Edison, NJ 08817
Tel: (732)549-3900

Laboratory Job ID: 460-198338-1
Client Project/Site: Ford LTP Off-Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
12/19/2019 10:13:32 AM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

LINKS

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results through
TotalAccess

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www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-198338-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-198338-1

Job ID: 460-198338-1

Laboratory: Eurofins TestAmerica, Edison

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Off-Site

Report Number: 460-198338-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Edison attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 12/5/2019 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.0° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples Trip Blank (460-198338-1) and MW-167S_112619 (460-198338-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260C. The samples were analyzed on 12/09/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS)

Sample MW-167S_112619 (460-198338-2) was analyzed for Volatile organic compounds (GC/MS) in accordance with SW-846 Method 8260C SIM. The sample was analyzed on 12/09/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-198338-1

Client Sample ID: Trip Blank

Lab Sample ID: 460-198338-1

No Detections.

Client Sample ID: MW-167S_112619

Lab Sample ID: 460-198338-2

No Detections.

- 1
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- 11
- 12
- 13
- 14
- 15

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Edison

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-198338-1

Client Sample ID: Trip Blank

Lab Sample ID: 460-198338-1

Date Collected: 11/26/19 09:31

Matrix: Water

Date Received: 12/05/19 09:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.26	ug/L			12/09/19 15:10	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L			12/09/19 15:10	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L			12/09/19 15:10	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L			12/09/19 15:10	1
Trichloroethene	1.0	U	1.0	0.31	ug/L			12/09/19 15:10	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L			12/09/19 15:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		74 - 132		12/09/19 15:10	1
Toluene-d8 (Surr)	90		80 - 120		12/09/19 15:10	1
Dibromofluoromethane (Surr)	87		72 - 131		12/09/19 15:10	1
4-Bromofluorobenzene	93		77 - 124		12/09/19 15:10	1

Client Sample ID: MW-167S_112619

Lab Sample ID: 460-198338-2

Date Collected: 11/26/19 09:31

Matrix: Water

Date Received: 12/05/19 09:30

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.33	ug/L			12/09/19 16:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	89		72 - 133		12/09/19 16:55	1

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.26	ug/L			12/09/19 17:11	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L			12/09/19 17:11	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L			12/09/19 17:11	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L			12/09/19 17:11	1
Trichloroethene	1.0	U	1.0	0.31	ug/L			12/09/19 17:11	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L			12/09/19 17:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		74 - 132		12/09/19 17:11	1
Toluene-d8 (Surr)	89		80 - 120		12/09/19 17:11	1
Dibromofluoromethane (Surr)	88		72 - 131		12/09/19 17:11	1
4-Bromofluorobenzene	92		77 - 124		12/09/19 17:11	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-198338-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (74-132)	TOL (80-120)	DBFM (72-131)	BFB (77-124)
460-198048-A-3 MS	Matrix Spike	85	91	87	92
460-198048-A-3 MSD	Matrix Spike Duplicate	85	90	88	92
460-198338-1	Trip Blank	86	90	87	93
460-198338-2	MW-167S_112619	87	89	88	92
LCS 460-660920/4	Lab Control Sample	84	91	87	91
MB 460-660920/7	Method Blank	87	91	88	91

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

BFB = 4-Bromofluorobenzene

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB
		(72-133)
460-198338-2	MW-167S_112619	89
LCS 460-660978/3	Lab Control Sample	87
LCSD 460-660978/4	Lab Control Sample Dup	90
MB 460-660978/7	Method Blank	86

Surrogate Legend

BFB = 4-Bromofluorobenzene

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-198338-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 460-660920/7
Matrix: Water
Analysis Batch: 660920

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.26	ug/L			12/09/19 11:33	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L			12/09/19 11:33	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L			12/09/19 11:33	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L			12/09/19 11:33	1
Trichloroethene	1.0	U	1.0	0.31	ug/L			12/09/19 11:33	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L			12/09/19 11:33	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		74 - 132		12/09/19 11:33	1
Toluene-d8 (Surr)	91		80 - 120		12/09/19 11:33	1
Dibromofluoromethane (Surr)	88		72 - 131		12/09/19 11:33	1
4-Bromofluorobenzene	91		77 - 124		12/09/19 11:33	1

Lab Sample ID: LCS 460-660920/4
Matrix: Water
Analysis Batch: 660920

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	20.0	16.9		ug/L		85	74 - 123
cis-1,2-Dichloroethene	20.0	17.4		ug/L		87	80 - 120
Tetrachloroethene	20.0	18.8		ug/L		94	78 - 122
trans-1,2-Dichloroethene	20.0	17.2		ug/L		86	79 - 120
Trichloroethene	20.0	15.8		ug/L		79	77 - 120
Vinyl chloride	20.0	17.7		ug/L		88	62 - 138

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	84		74 - 132
Toluene-d8 (Surr)	91		80 - 120
Dibromofluoromethane (Surr)	87		72 - 131
4-Bromofluorobenzene	91		77 - 124

Lab Sample ID: 460-198048-A-3 MS
Matrix: Water
Analysis Batch: 660920

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U	200	162		ug/L		81	74 - 123
cis-1,2-Dichloroethene	1.0	U	200	169		ug/L		85	80 - 120
Tetrachloroethene	1.0	U	200	189		ug/L		94	78 - 122
trans-1,2-Dichloroethene	1.0	U	200	168		ug/L		84	79 - 120
Trichloroethene	1.0	U F1	200	150	F1	ug/L		75	77 - 120
Vinyl chloride	1.0	U	200	192		ug/L		96	62 - 138

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	85		74 - 132
Toluene-d8 (Surr)	91		80 - 120
Dibromofluoromethane (Surr)	87		72 - 131

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-198338-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 460-198048-A-3 MS
Matrix: Water
Analysis Batch: 660920

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene	92		77 - 124

Lab Sample ID: 460-198048-A-3 MSD
Matrix: Water
Analysis Batch: 660920

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	200	180		ug/L		90	74 - 123	10	30
cis-1,2-Dichloroethene	1.0	U	200	189		ug/L		94	80 - 120	11	30
Tetrachloroethene	1.0	U	200	206		ug/L		103	78 - 122	9	30
trans-1,2-Dichloroethene	1.0	U	200	187		ug/L		93	79 - 120	10	30
Trichloroethene	1.0	U F1	200	165		ug/L		83	77 - 120	9	30
Vinyl chloride	1.0	U	200	213		ug/L		107	62 - 138	10	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	85		74 - 132
Toluene-d8 (Surr)	90		80 - 120
Dibromofluoromethane (Surr)	88		72 - 131
4-Bromofluorobenzene	92		77 - 124

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 460-660978/7
Matrix: Water
Analysis Batch: 660978

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.33	ug/L			12/09/19 14:49	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	86		72 - 133		12/09/19 14:49	1

Lab Sample ID: LCS 460-660978/3
Matrix: Water
Analysis Batch: 660978

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	5.00	4.40		ug/L		88	66 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene	87		72 - 133

Lab Sample ID: LCSD 460-660978/4
Matrix: Water
Analysis Batch: 660978

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	5.00	5.07		ug/L		101	66 - 135	14	30

Eurofins TestAmerica, Edison

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-198338-1

Method: 8260C SIM - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>LCS D</i>	<i>LCS D</i>	<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
4-Bromofluorobenzene	90		72 - 133

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- 10
- 11
- 12
- 13
- 14
- 15

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-198338-1

GC/MS VOA

Analysis Batch: 660920

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-198338-1	Trip Blank	Total/NA	Water	8260C	
460-198338-2	MW-167S_112619	Total/NA	Water	8260C	
MB 460-660920/7	Method Blank	Total/NA	Water	8260C	
LCS 460-660920/4	Lab Control Sample	Total/NA	Water	8260C	
460-198048-A-3 MS	Matrix Spike	Total/NA	Water	8260C	
460-198048-A-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260C	

Analysis Batch: 660978

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-198338-2	MW-167S_112619	Total/NA	Water	8260C SIM	
MB 460-660978/7	Method Blank	Total/NA	Water	8260C SIM	
LCS 460-660978/3	Lab Control Sample	Total/NA	Water	8260C SIM	
LCSD 460-660978/4	Lab Control Sample Dup	Total/NA	Water	8260C SIM	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-198338-1

Client Sample ID: Trip Blank

Date Collected: 11/26/19 09:31

Date Received: 12/05/19 09:30

Lab Sample ID: 460-198338-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	660920	12/09/19 15:10	SZD	TAL EDI

Client Sample ID: MW-167S_112619

Date Collected: 11/26/19 09:31

Date Received: 12/05/19 09:30

Lab Sample ID: 460-198338-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	660920	12/09/19 17:11	SZD	TAL EDI
Total/NA	Analysis	8260C SIM		1	660978	12/09/19 16:55	KLB	TAL EDI

Laboratory References:

TAL EDI = Eurofins TestAmerica, Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-198338-1

Laboratory: Eurofins TestAmerica, Edison

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Connecticut	State	PH-0200	09-30-20
DE Haz. Subst. Cleanup Act (HSCA)	State	<cert No.>	12-31-21
Georgia	State	12028 (NJ)	06-30-20
Massachusetts	State	M-NJ312	06-30-20
Massachusetts	State Program	M-NJ312	06-30-20
New Jersey	NELAP	12028	06-30-20
New York	NELAP	11452	04-01-20
Pennsylvania	NELAP	68-00522	02-28-20
Rhode Island	State	LAO00132	12-30-19
USDA	US Federal Programs	P330-18-00135	05-03-21

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-20
Connecticut	State	PH-0590	12-31-19
Florida	NELAP	E87225	06-30-20
Georgia	State	4062	02-23-20
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-20
Kansas	NELAP	E-10336	04-30-20
Kentucky (UST)	State	112225	02-23-20
Kentucky (WW)	State	KY98016	12-31-19
Minnesota	NELAP	OH00048	12-31-19
Minnesota (Petrofund)	State Program	3506	07-31-21
New Jersey	NELAP	OH001	06-30-20
New York	NELAP	10975	03-31-20
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-23-20
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-16-00404	12-28-19
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-20
West Virginia DEP	State	210	12-31-19

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-198338-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL EDI
8260C SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL EDI
5030C	Purge and Trap	SW846	TAL EDI

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL EDI = Eurofins TestAmerica, Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-198338-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
460-198338-1	Trip Blank	Water	11/26/19 09:31	12/05/19 09:30	
460-198338-2	MW-167S_112619	Water	11/26/19 09:31	12/05/19 09:30	

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Chain of Custody Record

MICHIGAN

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratory location: Brighton --- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

190

Regulatory program: DW NPDES RCRA Other

Client Project Manager: Kris Hinskey
 Telephone: 248-994-2240
 Email: kristoffer.hinskey@arcadis.com

Site Contact: Rachel Bielak
 Telephone: 248-946-6331

Lab Contact: Mike DelMonico
 Telephone: 330-497-9396

Company Name: Arcadis
 Address: 28550 Cabot Drive, Suite 500
 City/State/Zip: Novi, MI, 48377
 Phone: 248-994-2240

Project Name: Ford LTP Off-Site
 Project Number: 30016346.0002B
 PO # 30016346.0002B

Sampler Name: Mary-Catherine Gubler
 Method of Shipment/Carrier:
 Shipping/Tracking No:

TAT if different from below
 10 day
 3 weeks
 2 weeks
 1 week
 2 days
 1 day

Sample Identification	Sample Date	Sample Time	Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl	NaOH	ZnAc	Uptres	Other:
TRIP BLANK														
MW-1675-112619	11/26/19	05:31	X	X										

Sample Specific Notes / Special Instructions:
 1 Trip Blank
 3 Vials for 8260B
 3 Vials for 8260S SIM

Analyses:
 1,4-Dioxane 8260B SIM
 Vinyl Chloride 8260B
 TCE 8260B
 PCE 8260B
 Trans-1,2-DCE 8260B
 cis-1,2-DCE 8260B
 1,1-DCE 8260B

460-198338 Chain of Custody

Possible Hazard Identification
 Non-Hazard Irritant Poison B Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal By Lab Archive For _____ Months

Special Instructions/QC Requirements & Comments:

Relinquished by: Mary-Catherine Gubler
 Date/Time: 11/26/19 5:00
 Company: Arcadis

Relinquished by: [Signature]
 Date/Time: 11/27/19 09:00
 Company: ARCADIS

Relinquished by: Holly Haxson
 Date/Time: 12/03/19 / 12:35
 Company: Arcadis

Received by: [Signature]
 Date/Time: 11/26/19 18:00
 Company: Arcadis

Received by: [Signature]
 Date/Time: 11/27/19 09:00
 Company: ARCADIS

Received by: Holly Haxson
 Date/Time: 11/27/19 / 12:37
 Company: TA

Submit all results through Cadena at jim.tomalia@cadena.com. Cadena #E203631
 Level IV Reporting requested.

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ETAL-MI 12/14/19 16:14
 H7°C IRLL via FedEx
 15.0°C



Eurofins TestAmerica Edison
Receipt Temperature and pH Log

Job Number: 198338

Number of Coolers: 9 IR Gun # 1

Cooler Temperatures

	RAW	CORRECTED	RAW	CORRECTED
Cooler #1:	<u>47</u>	<u>50</u>	Cooler #7:	°C
Cooler #2:	°C	°C	Cooler #8:	°C
Cooler #3:	°C	°C	Cooler #9:	°C

TALS Sample Number	Ammonia (pH<2)	Nitrate Nitrite (pH<2)	Metals (pH<2)	Hardness (pH<2)	Pest (pH 5-9)	EPH or QAM (pH<2)	Phenols (pH<2)	Sulfide (pH>9)	TKN (pH<2)	TOC (pH<2)	Total Cyanide (pH>12)	Total Phos (pH<2)	Other	Other

If pH adjustments are required record the information below:

Sample No(s). adjusted: _____

Preservative Name/Conc.: _____ Volume of Preservative used (ml): _____

Lot # of Preservative(s): _____ Expiration Date: _____

The appropriate Project Manager and Department Manager should be notified about the samples which were pH adjusted.

* Samples for Metal analysis which are out of compliance must be acidified at least 24 hours prior to analysis.

Initials: CFB Date: 12/5/19



Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 460-198338-1

Login Number: 198338

List Number: 1

Creator: Rivera, Kenneth

List Source: Eurofins TestAmerica, Edison

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	False	Insufficient volume received for requested analysis.
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-130802-1
Client Project/Site: Ford LTP Off-Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
6/8/2020 3:45:50 PM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:

www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130802-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130802-1

Job ID: 240-130802-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Off-Site

Report Number: 240-130802-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 5/23/2020 10:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 3.2° C and 4.9° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-130802-1) and MW-167S_052120 (240-130802-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 06/01/2020 and 06/02/2020.

The continuing calibration verification (CCV) associated with batch 240-436412 recovered above the upper control limit for Vinyl chloride. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: TRIP BLANK (240-130802-1), MW-167S_052120 (240-130802-2) and (CCVIS 240-436412/2).

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-167S_052120 (240-130802-2) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 06/04/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130802-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130802-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-130802-1	TRIP BLANK	Water	05/21/20 00:00	05/23/20 10:15	
240-130802-2	MW-167S_052120	Water	05/21/20 09:43	05/23/20 10:15	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130802-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-130802-1

No Detections.

Client Sample ID: MW-167S_052120

Lab Sample ID: 240-130802-2

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130802-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-130802-1

Date Collected: 05/21/20 00:00

Matrix: Water

Date Received: 05/23/20 10:15

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 20:55	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/01/20 20:55	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/01/20 20:55	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 20:55	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/01/20 20:55	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/01/20 20:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		75 - 130		06/01/20 20:55	1
4-Bromofluorobenzene (Surr)	107		47 - 134		06/01/20 20:55	1
Toluene-d8 (Surr)	96		69 - 122		06/01/20 20:55	1
Dibromofluoromethane (Surr)	97		78 - 129		06/01/20 20:55	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off-Site

Job ID: 240-130802-1

Client Sample ID: MW-167S_052120

Lab Sample ID: 240-130802-2

Date Collected: 05/21/20 09:43

Matrix: Water

Date Received: 05/23/20 10:15

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L	-		06/04/20 08:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		70 - 133		06/04/20 08:01	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		06/02/20 02:47	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L	-		06/02/20 02:47	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L	-		06/02/20 02:47	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		06/02/20 02:47	1
Trichloroethene	1.0	U	1.0	0.10	ug/L	-		06/02/20 02:47	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L	-		06/02/20 02:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		75 - 130		06/02/20 02:47	1
4-Bromofluorobenzene (Surr)	101		47 - 134		06/02/20 02:47	1
Toluene-d8 (Surr)	97		69 - 122		06/02/20 02:47	1
Dibromofluoromethane (Surr)	96		78 - 129		06/02/20 02:47	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130802-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-130802-1	TRIP BLANK	101	107	96	97
240-130802-2	MW-167S_052120	100	101	97	96
LCS 240-436412/4	Lab Control Sample	102	105	89	99
MB 240-436412/7	Method Blank	99	101	89	98

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-133)
240-130802-2	MW-167S_052120	94
LCS 240-436818/4	Lab Control Sample	91
MB 240-436818/5	Method Blank	90

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130802-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-436412/7
Matrix: Water
Analysis Batch: 436412

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 18:50	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/01/20 18:50	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/01/20 18:50	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 18:50	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/01/20 18:50	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/01/20 18:50	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		75 - 130		06/01/20 18:50	1
4-Bromofluorobenzene (Surr)	101		47 - 134		06/01/20 18:50	1
Toluene-d8 (Surr)	89		69 - 122		06/01/20 18:50	1
Dibromofluoromethane (Surr)	98		78 - 129		06/01/20 18:50	1

Lab Sample ID: LCS 240-436412/4
Matrix: Water
Analysis Batch: 436412

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	11.8		ug/L		118	73 - 129
cis-1,2-Dichloroethene	10.0	10.3		ug/L		103	75 - 124
Tetrachloroethene	10.0	10.8		ug/L		108	70 - 125
trans-1,2-Dichloroethene	10.0	10.5		ug/L		105	74 - 130
Trichloroethene	10.0	9.67		ug/L		97	71 - 121
Vinyl chloride	10.0	11.3		ug/L		113	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	102		75 - 130
4-Bromofluorobenzene (Surr)	105		47 - 134
Toluene-d8 (Surr)	89		69 - 122
Dibromofluoromethane (Surr)	99		78 - 129

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-436818/5
Matrix: Water
Analysis Batch: 436818

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			06/04/20 06:43	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		70 - 133		06/04/20 06:43	1

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off-Site

Job ID: 240-130802-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-436818/4
Matrix: Water
Analysis Batch: 436818

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	9.26		ug/L		93	80 - 135
Surrogate		LCS	LCS			%Recovery	Qualifiaer
1,2-Dichloroethane-d4 (Surr)						91	70 - 133

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QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130802-1

GC/MS VOA

Analysis Batch: 436412

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-130802-1	TRIP BLANK	Total/NA	Water	8260B	
240-130802-2	MW-167S_052120	Total/NA	Water	8260B	
MB 240-436412/7	Method Blank	Total/NA	Water	8260B	
LCS 240-436412/4	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 436818

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-130802-2	MW-167S_052120	Total/NA	Water	8260B SIM	
MB 240-436818/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-436818/4	Lab Control Sample	Total/NA	Water	8260B SIM	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130802-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-130802-1

Date Collected: 05/21/20 00:00

Matrix: Water

Date Received: 05/23/20 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	436412	06/01/20 20:55	LRW	TAL CAN

Client Sample ID: MW-167S_052120

Lab Sample ID: 240-130802-2

Date Collected: 05/21/20 09:43

Matrix: Water

Date Received: 05/23/20 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	436412	06/02/20 02:47	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	436818	06/04/20 08:01	TJL2	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130802-1

Laboratory: Eurofins TestAmerica, Canton


All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-20
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-20
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

MICHIGAN 190 Chain of Custody Record



TestAmerica Laboratory location: Brighton --- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Client Contact		Regulatory program:		Site Contact: Julia McClafferty		Lab Contact: Mike DelMonico		TestAmerica Laboratories, Inc.							
Company Name: Arcadis	Address: 28550 Cabot Drive, Suite 500	City/State/Zip: Novi, MI, 48377	Phone: 248-994-2240	Email: kris@for.hinskey@arcadis.com	Telephone: 248-994-2240	Telephone: 734-644-5131	Telephone: 330-497-9396	COC No:	of COCs						
Project Name: Ford LTP Off-Site	Project Number: 30050315.402.04	PO # 30050315.402.04	Sampler Name: XENIA CHAN		Analysis turnaround time: 10 day		Analyses								
Method of Shipment/Carrier:		Shipping/Tracking No:		TAT if different from below:		Walk-in client: <input type="checkbox"/>									
Matrix:		Containers & Preservatives:		Other:		Lab sampling: <input type="checkbox"/>									
Sample Date	Sample Time	Air	Water	Soil	Sediment	Other:	HS04	HNO3	HCl	NaOH	ZnAc	NaOH	Other:	Job/SDG No:	Sample Specific Notes / Special Instructions:
TRIP BLANK	---	1													1 TRIP BLANK
MW-1675-052120	5/21/20 943	6													3 VOA for 8260B 3 VOA for 8260B SIM
 240-130802 Chain of Custody															
Possible Hazard Identification: <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Irritant <input type="checkbox"/> cm Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown															
Special Instructions/OC Requirements & Comments:															
Submit all results through Cadena at jomalial@cadenaco.com. Cadena #E203631 Level IV Reporting requested.															
Relinquished by: <i>John</i>	Company: ARCADIS	Date/Time: 5/21/20 1407	Received by: RACHEL BIELEK Paul Field	Company: ALLANS	Date/Time: 5/21/20 1407										
Relinquished by: RACHEL BIELEK Paul Field	Company: ARCADIS	Date/Time: 5/21/20 1555	Received by: NANA COLO STORAGE	Company: ALLANS	Date/Time: 5/21/20 1555										
Relinquished by: <i>Andrew...</i>	Company: Arcadis	Date/Time: 5/22/20 0950	Received by: <i>[Signature]</i>	Company: EMM MI	Date/Time: 5/22/20 9:55										
Relinquished by: <i>[Signature]</i> EMM MI 5/22/20 9:55															
Relinquished by: <i>[Signature]</i> EMM MI 5/22/20 9:55															

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Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 136802

Client Arcadis Site Name _____ Cooler unpacked by: [Signature]
 Cooler Received on 5-23-20 Opened on 5-23-20
 FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # 11 Foam Box Client Cooler Box Other _____
 Packing material used: Bubble Wrap Foam Plastic Bag None Other _____
 COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN# IR-10 (CF +0.7°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN #IR-11 (CF +0.9°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity _____ Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
 If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC902937
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? Yes NA Larger than this. NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # NA Yes No
16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:
 VOAs
 Oil and Grease
 TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____
 Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by: MS

18. SAMPLE CONDITION
 Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION
 Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____
 VOA Sample Preservation - Date/Time VOAs Frozen: _____

Login #: 130802

Eurofins TestAmerica Canton Sample Receipt Multiple Cooler Form

Cooler Description (Circle)	IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)
TA Client Box Other <u>IR-10</u> IR-11	<u>IR-10</u> IR-11	2.5	3.2	Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other <u>IR-10</u> IR-11	<u>IR-10</u> IR-11	4.2	4.9	Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
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TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
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TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None

See Temperature Excursion Form

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-134644-1
Client Project/Site: Ford LTP Off-Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
8/20/2020 9:48:46 AM

Michael DelMonico, Project Manager I
(330)497-9396
Michael.DelMonico@Eurofinset.com

LINKS

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results through
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www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134644-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134644-1

Job ID: 240-134644-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Off-Site

Report Number: 240-134644-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 8/8/2020 9:20 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 4.0° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-134644-1) and MW-167S_080520 (240-134644-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 08/18/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-167S_080520 (240-134644-2) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 08/11/2020.

An MS/MSD was done in 240-446478 however the sample and the MS/MSD could not be reported. The effected sample is MW-167S_080520 (240-134644-2).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134644-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134644-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-134644-1	TRIP BLANK	Water	08/05/20 00:00	08/08/20 09:20	
240-134644-2	MW-167S_080520	Water	08/05/20 11:45	08/08/20 09:20	

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- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134644-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134644-1

No Detections.

Client Sample ID: MW-167S_080520

Lab Sample ID: 240-134644-2

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off-Site

Job ID: 240-134644-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134644-1

Date Collected: 08/05/20 00:00

Matrix: Water

Date Received: 08/08/20 09:20

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/18/20 00:24	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/18/20 00:24	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/18/20 00:24	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/18/20 00:24	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/18/20 00:24	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/18/20 00:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		75 - 130		08/18/20 00:24	1
4-Bromofluorobenzene (Surr)	77		47 - 134		08/18/20 00:24	1
Toluene-d8 (Surr)	94		69 - 122		08/18/20 00:24	1
Dibromofluoromethane (Surr)	90		78 - 129		08/18/20 00:24	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134644-1

Client Sample ID: MW-167S_080520

Lab Sample ID: 240-134644-2

Date Collected: 08/05/20 11:45

Matrix: Water

Date Received: 08/08/20 09:20

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/11/20 08:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	78		70 - 133		08/11/20 08:15	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/18/20 00:46	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/18/20 00:46	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/18/20 00:46	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/18/20 00:46	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/18/20 00:46	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/18/20 00:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		75 - 130		08/18/20 00:46	1
4-Bromofluorobenzene (Surr)	77		47 - 134		08/18/20 00:46	1
Toluene-d8 (Surr)	96		69 - 122		08/18/20 00:46	1
Dibromofluoromethane (Surr)	95		78 - 129		08/18/20 00:46	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134644-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-134644-1	TRIP BLANK	105	77	94	90
240-134644-2	MW-167S_080520	109	77	96	95
240-134646-E-5 MS	Matrix Spike	98	96	104	88
240-134646-E-5 MSD	Matrix Spike Duplicate	97	93	102	91
LCS 240-447499/4	Lab Control Sample	92	100	102	83
MB 240-447499/7	Method Blank	102	79	97	89

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-133)
240-134644-2	MW-167S_080520	78
LCS 240-446478/4	Lab Control Sample	77
MB 240-446478/5	Method Blank	79

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134644-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-447499/7
Matrix: Water
Analysis Batch: 447499

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/17/20 22:44	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/17/20 22:44	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/17/20 22:44	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/17/20 22:44	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/17/20 22:44	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/17/20 22:44	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		75 - 130		08/17/20 22:44	1
4-Bromofluorobenzene (Surr)	79		47 - 134		08/17/20 22:44	1
Toluene-d8 (Surr)	97		69 - 122		08/17/20 22:44	1
Dibromofluoromethane (Surr)	89		78 - 129		08/17/20 22:44	1

Lab Sample ID: LCS 240-447499/4
Matrix: Water
Analysis Batch: 447499

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	8.32		ug/L		83	73 - 129
cis-1,2-Dichloroethene	10.0	8.38		ug/L		84	75 - 124
Tetrachloroethene	10.0	10.2		ug/L		102	70 - 125
trans-1,2-Dichloroethene	10.0	8.17		ug/L		82	74 - 130
Trichloroethene	10.0	8.52		ug/L		85	71 - 121
Vinyl chloride	10.0	8.19		ug/L		82	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	92		75 - 130
4-Bromofluorobenzene (Surr)	100		47 - 134
Toluene-d8 (Surr)	102		69 - 122
Dibromofluoromethane (Surr)	83		78 - 129

Lab Sample ID: 240-134646-E-5 MS
Matrix: Water
Analysis Batch: 447499

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1000	U	10000	6880		ug/L		69	64 - 132
cis-1,2-Dichloroethene	13000		10000	20200		ug/L		70	68 - 121
Tetrachloroethene	1000	U	10000	7010		ug/L		70	52 - 129
trans-1,2-Dichloroethene	1000	U	10000	7270		ug/L		73	69 - 126
Trichloroethene	1000	U	10000	7130		ug/L		71	56 - 124
Vinyl chloride	3700		10000	10200		ug/L		65	49 - 136

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		75 - 130
4-Bromofluorobenzene (Surr)	96		47 - 134
Toluene-d8 (Surr)	104		69 - 122

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134644-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-134646-E-5 MS
Matrix: Water
Analysis Batch: 447499

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	88		78 - 129

Lab Sample ID: 240-134646-E-5 MSD
Matrix: Water
Analysis Batch: 447499

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits			
1,1-Dichloroethene	1000	U	10000	7510		ug/L		75	64 - 132	9		35
cis-1,2-Dichloroethene	13000		10000	20000		ug/L		68	68 - 121	1		35
Tetrachloroethene	1000	U	10000	8090		ug/L		81	52 - 129	14		35
trans-1,2-Dichloroethene	1000	U	10000	7770		ug/L		78	69 - 126	7		35
Trichloroethene	1000	U	10000	7600		ug/L		76	56 - 124	6		35
Vinyl chloride	3700		10000	10900		ug/L		72	49 - 136	6		35

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	97		75 - 130
4-Bromofluorobenzene (Surr)	93		47 - 134
Toluene-d8 (Surr)	102		69 - 122
Dibromofluoromethane (Surr)	91		78 - 129

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-446478/5
Matrix: Water
Analysis Batch: 446478

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/11/20 05:46	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	79		70 - 133		08/11/20 05:46	1

Lab Sample ID: LCS 240-446478/4
Matrix: Water
Analysis Batch: 446478

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec.
		Result	Qualifier				Limits
1,4-Dioxane	10.0	9.73		ug/L		97	80 - 135

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	77		70 - 133

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134644-1

GC/MS VOA

Analysis Batch: 446478

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134644-2	MW-167S_080520	Total/NA	Water	8260B SIM	
MB 240-446478/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-446478/4	Lab Control Sample	Total/NA	Water	8260B SIM	

Analysis Batch: 447499

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134644-1	TRIP BLANK	Total/NA	Water	8260B	
240-134644-2	MW-167S_080520	Total/NA	Water	8260B	
MB 240-447499/7	Method Blank	Total/NA	Water	8260B	
LCS 240-447499/4	Lab Control Sample	Total/NA	Water	8260B	
240-134646-E-5 MS	Matrix Spike	Total/NA	Water	8260B	
240-134646-E-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134644-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134644-1

Date Collected: 08/05/20 00:00

Matrix: Water

Date Received: 08/08/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	447499	08/18/20 00:24	LEE	TAL CAN

Client Sample ID: MW-167S_080520

Lab Sample ID: 240-134644-2

Date Collected: 08/05/20 11:45

Matrix: Water

Date Received: 08/08/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	447499	08/18/20 00:46	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	446478	08/11/20 08:15	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134644-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-20 *
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Canton

Chain of Custody Record

TestAmerica Laboratory location: Brighton — 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Regulatory program: DW NPDES RCRA Other

Client Project Manager: Kris Hunskey
 Telephone: 248-994-2240
 Email: kristoffer.hunskey@arcadis.com

Site Contact: Julia McClafferty
 Telephone: 734-644-5131

Lab Contact: Mike DeMonten
 Telephone: 330-497-9396

Company Name: Arcadis
 Address: 28550 Cabot Drive, Suite 500
 City/State/Zip: Novi, MI, 48377
 Phone: 248-994-2240

Project Name: Ford LTP Off-Site
 Project Number: 30050315.402.04
 PO # 30050315.402.04

Sampler Name: **Emma Witherspoon**
 Method of Shipment/Carrier:
 Shipping/Tracking No:

Analysis Turnaround Time
 TAT if different from below
 3 weeks
 2 weeks
 1 week
 2 days
 1 day

Containers & Preservatives
 H2SO4 HNO3 HCl NaOH ZnAc/NaOH Other:

Matrix
 Aqueous Sediment Solid Other:

Sample Identification	Sample Date	Sample Time	Filtered Sample (Y/N)		Composite C / Grab G		1,1-DCE 8260B		cis-1,2-DCE 8260B		Trans-1,2-DCE 8260B		PCE 8260B		TCE 8260B		Vinyl Chloride 8260B		1,4-Dioxane 8260B SIM	
			Y	N	C	G	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N		
TRIP BLANK	8/5/20	-	X																	
MW-1675-080520	8/5/20	1145	X																	

1 Trip Blank
 13 vials for 8260B
 3 vials for 8260B SIM



Possible Hazard Identification
 Non-Hazard Irritant Flammable Corrosive Toxic Other

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal By Lab Archive for _____ Months

Special Instructions/QC Requirements & Comments:
 Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203631
 Level IV Reporting requested.

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
<i>Emma Witherspoon</i>	Arcadis	8/5/20 1600	<i>Christy</i>	Arcadis	8/5/20 1600
<i>Christy</i>	Arcadis	8/6/20 1245	<i>Christy</i>	ERM MI	8/6/20 12:50
<i>Christy</i>	ERM MI	8/6/20 13:00	<i>Christy</i>	ERM MI	8/7/20 9:20

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Eurofins TestAmerica Canton Sample Receipt Form/Narrative		Login # : <u>134644</u>
Canton Facility		
Client <u>Arcadis</u>	Site Name _____	Cooler unpacked by: <u>[Signature]</u>
Cooler Received on <u>8-7-20</u>	Opened on <u>8-7-20</u>	
FedEx: 1 st <input checked="" type="radio"/> <u>Grd</u> <input type="radio"/> <u>Exp</u> <input type="radio"/> <u>UPS</u> <input type="radio"/> <u>FAS</u> <input type="radio"/> <u>Clipper</u>	Client Drop Off _____	TestAmerica Courier <input type="radio"/> Other <input type="radio"/>
Receipt After-hours: Drop-off Date/Time		Storage Location
TestAmerica Cooler # <u>74</u>	Foam Box <input type="radio"/>	Client Cooler <input type="radio"/>
Packing material used: <u>Bubble Wrap</u>	Foam <input type="radio"/>	Box <input type="radio"/>
COOLANT: <u>Wet Ice</u>	Blue Ice <input type="radio"/>	None <input type="radio"/>
	Dry Ice <input type="radio"/>	Water <input type="radio"/>
		Other _____
<p>1. Cooler temperature upon receipt <input checked="" type="checkbox"/> See Multiple Cooler Form</p> <p>IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C</p> <p>IR GUN #IR-11 (CF +0.9 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C</p>		
<p>2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity <u>4</u> <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>-Were the seals on the outside of the cooler(s) signed & dated? <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA</p> <p>-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>-Were tamper/custody seals intact and uncompromised? <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA</p>		
<p>3. Shippers' packing slip attached to the cooler(s)? <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>4. Did custody papers accompany the sample(s)? <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>5. Were the custody papers relinquished & signed in the appropriate place? <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>6. Was/were the person(s) who collected the samples clearly identified on the COC? <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>7. Did all bottles arrive in good condition (Unbroken)? <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>8. Could all bottle labels be reconciled with the COC? <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>9. Were correct bottle(s) used for the test(s) indicated? <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>10. Sufficient quantity received to perform indicated analyses? <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>11. Are these work share samples? <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>If yes, Questions 12-16 have been checked at the originating laboratory.</p> <p>12. Were all preserved sample(s) at the correct pH upon receipt? <input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> NA pH Strip Lot# <u>HC911298</u></p> <p>13. Were VOAs on the COC? <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>14. Were air bubbles >6 mm in any VOA vials? <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA ● ← Larger than this.</p> <p>15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # <u>NA</u> <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>16. Was a LL Hg or Me Hg trip blank present? <input checked="" type="radio"/> Yes <input type="radio"/> No</p>		
<p>Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____</p> <p>Concerning _____</p>		
17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES		Samples processed by: _____
<p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>		
18. SAMPLE CONDITION		
Sample(s) _____ were received after the recommended holding time had expired.		
Sample(s) _____ were received in a broken container.		
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)		
19. SAMPLE PRESERVATION		
Sample(s) _____ were further preserved in the laboratory.		
Time preserved: _____ Preservative(s) added/Lot number(s): _____		
VOA Sample Preservation - Date/Time VOAs Frozen: _____		

1
2
3
4
5
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7
8
9
10
11
12
13
14

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

This lot only

Eurofins TestAmerica Canton Sample Receipt Multiple Cooler Form										
Cooler Description (Circle)				IR Gun # (Circle)		Observed Temp °C	Corrected Temp °C	Coolant (Circle)		
TA	Client	Box	Other	IR-10	IR-11	3.1	4.0	Wet Ice	Blue Ice	Dry Ice
								Water	None	
TA	Client	Box	Other	IR-10	IR-11	1.2	2.2	Wet Ice	Blue Ice	Dry Ice
								Water	None	
TA	Client	Box	Other	IR-10	IR-11	1.3	2.2	Wet Ice	Blue Ice	Dry Ice
								Water	None	
TA	Client	Box	Other	IR-10	IR-11	1.6	2.5	Wet Ice	Blue Ice	Dry Ice
								Water	None	
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
								Water	None	
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
								Water	None	
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
								Water	None	
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
								Water	None	
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
								Water	None	
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
								Water	None	
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
								Water	None	
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
								Water	None	
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
								Water	None	
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
								Water	None	
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
								Water	None	
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
								Water	None	
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
								Water	None	
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
								Water	None	
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
								Water	None	
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
								Water	None	
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
								Water	None	
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
								Water	None	
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
								Water	None	
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
								Water	None	
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
								Water	None	

See Temperature Excursion Form

[REDACTED]

11/9/2018
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1811046A

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 11/2/2018 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

[REDACTED]

Ausha Scott
Project Manager

WORK ORDER #: 1811046A

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0003
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	11/02/2018	CONTACT:	Ausha Scott
DATE COMPLETED:	11/09/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	AA-12001Stark-01_103018	Modified TO-15	6.5 "Hg	5.5 psi
02A	IACS-12001Stark-01_103018	Modified TO-15	5.5 "Hg	5.1 psi
03A	IAG12001Stark-02_103018	Modified TO-15	5.5 "Hg	5.1 psi
04A	IAF-12001Stark-03_103018	Modified TO-15	7.1 "Hg	5.2 psi
05A	Lab Blank	Modified TO-15	NA	NA
06A	CCV	Modified TO-15	NA	NA
07A	LCS	Modified TO-15	NA	NA
07AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 11/09/18

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 1811046A

Four 6 Liter Summa Canister (100% Certified) samples were received on November 02, 2018. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

The Chain of Custody (COC) was not relinquished properly. A signature, date and time were not provided by the field sampler.

Analytical Notes

As per project specific client request the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. All The canisters used for this project have been certified to the Reporting Limit for the target analytes included in this workorder. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

- B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).
- J - Estimated value.
- E - Exceeds instrument calibration range.
- S - Saturated peak.
- Q - Exceeds quality control limits.
- U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.
- UJ- Non-detected compound associated with low bias in the CCV
- N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates

as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-12001Stark-01_103018	Date/Time Analyzed:	11/5/18 06:34 PM
Lab ID:	1811046A-01A	Dilution Factor:	1.76
Date/Time Collected:	10/31/18 11:08 AM	Instrument/Filename:	msd22.i / 22110512
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.13	0.35	0.70	Not Detected
1,4-Dioxane	123-91-1	0.15	0.32	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.15	0.35	0.70	Not Detected
Tetrachloroethene	127-18-4	0.072	0.60	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.11	0.35	0.70	Not Detected
Trichloroethene	79-01-6	0.10	0.47	0.94	Not Detected
Vinyl Chloride	75-01-4	0.064	0.22	0.45	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	110
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	86

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IACS-12001Stark-01_103018	Date/Time Analyzed:	11/5/18 07:10 PM
Lab ID:	1811046A-02A	Dilution Factor:	1.65
Date/Time Collected:	10/31/18 10:49 AM	Instrument/Filename:	msd22.i / 22110513
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.12	0.33	0.65	Not Detected
1,4-Dioxane	123-91-1	0.14	0.30	0.59	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.14	0.33	0.65	Not Detected
Tetrachloroethene	127-18-4	0.068	0.56	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.10	0.33	0.65	Not Detected
Trichloroethene	79-01-6	0.096	0.44	0.89	Not Detected
Vinyl Chloride	75-01-4	0.060	0.21	0.42	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	85

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	IAG12001Stark-02_103018	Date/Time Analyzed:	11/5/18 08:21 PM
Lab ID:	1811046A-03A	Dilution Factor:	1.65
Date/Time Collected:	10/31/18 11:06 AM	Instrument/Filename:	msd22.i / 22110514
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.12	0.33	0.65	Not Detected
1,4-Dioxane	123-91-1	0.14	0.30	0.59	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.14	0.33	0.65	Not Detected
Tetrachloroethene	127-18-4	0.068	0.56	1.1	1.6
trans-1,2-Dichloroethene	156-60-5	0.10	0.33	0.65	Not Detected
Trichloroethene	79-01-6	0.096	0.44	0.89	Not Detected
Vinyl Chloride	75-01-4	0.060	0.21	0.42	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	110
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	86

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12001Stark-03_103018	Date/Time Analyzed:	11/5/18 08:57 PM
Lab ID:	1811046A-04A	Dilution Factor:	1.78
Date/Time Collected:	10/31/18 11:05 AM	Instrument/Filename:	msd22.i / 22110515
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.13	0.35	0.70	Not Detected
1,4-Dioxane	123-91-1	0.15	0.32	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.16	0.35	0.70	Not Detected
Tetrachloroethene	127-18-4	0.073	0.60	1.2	0.59 J
trans-1,2-Dichloroethene	156-60-5	0.11	0.35	0.70	Not Detected
Trichloroethene	79-01-6	0.10	0.48	0.96	Not Detected
Vinyl Chloride	75-01-4	0.065	0.23	0.46	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	86

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	11/5/18 01:26 PM
Lab ID:	1811046A-05A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd22.i / 22110506a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.075	0.20	0.40	Not Detected
1,4-Dioxane	123-91-1	0.084	0.18	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.088	0.20	0.40	Not Detected
Tetrachloroethene	127-18-4	0.041	0.34	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.062	0.20	0.40	Not Detected
Trichloroethene	79-01-6	0.058	0.27	0.54	Not Detected
Vinyl Chloride	75-01-4	0.036	0.13	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	88
Toluene-d8	2037-26-5	70-130	85

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	11/5/18 09:09 AM
Lab ID:	1811046A-06A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd22.i / 22110502
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	90
1,4-Dioxane	123-91-1	100
cis-1,2-Dichloroethene	156-59-2	92
Tetrachloroethene	127-18-4	112
trans-1,2-Dichloroethene	156-60-5	93
Trichloroethene	79-01-6	112
Vinyl Chloride	75-01-4	92

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	107
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	95

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	11/5/18 10:01 AM
Lab ID:	1811046A-07A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd22.i / 22110503
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	92
1,4-Dioxane	123-91-1	102
cis-1,2-Dichloroethene	156-59-2	86
Tetrachloroethene	127-18-4	111
trans-1,2-Dichloroethene	156-60-5	104
Trichloroethene	79-01-6	113
Vinyl Chloride	75-01-4	100

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	107
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	96

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	11/5/18 11:18 AM
Lab ID:	1811046A-07AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd22.i / 22110504
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	93
1,4-Dioxane	123-91-1	101
cis-1,2-Dichloroethene	156-59-2	87
Tetrachloroethene	127-18-4	113
trans-1,2-Dichloroethene	156-60-5	107
Trichloroethene	79-01-6	112
Vinyl Chloride	75-01-4	102

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	96

* % Recovery is calculated using unrounded analytical results.

11/9/2018
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1811046B

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 11/2/2018 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1811046B

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0003
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	11/02/2018	CONTACT:	Ausha Scott
DATE COMPLETED:	11/09/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
05A	SSMP-12001Stark-01_103118	TO-15	4.9 "Hg	15.6 psi
06A	Lab Blank	TO-15	NA	NA
07A	CCV	TO-15	NA	NA
08A	LCS	TO-15	NA	NA
08AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 11/09/18

Certification numbers: AZ Licensure AZ0775, FL NELAP - E8 , LA NELAP - 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP CA009332018-10, VA NELAP - 9505, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005-011, Effective date: 10/18/2018, Expiration date: 10/17/2019.

Eurofins Air Toxics LLC. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1811046B

One 1 Liter Summa Canister sample was received on November 02, 2018. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

The Chain of Custody (COC) was not relinquished properly. A signature, date and time were not provided by the field sampler.

Sample SSMP-12001Stark-01_103118 was not received at Eurofin Air Toxics, LLC on 11/02/18 despite notation on the Chain of Custody (COC). The sample was subsequently received on 11/05/18 and was added to the analytical request.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified (0.2 ppbv for compounds reported at 0.5 ppbv and 0.8 ppbv for compounds reported at 2.0 ppbv) may be false positives.

Dilution was performed on sample SSMP-12001Stark-01_103118 due to the presence of high level target species.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12001Stark-01_103118	Date/Time Analyzed:	11/7/18 12:21 AM
Lab ID:	1811046B-05A	Dilution Factor:	3.08
Date/Time Collected:	10/31/20 11:18 AM	Instrument/Filename:	msd3.i / 3110621
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.2	3.7	6.1	Not Detected
1,4-Dioxane	123-91-1	2.0	11	22	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.7	6.1	Not Detected
Tetrachloroethene	127-18-4	2.1	6.3	10	3300
trans-1,2-Dichloroethene	156-60-5	1.8	3.7	6.1	Not Detected
Trichloroethene	79-01-6	1.3	5.0	8.3	Not Detected
Vinyl Chloride	75-01-4	2.2	2.4	3.9	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	121
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	11/6/18 12:59 PM
Lab ID:	1811046B-06A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3110606c
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.71	1.2	2.0	Not Detected
1,4-Dioxane	123-91-1	0.65	3.6	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.44	1.2	2.0	Not Detected
Tetrachloroethene	127-18-4	0.68	2.0	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.59	1.2	2.0	Not Detected
Trichloroethene	79-01-6	0.43	1.6	2.7	Not Detected
Vinyl Chloride	75-01-4	0.72	0.77	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	118
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: CCV
Lab ID: 1811046B-07A
Date/Time Collected: NA - Not Applicable
Media: NA - Not Applicable

Date/Time Analyzed: 11/6/18 09:22 AM
Dilution Factor: 1.00
Instrument/Filename: msd3.i / 3110602

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	97
1,4-Dioxane	123-91-1	102
cis-1,2-Dichloroethene	156-59-2	102
Tetrachloroethene	127-18-4	109
trans-1,2-Dichloroethene	156-60-5	107
Trichloroethene	79-01-6	112
Vinyl Chloride	75-01-4	100

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCS	Date/Time Analyzed:	11/6/18 09:47 AM
Lab ID:	1811046B-08A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3110603
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	99
1,4-Dioxane	123-91-1	101
cis-1,2-Dichloroethene	156-59-2	95
Tetrachloroethene	127-18-4	104
trans-1,2-Dichloroethene	156-60-5	117
Trichloroethene	79-01-6	112
Vinyl Chloride	75-01-4	102

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	117
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	100

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	11/6/18 10:11 AM
Lab ID:	1811046B-08AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3110604
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	98
1,4-Dioxane	123-91-1	104
cis-1,2-Dichloroethene	156-59-2	90
Tetrachloroethene	127-18-4	104
trans-1,2-Dichloroethene	156-60-5	119
Trichloroethene	79-01-6	112
Vinyl Chloride	75-01-4	105

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	115
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	102

* % Recovery is calculated using unrounded analytical results.

4/29/2019

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP Off-Site Sampling

Project #:

Workorder #: 1904509

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 4/23/2019 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1904509

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0003.0002
FAX:		PROJECT #	Ford LTP Off-Site Sampling
DATE RECEIVED:	04/23/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	04/29/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	AA-12001STARK-01_041819	Modified TO-15	7.0 "Hg	5 psi
02A	IAF-12001STARK-03_041819	Modified TO-15	5.5 "Hg	5 psi
03A	IAG12001STARK-02_041819	Modified TO-15	7.0 "Hg	5 psi
04A(cancelled)	DUP-12001STARK-01_041819	Modified TO-15		
05A	DUP-12001STARK-02_041819	Modified TO-15	5.0 "Hg	5 psi
06A	Lab Blank	Modified TO-15	NA	NA
07A	CCV	Modified TO-15	NA	NA
08A	LCS	Modified TO-15	NA	NA
08AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 04/29/19

Certification numbers: AZ Licensure AZ0775, FL NELAP - E8 , LA NELAP - 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP CA009332018-10, VA NELAP - 9505, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005-011, Effective date: 10/18/2018, Expiration date: 10/17/2019.

Eurofins Air Toxics LLC. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 1904509

Five 6 Liter Summa Canister (100% Cert Ambient) samples were received on April 23, 2019. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

Sample DUP-12001STARK-01_041819 was cancelled on 04/19/19 per client's request.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	AA-12001STARK-01_041819	Date/Time Analyzed:	4/25/19 11:43 AM
Lab ID:	1904509-01A	Dilution Factor:	1.75
Date/Time Collected:	4/19/19 07:11 AM	Instrument/Filename:	msd20.i / 20042506
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.17	0.62	0.69	Not Detected
1,4-Dioxane	123-91-1	0.51	0.57	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.37	0.62	0.69	Not Detected
Tetrachloroethene	127-18-4	0.74	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.39	0.62	0.69	Not Detected
Trichloroethene	79-01-6	0.46	0.85	0.94	Not Detected
Vinyl Chloride	75-01-4	0.14	0.40	0.45	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	109
Toluene-d8	2037-26-5	70-130	127

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	IAF-12001STARK-03_041819	Date/Time Analyzed:	4/25/19 01:33 PM
Lab ID:	1904509-02A	Dilution Factor:	1.64
Date/Time Collected:	4/19/19 07:12 AM	Instrument/Filename:	msd20.i / 20042507
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.16	0.58	0.65	Not Detected
1,4-Dioxane	123-91-1	0.48	0.53	0.59	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.35	0.58	0.65	Not Detected
Tetrachloroethene	127-18-4	0.69	1.0	1.1	0.70 J
trans-1,2-Dichloroethene	156-60-5	0.36	0.58	0.65	Not Detected
Trichloroethene	79-01-6	0.43	0.79	0.88	Not Detected
Vinyl Chloride	75-01-4	0.13	0.38	0.42	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	107
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling



Client ID:	IAG12001STARK-02_041819	Date/Time Analyzed:	4/25/19 02:12 PM
Lab ID:	1904509-03A	Dilution Factor:	1.75
Date/Time Collected:	4/19/19 07:09 AM	Instrument/Filename:	msd20.i / 20042508
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.17	0.62	0.69	Not Detected
1,4-Dioxane	123-91-1	0.51	0.57	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.37	0.62	0.69	Not Detected
Tetrachloroethene	127-18-4	0.74	1.1	1.2	1.4
trans-1,2-Dichloroethene	156-60-5	0.39	0.62	0.69	Not Detected
Trichloroethene	79-01-6	0.46	0.85	0.94	Not Detected
Vinyl Chloride	75-01-4	0.14	0.40	0.45	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	96

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	DUP-12001STARK-02_041819	Date/Time Analyzed:	4/25/19 02:51 PM
Lab ID:	1904509-05A	Dilution Factor:	1.61
Date/Time Collected:	4/19/19 07:11 AM	Instrument/Filename:	msd20.i / 20042509
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.15	0.57	0.64	Not Detected
1,4-Dioxane	123-91-1	0.47	0.52	0.58	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.57	0.64	Not Detected
Tetrachloroethene	127-18-4	0.68	0.98	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.57	0.64	Not Detected
Trichloroethene	79-01-6	0.42	0.78	0.86	Not Detected
Vinyl Chloride	75-01-4	0.13	0.37	0.41	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	110
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	98

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	Lab Blank	Date/Time Analyzed:	4/25/19 10:31 AM
Lab ID:	1904509-06A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20042505a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.095	0.36	0.40	Not Detected
1,4-Dioxane	123-91-1	0.29	0.32	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.21	0.36	0.40	Not Detected
Tetrachloroethene	127-18-4	0.42	0.61	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.22	0.36	0.40	Not Detected
Trichloroethene	79-01-6	0.26	0.48	0.54	Not Detected
Vinyl Chloride	75-01-4	0.082	0.23	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	CCV	Date/Time Analyzed:	4/25/19 07:35 AM
Lab ID:	1904509-07A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20042502
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	104
1,4-Dioxane	123-91-1	116
cis-1,2-Dichloroethene	156-59-2	111
Tetrachloroethene	127-18-4	105
trans-1,2-Dichloroethene	156-60-5	106
Trichloroethene	79-01-6	100
Vinyl Chloride	75-01-4	107

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	LCS	Date/Time Analyzed:	4/25/19 08:29 AM
Lab ID:	1904509-08A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20042503
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	106
1,4-Dioxane	123-91-1	115
cis-1,2-Dichloroethene	156-59-2	119
Tetrachloroethene	127-18-4	111
trans-1,2-Dichloroethene	156-60-5	93
Trichloroethene	79-01-6	126
Vinyl Chloride	75-01-4	108

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	100

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	LCSD	Date/Time Analyzed:	4/25/19 09:23 AM
Lab ID:	1904509-08AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20042504
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	109
1,4-Dioxane	123-91-1	120
cis-1,2-Dichloroethene	156-59-2	124
Tetrachloroethene	127-18-4	109
trans-1,2-Dichloroethene	156-60-5	96
Trichloroethene	79-01-6	122
Vinyl Chloride	75-01-4	114

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	98

* % Recovery is calculated using unrounded analytical results.

4/29/2019

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP Off-Site Sampling

Project #:

Workorder #: 1904515

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 4/23/2019 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1904515

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0003.00002
FAX:		PROJECT #	Ford LTP Off-Site Sampling
DATE RECEIVED:	04/23/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	04/29/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SSMP-12001STARK-01_041919	TO-15	5.3 "Hg	15.9 psi
02A	Lab Blank	TO-15	NA	NA
03A	CCV	TO-15	NA	NA
04A	LCS	TO-15	NA	NA
04AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 04/29/19

Certification numbers: AZ Licensure AZ0775, FL NELAP - E8 , LA NELAP - 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP CA009332018-10, VA NELAP - 9505, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005-011, Effective date: 10/18/2018, Expiration date: 10/17/2019.

Eurofins Air Toxics LLC. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1904515

One 1 Liter Summa Canister (100% Certified) sample was received on April 23, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	SSMP-12001STARK-01_041919	Date/Time Analyzed:	4/27/19 09:45 PM
Lab ID:	1904515-01A	Dilution Factor:	2.53
Date/Time Collected:	4/19/19 07:41 AM	Instrument/Filename:	msdj.i / j042716
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.0	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.3	4.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.3	6.9	8.6	2800
trans-1,2-Dichloroethene	156-60-5	2.9	4.0	5.0	Not Detected
Trichloroethene	79-01-6	2.5	5.4	6.8	Not Detected
Vinyl Chloride	75-01-4	2.3	2.6	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	91
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	Lab Blank	Date/Time Analyzed:	4/27/19 12:45 PM
Lab ID:	1904515-02A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j042705d
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.59	1.6	2.0	Not Detected
1,4-Dioxane	123-91-1	1.6	5.4	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.90	1.6	2.0	Not Detected
Tetrachloroethene	127-18-4	0.91	2.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.1	1.6	2.0	Not Detected
Trichloroethene	79-01-6	1.0	2.1	2.7	Not Detected
Vinyl Chloride	75-01-4	0.91	1.0	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	90
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling



Client ID:	CCV	Date/Time Analyzed:	4/27/19 10:39 AM
Lab ID:	1904515-03A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j042702
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	98
1,4-Dioxane	123-91-1	95
cis-1,2-Dichloroethene	156-59-2	101
Tetrachloroethene	127-18-4	99
trans-1,2-Dichloroethene	156-60-5	104
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	94

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	LCS	Date/Time Analyzed:	4/27/19 11:16 AM
Lab ID:	1904515-04A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j042703
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	100
1,4-Dioxane	123-91-1	112
cis-1,2-Dichloroethene	156-59-2	110
Tetrachloroethene	127-18-4	105
trans-1,2-Dichloroethene	156-60-5	88
Trichloroethene	79-01-6	102
Vinyl Chloride	75-01-4	98

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	102

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	LCSD	Date/Time Analyzed:	4/27/19 11:44 AM
Lab ID:	1904515-04AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j042704
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	100
1,4-Dioxane	123-91-1	108
cis-1,2-Dichloroethene	156-59-2	115
Tetrachloroethene	127-18-4	105
trans-1,2-Dichloroethene	156-60-5	90
Trichloroethene	79-01-6	100
Vinyl Chloride	75-01-4	98

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	100

* % Recovery is calculated using unrounded analytical results.

11/8/2019
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1910582R1

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 10/24/2019 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1910582R1

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30016344.0002B
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	10/24/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	10/30/2019		
DATE REISSUED:	11/08/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SSMP-12001STARK-01_101819	TO-15	5.3 "Hg	15.3 psi
02A	DUP-12001STARK-01_101819	TO-15	5.1 "Hg	15 psi
03A	Lab Blank	TO-15	NA	NA
04A	CCV	TO-15	NA	NA
05A	LCS	TO-15	NA	NA
05AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 11/08/19

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP – CA009332019-11, VA NELAP - 460197, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005-011, Effective date: 10/18/2019, Expiration date: 10/17/2020.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1910582R1

Two 1 Liter Summa Canister (100% Certified) samples were received on October 24, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

The workorder was reissued on 11/8/19 to report results in ug/m3 as well as a different format per project specifications.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12001STARK-01_101819	Date/Time Analyzed:	10/26/19 10:27 PM
Lab ID:	1910582R1-01A	Dilution Factor:	2.48
Date/Time Collected:	10/18/19 09:26 AM	Instrument/Filename:	msd3.i / 3102620
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.1	2.4	4.9	Not Detected
1,4-Dioxane	123-91-1	0.93	5.6	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.77	2.4	4.9	Not Detected
Tetrachloroethene	127-18-4	1.2	4.2	8.4	2500
trans-1,2-Dichloroethene	156-60-5	1.0	2.4	4.9	Not Detected
Trichloroethene	79-01-6	0.85	3.3	6.7	Not Detected
Vinyl Chloride	75-01-4	0.53	1.6	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	DUP-12001STARK-01_101819	Date/Time Analyzed:	10/26/19 10:00 PM
Lab ID:	1910582R1-02A	Dilution Factor:	2.43
Date/Time Collected:	10/18/19 12:00 AM	Instrument/Filename:	msd3.i / 3102619
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.1	2.4	4.8	Not Detected
1,4-Dioxane	123-91-1	0.91	5.5	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.76	2.4	4.8	Not Detected
Tetrachloroethene	127-18-4	1.2	4.1	8.2	2400
trans-1,2-Dichloroethene	156-60-5	1.0	2.4	4.8	Not Detected
Trichloroethene	79-01-6	0.84	3.3	6.5	Not Detected
Vinyl Chloride	75-01-4	0.52	1.6	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	Lab Blank	Date/Time Analyzed:	10/26/19 10:44 AM
Lab ID:	1910582R1-03A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3102605c
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.46	0.99	2.0	Not Detected
1,4-Dioxane	123-91-1	0.38	2.2	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.31	0.99	2.0	Not Detected
Tetrachloroethene	127-18-4	0.50	1.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.42	0.99	2.0	Not Detected
Trichloroethene	79-01-6	0.34	1.3	2.7	Not Detected
Vinyl Chloride	75-01-4	0.21	0.64	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	CCV	Date/Time Analyzed:	10/26/19 09:11 AM
Lab ID:	1910582R1-04A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3102602
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	94
1,4-Dioxane	123-91-1	100
cis-1,2-Dichloroethene	156-59-2	104
Tetrachloroethene	127-18-4	105
trans-1,2-Dichloroethene	156-60-5	102
Trichloroethene	79-01-6	101
Vinyl Chloride	75-01-4	84

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCS	Date/Time Analyzed:	10/26/19 09:37 AM
Lab ID:	1910582R1-05A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3102603
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	96
1,4-Dioxane	123-91-1	100
cis-1,2-Dichloroethene	156-59-2	107
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	87
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	85

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	100

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	10/26/19 10:01 AM
Lab ID:	1910582R1-05AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3102604
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	96
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	106
Tetrachloroethene	127-18-4	100
trans-1,2-Dichloroethene	156-60-5	87
Trichloroethene	79-01-6	94
Vinyl Chloride	75-01-4	87

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	102

* % Recovery is calculated using unrounded analytical results.

10/30/2019
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1910584

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 10/24/2019 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1910584

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30016344.0002B
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	10/24/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	10/30/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	IAG12001STARK-02_101819	Modified TO-15	5.3 "Hg	5.3 psi
02A	AA-12001STARK-01_101819	Modified TO-15	4.9 "Hg	5.1 psi
03A	IAF-12001STARK-03_101819	Modified TO-15	8.4 "Hg	4.8 psi
03B	IAF-12001STARK-03_101819	Modified TO-15	8.4 "Hg	4.8 psi
04A	Lab Blank	Modified TO-15	NA	NA
04B	Lab Blank	Modified TO-15	NA	NA
05A	CCV	Modified TO-15	NA	NA
05B	CCV	Modified TO-15	NA	NA
06A	LCS	Modified TO-15	NA	NA
06AA	LCSD	Modified TO-15	NA	NA
06B	LCS	Modified TO-15	NA	NA
06BB	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 10/30/19

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP – CA009332019-11, VA NELAP - 460197, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005-011, Effective date: 10/18/2019, Expiration date: 10/17/2020.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 1910584

Three 6 Liter Summa Canister (100% Cert Ambient) samples were received on October 24, 2019. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

The results for sample IAF-12001STARK-03_101819 in this report was acquired from two separate data files originating from the same analytical run. The two data files have the same base file name and are differentiated with a "sim" extension on the SIM data file.

Dilution was performed on sample IAF-12001STARK-03_101819 due to the presence of high level non-target species.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See

data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAG12001STARK-02_101819	Date/Time Analyzed:	10/26/19 05:55 PM
Lab ID:	1910584-01A	Dilution Factor:	1.65
Date/Time Collected:	10/18/19 09:58 AM	Instrument/Filename:	msd20.i / 20102615
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.16	0.59	0.65	Not Detected
1,4-Dioxane	123-91-1	0.48	0.54	0.59	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.35	0.59	0.65	Not Detected
Tetrachloroethene	127-18-4	0.70	1.0	1.1	0.92 J
trans-1,2-Dichloroethene	156-60-5	0.37	0.59	0.65	Not Detected
Trichloroethene	79-01-6	0.44	0.80	0.89	Not Detected
Vinyl Chloride	75-01-4	0.14	0.38	0.42	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	116
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	99

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-12001STARK-01_101819	Date/Time Analyzed:	10/26/19 06:34 PM
Lab ID:	1910584-02A	Dilution Factor:	1.61
Date/Time Collected:	10/18/19 09:02 AM	Instrument/Filename:	msd20.i / 20102616
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.15	0.57	0.64	Not Detected
1,4-Dioxane	123-91-1	0.47	0.52	0.58	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.57	0.64	Not Detected
Tetrachloroethene	127-18-4	0.68	0.98	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.57	0.64	Not Detected
Trichloroethene	79-01-6	0.42	0.78	0.86	Not Detected
Vinyl Chloride	75-01-4	0.13	0.37	0.41	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	97

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	IAF-12001STARK-03_101819	Date/Time Analyzed:	10/26/19 07:13 PM
Lab ID:	1910584-03A	Dilution Factor:	18.4
Date/Time Collected:	10/18/19 10:59 AM	Instrument/Filename:	msd20.i / 20102617
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	6.6	7.3	Not Detected
1,4-Dioxane	123-91-1	5.4	6.0	6.6	Not Detected
cis-1,2-Dichloroethene	156-59-2	3.9	6.6	7.3	Not Detected
Tetrachloroethene	127-18-4	7.8	11	12	Not Detected
trans-1,2-Dichloroethene	156-60-5	4.1	6.6	7.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	96

MODIFIED EPA METHOD TO-15 GC/MS SIM
Ford LTP

Client ID:	IAF-12001STARK-03_101819	Date/Time Analyzed:	10/26/19 07:13 PM
Lab ID:	1910584-03B	Dilution Factor:	18.4
Date/Time Collected:	10/18/19 10:59 AM	Instrument/Filename:	msd20.i / 20102617sim
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	79-01-6	0.19	0.59	2.0	Not Detected
Vinyl Chloride	75-01-4	0.12	0.28	0.47	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	98

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	10/26/19 11:25 AM
Lab ID:	1910584-04A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20102606c
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.095	0.36	0.40	Not Detected
1,4-Dioxane	123-91-1	0.29	0.32	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.21	0.36	0.40	Not Detected
Tetrachloroethene	127-18-4	0.42	0.61	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.22	0.36	0.40	Not Detected
Trichloroethene	79-01-6	0.26	0.48	0.54	Not Detected
Vinyl Chloride	75-01-4	0.082	0.23	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	98

MODIFIED EPA METHOD TO-15 GC/MS SIM
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	10/26/19 11:25 AM
Lab ID:	1910584-04B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20102606simc
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	79-01-6	0.010	0.032	0.11	Not Detected
Vinyl Chloride	75-01-4	0.0065	0.015	0.026	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	10/26/19 08:49 AM
Lab ID:	1910584-05A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20102602
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	92
1,4-Dioxane	123-91-1	110
cis-1,2-Dichloroethene	156-59-2	100
Tetrachloroethene	127-18-4	100
trans-1,2-Dichloroethene	156-60-5	102
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	99

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	104

MODIFIED EPA METHOD TO-15 GC/MS SIM
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	10/26/19 08:49 AM
Lab ID:	1910584-05B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20102602sim
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
Trichloroethene	79-01-6	95
Vinyl Chloride	75-01-4	92

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	10/26/19 09:28 AM
Lab ID:	1910584-06A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20102603
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	92
1,4-Dioxane	123-91-1	116
cis-1,2-Dichloroethene	156-59-2	95
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	111
Trichloroethene	79-01-6	97
Vinyl Chloride	75-01-4	102

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	102

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	10/26/19 10:07 AM
Lab ID:	1910584-06AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20102604
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	98
1,4-Dioxane	123-91-1	113
cis-1,2-Dichloroethene	156-59-2	97
Tetrachloroethene	127-18-4	98
trans-1,2-Dichloroethene	156-60-5	113
Trichloroethene	79-01-6	94
Vinyl Chloride	75-01-4	105

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	101

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS SIM
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	10/26/19 09:28 AM
Lab ID:	1910584-06B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20102603sim
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	97

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	102

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS SIM
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	10/26/19 10:07 AM
Lab ID:	1910584-06BB	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20102604sim
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	98

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	102

* % Recovery is calculated using unrounded analytical results.

12/16/2019
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1912197

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 12/9/2019 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1912197

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30016344.0001B
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	12/09/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	12/16/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	IAF-12001STARK-03_120519	Modified TO-15	8.5 "Hg	5 psi
02A(cancelled)	IAG12001STARK-02_120519	Modified TO-15		
03A	AA-12001STARK-01_120519	Modified TO-15	6.0 "Hg	5 psi
04A	Lab Blank	Modified TO-15	NA	NA
05A	CCV	Modified TO-15	NA	NA
06A	LCS	Modified TO-15	NA	NA
06AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 12/16/19

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP – CA009332019-11, VA NELAP - 460197, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005-011, Effective date: 10/18/2019, Expiration date: 10/17/2020.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 1912197

Three 6 Liter Summa Canister (100% Cert Ambient) samples were received on December 09, 2019. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the EATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

Sample IAG12001STARK-02_120519 was cancelled on 12/05/19 per client's request.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12001STARK-03_120519	Date/Time Analyzed:	12/11/19 02:27 PM
Lab ID:	1912197-01A	Dilution Factor:	1.87
Date/Time Collected:	12/5/19 09:12 AM	Instrument/Filename:	msd22.i / 22121111
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.22	0.30	0.74	Not Detected
1,4-Dioxane	123-91-1	0.13	0.27	0.67	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.076	0.30	0.74	Not Detected
Tetrachloroethene	127-18-4	0.29	0.51	1.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.12	0.30	0.74	Not Detected
Trichloroethene	79-01-6	0.10	0.40	1.0	Not Detected
Vinyl Chloride	75-01-4	0.066	0.19	0.48	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	117
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	99

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-12001STARK-01_120519	Date/Time Analyzed:	12/11/19 03:09 PM
Lab ID:	1912197-03A	Dilution Factor:	1.68
Date/Time Collected:	12/5/19 09:09 AM	Instrument/Filename:	msd22.i / 22121112
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.20	0.27	0.67	Not Detected
1,4-Dioxane	123-91-1	0.11	0.24	0.60	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.068	0.27	0.67	Not Detected
Tetrachloroethene	127-18-4	0.26	0.46	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.11	0.27	0.67	Not Detected
Trichloroethene	79-01-6	0.093	0.36	0.90	Not Detected
Vinyl Chloride	75-01-4	0.060	0.17	0.43	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	115
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	99

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	Lab Blank	Date/Time Analyzed:	12/11/19 11:11 AM
Lab ID:	1912197-04A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd22.i / 22121106a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.12	0.16	0.40	Not Detected
1,4-Dioxane	123-91-1	0.068	0.14	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.041	0.16	0.40	Not Detected
Tetrachloroethene	127-18-4	0.15	0.27	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.066	0.16	0.40	Not Detected
Trichloroethene	79-01-6	0.055	0.21	0.54	Not Detected
Vinyl Chloride	75-01-4	0.036	0.10	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	118
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	12/11/19 08:29 AM
Lab ID:	1912197-05A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd22.i / 22121102
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	86
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	90
Tetrachloroethene	127-18-4	90
trans-1,2-Dichloroethene	156-60-5	92
Trichloroethene	79-01-6	92
Vinyl Chloride	75-01-4	91

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	12/11/19 09:13 AM
Lab ID:	1912197-06A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd22.i / 22121103
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	80
1,4-Dioxane	123-91-1	96
cis-1,2-Dichloroethene	156-59-2	78
Tetrachloroethene	127-18-4	84
trans-1,2-Dichloroethene	156-60-5	96
Trichloroethene	79-01-6	89
Vinyl Chloride	75-01-4	87

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	104

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	12/11/19 09:55 AM
Lab ID:	1912197-06AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd22.i / 22121104
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	80
1,4-Dioxane	123-91-1	94
cis-1,2-Dichloroethene	156-59-2	78
Tetrachloroethene	127-18-4	86
trans-1,2-Dichloroethene	156-60-5	95
Trichloroethene	79-01-6	88
Vinyl Chloride	75-01-4	87

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	104

* % Recovery is calculated using unrounded analytical results.

12/16/2019
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1912200

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 12/9/2019 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1912200

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30016344.0001B
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	12/09/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	12/16/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SSMP-12001STARK-01_120519	TO-15	5.3 "Hg	15.3 psi
02A	Lab Blank	TO-15	NA	NA
03A	CCV	TO-15	NA	NA
04A	LCS	TO-15	NA	NA
04AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 
 Technical Director

DATE: 12/16/19

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP – CA009332019-11, VA NELAP - 460197, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005-011, Effective date: 10/18/2019, Expiration date: 10/17/2020.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1912200

One 1 Liter Summa Canister (100% Certified) sample was received on December 09, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12001STARK-01_120519	Date/Time Analyzed:	12/12/19 05:56 PM
Lab ID:	1912200-01A	Dilution Factor:	2.48
Date/Time Collected:	12/5/19 09:39 AM	Instrument/Filename:	msdp.i / p121211
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.2	4.4	4.9	Not Detected
1,4-Dioxane	123-91-1	0.90	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.69	4.4	4.9	Not Detected
Tetrachloroethene	127-18-4	1.0	7.6	8.4	1400
trans-1,2-Dichloroethene	156-60-5	1.1	4.4	4.9	Not Detected
Trichloroethene	79-01-6	0.56	6.0	6.7	1.9 J
Vinyl Chloride	75-01-4	0.46	2.8	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	12/12/19 03:49 PM
Lab ID:	1912200-02A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdp.i / p121207a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.50	1.8	2.0	Not Detected
1,4-Dioxane	123-91-1	0.36	5.0	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.28	1.8	2.0	Not Detected
Tetrachloroethene	127-18-4	0.42	3.0	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.45	1.8	2.0	Not Detected
Trichloroethene	79-01-6	0.22	2.4	2.7	Not Detected
Vinyl Chloride	75-01-4	0.19	1.1	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: CCV
Lab ID: 1912200-03A
Date/Time Collected: NA - Not Applicable
Media: NA - Not Applicable

Date/Time Analyzed: 12/12/19 12:41 PM
Dilution Factor: 1.00
Instrument/Filename: msdp.i / p121203

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	99
1,4-Dioxane	123-91-1	102
cis-1,2-Dichloroethene	156-59-2	105
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	102
Trichloroethene	79-01-6	99
Vinyl Chloride	75-01-4	98

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	104

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCS	Date/Time Analyzed:	12/12/19 02:03 PM
Lab ID:	1912200-04A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdp.i / p121204
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	99
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	111
Tetrachloroethene	127-18-4	101
trans-1,2-Dichloroethene	156-60-5	91
Trichloroethene	79-01-6	95
Vinyl Chloride	75-01-4	96

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	101

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	12/12/19 02:29 PM
Lab ID:	1912200-04AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdp.i / p121205
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	97
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	113
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	91
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	97

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	101

* % Recovery is calculated using unrounded analytical results.

Martin, Michele

From: Hinskey, Kristoffer
Sent: Saturday, November 10, 2018 4:34 PM
To: Brandon Alger (AlgerB@michigan.gov)
Cc: Vens, Beth (DEQ); Owens, Paul (DEQ); Merritt, Lawrence (L.H.); Walton, Todd (T.M.); Pinter, Chuck (C.H.)
Subject: Livonia Transmission Plant - 24 Hr Notice
Attachments: E203631_1811046A_20181031_report.pdf; E203631_1811046B_20181031_report.pdf

Brandon –

This email serves as the 24-hour notification for an exceedance as it relates to offsite vapor intrusion assessment conducted under the approval letter provided by the MDEQ for the VI RespAP.

Analytical results collected at 12001 Stark (residential property) were received and reviewed yesterday. The results indicated an exceedance of tetrachloroethene in soil gas collected at SSMP-01, which is located in the garage. Indoor air samples were collected in the crawl space of the home, first floor of the home, and within the garage. The indoor air results indicated that there were **no exceedances** and only low detections for tetrachloroethene.

The property owner will be notified of the exceedance and next steps will be discussed with the MDEQ.

Thank you

Kris Hinskey | Certified Project Manager | kristoffer.hinskey@arcadis.com
Arcadis | Arcadis of Michigan, LLC
28550 Cabot Drive Suite 500 Novi MI | 48377 | USA
T. +1 269 579 5402

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Be green, leave it on the screen.

Martin, Michele

From: Hinskey, Kristoffer
Sent: Wednesday, November 13, 2019 10:47 AM
To: Alger, Brandon (EGLE); Vens, Beth (DEQ); Rafalski, Alexandra (DHHS); Cooch, Aaron (DHHS-Contractor); Merritt, Lawrence (L.H.); Walton, Todd (T.M.); Pinter, Chuck (C.H.); Quinnan, Joseph
Subject: Livonia Transmission Plant - 24 Hr Notification 12001 Stark
Attachments: 12001 Stark Data Package.pdf

Brandon -

This email serves as the notification for an exceedance as it relates to offsite vapor intrusion assessment conducted under the approval letter provided by the MDEQ for the VI RespAP.

Analytical results from the residential property at 12001 Stark indicated that tetrachloroethene (PCE) was detected in the sub-slab soil vapor collected from the garage above the screening level presented by EGLE in the Consent Decree. PCE was detected in the garage (sample SSMP-12001STARK-01_101819 and sample duplicate DUP-12001STARK-01_101819) of the home at concentrations of 2,500 ug/m³ and 2,400 ug/m³, respectively, which exceed the residential screening level of 1,400 ug/m³. For PCE, the sub-slab screening level and the time-sensitive screening level are the same at 1,400 ug/m³. PCE was detected in an indoor air sample collected from the property at a very low level (0.92 J ug/m³), which is well below the indoor air screening level of 41 ug/m³. These results have been consistent with the last round of sampling.

Groundwater samples were collected on September 23, 2019 and September 20, 2019 from groundwater wells MW-106S and MW-167S, respectively. MW-106S is located upgradient of the property and MW-167S is located on the property. PCE was not detected in MW-106S or MW-167S (laboratory detection limit = 1 ug/L, method detection limit = 0.15 ug/L for both groundwater wells). The source of the PCE in soil gas does not appear to be related to groundwater. Based on Henry's Law at 15 degrees C, a concentration of ~4.67 - 5.83 ug/L would be needed to generate the 2,400 - 2,500 ug/m³ noted in sub-slab soil gas beneath the garage.

During the building survey and chemical inventory, it was noted that the homeowner keeps various degreasers and cleaners on shelves in the garage that could be a source of PCE. The garage was also observed to have cracks and floor drains. Negative differential pressure readings were also recorded from the sub-slab monitoring point (-0.00018 iwc) that was sampled. Based on these observations, there is potential for products from the garage to contribute to the sub-slab detections.

Arcadis will continue to evaluate groundwater concentrations upgradient (MW-106S) and downgradient (MW-167S) of the home and will continue the vapor intrusion assessment in 2020.

The property owner was provided the data package (attached) that contains the analytical results.

Thank you

Kris Hinskey | Certified Project Manager | kristoffer.hinskey@arcadis.com
Arcadis | Arcadis of Michigan, LLC
28550 Cabot Drive Suite 500 Novi MI | 48377 | USA
T. +1 269 579 5402

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Martin, Michele

From: Hinskey, Kristoffer
Sent: Friday, September 6, 2019 7:36 PM
To: Brandon Alger (AlgerB@michigan.gov)
Cc: Vens, Beth (DEQ); Rafalski, Alexandra (DHHS); Cooch, Aaron (DHHS-Contractor); Merritt, Lawrence (L.H.); Walton, Todd (T.M.); Pinter, Chuck (C.H.); Quinnan, Joseph
Subject: RE: Livonia Transmission Plant - Notification 12001 Stark

Correction the address is 12001 Stark.

Thank you

From: Hinskey, Kristoffer
Sent: Friday, September 6, 2019 7:35 PM
To: Brandon Alger (AlgerB@michigan.gov) <AlgerB@michigan.gov>
Cc: 'Vens, Beth (DEQ)' <VENSB@michigan.gov>; 'Rafalski, Alexandra (DHHS)' <RafalskiA@michigan.gov>; 'Cooch, Aaron (DHHS-Contractor)' <CoochA@michigan.gov>; 'Merritt, Lawrence (L.H.)' <lmerrit2@ford.com>; Walton, Todd (T.M.) <twalton@ford.com>; Pinter, Chuck (C.H.) <cpinter@ford.com>; Quinnan, Joseph <Joseph.Quinnan@arcadis.com>
Subject: Livonia Transmission Plant - Notification 12001 Bost Post

Brandon –

We are writing to notify EGLE of an exceedance of screening levels for sub-slab soil vapor for an assessment conducted under the approval letter provided by the EGLE for the VI RespAP.

Analytical results from the residential property at 12001 Stark indicated that PCE was detected in sub-slab soil vapor collected from the garage above the screening level presented by EGLE in the Consent Decree. PCE was detected in the garage (sample SSMP-12001STARK-01_041919) of the home at a concentration of 2,800 ug/m³, which exceeded the residential screening level of 1,400 ug/m³. For PCE the sub-slab screening level and the time-sensitive screening level are the same at 1,400 ug/m³. PCE was detected in indoor air samples collected from the property at very low levels (0.70 J ug/m³ to 1.4 ug/m³), which were well below the indoor air screening level of 41 ug/m³.

A groundwater sample was collected May 20, 2019 from groundwater well MW-167S which is located on the property and tetrachloroethene was not detected (laboratory detection limit = 1 ug/L).

The source of the tetrachloroethene in soil gas is unclear at this point but does not appear to be related groundwater. Based on Henry's Law at 15 degrees C, a concentration of ~6.5 ug/L would be needed to generate the 2,800 ug/m³ noted in sub-slab soil gas beneath the garage.

The property owner was provided the data package (attached), that contains the analytical results.

Thank you

Kris Hinskey | Certified Project Manager | kristoffer.hinskey@arcadis.com
Arcadis | Arcadis of Michigan, LLC
28550 Cabot Drive Suite 500 Novi MI | 48377 | USA
T. +1 269 579 5402

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TRANSMITTAL LETTER



To:
 George Al-Husari
 Shawn Collins
 Brandon Alger (MDEQ)
 Todd Walton (Ford)
 Chuck Pinter (Ford)
 Rob Boley (Schiff Hardin LLP)

From:
 Kris Hinskey

Arcadis of Michigan, LLC
 28550 Cabot Drive
 Suite 500
 Novi
 Michigan 48377
 Tel 248 994 2240
 Fax 248 994 2241

Copies:

Date:
 March 5, 2019

Subject:

Shallow Groundwater
 Assessment Data Package

Arcadis Project No.:

We are sending you hard copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- | | | | |
|--|---|---|---------------------------------------|
| <input type="checkbox"/> Shop Drawings | <input type="checkbox"/> Plans | <input type="checkbox"/> Specifications | <input type="checkbox"/> Change Order |
| <input type="checkbox"/> Prints | <input checked="" type="checkbox"/> Samples | <input type="checkbox"/> Copy of Letter | <input type="checkbox"/> Reports |
| <input type="checkbox"/> Other: | | | |

Copies	Delivery Date	Drawing No.	Rev.	Description	Action*
1	3/7/19			Figure	
1	3/7/19			Analytical Results	
1	3/7/19			Field Notes	

Action*

- | | | |
|---|--|--|
| <input type="checkbox"/> A Approved | <input type="checkbox"/> CR Correct and Resubmit | <input type="checkbox"/> Resubmit _____ Copies |
| <input type="checkbox"/> AN Approved As Noted | <input type="checkbox"/> F File | <input type="checkbox"/> Return _____ Copies |
| <input type="checkbox"/> AS As Requested | <input type="checkbox"/> FA For Approval | <input type="checkbox"/> Review and Comment |
| <input type="checkbox"/> Other: _____ | | |

Mailing Method



- | | | | |
|--|--|--|---|
| <input type="checkbox"/> U.S. Postal Service 1 st Class | <input type="checkbox"/> Courier/Hand Delivery | <input checked="" type="checkbox"/> FedEx Priority Overnight | <input type="checkbox"/> FedEx 2-Day Delivery |
| <input type="checkbox"/> Certified/Registered Mail | <input type="checkbox"/> United Parcel Service (UPS) | <input type="checkbox"/> FedEx Standard Overnight | <input type="checkbox"/> FedEx Economy |
| <input checked="" type="checkbox"/> Other: <u>email</u> | | | |

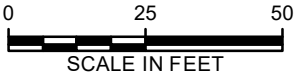
Thank you for cooperating with the groundwater sampling at your property on February 25, 2019. Attached is your data package.

CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: A. PAULSON TR: M. WACKSMAN PROJECT NUMBER: MI001454.0003.000001 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
 Z:\GIS\Projects\ENV\NovBrighton_Mil\FordLivonia\GIS\docs\2019-03\MW_Locations\12001Stark\MW-167S.mxd PLOTTED: 3/5/2019 7:49:29 AM BY: msmliller



LEGEND:

-  MONITORING WELL LOCATION
-  APPROXIMATE PROPERTY BOUNDARIES



FORD MOTOR COMPANY
 LIVONIA TRANSMISSION PLANT
 LIVONIA, MICHIGAN

MONITORING WELL LOCATION MW-167S



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

TestAmerica Job ID: 240-108557-1

Client Project/Site: Ford LTP Livonia MI - E203631

For:

ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
2/28/2019 3:11:28 PM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

LINKS

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results through
TotalAccess

Have a Question?



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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108557-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108557-1

Job ID: 240-108557-1

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Livonia MI - E203631

Report Number: 240-108557-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control sample was within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, sample was diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The sample was received on 2/27/2019 8:20 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.8° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Sample MW-167S_022519 (240-108557-1) was analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The sample was analyzed on 02/27/2019.

There was an MS/MSD analyzed in batch 240-369594 but could not be reported because the associated sample needed reanalyzed in a different batch: MW-167S_022519 (240-108557-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-167S_022519 (240-108557-1) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 02/27/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108557-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108557-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-108557-1	MW-167S_022519	Water	02/25/19 11:40	02/27/19 08:20

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108557-1

Client Sample ID: MW-167S_022519

Lab Sample ID: 240-108557-1

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108557-1

Client Sample ID: MW-167S_022519

Lab Sample ID: 240-108557-1

Date Collected: 02/25/19 11:40

Matrix: Water

Date Received: 02/27/19 08:20

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			02/27/19 13:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		63 - 125					02/27/19 13:47	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/27/19 15:57	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/27/19 15:57	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/27/19 15:57	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/27/19 15:57	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/27/19 15:57	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/27/19 15:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		70 - 121					02/27/19 15:57	1
4-Bromofluorobenzene (Surr)	89		59 - 120					02/27/19 15:57	1
Toluene-d8 (Surr)	94		70 - 123					02/27/19 15:57	1
Dibromofluoromethane (Surr)	95		75 - 128					02/27/19 15:57	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108557-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-121)	BFB (59-120)	TOL (70-123)	DBFM (75-128)
240-108557-1	MW-167S_022519	112	89	94	95
LCS 240-369594/4	Lab Control Sample	98	105	101	87
MB 240-369594/7	Method Blank	109	89	96	93

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (63-125)
240-108557-1	MW-167S_022519	86
500-159168-B-2 MS	Matrix Spike	88
500-159168-B-2 MSD	Matrix Spike Duplicate	86
LCS 240-369608/4	Lab Control Sample	83
MB 240-369608/5	Method Blank	84

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108557-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-369594/7
Matrix: Water
Analysis Batch: 369594

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/27/19 15:05	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/27/19 15:05	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/27/19 15:05	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/27/19 15:05	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/27/19 15:05	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/27/19 15:05	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		70 - 121		02/27/19 15:05	1
4-Bromofluorobenzene (Surr)	89		59 - 120		02/27/19 15:05	1
Toluene-d8 (Surr)	96		70 - 123		02/27/19 15:05	1
Dibromofluoromethane (Surr)	93		75 - 128		02/27/19 15:05	1

Lab Sample ID: LCS 240-369594/4
Matrix: Water
Analysis Batch: 369594

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	9.07		ug/L		91	65 - 139
cis-1,2-Dichloroethene	10.0	9.01		ug/L		90	76 - 128
Tetrachloroethene	10.0	8.40		ug/L		84	74 - 130
trans-1,2-Dichloroethene	10.0	9.21		ug/L		92	78 - 133
Trichloroethene	10.0	7.95		ug/L		80	76 - 125
Vinyl chloride	10.0	10.8		ug/L		108	58 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		70 - 121
4-Bromofluorobenzene (Surr)	105		59 - 120
Toluene-d8 (Surr)	101		70 - 123
Dibromofluoromethane (Surr)	87		75 - 128

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-369608/5
Matrix: Water
Analysis Batch: 369608

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			02/27/19 12:32	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		63 - 125		02/27/19 12:32	1

TestAmerica Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108557-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-369608/4
Matrix: Water
Analysis Batch: 369608

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	11.2		ug/L		112	59 - 131
Surrogate	%Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	83		63 - 125				

Lab Sample ID: 500-159168-B-2 MS
Matrix: Water
Analysis Batch: 369608

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	10.0	11.4		ug/L		114	52 - 129
Surrogate	%Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	88		63 - 125						

Lab Sample ID: 500-159168-B-2 MSD
Matrix: Water
Analysis Batch: 369608

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	2.0	U	10.0	11.3		ug/L		113	52 - 129	1	13
Surrogate	%Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	86		63 - 125								

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108557-1

GC/MS VOA

Analysis Batch: 369594

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-108557-1	MW-167S_022519	Total/NA	Water	8260B	
MB 240-369594/7	Method Blank	Total/NA	Water	8260B	
LCS 240-369594/4	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 369608

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-108557-1	MW-167S_022519	Total/NA	Water	8260B SIM	
MB 240-369608/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-369608/4	Lab Control Sample	Total/NA	Water	8260B SIM	
500-159168-B-2 MS	Matrix Spike	Total/NA	Water	8260B SIM	
500-159168-B-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108557-1

Client Sample ID: MW-167S_022519

Lab Sample ID: 240-108557-1

Date Collected: 02/25/19 11:40

Matrix: Water

Date Received: 02/27/19 08:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	369594	02/27/19 15:57	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	369608	02/27/19 13:47	SAM	TAL CAN

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108557-1

Laboratory: TestAmerica Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-19 *
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19
Illinois	NELAP	5	200004	07-31-19
Kansas	NELAP	7	E-10336	04-30-19
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19
New York	NELAP	2	10975	03-31-19 *
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Client Information Client Contact: Angela DeGrandis Company: ARCADIS U.S., Inc. Address: 28550 Cabot Drive Suite 500 City: Novi State, Zip: MI, 48377 Phone: M1001454.0003.00002 Email: angela.degrandis@arcadis-us.com Project Name: Ford LTP Livonia MI - E203631 Site:		Lab PM: DelMonico, Michael E-Mail: michael.delmonico@testamericainc.com Carrier Tracking No(s): COC No: 240-58422-24977.10 Page: 10 of 13 Job #: 1/1	
Due Date Requested: TAT Requested (days): 1 day / 24-HR PO #: M1001454.0003.00002 WO #: Cadena #: E203631 Project #: 24015353 SSOW#:		Analysis Requested Total Number of Containers: 6	
Sample Identification MW-167s-022519 Sample Date: 2/25/19 11:40 Sample Time: 11:40 Sample Type (C=Comp, G=grab): G Preservation Code:		Field Filtered Sample (Yes or No): Perform MS/MSD (Yes or No): 8260B - VOCs (Short List): 8260B - SIM - 1,4-Dioxane:	
Matrix (W=Water, S=Soil, C=Water, O=Wastewater, BTI=Tissue, A=Air): Water Water Water Water Water Water Water Water Water Water		Special Instructions/Note: 6 SUBMIT ALL RESULT THROUGH JIM.TOMALUA@CADENA.COM	
Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 X - EDTA Y - other (specify)			
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify) LEVEL IV REPORTING			
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Special Instructions/OC Requirements: Empty Kit Relinquished by: _____ Date: _____ Relinquished by: _____ Date: 2/25/19 1730 Relinquished by: Cathie O'Neil Date: 02/26/19 1415 Relinquished by: _____ Date: 2/24/19 15:53 Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No Custody Seal No.:			
Received by: ARCADIS NOVI COLD STORAGE Date/Time: 2/25/19 1730 Company: ARCADIS Received by: _____ Date/Time: 2/24/19 1415 Company: TAL Received by: _____ Date/Time: 2/27/19 820 Company: _____ Cooler Temperature(s): _____ and Other Remarks:			

1.0/00.8



TestAmerica Canton Sample Receipt Form/Narrative

Login # : 108557

Canton Facility

Client Arcadis

Site Name

Cooler unpacked by:

Cooler Received on 2/27/19

Opened on 2/27/19

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time

Storage Location

TestAmerica Cooler # FA Foam Box Client Cooler Box Other
Packing material used: Bubble Wrap Foam Plastic Bag None Other
COOLANT: Wet Ice Blue Ice Dry Ice Water None

- 1. Cooler temperature upon receipt
IR GUN# IR-8 (CF -0.2 °C) Observed Cooler Temp. 1.0 °C Corrected Cooler Temp. 0.8 °C
IR GUN #36 (CF +0.7°C) Observed Cooler Temp. °C Corrected Cooler Temp. °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
-Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
-Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC861525
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? Larger than this. Yes No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # Yes No
16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving: VOAs Oil and Grease TOC

Contacted PM Date by via Verbal Voice Mail Other

Concerning

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: JR

18. SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired.
Sample(s) were received in a broken container.
Sample(s) were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory.
Time preserved: Preservative(s) added/Lot number(s):
VOA Sample Preservation - Date/Time VOAs Frozen:



February 28, 2019

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: MI001454.0002/3/4.00002/2B/3B
Client project scope reference: Sample COC only was used to define project analytical requirements.
Laboratory: TestAmerica - North Canton
Laboratory submittal: 108557-1
Sample date: 2019-02-25
Report received by CADENA: 2019-02-28
Initial Data Verification completed by CADENA: 2019-02-28

The following minor QC exceptions or missing information were noted:

GCMS VOC QC batch MS/MSD issues as noted in the laboratory submittal case narrative were not used to qualify client sample results as part of this level 2 data package verification review.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

1 Water sample was analyzed for GCMS VOC parameter(s).

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

SAMPLING AND ANALYSIS SUMMARY

CADENA Project ID: E203631

Laboratory: TestAmerica-North Canton

Laboratory Submittal: 108557-1

Lab Sample ID	Sample ID	Collection Date (mm/yy/dd)	Collection Time (hh:mm:ss)	Volatile Organics by GCMS	8260B with Single Ion Monitoring	Comment
2401085571	MW-167S_022519	2/25/2019	11:40:00	X	X	

Analytical Results Summary

Reportable Results Only

CADENA Project ID: E203631

Laboratory: TestAmerica - North Canton

Laboratory Submittal: 108557-1

Sample Name: MW-167S_022519

Lab Sample ID: 2401085571

Sample Date: 2/25/2019

Analyte	Cas No.	Result	Report		Valid	
			Limit	Units		Qualifier
GC/MS VOC						
<u>OSW-8260B</u>						
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	
Trichloroethene	79-01-6	ND	1.0	ug/l	---	
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	
<u>OSW-8260BBSim</u>						
1,4-Dioxane	123-91-1	ND	2.0	ug/l	---	

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG # 240-108557-1

CADENA Verification Report: 2019-02-28

Analyses Performed By:

TestAmerica
Canton, Ohio

Report #31899R

Review Level: Tier II/Plus

Project: MI001454.0003.00002



DATA REVIEW

SUMMARY

This data quality assessment/verification summarizes the confirmation of detected compounds (if applicable), review of the verification/Tier II validation review performed by CADENA Inc. and review of level II laboratory data package completeness for Sample Delivery Group (SDG) # 240-108557-1 for samples collected in association with the Ford – Livonia, Michigan site. Only detected compound confirmations and omitted deviations from the CADENA verification/Tier II report are documented in this report. The Tier II/Plus validation is performed in the instance when a sample location has a detection of Vinyl Chloride at a concentration of 5 ppb or less. The detection and the concentration are reviewed and verified based on the instrument calibration and laboratory raw data. Only analytical data associated with constituents of concern were reviewed for this verification. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						VOC	VOC (SIM)	MISC
240-108557-1	MW-167S_022519	240-108557-1	Water	2/25/2019		X	X	

Notes:

VOC = volatile organic compound

SIM = selective ion monitoring

MISC = miscellaneous

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260B and 8260B SIM. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

1.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (15%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

1.2 Continuing Calibration

All target compounds associated with the continuing calibration verification (CCV) standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

Calibration criteria are only reviewed when detections of vinyl chloride were present in samples. No compounds were detected in the samples within this SDG; therefore, calibration criteria was not evaluated.

2. Compound Identification

Compounds are identified on the GC/MS by using the analyte's relative retention time, ion spectra, and concentration.

No compounds were detected in the samples within this SDG.

3. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in the CADENA Inc. review and this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: 8260B/8260B-SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II+ Validation					
Compound identification and quantitation					
A. Reconstructed ion chromatograms	X				X
B. Quantitation Reports	X				X
C. RT of sample compounds within the established RT windows	X				X

Notes:

RT retention time

VERIFICATION/VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: February 28, 2019

PEER REVIEW: Dennis Capria

DATE: March 4, 2019



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



Client Information Client Contact: Angela DeGrandis Company: ARCADIS U.S., Inc. Address: 28550 Cabot Drive Suite 500 City: Novi State, Zip: MI, 48377 Phone: M1001454.0003.00002 Email: angela.degrandis@arcadis-us.com Project Name: Ford LTP Livonia MI - E203631 Site:		Lab PM: DelMonico, Michael E-Mail: michael.delmonico@testamericainc.com Carrier Tracking No(s): COC No: 240-58422-24977.10 Page: 10 of 13 Job #: 1/1	
Due Date Requested: TAT Requested (days): 1 day / 24-HR PO #: M1001454.0003.00002 WO #: Cadena #: E203631 Project #: 24015353 SSOW#:		Analysis Requested Total Number of containers: 6	
Sample Identification MW-167s-022519 Sample Date: 2/25/19 11:40 Sample Time: 11:40 Sample Type (C=Comp, G=grab): G Matrix (W=Water, S=Soil, O=wastewater, BTI=Tissue, A=Air): Water Preservation Code:		Field Filtered Sample (Yes or No): Perform MS/MSD (Yes or No): 8260B - VOCs (Short List): 8260B - SIM - 1,4-Dioxane:	
Sample Date: 2/25/19 11:40 Sample Time: 11:40 Sample Type (C=Comp, G=grab): G Matrix (W=Water, S=Soil, O=wastewater, BTI=Tissue, A=Air): Water Preservation Code:		Special Instructions/Note: 6 SUBMIT ALL RESULT THROUGH JIM.TOMALUA @ CADENA.COM	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify) LEVEL IV REPORTING		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For Months	
Empty Kit Relinquished by: Relinquished by: [Signature] Relinquished by: [Signature] Relinquished by: [Signature]		Method of Shipment: Date/Time: 2/25/19 1730 Date/Time: 2/26/19 1415 Date/Time: 2/27/19 15:53	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No Custody Seal No.:		Company: ARCADIS Company: ARCADIS Company: ARCADIS	

1.0/00.8



Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108557-1

Client Sample ID: MW-167S_022519

Lab Sample ID: 240-108557-1

Date Collected: 02/25/19 11:40

Matrix: Water

Date Received: 02/27/19 08:20

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			02/27/19 13:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		63 - 125					02/27/19 13:47	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/27/19 15:57	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/27/19 15:57	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/27/19 15:57	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/27/19 15:57	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/27/19 15:57	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/27/19 15:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		70 - 121					02/27/19 15:57	1
4-Bromofluorobenzene (Surr)	89		59 - 120					02/27/19 15:57	1
Toluene-d8 (Surr)	94		70 - 123					02/27/19 15:57	1
Dibromofluoromethane (Surr)	95		75 - 128					02/27/19 15:57	1

Daily Log

Project No.: MI001454.0003.00002 Page 1 of 1

Site Location: 12001 Starke

Prepared By: Ian Drost

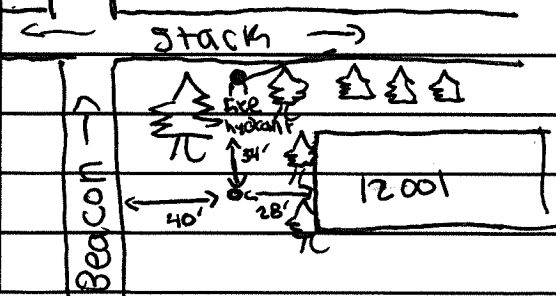
Date	Time	Description of Activities
2/19/19	—	PURPOSE: Utility Locate
	—	ON-SITE: Ian Drost, Evan Soto (GPRS)
	—	WEATHER: Sunny, 20's
	1010	Arrive at 12001 Starke. Begin utility locate.
	1050	utility locate complete

Daily Log

Project No.: MF 001454.0003.00002 Page 1 of 1

Site Location: 12001 Stark St. Residential MW-167S

Prepared By: Christina Weaver

Date	Time	Description of Activities
2/20/19	1300	Purpose: MW Install. Residential MW-167S.
	—	Arcadis: C. Weaver
	—	Equipment: PID(4058). Calibrated WLM(878)
	—	Cascade: T. Grossman, L. Rogers.
	—	Weather: 30°F, Partly cloudy, slight rain
	1310	Arrive onsite, Set up equipment
	1320	Begin HA to 5.0' bgs
	1325	Finish HA. Dry. Begin HSA
	1330	Finish HSA Boring appears wet at 7.0' bgs
	1340	Finish Running Augers to 10.0' bgs.
	1342	Set temp well.
	1352	OTW = 6.9' bgs. Consult with Ian.
	—	Screen interval from 5.0-10.0' bgs
	—	Approved.
	1400	Install well.
	1425	Set concrete, Decon, offsite.
	—	Sketch:
	—	
	—	Directly 28' from NE corner of house.

Christina Weaver
2/20/19 Document #ENFM009, Revision 01

Daily Log

Project No.: MI001454.0003.00002 Page 1 of 1

Site Location: Ford LTP - Livonia, MI


Prepared By: Ellen Redner

Date	Time	Description of Activities
2/21/19	-----	Purpose: well development MW-1675
	-----	Weather: 40°F, partly cloudy
	-----	Subcontractors: cascade
	-----	Equipment: Turbidity meter# 6135, WLM# 5385
	1645	Arcadis and Cascade on site ^{ER} site
	1650	conduct well development on mw-1675
	1800	Arcadis and Cascade off site

ER

Daily Log

Project No.: MI001454.0003.00002 Page 1 of 1
 Site Location: Ford LTP - Livonia, MI - 12001 STARK RD
 Prepared By: K. Koboski

Date	Time	Description of Activities
2/25/19	1050	ARRIVE ON SITE, PREP NOTES, SETUP.
	1100	PUMP ON
	1140	SAMPLE MW-1673. 022519
	1145	PUMP OFF, PACK UP.
	1155	OFFSITE.
		

THIS FORM MUST BE COMPLETED IN ENTIRETY PRIOR TO BEGINNING ANY INTRUSIVE WORK

Project: Ford LTP
 Project Number: MI001454.0003.00002 (12001 Starks)
 Form Completion Date: 02/19/2019 Form Expiration Date: 3/12/19
 (15 business days post form completion date)

Pre-Field Work

Required: One Call or "811" notified 48-72 hours in advance of work? #: B9038037
 Ticket Expiration Date _____ (Review State Requirements)

Utility companies notified during the One Call process See attached ticket

Electric _____	Water _____	Communication _____
Gas _____	Storm/Sewer _____	_____

List any other utilities requiring notification: None _____

Private Locator Contacted Yes No

Plan private utility clearance subcontractor assignments, areas, required clearance equipment, depth of clearance needed, types of utilities. When possible re-clear 811 markings to confirm utility locations.

Client provided utility maps or "as built" drawings showing utilities? Yes No

Field Work - This must be completed on site, by staff who have a minimum of one year of field experience in identifying utilities. Review Check list with PM or designee prior to beginning intrusive work.

List Soil Boring / Well IDs or Excavation Locations applicable to this clearance checklist:
Monitoring Well Installation

3 Reliable Lines of Evidence Required Prior to Starting any Subsurface Intrusive Work

- One Call/"811" (Reliable as a line of evidence when working in public right of way or easement)
 Utility Markings Present: Paint Pin flags/stakes Other None
- Client Provided Maps/Drawings **OR** Maps/Drawings requested but not provided
- Client Clearance Name(s)/Affiliation(s) _____
- Interview(s): Name(s)/Affiliation(s) _____

Did person(s) interviewed indicate depths of any utilities in the subsurface?
 Yes, depths provided: _____ Did not know or refused to answer
 Additional Comments: _____

Site Inspection (Complete Page 2 & Photo Document Marked Utilities & Utility Structures)

- Public Records / Maps / Asbuilts
- Private Locator: (Name and Company) GPRS
- Ground Penetrating Radar (GPR)
- Radiofrequency (RFLoc)
- Electromagnetic (EM)
- Metal Detector

Tips for Successful Utility Location:

1. Don't forget to look up
2. Be on site with Private Utility Locators
3. Ask Private Locators to "confirm" other's markings
4. Select alternate/backup locations during clearance process
5. Mark out all known utilities. Leave nothing to question
6. No hammering - no pickaxes - no digging bars - no shortcutting
7. No excessive turning or downward force of hand augers/shovels
8. Utilities may run in or directly under asphalt/concrete

Soft Dig Methods
<input checked="" type="checkbox"/> Termination Depth <u>5.0</u> ft. bgs
<input type="checkbox"/> Potholing / Vacuum Extraction
<input type="checkbox"/> Air-Knife <input type="checkbox"/> Hydro-Knife
<input checked="" type="checkbox"/> Probing
<input checked="" type="checkbox"/> Hand Auguring

Other: _____
 Marine Locator: (Name and Company) _____



Utilities and Structures Checklist



During the site inspection look for the following: ("YES" requires additional investigation and the utility must be marked properly prior to beginning subsurface intrusive work):

Site Inspection	Utility Color Codes	Present	
a) Natural gas line present (evidence of a gas meter)?	Yellow	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
i) Feeder Lines to buildings or homes?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
b) Evidence of electric lines:	Red		
i) Conduits to ground from electric meter or along wall?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
ii) Conduits from power poles running into ground?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iii) Overhead electric lines present? (See Section I)		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
c) Evidence of sewer drains:	Green		
i) Restrooms or kitchen on site?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
ii) Sewer cleanouts present?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iii) Combined sewer /storm lines or multiple sewer lines?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
d) Evidence of water lines:	Blue		
i) Water meter on site or multiple water lines?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
ii) Fire hydrants in vicinity of work?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iii) Irrigation systems? (Sprinkler heads, valve boxes, controls in building)		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
e) Evidence of storm drains:	Green		
i) Open curbside or slotted grate storm drains		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
ii) Gutter down spouts going into ground		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
f) Evidence of telecommunication lines:	Orange		
i) Fiber optic warning signs in areas?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iv) Aboveground cable boxes or housings or wires in work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
g) Underground storage tanks:			
i) Tank pit present, tank vent present?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
ii) Product lines running to dispensers/buildings?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
h) Do utilities enter or exit existing structures/buildings?			
If Yes, confirm the utility markings outside of structure/building match up.		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
i) Proposed excavation marked in white?	White	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
j) Unclassed utilities / anomalies marked in pink?	Pink	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
k) Overhead Utilities/Communication Lines - Look Up:			
i) Overhead electrical conduit, pipe chases, cable trays, product lines?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
ii) Overhead fire sprinkler system?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
l) Overhead Power lines in or near the work area:			
i) < 50 kV within 10 ft. of work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
ii) >50 - 200 kV within 15 ft. of work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iii) >200-350 kV within 20 ft. of work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iv) >350-500 kV within 25 ft. of work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
v) >500-750 kV within 35 ft. of work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
vi) >750-1000 kV within 45 ft. of work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
m) Other:			
i) Evidence of linear asphalt or concrete repair?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
ii) Evidence of linear ground subsidence or change in vegetation?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iii) Unmarked manholes or valve covers in work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iv) Warning signs ("Call Before you Dig", etc.) on or adjacent to site?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
v) Utility color markings not illustrated in this checklist?	i.e. Purple	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
n) Has the Utilities & Structures Checklist been reviewed by the PM or Designee		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
PM or Designee Name: <u>KRIS HINSLEY</u>			

Name and Signature of person completing the checklist:

Ian Drost

Date: 02/19/2019

Do not perform **mechanized** intrusive work within 30 inches of a utility marking without receiving pre-approval by Corporate H&S.



Residential @ 12001 Stacks.
 NE corner of front yard
 28' from NE corner of house.

ARCADIS
 Soil Boring Log

Boring No.: MW-1673
 Sheet: 1 of 1

Project Name: Ford LTP Date Started: 2/20/19 Logger: Christina Weaver
 Project Number: MI001454.0003.00002 Date Completed: 2/20/19 Editor:
 Project Location: Livonia, MI Weather Conditions: 30°F, Partly cloudy, slight rain

Depth (feet)	Sample ID & Time	Recovery (in.)	PID (ppm)	USCS Class.	Description
1			0.0		(0.0-0.3)' TOPSOIL, grass
2		60"	0.0		(0.3-4.0)' SAND, VF-M, SR-SA; trace granules, SR-SA; dry, ws, yellowish brown (10 YR 5/6)
3	60" HA		0.0		(4.0-6.0)' SAND, VF-VC, SR-SA; and granules, SR-SA; trace sm. pebb., SR-SA; moist, PS, yellowish brown (10 YR 5/6)
4			0.0		(6.0-6.1)' SAND, VF-VC, SR-SA; little clay, slow dil, no PI; trace sm. pebbles, SR-SA; moist, PS, dark yellowish brown (10 YR 4/4)
5			0.0		(6.1-6.9)' SAND, F-VC, SR-SA; some granules, SR-SA; trace sm. Peb., SR-SA; trace silt; wet, PS, brown (10 YR 5/3)
6	60" HA	49"	0.0		(6.9-7.0)' SILT, Rapid dil, no PI, and sand, VF-M, SR-SA; wet, ws, brown (10 YR 5/3)
7			0.0		(7.0-7.5)' SAND, VF-VC, SR-SA; and silt, Rapid dil, no PI; trace sm. granules, SR-SA; wet, PS, brown (10 YR 5/3)
8			0.0		(7.5-8.3)' SILT, Rapid dil, no PI; some sand, VF-M, SR-SA; wet, ws, brown (10 YR 5/3)
9			0.0		(8.3-8.4)' SAND, M-C; SR-SA; and granules, SR-SA; trace silt; wet, PS, brown (10 YR 5/3)
10			0.0		(8.4-9.0)' SAND, VF-M, SR-SA; little silt, Rapid dil, no PI; wet, ws, brown (10 YR 5/3)
11			0.0		(9.0-9.7)' SILT, Rapid dil, no PI; and sand, VF-F; wet, ws, brown (10 YR 5/3)
12			0.0		(9.7-10.0)' CLAY, slow dil, no ^{low} 2/20/19 High PI; little silt, wet, ws, gray (10 YR 6/1)
13			0.0		EoB @ 10.0' bgs. Boring appears wet at 7.0' bgs. DTW = 6.9' bgs measured with WLM

Drilling Co.: Cascade
 Driller: T. Crossmann
 Drilling Method: Hand Auger, Hollow Stem Auger
 Drilling Fluid: NA
 Remarks:

Sampling Method: 5' Macro Core
 Sampling Interval: Continuous
 Water Level Start: DTW = 4.4' ^{on 2/20/19} 6.9' bgs measured with WLM
 Water Level Finish: NA
 Converted to Well: Yes No
 Surface Elev: NA
 North Coord: NA
 East Coord: NA

Christina Weaver
 2/20/19

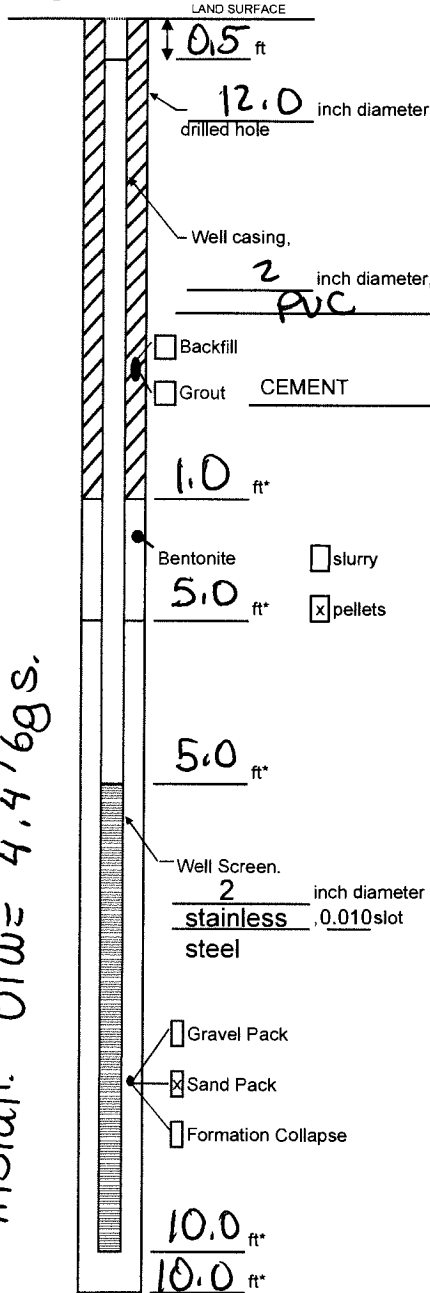
Residential @ 12001 Stack.
 5th CW 2/20/19 NE side of front yard
 40' from Beacon, 36' from
 Stack, 34' from fire hydrant,
 28' from house.

ARCADIS

Well Construction Log
 (Unconsolidated)

8" Flush mount

Screen interval based on DTW at time of
 install. DTW = 4.4' bgs.



Measuring Point is
 Top of Well Casing
 Unless Otherwise Noted.

* Depth Below Land Surface

Project Ford LTP -- MI001454.0003.00002 Well MW-1675
 Town/City Livonia
 County Wayne State MI
 Permit No. _____
 Land-Surface Elevation and Datum: _____ feet Surveyed Estimated
 Installation Date(s) 2/20/19
 Drilling Method Hand Auger, Hollow Stem Auger
 Drilling Contractor Cascade
 Drilling Fluid NA

Chastner
Ullman
 2/20/19

Development Technique(s) and Date(s)
Submersible Pump, PVC Surge
2/21/19

Fluid Loss During Drilling _____ gallons
 Water Removed During Development 16 gallons
 Static Depth to Water 5.47 feet below M.P.
 Pumping Depth to Water 5.60 feet below M.P.
 Pumping Duration 40 minutes
 Yield 0.30 gpm Date 2/21/19
 Specific Capacity 2.31 gpm/ft

Time	(NTU) Turbidity	(ft bgs) DTW
1710	>8100	5.59
1715	215	5.60
1720	181	5.60
1730	71100	5.59
1735	71100	5.59
1740	127	5.60
1745	42.9	5.60

Well Purpose Monitoring

Remarks 1720-1725
Surged at: 1655-1700, 1725-1730 ER
Beginning TD: 9.59'
Ending TD: 9.27'
Began Pump: 1705
Ended Pump: 1745

Prepared by C. Weaver / E. Redner

EW
ER

ARCADIS

Water Sampling Log

Project Ford LTP Project No. 11001454.0003.0000 Page 1 of 1
 Site Location Livonia, MI - 12001 STARK RD Date 2/25/19
 Site/Well No. MW- 1675 Replicate No. -- Code No. --
 Weather 5-10° F WINDY Sampling Time: Begin 11:40 End 11:45

Evacuation Data

Measuring Point TOC
 MP Elevation (ft) NA
 Land Surface Elevation (ft) NA
 Sounded Well Depth (ft bmp) 9.20
 Depth to Water (ft bmp) 5.22
 Water-Level Elevation (ft) NA
 Water Column in Well (ft) 3.98
 Casing Diameter/Type 2" PVC
 Gallons in Well 0.637 gal
 Gallons Pumped/Bailed Prior to Sampling 1.59 gal
 Sample Pump Intake Setting (ft bmp) 6.5 ft
 Purge Time begin 1100 end 1140
 Pumping Rate (ml/min) 150
 Evacuation Method NA

Field Parameters

Temperature (°C) 5.6
 SpC (mS/cm) 0.703
 CND (mS/cm) 0.443
 Dissolved Oxygen (%) 53.9
 Dissolved Oxygen (mg/L) 6.79
 pH (s.u.) 7.47
 ORP (mV) 95.6
 Turbidity (NTU) 40.0
 Color CLEAR
 Odor NONE
 Appearance NORMAL
 Sampling Method LOW FLOW
 Remarks —

Constituents Sampled	Container Description	Number	Preservative
1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, PCE, TCE, and Vinyl Chloride (via USEPA Method 8260B)	40 mL VOA	3	HCL

1,4-dioxane via USEPA Method 8260B-SIM	40 mL VOA	3	HCL
--	-----------	---	-----

Sampling Personnel Kira Koboski 

Gal./Ft.	Well Casing Volumes					
	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47	
bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units	
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride	
ft	Feet	msl	Mean sea level	s.u.	Standard units	
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter	
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds	

TRANSMITTAL LETTER



To:
George Al-Husari
Shawn Collins
Brandon Alger (EGLE)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:
July 11, 2019

Subject:

Arcadis Project No.:

Shallow Groundwater
Assessment Data Package

We are sending you hard copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Delivery Date	Drawing No.	Rev.	Description	Action*
1	7/12/19			Figure	
1	7/12/19			Analytical Results	
1	7/12/19			Field Notes	

Action*

- A Approved CR Correct and Resubmit Resubmit _____ Copies
 AN Approved As Noted F File Return _____ Copies
 AS As Requested FA For Approval Review and Comment
 Other: _____

Mailing Method



- U.S. Postal Service 1st Class Courier/Hand Delivery FedEx Priority Overnight FedEx 2-Day Delivery
 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
 Other: email

Thank you for cooperating with the groundwater sampling at your property on May 20, 2019. Attached is your data package.


CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: A. PAULSON TR: M. WACKSMAN PROJECT NUMBER: MI001454.0003.000001 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
Z:\GIS\Projects\ENV\NovBrighton_Mil\FordLivonia\GIS\docs\2019-03\MW_Locations\12001Stark\MW-167S.mxd PLOTTED: 3/5/2019 7:49:29 AM BY: msmliller



LEGEND:

-  APPROXIMATE MONITORING WELL LOCATION
-  PROPERTY BOUNDARIES



FORD MOTOR COMPANY LIVONIA TRANSMISSION PLANT LIVONIA, MICHIGAN	
MONITORING WELL LOCATION MW-167S	
 ARCADIS	Design & Consultancy for natural and built assets
FIGURE 1	

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-113066-1
Client Project/Site: Ford LTP Livonia MI - E203631

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
6/6/2019 3:27:49 PM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

LINKS

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results through
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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113066-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113066-1

Job ID: 240-113066-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Livonia MI - E203631

Report Number: 240-113066-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The sample was received on 5/22/2019 9:45 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.2° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Sample MW-167S_052019 (240-113066-1) was analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The sample was analyzed on 05/31/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-167S_052019 (240-113066-1) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 05/29/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113066-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113066-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-113066-1	MW-167S_052019	Water	05/20/19 10:17	05/22/19 09:45	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113066-1

Client Sample ID: MW-167S_052019

Lab Sample ID: 240-113066-1

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113066-1

Client Sample ID: MW-167S_052019

Lab Sample ID: 240-113066-1

Date Collected: 05/20/19 10:17

Matrix: Water

Date Received: 05/22/19 09:45

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			05/29/19 17:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		63 - 125		05/29/19 17:01	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			05/31/19 21:21	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			05/31/19 21:21	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			05/31/19 21:21	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			05/31/19 21:21	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			05/31/19 21:21	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			05/31/19 21:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		70 - 121		05/31/19 21:21	1
4-Bromofluorobenzene (Surr)	89		59 - 120		05/31/19 21:21	1
Toluene-d8 (Surr)	86		70 - 123		05/31/19 21:21	1
Dibromofluoromethane (Surr)	97		75 - 128		05/31/19 21:21	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113066-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-121)	BFB (59-120)	TOL (70-123)	DBFM (75-128)
240-113065-I-1 MS	Matrix Spike	105	104	92	116
240-113065-L-1 MSD	Matrix Spike Duplicate	100	97	90	107
240-113066-1	MW-167S_052019	100	89	86	97
LCS 240-383915/4	Lab Control Sample	97	106	98	111
MB 240-383915/6	Method Blank	98	101	97	103

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (63-125)
240-113065-C-1 MS	Matrix Spike	89
240-113065-C-1 MSD	Matrix Spike Duplicate	91
240-113066-1	MW-167S_052019	87
LCS 240-383493/4	Lab Control Sample	88
MB 240-383493/5	Method Blank	86

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113066-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-383915/6
Matrix: Water
Analysis Batch: 383915

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			05/31/19 13:29	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			05/31/19 13:29	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			05/31/19 13:29	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			05/31/19 13:29	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			05/31/19 13:29	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			05/31/19 13:29	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		70 - 121		05/31/19 13:29	1
4-Bromofluorobenzene (Surr)	101		59 - 120		05/31/19 13:29	1
Toluene-d8 (Surr)	97		70 - 123		05/31/19 13:29	1
Dibromofluoromethane (Surr)	103		75 - 128		05/31/19 13:29	1

Lab Sample ID: LCS 240-383915/4
Matrix: Water
Analysis Batch: 383915

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	9.82		ug/L		98	65 - 139
cis-1,2-Dichloroethene	10.0	10.4		ug/L		104	76 - 128
Tetrachloroethene	10.0	11.0		ug/L		110	74 - 130
trans-1,2-Dichloroethene	10.0	9.51		ug/L		95	78 - 133
Trichloroethene	10.0	11.3		ug/L		113	76 - 125
Vinyl chloride	10.0	10.6		ug/L		106	58 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	97		70 - 121
4-Bromofluorobenzene (Surr)	106		59 - 120
Toluene-d8 (Surr)	98		70 - 123
Dibromofluoromethane (Surr)	111		75 - 128

Lab Sample ID: 240-113065-I-1 MS
Matrix: Water
Analysis Batch: 383915

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U	10.0	10.0		ug/L		100	53 - 140
cis-1,2-Dichloroethene	1.0	U	10.0	8.62		ug/L		86	64 - 130
Tetrachloroethene	1.0	U	10.0	10.1		ug/L		101	51 - 136
trans-1,2-Dichloroethene	1.0	U	10.0	10.2		ug/L		102	68 - 133
Trichloroethene	1.0	U	10.0	9.97		ug/L		100	55 - 131
Vinyl chloride	1.0	U	10.0	10.5		ug/L		105	43 - 154

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	105		70 - 121
4-Bromofluorobenzene (Surr)	104		59 - 120
Toluene-d8 (Surr)	92		70 - 123

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113066-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-113065-I-1 MS
Matrix: Water
Analysis Batch: 383915

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	116		75 - 128

Lab Sample ID: 240-113065-L-1 MSD
Matrix: Water
Analysis Batch: 383915

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	10.0	10.6		ug/L		106	53 - 140	6	35
cis-1,2-Dichloroethene	1.0	U	10.0	8.67		ug/L		87	64 - 130	1	21
Tetrachloroethene	1.0	U	10.0	9.17		ug/L		92	51 - 136	10	23
trans-1,2-Dichloroethene	1.0	U	10.0	9.12		ug/L		91	68 - 133	11	24
Trichloroethene	1.0	U	10.0	10.7		ug/L		107	55 - 131	7	23
Vinyl chloride	1.0	U	10.0	10.2		ug/L		102	43 - 154	3	29

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	100		70 - 121
4-Bromofluorobenzene (Surr)	97		59 - 120
Toluene-d8 (Surr)	90		70 - 123
Dibromofluoromethane (Surr)	107		75 - 128

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-383493/5
Matrix: Water
Analysis Batch: 383493

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			05/29/19 11:59	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		63 - 125		05/29/19 11:59	1

Lab Sample ID: LCS 240-383493/4
Matrix: Water
Analysis Batch: 383493

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	11.6		ug/L		116	59 - 131

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	88		63 - 125

Lab Sample ID: 240-113065-C-1 MS
Matrix: Water
Analysis Batch: 383493

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	10.0	11.8		ug/L		118	52 - 129

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113066-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>MS</i> <i>%Recovery</i>	<i>MS</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	89		63 - 125

Lab Sample ID: 240-113065-C-1 MSD
 Matrix: Water
 Analysis Batch: 383493

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Total/NA

<i>Analyte</i>	<i>Sample</i> <i>Result</i>	<i>Sample</i> <i>Qualifier</i>	<i>Spike</i> <i>Added</i>	<i>MSD</i> <i>Result</i>	<i>MSD</i> <i>Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec.</i> <i>Limits</i>	<i>RPD</i>	<i>RPD</i> <i>Limit</i>
1,4-Dioxane	2.0	U	10.0	11.8		ug/L		118	52 - 129	0	13

<i>Surrogate</i>	<i>MSD</i> <i>%Recovery</i>	<i>MSD</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	91		63 - 125

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QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113066-1

GC/MS VOA

Analysis Batch: 383493

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-113066-1	MW-167S_052019	Total/NA	Water	8260B SIM	
MB 240-383493/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-383493/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-113065-C-1 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-113065-C-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 383915

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-113066-1	MW-167S_052019	Total/NA	Water	8260B	
MB 240-383915/6	Method Blank	Total/NA	Water	8260B	
LCS 240-383915/4	Lab Control Sample	Total/NA	Water	8260B	
240-113065-I-1 MS	Matrix Spike	Total/NA	Water	8260B	
240-113065-L-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113066-1

Client Sample ID: MW-167S_052019

Lab Sample ID: 240-113066-1

Date Collected: 05/20/19 10:17

Matrix: Water

Date Received: 05/22/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	383915	05/31/19 21:21	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	383493	05/29/19 17:01	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113066-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.


Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19 *
Illinois	NELAP	5	200004	07-31-19 *
Iowa	State Program	7	421	06-01-21
Kansas	NELAP	7	E-10336	04-30-20
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19 *
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19 *
New York	NELAP	2	10975	03-31-20
Ohio VAP	State Program	5	CL0024	09-06-19 *
Oregon	NELAP	10	4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19 *
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19 *
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Canton

MICHIGAN Chain of Custody Record
190

1.4/K1.2

Client Information Client Contact: Caitlin O'Neill Company: ARCADIS U.S., Inc. Address: 28550 Cabot Drive Suite 500 City: Novi State, Zip: MI, 48377 Phone: Email: Caitlin.O'Neill@arcadis.com Project Name: Ford LTP Livonia MI - E203631 Site:		Lab PM: DelMonico, Michael E-Mail: michael.delmonico@lestamericainc.com Carrier Tracking No(s): Lab No: 240-60548-25803.4 Page: Page 4 of 4 Job #: 10	
Analysis Requested Due Date Requested: TAT Requested (days): 10 PO #: MI001318.0002.00002 WO #: Cadena #: E203631 Project #: 24015353 SSOW#:		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
Sample Identification Sample ID: MW-1675-052619 Sample Date: 5-20-19 1617 Sample Time: 6 Sample Type (C=Comp, G=grab): Matrix (Water, Solid, On-water, BTP-Tissue, Air/Air): Preservation Code: A A Field Filtered Sample (Yes or No): Perform MS/MSD (Yes or No): 8260B - VOCs (Short List): 8260B, 8260B SIM		Special Instructions/Note: Total Number of Containers: 6  240-113066 Chain of Custody	
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)			
Empty Kit Requisitioned by: Requisitioned by: [Signature] Requisitioned by: [Signature] Requisitioned by: [Signature]		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/OC Requirements:	
Relinquished by: Relinquished by: [Signature] Relinquished by: [Signature] Relinquished by: [Signature]		Received by: Received by: [Signature] Received by: [Signature] Received by: [Signature]	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks:	

TestAmerica Canton Sample Receipt Form/Narrative

Login # : 113066

Canton Facility

Client Arcadis Site Name _____

Cooler unpacked by: _____

Cooler Received on 5-22-19 Opened on 5-22-19

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # 72 Foam Box Client Cooler Box Other _____

Packing material used: Bubble Wrap Foam Plastic Bag None Other _____

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN# IR-8 (CF -0.2 °C) Observed Cooler Temp. 1.4 °C Corrected Cooler Temp. 1.2 °C
 IR GUN #36 (CF +0.7°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes ~~No~~
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
 4. Did custody papers accompany the sample(s)? Yes No
 5. Were the custody papers relinquished & signed in the appropriate place? Yes No
 6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
 7. Did all bottles arrive in good condition (Unbroken)? Yes No
 8. Could all bottle labels be reconciled with the COC? Yes No
 9. Were correct bottle(s) used for the test(s) indicated? Yes No
 10. Sufficient quantity received to perform indicated analyses? Yes No
 11. Are these work share samples? Yes ~~No~~
 If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC984738
 13. Were VOAs on the COC? Yes No
 14. Were air bubbles >6 mm in any VOA vials? Yes ~~No~~ NA Larger than this.
 15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes ~~No~~
 16. Was a LL Hg or Me Hg trip blank present? Yes ~~No~~

Tests that are not checked for pH by Receiving:
 VOAs
 Oil and Grease
 TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: _____

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

DATA VERIFICATION REPORT



June 07, 2019

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: MI001454.0002/3/4.00002/2B/3B
Event Specific Scope of Work References: Sample COC
Laboratory: TestAmerica - North Canton
Laboratory submittal: 113066-1
Sample date: 2019-05-20
Report received by CADENA: 2019-06-06
Initial Data Verification completed by CADENA: 2019-06-07
Number of Samples: 1
Sample Matrices: Water
Test Categories: GCMS VOC

Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

There were no significant QC anomalies or exceptions to report.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

SAMPLING AND ANALYSIS SUMMARY

CADENA Project ID: E203631

Laboratory: TestAmerica-North Canton

Laboratory Submittal: 113066-1

Lab Sample ID	Sample ID	Collection Date (mm/yy/dd)	Collection Time (hh:mm:ss)	Volatile Organics by GCMS	8260B with Single Ion Monitoring	Comment
2401130661	MW-167S_052019	5/20/2019	10:17:00	X	X	

Analytical Results Summary

Reportable Results Only

CADENA Project ID: E203631

Laboratory: TestAmerica - North Canton

Laboratory Submittal: 113066-1

Sample Name: MW-167S_052019

Lab Sample ID: 2401130661

Sample Date: 5/20/2019

Analyte	Cas No.	Result	Report		Valid	
			Limit	Units		Qualifier
GC/MS VOC						
<u>OSW-8260B</u>						
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	
Trichloroethene	79-01-6	ND	1.0	ug/l	---	
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	
<u>OSW-8260BBSim</u>						
1,4-Dioxane	123-91-1	ND	2.0	ug/l	---	

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG #240-113066-1

CADENA Verification Report: 2019-06-07

Analyses Performed By:

TestAmerica
Canton, Ohio

Report #33203R

Review Level: Tier III

Project: MI001454.0004.00002



DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-113066-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						VOC (Full Scan)	VOC (SIM)	MISC
240-113066-1	MW-167S_052019	240-113066-1	Water	5/20/2019		X	X	

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260B and 8260B SIM. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260B/8260B-SIM	Water	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl

All samples were analyzed within the specified holding time criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (20%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

Sample Locations	Initial/Continuing	Compound	Criteria
MW-167S_052019	CCV %D	Trichloroethene	+20.6%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

DATA REVIEW

Initial/Continuing	Criteria	Sample Result	Qualification
Continuing Calibration	%D >20% (increase in sensitivity)	Non-detect	No Action
		Detect	J
	%D >20% (decrease in sensitivity)	Non-detect	UJ
		Detect	J
	%D >90% (increase/decrease in sensitivity)	Non-detect	R
		Detect	J

4. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: 8260B/8260B-SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times/Preservation		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X	X		
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

- %RSD Relative standard deviation
- %R Percent recovery
- RPD Relative percent difference
- %D Percent difference

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: June 19, 2019

PEER REVIEW: Dennis Capria

DATE: June 26, 2019




**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



MICHIGAN Chain of Custody Record
190

1.4/K1.2

Client Information Client Contact: Caitlin O'Neill Company: ARCADIS U.S. Inc. Address: 28550 Cabot Drive Suite 500 City: Novi State, Zip: MI, 48377 Phone: Email: Caitlin.O'Neill@arcadis.com Project Name: Ford LTP Livonia MI - E203631 Site:		Lab PM: DelMonico, Michael E-Mail: michael.delmonico@testamericainc.com Sampler: S. Johnson Phone: 248-662-7233 Carrier Tracking No(s): COC No: 240-60548-25803.4 Page: Page 4 of 4 Job #: 15	
Analysis Requested Due Date Requested: TAT Requested (days): 10 PO #: MI001318.0002.00002 WO #: Cadena #: E203631 Project #: 24015363 SSOW#:		Analysis Requested Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AgNO2 P - Na2OHS Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
Sample Identification MW-167S-052619 Sample Date: 5-20-19 1617 Sample Time: 6 Sample Type (C=Comp, G=grab): Matrix (Water, Solid, On-wastefoil, BTP-Tissue, Air/Air)		Field Filtered Sample (Yes or No): Perform MS/MSD (Yes or No): 8260B - VOCs (Short List): 8260B, 8260B SIM Total Number of Containers: 6 Special Instructions/Note:  240-113066 Chain of Custody	
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab Archive For _____ Months Special Instructions/OC Requirements:	
Empty Kit Reinquished by: Reinquished by: [Signature] Reinquished by: [Signature] Reinquished by: [Signature]		Method of Shipment: Date/Time: 5-20-19 / 1836 Date/Time: 5/21/19 1000 Date/Time: 5-21-19 1500 Company: ARCADIS Company: ARCADIS Company: ETA	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:	

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113066-1

Client Sample ID: MW-167S_052019

Lab Sample ID: 240-113066-1

Date Collected: 05/20/19 10:17

Matrix: Water

Date Received: 05/22/19 09:45

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L	-		05/29/19 17:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		63 - 125		05/29/19 17:01	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		05/31/19 21:21	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L	-		05/31/19 21:21	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L	-		05/31/19 21:21	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		05/31/19 21:21	1
Trichloroethene	1.0	U	1.0	0.10	ug/L	-		05/31/19 21:21	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L	-		05/31/19 21:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		70 - 121		05/31/19 21:21	1
4-Bromofluorobenzene (Surr)	89		59 - 120		05/31/19 21:21	1
Toluene-d8 (Surr)	86		70 - 123		05/31/19 21:21	1
Dibromofluoromethane (Surr)	97		75 - 128		05/31/19 21:21	1



Daily Log

Project No.: MI001454.0006.00003 Page 1 of 1

Site Location: Ford LTP 12001 Stark

Prepared By: Shantel Johnson

Date	Time	Description of Activities
5/20/2019	09:10	Arrive onsite
5/20/2019	09:28	Record static depth to water
5/20/2019	9:33	Begin purging well
5/20/2019	10:17	Collect sample MW-167S_052019
5/20/2019	10:21	End purge and turn off pump, begin decon of equipment
5/20/2019	10:30	Offsite
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LOW-FLOW GROUNDWATER SAMPLING FORM

Page 1 of 1

Project No. MI001454.0006.00003 Well ID _____ Date 5/20/2019
 Project Name/Location Ford LTP Weather 57.02 degrees F and Cloudy
 Measuring Pt. Description Top of Casing Screen Setting (ft-bmp) 5.0-10.0 Casing Diameter (in.) 2 Well Material PVC
 Static Water Level (ft-bmp) 4.71 Total Depth (ft-bmp) 9.23 Water Column (ft.) 4.52 Gallons in Well 0.73
6 Pump Intake (ft-bmp) Purge Method Low-Flow Sample Method Low-Flow
 Well Volumes Purged 2.795
 Sample Time: Label 10:17 Volume Purged 2.04 gallons Replicate/Code No. -- Sampled by Shantel Johnson
 Purge Start 9:33
 Purge End 10:21

Time	Minutes Elapsed	Flow Rate (mL/min) [100-300 mL/min]	Depth to Water (ft) [± 0.3]	Gallons Purged	pH [± 0.1]	Cond. (mS/cm) [± 3%]	Turbidity (NTU) [± 10%*]	DO (mg/L) [± 10%]	Temp. (°C)/(°F) [± 3%]	Redox (mV) [± 10mV]	Appearance	
											Color	Odor
9:36	0	200	4.74	0	6.45	0.581	24.1	7.2	9.9	269.2	Clear	NA
9:41	5	200	4.74	0.26	6.56	0.624	26.7	7.06	9.8	266.8	Clear	NA
9:46	5	200	4.74	0.52	6.67	0.642	22.1	6.83	9.8	261.5	Clear	NA
9:51	5	200	4.74	0.78	6.72	0.652	17.8	6.55	9.8	250.6	Clear	NA
9:56	5	200	4.74	1.04	6.74	0.683	12.1	6.1	9.8	217.2	Clear	NA
10:01	5	200	4.74	1.3	6.74	0.71	9.29	5.74	9.8	153.5	Clear	NA
10:06	5	200	4.74	1.56	6.75	0.729	6.42	5.46	9.8	124.4	Clear	NA
10:09	3	200	4.74	1.72	6.76	0.741	4.56	5.25	9.8	114.5	Clear	NA
10:12	3	200	4.74	1.88	6.77	0.755	4.21	5.09	9.8	108.3	Clear	NA
10:15	3	200	4.74	2.04	6.77	0.758	4.76	4.91	9.7	106.6	Clear	NA
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* Turbidity < 50 NTU and ±10% or within 1 NTU of a previous reading when <10 NTU

Constituents Sampled 1,4-dioxane Container 40 mL Glass Number 3 Preservative HCL
1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, PCE, TCE, VC 40 mL Glass 3 HCL

Comments _____

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Well Information

Well Location: 12001 Stark Well Locked at Arrival: yes
 Condition of Well: Good Well Locked at Departure: yes
 Well Completion: Flush mount Lock Functioning: yes

TRANSMITTAL LETTER



To:
George Al-Husari
Shawn Collins
Brandon Alger (EGLE)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:

October 17, 2019

Subject:

Arcadis Project No.:

Shallow Groundwater
Assessment Data Package

We are sending you hard copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Delivery Date	Drawing No.	Rev.	Description	Action*
1	10/18/19			Figure	
1	10/18/19			Analytical Results	
1	10/18/19			Field Notes and Drawings	

Action*

- A Approved CR Correct and Resubmit Resubmit _____ Copies
 AN Approved As Noted F File Return _____ Copies
 AS As Requested FA For Approval Review and Comment
 Other: _____

Mailing Method



- U.S. Postal Service 1st Class Courier/Hand Delivery FedEx Priority Overnight FedEx 2-Day Delivery
 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
 Other: email

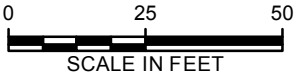
Thank you for cooperating with the groundwater sampling at your property on September 20, 2019.
Attached is your data package.


CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: A. PAULSON TR: M. WACKSMAN PROJECT NUMBER: MI001454.0003.000001 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
Z:\GIS\Projects\ENV\NovBrighton_Mil\FordLivonia\GIS\docs\2019-03\MW_Locations\12001Stark\MW-167S.mxd PLOTTED: 3/5/2019 7:49:29 AM BY: msmliller



LEGEND:

-  MONITORING WELL LOCATION
-  PROPERTY BOUNDARIES



FORD MOTOR COMPANY LIVONIA TRANSMISSION PLANT LIVONIA, MICHIGAN	
MONITORING WELL LOCATION MW-167S	
 ARCADIS	Design & Consultancy for natural and built assets
FIGURE 1	

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-119327-1
Client Project/Site: Ford LTP Livonia MI - E203631

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
10/8/2019 1:58:26 PM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

LINKS

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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119327-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119327-1

Job ID: 240-119327-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Livonia MI - E203631

Report Number: 240-119327-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 9/24/2019 9:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.9° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples MW-167S_092019 (240-119327-1) and TRIP BLANK (240-119327-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 10/02/2019.

No MS/MSD in batch 403654 due to an instrument fault: MW-167S_092019 (240-119327-1) and TRIP BLANK (240-119327-2).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-167S_092019 (240-119327-1) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 09/27/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119327-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119327-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-119327-1	MW-167S_092019	Water	09/20/19 10:31	09/24/19 09:40	
240-119327-2	TRIP BLANK	Water	09/20/19 00:00	09/24/19 09:40	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119327-1

Client Sample ID: MW-167S_092019

Lab Sample ID: 240-119327-1

No Detections.

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-119327-2

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119327-1

Client Sample ID: MW-167S_092019

Lab Sample ID: 240-119327-1

Date Collected: 09/20/19 10:31

Matrix: Water

Date Received: 09/24/19 09:40

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			09/27/19 15:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		63 - 125		09/27/19 15:30	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/02/19 16:31	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/02/19 16:31	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/02/19 16:31	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/02/19 16:31	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/02/19 16:31	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/02/19 16:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		70 - 121		10/02/19 16:31	1
4-Bromofluorobenzene (Surr)	91		59 - 120		10/02/19 16:31	1
Toluene-d8 (Surr)	96		70 - 123		10/02/19 16:31	1
Dibromofluoromethane (Surr)	83		75 - 128		10/02/19 16:31	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119327-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-119327-2

Date Collected: 09/20/19 00:00

Matrix: Water

Date Received: 09/24/19 09:40

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/02/19 16:53	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/02/19 16:53	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/02/19 16:53	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/02/19 16:53	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/02/19 16:53	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/02/19 16:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		70 - 121		10/02/19 16:53	1
4-Bromofluorobenzene (Surr)	97		59 - 120		10/02/19 16:53	1
Toluene-d8 (Surr)	101		70 - 123		10/02/19 16:53	1
Dibromofluoromethane (Surr)	87		75 - 128		10/02/19 16:53	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119327-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-121)	BFB (59-120)	TOL (70-123)	DBFM (75-128)
240-119327-1	MW-167S_092019	111	91	96	83
240-119327-2	TRIP BLANK	113	97	101	87
LCS 240-403654/4	Lab Control Sample	106	95	93	85
MB 240-403654/6	Method Blank	118	99	103	83

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (63-125)
240-119310-A-3 MS	Matrix Spike	103
240-119310-A-3 MSD	Matrix Spike Duplicate	102
240-119327-1	MW-167S_092019	100
LCS 240-402867/4	Lab Control Sample	97
MB 240-402867/5	Method Blank	99

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119327-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-403654/6
Matrix: Water
Analysis Batch: 403654

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/02/19 12:27	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/02/19 12:27	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/02/19 12:27	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/02/19 12:27	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/02/19 12:27	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/02/19 12:27	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	118		70 - 121		10/02/19 12:27	1
4-Bromofluorobenzene (Surr)	99		59 - 120		10/02/19 12:27	1
Toluene-d8 (Surr)	103		70 - 123		10/02/19 12:27	1
Dibromofluoromethane (Surr)	83		75 - 128		10/02/19 12:27	1

Lab Sample ID: LCS 240-403654/4
Matrix: Water
Analysis Batch: 403654

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	8.95		ug/L		90	65 - 139
cis-1,2-Dichloroethene	10.0	10.2		ug/L		102	76 - 128
Tetrachloroethene	10.0	9.12		ug/L		91	74 - 130
trans-1,2-Dichloroethene	10.0	9.83		ug/L		98	78 - 133
Trichloroethene	10.0	8.45		ug/L		84	76 - 125
Vinyl chloride	10.0	7.66		ug/L		77	58 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	106		70 - 121
4-Bromofluorobenzene (Surr)	95		59 - 120
Toluene-d8 (Surr)	93		70 - 123
Dibromofluoromethane (Surr)	85		75 - 128

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-402867/5
Matrix: Water
Analysis Batch: 402867

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			09/27/19 12:36	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		63 - 125		09/27/19 12:36	1

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119327-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-402867/4
Matrix: Water
Analysis Batch: 402867

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	11.7		ug/L	-	117	59 - 131
LCS LCS							
Surrogate	%Recovery	Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	97		63 - 125				

Lab Sample ID: 240-119310-A-3 MS
Matrix: Water
Analysis Batch: 402867

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	10.0	10.6		ug/L	-	106	52 - 129
MS MS									
Surrogate	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	103		63 - 125						

Lab Sample ID: 240-119310-A-3 MSD
Matrix: Water
Analysis Batch: 402867

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	2.0	U	10.0	10.4		ug/L	-	104	52 - 129	1	13
MSD MSD											
Surrogate	%Recovery	Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	102		63 - 125								

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119327-1

GC/MS VOA

Analysis Batch: 402867

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119327-1	MW-167S_092019	Total/NA	Water	8260B SIM	
MB 240-402867/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-402867/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-119310-A-3 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-119310-A-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 403654

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119327-1	MW-167S_092019	Total/NA	Water	8260B	
240-119327-2	TRIP BLANK	Total/NA	Water	8260B	
MB 240-403654/6	Method Blank	Total/NA	Water	8260B	
LCS 240-403654/4	Lab Control Sample	Total/NA	Water	8260B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119327-1

Client Sample ID: MW-167S_092019

Lab Sample ID: 240-119327-1

Date Collected: 09/20/19 10:31

Matrix: Water

Date Received: 09/24/19 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	403654	10/02/19 16:31	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	402867	09/27/19 15:30	SAM	TAL CAN

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-119327-2

Date Collected: 09/20/19 00:00

Matrix: Water

Date Received: 09/24/19 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	403654	10/02/19 16:53	LEE	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119327-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-20
Connecticut	State	PH-0590	12-31-19
Florida	NELAP	E87225	06-30-20
Georgia	State	4062	02-23-20
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-20
Kansas	NELAP	E-10336	04-30-20
Kentucky (UST)	State	112225	02-23-20
Kentucky (WW)	State	KY98016	12-31-19
Minnesota	NELAP	OH00048	12-31-19
Minnesota (Petrofund)	State Program	3506	07-31-21
New Jersey	NELAP	OH001	06-30-20
New York	NELAP	10975	03-31-20
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-23-20
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-16-00404	12-28-19
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-20
West Virginia DEP	State	210	12-31-19

Chain of Custody Record

TestAmerica Laboratory location: Brighton --- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Client Contact Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240 Project Name: Ford LTP Project Number: M1001454.0004.0002B PO # M1001454.0004.0002B		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other	
Client Project Manager: Rachel Bielik Telephone: 248-946-6331 Email: kristoffer.hinskey@arcadis.com		Lab Contact: Mike DeMonico Telephone: 330-497-9396	
Analysis Turnaround Time TAT if different from below <input type="checkbox"/> 3 weeks <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Analysis Walk-in client Lab sampling Job/SDG No:	
Method of Shipment/Carrier: Shipping/Tracking No:		Filtered Sample (Y/N) Composite C / Grab C 1,1-DCE 8260B 6is-1,2-DCE 8260B Trans-1,2-DCE 8260B PCE 8260B TCE 8260B Vinyl Chloride 8260B 1,4-Dioxane 8260B SIM	
Matrix Air <input type="checkbox"/> Aqueous <input type="checkbox"/> Sediment <input type="checkbox"/> Solid <input type="checkbox"/> Other:		Containers & Preservatives HCl <input type="checkbox"/> NaOH <input type="checkbox"/> ZnAc <input type="checkbox"/> LiPtra <input type="checkbox"/> Other:	
Sample Date 9/20/19 ---	Sample Time 1031 ---	Sample Specific Notes / Special Instructions: 6 CONTAINERS 1 CONTAINERS	



Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal By Lab Archive For Months

Relinquished by: SHARTEL HINSEY Relinquished by: John McElroy Relinquished by: John McElroy	Date/Time: 9/20/19/1520 Date/Time: 9/20/19/1600 Date/Time: 9/23/19/110	Company: ARCADIS Company: Arcadis Company: ARCADIS	Received by: Bob Caporale Received by: Novi Gold Storey Received in Laboratory by: Molly Mason	Date/Time: 9/23/19/1145 Date/Time: 9/23/19/1520 Date/Time: 9/23/19/1600	Company: ARCADIS Company: Arcadis Company: ARCADIS	Received by: Bob Caporale Received by: Novi Gold Storey Received in Laboratory by: Molly Mason	Date/Time: 9/23/19/1145 Date/Time: 9/23/19/1520 Date/Time: 9/23/19/1600	Company: ARCADIS Company: Arcadis Company: ARCADIS
--	---	---	---	--	---	---	--	---

Relinquished by:
 Molly Mason
 Date/Time:
 9-24-19 940



Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login #: 119327

Client Arcadis Site Name _____ Cooler unpacked by: Ryan Gruber
 Cooler Received on 9-24-19 Opened on 9-24-19 940
 FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # TA Foam Box Client Cooler Box Other _____
 Packing material used: Bubble Wrap Foam Plastic Bag None Other _____
 COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. 1.2 °C Corrected Cooler Temp. 1.9 °C
 IR GUN #IR-11 (CF +0.9°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No No
4. Did custody papers accompany the sample(s)? Yes No No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No No
8. Could all bottle labels be reconciled with the COC? Yes No No
9. Were correct bottle(s) used for the test(s) indicated? Yes No No
10. Sufficient quantity received to perform indicated analyses? Yes No No
11. Are these work share samples? Yes No
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC991818
13. Were VOAs on the COC? Yes No No
14. Were air bubbles >6 mm in any VOA vials? Larger than this. Yes No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 58506 Yes No No
16. Was a LL Hg or Me Hg trip blank present? Yes No No

Tests that are not checked for pH by Receiving:
 VOAs
 Oil and Grease
 TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other
 Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by: RC

18. SAMPLE CONDITION
 Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION
 Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____
 VOA Sample Preservation - Date/Time VOAs Frozen: _____

DATA VERIFICATION REPORT



October 09, 2019

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: 30016346.0002B OFF-SITE GW SAMPLING
Event Specific Scope of Work References: Sample COC
Laboratory: TestAmerica - North Canton
Laboratory submittal: 119327-1
Sample date: 2019-09-20
Report received by CADENA: 2019-10-08
Initial Data Verification completed by CADENA: 2019-10-09
Number of Samples:2
Sample Matrices:Water
Test Categories:GCMS VOC

Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

There were no significant QC anomalies or exceptions to report.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

SAMPLING AND ANALYSIS SUMMARY

CADENA Project ID: E203631

Laboratory: TestAmerica-North Canton

Laboratory Submittal: 119327-1

Lab Sample ID	Sample ID	Collection Date (mm/yy/dd)	Collection Time (hh:mm:ss)	Volatile Organics by GCMS	8260B with Single Ion Monitoring	Comment
2401193271	MW-167S_092019	9/20/2019	10:31:00	X	X	
2401193272	TRIP BLANK	9/20/2019	12:00:00	X		

Analytical Results Summary

Reportable Results Only

CADENA Project ID: E203631

Laboratory: TestAmerica - North Canton

Laboratory Submittal: 119327-1

Sample Name: MW-167S_092019 TRIP BLANK
Lab Sample ID: 2401193271 2401193272
Sample Date: 9/20/2019 9/20/2019

Analyte	Cas No.	Report		Units	Valid		Report		Valid	
		Result	Limit		Qualifier	Result	Limit	Units	Qualifier	
GC/MS VOC										
<u>OSW-8260B</u>										
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
<u>OSW-8260BBSim</u>										
1,4-Dioxane	123-91-1	ND	2.0	ug/l	---					

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG #240-119327-1

CADENA Verification Report: 2019-10-09

Analyses Performed By:

TestAmerica
Canton, Ohio

Report #34399R

Review Level: Tier III

Project: 30016346.00002



DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-119327-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						VOC (Full Scan)	VOC (SIM)	MISC
240-119327-1	MW-167S_092019	240-119327-1	Water	9/20/2019		X	X	
	TRIP BLANK	240-119327-2	Water	9/20/2019		X		

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260B and 8260B SIM. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260B/8260B-SIM	Water	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl

All samples were analyzed within the specified holding time criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (20%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

DATA REVIEW

No compounds were detected in the sample within this SDG.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: 8260B/8260B-SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times/Preservation		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: October 13, 2019

PEER REVIEW: Joseph C. Houser

DATE: October 13, 2019



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



**NO CORRECTIONS/QUALIFIERS ADDED
TO SAMPLE ANALYSIS DATA SHEETS**



Chain of Custody Record

TestAmerica Laboratory location: Brighton --- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / (810)-229-2763

Client Contact
 Company Name: Arcadis
 Address: 28550 Cabot Drive, Suite 500
 City/State/Zip: Novi, MI, 48377
 Phone: 248-994-2240
 Project Name: Ford LTP
 Project Number: M1001454.0004.0002B
 PO # M1001454.0004.0002B

Regulatory program: DW NPDES RCRA Other

Client Project Manager: Rachel Bielak
 Telephone: 248-946-6331
 Email: kristoffer.hinskey@arcadis.com

Site Contact: Mike DeMonico
 Telephone: 330-497-9396

Sample Identification	Sample Date	Sample Time	Matrix			Containers & Preservatives					Filtered Sample (Y/N)	Analyses						Sample Specific Notes / Special Instructions:					
			Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl		NaOH	ZnAc	LiPtes	Other:	1,4-DCE 8260B	6is-1,2-DCE 8260B		Trans-1,2-DCE 8260B	PCE 8260B	TCE 8260B	Vinyl Chloride 8260B	1,4-Dioxane 8260B SIM
			Shipping/Tracking No:	Method of Shipment/Carrier:	TAT if different from below	Analysis Turnaround Time	Composite C / Grab C	1,4-DCE 8260B	6is-1,2-DCE 8260B	Trans-1,2-DCE 8260B		PCE 8260B	TCE 8260B	Vinyl Chloride 8260B	1,4-Dioxane 8260B SIM								
MW-1675-092019	9/20/19	1031		X				X						X	X	X	X	X	X	X		6 CONTAINERS	
TRIP BANK	---	---		X										X	X	X	X	X	X	X		1 CONTAINERS	



Possible Hazard Identification
 Non-Hazard Flammable Irritant Corrosive Unknown

Sample Disposal: (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal By Lab Archive For _____ Months

Special Instructions/QC Requirements & Comments:
 Submit all results through Cadena at jim.tomalia@cadenacom.com. Cadena #E203631
 Level IV Reporting requested.

Relinquished by: SHARTEL HINSEY / Jim Tomalia
 Relinquished by: John McCallister
 Relinquished by: Jane...
 Received by: NOT CAP STORAGE
 Received by: Novi Cold Storage
 Received in Laboratory by: MOLEY HANSON
 Date/Time: 9/20/19 / 1520
 Date/Time: 9/20/19 / 1600
 Date/Time: 9/23/19 / 110
 Company: ARCADIS
 Company: Arcadis
 Company: ARCADIS
 Date/Time: 9/20/19 / 1520
 Date/Time: 9/20/19 / 1600
 Date/Time: 9/23/19 / 1111
 Company: ARCADIS
 Company: Arcadis
 Company: ARCADIS
 Company: ARCADIS
 Date/Time: 9-24-19 940



Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119327-1

Client Sample ID: MW-167S_092019

Lab Sample ID: 240-119327-1

Date Collected: 09/20/19 10:31

Matrix: Water

Date Received: 09/24/19 09:40

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			09/27/19 15:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		63 - 125		09/27/19 15:30	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/02/19 16:31	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/02/19 16:31	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/02/19 16:31	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/02/19 16:31	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/02/19 16:31	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/02/19 16:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		70 - 121		10/02/19 16:31	1
4-Bromofluorobenzene (Surr)	91		59 - 120		10/02/19 16:31	1
Toluene-d8 (Surr)	96		70 - 123		10/02/19 16:31	1
Dibromofluoromethane (Surr)	83		75 - 128		10/02/19 16:31	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119327-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-119327-2

Date Collected: 09/20/19 00:00

Matrix: Water

Date Received: 09/24/19 09:40

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/02/19 16:53	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/02/19 16:53	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/02/19 16:53	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/02/19 16:53	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/02/19 16:53	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/02/19 16:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		70 - 121		10/02/19 16:53	1
4-Bromofluorobenzene (Surr)	97		59 - 120		10/02/19 16:53	1
Toluene-d8 (Surr)	101		70 - 123		10/02/19 16:53	1
Dibromofluoromethane (Surr)	87		75 - 128		10/02/19 16:53	1




SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Project No.: 30016346.00002 Page 1 of 2

Site Location: Ford LTP 12001 Stark

Prepared By: Shantel Johnson

Date	Time	Description of Activities
9/20/2019	9:22	Arrive onsite
9/20/2019	9:44	Record static depth to water
9/20/2019	9:48	Begin purging well
9/20/2019	10:31	Collect sample MW-167S_092019
9/20/2019	10:36	End purge and turn off pump, begin decon of equipment
9/20/2019	10:50	Offsite
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SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Project No.: 30016346.00002 Page 2 of 2

Site Location: Ford LTP 12001 Stark

Prepared By: Shantel Johnson Date: 9/20/2019

Photos taken onsite:

Image 1:



Image 2:



Image 3:

**THIS SPACE
INTENTIONALLY
LEFT BLANK**

Image 4:

**THIS SPACE
INTENTIONALLY
LEFT BLANK**

Field staff signature:



SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Page 1 of 1

Project No. 30016346.00002 Well ID Ford LTP MW-167S Date 9/20/19
 Project Name/Location Ford LTP Weather 64.94 degrees F, Haze
 Measuring Pt. Description Top of Casing Screen Setting (ft-bmp) 5.0-10.0 Casing Diameter (in.) 2 Well Material PVC
 Static Water Level (ft-bmp) 6.88 Total Depth (ft-bmp) 9.23 Water Column (ft.) 2.35 Gallons in Well 0.38
 Pump Intake (ft-bmp) 8.38 Purge Method Low-Flow Sample Method Low-Flow
 Well Volumes Purged 2.61
 Sample Time: Label 10:31 Volume Purged 0.99 gallons Replicate/Code No. -- Sampled by Shantel Johnson
 Purge Start 9:48
 Purge End 10:36

Time	Minutes Elapsed between Readings	Flow Rate (mL/min) [100-300 mL/min]	Depth to Water (ft) [± 0.3]	Total Gallons Purged	pH [± 0.1]	Cond. (mS/cm) [± 3%]	Turbidity (NTU) [± 10%]*	DO (mg/L) [± 10%]	Temp. (C)/(F) [± 3%]	Redox (mV) [± 10mV]	Appearance	
											Color	Odor
9:50	0	100	6.93	0.00	6.93	0.68	77.70	1.94	16.9	178.3	Clear	None
9:55	5	100	6.93	0.13	6.96	0.74	52.40	1.5	16.8	167.7	Clear	None
10:00	5	100	6.93	0.26	6.97	0.76	17.70	1.14	16.6	162.1	Clear	None
10:05	5	100	6.93	0.39	6.99	0.76	5.08	1.14	16.6	156.6	Clear	None
10:10	5	100	6.94	0.52	7.03	0.76	2.78	1.53	16.6	152.1	Clear	None
10:15	5	100	6.94	0.65	7	0.76	2.12	0.69	16.6	150.3	Clear	None
10:20	5	100	6.94	0.78	6.97	0.76	1.29	0.31	16.6	148.0	Clear	None
10:25	5	100	6.94	0.91	6.99	0.76	1.76	0.33	16.7	143.0	Clear	None
10:28	3	100	6.94	0.99	6.97	0.76	1.21	0.44	16.6	141.1	Clear	None
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* Turbidity < 50 NTU and ±10% or within 1 NTU of a previous reading when <10 NTU

Constituents Sampled	Container	Number	Preservative
1,4-dioxane	40 mL Glass	3	HCL
1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, PCE, TCE, VC	40 mL Glass	3	HCL

Comments _____

Well Casing Volumes	1"	1.25"	1.5"	2"	2.5"	3"	3.5"	4"	6"
Gallons/Foot	0.04	0.06	0.09	0.16	0.26	0.37	0.50	0.65	1.47

Well Information

Well Location: 12001 Stark Well Locked at Arrival: yes

Condition of Well: Good Well Locked at Departure: yes

Well Completion: Flush mount Lock Functioning: yes

TRANSMITTAL LETTER



To:
George Al-Husari
Shawn Collins
Brandon Alger (EGLE)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:
January 10, 2020

Subject:

Arcadis Project No.:

Shallow Groundwater
Assessment Data Package

We are sending you hard copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Delivery Date	Drawing No.	Rev.	Description	Action*
1	1/14/2020			Figure	
1	1/14/2020			Analytical Results	
1	1/14/2020			Field Notes and Drawings	

Action*

- A Approved CR Correct and Resubmit Resubmit _____ Copies
 AN Approved As Noted F File Return _____ Copies
 AS As Requested FA For Approval Review and Comment
 Other: _____

Mailing Method



- U.S. Postal Service 1st Class Courier/Hand Delivery FedEx Priority Overnight FedEx 2-Day Delivery
 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
 Other: email

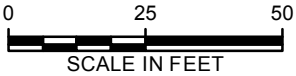
Thank you for cooperating with the groundwater sampling at your property on November 26, 2019.
Attached is your data package.

CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: A. PAULSON TR: M. WACKSMAN PROJECT NUMBER: MI001454.0003.000001 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
Z:\GIS\Projects\ENV\NovBrighton_Mil\FordLivonia\GIS\docs\2019-03\MW_Locations\12001Stark\MW-167S.mxd PLOTTED: 3/5/2019 7:49:29 AM BY: msmliller



LEGEND:

-  MONITORING WELL LOCATION
-  PROPERTY BOUNDARIES



FORD MOTOR COMPANY
LIVONIA TRANSMISSION PLANT
LIVONIA, MICHIGAN

MONITORING WELL LOCATION MW-167S



FIGURE 1

ANALYTICAL REPORT

Eurofins TestAmerica, Edison
777 New Durham Road
Edison, NJ 08817
Tel: (732)549-3900

Laboratory Job ID: 460-198338-1
Client Project/Site: Ford LTP Off-Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
12/19/2019 10:13:32 AM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Certification Summary	13
Method Summary	14
Sample Summary	15
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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-198338-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-198338-1

Job ID: 460-198338-1

Laboratory: Eurofins TestAmerica, Edison

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Off-Site

Report Number: 460-198338-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Edison attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 12/5/2019 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.0° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples Trip Blank (460-198338-1) and MW-167S_112619 (460-198338-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260C. The samples were analyzed on 12/09/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS)

Sample MW-167S_112619 (460-198338-2) was analyzed for Volatile organic compounds (GC/MS) in accordance with SW-846 Method 8260C SIM. The sample was analyzed on 12/09/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-198338-1

Client Sample ID: Trip Blank

Lab Sample ID: 460-198338-1

No Detections.

Client Sample ID: MW-167S_112619

Lab Sample ID: 460-198338-2

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Edison

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-198338-1

Client Sample ID: Trip Blank

Lab Sample ID: 460-198338-1

Date Collected: 11/26/19 09:31

Matrix: Water

Date Received: 12/05/19 09:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.26	ug/L			12/09/19 15:10	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L			12/09/19 15:10	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L			12/09/19 15:10	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L			12/09/19 15:10	1
Trichloroethene	1.0	U	1.0	0.31	ug/L			12/09/19 15:10	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L			12/09/19 15:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		74 - 132		12/09/19 15:10	1
Toluene-d8 (Surr)	90		80 - 120		12/09/19 15:10	1
Dibromofluoromethane (Surr)	87		72 - 131		12/09/19 15:10	1
4-Bromofluorobenzene	93		77 - 124		12/09/19 15:10	1

Client Sample ID: MW-167S_112619

Lab Sample ID: 460-198338-2

Date Collected: 11/26/19 09:31

Matrix: Water

Date Received: 12/05/19 09:30

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.33	ug/L			12/09/19 16:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	89		72 - 133		12/09/19 16:55	1

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.26	ug/L			12/09/19 17:11	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L			12/09/19 17:11	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L			12/09/19 17:11	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L			12/09/19 17:11	1
Trichloroethene	1.0	U	1.0	0.31	ug/L			12/09/19 17:11	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L			12/09/19 17:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		74 - 132		12/09/19 17:11	1
Toluene-d8 (Surr)	89		80 - 120		12/09/19 17:11	1
Dibromofluoromethane (Surr)	88		72 - 131		12/09/19 17:11	1
4-Bromofluorobenzene	92		77 - 124		12/09/19 17:11	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-198338-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (74-132)	TOL (80-120)	DBFM (72-131)	BFB (77-124)
460-198048-A-3 MS	Matrix Spike	85	91	87	92
460-198048-A-3 MSD	Matrix Spike Duplicate	85	90	88	92
460-198338-1	Trip Blank	86	90	87	93
460-198338-2	MW-167S_112619	87	89	88	92
LCS 460-660920/4	Lab Control Sample	84	91	87	91
MB 460-660920/7	Method Blank	87	91	88	91

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

BFB = 4-Bromofluorobenzene

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB
		(72-133)
460-198338-2	MW-167S_112619	89
LCS 460-660978/3	Lab Control Sample	87
LCSD 460-660978/4	Lab Control Sample Dup	90
MB 460-660978/7	Method Blank	86

Surrogate Legend

BFB = 4-Bromofluorobenzene

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-198338-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 460-660920/7
Matrix: Water
Analysis Batch: 660920

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.26	ug/L			12/09/19 11:33	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L			12/09/19 11:33	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L			12/09/19 11:33	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L			12/09/19 11:33	1
Trichloroethene	1.0	U	1.0	0.31	ug/L			12/09/19 11:33	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L			12/09/19 11:33	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		74 - 132		12/09/19 11:33	1
Toluene-d8 (Surr)	91		80 - 120		12/09/19 11:33	1
Dibromofluoromethane (Surr)	88		72 - 131		12/09/19 11:33	1
4-Bromofluorobenzene	91		77 - 124		12/09/19 11:33	1

Lab Sample ID: LCS 460-660920/4
Matrix: Water
Analysis Batch: 660920

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	20.0	16.9		ug/L		85	74 - 123
cis-1,2-Dichloroethene	20.0	17.4		ug/L		87	80 - 120
Tetrachloroethene	20.0	18.8		ug/L		94	78 - 122
trans-1,2-Dichloroethene	20.0	17.2		ug/L		86	79 - 120
Trichloroethene	20.0	15.8		ug/L		79	77 - 120
Vinyl chloride	20.0	17.7		ug/L		88	62 - 138

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	84		74 - 132
Toluene-d8 (Surr)	91		80 - 120
Dibromofluoromethane (Surr)	87		72 - 131
4-Bromofluorobenzene	91		77 - 124

Lab Sample ID: 460-198048-A-3 MS
Matrix: Water
Analysis Batch: 660920

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U	200	162		ug/L		81	74 - 123
cis-1,2-Dichloroethene	1.0	U	200	169		ug/L		85	80 - 120
Tetrachloroethene	1.0	U	200	189		ug/L		94	78 - 122
trans-1,2-Dichloroethene	1.0	U	200	168		ug/L		84	79 - 120
Trichloroethene	1.0	U F1	200	150	F1	ug/L		75	77 - 120
Vinyl chloride	1.0	U	200	192		ug/L		96	62 - 138

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	85		74 - 132
Toluene-d8 (Surr)	91		80 - 120
Dibromofluoromethane (Surr)	87		72 - 131

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-198338-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 460-198048-A-3 MS
Matrix: Water
Analysis Batch: 660920

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene	92		77 - 124

Lab Sample ID: 460-198048-A-3 MSD
Matrix: Water
Analysis Batch: 660920

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	200	180		ug/L		90	74 - 123	10	30
cis-1,2-Dichloroethene	1.0	U	200	189		ug/L		94	80 - 120	11	30
Tetrachloroethene	1.0	U	200	206		ug/L		103	78 - 122	9	30
trans-1,2-Dichloroethene	1.0	U	200	187		ug/L		93	79 - 120	10	30
Trichloroethene	1.0	U F1	200	165		ug/L		83	77 - 120	9	30
Vinyl chloride	1.0	U	200	213		ug/L		107	62 - 138	10	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	85		74 - 132
Toluene-d8 (Surr)	90		80 - 120
Dibromofluoromethane (Surr)	88		72 - 131
4-Bromofluorobenzene	92		77 - 124

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 460-660978/7
Matrix: Water
Analysis Batch: 660978

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.33	ug/L			12/09/19 14:49	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	86		72 - 133		12/09/19 14:49	1

Lab Sample ID: LCS 460-660978/3
Matrix: Water
Analysis Batch: 660978

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	5.00	4.40		ug/L		88	66 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene	87		72 - 133

Lab Sample ID: LCSD 460-660978/4
Matrix: Water
Analysis Batch: 660978

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	5.00	5.07		ug/L		101	66 - 135	14	30

Eurofins TestAmerica, Edison

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-198338-1

Method: 8260C SIM - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>LCS</i>	<i>D</i>	<i>LCS</i>	<i>D</i>	<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>			
4-Bromofluorobenzene	90				72 - 133

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QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-198338-1

GC/MS VOA

Analysis Batch: 660920

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-198338-1	Trip Blank	Total/NA	Water	8260C	
460-198338-2	MW-167S_112619	Total/NA	Water	8260C	
MB 460-660920/7	Method Blank	Total/NA	Water	8260C	
LCS 460-660920/4	Lab Control Sample	Total/NA	Water	8260C	
460-198048-A-3 MS	Matrix Spike	Total/NA	Water	8260C	
460-198048-A-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260C	

Analysis Batch: 660978

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-198338-2	MW-167S_112619	Total/NA	Water	8260C SIM	
MB 460-660978/7	Method Blank	Total/NA	Water	8260C SIM	
LCS 460-660978/3	Lab Control Sample	Total/NA	Water	8260C SIM	
LCSD 460-660978/4	Lab Control Sample Dup	Total/NA	Water	8260C SIM	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-198338-1

Client Sample ID: Trip Blank

Date Collected: 11/26/19 09:31

Date Received: 12/05/19 09:30

Lab Sample ID: 460-198338-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	660920	12/09/19 15:10	SZD	TAL EDI

Client Sample ID: MW-167S_112619

Date Collected: 11/26/19 09:31

Date Received: 12/05/19 09:30

Lab Sample ID: 460-198338-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	660920	12/09/19 17:11	SZD	TAL EDI
Total/NA	Analysis	8260C SIM		1	660978	12/09/19 16:55	KLB	TAL EDI

Laboratory References:

TAL EDI = Eurofins TestAmerica, Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-198338-1

Laboratory: Eurofins TestAmerica, Edison

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Connecticut	State	PH-0200	09-30-20
DE Haz. Subst. Cleanup Act (HSCA)	State	<cert No.>	12-31-21
Georgia	State	12028 (NJ)	06-30-20
Massachusetts	State	M-NJ312	06-30-20
Massachusetts	State Program	M-NJ312	06-30-20
New Jersey	NELAP	12028	06-30-20
New York	NELAP	11452	04-01-20
Pennsylvania	NELAP	68-00522	02-28-20
Rhode Island	State	LAO00132	12-30-19
USDA	US Federal Programs	P330-18-00135	05-03-21

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-20
Connecticut	State	PH-0590	12-31-19
Florida	NELAP	E87225	06-30-20
Georgia	State	4062	02-23-20
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-20
Kansas	NELAP	E-10336	04-30-20
Kentucky (UST)	State	112225	02-23-20
Kentucky (WW)	State	KY98016	12-31-19
Minnesota	NELAP	OH00048	12-31-19
Minnesota (Petrofund)	State Program	3506	07-31-21
New Jersey	NELAP	OH001	06-30-20
New York	NELAP	10975	03-31-20
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-23-20
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-16-00404	12-28-19
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-20
West Virginia DEP	State	210	12-31-19

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-198338-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL EDI
8260C SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL EDI
5030C	Purge and Trap	SW846	TAL EDI

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL EDI = Eurofins TestAmerica, Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-198338-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
460-198338-1	Trip Blank	Water	11/26/19 09:31	12/05/19 09:30	
460-198338-2	MW-167S_112619	Water	11/26/19 09:31	12/05/19 09:30	

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Chain of Custody Record

MICHIGAN

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratory location: Brighton --- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

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Client Contact Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other	
Client Project Manager: Kris Hinskey Telephone: 248-994-2240 Email: kristoffer.hinskey@arcadis.com		Site Contact: Rachel Bieliak Telephone: 248-946-6331	
Project Name: Ford LTP Off-Site Project Number: 30016346.0002B PO # 30016346.0002B		Analyses Walk-in phone Lab sampling Job/SDG No: 198338	
Sampler Name: Mary-Catherine Gubb Method of Shipment/Carrier: Shipping/Tracking No:		Sample Specific Notes / Special Instructions: 1 Trip Blank 3 Vials for 8260B 3 Vials for 8260S SIM	
Sample Identification Sample Date: 11/26/19 08:31 Sample Time:		TAT if different from below 10 day <input type="checkbox"/> 3 weeks <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day	
Sample Date: 11/26/19 08:31 Sample Time:		H2SO4 HNO3 HCl NaOH ZnAc Mohr Uptres Other:	
Air Aqueous Sediment Solid Other:		1,1-DCE 8260B cis-1,2-DCE 8260B Trans-1,2-DCE 8260B PCE 8260B TCE 8260B Vinyl Chloride 8260B 1,4-Dioxane 8260B SIM	

Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Submit all results through Cadena at jim.tomalia@cadena.com. Cadena #E203631 Level IV Reporting requested.			
Relinquished by: Mary-Catherine Gubb	Date/Time: 11/26/19 5:00 Company: Arcadis	Received by: [Signature]	Date/Time: 11/26/19 8:6 Company: Arcadis
Relinquished by: [Signature]	Date/Time: 11/27/19 08:00 Company: ARCADIS	Received by: [Signature]	Date/Time: 11/27/19 09:20 Company: ARCADIS
Relinquished by: [Signature]	Date/Time: 12/03/19 / 12:35 Company: Arcadis	Received by: Holly Hasrow	Date/Time: 11/27/19 / 12:37 Company: TA
ETAL-MI 12/4/19 16:14		TAFEdi 12/5/19 09:30	

4.7°C IRLL via FedEx
 15.0°C



**Eurofins TestAmerica Edison
Receipt Temperature and pH Log**

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198338

Job Number:

Number of Coolers: IR Gun #

	RAW		CORRECTED	
Cooler #1:	<u>47</u>	<u>50</u>	<u> </u>	<u> </u>
Cooler #2:	<u> </u>	<u> </u>	<u> </u>	<u> </u>
Cooler #3:	<u> </u>	<u> </u>	<u> </u>	<u> </u>
Cooler #4:	<u> </u>	<u> </u>	<u> </u>	<u> </u>
Cooler #5:	<u> </u>	<u> </u>	<u> </u>	<u> </u>
Cooler #6:	<u> </u>	<u> </u>	<u> </u>	<u> </u>
Cooler #7:	<u> </u>	<u> </u>	<u> </u>	<u> </u>
Cooler #8:	<u> </u>	<u> </u>	<u> </u>	<u> </u>
Cooler #9:	<u> </u>	<u> </u>	<u> </u>	<u> </u>

TALS Sample Number	Ammonia (pH<2)	Nitrate Nitrite (pH<2)	Metals (pH<2)	Hardness (pH<2)	Pest (pH 5-9)	EPH or QAM (pH<2)	Phenols (pH<2)	Sulfide (pH>9)	TKN (pH<2)	TOC (pH<2)	Total Cyanide (pH>12)	Total Phos (pH<2)	Other

If pH adjustments are required record the information below:

Sample No(s). adjusted:

Preservative Name/Conc.: Volume of Preservative used (ml):

Lot # of Preservative(s): Expiration Date:

The appropriate Project Manager and Department Manager should be notified about the samples which were pH adjusted.
* Samples for Metal analysis which are out of compliance must be acidified at least 24 hours prior to analysis.

Initials: Date: 12/5/19



Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 460-198338-1

Login Number: 198338

List Number: 1

Creator: Rivera, Kenneth

List Source: Eurofins TestAmerica, Edison

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	False	Insufficient volume received for requested analysis.
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



DATA VERIFICATION REPORT



December 19, 2019

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: 30016346.0002B
Event Specific Scope of Work References: Sample COC
Laboratory: TestAmerica - Edison
Laboratory submittal: 198338-1
Sample date: 2019-11-26
Report received by CADENA: 2019-12-19
Initial Data Verification completed by CADENA: 2019-12-19
Number of Samples:2
Sample Matrices:Water
Test Categories:GCMS VOC

Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

The following minor QC exceptions or missing information were noted:

GCMS VOC QC batch MS/MSD recovery outliers were not determined using a client sample so qualification was not required based on these sample-specific QC outliers.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, LCS/LCD RPD, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

SAMPLING AND ANALYSIS SUMMARY

CADENA Project ID: E203631

Laboratory: TestAmerica-Edison

Laboratory Submittal: 198338-1

Lab Sample ID	Sample ID	Collection Date (mm/yy/dd)	Collection Time (hh:mm:ss)	GCMS VOC Volatiles	GCMS VOC SIM	Comment
4601983381	Trip Blank	11/26/2019	9:31:00	X		
4601983382	MW-167S_112619	11/26/2019	9:31:00	X	X	

Analytical Results Summary

Reportable Results Only

CADENA Project ID: E203631

Laboratory: TestAmerica - Edison

Laboratory Submittal: 198338-1

Sample Name: Trip Blank MW-167S_112619
Lab Sample ID: 4601983381 4601983382
Sample Date: 11/26/2019 11/26/2019

Analyte	Cas No.	Report		Units	Valid Qualifier	Report		Units	Valid Qualifier	
		Result	Limit			Result	Limit			
GC/MS VOC										
<u>OSW-8260C</u>										
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
GC/MS SVOC										
<u>OSW-8260CSIM</u>										
1,4-Dioxane	123-91-1					ND	2.0	ug/l	---	

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG # 460-198338-1

CADENA Verification Report: 2019-12-19

Analyses Performed By:

TestAmerica

Edison, New Jersey

Report #35303R

Review Level: Tier III

Project: 30016346.00002



DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 460-198338-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III) includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						VOC (Full Scan)	VOC (SIM)	MISC
460-198338-1	Trip Blank	460-198338-1	Water	11/26/2019		X		
	MW-167S_112619	460-198338-2	Water	11/26/2019		X	X	

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260B and 8260B SIM. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260B/8260B-SIM	Water	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl

All samples were analyzed within the specified holding time criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (20%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

A field duplicate was not performed on a sample within this SDG.

6. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All detected compounds met the specified criteria.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: 8260B/8260B-SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times/Preservation		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Field Duplicate RPD		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: December 27, 2019

PEER REVIEW: Dennis Capria

DATE: January 3, 2020



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



**NO CORRECTIONS/QUALIFIERS ADDED
TO SAMPLE ANALYSIS DATA SHEETS**



Chain of Custody Record

MICHIGAN

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratory location: Brighton --- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

190

Regulatory program: DW NPDES RCRA Other

Client Contact
 Company Name: Arcadis
 Address: 28550 Cabot Drive, Suite 500
 City/State/Zip: Novi, MI, 48377
 Phone: 248-994-2240
 Project Name: Ford LTP Off-Site
 Project Number: 30016346.0002B
 PO # 30016346.0002B

Client Project Manager: Kris Hinskey
 Telephone: 248-994-2240
 Email: kristoffer.hinskey@arcadis.com
 Site Contact: Rachel Bielak
 Telephone: 248-946-6331
 Lab Contact: Mike DelMonico
 Telephone: 330-497-9396

Sampler Name: Mary-Catherine Gubbins
 Method of Shipment/Carrier:
 Shipping/Tracking No:

Analyses
 1,1-DCE 8260B
 cis-1,2-DCE 8260B
 Trans-1,2-DCE 8260B
 PCE 8260B
 TCE 8260B
 Vinyl Chloride 8260B
 1,4-Dioxane 8260B SIM

Sample Specific Notes / Special Instructions:
 1 Trip Blank
 3 Vials for 8260B
 3 Vials for 8260B SIM

Sample Identification
 Sample Date: 11/26/19 08:31
 Sample Time: 08:31
 Sample ID: MW-1675-112619
 (with handwritten initials)

Sample Date	Sample Time	Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl	NaOH	ZnAc	MnOH	Other:
11/26/19	08:31	X	X										

Possible Hazard Identification
 Non-Hazard Irritant Poison B Unknown
 Flammable Corrosive

Special Instructions/QC Requirements & Comments:
 Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal By Lab Archive For _____ Months

460-198338 Chain of Custody

Relinquished by: Mary-Catherine Gubbins
 Date/Time: 11/26/19 15:00
 Company: Arcadis

Relinquished by: Mary-Catherine Gubbins
 Date/Time: 11/27/19 08:00
 Company: ARCADIS

Relinquished by: Holly Haszow
 Date/Time: 12/03/19 / 12:35
 Company: Arcadis

Relinquished by: Holly Haszow
 Date/Time: 12/14/19 16:14
 Company: ETAL-MI

Relinquished by: Holly Haszow
 Date/Time: 12/15/19 09:30
 Company: TAFEI

Relinquished by: Holly Haszow
 Date/Time: 11/26/19 18:00
 Company: Arcadis

Relinquished by: Holly Haszow
 Date/Time: 11/27/19 08:00
 Company: ARCADIS

Relinquished by: Holly Haszow
 Date/Time: 11/27/19 / 12:35
 Company: TA

4.7°C IRLL via FedEx
 15.0°C

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-198338-1

Client Sample ID: Trip Blank

Lab Sample ID: 460-198338-1

Date Collected: 11/26/19 09:31

Matrix: Water

Date Received: 12/05/19 09:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.26	ug/L			12/09/19 15:10	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L			12/09/19 15:10	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L			12/09/19 15:10	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L			12/09/19 15:10	1
Trichloroethene	1.0	U	1.0	0.31	ug/L			12/09/19 15:10	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L			12/09/19 15:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		74 - 132		12/09/19 15:10	1
Toluene-d8 (Surr)	90		80 - 120		12/09/19 15:10	1
Dibromofluoromethane (Surr)	87		72 - 131		12/09/19 15:10	1
4-Bromofluorobenzene	93		77 - 124		12/09/19 15:10	1

Client Sample ID: MW-167S_112619

Lab Sample ID: 460-198338-2

Date Collected: 11/26/19 09:31

Matrix: Water

Date Received: 12/05/19 09:30

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.33	ug/L			12/09/19 16:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	89		72 - 133		12/09/19 16:55	1

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.26	ug/L			12/09/19 17:11	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L			12/09/19 17:11	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L			12/09/19 17:11	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L			12/09/19 17:11	1
Trichloroethene	1.0	U	1.0	0.31	ug/L			12/09/19 17:11	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L			12/09/19 17:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		74 - 132		12/09/19 17:11	1
Toluene-d8 (Surr)	89		80 - 120		12/09/19 17:11	1
Dibromofluoromethane (Surr)	88		72 - 131		12/09/19 17:11	1
4-Bromofluorobenzene	92		77 - 124		12/09/19 17:11	1

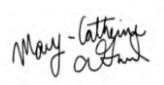


SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Project No.: 30016346.00002 Page 1 of 1

Site Location: Ford LTP 12001 Stark

Prepared By: Mary-Catherine Goddard

Date	Time	Description of Activities
11/26/2019	8:39	Arrive onsite
11/26/2019	8:51	Record static depth to water
11/26/2019	8:56	Begin purging well
11/26/2019	9:31	Collect sample MW-167S_112619
11/26/2019	9:31	End purge and turn off pump, begin decon. of equipment
11/26/2019	9:46	Offsite
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SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Page 1 of 1

Project No. 30016346.00002 Well ID Ford LTP MW-167S Date 11-26-19
 Project Name/Location Ford LTP Weather 35.96 degrees F, Fog/Mist
 Measuring Pt. Description Top of Casing Screen Setting (ft-bmp) 5-10 Casing Diameter (in.) 2 Well Material PVC
 Static Water Level (ft-bmp) 6.19 Total Depth (ft-bmp) 9.20 Water Column (ft.) 3.01 Gallons in Well 0.49
7.69 Pump Intake (ft-bmp) Purge Method Low-Flow Sample Method Low-Flow
2.31 Well Volumes Purged

Sample Time: Label 9:31 Volume Purged 1.13 gallons Replicate/Code No. -- Sampled by Mary-Catherine Goddard
 Purge Start 8:56
 Purge End 9:31

Mary-Catherine Goddard

Time	Minutes Elapsed between Readings	Flow Rate (mL/min) [100-300 mL/min]	Depth to Water (ft) [±0.3]	Total Gallons Purged	pH [±0.1]	Cond. (mS/cm) [±3%]	Turbidity (NTU) [±10%*]	DO (mg/L) [±10%]	Temp. (C)/(F) [±3%]	Redox (mV) [±10mV]	Appearance	
											Color	Odor
8:58	0	160	6.21	0.00	6.69	0.74	1.97	6.75	11.9	145.9	Clear	No Odor
9:03	5	140	6.21	0.21	7.02	0.72	2.76	6.12	12.0	139.6	Clear	No Odor
9:08	5	150	6.21	0.39	7.10	0.72	1.77	6.21	12.1	137.3	Clear	No Odor
9:13	5	140	6.21	0.59	7.10	0.77	0.91	4.49	12.2	136.6	Clear	No Odor
9:18	5	140	6.21	0.77	7.10	0.78	0.29	4.17	12.2	135.5	Clear	No Odor
9:23	5	140	6.21	0.95	7.11	0.79	0.10	4.11	12.3	134.0	Clear	No Odor
9:28	5	140	6.21	1.13	7.12	0.79	0.22	4.26	12.3	132.5	Clear	No Odor
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* Turbidity < 50 NTU and ±10% or within 1 NTU of a previous reading when <10 NTU

Constituents Sampled	Container	Number	Preservative
1,4-dioxane	40 mL Glass	3	HCL
1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, PCE, TCE, VC	40 mL Glass	3	HCL

Comments Well vault full of water. Disposed of excess.

Well Casing Volumes	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
Gallons/Foot	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Well Information

Well Location: 12001 Stark Well Locked at Arrival: yes

Condition of Well: Fair Well Locked at Departure: yes

Well Completion: Flush mount Lock Functioning: yes

TRANSMITTAL LETTER



To:
George Al-Husari
Shawn Collins
Brandon Alger (EGLE)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:

March 12, 2020

Subject:

Arcadis Project No.: 30042006.0402.02

Shallow Groundwater
Assessment Data Package

We are sending you hard copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Delivery Date	Drawing No.	Rev.	Description	Action*
1	3/13/2020			Figure	
1	3/13/2020			Analytical Results	
1	3/13/2020			Field Notes and Drawings	

Action*

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
- U.S. Postal Service 1st Class Courier/Hand Delivery FedEx Priority Overnight FedEx 2-Day Delivery
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Thank you for cooperating with the groundwater sampling at your property on February 5, 2020. Attached is your data package.


CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: A. PAULSON TR: M. WACKSMAN PROJECT NUMBER: MI001454.0003.000001 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
Z:\GIS\Projects\ENV\NovBrighton_Mil\FordLivonia\GIS\docs\2019-03\MW_Locations\12001Stark\MW-167S.mxd PLOTTED: 3/5/2019 7:49:29 AM BY: msmliller



LEGEND:

-  MONITORING WELL LOCATION
-  PROPERTY BOUNDARIES



FORD MOTOR COMPANY LIVONIA TRANSMISSION PLANT LIVONIA, MICHIGAN	
MONITORING WELL LOCATION MW-167S	
 ARCADIS	Design & Consultancy for natural and built assets
FIGURE 1	

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-125918-1
Client Project/Site: Ford LTP Off Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
2/19/2020 3:39:32 PM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-125918-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-125918-1

Job ID: 240-125918-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Off Site

Report Number: 240-125918-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 2/7/2020 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.7° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-125918-1) and MW-167S_020520 (240-125918-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 02/10/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-167S_020520 (240-125918-2) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 02/11/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-125918-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-125918-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-125918-1	TRIP BLANK	Water	02/05/20 00:00	02/07/20 11:20	
240-125918-2	MW-167S_020520	Water	02/05/20 11:10	02/07/20 11:20	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-125918-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-125918-1

No Detections.

Client Sample ID: MW-167S_020520

Lab Sample ID: 240-125918-2

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-125918-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-125918-1

Date Collected: 02/05/20 00:00

Matrix: Water

Date Received: 02/07/20 11:20

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/10/20 19:11	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/10/20 19:11	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/10/20 19:11	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/10/20 19:11	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/10/20 19:11	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/10/20 19:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		75 - 130		02/10/20 19:11	1
4-Bromofluorobenzene (Surr)	69		47 - 134		02/10/20 19:11	1
Toluene-d8 (Surr)	89		69 - 122		02/10/20 19:11	1
Dibromofluoromethane (Surr)	121		78 - 129		02/10/20 19:11	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-125918-1

Client Sample ID: MW-167S_020520

Lab Sample ID: 240-125918-2

Date Collected: 02/05/20 11:10

Matrix: Water

Date Received: 02/07/20 11:20

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L	-		02/11/20 21:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		70 - 133		02/11/20 21:04	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		02/10/20 20:46	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L	-		02/10/20 20:46	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L	-		02/10/20 20:46	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		02/10/20 20:46	1
Trichloroethene	1.0	U	1.0	0.10	ug/L	-		02/10/20 20:46	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L	-		02/10/20 20:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		75 - 130		02/10/20 20:46	1
4-Bromofluorobenzene (Surr)	68		47 - 134		02/10/20 20:46	1
Toluene-d8 (Surr)	88		69 - 122		02/10/20 20:46	1
Dibromofluoromethane (Surr)	115		78 - 129		02/10/20 20:46	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-125918-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-125898-D-5 MS	Matrix Spike	102	96	100	102
240-125898-E-5 MSD	Matrix Spike Duplicate	89	94	98	103
240-125918-1	TRIP BLANK	108	69	89	121
240-125918-2	MW-167S_020520	109	68	88	115
LCS 240-422133/4	Lab Control Sample	94	100	102	104
MB 240-422133/7	Method Blank	111	78	97	126

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-133)
240-125898-A-5 MS	Matrix Spike	98
240-125898-A-5 MSD	Matrix Spike Duplicate	99
240-125918-2	MW-167S_020520	102
LCS 240-422331/4	Lab Control Sample	95
MB 240-422331/5	Method Blank	96

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-125918-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-422133/7
Matrix: Water
Analysis Batch: 422133

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/10/20 12:50	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/10/20 12:50	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/10/20 12:50	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/10/20 12:50	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/10/20 12:50	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/10/20 12:50	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		75 - 130		02/10/20 12:50	1
4-Bromofluorobenzene (Surr)	78		47 - 134		02/10/20 12:50	1
Toluene-d8 (Surr)	97		69 - 122		02/10/20 12:50	1
Dibromofluoromethane (Surr)	126		78 - 129		02/10/20 12:50	1

Lab Sample ID: LCS 240-422133/4
Matrix: Water
Analysis Batch: 422133

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	10.4		ug/L		104	73 - 129
cis-1,2-Dichloroethene	10.0	10.8		ug/L		108	75 - 124
Tetrachloroethene	10.0	10.1		ug/L		101	70 - 125
trans-1,2-Dichloroethene	10.0	11.3		ug/L		113	74 - 130
Trichloroethene	10.0	10.1		ug/L		101	71 - 121
Vinyl chloride	10.0	7.67		ug/L		77	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	94		75 - 130
4-Bromofluorobenzene (Surr)	100		47 - 134
Toluene-d8 (Surr)	102		69 - 122
Dibromofluoromethane (Surr)	104		78 - 129

Lab Sample ID: 240-125898-D-5 MS
Matrix: Water
Analysis Batch: 422133

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U	10.0	10.4		ug/L		104	64 - 132
cis-1,2-Dichloroethene	0.20	J	10.0	11.0		ug/L		108	68 - 121
Tetrachloroethene	1.0	U	10.0	10.4		ug/L		104	52 - 129
trans-1,2-Dichloroethene	1.0	U	10.0	11.2		ug/L		112	69 - 126
Trichloroethene	1.0	U	10.0	10.4		ug/L		104	56 - 124
Vinyl chloride	1.0	U	10.0	7.64		ug/L		76	49 - 136

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	102		75 - 130
4-Bromofluorobenzene (Surr)	96		47 - 134
Toluene-d8 (Surr)	100		69 - 122

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-125918-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-125898-D-5 MS
Matrix: Water
Analysis Batch: 422133

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	102		78 - 129

Lab Sample ID: 240-125898-E-5 MSD
Matrix: Water
Analysis Batch: 422133

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	10.0	9.95		ug/L		100	64 - 132	4	35
cis-1,2-Dichloroethene	0.20	J	10.0	10.0		ug/L		98	68 - 121	9	35
Tetrachloroethene	1.0	U	10.0	9.47		ug/L		95	52 - 129	10	35
trans-1,2-Dichloroethene	1.0	U	10.0	11.2		ug/L		112	69 - 126	1	35
Trichloroethene	1.0	U	10.0	9.74		ug/L		97	56 - 124	7	35
Vinyl chloride	1.0	U	10.0	7.56		ug/L		76	49 - 136	1	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	89		75 - 130
4-Bromofluorobenzene (Surr)	94		47 - 134
Toluene-d8 (Surr)	98		69 - 122
Dibromofluoromethane (Surr)	103		78 - 129

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-422331/5
Matrix: Water
Analysis Batch: 422331

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			02/11/20 12:04	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		70 - 133		02/11/20 12:04	1

Lab Sample ID: LCS 240-422331/4
Matrix: Water
Analysis Batch: 422331

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	10.2		ug/L		102	80 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	95		70 - 133

Lab Sample ID: 240-125898-A-5 MS
Matrix: Water
Analysis Batch: 422331

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	10.0	9.37		ug/L		94	46 - 170

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off Site

Job ID: 240-125918-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	98		70 - 133

Lab Sample ID: 240-125898-A-5 MSD
Matrix: Water
Analysis Batch: 422331

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
1,4-Dioxane	2.0	U	10.0	9.61		ug/L		96	46 - 170	3	26

<i>Surrogate</i>	<i>%Recovery</i>	<i>MSD MSD Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	99		70 - 133



QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-125918-1

GC/MS VOA

Analysis Batch: 422133

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-125918-1	TRIP BLANK	Total/NA	Water	8260B	
240-125918-2	MW-167S_020520	Total/NA	Water	8260B	
MB 240-422133/7	Method Blank	Total/NA	Water	8260B	
LCS 240-422133/4	Lab Control Sample	Total/NA	Water	8260B	
240-125898-D-5 MS	Matrix Spike	Total/NA	Water	8260B	
240-125898-E-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Analysis Batch: 422331

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-125918-2	MW-167S_020520	Total/NA	Water	8260B SIM	
MB 240-422331/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-422331/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-125898-A-5 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-125898-A-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-125918-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-125918-1

Date Collected: 02/05/20 00:00

Matrix: Water

Date Received: 02/07/20 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	422133	02/10/20 19:11	LRW	TAL CAN

Client Sample ID: MW-167S_020520

Lab Sample ID: 240-125918-2

Date Collected: 02/05/20 11:10

Matrix: Water

Date Received: 02/07/20 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	422133	02/10/20 20:46	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	422331	02/11/20 21:04	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-125918-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-20 *
Connecticut	State	PH-0590	12-31-19 *
Florida	NELAP	E87225	06-30-20
Georgia	State	4062	02-23-20 *
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-20
Kentucky (UST)	State	112225	02-23-20
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-20
New York	NELAP	10975	03-31-20
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-23-20 *
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-16-00404	12-28-19 *
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Canton



1.0/1.7

TestAmerica Laboratory location: Brighton -- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Client Contact Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240 Project Name: Ford LTP Off-Site Project Number: 30042006.0402.02 PO # 30042006.0402.02		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other		Client Project Manager: Kris Hinsky Telephone: 248-994-2240 Email: kristoffer.hinsky@arcadis.com Sampler Name: <i>Jon Lust</i> Method of Shipment/Carrier: Shipping/Tracking No:		Site Contact: Julia McClafferty Telephone: 734-644-5131 Analysis Turnaround Time TAT is different from below <input type="checkbox"/> 3 weeks <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Lab Contact: Mike DeMonico Telephone: 330-497-9396		TestAmerica Laboratories, Inc. COC No:	
Sample Identification TRIP BLANK MW-1675-070570		Matrix Solid Sediment Aqueous Air H2SO4 HNO3 HCl NaOH ZnO Other:		Containers & Preservatives Other:		Filtered Sample (Y/N) Composite C/Grab C		Analyses 1,1-DCE 8260B cis-1,2-DCE 8260B Trans-1,2-DCE 8260B PCE 8260B TCE 8260B Vinyl Chloride 8260B 1,4-Dioxane 8260B SIM		For lab use only Walk-in client Lab sampling Job/SDG No: Sample Specific Notes / Special Instructions:	
Sample Date: 05-20 Sample Time: 1110		Sample Date: 05-20 Sample Time: 1110		Sample Date: 05-20 Sample Time: 1110		Sample Date: 05-20 Sample Time: 1110		Sample Date: 05-20 Sample Time: 1110		Sample Date: 05-20 Sample Time: 1110	
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		Special Instructions/QC Requirements & Comments: Submit all results through Cadena at jormalia@cadenaco.com. Cadena #E203631 Level IV Reporting requested.		Received by: <i>Novi cad space</i> Date/Time: 05-20 / 1800 Company: Arcadis		Received by: <i>Molly Hinson</i> Date/Time: 2/6/20 Company: ETAL-MI		Received by: <i>Ashley James</i> Date/Time: 2-7-20 Company: ETA	



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Eurofins TestAmerica Canton Sample Receipt Form/Narrative

Login #: 175918

Canton Facility

Client Arcadis Site Name

Cooler unpacked by:

Cooler Received on 2-7-20 Opened on 2-7-20

Adam Jensen

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time

Storage Location

TestAmerica Cooler # JA Foam Box Client Cooler Box Other
Packing material used: Bubble Wrap Foam Plastic Bag None Other
COOLANT: Wet Ice Blue Ice Dry Ice Water None

- 1. Cooler temperature upon receipt
IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. 1.0 °C Corrected Cooler Temp. 1.7 °C
IR GUN #IR-11 (CF +0.9 °C) Observed Cooler Temp. °C Corrected Cooler Temp. °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
- Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
- Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
- Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC995364
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? Larger than this. Yes No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 01172016 Yes No
16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving: VOAs Oil and Grease TOC

Contacted PM Date by via Verbal Voice Mail Other

Concerning

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

AG

18. SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired.
Sample(s) were received in a broken container.
Sample(s) were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory.
Time preserved: Preservative(s) added/Lot number(s):

VOA Sample Preservation - Date/Time VOAs Frozen:

DATA VERIFICATION REPORT



February 19, 2020

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: 30042006.0402.02 off site
Event Specific Scope of Work References: Sample COC
Laboratory: TestAmerica - North Canton
Laboratory submittal: 125918-1
Sample date: 2020-02-05
Report received by CADENA: 2020-02-19
Initial Data Verification completed by CADENA: 2020-02-19
Number of Samples:2
Sample Matrices:Water
Test Categories:GCMS VOC

Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

There were no significant QC anomalies or exceptions to report.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

SAMPLING AND ANALYSIS SUMMARY

CADENA Project ID: E203631

Laboratory: TestAmerica-North Canton

Laboratory Submittal: 125918-1

Lab Sample ID	Sample ID	Collection Date (mm/yy/dd)	Collection Time (hh:mm:ss)	Volatile Organics by GCMS	8260B with Single Ion Monitoring	Comment
2401259181	TRIP BLANK	2/5/2020	12:00:00	X		
2401259182	MW-167S_020520	2/5/2020	11:10:00	X	X	

Analytical Results Summary

Reportable Results Only

CADENA Project ID: E203631

Laboratory: TestAmerica - North Canton

Laboratory Submittal: 125918-1

Sample Name: TRIP BLANK MW-167S_020520
Lab Sample ID: 2401259181 2401259182
Sample Date: 2/5/2020 2/5/2020

Analyte	Cas No.	Report		Units	Valid		Report		Valid	
		Result	Limit		Qualifier	Result	Limit	Units	Qualifier	
GC/MS VOC										
<u>OSW-8260B</u>										
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
<u>OSW-8260BBSim</u>										
1,4-Dioxane	123-91-1					ND	2.0	ug/l	---	

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG # 240-125918-1

CADENA Verification Report: 2020-02-19

Analyses Performed By:

TestAmerica

Edison, New Jersey

Report #36002R

Review Level: Tier III

Project: 30042006.0402.02

DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-125918-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III) includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						VOC (Full Scan)	VOC (SIM)	MISC
240-125918-1	TRIP BLANK	240-125918-1	Water	2/5/2020		X		
	MW-167S_020520	240-125918-2	Water	2/5/2020		X	X	

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260B and 8260B SIM. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260B/8260B-SIM	Water	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl

All samples were analyzed within the specified holding time criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (20%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

A field duplicate was not performed on a sample within this SDG.

6. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

No compounds were detected in the samples within this SDG.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: 8260B/8260B-SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times/Preservation		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Field Duplicate RPD		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: February 28, 2020

PEER REVIEW: Dennis Capria

DATE: March 6, 2020



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



**NO CORRECTIONS/QUALIFIERS ADDED
TO SAMPLE ANALYSIS DATA SHEETS**



Chain of Custody Record

TestAmerica Laboratory location: Brighton --- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

1.0/1.7

Client Contact Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240 Project Name: Ford LTP Off-Site Project Number: 30042006.0402.02 PO # 30042006.0402.02		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other		Client Project Manager: Kris Hinskey Telephone: 248-994-2240 Email: kristoffer.hinskey@arcadis.com Sampler Name: <i>See list</i> Method of Shipment/Carrier: Shipping/Tracking No:		Site Contact: Julia McClafferty Telephone: 734-644-5131 Analysis Turnaround Time TAT is different from below <input type="checkbox"/> 3 weeks <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Lab Contact: Mike DeMonico Telephone: 330-497-9396 For lab use only Walk-in client Lab sampling Job/SDG No: Sample Specific Notes / Special Instructions:	
Sample Identification TRIP BLANK MW-1675-070570		Matrix Air Aqueous Sediment Solid Others:		Containers & Preservatives H2SO4 HNO3 HCl NaOH ZnAc Other:		Filtered Sample (Y/N) Composite C/Grab-G 1,1-DCE 8260B cis-1,2-DCE 8260B Trans-1,2-DCE 8260B PCE 8260B TCE 8260B Vinyl Chloride 8260B 1,4-Dioxane 8260B SIM		Analyses COCs	
Sample Date 05-20 05-20 1110		Sample Time --- 1110		+ +		+ +		+ +	
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		Received by: <i>Novi cad Spore</i> Received by: <i>Molly Hixson</i> Received in Laboratory by: <i>Adam James</i>		Date/Time: 05-20 / 1800 Date/Time: 216120 1037 Date/Time: 216120 435		Company: Arcadis Company: Arcadis Company: ETAL-MI	
Special Instructions/QC Requirements & Comments: Submit all results through Cadena at jomalina@cadenaco.com. Cadena #E203631 Level IV Reporting requested.		Relinquished by: <i>James</i> Relinquished by: <i>ROCHEL BIEBE for Fred</i> Relinquished by: <i>Molly Hixson</i>		Date/Time: 05-20 / 1800 Date/Time: 216120 1037 Date/Time: 216120 435		Company: Arcadis Company: Arcadis Company: ETAL-MI		Date/Time: 05-20 / 1800 Date/Time: 216120 1037 Date/Time: 216120 435	



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Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off Site

Job ID: 240-125918-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-125918-1

Date Collected: 02/05/20 00:00

Matrix: Water

Date Received: 02/07/20 11:20

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/10/20 19:11	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/10/20 19:11	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/10/20 19:11	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/10/20 19:11	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/10/20 19:11	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/10/20 19:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		75 - 130		02/10/20 19:11	1
4-Bromofluorobenzene (Surr)	69		47 - 134		02/10/20 19:11	1
Toluene-d8 (Surr)	89		69 - 122		02/10/20 19:11	1
Dibromofluoromethane (Surr)	121		78 - 129		02/10/20 19:11	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-125918-1

Client Sample ID: MW-167S_020520

Lab Sample ID: 240-125918-2

Date Collected: 02/05/20 11:10

Matrix: Water

Date Received: 02/07/20 11:20

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L	-		02/11/20 21:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		70 - 133		02/11/20 21:04	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		02/10/20 20:46	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L	-		02/10/20 20:46	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L	-		02/10/20 20:46	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		02/10/20 20:46	1
Trichloroethene	1.0	U	1.0	0.10	ug/L	-		02/10/20 20:46	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L	-		02/10/20 20:46	1

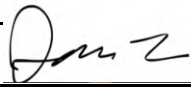
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		75 - 130		02/10/20 20:46	1
4-Bromofluorobenzene (Surr)	68		47 - 134		02/10/20 20:46	1
Toluene-d8 (Surr)	88		69 - 122		02/10/20 20:46	1
Dibromofluoromethane (Surr)	115		78 - 129		02/10/20 20:46	1

SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Project No.: 30042006.0402.02 Page 1 of 1

Site Location: Ford LTP 12001 Stark Road

Prepared By: Jonathon Lust

Date	Time	Description of Activities
2/5/2020	10:35	Arrive onsite
2/5/2020	10:35	Record static depth to water
2/5/2020	10:40	Begin purging well
2/5/2020	11:10	Collect sample MW-167S_020520
2/5/2020	11:10	End purge and turn off pump, begin decon. of equipment
2/5/2020	11:25	Offsite
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SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Page 1 of 1

Project No.	30042006.0402.02	Well ID	MW-167S	Date	2-5-20
Project Name/Location	Ford LTP	Weather	26.96 degrees F, Mostly Cloudy		
Measuring Pt. Description	Top of Casing	Screen Setting (ft-bmp)	5-10	Casing Diameter (in.)	2
Static Water Level (ft-bmp)	5.20	Total Depth (ft-bmp)	10.00	Well Material	PVC
		Pump Intake (ft-bmp)	6.70	Gallons in Well	0.78
		Well Volumes Purged	2.54	Purge Method	Low-Flow
Sample Time:	Label	Volume Purged	1.98 gallons	Replicate/Code No.	--
	Purge Start			Sampled by	Jonathon Lust
	Purge End				

Time	Minutes Elapsed between Readings	Flow Rate (mL/min) [100-300 mL/min]	Depth to Water (ft) [± 0.3]	Total Gallons Purged	pH [± 0.1]	Cond. (mS/cm) [± 3%]	Turbidity (NTU) [± 10%*]	DO (mg/L) [± 10%]	Temp. (C)/(F) [± 3%]	Redox (mV) [± 10mV]	Appearance	
											Color	Odor
10:40	0	250	5.20	0.00	7.31	0.49	2.33	9.03	6.8	279.8	Clear	No Odor
10:45	5	250	5.20	0.33	7.19	0.50	0.88	7.99	7.5	298.2	Clear	No Odor
10:50	5	250	5.22	0.66	7.26	0.50	0.71	8.03	7.7	303.8	Clear	No Odor
10:55	5	250	5.22	0.99	7.31	0.50	1.14	7.92	7.8	308.4	Clear	No Odor
11:00	5	250	5.22	1.32	7.34	0.51	0.09	7.86	7.8	313.1	Clear	No Odor
11:05	5	250	5.22	1.65	7.32	0.51	0.32	7.87	7.7	320.2	Clear	No Odor
11:10	5	250	5.22	1.98	7.34	0.51	0.02	7.79	7.8	321.5	Clear	No Odor
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* Turbidity < 50 NTU and ±10% or within 1 NTU of a previous reading when <10 NTU

Constituents Sampled	Container	Number	Preservative
1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, PCE, TCE, VC	40 mL Glass	3	HCL
1,4-dioxane	40 mL Glass	3	HCL

Comments: None

Well Casing Volumes	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
Gallons/Foot	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Well Information

Well Location: 12001 Stark Road Well Locked at Arrival: yes

Condition of Well: Good Well Locked at Departure: yes

Well Completion: Flush mount Lock Functioning: yes

TRANSMITTAL LETTER



To:
George Al-Husari
Shawn Collins
Brandon Alger (EGLE)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:
July 16, 2020

Subject:

Shallow Groundwater
Assessment Data Package

Arcadis Project No.:

We are sending you copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Electronic Delivery Date	Drawing No.	Rev.	Description	Action*
1	7/16/2020			Figure	
1	7/16/2020			Analytical Results	
1	7/16/2020			Field Notes and Drawings	

Action*

- A Approved CR Correct and Resubmit Resubmit _____ Copies
 AN Approved As Noted F File Return _____ Copies
 AS As Requested FA For Approval Review and Comment
 Other: _____

Mailing Method



- U.S. Postal Service 1st Class Courier/Hand Delivery FedEx Priority Overnight FedEx 2-Day Delivery
 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
 Other: email

Thank you for cooperating with the groundwater sampling at your property on May 21, 2020. Attached is your data package.

CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: A. PAULSON TR: M. WACKSMAN PROJECT NUMBER: MI001454.0003.000001 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
Z:\GIS\Projects\ENV\NovBrighton_Mil\FordLivonia\GIS\docs\2019-03\MW_Locations\12001Stark\MW-167S.mxd PLOTTED: 3/5/2019 7:49:29 AM BY: msmliller



LEGEND:

-  MONITORING WELL LOCATION
-  PROPERTY BOUNDARIES



FORD MOTOR COMPANY
LIVONIA TRANSMISSION PLANT
LIVONIA, MICHIGAN

MONITORING WELL LOCATION MW-167S



FIGURE
1

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-130802-1
Client Project/Site: Ford LTP Off-Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
6/8/2020 3:45:50 PM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:

www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative	4
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Sample Summary	6
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Client Sample Results	8
Surrogate Summary	10
QC Sample Results	11
QC Association Summary	13
Lab Chronicle	14
Certification Summary	15
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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130802-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130802-1

Job ID: 240-130802-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Off-Site

Report Number: 240-130802-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 5/23/2020 10:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 3.2° C and 4.9° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-130802-1) and MW-167S_052120 (240-130802-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 06/01/2020 and 06/02/2020.

The continuing calibration verification (CCV) associated with batch 240-436412 recovered above the upper control limit for Vinyl chloride. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: TRIP BLANK (240-130802-1), MW-167S_052120 (240-130802-2) and (CCVIS 240-436412/2).

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-167S_052120 (240-130802-2) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 06/04/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130802-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130802-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-130802-1	TRIP BLANK	Water	05/21/20 00:00	05/23/20 10:15	
240-130802-2	MW-167S_052120	Water	05/21/20 09:43	05/23/20 10:15	

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Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130802-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-130802-1

No Detections.

Client Sample ID: MW-167S_052120

Lab Sample ID: 240-130802-2

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off-Site

Job ID: 240-130802-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-130802-1

Date Collected: 05/21/20 00:00

Matrix: Water

Date Received: 05/23/20 10:15

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 20:55	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/01/20 20:55	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/01/20 20:55	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 20:55	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/01/20 20:55	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/01/20 20:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		75 - 130		06/01/20 20:55	1
4-Bromofluorobenzene (Surr)	107		47 - 134		06/01/20 20:55	1
Toluene-d8 (Surr)	96		69 - 122		06/01/20 20:55	1
Dibromofluoromethane (Surr)	97		78 - 129		06/01/20 20:55	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130802-1

Client Sample ID: MW-167S_052120

Lab Sample ID: 240-130802-2

Date Collected: 05/21/20 09:43

Matrix: Water

Date Received: 05/23/20 10:15

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L	-		06/04/20 08:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		70 - 133		06/04/20 08:01	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		06/02/20 02:47	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L	-		06/02/20 02:47	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L	-		06/02/20 02:47	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		06/02/20 02:47	1
Trichloroethene	1.0	U	1.0	0.10	ug/L	-		06/02/20 02:47	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L	-		06/02/20 02:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		75 - 130		06/02/20 02:47	1
4-Bromofluorobenzene (Surr)	101		47 - 134		06/02/20 02:47	1
Toluene-d8 (Surr)	97		69 - 122		06/02/20 02:47	1
Dibromofluoromethane (Surr)	96		78 - 129		06/02/20 02:47	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130802-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-130802-1	TRIP BLANK	101	107	96	97
240-130802-2	MW-167S_052120	100	101	97	96
LCS 240-436412/4	Lab Control Sample	102	105	89	99
MB 240-436412/7	Method Blank	99	101	89	98

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-133)
240-130802-2	MW-167S_052120	94
LCS 240-436818/4	Lab Control Sample	91
MB 240-436818/5	Method Blank	90

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130802-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-436412/7
Matrix: Water
Analysis Batch: 436412

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 18:50	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/01/20 18:50	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/01/20 18:50	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 18:50	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/01/20 18:50	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/01/20 18:50	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		75 - 130		06/01/20 18:50	1
4-Bromofluorobenzene (Surr)	101		47 - 134		06/01/20 18:50	1
Toluene-d8 (Surr)	89		69 - 122		06/01/20 18:50	1
Dibromofluoromethane (Surr)	98		78 - 129		06/01/20 18:50	1

Lab Sample ID: LCS 240-436412/4
Matrix: Water
Analysis Batch: 436412

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	11.8		ug/L		118	73 - 129
cis-1,2-Dichloroethene	10.0	10.3		ug/L		103	75 - 124
Tetrachloroethene	10.0	10.8		ug/L		108	70 - 125
trans-1,2-Dichloroethene	10.0	10.5		ug/L		105	74 - 130
Trichloroethene	10.0	9.67		ug/L		97	71 - 121
Vinyl chloride	10.0	11.3		ug/L		113	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	102		75 - 130
4-Bromofluorobenzene (Surr)	105		47 - 134
Toluene-d8 (Surr)	89		69 - 122
Dibromofluoromethane (Surr)	99		78 - 129

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-436818/5
Matrix: Water
Analysis Batch: 436818

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			06/04/20 06:43	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		70 - 133		06/04/20 06:43	1

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130802-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-436818/4

Matrix: Water

Analysis Batch: 436818

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	9.26		ug/L		93	80 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	91		70 - 133

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QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130802-1

GC/MS VOA

Analysis Batch: 436412

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-130802-1	TRIP BLANK	Total/NA	Water	8260B	
240-130802-2	MW-167S_052120	Total/NA	Water	8260B	
MB 240-436412/7	Method Blank	Total/NA	Water	8260B	
LCS 240-436412/4	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 436818

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-130802-2	MW-167S_052120	Total/NA	Water	8260B SIM	
MB 240-436818/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-436818/4	Lab Control Sample	Total/NA	Water	8260B SIM	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130802-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-130802-1

Date Collected: 05/21/20 00:00

Matrix: Water

Date Received: 05/23/20 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	436412	06/01/20 20:55	LRW	TAL CAN

Client Sample ID: MW-167S_052120

Lab Sample ID: 240-130802-2

Date Collected: 05/21/20 09:43

Matrix: Water

Date Received: 05/23/20 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	436412	06/02/20 02:47	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	436818	06/04/20 08:01	TJL2	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130802-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-20
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-20
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

MICHIGAN 190 Chain of Custody Record

25/30

TestAmerica Laboratories, Inc.

THE LEADER IN ENVIRONMENTAL TESTING

Regulatory program: DW NPDES RCRA Other

Lab Contact: Mike DelMonico
Telephone: 330-497-9396

Client Project Manager: Kris Hinsley
Telephone: 248-994-2240
Email: kris@hinsley.com

Site Contact: Julia McClafferty
Telephone: 734-644-5131

Company Name: Arcadis
Address: 28550 Cabot Drive, Suite 500
City/State/Zip: Novi, MI, 48377

Phone: 248-994-2240
Project Name: Ford LTP Off-Site
Project Number: 30050315.402.04
PO # 30050315.402.04

Sampler Name: XENIA CHAN
Method of Shipment/Carrier:
Shipping/Tracking No:

Analysis Turnaround Time
TAT if different from below:
10 day 3 weeks
1 week 2 weeks
2 days 1 day

Matrix: Air Liquid Solid Other:
 H2SO4 HNO3 HCl NaOH ZnAc NaOH Other:

Sample Identification
Sample Date Sample Time

TRIP BLANK
MW-1675-052120

Filtered Sample (Y/N)
Composite C/Grab/C

Analyses
1,4-Dioxane 8260B SIM
Vinyl Chloride 8260B
TCE 8260B
PCE 8260B
Trans-1,2-DCE 8260B
cis-1,2-DCE 8260B
1,1-DCE 8260B

Sample Specific Notes / Special Instructions:
1 TRIP BLANK
3 Vials for 8260B
3 Vials for 8260B SIM

Possible Hazard Identification
 Non-Hazard Irritant Poison B Unknown

Special Instructions/OC Requirements & Comments:
Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203631
Level IV Reporting requested.

Relinquished by: [Signature]
Relinquished by: RACHEL BIELEAK Paul Field
Relinquished by: [Signature]

Received by: RACHEL BIELEAK Paul Field
Received by: NINA COLO STORAGE
Received in Laboratory: [Signature]

Date/Time: 5/21/20 1407
Date/Time: 5/21/20 1555
Date/Time: 5/22/20 0950

Company: ARCADIS
Company: ARCADIS
Company: Arcadis

Company: ALLANS
Company: ALLANS
Company: ERM MI

Date/Time: 5/22/20 1407
Date/Time: 5/22/20 1555
Date/Time: 5/22/20 0955

Company: ERM MI
Company: ERM MI

Relinquished by: [Signature]

Company: ERM MI



Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 136802

Client Arcadis Site Name _____ Cooler unpacked by: [Signature]
 Cooler Received on 5-23-20 Opened on 5-23-20
 FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # 11 Foam Box Client Cooler Box Other _____
 Packing material used: Bubble Wrap Foam Plastic Bag None Other _____
 COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN# IR-10 (CF +0.7°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN #IR-11 (CF +0.9°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity _____ Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
 If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC902937
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? Yes NA Larger than this. NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # NA Yes No
16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:
 VOAs
 Oil and Grease
 TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____
 Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by: MS

18. SAMPLE CONDITION
 Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION
 Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____
 VOA Sample Preservation - Date/Time VOAs Frozen: _____

Login #: 130802

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Eurofins TestAmerica Canton Sample Receipt Multiple Cooler Form

Cooler Description (Circle)				IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)			
TA	Client	Box	Other	IR-10	IR-11	2.5	3.2	Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11	4.2	4.9	Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10	IR-11			Wet Ice	Blue Ice	Dry Ice

See Temperature Excursion Form



DATA VERIFICATION REPORT

June 09, 2020

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: 30050315.0402.04 off site
Event Specific Scope of Work References: Sample COC
Laboratory: TestAmerica - North Canton
Laboratory submittal: 130802-1
Sample date: 2020-05-21
Report received by CADENA: 2020-06-08
Initial Data Verification completed by CADENA: 2020-06-09
Number of Samples:2
Sample Matrices:Water and trip blank
Test Categories:GCMS VOC
Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

The following minor QC exceptions or missing information were noted:

GCMS VOC CCV/INTERNAL STANDARD response outliers as noted in the laboratory submittal case narrative were not used to qualify client sample results as part of this level 2 data package verification review.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Analytical Results Summary

CADENA Project ID: E203631

Laboratory: TestAmerica - North Canton

Laboratory Submittal: 130802-1

Sample Name: TRIP BLANK MW-167S_052120
 Lab Sample ID: 2401308021 2401308022
 Sample Date: 5/21/2020 5/21/2020

Analyte	Cas No.	Report		Units	Valid		Report		Valid	
		Result	Limit		Qualifier	Result	Limit	Units	Qualifier	
GC/MS VOC										
<u>OSW-8260B</u>										
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
<u>OSW-8260BBSim</u>										
1,4-Dioxane	123-91-1					ND	2.0	ug/l	---	

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

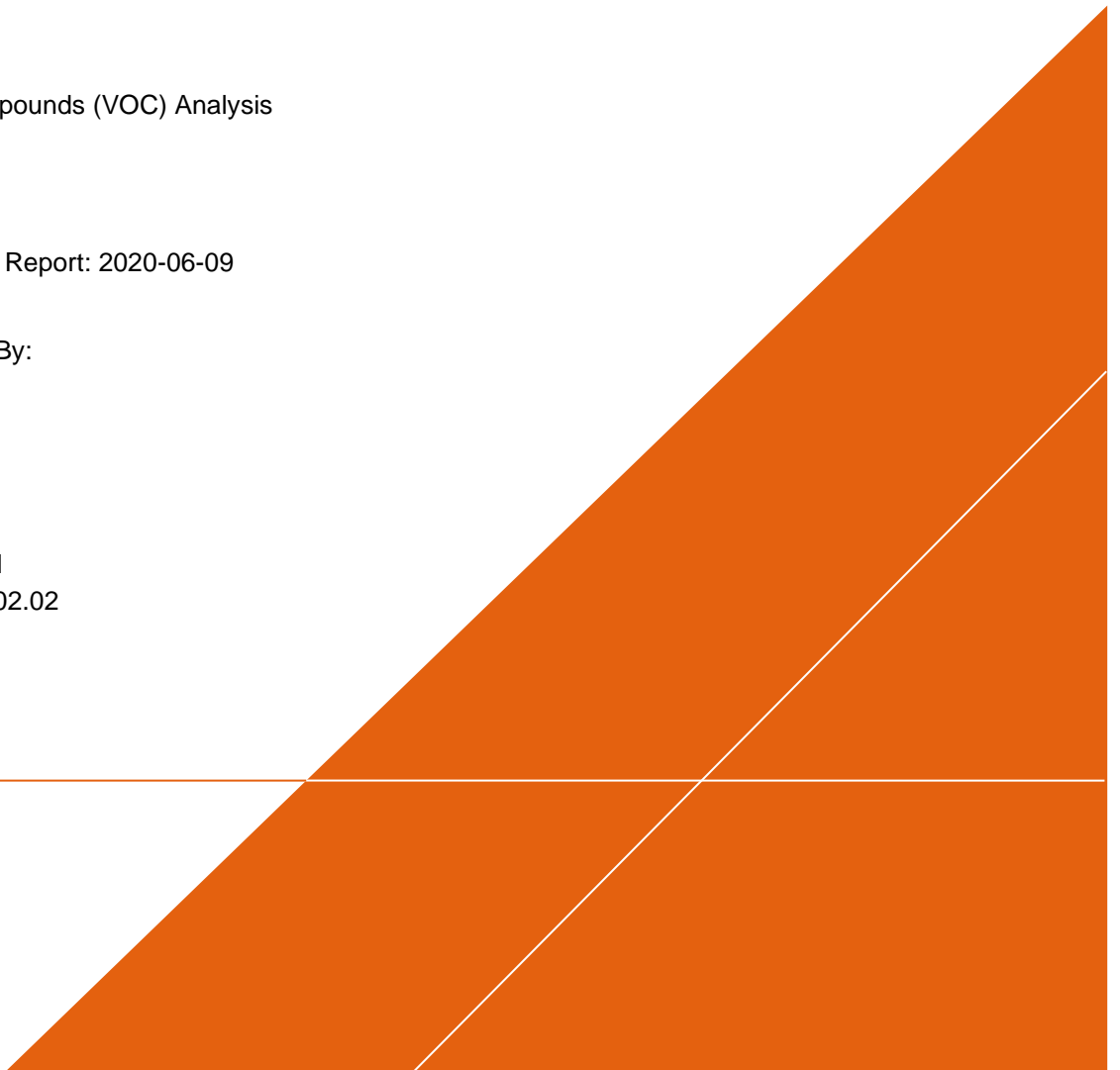
Volatile Organic Compounds (VOC) Analysis

SDG # 240-130802-1

CADENA Verification Report: 2020-06-09

Analyses Performed By:
TestAmerica
Edison, New Jersey

Report #37190R
Review Level: Tier III
Project: 30050315.402.02



DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-130802-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III) includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						VOC (Full Scan)	VOC (SIM)	MISC
240-130802-1	TRIP BLANK	240-130802-1	Water	5/21/2020		X		
	MW-167S_052120	240-130802-2	Water	5/21/2020		X	X	

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260B and 8260B SIM. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260B/8260B-SIM	Water	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl

All samples were analyzed within the specified holding time criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (20%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

Sample Locations	Initial/Continuing	Compound	Criteria
TRIP BLANK MW-167S_052120	CCV %D	Vinyl chloride	+22.4%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

DATA REVIEW

Initial/Continuing	Criteria	Sample Result	Qualification
Initial and Continuing Calibration	RRF <0.05	Non-detect	R
		Detect	J
	RRF <0.01 ¹	Non-detect	R
		Detect	J
	RRF >0.05 or RRF >0.01 ¹	Non-detect	No Action
		Detect	
Initial Calibration	%RSD > 15% or a correlation coefficient <0.99	Non-detect	UJ
		Detect	J
	%RSD >90%	Non-detect	R
		Detect	J
Continuing Calibration	%D >20% (increase in sensitivity)	Non-detect	No Action
		Detect	J
	%D >20% (decrease in sensitivity)	Non-detect	UJ
		Detect	J
	%D >90% (increase/decrease in sensitivity)	Non-detect	R
		Detect	J

Note:

¹ RRF of 0.01 only applies to compounds which are typically poor responding compounds (i.e., ketones, 1,4-dioxane, etc.)

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

A field duplicate was not performed on a sample within this SDG.

6. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

No compounds were detected in the samples within this SDG.

DATA REVIEW

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: 8260B/8260B-SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times/Preservation		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X	X		
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Field Duplicate RPD		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: June 12, 2020

PEER REVIEW: Dennis Capria

DATE: June 24, 2020



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



**NO CORRECTIONS/QUALIFIERS ADDED
TO SAMPLE ANALYSIS DATA SHEETS**



TestAmerica Laboratory location: Brighton --- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Regulatory program: DW NPDES RCRA Other

Client Contact
Company Name: Arcadis
Address: 28550 Cabot Drive, Suite 500
City/State/Zip: Novi, MI, 48377
Phone: 248-994-2240

Client Project Manager: Kris Hinsley
Telephone: 248-994-2240
Email: kris@kristofer.hinsley@arcadis.com

Sampler Name: XENIA CHAN
Method of Shipment/Carrier:
Shipping/Tracking No:

Site Contact: Julia McClafferty
Telephone: 734-644-5131
Lab Contact: Mike DeMonico
Telephone: 330-497-9396

COC No: / of COCs

Sample Identification	Sample Date	Sample Time	Matrix			Containers & Preservatives						Filtered Sample (Y/N)	Composite C/Grab-C	Analytes					Sample Specific Notes / Special Instructions:						
			Air	Aqueous	Sediment	Solid	Other:	HSO4	HNO3	HCl	NaOH			ZnAc	NaOH	Other:	1,1-DCE 8260B	cis-1,2-DCE 8260B		Trans-1,2-DCE 8260B	PCE 8260B	TCE 8260B	Vinyl Chloride 8260B	1,4-Dioxane 8260B SIM	
TRIP BLANK	---	---																							1 TRIP BLANK
MP-167S-052120	5/21/20	943																							3 VOA for 8260B 3 VOA for 8260B SIM



Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal By Lab Archive For _____ Months

Possible Hazard Identification
 Non-Hazard Irritable cm Irritant Poison B Unknown

Special Instructions/QC Requirements & Comments:
 Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203631
 Level IV Reporting requested.

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
<i>[Signature]</i>	ARCADIS	5/21/20 1407	RACHEL BIEGAL Paul Field	ARCADIS	5/21/20 1407
RACHEL BIEGAL Paul Field	ARCADIS	5/21/20 1555	NINA COLD STORAGE	ARCADIS	5/21/20 1555
<i>[Signature]</i>	ARCADIS	5/22/20 0950	<i>[Signature]</i>	EMMI	5/22/20 9:55

Relinquished by: *[Signature]* EMMI 5/22/20 9:55
 Relinquished by: *[Signature]* EMMI 5/22/20 9:55



Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130802-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-130802-1

Date Collected: 05/21/20 00:00

Matrix: Water

Date Received: 05/23/20 10:15

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 20:55	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/01/20 20:55	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/01/20 20:55	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 20:55	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/01/20 20:55	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/01/20 20:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		75 - 130		06/01/20 20:55	1
4-Bromofluorobenzene (Surr)	107		47 - 134		06/01/20 20:55	1
Toluene-d8 (Surr)	96		69 - 122		06/01/20 20:55	1
Dibromofluoromethane (Surr)	97		78 - 129		06/01/20 20:55	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130802-1

Client Sample ID: MW-167S_052120

Lab Sample ID: 240-130802-2

Date Collected: 05/21/20 09:43

Matrix: Water

Date Received: 05/23/20 10:15

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L	-		06/04/20 08:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		70 - 133		06/04/20 08:01	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		06/02/20 02:47	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L	-		06/02/20 02:47	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L	-		06/02/20 02:47	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		06/02/20 02:47	1
Trichloroethene	1.0	U	1.0	0.10	ug/L	-		06/02/20 02:47	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L	-		06/02/20 02:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		75 - 130		06/02/20 02:47	1
4-Bromofluorobenzene (Surr)	101		47 - 134		06/02/20 02:47	1
Toluene-d8 (Surr)	97		69 - 122		06/02/20 02:47	1
Dibromofluoromethane (Surr)	96		78 - 129		06/02/20 02:47	1

SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Project No.: 30050315.402.01 Page 1 of 1

Site Location: Ford LTP 12001 Stark

Prepared By: Xenia Chan

Date	Time	Description of Activities
5/21/2020	8:42	Arrive onsite
5/21/2020	8:52	Record static depth to water
5/21/2020	8:57	Begin purging well
5/21/2020	9:43	Collect sample
5/21/2020	9:55	End purge and turn off pump, begin decon of equipment
5/21/2020	10:04	Offsite
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--	--	Field staff signature: _____
--	--	_____ <i>Xenia Chan</i> _____
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SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Page 1 of 1

Project No. 30050315.402.01 Well ID MW-167S Date 5-21-20
 Project Name/Location Ford LTP Weather 57 degrees F, Partly Cloudy
 Measuring Pt. Description Top of Casing Screen Setting (ft-bmp) 5-10 Casing Diameter (in.) 2 Well Material PVC
 Static Water Level (ft-bmp) 4.57 Total Depth (ft-bmp) 9.22 Water Column (ft.) 4.65 Gallons in Well 0.76
6.07 Pump Intake (ft-bmp) 6.07 Purge Method Low-Flow Sample Method Grab
1.37 Well Volumes Purged

Sample Time: Label 9:43 Volume Purged 1.04 gallons Replicate/Code No. -- Sampled by Xenia Chan
 Purge Start 8:57
 Purge End 9:55

Xenia Chan

Time	Minutes Elapsed between Readings	Flow Rate (mL/min) [100-300 mL/min]	Depth to Water (ft) [±0.3]	Total Gallons Purged	pH [±0.1]	Cond. (mS/cm) [±3%]	Turbidity (NTU) [±10%*]	DO (mg/L) [±10%]	Temp. (C)/(F) [±3%]	Redox (mV) [±10mV]	Appearance	
											Color	Odor
8:57	0	100	4.59	0.00	8.17	1.39	55.90	8.10	13.1	186.5	Cloudy	No Odor
9:02	5	100	4.59	0.13	7.21	1.12	62.50	6.00	11.6	213.4	Cloudy	No Odor
9:07	5	100	4.59	0.26	7.17	1.07	41.80	5.96	11.4	203.7	Cloudy	No Odor
9:12	5	100	4.59	0.39	7.10	1.03	24.90	6.02	11.0	197.9	Clear	No Odor
9:17	5	100	4.59	0.52	7.09	1.02	18.00	6.06	10.9	192.3	Clear	No Odor
9:22	5	100	4.59	0.65	7.08	1.03	14.80	6.00	10.8	188.2	Clear	No Odor
9:27	5	100	4.59	0.78	7.09	1.03	11.20	5.71	10.8	184.7	Clear	No Odor
9:32	5	100	4.59	0.91	7.13	1.03	10.70	5.69	10.8	180.7	Clear	No Odor
9:37	5	100	4.59	1.04	7.13	1.03	11.30	5.76	10.8	178.5	Clear	No Odor
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* Turbidity < 50 NTU and ±10% or within 1 NTU of a previous reading when <10 NTU

Constituents Sampled	Container	Number	Preservative
1,4-dioxane	40 mL Glass	3	HCL
1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, PCE, TCE, V ₂	40 mL Glass	3	HCL

Comments None

Well Casing Volumes	1" = 0.04	1.25" = 0.06	1.5" = 0.09	2" = 0.16	2.5" = 0.26	3" = 0.37	3.5" = 0.50	4" = 0.65	6" = 1.47
Gallons/Foot									

Well Information

Well Location: 12001 Stark Well Locked at Arrival: yes
 Condition of Well: Good Well Locked at Departure: yes
 Well Completion: Flush mount Lock Functioning: yes

TRANSMITTAL LETTER



To:
George Al-Husari
Shawn Collins
Brandon Alger (EGLE)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:
September 25, 2020

Subject:

Arcadis Project No.:

Shallow Groundwater
Assessment Data Package

We are sending you copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Delivery Date	Drawing No.	Rev.	Description	Action*
1	9/25/2020			Figure	
1	9/25/2020			Analytical Results	
1	9/25/2020			Field Notes and Drawings	

Action*

- A Approved CR Correct and Resubmit Resubmit _____ Copies
 AN Approved As Noted F File Return _____ Copies
 AS As Requested FA For Approval Review and Comment
 Other: _____

Mailing Method



- U.S. Postal Service 1st Class Courier/Hand Delivery FedEx Priority Overnight FedEx 2-Day Delivery
 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
 Other: email

Thank you for cooperating with the groundwater sampling at your property on August 5, 2020. Attached is your data package.


CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: A. PAULSON TR: M. WACKSMAN PROJECT NUMBER: MI001454.0003.000001 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
Z:\GIS\Projects\ENV\NovBrighton_Mil\FordLivonia\GIS\docs\2019-03\MW_Locations\12001Stark\MW-167S.mxd PLOTTED: 3/5/2019 7:49:29 AM BY: msmliller



LEGEND:

-  MONITORING WELL LOCATION
-  PROPERTY BOUNDARIES



FORD MOTOR COMPANY LIVONIA TRANSMISSION PLANT LIVONIA, MICHIGAN	
MONITORING WELL LOCATION MW-167S	
 ARCADIS	Design & Consultancy for natural and built assets
FIGURE 1	

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-134644-1
Client Project/Site: Ford LTP Off-Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
8/20/2020 9:48:46 AM

Michael DelMonico, Project Manager I
(330)497-9396
Michael.DelMonico@Eurofinset.com

LINKS

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results through
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Visit us at:

www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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QC Sample Results	11
QC Association Summary	13
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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134644-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134644-1

Job ID: 240-134644-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Off-Site

Report Number: 240-134644-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 8/8/2020 9:20 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 4.0° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-134644-1) and MW-167S_080520 (240-134644-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 08/18/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-167S_080520 (240-134644-2) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 08/11/2020.

An MS/MSD was done in 240-446478 however the sample and the MS/MSD could not be reported. The effected sample is MW-167S_080520 (240-134644-2).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134644-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134644-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-134644-1	TRIP BLANK	Water	08/05/20 00:00	08/08/20 09:20	
240-134644-2	MW-167S_080520	Water	08/05/20 11:45	08/08/20 09:20	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134644-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134644-1

No Detections.

Client Sample ID: MW-167S_080520

Lab Sample ID: 240-134644-2

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off-Site

Job ID: 240-134644-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134644-1

Date Collected: 08/05/20 00:00

Matrix: Water

Date Received: 08/08/20 09:20

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/18/20 00:24	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/18/20 00:24	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/18/20 00:24	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/18/20 00:24	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/18/20 00:24	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/18/20 00:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		75 - 130		08/18/20 00:24	1
4-Bromofluorobenzene (Surr)	77		47 - 134		08/18/20 00:24	1
Toluene-d8 (Surr)	94		69 - 122		08/18/20 00:24	1
Dibromofluoromethane (Surr)	90		78 - 129		08/18/20 00:24	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off-Site

Job ID: 240-134644-1

Client Sample ID: MW-167S_080520

Lab Sample ID: 240-134644-2

Date Collected: 08/05/20 11:45

Matrix: Water

Date Received: 08/08/20 09:20

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L	-		08/11/20 08:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	78		70 - 133		08/11/20 08:15	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L	-		08/18/20 00:46	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L	-		08/18/20 00:46	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L	-		08/18/20 00:46	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L	-		08/18/20 00:46	1
Trichloroethene	1.0	U	1.0	0.36	ug/L	-		08/18/20 00:46	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L	-		08/18/20 00:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		75 - 130		08/18/20 00:46	1
4-Bromofluorobenzene (Surr)	77		47 - 134		08/18/20 00:46	1
Toluene-d8 (Surr)	96		69 - 122		08/18/20 00:46	1
Dibromofluoromethane (Surr)	95		78 - 129		08/18/20 00:46	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134644-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-134644-1	TRIP BLANK	105	77	94	90
240-134644-2	MW-167S_080520	109	77	96	95
240-134646-E-5 MS	Matrix Spike	98	96	104	88
240-134646-E-5 MSD	Matrix Spike Duplicate	97	93	102	91
LCS 240-447499/4	Lab Control Sample	92	100	102	83
MB 240-447499/7	Method Blank	102	79	97	89

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-133)
240-134644-2	MW-167S_080520	78
LCS 240-446478/4	Lab Control Sample	77
MB 240-446478/5	Method Blank	79

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134644-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-447499/7
Matrix: Water
Analysis Batch: 447499

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/17/20 22:44	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/17/20 22:44	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/17/20 22:44	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/17/20 22:44	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/17/20 22:44	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/17/20 22:44	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		75 - 130		08/17/20 22:44	1
4-Bromofluorobenzene (Surr)	79		47 - 134		08/17/20 22:44	1
Toluene-d8 (Surr)	97		69 - 122		08/17/20 22:44	1
Dibromofluoromethane (Surr)	89		78 - 129		08/17/20 22:44	1

Lab Sample ID: LCS 240-447499/4
Matrix: Water
Analysis Batch: 447499

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	8.32		ug/L		83	73 - 129
cis-1,2-Dichloroethene	10.0	8.38		ug/L		84	75 - 124
Tetrachloroethene	10.0	10.2		ug/L		102	70 - 125
trans-1,2-Dichloroethene	10.0	8.17		ug/L		82	74 - 130
Trichloroethene	10.0	8.52		ug/L		85	71 - 121
Vinyl chloride	10.0	8.19		ug/L		82	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	92		75 - 130
4-Bromofluorobenzene (Surr)	100		47 - 134
Toluene-d8 (Surr)	102		69 - 122
Dibromofluoromethane (Surr)	83		78 - 129

Lab Sample ID: 240-134646-E-5 MS
Matrix: Water
Analysis Batch: 447499

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1000	U	10000	6880		ug/L		69	64 - 132
cis-1,2-Dichloroethene	13000		10000	20200		ug/L		70	68 - 121
Tetrachloroethene	1000	U	10000	7010		ug/L		70	52 - 129
trans-1,2-Dichloroethene	1000	U	10000	7270		ug/L		73	69 - 126
Trichloroethene	1000	U	10000	7130		ug/L		71	56 - 124
Vinyl chloride	3700		10000	10200		ug/L		65	49 - 136

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		75 - 130
4-Bromofluorobenzene (Surr)	96		47 - 134
Toluene-d8 (Surr)	104		69 - 122

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134644-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-134646-E-5 MS
Matrix: Water
Analysis Batch: 447499

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	88		78 - 129

Lab Sample ID: 240-134646-E-5 MSD
Matrix: Water
Analysis Batch: 447499

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits			
1,1-Dichloroethene	1000	U	10000	7510		ug/L		75	64 - 132	9		35
cis-1,2-Dichloroethene	13000		10000	20000		ug/L		68	68 - 121	1		35
Tetrachloroethene	1000	U	10000	8090		ug/L		81	52 - 129	14		35
trans-1,2-Dichloroethene	1000	U	10000	7770		ug/L		78	69 - 126	7		35
Trichloroethene	1000	U	10000	7600		ug/L		76	56 - 124	6		35
Vinyl chloride	3700		10000	10900		ug/L		72	49 - 136	6		35

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	97		75 - 130
4-Bromofluorobenzene (Surr)	93		47 - 134
Toluene-d8 (Surr)	102		69 - 122
Dibromofluoromethane (Surr)	91		78 - 129

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-446478/5
Matrix: Water
Analysis Batch: 446478

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/11/20 05:46	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	79		70 - 133		08/11/20 05:46	1

Lab Sample ID: LCS 240-446478/4
Matrix: Water
Analysis Batch: 446478

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.
							Limits
1,4-Dioxane	10.0	9.73		ug/L		97	80 - 135

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	77		70 - 133

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134644-1

GC/MS VOA

Analysis Batch: 446478

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134644-2	MW-167S_080520	Total/NA	Water	8260B SIM	
MB 240-446478/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-446478/4	Lab Control Sample	Total/NA	Water	8260B SIM	

Analysis Batch: 447499

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134644-1	TRIP BLANK	Total/NA	Water	8260B	
240-134644-2	MW-167S_080520	Total/NA	Water	8260B	
MB 240-447499/7	Method Blank	Total/NA	Water	8260B	
LCS 240-447499/4	Lab Control Sample	Total/NA	Water	8260B	
240-134646-E-5 MS	Matrix Spike	Total/NA	Water	8260B	
240-134646-E-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134644-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134644-1

Date Collected: 08/05/20 00:00

Matrix: Water

Date Received: 08/08/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	447499	08/18/20 00:24	LEE	TAL CAN

Client Sample ID: MW-167S_080520

Lab Sample ID: 240-134644-2

Date Collected: 08/05/20 11:45

Matrix: Water

Date Received: 08/08/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	447499	08/18/20 00:46	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	446478	08/11/20 08:15	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off-Site

Job ID: 240-134644-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-20 *
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.



Chain of Custody Record

TestAmerica Laboratory location: Brighton — 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Regulatory program: DW NPDES RCRA Other

Client Project Manager: Kris Hunskey
Telephone: 248-994-2240
Email: kristoffer.hunskey@arcadis.com

Site Contact: Julia McClafferty
Telephone: 734-644-5131

Lab Contact: Mike DeMontoni
Telephone: 330-497-9396

Company Name: Arcadis
Address: 28550 Cabot Drive, Suite 500
City/State/Zip: Novi, MI, 48377
Phone: 248-994-2240


Project Name: Ford LTP Off-Site
Project Number: 30050315.402.04
PO # 30050315.402.04

Sampler Name: **Emma Witherspoon**
Method of Shipment/Carrier:
Shipping/Tracking No:

Analysis Turnaround Time
TAT If different from below:
10 day 3 weeks
1 week 2 weeks
2 days 1 day

Containers & Preservatives
H2SO4 HNO3 HCl NaOH ZnAc NaOH Other:

Matrix
Air Aqueous Sediment Solid Other:

Sample Date	Sample Time	Filtered Sample (Y/N)	Composite (C/Grab/G)	1,1-DCE 8260B	cis-1,2-DCE 8260B	Trans-1,2-DCE 8260B	PCE 8260B	TCE 8260B	Vinyl Chloride 8260B	1,4-Dioxane 8260B SIM
8/5/20	-	N	G	X	X	X	X	X	X	X
8/5/20	1145	N	G	X	X	X	X	X	X	X
 240-134644 Chain of Custody										
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive for _____ Months										

Possible Hazard Identification
 Non-Hazard Irritant Flammable Corrosive Toxic Volatile Other:

Special Instructions/QC Requirements & Comments:
 Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203631
 Level IV Reporting requested.

Relinquished by: Emma Witherspoon	Company: Arcadis	Date/Time: 8/5/20 1600	Received by: Aracelis Cabal Storage	Company: Arcadis	Date/Time: 8/5/20 1600
Relinquished by: Cydney Brannich	Company: Arcadis	Date/Time: 8/6/20 1245	Received by: Aracelis Cabal Storage	Company: Arcadis	Date/Time: 8/6/20 1250
Relinquished by: Cydney	Company: ETH MI	Date/Time: 8/6/20 13:00	Received in Laboratory by: Aracelis Cabal Storage	Company: ETH MI	Date/Time: 8/6/20 13:00

TestAmerica Laboratories, Inc. 10000 TestAmerica Laboratories, Inc. Analytical Services
 10000 TestAmerica Laboratories, Inc. Analytical Services



Eurofins TestAmerica Canton Sample Receipt Form/Narrative		Login # : <u>134644</u>
Canton Facility		
Client <u>Arcadis</u>	Site Name _____	Cooler unpacked by: <u>[Signature]</u>
Cooler Received on <u>8-7-20</u>	Opened on <u>8-7-20</u>	
FedEx: 1 st <input checked="" type="radio"/> <u>Grd</u> <input type="radio"/> <u>Exp</u> <input type="radio"/> <u>UPS</u> <input type="radio"/> <u>FAS</u> <input type="radio"/> <u>Clipper</u>	Client Drop Off _____	TestAmerica Courier <input type="radio"/> Other <input type="radio"/>
Receipt After-hours: Drop-off Date/Time		Storage Location
TestAmerica Cooler # <u>7A</u>	Foam Box _____	Client Cooler _____
Packing material used: <u>Bubble Wrap</u>	Foam <u>Plastic Bag</u>	Box _____
COOLANT: <u>Wet Ice</u>	Blue Ice _____	Dry Ice _____
	Water _____	None _____
<p>1. Cooler temperature upon receipt <input checked="" type="checkbox"/> See Multiple Cooler Form</p> <p>IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C</p> <p>IR GUN #IR-11 (CF +0.9 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C</p>		
<p>2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity <u>4</u> <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>-Were the seals on the outside of the cooler(s) signed & dated? <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA</p> <p>-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>-Were tamper/custody seals intact and uncompromised? <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA</p>		
<p>3. Shippers' packing slip attached to the cooler(s)? <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>4. Did custody papers accompany the sample(s)? <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>5. Were the custody papers relinquished & signed in the appropriate place? <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>6. Was/were the person(s) who collected the samples clearly identified on the COC? <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>7. Did all bottles arrive in good condition (Unbroken)? <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>8. Could all bottle labels be reconciled with the COC? <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>9. Were correct bottle(s) used for the test(s) indicated? <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>10. Sufficient quantity received to perform indicated analyses? <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>11. Are these work share samples? <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>If yes, Questions 12-16 have been checked at the originating laboratory.</p> <p>12. Were all preserved sample(s) at the correct pH upon receipt? <input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> NA pH Strip Lot# <u>HC911298</u></p> <p>13. Were VOAs on the COC? <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>14. Were air bubbles >6 mm in any VOA vials? <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA ● ← Larger than this.</p> <p>15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # <u>NA</u> <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>16. Was a LL Hg or Me Hg trip blank present? <input checked="" type="radio"/> Yes <input type="radio"/> No</p>		
<p>Tested that are not checked for pH by Receiving:</p> <p>VOAs</p> <p>Oil and Grease</p> <p>TOC</p>		
<p>Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____</p> <p>Concerning _____</p>		
17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES		Samples processed by: _____
<p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>		
18. SAMPLE CONDITION		
<p>Sample(s) _____ were received after the recommended holding time had expired.</p> <p>Sample(s) _____ were received in a broken container.</p> <p>Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)</p>		
19. SAMPLE PRESERVATION		
<p>Sample(s) _____ were further preserved in the laboratory.</p> <p>Time preserved: _____ Preservative(s) added/Lot number(s): _____</p> <p>VOA Sample Preservation - Date/Time VOAs Frozen: _____</p>		

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This lot only

Eurofins TestAmerica Canton Sample Receipt Multiple Cooler Form									
Cooler Description (Circle)				IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)		
TA	Client	Box	Other	IR-10 IR-11	3.1	4.0	Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11	1.2	2.2	Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11	1.3	2.2	Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11	1.6	2.5	Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	

See Temperature Excursion Form



DATA VERIFICATION REPORT

August 20, 2020

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631

Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater

Project number: 30050315.0402.04 off site

Event Specific Scope of Work References: Sample COC

Laboratory: TestAmerica - North Canton

Laboratory submittal: 134644-1

Sample date: 2020-08-05

Report received by CADENA: 2020-08-20

Initial Data Verification completed by CADENA: 2020-08-20

Number of Samples: 1 Water and 1 trip blank

Sample Matrices: Water

Test Categories: GCMS VOC

Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

There were no significant QC anomalies or exceptions to report.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Analytical Results Summary

CADENA Project ID: E203631

Laboratory: TestAmerica - North Canton

Laboratory Submittal: 134644-1

Sample Name: TRIP BLANK MW-167S_080520
 Lab Sample ID: 2401346441 2401346442
 Sample Date: 8/5/2020 8/5/2020

Analyte	Cas No.	Report		Units	Valid Qualifier	Report		Units	Valid Qualifier
		Result	Limit			Result	Limit		
GC/MS VOC									
<u>OSW-8260B</u>									
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---
<u>OSW-8260BBSim</u>									
1,4-Dioxane	123-91-1					ND	2.0	ug/l	---

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG # 240-134644-1

CADENA Verification Report: 2020-08-20

Analyses Performed By:
TestAmerica
Edison, New Jersey

Report #38036R
Review Level: Tier III
Project: 30050315.402.02



DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-134644-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III) includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						VOC (Full Scan)	VOC (SIM)	MISC
240-134644-1	TRIP BLANK	240-134644-1	Water	8/5/2020		X		
	MW-167S_080520	240-134644-2	Water	8/5/2020		X	X	

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260B and 8260B SIM. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260B/8260B-SIM	Water	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl

All samples were analyzed within the specified holding time criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (20%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

A field duplicate was not performed on a sample within this SDG.

6. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

No compounds were detected in the samples within this SDG.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: 8260B/8260B-SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times/Preservation		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Field Duplicate RPD		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

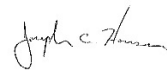
%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:



DATE: August 26, 2020

PEER REVIEW: Andrew Korycinski

DATE: August 27, 2020



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



**NO CORRECTIONS/QUALIFIERS ADDED
TO SAMPLE ANALYSIS DATA SHEETS**



Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134644-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134644-1

Date Collected: 08/05/20 00:00

Matrix: Water

Date Received: 08/08/20 09:20

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/18/20 00:24	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/18/20 00:24	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/18/20 00:24	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/18/20 00:24	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/18/20 00:24	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/18/20 00:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		75 - 130		08/18/20 00:24	1
4-Bromofluorobenzene (Surr)	77		47 - 134		08/18/20 00:24	1
Toluene-d8 (Surr)	94		69 - 122		08/18/20 00:24	1
Dibromofluoromethane (Surr)	90		78 - 129		08/18/20 00:24	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134644-1

Client Sample ID: MW-167S_080520

Lab Sample ID: 240-134644-2

Date Collected: 08/05/20 11:45

Matrix: Water

Date Received: 08/08/20 09:20

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L	-		08/11/20 08:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	78		70 - 133		08/11/20 08:15	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L	-		08/18/20 00:46	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L	-		08/18/20 00:46	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L	-		08/18/20 00:46	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L	-		08/18/20 00:46	1
Trichloroethene	1.0	U	1.0	0.36	ug/L	-		08/18/20 00:46	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L	-		08/18/20 00:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		75 - 130		08/18/20 00:46	1
4-Bromofluorobenzene (Surr)	77		47 - 134		08/18/20 00:46	1
Toluene-d8 (Surr)	96		69 - 122		08/18/20 00:46	1
Dibromofluoromethane (Surr)	95		78 - 129		08/18/20 00:46	1

Chain of Custody Record

TestAmerica Laboratory location: Brighton --- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Client Contact		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other	
Company Name: Arcadis		Lab Contact: Mike DeMonton	
Address: 28550 Cabot Drive, Suite 500		Telephone: 330-497-9396	
City/State/Zip: Novi, MI, 48377		COC No: / of COCs	
Phone: 248-994-2240		For lab use only	
Project Name: Ford LTP Off-Site		Walk-in client	
Project Number: 30050315.402.04		Lab sampling	
PO # 30050315.402.04		Job/SDG No:	
Analysis Turnaround Time			
TAT if different from below			
10 day <input checked="" type="checkbox"/> 3 weeks <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day <input type="checkbox"/>			
Sampler Name: Emma Witherspoon		Filtered Sample (Y/N)	
Method of Shipment/Carrier:		Composite C / Grab G	
Shipping/Tracking No:		1,1-DCE 8260B	
Sample Date		GIS-1,2-DCE 8260B	
Sample Time		Trans-1,2-DCE 8260B	
8/5/20		PCE 8260B	
8/5/20 1145		TCE 8260B	
		Vinyl Chloride 8260B	
		1,4-Dioxane 8260B SIM	
Matrix		Analyses	
Air			
Aqueous	X		
Sediment		X	X
Solid		X	X
Other:		X	X
Containers & Preservatives			
H2SO4			
HNO3	X		
HCl	X		
NaOH			
ZnAc / NaOH			
Other:			
Sample Identification		Sample Specific Notes / Special Instructions:	
TRIP BLANK		1 Trip Blank	
MW-1675-080520		'3 vials for 8260B 3 vials for 8260B SIM	



Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Irritant <input type="checkbox"/> Inflammable <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown			
Special Instructions/QC Requirements & Comments:			
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203631 Level IV Reporting requested.			
Relinquished by: Justine Spore	Company: Arcadis	Date/Time: 8/5/20 1600	Received by: Arcadis Cold Storage
Relinquished by: Caglan Brannich	Company: Arcadis	Date/Time: 8/6/20 1245	Received by: ERM MI
Relinquished by: Caglan Brannich	Company: ERM MI	Date/Time: 8/6/20 13:00	Received in Laboratory by: ERM

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SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Project No.: 30050315.402.01 Page 1 of 1

Site Location: Ford LTP 12001 stark; NE of house in yard

Prepared By: Emma Witherspoon

Date	Time	Description of Activities
8/5/2020	10:30	Arrive onsite
8/5/2020	10:42	Record static depth to water
8/5/2020	10:50	Begin purging well
8/5/2020	11:45	Collect sample
8/5/2020	11:50	End purge and turn off pump, begin decon of equipment
8/5/2020	12:10	Offsite
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Field staff signature: Emma Witherspoon



SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Page 1 of 1

Project No. 30050315.402.01 Well ID MW-167S Date 8-5-20
 Project Name/Location Ford LTP Weather 70 degrees F, Clear
 Measuring Pt. Description Top of Casing Screen Setting (ft-bmp) 5-10 Casing Diameter (in.) 2 Well Material PVC
 Static Water Level (ft-bmp) 6.60 Total Depth (ft-bmp) 9.22 Water Column (ft.) 2.62 Gallons in Well 0.43
 Pump Intake (ft-bmp) 8.10 Purge Method Low-Flow Sample Method Grab
 Well Volumes Purged 3.02

Sample Time: Label 11:45 Volume Purged 1.3 gallons Replicate/Code No. -- Sampled by Emma Witherspoon
 Purge Start 10:50
 Purge End 11:50

Time	Minutes Elapsed between Readings	Flow Rate (mL/min) [100-300 mL/min]	Depth to Water (ft) [± 0.3]	Total Gallons Purged	pH [± 0.1]	Cond. (mS/cm) [± 3%]	Turbidity (NTU) [± 10%*]	DO (mg/L) [± 10%]	Temp. (°C) [± 3%]	Redox (mV) [± 10mV]	Appearance	
											Color	Odor
10:50	0	100	6.62	0.00	6.92	0.59	18.40	1.20	17.0	70.6	Clear	No Odor
10:55	5	100	6.61	0.13	6.91	0.58	22.00	1.37	16.4	77.5	Clear	No Odor
11:00	5	100	6.61	0.26	6.95	0.59	14.40	1.58	16.4	7.0	Clear	No Odor
11:05	5	100	6.61	0.39	6.99	0.59	7.34	1.73	16.3	80.4	Clear	No Odor
11:10	5	100	6.61	0.52	7.00	0.59	3.00	1.52	16.3	80.7	Clear	No Odor
11:15	5	100	6.62	0.65	7.00	0.59	0.88	1.86	16.4	81.3	Clear	No Odor
11:20	5	100	6.62	0.78	7.00	0.60	0.05	2.18	16.3	83.0	Clear	No Odor
11:25	5	100	6.62	0.91	6.98	0.59	0.02	1.97	16.3	84.7	Clear	No Odor
11:30	5	100	6.62	1.04	7.02	0.60	0.02	2.26	16.3	83.3	Clear	No Odor
11:35	5	100	6.62	1.17	7.05	0.60	0.02	2.26	16.4	82.0	Clear	No Odor
11:40	5	100	6.62	1.30	7.01	0.60	0.02	2.28	16.4	83.9	Clear	No Odor
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* Turbidity < 50 NTU and ±10% or within 1 NTU of a previous reading when <10 NTU

Constituents Sampled	Container	Number	Preservative
VOCs	40 mL Glass	3	HCL
1,4-dioxane	40 mL Glass	3	HCL

Comments None

Well Casing Volumes	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
Gallons/Foot	1.25" = 0.06	3" = 0.37	4" = 0.65	

Well Information

Well Location: 12001 stark; NE of house in yard Well Locked at Arrival: yes

Condition of Well: Good Well Locked at Departure: yes

Well Completion: Flush mount Lock Functioning: yes

TRANSMITTAL LETTER



To:
George Al-Husari
Shawn Collins
Brandon Alger (EGLE)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:
January 16, 2021

Subject:

Arcadis Project No.:

Shallow Groundwater
Assessment Data Package

We are sending you copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Delivery Date	Drawing No.	Rev.	Description	Action*
1	1/16/2021			Figure	
1	1/16/2021			Analytical Results	
1	1/16/2021			Field Notes and Drawings	

Action*

- A Approved CR Correct and Resubmit Resubmit _____ Copies
 AN Approved As Noted F File Return _____ Copies
 AS As Requested FA For Approval Review and Comment
 Other: _____

Mailing Method



- U.S. Postal Service 1st Class Courier/Hand Delivery FedEx Priority Overnight FedEx 2-Day Delivery
 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
 Other: email

Thank you for cooperating with the groundwater sampling at your property on November 5, 2020.
Attached is your data package.

CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: A. PAULSON TR: M. WACKSMAN PROJECT NUMBER: MI001454.0003.000001 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
Z:\GIS\Projects\ENV\NovBrighton_Mil\FordLivonia\GIS\docs\2019-03\MW_Locations\12001Stark\MW-167S.mxd PLOTTED: 3/5/2019 7:49:29 AM BY: msmliller



LEGEND:

-  MONITORING WELL LOCATION
-  PROPERTY BOUNDARIES



FORD MOTOR COMPANY
LIVONIA TRANSMISSION PLANT
LIVONIA, MICHIGAN

MONITORING WELL LOCATION MW-167S



FIGURE
1

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-139777-1
Client Project/Site: Ford LTP - Off Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
11/23/2020 10:51:50 AM

Michael DelMonico, Project Manager I
(330)497-9396
Michael.DelMonico@Eurofinset.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:

www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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QC Sample Results	11
QC Association Summary	14
Lab Chronicle	15
Certification Summary	16
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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139777-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139777-1

Job ID: 240-139777-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP - Off Site

Report Number: 240-139777-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 11/7/2020 9:40 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.9° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-139777-1) and MW-167S_110520 (240-139777-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/18/2020.

The continuing calibration verification (CCV) for analytical batch 461535 exceeded control criteria for one or multiple compounds. The samples associated with this CCV were non-detect for the affected analytes. In accordance with the laboratory SOP, a low level CCV at the reporting limit (labeled as an MRL) was analyzed and the affected compounds were detected; therefore the data has been reported. No further corrective action was required: TRIP BLANK (240-139777-1) and MW-167S_110520 (240-139777-2).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-167S_110520 (240-139777-2) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 11/12/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139777-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139777-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-139777-1	TRIP BLANK	Water	11/05/20 00:00	11/07/20 09:40	
240-139777-2	MW-167S_110520	Water	11/05/20 10:10	11/07/20 09:40	

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Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139777-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-139777-1

No Detections.

Client Sample ID: MW-167S_110520

Lab Sample ID: 240-139777-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	0.13	J	1.0	0.10	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

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Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP - Off Site

Job ID: 240-139777-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-139777-1

Date Collected: 11/05/20 00:00

Matrix: Water

Date Received: 11/07/20 09:40

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/18/20 19:25	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/18/20 19:25	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/18/20 19:25	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/18/20 19:25	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/18/20 19:25	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/18/20 19:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		75 - 130		11/18/20 19:25	1
4-Bromofluorobenzene (Surr)	75		47 - 134		11/18/20 19:25	1
Toluene-d8 (Surr)	98		69 - 122		11/18/20 19:25	1
Dibromofluoromethane (Surr)	95		78 - 129		11/18/20 19:25	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP - Off Site

Job ID: 240-139777-1

Client Sample ID: MW-167S_110520

Lab Sample ID: 240-139777-2

Date Collected: 11/05/20 10:10

Matrix: Water

Date Received: 11/07/20 09:40

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/12/20 17:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		70 - 133		11/12/20 17:09	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/18/20 19:47	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/18/20 19:47	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/18/20 19:47	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/18/20 19:47	1
Trichloroethene	0.13	J	1.0	0.10	ug/L			11/18/20 19:47	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/18/20 19:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		75 - 130		11/18/20 19:47	1
4-Bromofluorobenzene (Surr)	75		47 - 134		11/18/20 19:47	1
Toluene-d8 (Surr)	97		69 - 122		11/18/20 19:47	1
Dibromofluoromethane (Surr)	93		78 - 129		11/18/20 19:47	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139777-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA	BFB	TOL	DBFM
		(75-130)	(47-134)	(69-122)	(78-129)
240-139669-B-15 MS	Matrix Spike	95	99	106	83
240-139669-B-15 MSD	Matrix Spike Duplicate	98	101	105	83
240-139777-1	TRIP BLANK	113	75	98	95
240-139777-2	MW-167S_110520	112	75	97	93
LCS 240-461535/4	Lab Control Sample	95	100	104	81
MB 240-461535/7	Method Blank	104	80	99	84

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA
		(70-133)
240-139757-A-3 MS	Matrix Spike	113
240-139757-A-3 MSD	Matrix Spike Duplicate	114
240-139777-2	MW-167S_110520	107
LCS 240-460682/4	Lab Control Sample	105
MB 240-460682/5	Method Blank	105

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139777-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-461535/7
Matrix: Water
Analysis Batch: 461535

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/18/20 11:46	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/18/20 11:46	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/18/20 11:46	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/18/20 11:46	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/18/20 11:46	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/18/20 11:46	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	104		75 - 130		11/18/20 11:46	1
4-Bromofluorobenzene (Surr)	80		47 - 134		11/18/20 11:46	1
Toluene-d8 (Surr)	99		69 - 122		11/18/20 11:46	1
Dibromofluoromethane (Surr)	84		78 - 129		11/18/20 11:46	1

Lab Sample ID: LCS 240-461535/4
Matrix: Water
Analysis Batch: 461535

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
1,1-Dichloroethene	10.0	8.09		ug/L		81	73 - 129
cis-1,2-Dichloroethene	10.0	10.3		ug/L		103	75 - 124
Tetrachloroethene	10.0	8.90		ug/L		89	70 - 125
trans-1,2-Dichloroethene	10.0	10.3		ug/L		103	74 - 130
Trichloroethene	10.0	7.79		ug/L		78	71 - 121
Vinyl chloride	10.0	8.91		ug/L		89	61 - 134

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	95		75 - 130
4-Bromofluorobenzene (Surr)	100		47 - 134
Toluene-d8 (Surr)	104		69 - 122
Dibromofluoromethane (Surr)	81		78 - 129

Lab Sample ID: 240-139669-B-15 MS
Matrix: Water
Analysis Batch: 461535

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS MS		Unit	D	%Rec	%Rec. Limits
				Result	Qualifier				
1,1-Dichloroethene	33	U F1	333	212	F1	ug/L		63	64 - 132
cis-1,2-Dichloroethene	600		333	879		ug/L		84	68 - 121
Tetrachloroethene	33	U	333	227		ug/L		68	52 - 129
trans-1,2-Dichloroethene	23	J	333	287		ug/L		79	69 - 126
Trichloroethene	21	J	333	225		ug/L		61	56 - 124
Vinyl chloride	33	U F2	333	204		ug/L		61	49 - 136

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	95		75 - 130
4-Bromofluorobenzene (Surr)	99		47 - 134
Toluene-d8 (Surr)	106		69 - 122

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139777-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-139669-B-15 MS
Matrix: Water
Analysis Batch: 461535

Client Sample ID: Matrix Spike
Prep Type: Total/NA

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
Dibromofluoromethane (Surr)	83		78 - 129

Lab Sample ID: 240-139669-B-15 MSD
Matrix: Water
Analysis Batch: 461535

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	33	U F1	333	247		ug/L		74	64 - 132	15	35
cis-1,2-Dichloroethene	600		333	878		ug/L		83	68 - 121	0	35
Tetrachloroethene	33	U	333	247		ug/L		74	52 - 129	8	35
trans-1,2-Dichloroethene	23	J	333	304		ug/L		84	69 - 126	6	35
Trichloroethene	21	J	333	237		ug/L		65	56 - 124	5	35
Vinyl chloride	33	U F2	333	293	F2	ug/L		88	49 - 136	36	35

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		75 - 130
4-Bromofluorobenzene (Surr)	101		47 - 134
Toluene-d8 (Surr)	105		69 - 122
Dibromofluoromethane (Surr)	83		78 - 129

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-460682/5
Matrix: Water
Analysis Batch: 460682

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/12/20 15:42	1

	MB	MB							
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
1,2-Dichloroethane-d4 (Surr)	105		70 - 133		11/12/20 15:42	1			

Lab Sample ID: LCS 240-460682/4
Matrix: Water
Analysis Batch: 460682

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	11.5		ug/L		115	80 - 135

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	105		70 - 133

Lab Sample ID: 240-139757-A-3 MS
Matrix: Water
Analysis Batch: 460682

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	3.1		10.0	14.0		ug/L		109	46 - 170

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP - Off Site

Job ID: 240-139777-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	113		70 - 133

Lab Sample ID: 240-139757-A-3 MSD
 Matrix: Water
 Analysis Batch: 460682

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	3.1		10.0	14.2		ug/L		111	46 - 170	2	26

<i>Surrogate</i>	<i>%Recovery</i>	<i>MSD MSD Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	114		70 - 133

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139777-1

GC/MS VOA

Analysis Batch: 460682

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-139777-2	MW-167S_110520	Total/NA	Water	8260B SIM	
MB 240-460682/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-460682/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-139757-A-3 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-139757-A-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 461535

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-139777-1	TRIP BLANK	Total/NA	Water	8260B	
240-139777-2	MW-167S_110520	Total/NA	Water	8260B	
MB 240-461535/7	Method Blank	Total/NA	Water	8260B	
LCS 240-461535/4	Lab Control Sample	Total/NA	Water	8260B	
240-139669-B-15 MS	Matrix Spike	Total/NA	Water	8260B	
240-139669-B-15 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139777-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-139777-1

Date Collected: 11/05/20 00:00

Matrix: Water

Date Received: 11/07/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	461535	11/18/20 19:25	LEE	TAL CAN

Client Sample ID: MW-167S_110520

Lab Sample ID: 240-139777-2

Date Collected: 11/05/20 10:10

Matrix: Water

Date Received: 11/07/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	461535	11/18/20 19:47	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	460682	11/12/20 17:09	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139777-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-21
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-21
Texas	NELAP	T104704517-18-10	08-31-21
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-21
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

Chain of Custody Record

TestAmerica Laboratory location: Brighton --- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Regulatory program: DW NPDES RCRA Other

Client Contact: Arcadis
Address: 28550 Cahot Drive, Suite 500
City/State/Zip: Novi, MI, 48377
Phone: 248-994-2240
Project Name: Ford LTP OH-Site
Project Number: 30050315.402.04
PO # 30050315.402.04

Client Project Manager: Kris Hinskey
Telephone: 248-994-2240
Email: kris@hoff.hinskey@arcadis.com

Site Contact: Julia McClafferty
Telephone: 734-644-5131

Lab Contact: Mike DeMonico
Telephone: 330-497-9396

Sampler Name: **ALINSON HARTZ**
Method of Shipment/Carrier:
Shipping/Tracking No:

Analysis Turnaround Time
TAT (if different from below)
10 day
 3 weeks
 2 weeks
 1 week
 2 days
 1 day

Containers & Preservatives
Matrix: Aqueous, Solid, Other
H2SO4, HNO3, HCl, NaOH, ZnOH, Umpres, Other

Filtered Sample (Y/N)
Composite C/Grab G

Analyses
1,1-DCE 8260B, cis-1,2-DCE 8260B, Trans-1,2-DCE 8260B, PCE 8260B, TCE 8260B, Vinyl Chloride 8260B, 1,4-Dioxane 8260B SIM

Sample Identification
TRIP BLANK
MW-1675-110520

Sample Specific Notes / Special Instructions:
TRIP BLANK
3 VOLS FOR 8260B
3 VOLS FOR 8260B SIM

Possible Hazard Identification
 Non-Hazard Irritant Flammable Corrosive

Special Instructions/QC Requirements & Comments:
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal By Lab Archive For _____ Months

Relinquished by: *[Signature]*
Relinquished by: *[Signature]*
Relinquished by: *[Signature]*

Company: Arcadis
Company: Arcadis
Company: ETA

Date/Time: 11/5/20 15:45
Date/Time: 11/6/20 0915
Date/Time: 11-6-20 0915

Received by: Novi Cold Storage
Received by: *[Signature]*
Received in Laboratory by: *[Signature]*

Company: Arcadis
Company: ETA
Company: TA

240-139777 Chain of Custody

MICHIGAN 190

TestAmerica Laboratory location: Brighton --- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

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Eurofins TestAmerica Canton Sample Receipt Form/Narrative		Login # : <u>39777</u>
Canton Facility		
Client <u>Arcadis</u>	Site Name _____	Cooler unpacked by:
Cooler Received on <u>11-7-20</u>	Opened on <u>11-9-20</u>	
FedEx: 1 st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____		
Receipt After-hours: Drop-off Date/Time _____		Storage Location _____
TestAmerica Cooler # <u>TA</u>	Foam Box _____	Client Cooler _____
Packing material used: <u>Bubble</u> Wrap	Foam _____	Plastic Bag _____
COOLANT: <u>Wet Ice</u>	Blue Ice _____	Dry Ice _____
	Water _____	None _____
1. Cooler temperature upon receipt <input type="checkbox"/> See Multiple Cooler Form		
IR GUN# IR-11 (CF +0.9 °C) Observed Cooler Temp. <u>1.0</u> °C Corrected Cooler Temp. <u>1.9</u> °C		
IR GUN #IR-12 (CF +0.5°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C		
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity _____ Yes No		Tests that are not checked for pH by Receiving: VOAs Oil and Grease TOC
-Were the seals on the outside of the cooler(s) signed & dated? Yes No <u>NA</u>		
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No <u>NA</u>		
-Were tamper/custody seals intact and uncompromised? Yes No <u>NA</u>		
3. Shippers' packing slip attached to the cooler(s)? Yes No		
4. Did custody papers accompany the sample(s)? Yes No		
5. Were the custody papers relinquished & signed in the appropriate place? Yes No		
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No		
7. Did all bottles arrive in good condition (Unbroken)? Yes No		
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No		
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?		
10. Were correct bottle(s) used for the test(s) indicated? Yes No		
11. Sufficient quantity received to perform indicated analyses? Yes No		
12. Are these work share samples and all listed on the COC? Yes No		
If yes, Questions 13-17 have been checked at the originating laboratory.		
13. Were all preserved sample(s) at the correct pH upon receipt? Yes No <u>NA</u> pH Strip Lot# <u>HC907861</u>		
14. Were VOAs on the COC? Yes No		
15. Were air bubbles >6 mm in any VOA vials? Larger than this. Yes No <u>NA</u>		
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No		
17. Was a LL Hg or Me Hg trip blank present? Yes No		
Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____		
Concerning _____		
18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES <input type="checkbox"/> additional next page		Samples processed by: _____
_____ _____ _____		
19. SAMPLE CONDITION		
Sample(s) _____ were received after the recommended holding time had expired.		
Sample(s) _____ were received in a broken container.		
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)		
20. SAMPLE PRESERVATION		
Sample(s) _____ were further preserved in the laboratory.		
Time preserved: _____ Preservative(s) added/Lot number(s): _____		
VOA Sample Preservation - Date/Time VOAs Frozen: _____		

DATA VERIFICATION REPORT



November 23, 2020

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: 30050315.0301.01 off site
Event Specific Scope of Work References: Sample COC
Laboratory: TestAmerica - North Canton
Laboratory submittal: 139777-1
Sample date: 2020-11-05
Report received by CADENA: 2020-11-23
Initial Data Verification completed by CADENA: 2020-11-23
Number of Samples:2
Sample Matrices:Water
Test Categories:GCMS VOC

Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

The following minor QC exceptions or missing information were noted:

GCMS VOC QC batch MS/MSD recovery outliers were not determined using a client sample so qualification was not required based on these sample-specific QC outliers.

GCMS VOC QC batch CCV response outliers as noted in the laboratory submittal case narrative were not used to qualify client sample results as part of this level 2 data package verification review.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Analytical Results Summary

Reportable Results Only

CADENA Project ID: E203631

Laboratory: TestAmerica - North Canton

Laboratory Submittal: 139777-1

Sample Name: TRIP BLANK MW-167S_110520
Lab Sample ID: 2401397771 2401397772
Sample Date: 11/5/2020 11/5/2020

Analyte	Cas No.	Report		Units	Valid		Report		Valid	
		Result	Limit		Qualifier	Result	Limit	Units	Qualifier	
GC/MS VOC										
<u>OSW-8260B</u>										
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Trichloroethene	79-01-6	ND	1.0	ug/l	---	0.13	1.0	ug/l	J	
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
<u>OSW-8260BBSim</u>										
1,4-Dioxane	123-91-1					ND	2.0	ug/l	---	

Analytical Results Summary

Reportable Results Only

CADENA Project ID: E203631

Laboratory: TestAmerica - North Canton

Laboratory Submittal: 139777-1

Sample Name: TRIP BLANK MW-167S_110520
Lab Sample ID: 2401397771 2401397772
Sample Date: 11/5/2020 11/5/2020

Analyte	Cas No.	Report		Units	Valid		Report		Valid	
		Result	Limit		Qualifier	Result	Limit	Units	Qualifier	
GC/MS VOC										
<u>OSW-8260B</u>										
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Trichloroethene	79-01-6	ND	1.0	ug/l	---	0.13	1.0	ug/l	J	
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
<u>OSW-8260BBSim</u>										
1,4-Dioxane	123-91-1					ND	2.0	ug/l	---	

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan


Volatile Organic Compounds (VOC) Analysis

SDG # 240-139777-1

CADENA Verification Report: 2020-11-23

Analyses Performed By:
TestAmerica
North Canton, Ohio

Report # 39244R
Review Level: Tier III
Project: 30050315.402.02



DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-139777-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III) includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis	
					VOC (Full Scan)	VOC (SIM)
TRIP BLANK	240-139777-1	Water	11/05/20		X	
MW-167S_110520	240-139777-2	Water	11/05/20		X	X

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260B and 8260B SIM. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260B/8260B-SIM	Water	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl

All samples were analyzed within the specified holding time criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (20%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

Sample Locations	Initial/Continuing	Compound	Criteria
TRIP BLANK MW-167S_110520	CCV %D	1,1-Dichloroethene	-22.8%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
Initial and Continuing Calibration	RRF <0.05	Non-detect	R
		Detect	J

DATA REVIEW

Initial/Continuing	Criteria	Sample Result	Qualification
	RRF <0.01 ¹	Non-detect	R
		Detect	J
	RRF >0.05 or RRF >0.01 ¹	Non-detect	No Action
		Detect	
Initial Calibration	%RSD > 15% or a correlation coefficient <0.99	Non-detect	UJ
		Detect	J
	%RSD >90%	Non-detect	R
		Detect	J
Continuing Calibration	%D >20% (increase in sensitivity)	Non-detect	No Action
		Detect	J
	%D >20% (decrease in sensitivity)	Non-detect	UJ
		Detect	J
	%D >90% (increase/decrease in sensitivity)	Non-detect	R
		Detect	J

Note:

¹ RRF of 0.01 only applies to compounds which are typically poor responding compounds (i.e., ketones, 1,4-dioxane, etc.)

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

A field duplicate sample was not collected for samples from this SDG.

6. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

No compounds were detected in the samples within this SDG.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: 8260B/8260B-SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times/Preservation		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X	X		
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Field Duplicate RPD	X				X
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

DATA REVIEW

VALIDATION PERFORMED BY: Hrishikesh Upadhyaya

SIGNATURE: 

DATE: November 30, 2020

PEER REVIEW: Andrew Korycinski

DATE: December 02, 2020

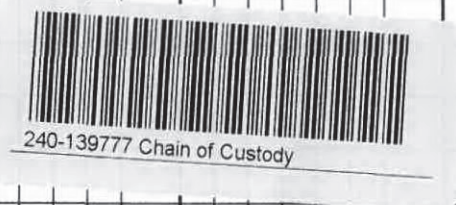
**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



Chain of Custody Record

TestAmerica Laboratory location: Brighton --- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Client Contact			Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other _____															TestAmerica Laboratories, Inc.								
Company Name: Arcadis			Client Project Manager: Kris Hinskey					Site Contact: Julia McClafferty					Lab Contact: Mike DelMonico					COG No: _____								
Address: 28550 Cabot Drive, Suite 500			Telephone: 248-994-2240					Telephone: 734-644-5131					Telephone: 330-497-9396													
City/State/Zip: Novi, MI, 48377			Email: kristoffer.hinskey@arcadis.com					Analysis Turnaround Time					Analyses					For lab use only								
Phone: 248-994-2240			Sampler Name: <i>Allyson Hartz</i>					TAT if different from below										Walk-in client _____								
Project Name: Ford LTP Off-Site			Method of Shipment/Carrier:					<input type="checkbox"/> 3 weeks										Lab sampling _____								
Project Number: 30050315.402.04			Shipping/Tracking No:					10 day <input checked="" type="checkbox"/> 2 weeks										Job/SDG No: _____								
PO # 30050315.402.04								<input type="checkbox"/> 1 week																		
								<input type="checkbox"/> 2 days																		
								<input type="checkbox"/> 1 day																		
Sample Identification	Sample Date	Sample Time	Matrix					Containers & Preservatives							Filtered Sample (Y/N)	Composite=C / Grab=G	Analyses								Sample Specific Notes / Special Instructions:	
			Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl	NaOH	ZnAc	NaOH	Unpres			Other:	1,1-DCE 8260B	cis-1,2-DCE 8260B	Trans-1,2-DCE 8260B	PCE 8260B	TCE 8260B	Vinyl Chloride 8260B	1,4-Dioxane 8260B SIM		
TRIP BLANK	-	-															X	X	X	X	X	X	X		TRIP BLANK	
MN-1675-110520	11/5/20	10:10															X	X	X	X	X	X	X		3 VOAS FOR 8260B 3 VOAS FOR 8260B SIM	
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)																				
<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown						<input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months																				
Special Instructions/QC Requirements & Comments:																										
Submit all results through Cadena at jtomalla@cadenaco.com. Cadena #E203631 Level IV Reporting requested.																										
Relinquished by: <i>[Signature]</i>			Company: Arcadis			Date/Time: 11/5/20 15:45			Received by: Novi Cold Storage			Company: Arcadis			Date/Time: 11/5/20 15:45											
Relinquished by: <i>[Signature]</i>			Company: ARCADIS			Date/Time: 11/6/20 0915			Received by: <i>[Signature]</i>			Company: ETA			Date/Time: 11-6-20 0915											
Relinquished by: <i>[Signature]</i>			Company: ETA			Date/Time: 11-6-20 0925			Received in Laboratory by: <i>[Signature]</i>			Company: TA			Date/Time: 11-7-20 940											



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Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139777-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-139777-1

Date Collected: 11/05/20 00:00

Matrix: Water

Date Received: 11/07/20 09:40

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/18/20 19:25	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/18/20 19:25	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/18/20 19:25	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/18/20 19:25	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/18/20 19:25	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/18/20 19:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		75 - 130		11/18/20 19:25	1
4-Bromofluorobenzene (Surr)	75		47 - 134		11/18/20 19:25	1
Toluene-d8 (Surr)	98		69 - 122		11/18/20 19:25	1
Dibromofluoromethane (Surr)	95		78 - 129		11/18/20 19:25	1

Client Sample ID: MW-167S_110520

Lab Sample ID: 240-139777-2

Date Collected: 11/05/20 10:10

Matrix: Water

Date Received: 11/07/20 09:40

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/12/20 17:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		70 - 133		11/12/20 17:09	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/18/20 19:47	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/18/20 19:47	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/18/20 19:47	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/18/20 19:47	1
Trichloroethene	0.13	J	1.0	0.10	ug/L			11/18/20 19:47	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/18/20 19:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		75 - 130		11/18/20 19:47	1
4-Bromofluorobenzene (Surr)	75		47 - 134		11/18/20 19:47	1
Toluene-d8 (Surr)	97		69 - 122		11/18/20 19:47	1
Dibromofluoromethane (Surr)	93		78 - 129		11/18/20 19:47	1

SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Project No.: 30050315.402.01 Page 1 of 1

Site Location: Ford LTP 12001 Stark, front yard

Prepared By: Allyson Hartz

Date	Time	Description of Activities
11/5/2020	9:17	Arrive onsite
11/5/2020	9:26	Record static depth to water
11/5/2020	9:32	Begin purging well
11/5/2020	10:10	Collect sample
11/5/2020	10:13	End purge and turn off pump, begin decon of equipment
11/5/2020	10:32	Offsite
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Field staff signature: _____





SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Page 1 of 1

Project No. 30050315.402.01 Well ID MW-167S Date 11-5-20
 Project Name/Location Ford LTP Weather 54 degrees F, Cloudy
 Measuring Pt. Description Top of Casing Screen Setting (ft-bmp) 5-10 Casing Diameter (in.) 2 Well Material PVC
 Static Water Level (ft-bmp) 6.94 Total Depth (ft-bmp) 9.22 Water Column (ft.) 2.28 Gallons in Well 0.37
8.44 Pump Intake (ft-bmp) 3.73 Purge Method Low-Flow Sample Method Grab

Sample Time: Label 10:10 Volume Purged 1.38 gallons Replicate/Code No. -- Sampled by Allyson Hartz
 Purge Start 9:32
 Purge End 10:13

Time	Minutes Elapsed between Readings	Flow Rate (mL/min) [100-300 mL/min]	Depth to Water (ft) [±0.3]	Total Gallons Purged	pH [±0.1]	Cond. (mS/cm) [±3%]	Turbidity (NTU) [±10%*]	DO (mg/L) [±10%]	Temp. (°C) [±3%]	Redox (mV) [±10mV]	Appearance	
											Color	Odor
9:35	0	175	6.96	0.00	7.19	0.85	98.70	3.33	14.5	214.0	Clear, Small Orange Particulates	No Odor
9:40	5	175	6.98	0.23	7.28	0.70	37.50	2.44	14.4	186.0	Clear, Small Orange Particulates	No Odor
9:45	5	175	6.98	0.46	7.22	0.74	13.90	2.37	14.4	139.5	Clear, Small Orange Particulates	No Odor
9:50	5	175	6.98	0.69	7.22	0.75	4.84	2.46	14.5	128.0	Clear	No Odor
9:55	5	175	6.98	0.92	7.22	0.75	2.82	2.46	14.5	131.4	Clear	No Odor
10:00	5	175	6.98	1.15	7.22	0.76	3.93	2.39	14.5	137.3	Clear	No Odor
10:05	5	175	6.99	1.38	7.22	0.76	3.19	2.34	14.5	138.2	Clear	No Odor
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*Turbidity < 50 NTU and ±10% or within 1 NTU of a previous reading when <10 NTU

Constituents Sampled 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, PCE, TCE, VC Container 40 mL Glass Number 3 Preservative HCL
1,4-dioxane 40 mL Glass 3 HCL

Comments Vault full of water

Well Casing Volumes
 Gallons/Foot 1" = 0.04 1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 6" = 1.47
 1.25" = 0.06 2" = 0.16 3" = 0.37 4" = 0.65

Well Information
 Well Location: 12001 Stark, front yard Well Locked at Arrival: yes
 Condition of Well: Good Well Locked at Departure: yes
 Well Completion: Flush mount Lock Functioning: yes

TRANSMITTAL LETTER



To:
George Al-Husari

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:
Shawn Collins
Brandon Alger (MDEQ)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

Date:
November 10, 2018

Subject:
Vapor Intrusion Assessment
Data Package

We are sending you hard copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Date	Drawing No.	Rev.	Description	Action*
1	11/13/2018			Figure	
1	11/13/2018			Analytical Results	
1	11/13/2018			Field Notes and Drawings	

Action*

- A Approved CR Correct and Resubmit Resubmit _____ Copies
 AN Approved As Noted F File Return _____ Copies
 AS As Requested FA For Approval Review and Comment
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 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
 Other: email

Thank you for cooperating with the air sampling at your property on October 30 and 31, 2018. Attached is your data package.

CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: T. STEVENS TR: P. CURRY PROJECT NUMBER: M001373.0001.00003 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
 Z:\GISProjects\ENV\NoviBrighton_M\FordLivonia\GIS\Docs\2018-11\12001_Stark_20181110.mxd PLOTTED: 11/12/2018 10:18:20 AM BY: mgrs



LEGEND:

-  INDOOR AIR LOCATION
-  AMBIENT AIR LOCATION
-  SOIL BORING LOCATION
-  SUB-SLAB MONITORING POINT LOCATION
-  BUILDING
-  PROPERTY BOUNDARIES



FORD MOTOR COMPANY
 LIVONIA TRANSMISSION PLANT
 LIVONIA, MICHIGAN

AIR SAMPLING LOCATIONS



FIGURE 1

11/9/2018
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1811046A

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 11/2/2018 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1811046A

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0003
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	11/02/2018	CONTACT:	Ausha Scott
DATE COMPLETED:	11/09/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	AA-12001Stark-01_103018	Modified TO-15	6.5 "Hg	5.5 psi
02A	IACS-12001Stark-01_103018	Modified TO-15	5.5 "Hg	5.1 psi
03A	IAG12001Stark-02_103018	Modified TO-15	5.5 "Hg	5.1 psi
04A	IAF-12001Stark-03_103018	Modified TO-15	7.1 "Hg	5.2 psi
05A	Lab Blank	Modified TO-15	NA	NA
06A	CCV	Modified TO-15	NA	NA
07A	LCS	Modified TO-15	NA	NA
07AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 11/09/18

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 1811046A

Four 6 Liter Summa Canister (100% Certified) samples were received on November 02, 2018. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

The Chain of Custody (COC) was not relinquished properly. A signature, date and time were not provided by the field sampler.

Analytical Notes

As per project specific client request the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. All The canisters used for this project have been certified to the Reporting Limit for the target analytes included in this workorder. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

- B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).
- J - Estimated value.
- E - Exceeds instrument calibration range.
- S - Saturated peak.
- Q - Exceeds quality control limits.
- U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.
- UJ- Non-detected compound associated with low bias in the CCV
- N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates

as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-12001Stark-01_103018	Date/Time Analyzed:	11/5/18 06:34 PM
Lab ID:	1811046A-01A	Dilution Factor:	1.76
Date/Time Collected:	10/31/18 11:08 AM	Instrument/Filename:	msd22.i / 22110512
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.13	0.35	0.70	Not Detected
1,4-Dioxane	123-91-1	0.15	0.32	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.15	0.35	0.70	Not Detected
Tetrachloroethene	127-18-4	0.072	0.60	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.11	0.35	0.70	Not Detected
Trichloroethene	79-01-6	0.10	0.47	0.94	Not Detected
Vinyl Chloride	75-01-4	0.064	0.22	0.45	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	110
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	86

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IACS-12001Stark-01_103018	Date/Time Analyzed:	11/5/18 07:10 PM
Lab ID:	1811046A-02A	Dilution Factor:	1.65
Date/Time Collected:	10/31/18 10:49 AM	Instrument/Filename:	msd22.i / 22110513
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.12	0.33	0.65	Not Detected
1,4-Dioxane	123-91-1	0.14	0.30	0.59	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.14	0.33	0.65	Not Detected
Tetrachloroethene	127-18-4	0.068	0.56	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.10	0.33	0.65	Not Detected
Trichloroethene	79-01-6	0.096	0.44	0.89	Not Detected
Vinyl Chloride	75-01-4	0.060	0.21	0.42	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	85

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAG12001Stark-02_103018	Date/Time Analyzed:	11/5/18 08:21 PM
Lab ID:	1811046A-03A	Dilution Factor:	1.65
Date/Time Collected:	10/31/18 11:06 AM	Instrument/Filename:	msd22.i / 22110514
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.12	0.33	0.65	Not Detected
1,4-Dioxane	123-91-1	0.14	0.30	0.59	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.14	0.33	0.65	Not Detected
Tetrachloroethene	127-18-4	0.068	0.56	1.1	1.6
trans-1,2-Dichloroethene	156-60-5	0.10	0.33	0.65	Not Detected
Trichloroethene	79-01-6	0.096	0.44	0.89	Not Detected
Vinyl Chloride	75-01-4	0.060	0.21	0.42	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	110
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	86

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12001Stark-03_103018	Date/Time Analyzed:	11/5/18 08:57 PM
Lab ID:	1811046A-04A	Dilution Factor:	1.78
Date/Time Collected:	10/31/18 11:05 AM	Instrument/Filename:	msd22.i / 22110515
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.13	0.35	0.70	Not Detected
1,4-Dioxane	123-91-1	0.15	0.32	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.16	0.35	0.70	Not Detected
Tetrachloroethene	127-18-4	0.073	0.60	1.2	0.59 J
trans-1,2-Dichloroethene	156-60-5	0.11	0.35	0.70	Not Detected
Trichloroethene	79-01-6	0.10	0.48	0.96	Not Detected
Vinyl Chloride	75-01-4	0.065	0.23	0.46	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	86

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	11/5/18 01:26 PM
Lab ID:	1811046A-05A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd22.i / 22110506a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.075	0.20	0.40	Not Detected
1,4-Dioxane	123-91-1	0.084	0.18	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.088	0.20	0.40	Not Detected
Tetrachloroethene	127-18-4	0.041	0.34	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.062	0.20	0.40	Not Detected
Trichloroethene	79-01-6	0.058	0.27	0.54	Not Detected
Vinyl Chloride	75-01-4	0.036	0.13	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	88
Toluene-d8	2037-26-5	70-130	85

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	11/5/18 09:09 AM
Lab ID:	1811046A-06A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd22.i / 22110502
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	90
1,4-Dioxane	123-91-1	100
cis-1,2-Dichloroethene	156-59-2	92
Tetrachloroethene	127-18-4	112
trans-1,2-Dichloroethene	156-60-5	93
Trichloroethene	79-01-6	112
Vinyl Chloride	75-01-4	92

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	107
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	95

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	11/5/18 10:01 AM
Lab ID:	1811046A-07A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd22.i / 22110503
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	92
1,4-Dioxane	123-91-1	102
cis-1,2-Dichloroethene	156-59-2	86
Tetrachloroethene	127-18-4	111
trans-1,2-Dichloroethene	156-60-5	104
Trichloroethene	79-01-6	113
Vinyl Chloride	75-01-4	100

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	107
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	96

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	11/5/18 11:18 AM
Lab ID:	1811046A-07AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd22.i / 22110504
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	93
1,4-Dioxane	123-91-1	101
cis-1,2-Dichloroethene	156-59-2	87
Tetrachloroethene	127-18-4	113
trans-1,2-Dichloroethene	156-60-5	107
Trichloroethene	79-01-6	112
Vinyl Chloride	75-01-4	102

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	96

* % Recovery is calculated using unrounded analytical results.



November 09, 2018

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: MI001454.0002/3/4.00002/2B/3B
Client project scope reference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics - Folsom
Laboratory submittal: 1811046A
Sample date: 2018-10-31
Report received by CADENA: 2018-11-09
Initial Data Verification completed by CADENA: 2018-11-09

4 Air samples were analyzed for TO-15 parameters.

There were no significant QC anomalies or exceptions to report.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

11/9/2018
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1811046B

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 11/2/2018 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1811046B

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0003
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	11/02/2018	CONTACT:	Ausha Scott
DATE COMPLETED:	11/09/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
05A	SSMP-12001Stark-01_103118	TO-15	4.9 "Hg	15.6 psi
06A	Lab Blank	TO-15	NA	NA
07A	CCV	TO-15	NA	NA
08A	LCS	TO-15	NA	NA
08AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 11/09/18

Certification numbers: AZ Licensure AZ0775, FL NELAP - E8 , LA NELAP - 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP CA009332018-10, VA NELAP - 9505, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005-011, Effective date: 10/18/2018, Expiration date: 10/17/2019.

Eurofins Air Toxics LLC. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1811046B

One 1 Liter Summa Canister sample was received on November 02, 2018. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

The Chain of Custody (COC) was not relinquished properly. A signature, date and time were not provided by the field sampler.

Sample SSMP-12001Stark-01_103118 was not received at Eurofin Air Toxics, LLC on 11/02/18 despite notation on the Chain of Custody (COC). The sample was subsequently received on 11/05/18 and was added to the analytical request.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified (0.2 ppbv for compounds reported at 0.5 ppbv and 0.8 ppbv for compounds reported at 2.0 ppbv) may be false positives.

Dilution was performed on sample SSMP-12001Stark-01_103118 due to the presence of high level target species.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-12001Stark-01_103118	Date/Time Analyzed:	11/7/18 12:21 AM
Lab ID:	1811046B-05A	Dilution Factor:	3.08
Date/Time Collected:	10/31/20 11:18 AM	Instrument/Filename:	msd3.i / 3110621
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.2	3.7	6.1	Not Detected
1,4-Dioxane	123-91-1	2.0	11	22	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.7	6.1	Not Detected
Tetrachloroethene	127-18-4	2.1	6.3	10	3300
trans-1,2-Dichloroethene	156-60-5	1.8	3.7	6.1	Not Detected
Trichloroethene	79-01-6	1.3	5.0	8.3	Not Detected
Vinyl Chloride	75-01-4	2.2	2.4	3.9	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	121
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	11/6/18 12:59 PM
Lab ID:	1811046B-06A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3110606c
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.71	1.2	2.0	Not Detected
1,4-Dioxane	123-91-1	0.65	3.6	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.44	1.2	2.0	Not Detected
Tetrachloroethene	127-18-4	0.68	2.0	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.59	1.2	2.0	Not Detected
Trichloroethene	79-01-6	0.43	1.6	2.7	Not Detected
Vinyl Chloride	75-01-4	0.72	0.77	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	118
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	11/6/18 09:22 AM
Lab ID:	1811046B-07A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3110602
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	97
1,4-Dioxane	123-91-1	102
cis-1,2-Dichloroethene	156-59-2	102
Tetrachloroethene	127-18-4	109
trans-1,2-Dichloroethene	156-60-5	107
Trichloroethene	79-01-6	112
Vinyl Chloride	75-01-4	100

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	11/6/18 09:47 AM
Lab ID:	1811046B-08A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3110603
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	99
1,4-Dioxane	123-91-1	101
cis-1,2-Dichloroethene	156-59-2	95
Tetrachloroethene	127-18-4	104
trans-1,2-Dichloroethene	156-60-5	117
Trichloroethene	79-01-6	112
Vinyl Chloride	75-01-4	102

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	117
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	100

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	11/6/18 10:11 AM
Lab ID:	1811046B-08AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3110604
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	98
1,4-Dioxane	123-91-1	104
cis-1,2-Dichloroethene	156-59-2	90
Tetrachloroethene	127-18-4	104
trans-1,2-Dichloroethene	156-60-5	119
Trichloroethene	79-01-6	112
Vinyl Chloride	75-01-4	105

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	115
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	102

* % Recovery is calculated using unrounded analytical results.



November 09, 2018

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: MI001454.0002/3/4.00002/2B/3B
Client project scope reference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics - Folsom
Laboratory submittal: 1811046B
Sample date: 2018-10-31
Report received by CADENA: 2018-11-09
Initial Data Verification completed by CADENA: 2018-11-09

1 Air samples was analyzed for TO-15 parameters.

There were no significant QC anomalies or exceptions to report.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Account #: 2582
 Stanley: 101-0770
 Radtke: 101-0779

Daily Log

Project No.: ME001454.0003.00002 Page 1 of 1
 Site Location: 12001 Stark Rd.
 Prepared By: Hayden Ladd

Date	Time	Description of Activities
10-29-18	-	Purpose: Visit 1 - Bldg Survey, SSMP install
	-	Aradis: Hayden Ladd, Donnie Richmond; Fiber-tec
	-	Weather: Partly cloudy - high 40s - Dusk
	1615	Aradis on Site; Fiber-tec on Site
	1670	Conduct Bldg Survey
	1625	Donnie Richmond on Site
	1630	Conduct Soil Boring
	1740	Install SSMP-01 (garage)
	-	*Note - There is an elevated slab inside the house. That it was
	-	decided no SSMP-02 would be installed inside. The slab
	-	inside was ~3.5" thick. The remainder (~2.5') underneath slab
	-	could not be determined.
	1830	Aradis off Site
	-	*Note - Home owner was unaware of potential time needed
	-	to conduct Visit 1. He notified Aradis that he needed to leave
	-	and Aradis wrapped up ^{had} had to stop work
10-30-18	1205	Onsite (M. Scump, Z. Westphal, S. Johnson)
	1210	DEQ, K. Hinsky onsite, Resident arrives home
		- Begin deployment
	1237	OFFSITE
10/31/18	1040	Aradis onsite (Hayden, Stuart, Zach) - ZW
		- Aradis offsite *Note: possible vapor and smoking during ZW

10/31/18 to 11/1/18 ZW

DAILY LOG

Project No.: MI001454.0003

Page 1 of 1

Site Location: Livonia, MI 12001 Stark Rd.

Prepared By: Hayden Ball

Date	Time	Description of Activities
10-31-18		Purpose: Visit 3 - Canister pickup & SSMP sample.
		Arcadis: Hayden Ball, Zach Westphal, Shantel Johnson
	1040	Weather: light rain showers - 50s
	1100	Arcadis on Site
	1102	Sample SSMP-01 in garage
	1049	Pick up 24 hour canisters (4 total)
	1135	Arcadis off Site
		*Note - Possible vaping and smoking during 24-hour sample period
		- Strong smoke / cologne odor inside house

Project Name: Ford LTP
 Project Number: MFD02454.0003
 Project Location: Livonia, MI

Date Started: 10/29/18 Date Completed: 10/29/18
 Logger: Donald Fishman Editor: _____
 Weather Conditions: 50°F / Sunny

Depth (feet)	Sample ID & Time	Recovery (in.)	PID (ppm)	USCS Class.	Description
1				<u>2/1, SA</u>	<u>Sand / Top soil mix - 0.25-0.5mm, well sorted cu-3, moist, weak cementation, no reaction</u>
2				<u>5/3</u>	<u>1-2mm sand, poorly sorted cu4-6, wet, weak cementation, very loose N value 1-4</u>
3				<u>5/3</u>	<u>1-2mm, wet, very loose N value 1-4, weak cementation, poorly sorted cu 4 to 6</u>
4					<u>water</u>
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Drilling Co.: _____
 Driller: _____
 Drilling Method: _____
 Drilling Fluid: _____
 Remarks: _____

Sampling Method: _____
 Sampling Interval: Continuous
 Water Level Start: 3.5
 Water Level Finish: NA
 Converted to Well: Yes No
 Surface Elev: NA
 North Coord: NA
 East Coord: NA

Utilities and Structures Checklist

During the site inspection look for the following: ("YES" requires additional investigation and the utility must be marked properly prior to beginning subsurface intrusive work).

Site Inspection	Utility Color Codes		Present
a) Natural gas line present (evidence of a gas meter)?	Yellow	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
i) Feeder Lines to buildings or homes?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
b) Evidence of electric lines:	Red		
i) Conduits to ground from electric meter or along wall?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
iii) Conduits from power poles running into ground?		<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
ii) Light poles, electric devices with no overhead lines?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
iii) Overhead electric lines present? (See Section I)		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
c) Evidence of sewer drains:	Green		
i) Restrooms or kitchen on site?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
ii) Sewer cleanouts present?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iii) Combined sewer /storm lines or multiple sewer lines?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
d) Evidence of water lines:	Blue		
i) Water meter on site or multiple water lines?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
ii) Fire hydrants in vicinity of work?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
iii) Irrigation systems? (Sprinkler heads, valve boxes, controls in building)		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
e) Evidence of storm drains:	Green		
i) Open curbside or slotted grate storm drains		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
ii) Gutter down spouts going into ground		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
f) Evidence of telecommunication lines:	Orange		
i) Fiber optic warning signs in areas?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iv) Aboveground cable boxes or housings or wires in work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
g) Underground storage tanks:			
i) Tank pit present, tank vent present?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
ii) Product lines running to dispensers/buildings?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
h) Do utilities enter or exit existing structures/buildings?			
If Yes, confirm the utility markings outside of structure/building match up.		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
i) Proposed excavation marked in white?	White	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
j) Unclassed utilities / anomalies marked in pink?	Pink	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
k) Overhead Utilities/Communication Lines - Look Up:			
i) Overhead electrical conduit, pipe chases, cable trays, product lines?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
ii) Overhead fire sprinkler system?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
l) Overhead Power lines in or near the work area:			
i) < 50 kV within 10 ft. of work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
ii) >50 - 200 kV within 15 ft. of work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iii) >200-350 kV within 20 ft. of work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iv) >350-500 kV within 25 ft. of work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
v) >500-750 kV within 35 ft. or work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
vi) >750-1000 kV within 45 ft. of work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
m) Other:			
i) Evidence of linear asphalt or concrete repair?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
ii) Evidence of linear ground subsidence or change in vegetation?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iii) Unmarked manholes or valve covers in work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iv) Warning signs ("Call Before you Dig", etc.) on or adjacent to site?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
v) Utility color markings not illustrated in this checklist?	i.e. Purple	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
n) Has the Utilities & Structures Checklist been reviewed by the PM or Designee		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
PM or Designee Name: _____			

Name and Signature of person completing the checklist: Donald Ribon / [Signature]
 Date: 10/29/18

Do not perform **mechanized** intrusive work within 30 inches of a utility marking without receiving pre-approval by Corporate H&S.

Utilities and Structures Checklist

During the site inspection look for the following: ("YES" requires additional investigation and the utility must be marked properly prior to beginning subsurface intrusive work):

Site Inspection	Utility Color Codes		Present
a) Natural gas line present (evidence of a gas meter)?	Yellow	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
i) Feeder Lines to buildings or homes?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
b) Evidence of electric lines:	Red		
i) Conduits to ground from electric meter or along wall?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
iii) Conduits from power poles running into ground?		<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
ii) Light poles, electric devices with no overhead lines?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
iii) Overhead electric lines present? (See Section I)		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
c) Evidence of sewer drains:	Green		
i) Restrooms or kitchen on site?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
ii) Sewer cleanouts present?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iii) Combined sewer /storm lines or multiple sewer lines?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
d) Evidence of water lines:	Blue		
i) Water meter on site or multiple water lines?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
ii) Fire hydrants in vicinity of work?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
iii) Irrigation systems? (Sprinkler heads, valve boxes, controls in building)		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
e) Evidence of storm drains:	Green		
i) Open curbside or slotted grate storm drains		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
ii) Gutter down spouts going into ground		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
f) Evidence of telecommunication lines:	Orange		
i) Fiber optic warning signs in areas?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iv) Aboveground cable boxes or housings or wires in work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
g) Underground storage tanks:			
i) Tank pit present, tank vent present?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
ii) Product lines running to dispensers/buildings?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
h) Do utilities enter or exit existing structures/buildings?			
If Yes, confirm the utility markings outside of structure/building match up.		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
i) Proposed excavation marked in white?	White	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
j) Unclassed utilities / anomalies marked in pink?	Pink	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
k) Overhead Utilities/Communication Lines - Look Up:			
i) Overhead electrical conduit, pipe chases, cable trays, product lines?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
ii) Overhead fire sprinkler system?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
l) Overhead Power lines in or near the work area:			
i) < 50 kV within 10 ft. of work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
ii) >50 - 200 kV within 15 ft. of work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iii) >200-350 kV within 20 ft. of work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iv) >350-500 kV within 25 ft. of work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
v) >500-750 kV within 35 ft. or work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
vi) >750-1000 kV within 45 ft. of work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
m) Other:			
i) Evidence of linear asphalt or concrete repair?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
ii) Evidence of linear ground subsidence or change in vegetation?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iii) Unmarked manholes or valve covers in work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iv) Warning signs ("Call Before you Dig", etc.) on or adjacent to site?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
v) Utility color markings not illustrated in this checklist?	i.e. Purple	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
n) Has the Utilities & Structures Checklist been reviewed by the PM or Designee		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

Name and Signature of person completing the checklist: _____

Date: 10/29/18

Donald Ribmond / D. Ribmond

Do not perform **mechanized** intrusive work within 30 inches of a utility marking without receiving pre-approval by Corporate H&S .



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM

Date: 10-29-18 Survey Performed by: Hayden Ladd

1. OCCUPANT:

Rent: _____ Own:
 Resident Name: George Aulari
 Address: 12001 Stark Rd.
 Telephone: Home: 734968 7934 Work: _____
 How long have you lived at this location? Since August 2011

List current occupants/occupation below (attach additional pages if necessary):

Age (If under 18)	Sex (M/F)	Occupation
<u>None</u>		

2. OWNER OR LANDLORD: (If same as occupant, check here and go to Item No. 3).

Last Name: _____ First Name: _____
 Address: _____
 City and State: _____
 County: _____
 Home Phone: _____ Office Phone: _____



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

3. SENSITIVE POPULATION:

Daycare/Nursing Home/Hospital/School/Other (specify): None

4. BUILDING CHARACTERISTICS:

Residential/Multi-family Residential/Office/Strip Mall/Commercial/Industrial/School

Describe Building: Residential Year Constructed: _____

Number of floors at or above grade: 1

Number of floors below grade: 0 (full basement/crawl space/slab on grade)

Depth of structure below grade: 0 ft. Basement size: 0 ft²

If the property is residential, what type? (Circle all appropriate responses.)

- | | | | |
|---|-----------------------------------|--|--|
| <input checked="" type="checkbox"/> Ranch | <input type="checkbox"/> 2-Family | <input type="checkbox"/> 3-Family | <input type="checkbox"/> Raised Ranch |
| <input type="checkbox"/> Split Level | <input type="checkbox"/> Colonial | <input type="checkbox"/> Cape Cod | <input type="checkbox"/> Contemporary |
| <input type="checkbox"/> Mobile Home | <input type="checkbox"/> Duplex | <input type="checkbox"/> Apartment House | <input type="checkbox"/> Townhouses/Condos |
| <input type="checkbox"/> Modular | <input type="checkbox"/> Log Home | <input type="checkbox"/> Other: _____ | |

If multiple units, how many? _____

If the property is commercial:

Business type(s) NA

Does it include residences (i.e., multi-use)? Yes No If yes, how many? _____

5. OCCUPANCY:

Is basement/lowest level occupied? (Circle one)

- Full-time Occasionally Seldom Almost Never



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Level	General Use (e.g., family room, bedroom, laundry, workshop, storage)
Basement	NA
1 st Floor	General use
2 nd Floor	
3 rd Floor	
4 th Floor	

(Use additional page(s) as necessary)

6. CONSTRUCTION CHARACTERISTICS: (Circle all that apply.)

a. Above Grade Construction: (Describe type: wood frame, concrete, stone, brick).

b. Basement Type: Full Crawlspace Slab Other: _____

c. Basement Floor: Concrete Dirt Stone Other: Stucco

d. Finished Basement Floor: Uncovered Covered NA

If covered, what with? NA

e. Foundation Walls: Poured Block Stone Other: _____

f. Foundation Walls: Unsealed Sealed Sealed with: _____

g. The Basement is: Wet Damp Dry NA

h. The Basement is: Finished Unfinished Partially Finished NA

i. Sump Present (Y/(N)) (N) If yes, how many? NA

Where Discharged? NA

Water in Sump? Yes No Not Applicable



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Identify all potential soil vapor entry points and estimated size (e.g., cracks, utility parts, drains).

Are the basement walls or floor sealed with waterproof paint or epoxy coatings? Yes No

Type of ground cover outside of building: Grass Concrete Asphalt Other _____

Is an existing subsurface depressurization (radon) system in place? Yes No

If yes, is it active, or passive?

Is a sub-slab vapor/moisture barrier in place? Yes No

Type of barrier: NA

7. HEATING, VENTING, and AIR CONDITIONING

Type of heating system(s) used in this building: (Circle all that apply: Note the primary).

- | | | |
|--|---------------------------------------|---|
| <input checked="" type="radio"/> Hot Air Circulation | <input type="radio"/> Heat Pump | <input type="radio"/> Hot Water Baseboard |
| <input type="radio"/> Space Heaters | <input type="radio"/> Steam Radiation | <input type="radio"/> Radiant Floor |
| <input type="radio"/> Electric Baseboard | <input type="radio"/> Wood Stove | <input type="radio"/> Outdoor Wood Boiler |
| Other: _____ | | |

The primary type of fuel used is:

- | | | |
|--|--------------------------------|--------------------------------|
| <input checked="" type="radio"/> Natural Gas | <input type="radio"/> Fuel Oil | <input type="radio"/> Kerosene |
| <input type="radio"/> Electric | <input type="radio"/> Propane | <input type="radio"/> Solar |
| <input type="radio"/> Wood | <input type="radio"/> Coal | |

Domestic hot water tank fueled by: Natural gas

Location of Boiler/Furnace: Basement Outdoors Main Floor Other _____



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Air Conditioning: Central Air Window Units Open Windows None

Are air distribution ducts present? Yes No

Is there a whole house fan? Yes No

Describe the air intake system (outside air supply, cold air return, ductwork, etc.) and its condition where visible. Indicate the locations on the floor plan diagram.

Ductwork is in good condition

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

a) Is there an attached garage? Yes No

If yes, does it have a separate heating unit? Yes No

b) Are any petroleum-powered machines or vehicles stored in an attached garage (e.g., lawn mower, ATV, car) Yes No

c) Has the building ever had a fire? Yes No

d) Is there a fuel burning or unvented gas space heater? Yes No

e) Is there a workshop or hobby/craft area? Yes No

If yes, where and what type? _____

f) Is there smoking in the building? Yes No

If yes, how frequently? _____



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

g) Have cleaning products been used recently?

Yes No

If yes, when and what type?

General purpose

h) Have cosmetic products been used recently?

Yes No

If yes, when and what type?

i) Has there been painting or staining in the last six months?

Yes No

If yes, when and where?

j) Is there new carpet, drapes, or other textiles?

Yes No

If yes, when and where?

k) Have air fresheners been used recently?

Yes No

If yes, when and what type?

Spray cans

l) Is there a kitchen exhaust fan?

Yes No

If yes, where is it vented?

m) Is there a clothes dryer?

Yes No

If yes, is it vented outside?

Yes No

n) Has there been a pesticide application?

Yes No

If yes, when and what type?

Bug spray used last summer

o) Are there odors in the building?

Yes No

If yes, please describe:



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

p) Do any of the building occupants use solvents at work (e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetology)?

Yes

No

If yes, what types of solvents are used? NA

If yes, are their clothes washed at work?

Yes

No

q) Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response.)

No

Unknown

Yes, use dry-cleaning regularly (weekly)

Yes, use dry-cleaning infrequently (monthly or less)

Yes, work at a dry-cleaning service

r) Is there a radon mitigation system for the building/structure?

Yes

No

If yes, what is date of installation? NA

Active

Passive

s) Additional mitigation system information (fan size, location, operating status, liner installed, etc.):

None

t) Is there an irrigation well, or any other well, present at the property:

Yes

No

If yes, please describe placement, use, and history below.

NA

PRODUCT INVENTORY FORM:

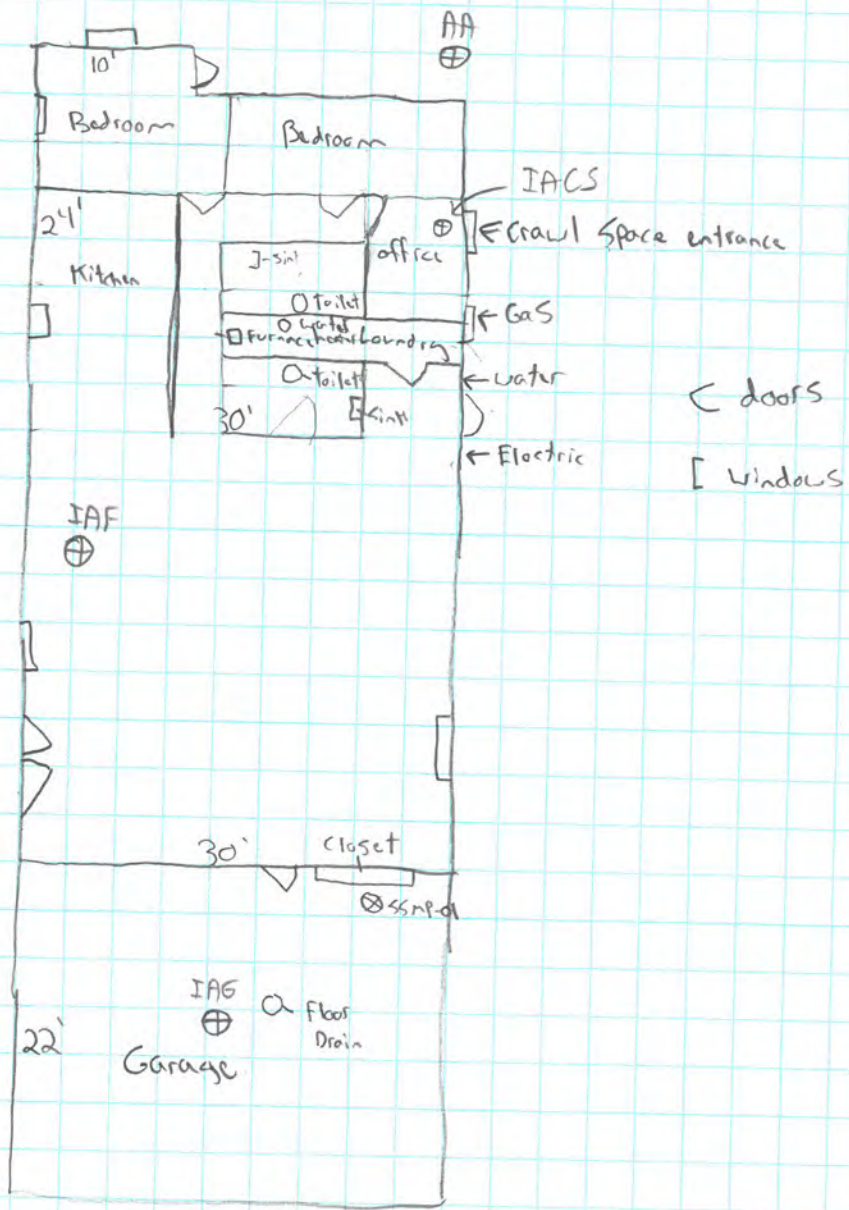
Make and Model of field instrument used: ppb RAE 3000

List specific products found in the residence or area that have the potential to affect indoor air quality (e.g., gasoline or kerosene storage cans, glues, paints, cleaning solvents/products, polishes/waxes, new furniture/ carpet, nail polish/hairspray/cologne).

Potential Source	Location	Size and Condition	Chemical Ingredients	Field Instrument Reading (units)	Photo Y/N
Gasoline Storage Cans and Equipment	<u>Garage</u>				
Kerosene Storage Cans	<u>Garage</u>				
Paints/Thinners/Strippers	<u>Garage</u>				
Cleaning Solvents	<u>Garage</u> ^{4L}				
Hobby Supplies – Glue, Paint, Etc.	<u>Garage</u>				
Oven Cleaner	<u>—</u>				
Carpet/Upholstery Cleaners	<u>Kitchen</u>				
Household Cleaners (non-solvent)	<u>Kitchen</u>				
Moth Balls	<u>Garage</u>				
Polishes/Waxes	<u>Garage</u>				
Insecticides	<u>Garage</u>				
Furniture/Floor Polish	<u>Garage</u>				
Hairspray	<u>—</u>				
Cologne/Perfume	<u>Bathroom</u>				
Air Fresheners	<u>Bathroom</u>				
Interior Fuel Tank	<u>—</u>				
Wood Stove/Fireplace	<u>Living room</u>				
New Furniture/Upholstery	<u>—</u>				
New Carpeting/Flooring	<u>—</u>				
Others (fill in below)					
<u>Motorcycle</u>					
<u>Snowblower</u>					
<u>Weed Wacker</u>					
<u>Note - Chemicals of concern moved into tote and placed outside garage</u>					

Donald Richmond
12001 Stark Rd
10/29/18

N ←



Real Time Exposure Monitoring Data Collection Form

Document all air monitoring conducted on the Site below. Keep this form with the project file.

Site Name: 12001 Stark Rd. Date: 10-29-18
 Instrument: PID Model: 22b RAE3000 Serial #: —

Calibration Method: (Material used settings, etc.)	<u>Isobutylene (100 ppm)</u>
Calibration Results:	<u>PASS</u>
Calibrated By:	<u>NA</u>

Activity Being Monitored	Compounds/Hazards Monitored	Time	Reading	Action Required? Y/N
<u>SSMP-01</u>	<u>VOCs</u>	<u>1740</u>	<u>0.22b</u>	<u>N</u>

Describe Any Actions Taken as a Result of this Air Monitoring and Why (does it match Table 5-1):

Office Name & Address (Reporting Information) 28550 Cabot Drive Suite 500 Novi, MI 48377			Project Name: Ford		
Field Manager Adam Richmond			Project Number: MI001454.0003		
Phone (248) 994-2240	Fax	Special Instructions	Address: 12001 Stark		
Email Address for Result Reporting Krstoffer_hnskey@arcadis.com			Sampler Name, Phone Number, Email		
Helium Detector Used		Helium Leak Test Method Bucket/Shroud	Summa Canister Size (1L, 2.7 L, 6L) 1L	Lab Eurofins	

Sample ID	Sample Location Description	Date	Leak/Tracer Test							Canister No.	Flow Controller Number	Sample Collection Start Time	Starting Canister Pressure (in Hg)	Sample Collection End Time	Ending Canister Pressure (in Hg)	Notes
			Shut In Test Pass/Fail?	Pre-sample Purge Reading (ppm)	Shroud Helium Concentration (%)	Post-Sample Purge Reading (ppm)	Helium Test Pass/Fail?	Purge Volume (mL)	Purge Rate (mL/min)							
SSMP-EXAMPLE (12012017)	West side of station building behind cashier counter	12/1/17	Pass	0	60	15	Pass	120	120	2595	12345	0831	-30	0841	-5	Debris noted under steel cap and in annular space around vapor pin. Cleaned out prior to sampling.
SSMP-12012017 SSMP-12001 Stark-01 103118	Garage	10-31-18	Pass	0	116,000	—	Pass	200	120	122423	23671	1102	-28.5	1118	-5	

Meteorological Data		General Notes or Observations			
Date	Time	Temp. (°F)		% Humidity	Barometric Pressure (in.)
		Indoor	Outdoor		
Example - 12/1/2017	0800	73	22	38	30.10
10-31-18	1102	56	54	91	29.78

Air Parameters (completed after sample collection)		
Location ID	CO2%	O2 %
SSMP-EXAMPLE	1.6	12.5
SSMP-01	1.0	20.5

Micro Manometer
000007

Office Name & Address (Reporting Information) 28550 Cabot Drive Suite 500 Novi, MI 48377			Project Name: Ford		
Field Manager Adam Richmond			Project Number: MI001454.0003.00003		
Phone (248) 994-2240		Special Instructions	Address: 12001 Stark		
Email Address for Result Reporting Kristoffer.Hinskey@arcadis.com			Sampler Name, Phone Number, Email: M-Sump		
Summa Canister Size (1L, 2.7 L, 6L) 6L		Lab: Eurotins			

Sample ID	Sample Location Description	Indoor/Outdoor	PID in sampling area (ppm)	Date	Canister Number	Flow Controller Number	Sample Collection Start Time	Beginning Canister Pressure (in. Hg)	Sample Collection End Time	Ending Canister Pressure (in. Hg)	Heating, Ventilation, and Air Conditioning System Information				Notes
											HVAC Fan On?	Heat On?	Temperature Setting (°F) (start/end)	Flow Rate (cfm) (start/end)	
IA-EXAMPLE (12012017)	West side of station building behind cashier counter	Indoor	0.01	12/1/17	1234	56789	0800	-30	1600	-5	Yes	Yes	75/73	2.6/2.8	Moderate odors in vicinity of sampling canister
IA-12001 Stark-01-103018	SE side of house on porch	O	Ø	10/30/18	6L1796	90627	1215	-28.5	1108	-7					
IA-12001 Stark-01-103018	crawl space	I	Ø	10/30/18	6L1743	22278	1220	-27.5	1049	-6					
IA-12001 Stark-02-103018	Middle of garage	I	Ø	10/30/18	6L0585	20512	1227	-29	1106	-7.5					Some chemicals still in garage, Ø readings on PID
IA-12001 Stark-03-103018	Living room end table	I	Ø	10/30/18	6L1620	22090	1229	-30	1105	-8					

Meteorological Data		General Notes or Observations				
Date	Time	Temp. (°F)		% Humidity	Barometric Pressure (in.)	Air Speed (mph)
		Indoor	Outdoor			
Example - 12/1/2017	0800	73	22	38	30.10	30.10
10/30/18	1215	70	52	69	30.09	30.09
10/31/18	1152	~70	51	100	29.71	9

Analysis Request / Canister Chain of Custody

Air Tables

For Laboratory Use Only

PID: P16RAE 3000

Workorder # _____

180 Blue Ravine Rd, Suite B, Folsom, CA 95630

Phone (800) 985-5955; Fax (916) 351-8279

Click links below to view:

[Canister Sampling Guide](#)

[Helium Shroud Video](#)

Client: _____	Ford	PID: <u>P16RAE 3000</u>	Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jiri.tamalia@cadena.com. Cadena #E203631 Level IV Reporting	Turnaround Time (Rush surcharges may apply) <u>5 AM</u>
Project Name: _____	Ford LTP	P.O.# M1001454.0003		
Project Manager: _____	Kris Hinskey			
Sampler: _____	<u>Z. WEST PHD</u>			
Site Name: _____	<u>12001 Stark</u>			

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Lab Use Only		Requester
				Date	Time	Date	Time			Receipt	Final (psig) Gas: N ₂ / He	
AA	12001 Stark - 01 - 10/30/18	6L1746	40627	10/30/18	1215	10/31/18	1108	-28.5	-7			
IACS	12001 Stark - 01 - 10/30/18	6L1743	22278	10/30/18	1220	10/31/18	1049	-27.5	-6			
IAS	12001 Stark - 02 - 10/30/18	6L17505	20512	10/30/18	1227	10/31/18	1106	-29	-7.5			
IAF	12001 Stark - 03 - 10/30/18	6L1620	22090	10/30/18	1229	10/31/18	1105	-30	-8			
SSM	12001 Stark - 01 - 10/31/18	1L2423	23671	10/31/18	1102	10/31/18	1118	-28.5	-5			

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Shipper Name: _____	Custody Seal Intact?	Yes No None
---------------------	----------------------	-----------------------

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and orders.

TRANSMITTAL LETTER



To:
George Al-Husari
Shawn Collins
Brandon Alger (EGLE)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:

June 19, 2019

Subject:

12001 Stark Road
Vapor Intrusion Assessment
Data Package

We are sending you hard copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Date	Drawing No.	Rev.	Description	Action*
1	6/21/2019			Figure	
1	6/21/2019			Analytical Results	
1	6/21/2019			Field Notes and Drawings	

Action*

- A Approved CR Correct and Resubmit Resubmit _____ Copies
 AN Approved As Noted F File Return _____ Copies
 AS As Requested FA For Approval Review and Comment
 Other: _____

Mailing Method






- U.S. Postal Service 1st Class Courier/Hand Delivery FedEx Priority Overnight FedEx 2-Day Delivery
 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
 Other: email

Thank you for cooperating with the air sampling at your property on April 18 and 19, 2019. Attached is your data package.

CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: T. STEVENS TR: P. CURRY PROJECT NUMBER: M001373.0001.00003 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
 Z:\GIS\Projects\ENV\Novi\Brighton_M\FordLivonia\GIS\Docs\2018-11\12001_Stark_20181110.mxd PLOTTED: 11/12/2018 10:18:20 AM BY: mgrs



LEGEND:

-  INDOOR AIR LOCATION
-  AMBIENT AIR LOCATION
-  SUB-SLAB MONITORING POINT LOCATION
-  BUILDING
-  PROPERTY BOUNDARIES



FORD MOTOR COMPANY
 LIVONIA TRANSMISSION PLANT
 LIVONIA, MICHIGAN

AIR SAMPLING LOCATIONS



FIGURE 1

4/29/2019

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP Off-Site Sampling

Project #:

Workorder #: 1904509

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 4/23/2019 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott

Project Manager

WORK ORDER #: 1904509

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0003.0002
FAX:		PROJECT #	Ford LTP Off-Site Sampling
DATE RECEIVED:	04/23/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	04/29/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	AA-12001STARK-01_041819	Modified TO-15	7.0 "Hg	5 psi
02A	IAF-12001STARK-03_041819	Modified TO-15	5.5 "Hg	5 psi
03A	IAG12001STARK-02_041819	Modified TO-15	7.0 "Hg	5 psi
04A(cancelled)	DUP-12001STARK-01_041819	Modified TO-15		
05A	DUP-12001STARK-02_041819	Modified TO-15	5.0 "Hg	5 psi
06A	Lab Blank	Modified TO-15	NA	NA
07A	CCV	Modified TO-15	NA	NA
08A	LCS	Modified TO-15	NA	NA
08AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY:



Technical Director

DATE: 04/29/19

Certification numbers: AZ Licensure AZ0775, FL NELAP - E8 , LA NELAP - 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP CA009332018-10, VA NELAP - 9505, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005-011, Effective date: 10/18/2018, Expiration date: 10/17/2019.

Eurofins Air Toxics LLC. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 1904509

Five 6 Liter Summa Canister (100% Cert Ambient) samples were received on April 23, 2019. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

Sample DUP-12001STARK-01_041819 was cancelled on 04/19/19 per client's request.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	AA-12001STARK-01_041819	Date/Time Analyzed:	4/25/19 11:43 AM
Lab ID:	1904509-01A	Dilution Factor:	1.75
Date/Time Collected:	4/19/19 07:11 AM	Instrument/Filename:	msd20.i / 20042506
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.17	0.62	0.69	Not Detected
1,4-Dioxane	123-91-1	0.51	0.57	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.37	0.62	0.69	Not Detected
Tetrachloroethene	127-18-4	0.74	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.39	0.62	0.69	Not Detected
Trichloroethene	79-01-6	0.46	0.85	0.94	Not Detected
Vinyl Chloride	75-01-4	0.14	0.40	0.45	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	109
Toluene-d8	2037-26-5	70-130	127

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	IAF-12001STARK-03_041819	Date/Time Analyzed:	4/25/19 01:33 PM
Lab ID:	1904509-02A	Dilution Factor:	1.64
Date/Time Collected:	4/19/19 07:12 AM	Instrument/Filename:	msd20.i / 20042507
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.16	0.58	0.65	Not Detected
1,4-Dioxane	123-91-1	0.48	0.53	0.59	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.35	0.58	0.65	Not Detected
Tetrachloroethene	127-18-4	0.69	1.0	1.1	0.70 J
trans-1,2-Dichloroethene	156-60-5	0.36	0.58	0.65	Not Detected
Trichloroethene	79-01-6	0.43	0.79	0.88	Not Detected
Vinyl Chloride	75-01-4	0.13	0.38	0.42	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	107
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	IAG12001STARK-02_041819	Date/Time Analyzed:	4/25/19 02:12 PM
Lab ID:	1904509-03A	Dilution Factor:	1.75
Date/Time Collected:	4/19/19 07:09 AM	Instrument/Filename:	msd20.i / 20042508
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.17	0.62	0.69	Not Detected
1,4-Dioxane	123-91-1	0.51	0.57	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.37	0.62	0.69	Not Detected
Tetrachloroethene	127-18-4	0.74	1.1	1.2	1.4
trans-1,2-Dichloroethene	156-60-5	0.39	0.62	0.69	Not Detected
Trichloroethene	79-01-6	0.46	0.85	0.94	Not Detected
Vinyl Chloride	75-01-4	0.14	0.40	0.45	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	96

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	DUP-12001STARK-02_041819	Date/Time Analyzed:	4/25/19 02:51 PM
Lab ID:	1904509-05A	Dilution Factor:	1.61
Date/Time Collected:	4/19/19 07:11 AM	Instrument/Filename:	msd20.i / 20042509
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.15	0.57	0.64	Not Detected
1,4-Dioxane	123-91-1	0.47	0.52	0.58	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.57	0.64	Not Detected
Tetrachloroethene	127-18-4	0.68	0.98	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.57	0.64	Not Detected
Trichloroethene	79-01-6	0.42	0.78	0.86	Not Detected
Vinyl Chloride	75-01-4	0.13	0.37	0.41	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	110
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	98

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	Lab Blank	Date/Time Analyzed:	4/25/19 10:31 AM
Lab ID:	1904509-06A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20042505a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.095	0.36	0.40	Not Detected
1,4-Dioxane	123-91-1	0.29	0.32	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.21	0.36	0.40	Not Detected
Tetrachloroethene	127-18-4	0.42	0.61	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.22	0.36	0.40	Not Detected
Trichloroethene	79-01-6	0.26	0.48	0.54	Not Detected
Vinyl Chloride	75-01-4	0.082	0.23	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	CCV	Date/Time Analyzed:	4/25/19 07:35 AM
Lab ID:	1904509-07A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20042502
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	104
1,4-Dioxane	123-91-1	116
cis-1,2-Dichloroethene	156-59-2	111
Tetrachloroethene	127-18-4	105
trans-1,2-Dichloroethene	156-60-5	106
Trichloroethene	79-01-6	100
Vinyl Chloride	75-01-4	107

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	LCS	Date/Time Analyzed:	4/25/19 08:29 AM
Lab ID:	1904509-08A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20042503
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	106
1,4-Dioxane	123-91-1	115
cis-1,2-Dichloroethene	156-59-2	119
Tetrachloroethene	127-18-4	111
trans-1,2-Dichloroethene	156-60-5	93
Trichloroethene	79-01-6	126
Vinyl Chloride	75-01-4	108

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	100

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	LCSD	Date/Time Analyzed:	4/25/19 09:23 AM
Lab ID:	1904509-08AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20042504
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	109
1,4-Dioxane	123-91-1	120
cis-1,2-Dichloroethene	156-59-2	124
Tetrachloroethene	127-18-4	109
trans-1,2-Dichloroethene	156-60-5	96
Trichloroethene	79-01-6	122
Vinyl Chloride	75-01-4	114

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	98

* % Recovery is calculated using unrounded analytical results.



April 29, 2019

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: MI001454.0002/3/4.00002/2B/3B
Client project scope reference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics - Folsom
Laboratory submittal: 1904509
Sample date: 2019-04-19
Report received by CADENA: 2019-04-29
Initial Data Verification completed by CADENA: 2019-04-29

4 Air sample were analyzed for TO-15 parameters.

There were no significant QC anomalies or exceptions to report.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) TO-15 Analysis

SDG #1904509

CADENA Verification Report: 2019-04-29

Analyses Performed By:
Eurofins Air Toxics
Folsom, California

Report #32708R
Review Level: Tier III
Project: MI001454.0003.00002

DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 1904509 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
1904509	AA-12001STARK-01_041819	1904509-01A	Air	4/19/2019		X		
	IAF-12001STARK-03_041819	1904509-02A	Air	4/19/2019		X		
	IAG12001STARK-02_041819	1904509-03A	Air	4/19/2019		X		
	DUP-12001STARK-02_041819	1904509-05A	Air	4/19/2019	AA-12001STARK-01_041819	X		

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15 (Full Scan). Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15	Air	30 days from collection to analysis (Canister)	Ambient Temperature	< -2" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 140% or less than 60% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. All identified compounds met the specified criteria.

6. Field Duplicate Sample Analysis

The field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 35% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are not greater than five times the RL, a control limit of one times the RL is applied to the difference between the duplicate sample results.

Results (in $\mu\text{g}/\text{m}^3$) for the field duplicate samples are summarized in the following table.

Sample ID / Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
AA-12001STARK-01_041819/ DUP-12001STARK-02_041819	All compounds	U	U	AC

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15 (Full Scan)	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-2"Hg)		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Field Duplicate Sample RPD		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:



DATE: May 9, 2019

PEER REVIEW: Dennis Capria

DATE: May 10, 2019



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	AA-12001STARK-01_041819	Date/Time Analyzed:	4/25/19 11:43 AM
Lab ID:	1904509-01A	Dilution Factor:	1.75
Date/Time Collected:	4/19/19 07:11 AM	Instrument/Filename:	msd20.i / 20042506
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.17	0.62	0.69	Not Detected
1,4-Dioxane	123-91-1	0.51	0.57	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.37	0.62	0.69	Not Detected
Tetrachloroethene	127-18-4	0.74	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.39	0.62	0.69	Not Detected
Trichloroethene	79-01-6	0.46	0.85	0.94	Not Detected
Vinyl Chloride	75-01-4	0.14	0.40	0.45	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	109
Toluene-d8	2037-26-5	70-130	127

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	IAF-12001STARK-03_041819	Date/Time Analyzed:	4/25/19 01:33 PM
Lab ID:	1904509-02A	Dilution Factor:	1.64
Date/Time Collected:	4/19/19 07:12 AM	Instrument/Filename:	msd20.i / 20042507
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.16	0.58	0.65	Not Detected
1,4-Dioxane	123-91-1	0.48	0.53	0.59	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.35	0.58	0.65	Not Detected
Tetrachloroethene	127-18-4	0.69	1.0	1.1	0.70 J
trans-1,2-Dichloroethene	156-60-5	0.36	0.58	0.65	Not Detected
Trichloroethene	79-01-6	0.43	0.79	0.88	Not Detected
Vinyl Chloride	75-01-4	0.13	0.38	0.42	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	107
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	IAG12001STARK-02_041819	Date/Time Analyzed:	4/25/19 02:12 PM
Lab ID:	1904509-03A	Dilution Factor:	1.75
Date/Time Collected:	4/19/19 07:09 AM	Instrument/Filename:	msd20.i / 20042508
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.17	0.62	0.69	Not Detected
1,4-Dioxane	123-91-1	0.51	0.57	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.37	0.62	0.69	Not Detected
Tetrachloroethene	127-18-4	0.74	1.1	1.2	1.4
trans-1,2-Dichloroethene	156-60-5	0.39	0.62	0.69	Not Detected
Trichloroethene	79-01-6	0.46	0.85	0.94	Not Detected
Vinyl Chloride	75-01-4	0.14	0.40	0.45	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	96

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	DUP-12001STARK-02_041819	Date/Time Analyzed:	4/25/19 02:51 PM
Lab ID:	1904509-05A	Dilution Factor:	1.61
Date/Time Collected:	4/19/19 07:11 AM	Instrument/Filename:	msd20.i / 20042509
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.15	0.57	0.64	Not Detected
1,4-Dioxane	123-91-1	0.47	0.52	0.58	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.57	0.64	Not Detected
Tetrachloroethene	127-18-4	0.68	0.98	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.57	0.64	Not Detected
Trichloroethene	79-01-6	0.42	0.78	0.86	Not Detected
Vinyl Chloride	75-01-4	0.13	0.37	0.41	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	110
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	98

Analysis Request /Canister Chain of Custody

For Laboratory Use Only

Analysis Request /Canister Chain of Custody

For Laboratory Use Only

PID: _____

Workerorder#: _____

1904509

Page 1 of 1

180 Blue Ravine Rd. Suite B, Folsom, CA 95630

Phone (800) 985-5955; Fax (916) 351-8279

Client: Arcadis		PID: _____		Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting				Turnaround Time (Rush surcharges may apply)				
Project Name: Ford LTP Off-Site Sampling		P.O.# MI001454.0003.0002						5 Day Turnaround Time				
Project Manager: Kris Hinskey		Sampler: Hayden L						Requested Analyses				
Site Name: 12001 STARK								Canister Vacuum/Pressure				
Lab ID	Sample Identification	Canister #	Flow Controller #	Start Sampling Information		Stop Sampling		Initial (in Hg)	Final (in Hg)	Lab Use Only		TO-15 (See Special Instructions/Notes)
				Date	Time	Date	Time			Receipt	Final (psig) Gas: N2 / He	
01A	AA-12001STARK-01_041819	6L2377	21393	04/18/2019	08:19	04/19/2019	07:11	-29	-7			X
02A	IAF-12001STARK-03_041819	6L2368	22148	04/18/2019	08:25	04/19/2019	07:12	-29	-5			X
03A	IAG12001STARK-02_041819	6L2380	21011	04/18/2019	08:14	04/19/2019	07:09	-29	-7			X
04A	DUP-12001STARK-01_041819	6L2406	20750	04/18/2019	08:14	04/19/2019	07:09	-29	-29			Failed can
05A	DUP-12001STARK-02_041819	6L2401	22083	04/18/2019	08:19	04/19/2019	07:11	-29	-5.5			X
Relinquished by: (Signature/Affiliation) <i>[Signature]</i>				Date 4-19-19	Time 1600	Received by: (Signature/Affiliation) <i>[Signature]</i>				Date 04/23/19	Time 0950	
Relinquished by: (Signature/Affiliation)				Date	Time	Received by: (Signature/Affiliation)				Date	Time	
Relinquished by: (Signature/Affiliation)				Date	Time	Received by: (Signature/Affiliation)				Date	Time	
Lab Use Only												
<p>Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922</p>												

Custody Seal Intact?

Y None Temp NA
 Fedex

4/29/2019
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP Off-Site Sampling
Project #:
Workorder #: 1904515

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 4/23/2019 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1904515

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0003.00002
FAX:		PROJECT #	Ford LTP Off-Site Sampling
DATE RECEIVED:	04/23/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	04/29/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SSMP-12001STARK-01_041919	TO-15	5.3 "Hg	15.9 psi
02A	Lab Blank	TO-15	NA	NA
03A	CCV	TO-15	NA	NA
04A	LCS	TO-15	NA	NA
04AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 04/29/19

Certification numbers: AZ Licensure AZ0775, FL NELAP - E8 , LA NELAP - 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP CA009332018-10, VA NELAP - 9505, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005-011, Effective date: 10/18/2018, Expiration date: 10/17/2019.

Eurofins Air Toxics LLC. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1904515

One 1 Liter Summa Canister (100% Certified) sample was received on April 23, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	SSMP-12001STARK-01_041919	Date/Time Analyzed:	4/27/19 09:45 PM
Lab ID:	1904515-01A	Dilution Factor:	2.53
Date/Time Collected:	4/19/19 07:41 AM	Instrument/Filename:	msdj.i / j042716
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.0	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.3	4.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.3	6.9	8.6	2800
trans-1,2-Dichloroethene	156-60-5	2.9	4.0	5.0	Not Detected
Trichloroethene	79-01-6	2.5	5.4	6.8	Not Detected
Vinyl Chloride	75-01-4	2.3	2.6	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	91
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	Lab Blank	Date/Time Analyzed:	4/27/19 12:45 PM
Lab ID:	1904515-02A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j042705d
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.59	1.6	2.0	Not Detected
1,4-Dioxane	123-91-1	1.6	5.4	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.90	1.6	2.0	Not Detected
Tetrachloroethene	127-18-4	0.91	2.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.1	1.6	2.0	Not Detected
Trichloroethene	79-01-6	1.0	2.1	2.7	Not Detected
Vinyl Chloride	75-01-4	0.91	1.0	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	90
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	CCV	Date/Time Analyzed:	4/27/19 10:39 AM
Lab ID:	1904515-03A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j042702
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	98
1,4-Dioxane	123-91-1	95
cis-1,2-Dichloroethene	156-59-2	101
Tetrachloroethene	127-18-4	99
trans-1,2-Dichloroethene	156-60-5	104
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	94

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	LCS	Date/Time Analyzed:	4/27/19 11:16 AM
Lab ID:	1904515-04A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j042703
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	100
1,4-Dioxane	123-91-1	112
cis-1,2-Dichloroethene	156-59-2	110
Tetrachloroethene	127-18-4	105
trans-1,2-Dichloroethene	156-60-5	88
Trichloroethene	79-01-6	102
Vinyl Chloride	75-01-4	98

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	102

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	LCSD	Date/Time Analyzed:	4/27/19 11:44 AM
Lab ID:	1904515-04AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j042704
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	100
1,4-Dioxane	123-91-1	108
cis-1,2-Dichloroethene	156-59-2	115
Tetrachloroethene	127-18-4	105
trans-1,2-Dichloroethene	156-60-5	90
Trichloroethene	79-01-6	100
Vinyl Chloride	75-01-4	98

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	100

* % Recovery is calculated using unrounded analytical results.



April 30, 2019

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: MI001454.0002/3/4.00002/2B/3B
Client project scope reference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics - Folsom
Laboratory submittal: 1904515
Sample date: 2019-04-19
Report received by CADENA: 2019-04-29
Initial Data Verification completed by CADENA: 2019-04-30

1 Air sample was analyzed for TO-15 parameters.

There were no significant QC anomalies or exceptions to report.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) TO-15 Analysis

SDG #1904515

CADENA Verification Report: 2019-04-30

Analyses Performed By:
Eurofins Air Toxics
Folsom, California

Report #32709R
Review Level: Tier III
Project: MI001454.0003.00002



DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 1904515 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
1904515	SSMP-12001STARK-01_041919	1904515-01A	Air	4/19/2019		X		

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15 (Full Scan). Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15	Air	30 days from collection to analysis (Canister)	Ambient Temperature	< -2" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 140% or less than 60% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. All identified compounds met the specified criteria.

6. Field Duplicate Sample Analysis

The field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 35% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are not greater than five times the RL, a control limit of one times the RL is applied to the difference between the duplicate sample results.

A field duplicate was not performed on a sample location within this SDG.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15 (Full Scan)	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-2"Hg)		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Field Duplicate Sample RPD					X
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:



DATE: May 9, 2019

PEER REVIEW: Dennis Capria

DATE: May 10, 2019



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	SSMP-12001STARK-01_041919	Date/Time Analyzed:	4/27/19 09:45 PM
Lab ID:	1904515-01A	Dilution Factor:	2.53
Date/Time Collected:	4/19/19 07:41 AM	Instrument/Filename:	msdj.i / j042716
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.0	5.0	Not Detected
1,4-Dioxane	123-91-1	4.0	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.3	4.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.3	6.9	8.6	2800
trans-1,2-Dichloroethene	156-60-5	2.9	4.0	5.0	Not Detected
Trichloroethene	79-01-6	2.5	5.4	6.8	Not Detected
Vinyl Chloride	75-01-4	2.3	2.6	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	91
Toluene-d8	2037-26-5	70-130	102

Analysis Request /Canister Chain of Custody

For Laboratory Use
Only
Workorder # : _____

PID: _____

1904515

Page 1 of 1

180 Blue Ravine Rd. Suite B, Folsom, CA 95630

Phone (800) 985-5955; Fax (916) 351-8279

Client: Arcadis PID: _____

Project Name: Ford LTP Off-Site Sampling

Turnaround Time (Rush surcharges may apply)

Project Manager: Kris Hinskey P.O# MI001454.0003.00002

Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting

5 Day Turnaround Time

Sampler: Hayden L

Site Name: 12001 STARK

Canister Vacuum/Pressure

Requested Analyses

Lab ID	Sample Identification	Canister #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Lab Use Only		TO-15 (See Special Instructions/Notes)
				Date	Time	Date	Time			Receipt	Final (psig) Gas: N2 / He	
DIA	SSMP-12001STARK-01_041919	1L2471	23820	04/19/2019	07:28	04/19/2019	07:41	-29	-5.5			X
Relinquished by: (Signature/Affiliation)				Date	Time	Relinquished by: (Signature/Affiliation)		Date	Time	Date	Time	
Relinquished by: (Signature/Affiliation)				Date	Time	Relinquished by: (Signature/Affiliation)		Date	Time	Date	Time	
Relinquished by: (Signature/Affiliation)				Date	Time	Relinquished by: (Signature/Affiliation)		Date	Time	Date	Time	

Shipper Name: _____ Custody Seals Intact? Yes No None

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

Custody Seal Intact?
 (Y) N None Temp NA
 FedEx

Daily Log - Ford Off Site VI Investigation - VISIT 1

Project No.: MI001454.0003 Page 1 of 1
 Site Location: 12001 Stark Livonia, MI
 Prepared By: E. Redner

Date	Time	Description of Activities
4/17/19		Purpose: R2, VI: Bldg survey chemical inventory
		Arcadis: E. Redner, M. olender
		Weather: 47° F, cloudy
	0800	Arcadis on site
	0805	Conduct building survey and chemical survey
	0825	Arcadis off site
		NOTE: RESIDENT WAS ACTIVELY SMOKING IN GARAGE
		<i>[Signature]</i>

Visit 1 Checklist

Background sources of VOCs have been removed/isolated? Yes No

Location of background sources of VOCs that have been removed/isolated: bins outside garage

Sump pit is present? Yes No

Daily Log - Ford Off Site VI Investigation - VISIT 2 & 3

Project No.: MI001454.0003 Page 1 of 1

Site Location: 12001 Stark Livonia, MI

Prepared By: M. Olender

Date	Time	Description of Activities
4/18/19		Purpose: <u>R7 VISIT 2 - deploy cans</u>
↓		Arcadis: <u>M. Olender, H. Ladd</u>
↓		Weather: <u>Rainy - mid 40s</u>
↓		SUMMA Canisters used: <u>5-24 hr cans</u>
4/18/19	0800	Arcadis onsite
↓	0814	AA/IA cans deployed <u>Asst Resident to keep doors/windows shut</u>
↓	0830	Arcadis offsite
4-19-19	0700	Arcadis on Site
↓	0709	Retrieve 24-hour canisters
↓	0728	Conduct comp sampling
↓	0750	Arcadis off site
<u>HML</u>		

Visit 2 & 3 Checklist

Background sources of VOCs have been removed/isolated? Yes No

Number of SSMP samples collected: 1

Number of indoor/ambient air samples collected: 3+2 DUPs

Occupancy hours (for commercial properties only):



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM

Date: 10-29-18 Survey Performed by: Hayden Ludd

4-17-19

~~Ellen R~~ → Madison Olander
ER

1. OCCUPANT:

Rent: _____ Own: X

Resident Name: George Husari

Address: 12001 Stark Rd.

Telephone: Home: 7349687934 Work: _____

How long have you lived at this location? Since August 2011

List current occupants/occupation below (attach additional pages if necessary):

Age (If under 18)	Sex (M/F)	Occupation
<u>None</u>		

2. OWNER OR LANDLORD: (If same as occupant, check here and go to Item No. 3).

Last Name: _____ First Name: _____

Address: _____

City and State: _____

County: _____

Home Phone: _____ Office Phone: _____



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

3. SENSITIVE POPULATION:

Daycare/Nursing Home/Hospital/School/Other (specify): None

4. BUILDING CHARACTERISTICS:

Residential/Multi-family Residential/Office/Strip Mall/Commercial/Industrial/School

Describe Building: Residential Year Constructed: _____

Number of floors at or above grade: 1

Number of floors below grade: 0 (full basement/crawl space/slab on grade)

Depth of structure below grade: 0 ft. Basement size: 0 ft²

If the property is residential, what type? (Circle all appropriate responses.)

- | | | | |
|---|-----------------------------------|--|--|
| <input checked="" type="checkbox"/> Ranch | <input type="checkbox"/> 2-Family | <input type="checkbox"/> 3-Family | <input type="checkbox"/> Raised Ranch |
| <input type="checkbox"/> Split Level | <input type="checkbox"/> Colonial | <input type="checkbox"/> Cape Cod | <input type="checkbox"/> Contemporary |
| <input type="checkbox"/> Mobile Home | <input type="checkbox"/> Duplex | <input type="checkbox"/> Apartment House | <input type="checkbox"/> Townhouses/Condos |
| <input type="checkbox"/> Modular | <input type="checkbox"/> Log Home | <input type="checkbox"/> Other: _____ | |

If multiple units, how many? _____

If the property is commercial:

Business type(s) NA

Does it include residences (i.e., multi-use)? Yes No If yes, how many? _____

5. OCCUPANCY:

Is basement/lowest level occupied? (Circle one)

- Full-time Occasionally Seldom Almost Never



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Level	General Use (e.g., family room, bedroom, laundry, workshop, storage)
Basement	NA
1 st Floor	General Use
2 nd Floor	
3 rd Floor	
4 th Floor	

(Use additional page(s) as necessary)

6. CONSTRUCTION CHARACTERISTICS: (Circle all that apply.)

a. Above Grade Construction: (Describe type: wood frame, concrete, stone, brick),

b. Basement Type: Full Crawlspace Slab Other: _____

c. Basement Floor: Concrete Dirt Stone Other: Sand

d. Finished Basement Floor: Uncovered Covered NA
 If covered, what with? NA

e. Foundation Walls: Poured Block Stone Other: _____

f. Foundation Walls: Unsealed Sealed Sealed with: _____

g. The Basement is: Wet Damp Dry NA

h. The Basement is: Finished Unfinished Partially Finished NA

i. Sump Present (Y/N) If yes, how many? NA

Where Discharged? NA

Water in Sump? Yes No Not Applicable



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Identify all potential soil vapor entry points and estimated size (e.g., cracks, utility parts, drains).

Drains in garage area. Some cracks

Are the basement walls or floor sealed with waterproof paint or epoxy coatings? Yes No

Type of ground cover outside of building: Grass Concrete Asphalt Other _____

Is an existing subsurface depressurization (radon) system in place? Yes No

If yes, is it active, or passive?

Is a sub-slab vapor/moisture barrier in place? Yes No

Type of barrier: NA

7. HEATING, VENTING, and AIR CONDITIONING

Type of heating system(s) used in this building: (Circle all that apply. Note the primary).

- | | | |
|--|---------------------------------------|---|
| <input checked="" type="radio"/> Hot Air Circulation | <input type="radio"/> Heat Pump | <input type="radio"/> Hot Water Baseboard |
| <input type="radio"/> Space Heaters | <input type="radio"/> Steam Radiation | <input type="radio"/> Radiant Floor |
| <input type="radio"/> Electric Baseboard | <input type="radio"/> Wood Stove | <input type="radio"/> Outdoor Wood Boiler |
| Other: _____ | | |

The primary type of fuel used is:

- | | | |
|--|--------------------------------|--------------------------------|
| <input checked="" type="radio"/> Natural Gas | <input type="radio"/> Fuel Oil | <input type="radio"/> Kerosene |
| <input type="radio"/> Electric | <input type="radio"/> Propane | <input type="radio"/> Solar |
| <input type="radio"/> Wood | <input type="radio"/> Coal | |

Domestic hot water tank fueled by: Natural gas

Location of Boiler/Furnace: Basement Outdoors Main Floor Other _____



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Air Conditioning: Central Air Window Units Open Windows None

Are air distribution ducts present? Yes No

Is there a whole house fan? Yes No

Describe the air intake system (outside air supply, cold air return, ductwork, etc.) and its condition where visible. Indicate the locations on the floor plan diagram.

Ductwork is in good condition

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

- a) Is there an attached garage? Yes No
- If yes, does it have a separate heating unit? Yes No
- b) Are any petroleum-powered machines or vehicles stored in an attached garage (e.g., lawn mower, ATV, car) Yes No
- c) Has the building ever had a fire? Yes No
- d) Is there a fuel burning or unvented gas space heater? Yes No
- e) Is there a workshop or hobby/craft area? Yes No
- If yes, where and what type? _____
- f) Is there smoking in the building? Yes No
- If yes, how frequently? _____



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

- g) Have cleaning products been used recently? Yes No
 If yes, when and what type? General purpose
- h) Have cosmetic products been used recently? Yes No
 If yes, when and what type? _____
- i) Has there been painting or staining in the last six months? Yes No
 If yes, when and where? _____
- j) Is there new carpet, drapes, or other textiles? Yes No
 If yes, when and where? _____
- k) Have air fresheners been used recently? Yes No
 If yes, when and what type? Spray cans
- l) Is there a kitchen exhaust fan? Yes No
 If yes, where is it vented? _____
- m) Is there a clothes dryer? Yes No
 If yes, is it vented outside? Yes No
- n) Has there been a pesticide application? Yes No
 If yes, when and what type? Bug spray used last summer
- o) Are there odors in the building? Yes No
 If yes, please describe: _____



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

p) Do any of the building occupants use solvents at work (e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetology)?

Yes No

If yes, what types of solvents are used? NA

If yes, are their clothes washed at work?

Yes No

q) Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response.)

No Unknown

Yes, use dry-cleaning regularly (weekly)

Yes, use dry-cleaning infrequently (monthly or less)

Yes, work at a dry-cleaning service

→ every 2 weeks

r) Is there a radon mitigation system for the building/structure?

Yes No

If yes, what is date of installation? NA

Active Passive

s) Additional mitigation system information (fan size, location, operating status, liner installed, etc.):

None

t) Is there an irrigation well, or any other well, present at the property:

Yes No

If yes, please describe placement, use, and history below.

NA

PRODUCT INVENTORY FORM:

Make and Model of field instrument used: ppb RAE 3000

List specific products found in the residence or area that have the potential to affect indoor air quality (e.g., gasoline or kerosene storage cans, glues, paints, cleaning solvents/products, polishes/waxes, new furniture/ carpet, nail polish/hairspray/cologne).

Potential Source	Location	Size and Condition	Chemical Ingredients	Field Instrument Reading (units)	Photo Y/N
Gasoline Storage Cans and Equipment	<u>Garage</u>				
Kerosene Storage Cans	<u>—</u>				
Paints/Thinners/Strippers	<u>Garage</u>				
Cleaning Solvents	<u>Garage HC</u>				
Hobby Supplies – Glue, Paint, Etc.	<u>—</u>				
Oven Cleaner	<u>—</u>				
Carpet/Upholstery Cleaners	<u>Kitchen</u>				
Household Cleaners (non-solvent)	<u>Kitchen</u>				
Moth Balls	<u>Garage</u>				
Polishes/Waxes	<u>—</u>				
Insecticides	<u>Garage</u>				
Furniture/Floor Polish	<u>—</u>				
Hairspray	<u>—</u>				
Cologne/Perfume	<u>Bathroom</u>				
Air Fresheners	<u>Bathroom</u>				
Interior Fuel Tank	<u>—</u>				
Wood Stove/Fireplace	<u>Living room</u>				
New Furniture/Upholstery	<u>—</u>				
New Carpeting/Flooring	<u>—</u>				
Others (fill in below)					
<u>Motorcycle</u>					
<u>Snowblower</u>					
<u>Weed Wacker</u>					
<u>Note - Chemicals of concern moved into tote and placed outside garage</u>					

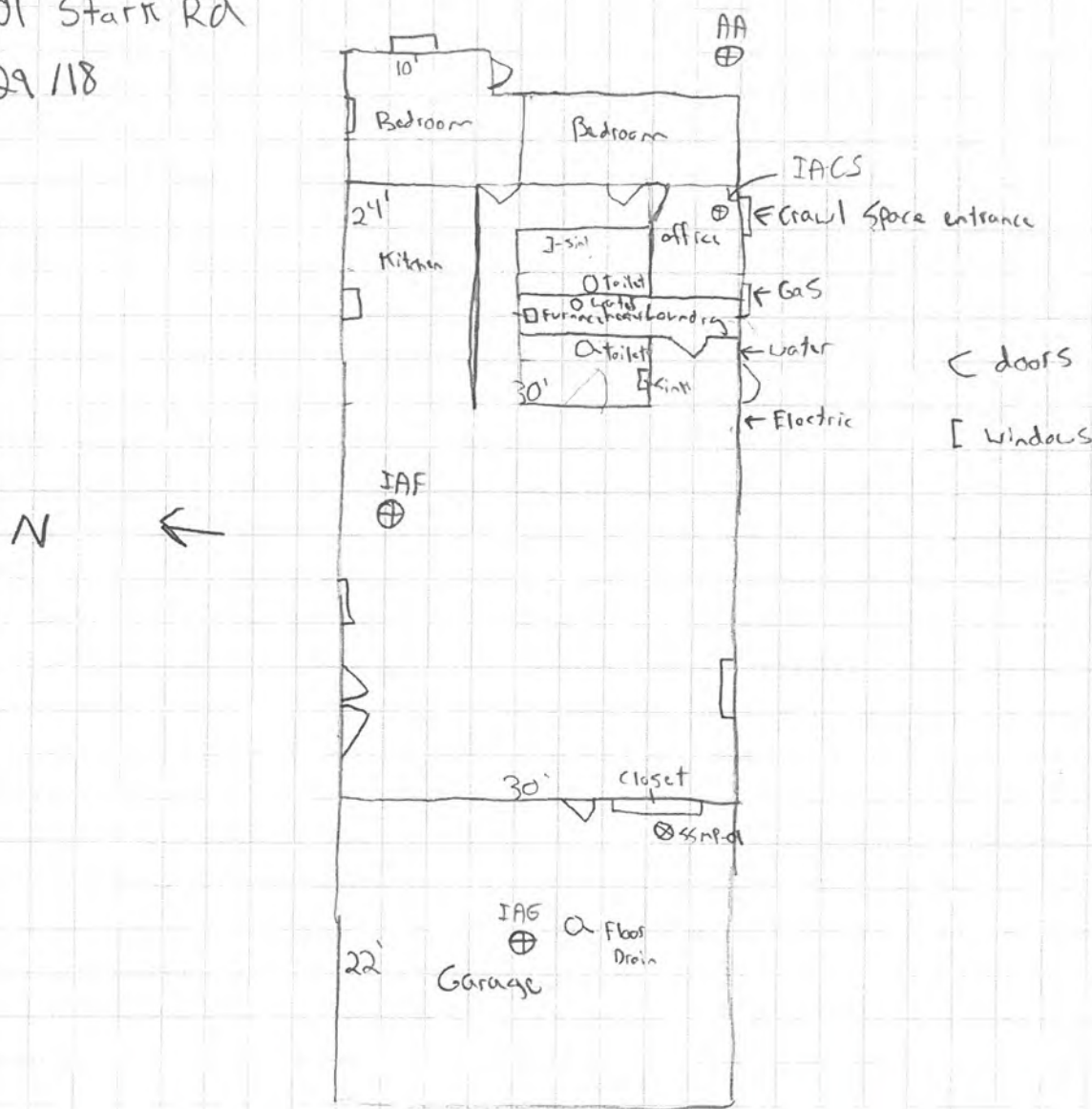
Product Inventory Form

i.e. gasoline cans/equipment, kerosene, paints/thinners/strippers, cleaning solvents, hobby supplies (glues), oven cleaner, carpet/upholstery cleaners, household cleaners, moth balls, polishes/waxes, insecticides, furniture/floor polish, hairspray, cologne/perfume, air fresheners, interior fuel tank, wood stove/fireplace, new furniture/upholstery, new carpet/flooring

Location	Product Description	Chemical Ingredients	Quantity	PID Reading (ppb)	Photo	Removed (Y/N)
Garage	Moth balls	VOCs		0	Y	Y
Garage	Ortho Home defense	insecticides	2 containers	0	Y	Y
Garage	Rust penetrant	VOCs	Multiple	0	Y	Y
First Floor	Glade-Soba air	VOCs	Multiple	0	Y	Y
Garage HL	Freshener					
Garage	Brakleen	VOCs		0	Y	Y
First Floor	Resolve - Pet Expert	Various	1	0	Y	Y
First Floor	Scotch-guard Auto	Various	1	0	N	Y
	Waxing cleaner					
Garage	Rustoleum - High Performance Enamel	VOCs	1	0	N	Y
Garage	Gunk-Engine degreaser	VOCs	1	0	N	Y
Garage	Brazillian Carnauba Cleaner Wax	VOCs	1	0	N	Y
Garage	WD-40	VOCs	1	0	N	Y
Garage	Bulls Eye Shellac	VOCs	1	0	N	Y
Garage	Flex Seal	VOCs	1	0	Y	Y
First Floor	Kiwi-Lamp Dry	VOCs	1	0	N	Y
Garage	Gasoline	VOCs	3	9500	Y	Y
Garage	scrubbing bubbles		2	0	Y	Y
	homework carpet cleaner		1			
	caulk		4			
	Gutter sealer		1			
	off backyard pre-treat		1			
	Round up		1			
	Brake fluid		1			
	power steering fluid		1			

still in same tote
0 ppb

Donald Richmond
 12001 Stark Rd
 10/29/18



• SB and IACs only collected during RI sampling.

R2 ⊕ AA-01
 ⊕ Dup

Office Name & Address (Reporting Information): Arcadis of Michigan, LLC, 28550 Cabot Drive, Suite 500, Novi, MI 48377				Project Name: Ford LTP Off-Site Sampling												
Field Manager: Adam Richmond				Project Number: MI001454.0003.00002												
Phone: 248-994-2240	Fax:	Special Instructions: Report ONLY: 1,1-DCE, cis-1,2- DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting.										Site Address: 12001 STARK				
Email Address for Result Reporting: Kristoffer.Hinskey@arcadis.com												Sampler Name: Hayden Ladd				Sampler Email Address: Hayden.Ladd@arcadis.com
Summa Canister Size (1L, 2.7 L, 6L): 6 L				Lab: Eurofins												
Sample ID	Sample Location Description	Indoor/Outdoor	PID in sampling area (ppb)	Canister Number	Flow Controller Number	Sample Collection Start Date	Sample Collection Start Time	Beginning Canister Pressure (in. Hg)	Sample Collection End Date	Sample Collection End Time	Ending Canister Pressure (in. Hg)	HVAC System Information				Notes
												HVAC Fan On?	Heat On?	Start Temperature Setting (°F)	End Temperature Setting (°F)	
AA-12001STARK-01_041819	SW backyard	Outdoor	0	6L2377	21393	04/18/2019	08:19	-29	04/19/2019	07:11	-7	Yes	Yes	68	68	
IAF-12001STARK-03_041819	Family room table	Indoor	0	6L2368	22148	04/18/2019	08:25	-29	04/19/2019	07:12	-5	Yes	Yes	68	68	
IAG-12001STARK-02_041819	Garage	Indoor	0	6L2380	21011	04/18/2019	08:14	-29	04/19/2019	07:09	-7	Yes	Yes	68	68	
DUP-12001STARK-01_041819	Garage	Indoor	0	6L2406	20750	04/18/2019	08:14	-29	04/19/2019	07:09	-29	Yes	Yes	68	68	
DUP-12001STARK-02_041819	SW backyard	Outdoor	0	6L2401	22083	04/18/2019	08:19	-29	04/19/2019	07:11	-5.5	Yes	Yes	68	68	
Meteorological Data								General Notes or Observations								
Date	Time	Temp. (°F)		Relative Humidity (%)	Barometric Pressure (in. Hg)	Air Speed (mph)	Source of Weather Information									
		Indoor	Outdoor													
04/18/2019	08:11	68	59	79	29.62	SSW 11	weather.com app									
04/19/2019	07:23	68	44	83	29.66	NNW 11	weather.com app									

Soil Vapor Collection Log Sheet

Page 1 of 1

Office Name & Address (Reporting Information): Arcadis of Michigan, LLC, 28550 Cabot Drive, Suite 500, Novi, MI 48377				Project Name: Ford LTP Off-Site Sampling													
Field Manager: Adam Richmond				Project Number: MI001454.0003.00002													
Phone Number: 248-994-2240				Site Address: 12001 STARK													
Email Address for Result Reporting: Kristoffer.Hinskey@arcadis.com		Special Instructions: Report ONLY: 1,1-DCE, cis-1,2- DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting.		Sampler Name: Hayden L		Sampler Email Address: Hayden.L@arcadis.com											
Helium Detector Model Used: Dielectric MGD-2002		Helium Leak Test Method: Bucket Shroud		Summa Canister Size (1L, 2.7 L, 6L): 1 L		Lab: Eurofins											
Sample ID	Sample Location Description	Date	Pre-Sampling Shut-In / Leak-Down Test	Helium Tracer Test - Performed During Sample Point Purge			Purge Volume (mL)	Purge Rate (mL/min)	Canister Number	Flow Controller Number	Sample Collection Start Time	Starting Canister Pressure	Sample Collection End Time	Ending Canister Pressure	Post-Sampling CO2 Reading from GEM (%)	Post-Sampling O2 Reading from GEM (%)	Micromanometer Reading
				Shroud Helium Concentration During Purge	Helium Reading in Purged Vapor	Helium Test Pass/Fail (Purge contains <5% of shroud to pass)?											
SSMP-12001STARK-01_041919	Garage	04/19/2019	Pass	47.3	0	Pass	100	100	1L2471	23820	07:28	-29	07:41	-5.5	0.5	21.3	0.00039

Meteorological Data							Purge Volume Calculations:
Date	Time	Indoor	Outdoor	Relative Humidity	Barometric Pressure	Source of Weather	
04/19/2019	07:24	68	44	83	29.66	weather.com app	For sub-slab soil vapor samples the sample train tubing length is ~54 inches and the interior tubing radius is 0.085". Three volumes of the sample train is 60 milliliters using the equation for volume of a cylinder (volume = pi * radius ² * height) where Volume = 60 ml, radius = 0.85" and height = 54".

TRANSMITTAL LETTER



To:
George Al-Husari
Shawn Collins
Brandon Alger (EGLE)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:
November 12, 2019

Subject:
Vapor Intrusion Assessment
Data Package

We are sending you hard copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Date	Drawing No.	Rev.	Description	Action*
1	11/13/2019			Figure	
1	11/13/2019			Analytical Results	
1	11/13/2019			Field Notes and Drawings	

Action*

- A Approved CR Correct and Resubmit Resubmit _____ Copies
 AN Approved As Noted F File Return _____ Copies
 AS As Requested FA For Approval Review and Comment
 Other: _____

Mailing Method






- U.S. Postal Service 1st Class Courier/Hand Delivery FedEx Priority Overnight FedEx 2-Day Delivery
 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
 Other: email

Thank you for cooperating with the air sampling at your property on October 17 and 18, 2019. Attached is your data package.

CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: T. STEVENS TR: P. CURRY PROJECT NUMBER: M001373.0001.00003 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
 Z:\GIS\Projects\ENV\NoviBrighton_Mil\FordLivonia\GIS\Docs\2018-11\12001_Stark_20181110.mxd PLOTTED: 11/12/2018 10:18:20AM BY: mgrs



LEGEND:

-  INDOOR AIR LOCATION
-  AMBIENT AIR LOCATION
-  SUB-SLAB MONITORING POINT LOCATION
-  BUILDING
-  PROPERTY BOUNDARIES




FORD MOTOR COMPANY
 LIVONIA TRANSMISSION PLANT
 LIVONIA, MICHIGAN

AIR SAMPLING LOCATIONS



FIGURE 1



11/8/2019

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1910582R1

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 10/24/2019 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1910582R1

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30016344.0002B
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	10/24/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	10/30/2019		
DATE REISSUED:	11/08/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SSMP-12001STARK-01_101819	TO-15	5.3 "Hg	15.3 psi
02A	DUP-12001STARK-01_101819	TO-15	5.1 "Hg	15 psi
03A	Lab Blank	TO-15	NA	NA
04A	CCV	TO-15	NA	NA
05A	LCS	TO-15	NA	NA
05AA	LCSD	TO-15	NA	NA

CERTIFIED BY: _____



Technical Director

DATE: 11/08/19 _____

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP – CA009332019-11, VA NELAP - 460197, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005-011, Effective date: 10/18/2019, Expiration date: 10/17/2020.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1910582R1

Two 1 Liter Summa Canister (100% Certified) samples were received on October 24, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

The workorder was reissued on 11/8/19 to report results in ug/m³ as well as a different format per project specifications.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12001STARK-01_101819	Date/Time Analyzed:	10/26/19 10:27 PM
Lab ID:	1910582R1-01A	Dilution Factor:	2.48
Date/Time Collected:	10/18/19 09:26 AM	Instrument/Filename:	msd3.i / 3102620
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.1	2.4	4.9	Not Detected
1,4-Dioxane	123-91-1	0.93	5.6	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.77	2.4	4.9	Not Detected
Tetrachloroethene	127-18-4	1.2	4.2	8.4	2500
trans-1,2-Dichloroethene	156-60-5	1.0	2.4	4.9	Not Detected
Trichloroethene	79-01-6	0.85	3.3	6.7	Not Detected
Vinyl Chloride	75-01-4	0.53	1.6	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	DUP-12001STARK-01_101819	Date/Time Analyzed:	10/26/19 10:00 PM
Lab ID:	1910582R1-02A	Dilution Factor:	2.43
Date/Time Collected:	10/18/19 12:00 AM	Instrument/Filename:	msd3.i / 3102619
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.1	2.4	4.8	Not Detected
1,4-Dioxane	123-91-1	0.91	5.5	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.76	2.4	4.8	Not Detected
Tetrachloroethene	127-18-4	1.2	4.1	8.2	2400
trans-1,2-Dichloroethene	156-60-5	1.0	2.4	4.8	Not Detected
Trichloroethene	79-01-6	0.84	3.3	6.5	Not Detected
Vinyl Chloride	75-01-4	0.52	1.6	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	10/26/19 10:44 AM
Lab ID:	1910582R1-03A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3102605c
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.46	0.99	2.0	Not Detected
1,4-Dioxane	123-91-1	0.38	2.2	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.31	0.99	2.0	Not Detected
Tetrachloroethene	127-18-4	0.50	1.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.42	0.99	2.0	Not Detected
Trichloroethene	79-01-6	0.34	1.3	2.7	Not Detected
Vinyl Chloride	75-01-4	0.21	0.64	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: CCV
Lab ID: 1910582R1-04A
Date/Time Collected: NA - Not Applicable
Media: NA - Not Applicable

Date/Time Analyzed: 10/26/19 09:11 AM
Dilution Factor: 1.00
Instrument/Filename: msd3.i / 3102602

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	94
1,4-Dioxane	123-91-1	100
cis-1,2-Dichloroethene	156-59-2	104
Tetrachloroethene	127-18-4	105
trans-1,2-Dichloroethene	156-60-5	102
Trichloroethene	79-01-6	101
Vinyl Chloride	75-01-4	84

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCS	Date/Time Analyzed:	10/26/19 09:37 AM
Lab ID:	1910582R1-05A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3102603
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	96
1,4-Dioxane	123-91-1	100
cis-1,2-Dichloroethene	156-59-2	107
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	87
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	85

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	100

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	10/26/19 10:01 AM
Lab ID:	1910582R1-05AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3102604
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	96
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	106
Tetrachloroethene	127-18-4	100
trans-1,2-Dichloroethene	156-60-5	87
Trichloroethene	79-01-6	94
Vinyl Chloride	75-01-4	87

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	102

* % Recovery is calculated using unrounded analytical results.



REVISED REPORT: November 8, 2019

REVISION SUMMARY: Lab report format and sample results units revised at client request.

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631

Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater

Project number: 30016344.0002B

Client project scope reference: Sample COC only was used to define project analytical requirements.

Laboratory: Eurofins Air Toxics - Folsom

Laboratory submittal: 1910582

Sample date: 2019-10-18

Report received by CADENA: 2019-10-30

Initial Data Verification completed: 2019-10-30

2 Air samples were analyzed for TO-15 parameters.

No data qualifications or sample integrity issues were observed.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) TO-15 Analysis

SDG #1910582R1

CADENA Verification Report: 2019-10-30

Analyses Performed By:
Eurofins Air Toxics
Folsom, California

Report #34703R
Review Level: Tier III
Project: 30016344.00007

DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 1910582R1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
1910582R1	SSMP-12001STARK-01_101819	1910582R1-01A	Air	10/18/2019		X		
	DUP-12001STARK-01_101819	1910582R1-02A	Air	10/18/2019	SSMP-12001STARK-01_101819	X		

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15 (Full Scan). Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15	Air	30 days from collection to analysis (Canister)	Ambient Temperature	< -2" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 140% or less than 60% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. All identified compounds met the specified criteria.

6. Field Duplicate Sample Analysis

The field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 35% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are not greater than five times the RL, a control limit of one times the RL is applied to the difference between the duplicate sample results.

Results (in $\mu\text{g}/\text{m}^3$) for the field duplicate samples are summarized in the following table.

Sample ID / Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
SSMP-12001STARK-01_101819/ DUP-12001STARK-01_101819	Tetrachloroethene	2500	2400	4.1%

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15 (Full Scan)	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-2"Hg)		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Field Duplicate Sample RPD		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

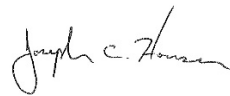
%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:



DATE: November 10, 2019

PEER REVIEW: Andrew Korycinski

DATE: November 11, 2019



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



**NO CORRECTIONS/QUALIFIERS ADDED
TO SAMPLE ANALYSIS DATA SHEETS**



EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12001STARK-01_101819	Date/Time Analyzed:	10/26/19 10:27 PM
Lab ID:	1910582R1-01A	Dilution Factor:	2.48
Date/Time Collected:	10/18/19 09:26 AM	Instrument/Filename:	msd3.i / 3102620
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.1	2.4	4.9	Not Detected
1,4-Dioxane	123-91-1	0.93	5.6	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.77	2.4	4.9	Not Detected
Tetrachloroethene	127-18-4	1.2	4.2	8.4	2500
trans-1,2-Dichloroethene	156-60-5	1.0	2.4	4.9	Not Detected
Trichloroethene	79-01-6	0.85	3.3	6.7	Not Detected
Vinyl Chloride	75-01-4	0.53	1.6	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	DUP-12001STARK-01_101819	Date/Time Analyzed:	10/26/19 10:00 PM
Lab ID:	1910582R1-02A	Dilution Factor:	2.43
Date/Time Collected:	10/18/19 12:00 AM	Instrument/Filename:	msd3.i / 3102619
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.1	2.4	4.8	Not Detected
1,4-Dioxane	123-91-1	0.91	5.5	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.76	2.4	4.8	Not Detected
Tetrachloroethene	127-18-4	1.2	4.1	8.2	2400
trans-1,2-Dichloroethene	156-60-5	1.0	2.4	4.8	Not Detected
Trichloroethene	79-01-6	0.84	3.3	6.5	Not Detected
Vinyl Chloride	75-01-4	0.52	1.6	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	100

Analysis Request /Canister Chain of Custody

For Laboratory Use Only

PID: _____ Workorder #: 1910582

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
Phone (800) 985-5955; Fax (916) 351-8279

Click links below to view:

[Canister Sampling Guide](#)

[Helium Shroud Video](#)

Client:	Ford	PID:	NA	Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting	Turnaround Time (Rush surcharges may apply) 5 Day Turnaround Time	
Project Name:	Ford LTP	P.O.#	30016344.0002B		Canister Vacuum/Pressure	Requested Analyses
Project Manager:	Kris Hinskey					
Sampler:	Xenia Chan					
Site Name:	12001 STARK					

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Lab Use Only		TO-15 (See Special Instructions/Notes)	Do Not Analyze
				Date	Time	Date	Time			Receipt	Final (psig) Gas: N ₂ / He		
DIA	SSMP-12001STARK-01_101819	1L2593	24154	10/18/2019	9:14	10/18/2019	9:26	-29.5	-6			X	
OZA	DUP-12001STARK-01_101819	1L2976	23352	10/18/2019	--	10/18/2019	--	-29	-6			X	

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
	10/22/19	1430		10/24/19	0937
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Shipper Name: FedEx Lab Use Only Custody Seals Intact? Yes No None

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

10/30/2019
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1910584

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 10/24/2019 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1910584

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30016344.0002B
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	10/24/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	10/30/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	IAG12001STARK-02_101819	Modified TO-15	5.3 "Hg	5.3 psi
02A	AA-12001STARK-01_101819	Modified TO-15	4.9 "Hg	5.1 psi
03A	IAF-12001STARK-03_101819	Modified TO-15	8.4 "Hg	4.8 psi
03B	IAF-12001STARK-03_101819	Modified TO-15	8.4 "Hg	4.8 psi
04A	Lab Blank	Modified TO-15	NA	NA
04B	Lab Blank	Modified TO-15	NA	NA
05A	CCV	Modified TO-15	NA	NA
05B	CCV	Modified TO-15	NA	NA
06A	LCS	Modified TO-15	NA	NA
06AA	LCSD	Modified TO-15	NA	NA
06B	LCS	Modified TO-15	NA	NA
06BB	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 10/30/19

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP – CA009332019-11, VA NELAP - 460197, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005-011, Effective date: 10/18/2019, Expiration date: 10/17/2020.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 1910584

Three 6 Liter Summa Canister (100% Cert Ambient) samples were received on October 24, 2019. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

The results for sample IAF-12001STARK-03_101819 in this report was acquired from two separate data files originating from the same analytical run. The two data files have the same base file name and are differentiated with a "sim" extension on the SIM data file.

Dilution was performed on sample IAF-12001STARK-03_101819 due to the presence of high level non-target species.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See

data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAG12001STARK-02_101819	Date/Time Analyzed:	10/26/19 05:55 PM
Lab ID:	1910584-01A	Dilution Factor:	1.65
Date/Time Collected:	10/18/19 09:58 AM	Instrument/Filename:	msd20.i / 20102615
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.16	0.59	0.65	Not Detected
1,4-Dioxane	123-91-1	0.48	0.54	0.59	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.35	0.59	0.65	Not Detected
Tetrachloroethene	127-18-4	0.70	1.0	1.1	0.92 J
trans-1,2-Dichloroethene	156-60-5	0.37	0.59	0.65	Not Detected
Trichloroethene	79-01-6	0.44	0.80	0.89	Not Detected
Vinyl Chloride	75-01-4	0.14	0.38	0.42	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	116
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	99

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-12001STARK-01_101819	Date/Time Analyzed:	10/26/19 06:34 PM
Lab ID:	1910584-02A	Dilution Factor:	1.61
Date/Time Collected:	10/18/19 09:02 AM	Instrument/Filename:	msd20.i / 20102616
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.15	0.57	0.64	Not Detected
1,4-Dioxane	123-91-1	0.47	0.52	0.58	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.57	0.64	Not Detected
Tetrachloroethene	127-18-4	0.68	0.98	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.57	0.64	Not Detected
Trichloroethene	79-01-6	0.42	0.78	0.86	Not Detected
Vinyl Chloride	75-01-4	0.13	0.37	0.41	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	97

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12001STARK-03_101819	Date/Time Analyzed:	10/26/19 07:13 PM
Lab ID:	1910584-03A	Dilution Factor:	18.4
Date/Time Collected:	10/18/19 10:59 AM	Instrument/Filename:	msd20.i / 20102617
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	6.6	7.3	Not Detected
1,4-Dioxane	123-91-1	5.4	6.0	6.6	Not Detected
cis-1,2-Dichloroethene	156-59-2	3.9	6.6	7.3	Not Detected
Tetrachloroethene	127-18-4	7.8	11	12	Not Detected
trans-1,2-Dichloroethene	156-60-5	4.1	6.6	7.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	96

MODIFIED EPA METHOD TO-15 GC/MS SIM
Ford LTP



Client ID:	IAF-12001STARK-03_101819	Date/Time Analyzed:	10/26/19 07:13 PM
Lab ID:	1910584-03B	Dilution Factor:	18.4
Date/Time Collected:	10/18/19 10:59 AM	Instrument/Filename:	msd20.i / 20102617sim
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	79-01-6	0.19	0.59	2.0	Not Detected
Vinyl Chloride	75-01-4	0.12	0.28	0.47	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	98

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	10/26/19 11:25 AM
Lab ID:	1910584-04A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20102606c
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.095	0.36	0.40	Not Detected
1,4-Dioxane	123-91-1	0.29	0.32	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.21	0.36	0.40	Not Detected
Tetrachloroethene	127-18-4	0.42	0.61	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.22	0.36	0.40	Not Detected
Trichloroethene	79-01-6	0.26	0.48	0.54	Not Detected
Vinyl Chloride	75-01-4	0.082	0.23	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	98

MODIFIED EPA METHOD TO-15 GC/MS SIM
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	10/26/19 11:25 AM
Lab ID:	1910584-04B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20102606simc
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	79-01-6	0.010	0.032	0.11	Not Detected
Vinyl Chloride	75-01-4	0.0065	0.015	0.026	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	10/26/19 08:49 AM
Lab ID:	1910584-05A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20102602
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	92
1,4-Dioxane	123-91-1	110
cis-1,2-Dichloroethene	156-59-2	100
Tetrachloroethene	127-18-4	100
trans-1,2-Dichloroethene	156-60-5	102
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	99

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	104

MODIFIED EPA METHOD TO-15 GC/MS SIM
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	10/26/19 08:49 AM
Lab ID:	1910584-05B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20102602sim
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
Trichloroethene	79-01-6	95
Vinyl Chloride	75-01-4	92

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	10/26/19 09:28 AM
Lab ID:	1910584-06A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20102603
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	92
1,4-Dioxane	123-91-1	116
cis-1,2-Dichloroethene	156-59-2	95
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	111
Trichloroethene	79-01-6	97
Vinyl Chloride	75-01-4	102

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	102

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	10/26/19 10:07 AM
Lab ID:	1910584-06AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20102604
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	98
1,4-Dioxane	123-91-1	113
cis-1,2-Dichloroethene	156-59-2	97
Tetrachloroethene	127-18-4	98
trans-1,2-Dichloroethene	156-60-5	113
Trichloroethene	79-01-6	94
Vinyl Chloride	75-01-4	105

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	101

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS SIM
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	10/26/19 09:28 AM
Lab ID:	1910584-06B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20102603sim
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	97

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	102

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS SIM
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	10/26/19 10:07 AM
Lab ID:	1910584-06BB	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20102604sim
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	98

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	102

* % Recovery is calculated using unrounded analytical results.

Analysis Request / Canister Chain of Custody

For Laboratory Use Only

PID: _____ Workorder #: 1910584

Click links below to view:

[Canister Sampling Guide](#)

[Helium Shroud Video](#)

180 Blue Ravine Rd. Suite B, Folsom, CA 95630

Phone (800) 985-5955; Fax (916) 351-8279

Client: <u>Ford</u>	PID: <u>NA</u>	Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting	Turnaround Time (Rush surcharges may apply)		
Project Name: <u>Ford LTP</u>			5 Day Turnaround Time		
Project Manager: <u>Kris Hinskey</u>	P.O.# <u>30016344.0002B</u>		Canister Vacuum/Pressure		Requested Analytes
Sampler: <u>Xenia Chan</u>			Lab Use Only		
Site Name: <u>12001 STARK</u>			Initial (in Hg)	Final (in Hg)	

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N ₂ / He	TO-15 (See Special Instructions/Notes)	Do Not Analyze
				Date	Time	Date	Time						
<u>DA</u>	IAG12001STARK-02_101819	6L2056	22469	10/17/2019	10:09	10/18/2019	9:58	-29.5	-6			X	
<u>DA</u>	AA-12001STARK-01_101819	6L2065	21012	10/17/2019	10:05	10/18/2019	9:02	-29.5	-6			X	
<u>DA</u>	IAF-12001STARK-03_101819	6L0091	22274	10/17/2019	10:08	10/18/2019	10:59	-29.5	-8			X	

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
	10/22/19	1430		10/24/19	0937
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Shipper Name: Redox Custody Seals Intact? Yes No None

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922



October 30, 2019

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: 30016344.0002B
Client project scope reference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics - Folsom
Laboratory submittal: 1910584
Sample date: 2019-10-18
Report received by CADENA: 2019-10-30
Initial Data Verification completed: 2019-10-30
3 Air samples were analyzed for TO-15 parameters.

No data qualifications or sample integrity issues were observed.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) TO-15 Analysis

SDG #1910584

CADENA Verification Report: 2019-10-30

Analyses Performed By:
Eurofins Air Toxics
Folsom, California

Report #34704R
Review Level: Tier III
Project: 30016344.00007

DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 1910584 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
1910584	IAG12001STARK-02_101819	1910584-01A	Air	10/18/2019		X		
	AA-12001STARK-01_101819	1910584-02A	Air	10/18/2019		X		
	IAF-12001STARK-03_101819	1910584-03B	Air	10/18/2019		X	X	

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15 (Full Scan) and TO-15-SIM. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15 and USEPA TO-15-SIM	Air	30 days from collection to analysis (Canister)	Ambient Temperature	< -2" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 140% or less than 60% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. All identified compounds met the specified criteria.

6. Field Duplicate Sample Analysis

The field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 35% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are not greater than five times the RL, a control limit of one times the RL is applied to the difference between the duplicate sample results.

A field duplicate was not performed on a sample location within this SDG.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15 (Full Scan) and TO-15 SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-2"Hg)		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Field Duplicate Sample RPD					X
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

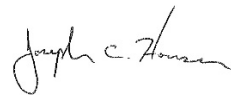
%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:



DATE: November 10, 2019

PEER REVIEW: Andrew Korycinski

DATE: November 11, 2019



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



**NO CORRECTIONS/QUALIFIERS ADDED
TO SAMPLE ANALYSIS DATA SHEETS**



MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAG12001STARK-02_101819	Date/Time Analyzed:	10/26/19 05:55 PM
Lab ID:	1910584-01A	Dilution Factor:	1.65
Date/Time Collected:	10/18/19 09:58 AM	Instrument/Filename:	msd20.i / 20102615
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.16	0.59	0.65	Not Detected
1,4-Dioxane	123-91-1	0.48	0.54	0.59	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.35	0.59	0.65	Not Detected
Tetrachloroethene	127-18-4	0.70	1.0	1.1	0.92 J
trans-1,2-Dichloroethene	156-60-5	0.37	0.59	0.65	Not Detected
Trichloroethene	79-01-6	0.44	0.80	0.89	Not Detected
Vinyl Chloride	75-01-4	0.14	0.38	0.42	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	116
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	99

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-12001STARK-01_101819	Date/Time Analyzed:	10/26/19 06:34 PM
Lab ID:	1910584-02A	Dilution Factor:	1.61
Date/Time Collected:	10/18/19 09:02 AM	Instrument/Filename:	msd20.i / 20102616
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.15	0.57	0.64	Not Detected
1,4-Dioxane	123-91-1	0.47	0.52	0.58	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.57	0.64	Not Detected
Tetrachloroethene	127-18-4	0.68	0.98	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.57	0.64	Not Detected
Trichloroethene	79-01-6	0.42	0.78	0.86	Not Detected
Vinyl Chloride	75-01-4	0.13	0.37	0.41	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	97

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12001STARK-03_101819	Date/Time Analyzed:	10/26/19 07:13 PM
Lab ID:	1910584-03A	Dilution Factor:	18.4
Date/Time Collected:	10/18/19 10:59 AM	Instrument/Filename:	msd20.i / 20102617
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	6.6	7.3	Not Detected
1,4-Dioxane	123-91-1	5.4	6.0	6.6	Not Detected
cis-1,2-Dichloroethene	156-59-2	3.9	6.6	7.3	Not Detected
Tetrachloroethene	127-18-4	7.8	11	12	Not Detected
trans-1,2-Dichloroethene	156-60-5	4.1	6.6	7.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	96

MODIFIED EPA METHOD TO-15 GC/MS SIM
 Ford LTP



Client ID:	IAF-12001STARK-03_101819	Date/Time Analyzed:	10/26/19 07:13 PM
Lab ID:	1910584-03B	Dilution Factor:	18.4
Date/Time Collected:	10/18/19 10:59 AM	Instrument/Filename:	msd20.i / 20102617sim
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	79-01-6	0.19	0.59	2.0	Not Detected
Vinyl Chloride	75-01-4	0.12	0.28	0.47	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	98

Analysis Request / Canister Chain of Custody

For Laboratory Use Only

PID: _____ Workorder #: 1910584

Click links below to view:

[Canister Sampling Guide](#)

[Helium Shroud Video](#)

180 Blue Ravine Rd. Suite B, Folsom, CA 95630

Phone (800) 985-5955; Fax (916) 351-8279

Client: <u>Ford</u>	PID: <u>NA</u>	Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting	Turnaround Time (Rush surcharges may apply)		
Project Name: <u>Ford LTP</u>			5 Day Turnaround Time		
Project Manager: <u>Kris Hinskey</u>	P.O.# <u>30016344.0002B</u>		Canister Vacuum/Pressure	Requested Analytes	
Sampler: <u>Xenia Chan</u>			Lab Use Only		
Site Name: <u>12001 STARK</u>					

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N ₂ / He	TO-15 (See Special Instructions/Notes)	Do Not Analyze
				Date	Time	Date	Time						
<u>DA</u>	<u>IAG12001STARK-02_101819</u>	<u>6L2056</u>	<u>22469</u>	<u>10/17/2019</u>	<u>10:09</u>	<u>10/18/2019</u>	<u>9:58</u>	<u>-29.5</u>	<u>-6</u>			<u>X</u>	
<u>DA</u>	<u>AA-12001STARK-01_101819</u>	<u>6L2065</u>	<u>21012</u>	<u>10/17/2019</u>	<u>10:05</u>	<u>10/18/2019</u>	<u>9:02</u>	<u>-29.5</u>	<u>-6</u>			<u>X</u>	
<u>DA</u>	<u>IAF-12001STARK-03_101819</u>	<u>6L0091</u>	<u>22274</u>	<u>10/17/2019</u>	<u>10:08</u>	<u>10/18/2019</u>	<u>10:59</u>	<u>-29.5</u>	<u>-8</u>			<u>X</u>	

Relinquished by: (Signature/Affiliation)	Date <u>10/22/19</u>	Time <u>1430</u>	Received by: (Signature/Affiliation)	Date <u>10/24/19</u>	Time <u>0937</u>
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Shipper Name: Redox Custody Seals Intact? Yes No None

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

Daily Log - Ford Off Site VI Investigation - VISIT 1

Project No.: MI001454.0003.00002 / 30016344

Site Location: 12001 STARK

Personnel Onsite: Xenia Chan, Patrick Labadie

Date	Time	Description of Activities
10/16/2019		Purpose: R3V1, building survey, chemical inventory
		Weather: 48.02 degrees F and Cloudy
		Equipment: PID 6153
	8:28	Arcadis on-site
	8:31	Conducted chemical inventory and survey; request doors and windows shut during sampling
	8:37	Arcadis off-site
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Visit 1 Checklist

Keeping windows & doors shut during IA/AA sampling was discussed? yes Field Staff Signature: _____

Have background sources of VOCs been removed/isolated? yes *Xenia Chan*

Is a sump pit present in the building? no _____

Location of removed/isolated background VOCs: Tote outside of garage

Daily Log - Ford Off Site VI Investigation - VISIT 2

Project No.: MI001454.0003.00002 / 30016344

Site Location: 12001 STARK

Personnel Onsite: Xenia Chan, Patrick Labadie, and Hayden Ladd

Date	Time	Description of Activities
10/17/2019		Purpose: R3V2, canister deployment
		Weather: 53.96 degrees F and Mostly Cloudy
		Equipment: PID 6153
	9:58	Arcadis onsite
	10:08	Deployed canisters
	10:19	Arcadis off-site
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Visit 2 Checklist

Windows and doors are shut (for IA samples only)? yes

Have background sources of VOCs been removed/isolated? yes

Number of SSMP samples collected: 0

Number of indoor/ambient air samples collected: 0

Occupancy hours (for commercial properties only): --

Field Staff Signature:
Xenia Chan

Daily Log - Ford Off Site VI Investigation - VISIT 3

Project No.: MI001454.0003.00002 / 30016344

Site Location: 12001 STARK

Personnel Onsite: Julia McClafferty, Xenia Chan

Date	Time	Description of Activities
10/18/2019		Purpose: R3V3, canister deployment and ssmg sampling
		Weather: 37.04 degrees F and Clear
		Equipment: GEM 3782
	8:53	Arrive onsite, conduct canister collection and ssmg sampling
	10:05	Arcadis offsite
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Visit 3 Checklist

Windows and doors are shut (for IA samples only)? yes

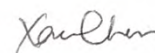
Have background sources of VOCs been removed/isolated? yes

Number of SSMP samples collected: 1

Number of indoor/ambient air samples collected: 3

Occupancy hours (for commercial properties only): --

Field Staff Signature:





Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM

Date: 10-29-18 Survey Performed by: Hayden Ludd
4-17-19 ~~Ellen R~~ → Madison Olander
 ER

1. OCCUPANT:

Rent: _____ Own: X 10-16-19 X.Chan
 Resident Name: George Husari R3M^{cc} P. Labadie - owner states
 Address: 12001 Stark Rd. no ~~changes~~ changes since last visit
 Telephone: Home: 734968 7934 Work: _____
 Cell: [↑] _____
 How long have you lived at this location? Since August 2011

List current occupants/occupation below (attach additional pages if necessary):

Age (if under 18)	Sex (M/F)	Occupation
None		
↓		

2. OWNER OR LANDLORD: (If same as occupant, check here and go to Item No. 3).

Last Name: _____ First Name: _____
 Address: _____
 City and State: _____
 County: _____
 Home Phone: _____ Office Phone: _____



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

3. SENSITIVE POPULATION:

Daycare/Nursing Home/Hospital/School/Other (specify): None

4. BUILDING CHARACTERISTICS:

Residential/Multi-family Residential/Office/Strip Mall/Commercial/Industrial/School

Describe Building: Residential Year Constructed: _____

Number of floors at or above grade: 1

Number of floors below grade: 0 (full basement/crawl space/slab on grade)

Depth of structure below grade: 0 ft. Basement size: 0 ft²

If the property is residential, what type? (Circle all appropriate responses.)

- | | | | |
|---|-----------------------------------|--|--|
| <input checked="" type="checkbox"/> Ranch | <input type="checkbox"/> 2-Family | <input type="checkbox"/> 3-Family | <input type="checkbox"/> Raised Ranch |
| <input type="checkbox"/> Split Level | <input type="checkbox"/> Colonial | <input type="checkbox"/> Cape Cod | <input type="checkbox"/> Contemporary |
| <input type="checkbox"/> Mobile Home | <input type="checkbox"/> Duplex | <input type="checkbox"/> Apartment House | <input type="checkbox"/> Townhouses/Condos |
| <input type="checkbox"/> Modular | <input type="checkbox"/> Log Home | Other: _____ | |

If multiple units, how many? _____

If the property is commercial:

Business type(s) NA

Does it include residences (i.e., multi-use)? Yes No If yes, how many? _____

5. OCCUPANCY:

Is basement/lowest level occupied? (Circle one)

Full-time Occasionally Seldom Almost Never



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Level General Use
 (e.g., family room, bedroom, laundry, workshop, storage)

Basement NA

1st Floor General use

2nd Floor _____

3rd Floor _____

4th Floor _____

(Use additional page(s) as necessary)

6. CONSTRUCTION CHARACTERISTICS: (Circle all that apply.)

a. Above Grade Construction: (Describe type: wood frame, concrete, stone, brick).

b. Basement Type: Full Crawlspace Slab Other: _____

c. Basement Floor: Concrete Dirt Stone Other: Sand

d. Finished Basement Floor: Uncovered Covered NA
If covered, what with? NA

e. Foundation Walls: Poured Block Stone Other: _____

f. Foundation Walls: Unsealed Sealed Sealed with: _____

g. The Basement is: Wet Damp Dry NA

h. The Basement is: Finished Unfinished Partially Finished NA

i. Sump Present (Y/N) (N) If yes, how many? NA

Where Discharged? NA

Water in Sump? Yes No Not Applicable



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Identify all potential soil vapor entry points and estimated size (e.g., cracks, utility parts, drains).

Drains in garage area. Some cracks

Are the basement walls or floor sealed with waterproof paint or epoxy coatings? Yes No

Type of ground cover outside of building: Grass Concrete Asphalt Other _____

Is an existing subsurface depressurization (radon) system in place? Yes No

If yes, is it active, or passive?

Is a sub-slab vapor/moisture barrier in place? Yes No

Type of barrier: NA

7. HEATING, VENTING, and AIR CONDITIONING

Type of heating system(s) used in this building: (Circle all that apply: Note the primary).

- | | | |
|---|-----------------|---------------------|
| <input checked="" type="checkbox"/> Hot Air Circulation | Heat Pump | Hot Water Baseboard |
| <input type="checkbox"/> Space Heaters | Steam Radiation | Radiant Floor |
| <input type="checkbox"/> Electric Baseboard | Wood Stove | Outdoor Wood Boiler |
| Other: _____ | | |

The primary type of fuel used is:

- | | | |
|---|----------|----------|
| <input checked="" type="checkbox"/> Natural Gas | Fuel Oil | Kerosene |
| <input type="checkbox"/> Electric | Propane | Solar |
| <input type="checkbox"/> Wood | Coal | |

Domestic hot water tank fueled by: Natural gas

Location of Boiler/Furnace: Basement Outdoors Main Floor Other _____



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Air Conditioning: Central Air Window Units Open Windows None

Are air distribution ducts present? Yes No

Is there a whole house fan? Yes No

Describe the air intake system (outside air supply, cold air return, ductwork, etc.) and its condition where visible. Indicate the locations on the floor plan diagram.

Ductwork is in good condition

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

- a) Is there an attached garage? Yes No
- If yes, does it have a separate heating unit? Yes No
- b) Are any petroleum-powered machines or vehicles stored in an attached garage (e.g., lawn mower, ATV, car) Yes No
- c) Has the building ever had a fire? Yes No
- d) Is there a fuel burning or unvented gas space heater? Yes No
- e) Is there a workshop or hobby/craft area? Yes No
- If yes, where and what type? _____
- f) Is there smoking in the building? Yes No
- If yes, how frequently? _____



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

g) Have cleaning products been used recently?

Yes No

If yes, when and what type? General purpose

h) Have cosmetic products been used recently?

Yes No

If yes, when and what type? _____

i) Has there been painting or staining in the last six months?

Yes No

If yes, when and where? _____

j) Is there new carpet, drapes, or other textiles?

Yes No

If yes, when and where? _____

k) Have air fresheners been used recently?

Yes No

If yes, when and what type? Spray cans

l) Is there a kitchen exhaust fan?

Yes No

If yes, where is it vented? _____

m) Is there a clothes dryer?

Yes No

If yes, is it vented outside?

Yes No

n) Has there been a pesticide application?

Yes No

If yes, when and what type? Bug spray used last summer

o) Are there odors in the building?

Yes No

If yes, please describe: _____



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

- p) Do any of the building occupants use solvents at work (e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetology)?

Yes No

If yes, what types of solvents are used? NA

If yes, are their clothes washed at work?

Yes No

- q) Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response.)

No

Unknown

Yes, use dry-cleaning regularly (weekly)

Yes, use dry-cleaning infrequently (monthly or less)

Yes, work at a dry-cleaning service

→ every 2 weeks

- r) Is there a radon mitigation system for the building/structure?

Yes No

If yes, what is date of installation? NA

Active

Passive

- s) Additional mitigation system information (fan size, location, operating status, liner installed, etc.):

None

- t) Is there an irrigation well, or any other well, present at the property:

Yes No

If yes, please describe placement, use, and history below.

NA

PRODUCT INVENTORY FORM:

Make and Model of field instrument used: ppb RAE 3000

List specific products found in the residence or area that have the potential to affect indoor air quality (e.g., gasoline or kerosene storage cans, glues, paints, cleaning solvents/products, polishes/waxes, new furniture/ carpet, nail polish/hairspray/cologne).

Potential Source	Location	Size and Condition	Chemical Ingredients	Field Instrument Reading (units)	Photo Y/N
Gasoline Storage Cans and Equipment	Garage				
Kerosene Storage Cans	—				
Paints/Thinners/Strippers	Garage				
Cleaning Solvents	Garage HC				
Hobby Supplies – Glue, Paint, Etc.	Garage				
Oven Cleaner	—				
Carpet/Upholstery Cleaners	Kitchen				
Household Cleaners (non-solvent)	Kitchen				
Moth Balls	Garage				
Polishes/Waxes	—				
Insecticides	Garage				
Furniture/Floor Polish	—				
Hairspray	—				
Cologne/Perfume	Bathroom				
Air Fresheners	Bathroom				
Interior Fuel Tank	—				
Wood Stove/Fireplace	Living room				
New Furniture/Upholstery	—				
New Carpeting/Flooring	—				
Others (fill in below)					
Motorcycle					
Snowblower					
Weed Wacker					
Note - Chemicals of concern moved into tote and placed outside garage					

3V1

- * Spray foam
- * glass cleaner
- * brake cleaner

- Great Stuff
- Great Stuff
- Parts Maska

Garage PID: 97 ppb
 Chemical Tote PID: 377 ppb

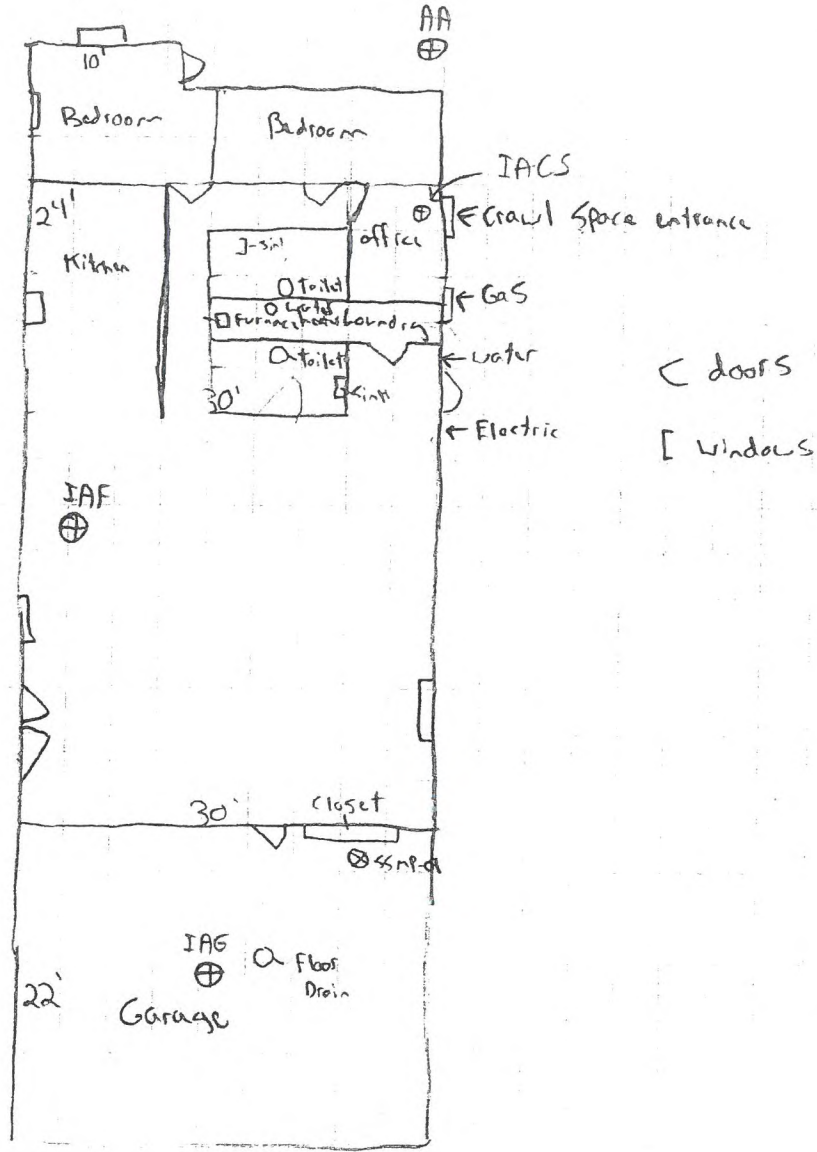
Product Inventory Form

i.e. gasoline cans/equipment, kerosene, paints/thinners/strippers, cleaning solvents, hobby supplies (glues), oven cleaner, carpet/upholstery cleaners, household cleaners, moth balls, polishes/waxes, insecticides, furniture/floor polish, hairspray, cologne/perfume, air fresheners, interior fuel tank, wood stove/fireplace, new furniture/upholstery, new carpet/flooring

Location	Product Description	Chemical Ingredients	Quantity	PID Reading (ppb)	Photo	Removed (Y/N)
Garage	Moth balls	VOCs		0	Y	Y
Garage	Ortho Home defense	insecticides	2 cans	0	Y	Y
Garage	Rust penetrant	VOCs	Multiple	0	Y	Y
First Floor	Glade-Solid air	VOCs	Multiple	0	Y	Y
Garage HL	Freshener					
Garage	Brakleen	VOCs		0	Y	Y
First Floor	Resolve - Pet Expert	Various	1	0	Y	Y
First Floor	Scotch-guard Auto	Various	1	0	N	Y
	foaming cleaner					
Garage	Rustoleum - High i	VOCs	1	0	N	Y
	Pitbanone Enamel					
Garage	Gunk-Engine degreaser	VOCs	1	0	N	Y
Garage	Brexitling Car wax	VOCs	1	0	N	Y
	Clear Wax					
Garage	WD-40	VOCs	1	0	N	Y
Garage	Bulls Eye Shellac	VOCs	1	0	N	Y
Garage	Flex Seal	VOCs	1	0	Y	Y
First Floor	Kiwi-Lamp Dry	VOCs	1	0	N	Y
Garage	Gasoline	VOCs	3	9500	Y	Y
Garage	scrubbing bubbles		2	0	Y	Y
	homework carpet cleaner		1			
	caulk		4			
	Gutter sealer		1			
	off backyard pre-treat		1			
	Round up		1			
	Brake Fluid		1			
	POWER steering fluid		1			

still in same tote
0 ppb
R3VI
chemicals
all in the same tote

Donald Richmond
 12001 Stark Rd
 10/29/18



R3 AA-01 ⊕

• SB and IACs only collected during R1 sampling.

R2 ⊕ AA-01
 ⊕ Dup

Office Name & Address (Reporting Information): Arcadis of Michigan, LLC 28550 Cabot Drive, Suite 500, Novi, MI 48377		Project Name: Ford LTP Off-site Sampling	
Field Manager: Adam Richmond		Project Number: MI001454.0003 / 30016344	
Phone Number: 248.994.2240	Special Instructions:	Site Address: 12001 STARK	
Email Address for Result Reporting: Kristoffer.Hinskey@arcadis.com	Report ONLY: 1,1-DCE, cis-1,2- DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting.	Sampler Name: Xenia Chan	
Summa Canister Size (1L, 2.7 L, 6L) 6 Liter	Lab: Eurofins		

Sample ID	Sample Location Description	Indoor/ Outdoor	PID in Sampling Area (ppb)	Canister Number	Flow Controller Number	Sample Collection Start Date	Sample Collection Start Time	Beginning Canister Pressure (in. Hg)	Sample Collection End Date	Sample Collection End Time	Ending Canister Pressure (in. Hg)	HVAC System Information						Notes	
												HVAC Fan On Start?	HVAC Fan On End?	Heat On Start?	Heat On End?	Temperature Setting (°F) Start	Temperature Setting (°F) End		
IAG12001STARK-02_101819	Garage	Indoor	40	6L2056	22469	10/17/2019	10:09	-29.5	10/18/2019	9:58	-6	Yes	yes	No	No	65	65	--	
AA-12001STARK-01_101819	NW of house	Outdoor	3	6L2065	21012	10/17/2019	10:05	-29.5	10/18/2019	9:02	-6	--	--	--	--	--	--	--	
IAF-12001STARK-03_101819	Living room table	Indoor	454	6L0091	22274	10/17/2019	10:08	-29.5	10/18/2019	10:59	-8	Yes	yes	No	No	65	65	--	
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Meteorological Data							General Notes or Observations
Date	Time	Temp. (°F)		Relative Humidity (%)	Barometric Pressure (in. Hg)	Air Speed (mph)	
		Indoor	Outdoor				
10/17/2019	9:59	65	45	70	29.89	NW 15	weather.com app
10/18/2019	9:15	65	42	80	30.11	NW 4	weather.com app
--	--	--	--	--	--	--	weather.com app
--	--	--	--	--	--	--	weather.com app



Soil Vapor Collection Log Sheet

Office Name & Address (Reporting Information): Arcadis of Michigan, LLC 28550 Cabot Drive, Suite 500, Novi, MI 48377		Project Name: Ford LTP Off-site Sampling	
Field Manager: Adam Richmond		Project Number: MI001454.0003 / 30016344	
Phone Number: 248.994.2240	Special Instructions: Report ONLY: 1,1-DCE, cis-1,2- DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting.	Site Address: 12001 STARK	
Email Address for Result Reporting: Kristoffer.Hinskey@arcadis.com	Helium Detector Model Used: Dielectric MGD-2002	Helium Leak Test Method: Bucket Shroud	Summa Canister Size (1L, 2.7 L, 6L): 1 Liter
		Lab: Eurofins	Sampler Name: Xenia Chan

Sample ID	Sample Location Description	Date	Pre-Sampling Shut-In / Leak-Down Test Pass/Fail?	Helium Tracer Test - Performed During Sample Point Purge			Purge Volume (mL)	Purge Rate (mL/min)	Canister Number	Flow Controller Number	Sample Collection Start Time	Starting Canister Pressure (in. Hg)	Sample Collection End Time	Ending Canister Pressure (in. Hg)	Post-Sampling CO ₂ Reading from GEM (%)	Post-Sampling O ₂ Reading from GEM (%)	Micromanometer Reading (in. WC)
				Shroud Helium Concentration During Purge (% Helium)	Helium Reading in Purged Vapor (% Helium)	Helium Test Pass/Fail (Purge contains <5% of shroud to pass)?											
SSMP-12001STARK-01_101819	Garage	10/18/2019	Pass	49.8	0	Pass	100	100	1L2593	24154	9:14	-29.5	9:26	-6	1.1	19.3	-0.00018
DUP-12001STARK-01_101819	Garage	10/18/2019	Pass	49.8	0	Pass	100	100	1L2976	23352	9:14	-29	9:29	-6	1.1	19.3	-0.00018
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Date	Time	Temp. (°F)		Relative Humidity (%)	Barometric Pressure (in. Hg)	Source of Weather Information	Purge Volume Calculations: The purge volume for each sample has been pre-calculated using the information below. For sub-slab soil vapor samples the sample train tubing length is ~54 inches and the interior tubing radius is 0.085". Three volumes of the sample train is 60 milliliters using the equation for volume of a cylinder (volume = pi * radius ² * height) where Volume = 60 ml, radius = 0.85" and height = 54". To have sufficient volume to conduct helium leak testing 100 milliliters should be purged from each sample point. For exterior soil vapor sampling 60 milliliters should be used for the above ground sample train. Each additional foot of sub-grade tubing account for approximately 13 ml. To have sufficient volume to conduct helium leak testing at least 100 milliliters should be purged from each sample point.
		Indoor	Outdoor				
10/18/2019	9:05	65	42	80	30.10	weather.com app	
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TRANSMITTAL LETTER



To:
George Al-Husari
Shawn Collins
Brandon Alger (EGLE)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:
February 19, 2020

Subject:

12001 Stark Road
Vapor Intrusion Assessment
Data Package

We are sending you hard copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Date	Drawing No.	Rev.	Description	Action*
1	2/20/2020			Figure	
1	2/20/2020			Analytical Results	
1	2/20/2020			Field Notes and Drawings	

Action*

- A Approved CR Correct and Resubmit Resubmit _____ Copies
 AN Approved As Noted F File Return _____ Copies
 AS As Requested FA For Approval Review and Comment
 Other: _____

Mailing Method






- U.S. Postal Service 1st Class Courier/Hand Delivery FedEx Priority Overnight FedEx 2-Day Delivery
 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
 Other: email

Thank you for cooperating with the air sampling at your property on December 4 and 5, 2019. Attached is your data package. Sample IAG12001STARK-02 was not analyzed due to the ending canister vacuum pressure being out of range at the time of sample collection.

CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: T. STEVENS TR: P. CURRY PROJECT NUMBER: M001373.0001.00003 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
 Z:\GIS\Projects\ENV\Novi\Brighton_Mil\FordLivonia\GIS\Docs\2018-11\12001_Stark_20181110.mxd PLOTTED: 11/12/2018 10:18:20AM BY: mgr33



LEGEND:

-  INDOOR AIR LOCATION
-  AMBIENT AIR LOCATION
-  SUB-SLAB MONITORING POINT LOCATION
-  BUILDING
-  PROPERTY BOUNDARIES




FORD MOTOR COMPANY
 LIVONIA TRANSMISSION PLANT
 LIVONIA, MICHIGAN

AIR SAMPLING LOCATIONS



FIGURE
1



12/16/2019
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1912197


Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 12/9/2019 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,




Ausha Scott
Project Manager

WORK ORDER #: 1912197

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30016344.0001B
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	12/09/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	12/16/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	IAF-12001STARK-03_120519	Modified TO-15	8.5 "Hg	5 psi
02A(cancelled)	IAG12001STARK-02_120519	Modified TO-15		
03A	AA-12001STARK-01_120519	Modified TO-15	6.0 "Hg	5 psi
04A	Lab Blank	Modified TO-15	NA	NA
05A	CCV	Modified TO-15	NA	NA
06A	LCS	Modified TO-15	NA	NA
06AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 12/16/19

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP – CA009332019-11, VA NELAP - 460197, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005-011, Effective date: 10/18/2019, Expiration date: 10/17/2020.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 1912197

Three 6 Liter Summa Canister (100% Cert Ambient) samples were received on December 09, 2019. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the EATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

Sample IAG12001STARK-02_120519 was cancelled on 12/05/19 per client's request.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12001STARK-03_120519	Date/Time Analyzed:	12/11/19 02:27 PM
Lab ID:	1912197-01A	Dilution Factor:	1.87
Date/Time Collected:	12/5/19 09:12 AM	Instrument/Filename:	msd22.i / 22121111
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.22	0.30	0.74	Not Detected
1,4-Dioxane	123-91-1	0.13	0.27	0.67	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.076	0.30	0.74	Not Detected
Tetrachloroethene	127-18-4	0.29	0.51	1.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.12	0.30	0.74	Not Detected
Trichloroethene	79-01-6	0.10	0.40	1.0	Not Detected
Vinyl Chloride	75-01-4	0.066	0.19	0.48	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	117
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	99

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-12001STARK-01_120519	Date/Time Analyzed:	12/11/19 03:09 PM
Lab ID:	1912197-03A	Dilution Factor:	1.68
Date/Time Collected:	12/5/19 09:09 AM	Instrument/Filename:	msd22.i / 22121112
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.20	0.27	0.67	Not Detected
1,4-Dioxane	123-91-1	0.11	0.24	0.60	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.068	0.27	0.67	Not Detected
Tetrachloroethene	127-18-4	0.26	0.46	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.11	0.27	0.67	Not Detected
Trichloroethene	79-01-6	0.093	0.36	0.90	Not Detected
Vinyl Chloride	75-01-4	0.060	0.17	0.43	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	115
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	99

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	12/11/19 11:11 AM
Lab ID:	1912197-04A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd22.i / 22121106a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.12	0.16	0.40	Not Detected
1,4-Dioxane	123-91-1	0.068	0.14	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.041	0.16	0.40	Not Detected
Tetrachloroethene	127-18-4	0.15	0.27	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.066	0.16	0.40	Not Detected
Trichloroethene	79-01-6	0.055	0.21	0.54	Not Detected
Vinyl Chloride	75-01-4	0.036	0.10	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	118
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	12/11/19 08:29 AM
Lab ID:	1912197-05A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd22.i / 22121102
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	86
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	90
Tetrachloroethene	127-18-4	90
trans-1,2-Dichloroethene	156-60-5	92
Trichloroethene	79-01-6	92
Vinyl Chloride	75-01-4	91

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	LCS	Date/Time Analyzed:	12/11/19 09:13 AM
Lab ID:	1912197-06A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd22.i / 22121103
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	80
1,4-Dioxane	123-91-1	96
cis-1,2-Dichloroethene	156-59-2	78
Tetrachloroethene	127-18-4	84
trans-1,2-Dichloroethene	156-60-5	96
Trichloroethene	79-01-6	89
Vinyl Chloride	75-01-4	87

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	104

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	12/11/19 09:55 AM
Lab ID:	1912197-06AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd22.i / 22121104
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	80
1,4-Dioxane	123-91-1	94
cis-1,2-Dichloroethene	156-59-2	78
Tetrachloroethene	127-18-4	86
trans-1,2-Dichloroethene	156-60-5	95
Trichloroethene	79-01-6	88
Vinyl Chloride	75-01-4	87

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	104

* % Recovery is calculated using unrounded analytical results.



December 16, 2019

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: 30016344.0001B
Client project scopereference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics -Folsom
Laboratory submittal: 1912197
Sample date:2019-12-05
Report received byCADENA: 2019-12-16
Initial DataVerification completed: 2019-12-16
2 Air samples were analyzed for TO-15 parameters.

No data qualifications or sample integrity issues were observed.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) TO-15 Analysis

SDG #1912197

CADENA Verification Report: 2019-12-16

Analyses Performed By:
Eurofins Air Toxics
Folsom, California

Report #35404R
Review Level: Tier III
Project: 30016344.00007



DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 1912197 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
1912197	IAF-12001STARK-03_120519	1912197-01A	Air	12/5/2019		X		
	AA-12001STARK-01_120519	1912197-03A	Air	12/5/2019		X		

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15 (Full Scan). Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15	Air	30 days from collection to analysis (Canister)	Ambient Temperature	< -2" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 140% or less than 60% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. All identified compounds met the specified criteria.

6. Field Duplicate Sample Analysis

The field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 35% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are not greater than five times the RL, a control limit of one times the RL is applied to the difference between the duplicate sample results.

A field duplicate was not performed on a sample location within this SDG.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15 (Full Scan)	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-2"Hg)		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Field Duplicate Sample RPD					X
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

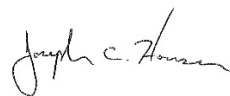
%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:



DATE: January 5, 2020

PEER REVIEW: Dennis Capria

DATE: January 27, 2020



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



**NO CORRECTIONS/QUALIFIERS ADDED
TO SAMPLE ANALYSIS DATA SHEETS**



MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-12001STARK-03_120519	Date/Time Analyzed:	12/11/19 02:27 PM
Lab ID:	1912197-01A	Dilution Factor:	1.87
Date/Time Collected:	12/5/19 09:12 AM	Instrument/Filename:	msd22.i / 22121111
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.22	0.30	0.74	Not Detected
1,4-Dioxane	123-91-1	0.13	0.27	0.67	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.076	0.30	0.74	Not Detected
Tetrachloroethene	127-18-4	0.29	0.51	1.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.12	0.30	0.74	Not Detected
Trichloroethene	79-01-6	0.10	0.40	1.0	Not Detected
Vinyl Chloride	75-01-4	0.066	0.19	0.48	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	117
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	99

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-12001STARK-01_120519	Date/Time Analyzed:	12/11/19 03:09 PM
Lab ID:	1912197-03A	Dilution Factor:	1.68
Date/Time Collected:	12/5/19 09:09 AM	Instrument/Filename:	msd22.i / 22121112
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.20	0.27	0.67	Not Detected
1,4-Dioxane	123-91-1	0.11	0.24	0.60	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.068	0.27	0.67	Not Detected
Tetrachloroethene	127-18-4	0.26	0.46	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.11	0.27	0.67	Not Detected
Trichloroethene	79-01-6	0.093	0.36	0.90	Not Detected
Vinyl Chloride	75-01-4	0.060	0.17	0.43	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	115
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	99

Analysis Request /Canister Chain of Custody

For Laboratory Use Only

PID: _____ Workorder #: **1912197**

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
 Phone (800) 985-5955; Fax (916) 351-8279

Click links below to view:

[Canister Sampling Guide](#)

[Helium Shroud Video](#)

Client:	Ford	PID:	NA	Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting	Turnaround Time (Rush surcharges may apply)					
Project Name:	Ford LTP				5 Day Turnaround Time					
Project Manager:	Kris Hinskey	P.O.#	30016344.0001B		Canister Vacuum/Pressure		Requested Analyses			
Sampler:	Xenia Chan									
Site Name:	12001 STARK									

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Lab Use Only		TO-15 (See Special Instructions/Notes)	Do Not Analyze
				Date	Time	Date	Time			Receipt	Final (psig) Gas: N ₂ / He		
01A	IAF-12001STARK-03_120519	6L0966	22195	12/4/2019	10:02	12/5/2019	9:12	-29	-8			X	
02A	IAG12001STARK-02_120519	6L0943	40656	12/4/2019	10:04	12/5/2019	9:11	-29	0				X
03A	AA-12001STARK-01_120519	6L0912	22875	12/4/2019	10:10	12/5/2019	9:09	-29	-6.5			X	

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
<i>[Signature]</i>	12-5-19	12:00	<i>[Signature]</i>	12/5/19	09:38
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Shipper Name: <i>[Signature]</i>	Custody Seals Intact?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> None
----------------------------------	-----------------------	---	-----------------------------	-------------------------------

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

12/16/2019
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1912200

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 12/9/2019 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1912200

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30016344.0001B
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	12/09/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	12/16/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SSMP-12001STARK-01_120519	TO-15	5.3 "Hg	15.3 psi
02A	Lab Blank	TO-15	NA	NA
03A	CCV	TO-15	NA	NA
04A	LCS	TO-15	NA	NA
04AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 
 Technical Director

DATE: 12/16/19

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP – CA009332019-11, VA NELAP - 460197, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005-011, Effective date: 10/18/2019, Expiration date: 10/17/2020.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1912200

One 1 Liter Summa Canister (100% Certified) sample was received on December 09, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12001STARK-01_120519	Date/Time Analyzed:	12/12/19 05:56 PM
Lab ID:	1912200-01A	Dilution Factor:	2.48
Date/Time Collected:	12/5/19 09:39 AM	Instrument/Filename:	msdp.i / p121211
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.2	4.4	4.9	Not Detected
1,4-Dioxane	123-91-1	0.90	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.69	4.4	4.9	Not Detected
Tetrachloroethene	127-18-4	1.0	7.6	8.4	1400
trans-1,2-Dichloroethene	156-60-5	1.1	4.4	4.9	Not Detected
Trichloroethene	79-01-6	0.56	6.0	6.7	1.9 J
Vinyl Chloride	75-01-4	0.46	2.8	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	12/12/19 03:49 PM
Lab ID:	1912200-02A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdp.i / p121207a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.50	1.8	2.0	Not Detected
1,4-Dioxane	123-91-1	0.36	5.0	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.28	1.8	2.0	Not Detected
Tetrachloroethene	127-18-4	0.42	3.0	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.45	1.8	2.0	Not Detected
Trichloroethene	79-01-6	0.22	2.4	2.7	Not Detected
Vinyl Chloride	75-01-4	0.19	1.1	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	CCV	Date/Time Analyzed:	12/12/19 12:41 PM
Lab ID:	1912200-03A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdp.i / p121203
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	99
1,4-Dioxane	123-91-1	102
cis-1,2-Dichloroethene	156-59-2	105
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	102
Trichloroethene	79-01-6	99
Vinyl Chloride	75-01-4	98

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	104

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCS	Date/Time Analyzed:	12/12/19 02:03 PM
Lab ID:	1912200-04A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdp.i / p121204
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	99
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	111
Tetrachloroethene	127-18-4	101
trans-1,2-Dichloroethene	156-60-5	91
Trichloroethene	79-01-6	95
Vinyl Chloride	75-01-4	96

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	101

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: LCSD
Lab ID: 1912200-04AA
Date/Time Collected: NA - Not Applicable
Media: NA - Not Applicable

Date/Time Analyzed: 12/12/19 02:29 PM
Dilution Factor: 1.00
Instrument/Filename: msdp.i / p121205

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	97
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	113
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	91
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	97

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	101

* % Recovery is calculated using unrounded analytical results.



December 16, 2019

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: 30016344.0001B
Client project scopereference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics -Folsom
Laboratory submittal: 1912200
Sample date:2019-12-05
Report received byCADENA: 2019-12-16
Initial DataVerification completed: 2019-12-16
1 Air sample was analyzed for TO-15 parameters.

No data qualifications or sample integrity issues were observed.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) TO-15 Analysis

SDG #1912200

CADENA Verification Report: 2019-12-16

Analyses Performed By:
Eurofins Air Toxics
Folsom, California

Report #35405R
Review Level: Tier III
Project: 30016344.00007



DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 1912200 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
1912200	SSMP-12001STARK-01_120519	1912200-01A	Air	12/5/2019		X		

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15 (Full Scan). Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15	Air	30 days from collection to analysis (Canister)	Ambient Temperature	< -2" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 140% or less than 60% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. All identified compounds met the specified criteria.

6. Field Duplicate Sample Analysis

The field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 35% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are not greater than five times the RL, a control limit of one times the RL is applied to the difference between the duplicate sample results.

A field duplicate was not performed on a sample location within this SDG.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15 (Full Scan)	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-2"Hg)		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Field Duplicate Sample RPD					X
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

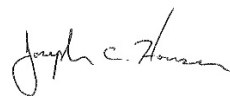
%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:



DATE: January 5, 2020

PEER REVIEW: Dennis Capria

DATE: January 27, 2020



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



**NO CORRECTIONS/QUALIFIERS ADDED
TO SAMPLE ANALYSIS DATA SHEETS**



EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-12001STARK-01_120519	Date/Time Analyzed:	12/12/19 05:56 PM
Lab ID:	1912200-01A	Dilution Factor:	2.48
Date/Time Collected:	12/5/19 09:39 AM	Instrument/Filename:	msdp.i / p121211
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.2	4.4	4.9	Not Detected
1,4-Dioxane	123-91-1	0.90	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.69	4.4	4.9	Not Detected
Tetrachloroethene	127-18-4	1.0	7.6	8.4	1400
trans-1,2-Dichloroethene	156-60-5	1.1	4.4	4.9	Not Detected
Trichloroethene	79-01-6	0.56	6.0	6.7	1.9 J
Vinyl Chloride	75-01-4	0.46	2.8	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	101

Analysis Request /Canister Chain of Custody

For Laboratory Use Only

PID: _____ Workorder # 1912200

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
 Phone (800) 985-5955; Fax (916) 351-8279

Click links below to view:

[Canister Sampling Guide](#)

[Helium Shroud Video](#)

Client:	Ford	PID:	NA	Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting	Turnaround Time (Rush surcharges may apply)			
Project Name:	Ford LTP	P.O.#	30016344.0001B		5 Day Turnaround Time			
Project Manager:	Kris Hinskey				Canister Vacuum/Pressure		Requested Analyses	
Sampler:	Xenia Chan				Lab Use Only			
Site Name:	12001 STARK							

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N ₂ / He	TO-15 (See Special Instructions/Notes)	Do Not Analyze
				Date	Time	Date	Time						
DLA	SSMP-12001STARK-01_120519	1L1756	23329	12/5/2019	9:27	12/5/2019	9:39	-29.5	-6.5			X	
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Relinquished by: (Signature/Affiliation) <i>Kris Hinskey</i>	Date 12-5-19	Time 14:00	Received by: (Signature/Affiliation) <i>S. E. ...</i>	Date 12/09/19	Time 09:38
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Shipper Name: Pcdst Custody Seals Intact? Yes No None

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

Daily Log - Ford Off Site VI Investigation - Other Visit

Project No.: MI001454.0003.00002 / 30016344

Site Location: 12001 STARK

Personnel Onsite: Xenia Chan, Patrick Labadie

Date	Time	Description of Activities
12/3/2019		Purpose: R4V1: Chemical Inventory and Building Survey
		Weather: 30.92 degrees F and Fog/Mist
		Equipment: PID 6157
	10:01	Arcadis on-site; request windows and doors shut during sampling
	10:04	Conducted building survey and chemical inventory.
	10:11	Left caulk and paint cans with the homeowner to place into his truck.
	10:16	Arcadis off-site
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Additional Visit Checklist

Windows and doors are shut (for IA samples only)? yes

Have background sources of VOCs been removed/isolated? yes

Number of SSMP samples collected: 0

Number of indoor/ambient air samples collected: 0

Occupancy hours (for commercial properties only): --

Field Staff Signature:
Xenia Chan

Daily Log - Ford Off Site VI Investigation - Other Visit

Project No.: MI001454.0003.00002 / 30016344

Site Location: 12001 STARK

Personnel Onsite: Xenia Chan, Patrick Labadie

Date	Time	Description of Activities
12/4/2019		Purpose: R4V2 : Canister deployment
		Weather: 37.04 degrees F and Cloudy
		Equipment: PID 6157
	9:58	Arcadis on-site
	10:06	Conduct canister deployment
	10:13	Arcadis off-site
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Additional Visit Checklist

Windows and doors are shut (for IA samples only)? yes

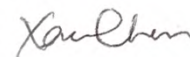
Have background sources of VOCs been removed/isolated? yes

Number of SSMP samples collected: 0

Number of indoor/ambient air samples collected: 0

Occupancy hours (for commercial properties only): --

Field Staff Signature:





Daily Log - Ford Off Site VI Investigation - Other Visit

Project No.: MI001454.0003.00002 / 30016344

Site Location: 12001 STARK

Personnel Onsite: Xenia Chan, Alyssa Obert

Date	Time	Description of Activities
12/5/2019		Purpose: R4V3: Canister collection and SSMP sampling
		Weather: 33.08 degrees F and Mostly Cloudy
		Equipment: Micromanometer
	9:02	Arcadis on-site
	9:37	Collected air canisters and sampled SSMP. Homeowner smoking in garage during sampling of SSMP.
	9:45	Arcadis off-site
	10:30	Arcadis onsite to ask to drop off new garage and DUP canisters due to the failed canister
	10:42	Spoke to homeowner to explain that the canister in the garage failed. Asked to deploy new canister and DUP in garage.
	10:42	Homeowner said he was not available and was not open to a resample until the new year.
	10:48	Arcadis off-site
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Additional Visit Checklist

Windows and doors are shut (for IA samples only)? yes

Have background sources of VOCs been removed/isolated? yes

Number of SSMP samples collected: 1

Number of indoor/ambient air samples collected: 3

Occupancy hours (for commercial properties only): --

Field Staff Signature: Xenia Chan



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM

Date: 10-29-18 Survey Performed by: Hayden Kell
4-17-19 ~~Hayden Kell~~ Madison Olander

1. OCCUPANT:

Rent: _____ Own: 15-16-19 X Chan
 Resident Name: George Awari R3M P. Labadie - owner states
 Address: 12001 Stack Rd. no ~~change~~ change,
 Telephone: Home: 7349687934 Work: _____ since last in it
 Cell: _____
 How long have you lived at this location? Since August 2011 12-3-19 X Chan
R3 R4 P. Labadie

List current occupants/occupation below (attach additional pages if necessary):

Age (if under 18)	Sex (M/F)	Occupation
None		

12-17-2020
new carpeting put in yesterday
-smoking in the garage

2. OWNER OR LANDLORD: (If same as occupant, check here and go to Item No. 3).

Last Name: _____ First Name: _____
 Address: _____
 City and State: _____
 County: _____
 Home Phone: _____ Office Phone: _____



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

3. SENSITIVE POPULATION:

Daycare/Nursing Home/Hospital/School/Other (specify): None

4. BUILDING CHARACTERISTICS:

Residential/Multi-family Residential/Office/Strip Mall/Commercial/Industrial/School

Describe Building: Residential Year Constructed: _____

Number of floors at or above grade: 1

Number of floors below grade: 0 (full basement/crawl space/slab on grade)

Depth of structure below grade: 0 ft. Basement size: 0 ft²

If the property is residential, what type? (Circle all appropriate responses.)

- | | | | |
|---|-----------------------------------|--|--|
| <input checked="" type="checkbox"/> Ranch | <input type="checkbox"/> 2-Family | <input type="checkbox"/> 3-Family | <input type="checkbox"/> Raised Ranch |
| <input type="checkbox"/> Split Level | <input type="checkbox"/> Colonial | <input type="checkbox"/> Cape Cod | <input type="checkbox"/> Contemporary |
| <input type="checkbox"/> Mobile Home | <input type="checkbox"/> Duplex | <input type="checkbox"/> Apartment House | <input type="checkbox"/> Townhouses/Condos |
| <input type="checkbox"/> Modular | <input type="checkbox"/> Log Home | <input type="checkbox"/> Other: _____ | |

If multiple units, how many? _____

If the property is commercial:

Business type(s) NA

Does it include residences (i.e., multi-use)? Yes No If yes, how many? _____

5. OCCUPANCY:

Is basement/lowest level occupied? (Circle one)

Full-time Occasionally Seldom Almost Never



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Level	General Use e.g., family room, bedroom, laundry, workshop, storage)
Basement	NA
1 st Floor	General Use
2 nd Floor	
3 rd Floor	
4 th Floor	

(Use additional page(s) as necessary)

6. CONSTRUCTION CHARACTERISTICS: (Circle all that apply.)

a. Above Grade Construction: (Describe type: wood frame, concrete, stone, brick).

b. Basement Type: Full Crawspace Slab Other: _____

c. Basement Floor: Concrete Dirt Stone Other: Sand

d. Finished Basement Floor: Uncovered Covered NA

If covered, what with? NA

e. Foundation Walls: Poured Block Stone Other: _____

f. Foundation Walls: Unsealed Sealed Sealed with: _____

g. The Basement is: Wet Damp Dry NA

h. The Basement is: Finished Unfinished Partially Finished NA

i. Sump Present (Y/N) (N) If yes, how many? NA

Where Discharged? NA

Water in Sump? Yes No Not Applicable



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Identify all potential soil vapor entry points and estimated size (e.g., cracks, utility parts, drains).

Drains in garage area. Some cracks

Are the basement walls or floor sealed with waterproof paint or epoxy coatings? Yes No

Type of ground cover outside of building: Grass Concrete Asphalt Other

Is an existing subsurface depressurization (radon) system in place? Yes No

If yes, is it active, or passive?

Is a sub-slab vapor/moisture barrier in place? Yes No

Type of barrier: NA

7. HEATING, VENTING, and AIR CONDITIONING

Type of heating system(s) used in this building: (Circle all that apply: Note the primary).

- | | | |
|---|--|--|
| <input checked="" type="checkbox"/> Hot Air Circulation | <input type="checkbox"/> Heat Pump | <input type="checkbox"/> Hot Water Baseboard |
| <input type="checkbox"/> Space Heaters | <input type="checkbox"/> Steam Radiation | <input type="checkbox"/> Radiant Floor |
| <input type="checkbox"/> Electric Baseboard | <input type="checkbox"/> Wood Stove | <input type="checkbox"/> Outdoor Wood Boiler |
| Other: _____ | | |

The primary type of fuel used is:

- | | | |
|--|--------------------------------|--------------------------------|
| <input checked="" type="radio"/> Natural Gas | <input type="radio"/> Fuel Oil | <input type="radio"/> Kerosene |
| <input type="radio"/> Electric | <input type="radio"/> Propane | <input type="radio"/> Solar |
| <input type="radio"/> Wood | <input type="radio"/> Coal | |

Domestic hot water tank fueled by: Natural Gas

Location of Boiler/Furnace: Basement Outdoors Main Floor Other _____



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Air Conditioning: Central Air Window Units Open Windows None

Are air distribution ducts present? Yes No

Is there a whole house fan? Yes No

Describe the air intake system (outside air supply, cold air return, ductwork, etc.) and its condition where visible. Indicate the locations on the floor plan diagram.

Ductwork is in good condition

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

a) Is there an attached garage? Yes No

If yes, does it have a separate heating unit? Yes No

b) Are any petroleum-powered machines or vehicles stored in an attached garage (e.g., lawn mower, ATV, car)? Yes No

c) Has the building ever had a fire? Yes No

d) Is there a fuel burning or unvented gas space heater? Yes No

e) Is there a workshop or hobby/craft area? Yes No

If yes, where and what type? _____

f) Is there smoking in the building? Yes No

If yes, how frequently? _____



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

g) Have cleaning products been used recently?

Yes No

If yes, when and what type? General purpose

h) Have cosmetic products been used recently?

Yes No

If yes, when and what type? _____

i) Has there been painting or staining in the last six months?

Yes No

If yes, when and where? _____

j) Is there new carpet, drapes, or other textiles?

Yes No

If yes, when and where? _____

k) Have air fresheners been used recently?

Yes No

If yes, when and what type? Spray can

l) Is there a kitchen exhaust fan?

Yes No

If yes, where is it vented? _____

m) Is there a clothes dryer?

Yes No

If yes, is it vented outside?

Yes No

n) Has there been a pesticide application?

Yes No

If yes, when and what type? Bug spray used last summer

o) Are there odors in the building?

Yes No

If yes, please describe: _____



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

p) Do any of the building occupants use solvents at work (e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetology)?

Yes No

If yes, what types of solvents are used? NA

If yes, are their clothes washed at work?

Yes No

q) Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response.)

No Unknown

Yes, use dry-cleaning regularly (weekly)

Yes, use dry-cleaning infrequently (monthly or less)

Yes, work at a dry-cleaning service

every 2 weeks

r) Is there a radon mitigation system for the building/structure?

Yes No

If yes, what is date of installation? NA

Active Passive

s) Additional mitigation system information (fan size, location, operating status, liner installed, etc.):

None

t) Is there an irrigation well, or any other well, present at the property:

Yes No

If yes, please describe placement, use, and history below.

NA

PRODUCT INVENTORY FORM:

Make and Model of field instrument used: ppb RAE 3000

List specific products found in the residence or area that have the potential to affect indoor air quality (e.g., gasoline or kerosene storage cans, glues, paints, cleaning solvents/products, polishes/waxes, new furniture/ carpet, nail polish/hairspray/cologne).

Potential Source	Location	Size and Condition	Chemical Ingredients	Field Instrument Reading (units)	Photo Y/N
Gasoline Storage Cans and Equipment	<u>Garage</u>				
Kerosene Storage Cans	<u>—</u>				
Paints/Thinners/Strippers	<u>Garage</u>				
Cleaning Solvents	<u>Garage HL</u>				
Hobby Supplies - Glue, Paint, Etc.	<u>—</u>				
Oven Cleaner	<u>—</u>				
Carpet/Upholstery Cleaners	<u>Kitchen</u>				
Household Cleaners (non-solvent)	<u>Kitchen</u>				
Moth Balls	<u>Garage</u>				
Polishes/Waxes	<u>—</u>				
Insecticides	<u>Garage</u>				
Furniture/Floor Polish	<u>—</u>				
Hairspray	<u>—</u>				
Cologne/Perfume	<u>Bathroom</u>				
Air Fresheners	<u>Bathroom</u>				
Interior Fuel Tank	<u>—</u>				
Wood Stove/Fireplace	<u>Living room</u>				
New Furniture/Upholstery	<u>—</u>				
New Carpeting/Flooring	<u>—</u>				
Others (fill in below)					
Motorcycle					
Snowblower					
Wax Mover					
Misc - Chemicals of concern	MOVED into tote and placed outside Garage				

R4 A10 2/17/2020
R3 resample

PID garage 50ppb
-170 new chemicals since R3. in house

Garage
- Mohl degreasant
- Turtle wax upholstery cleaner
- Meguiar's tire coating
- removed gas can from garage
- removed paint cans and rags from garage, homeowner will place them in his truck
- did not go into the home for chem. inventory
PID house 70ppb

* Spray foam
glass cleaner
* brake cleaner

Great Stuff
Great Stuff
Parts Masker

Garage PID 9+ppb
Chemical Tote PID 57 ppb

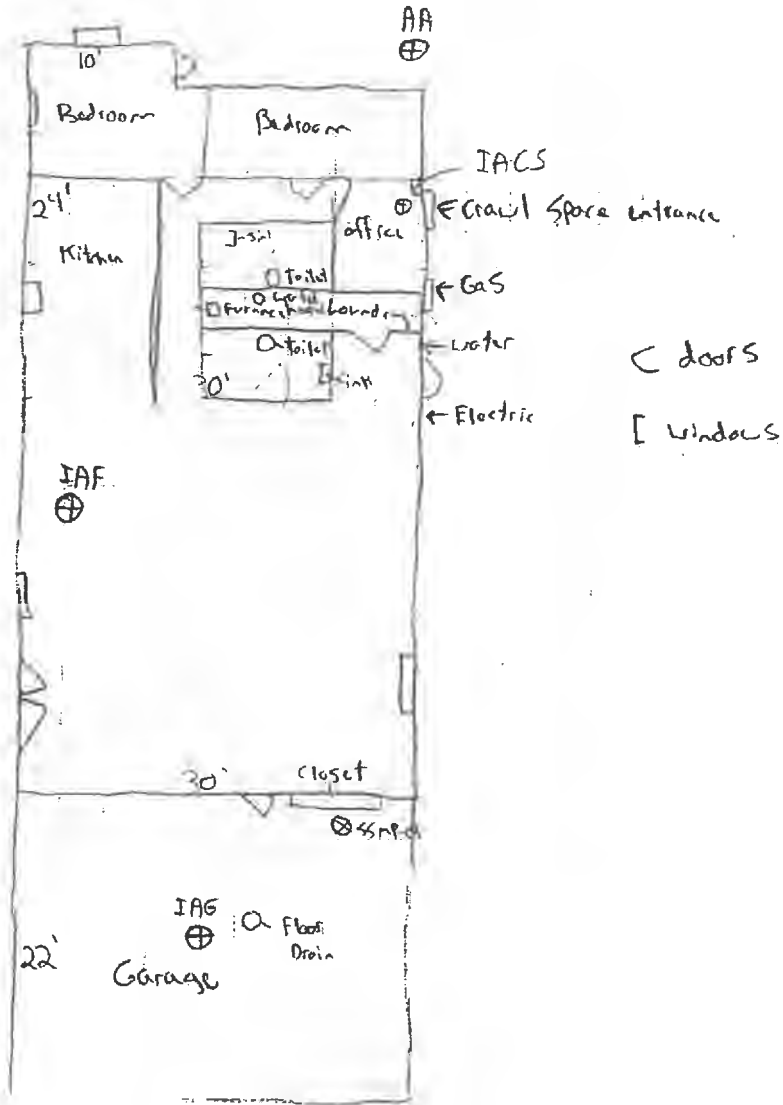
Product Inventory Form

i.e. gasoline cans/equipment, kerosene, paints/thinners/strippers, cleaning solvents, hobby supplies (glues), oven cleaner, carpet/upholstery cleaners, household cleaners, moth balls, polishes/waxes, insecticides, furniture/floor polish, hairspray, cologne/perfume, air fresheners, interior fuel tank, wood stove/fireplace, new furniture/upholstery, new carpet/flooring

Location	Product Description	Chemical Ingredients	Quantity	PID Reading (ppb)	Photo	Removed (Y/N)
Garage	Moth balls	VOCs		0	Y	Y
Garage	Ortho Home defense	insecticides	2 cans	0	Y	Y
Garage	Fast concrete	VOCs	Multiple	0	Y	Y
First Floor	Scrub-sol-air	VOCs	Multiple	0	Y	Y
Garage HL	Freshener					
Garage	Brakleen	VOCs		0	Y	Y
First Floor	Permatex-Pet Epoxy	Volatile	1	0	Y	Y
First Floor	Sight-gard Auto	Volatile	1	0	N	Y
	toilet cleaner					
Garage	Kwikolite - High	VOCs	1	0	N	Y
	Polycure Epoxy					
Garage	Bank-Engine degreaser	VOCs	1	0	N	Y
Garage	Brexitling-Ceramic	VOCs	1	0	N	Y
	Clear Wax					
Garage	WD-40	VOCs	1	0	N	Y
Garage	Ball-King	VOCs	1	0	N	Y
	Shellac					
Garage	Flex Seal	VOCs	1	0	Y	Y
First Floor	Kwik-Lamp Dry	VOCs	1	0	N	Y
Garage	Gasoline	VOCs	3	9500	Y	Y
Garage	Superbond (w/white)	VOCs	2	12	Y	Y
	Hammerhead carpet cleaner		1			
	Caustic		1			
	Gasifier sealant		1			
	off backwood urethane		1			
	Round up		1			
	Antique Fluid		1			
	Paint stripper		1			

still in same tote
 0 ppb
 R3V1
 Chem. L
 1
 to sn
 to

Donald Richmond
 12001 Stark Rd
 10/29/18



N ←

R3 AA-01 ⊕

• SB and IACS only collected during R1 sampling.

R2 AA-01 ⊕
 ⊕ DUP

⊕
 R4
 AA
 A10 2/1/2020

Office Name & Address (Reporting Information): Arcadis of Michigan, LLC 28550 Cabot Drive, Suite 500, Novi, MI 48377		Project Name: Ford LTP Off-site Sampling	
Field Manager: Adam Richmond		Project Number: MI001454.0003 / 30016344	
Phone Number: 248.994.2240	Special Instructions:	Site Address: 12001 STARK	
Email Address for Result Reporting: Kristoffer.Hinskey@arcadis.com	Report ONLY: 1,1-DCE, cis-1,2- DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting.	Sampler Name: Xenia Chan	
Summa Canister Size (1L, 2.7 L, 6L) 6 Liter	Lab: Eurofins		

Sample ID	Sample Location Description	Indoor/ Outdoor	PID in Sampling Area (ppb)	Canister Number	Flow Controller Number	Sample Collection Start Date	Sample Collection Start Time	Beginning Canister Pressure (in. Hg)	Sample Collection End Date	Sample Collection End Time	Ending Canister Pressure (in. Hg)	HVAC System Information						Notes	
												HVAC Fan On Start?	HVAC Fan On End?	Heat On Start?	Heat On End?	Temperature Setting (°F) Start	Temperature Setting (°F) End		
IAF-12001STARK-03_120519	Table in living room	Indoor	77	6L0966	22195	12/4/2019	10:02	-29	12/5/2019	9:12	-8	Yes	yes	Yes	Yes	70	70	--	
IAG12001STARK-02_120519	Garage	Indoor	62	6L0943	40656	12/4/2019	10:04	-29	12/5/2019	9:11	0	Yes	yes	Yes	Yes	70	70	Do Not Analyze	
AA-12001STARK-01_120519	W of house	Outdoor	0	6L0912	22875	12/4/2019	10:10	-29	12/5/2019	9:09	-6.5	--	--	--	--	--	--	--	
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Meteorological Data							General Notes or Observations
Date	Time	Temp. (°F)		Relative Humidity (%)	Barometric Pressure (in. Hg)	Air Speed (mph)	Source of Weather Information
		Indoor	Outdoor				
12/4/2019	9:58	70	37	79	29.54	W 12	weather.com app
12/5/2019	9:14	70	33	68	30.02	W 7	weather.com app
--	--	--	--	--	--	--	weather.com app
--	--	--	--	--	--	--	weather.com app

Office Name & Address (Reporting Information): Arcadis of Michigan, LLC 28550 Cabot Drive, Suite 500, Novi, MI 48377		Project Name: Ford LTP Off-site Sampling	
Field Manager: Adam Richmond		Project Number: MI001454.0003 / 30016344	
Phone Number: 248.994.2240	Special Instructions: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting.	Site Address: 12001 STARK	
Email Address for Result Reporting: Kristoffer.Hinskey@arcadis.com	Helium Detector Model Used: Dielectric MGD-2002	Helium Leak Test Method: Bucket Shroud	Summa Canister Size (1L, 2.7 L, 6L): 1 Liter
		Lab: Eurofins	Sampler Name: Xenia Chan

Sample ID	Sample Location Description	Date	Pre-Sampling Shut-In / Leak-Down Test Pass/Fail?	Helium Tracer Test - Performed During Sample Point Purge			Purge Volume (mL)	Purge Rate (mL/min)	Canister Number	Flow Controller Number	Sample Collection Start Time	Starting Canister Pressure (in. Hg)	Sample Collection End Time	Ending Canister Pressure (in. Hg)	Post-Sampling CO ₂ Reading from GEM (%)	Post-Sampling O ₂ Reading from GEM (%)	Micromanometer Reading (in. WC)
				Shroud Helium Concentration During Purge (% Helium)	Helium Reading in Purged Vapor (% Helium)	Helium Test Pass/Fail (Purge contains <5% of shroud to pass)?											
SSMP-12001STARK-01_120519	Garage	12/5/2019	Pass	48.6	0	Pass	100	100	1L1756	23329	9:27	-29.5	9:39	-6.5	0.1	22.3	0.00948
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Meteorological Data							
Date	Time	Temp. (°F)		Relative Humidity (%)	Barometric Pressure (in. Hg)	Source of Weather Information	Purge Volume Calculations: The purge volume for each sample has been pre-calculated using the information below. For sub-slab soil vapor samples the sample train tubing length is ~54 inches and the interior tubing radius is 0.085". Three volumes of the sample train is 60 milliliters using the equation for volume of a cylinder (volume = pi * radius ² * height) where Volume = 60 ml, radius = 0.85" and height = 54". To have sufficient volume to conduct helium leak testing 100 milliliters should be purged from each sample point. For exterior soil vapor sampling 60 milliliters should be used for the above ground sample train. Each additional foot of sub-grade tubing account for approximately 13 ml. To have sufficient volume to conduct helium leak testing at least 100 milliliters should be purged from each sample point.
		Indoor	Outdoor				
12/5/2019	9:25	70	35	66	30.02	weather.com app	
--	--	--	--	--	--	weather.com app	
--	--	--	--	--	--	weather.com app	General Notes or Observations
--	--	--	--	--	--	weather.com app	
--	--	--	--	--	--	weather.com app	
--	--	--	--	--	--	weather.com app	

Attachment 4

**34360 Capitol Street – Analytical Laboratory Reports,
24-hr Notices, and Data Packages**

ANALYTICAL REPORT

Eurofins TestAmerica, Edison
777 New Durham Road
Edison, NJ 08817
Tel: (732)549-3900

Laboratory Job ID: 460-197504-1
Client Project/Site: Ford LTP Off-Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
12/8/2019 3:00:17 PM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197504-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197504-1

Job ID: 460-197504-1

Laboratory: Eurofins TestAmerica, Edison

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Off-Site

Report Number: 460-197504-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Edison attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 11/23/2019 1:50 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.3° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples Trip Blank (460-197504-1) and MW-128S_112119 (460-197504-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260C. The samples were analyzed on 12/04/2019.

Trichloroethene failed the recovery criteria low for LCS 460-659770/3. Refer to the QC report for details.

The laboratory control sample (LCS) for analytical batch 460-659770 recovered outside the lower control limit for Trichloroethene.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS)

Sample MW-128S_112119 (460-197504-2) was analyzed for Volatile organic compounds (GC/MS) in accordance with SW-846 Method 8260C SIM. The sample was analyzed on 12/03/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197504-1

Client Sample ID: Trip Blank

Lab Sample ID: 460-197504-1

No Detections.

Client Sample ID: MW-128S_112119

Lab Sample ID: 460-197504-2

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Edison

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197504-1

Client Sample ID: Trip Blank

Lab Sample ID: 460-197504-1

Date Collected: 11/21/19 15:30

Matrix: Water

Date Received: 11/23/19 13:50

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.26	ug/L			12/04/19 03:32	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L			12/04/19 03:32	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L			12/04/19 03:32	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L			12/04/19 03:32	1
Trichloroethene	1.0	U *	1.0	0.31	ug/L			12/04/19 03:32	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L			12/04/19 03:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		74 - 132		12/04/19 03:32	1
Toluene-d8 (Surr)	98		80 - 120		12/04/19 03:32	1
Dibromofluoromethane (Surr)	94		72 - 131		12/04/19 03:32	1
4-Bromofluorobenzene	97		77 - 124		12/04/19 03:32	1

Client Sample ID: MW-128S_112119

Lab Sample ID: 460-197504-2

Date Collected: 11/21/19 15:30

Matrix: Water

Date Received: 11/23/19 13:50

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.33	ug/L			12/03/19 04:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	104		72 - 133		12/03/19 04:16	1

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.26	ug/L			12/04/19 16:05	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L			12/04/19 16:05	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L			12/04/19 16:05	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L			12/04/19 16:05	1
Trichloroethene	1.0	U	1.0	0.31	ug/L			12/04/19 16:05	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L			12/04/19 16:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		74 - 132		12/04/19 16:05	1
Toluene-d8 (Surr)	97		80 - 120		12/04/19 16:05	1
Dibromofluoromethane (Surr)	96		72 - 131		12/04/19 16:05	1
4-Bromofluorobenzene	88		77 - 124		12/04/19 16:05	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197504-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (74-132)	TOL (80-120)	DBFM (72-131)	BFB (77-124)
460-197504-1	Trip Blank	96	98	94	97
460-197504-2	MW-128S_112119	98	97	96	88
LCS 460-659770/3	Lab Control Sample	95	98	95	96
LCS 460-659860/3	Lab Control Sample	96	97	98	96
LCSD 460-659770/4	Lab Control Sample Dup	96	98	96	97
LCSD 460-659860/4	Lab Control Sample Dup	95	98	96	97
MB 460-659770/7	Method Blank	101	99	100	96
MB 460-659860/7	Method Blank	97	98	96	96

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

BFB = 4-Bromofluorobenzene

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (72-133)
460-197492-A-2 MS	Matrix Spike	94
460-197492-A-2 MSD	Matrix Spike Duplicate	99
460-197504-2	MW-128S_112119	104
LCS 460-659570/4	Lab Control Sample	91
MB 460-659570/8	Method Blank	98

Surrogate Legend

BFB = 4-Bromofluorobenzene

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197504-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 460-659770/7
Matrix: Water
Analysis Batch: 659770

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.26	ug/L			12/03/19 20:18	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L			12/03/19 20:18	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L			12/03/19 20:18	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L			12/03/19 20:18	1
Trichloroethene	1.0	U	1.0	0.31	ug/L			12/03/19 20:18	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L			12/03/19 20:18	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		74 - 132		12/03/19 20:18	1
Toluene-d8 (Surr)	99		80 - 120		12/03/19 20:18	1
Dibromofluoromethane (Surr)	100		72 - 131		12/03/19 20:18	1
4-Bromofluorobenzene	96		77 - 124		12/03/19 20:18	1

Lab Sample ID: LCS 460-659770/3
Matrix: Water
Analysis Batch: 659770

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	20.0	17.4		ug/L		87	74 - 123
cis-1,2-Dichloroethene	20.0	17.1		ug/L		86	80 - 120
Tetrachloroethene	20.0	16.7		ug/L		84	78 - 122
trans-1,2-Dichloroethene	20.0	17.5		ug/L		88	79 - 120
Trichloroethene	20.0	15.3	*	ug/L		76	77 - 120
Vinyl chloride	20.0	18.3		ug/L		91	62 - 138

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	95		74 - 132
Toluene-d8 (Surr)	98		80 - 120
Dibromofluoromethane (Surr)	95		72 - 131
4-Bromofluorobenzene	96		77 - 124

Lab Sample ID: LCSD 460-659770/4
Matrix: Water
Analysis Batch: 659770

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	20.0	17.5		ug/L		87	74 - 123	0	30
cis-1,2-Dichloroethene	20.0	17.4		ug/L		87	80 - 120	2	30
Tetrachloroethene	20.0	17.0		ug/L		85	78 - 122	2	30
trans-1,2-Dichloroethene	20.0	17.6		ug/L		88	79 - 120	0	30
Trichloroethene	20.0	16.0		ug/L		80	77 - 120	4	30
Vinyl chloride	20.0	18.8		ug/L		94	62 - 138	3	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	96		74 - 132
Toluene-d8 (Surr)	98		80 - 120
Dibromofluoromethane (Surr)	96		72 - 131

Eurofins TestAmerica, Edison

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197504-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 460-659770/4
Matrix: Water
Analysis Batch: 659770

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene	97		77 - 124

Lab Sample ID: MB 460-659860/7
Matrix: Water
Analysis Batch: 659860

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	1.0	U	1.0	0.26	ug/L			12/04/19 08:27	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L			12/04/19 08:27	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L			12/04/19 08:27	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L			12/04/19 08:27	1
Trichloroethene	1.0	U	1.0	0.31	ug/L			12/04/19 08:27	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L			12/04/19 08:27	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	97		74 - 132		12/04/19 08:27	1
Toluene-d8 (Surr)	98		80 - 120		12/04/19 08:27	1
Dibromofluoromethane (Surr)	96		72 - 131		12/04/19 08:27	1
4-Bromofluorobenzene	96		77 - 124		12/04/19 08:27	1

Lab Sample ID: LCS 460-659860/3
Matrix: Water
Analysis Batch: 659860

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
1,1-Dichloroethene	20.0	18.2		ug/L		91	74 - 123
cis-1,2-Dichloroethene	20.0	18.6		ug/L		93	80 - 120
Tetrachloroethene	20.0	18.3		ug/L		91	78 - 122
trans-1,2-Dichloroethene	20.0	18.7		ug/L		94	79 - 120
Trichloroethene	20.0	17.0		ug/L		85	77 - 120
Vinyl chloride	20.0	18.8		ug/L		94	62 - 138

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	96		74 - 132
Toluene-d8 (Surr)	97		80 - 120
Dibromofluoromethane (Surr)	98		72 - 131
4-Bromofluorobenzene	96		77 - 124

Lab Sample ID: LCSD 460-659860/4
Matrix: Water
Analysis Batch: 659860

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
		Result	Qualifier						
1,1-Dichloroethene	20.0	20.6		ug/L		103	74 - 123	13	30
cis-1,2-Dichloroethene	20.0	20.9		ug/L		104	80 - 120	11	30
Tetrachloroethene	20.0	20.6		ug/L		103	78 - 122	12	30
trans-1,2-Dichloroethene	20.0	21.0		ug/L		105	79 - 120	11	30
Trichloroethene	20.0	18.8		ug/L		94	77 - 120	10	30

Eurofins TestAmerica, Edison

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197504-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 460-659860/4
Matrix: Water
Analysis Batch: 659860

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Vinyl chloride	20.0	21.5		ug/L		108	62 - 138	14	30
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	95		74 - 132						
Toluene-d8 (Surr)	98		80 - 120						
Dibromofluoromethane (Surr)	96		72 - 131						
4-Bromofluorobenzene	97		77 - 124						

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 460-659570/8
Matrix: Water
Analysis Batch: 659570

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.33	ug/L			12/02/19 23:16	1
Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac			
4-Bromofluorobenzene	98		72 - 133		12/02/19 23:16	1			

Lab Sample ID: LCS 460-659570/4
Matrix: Water
Analysis Batch: 659570

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,4-Dioxane	5.00	5.13		ug/L		103	66 - 135		
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
4-Bromofluorobenzene	91		72 - 133						

Lab Sample ID: 460-197492-A-2 MS
Matrix: Water
Analysis Batch: 659570

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,4-Dioxane	2.0	U	5.00	3.93		ug/L		79	66 - 135		
Surrogate	MS %Recovery	MS Qualifier	Limits								
4-Bromofluorobenzene	94		72 - 133								

Lab Sample ID: 460-197492-A-2 MSD
Matrix: Water
Analysis Batch: 659570

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	2.0	U	5.00	4.44		ug/L		89	66 - 135	12	30

Eurofins TestAmerica, Edison

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197504-1

Method: 8260C SIM - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 460-197492-A-2 MSD
Matrix: Water
Analysis Batch: 659570

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

<i>Surrogate</i>	<i>MSD</i> <i>%Recovery</i>	<i>MSD</i> <i>Qualifier</i>	<i>Limits</i>
4-Bromofluorobenzene	99		72 - 133

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QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197504-1

GC/MS VOA

Analysis Batch: 659570

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-197504-2	MW-128S_112119	Total/NA	Water	8260C SIM	
MB 460-659570/8	Method Blank	Total/NA	Water	8260C SIM	
LCS 460-659570/4	Lab Control Sample	Total/NA	Water	8260C SIM	
460-197492-A-2 MS	Matrix Spike	Total/NA	Water	8260C SIM	
460-197492-A-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260C SIM	

Analysis Batch: 659770

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-197504-1	Trip Blank	Total/NA	Water	8260C	
MB 460-659770/7	Method Blank	Total/NA	Water	8260C	
LCS 460-659770/3	Lab Control Sample	Total/NA	Water	8260C	
LCSD 460-659770/4	Lab Control Sample Dup	Total/NA	Water	8260C	

Analysis Batch: 659860

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-197504-2	MW-128S_112119	Total/NA	Water	8260C	
MB 460-659860/7	Method Blank	Total/NA	Water	8260C	
LCS 460-659860/3	Lab Control Sample	Total/NA	Water	8260C	
LCSD 460-659860/4	Lab Control Sample Dup	Total/NA	Water	8260C	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197504-1

Client Sample ID: Trip Blank

Date Collected: 11/21/19 15:30

Date Received: 11/23/19 13:50

Lab Sample ID: 460-197504-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	659770	12/04/19 03:32	VBP	TAL EDI

Client Sample ID: MW-128S_112119

Date Collected: 11/21/19 15:30

Date Received: 11/23/19 13:50

Lab Sample ID: 460-197504-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	659860	12/04/19 16:05	SZD	TAL EDI
Total/NA	Analysis	8260C SIM		1	659570	12/03/19 04:16	KLB	TAL EDI

Laboratory References:

TAL EDI = Eurofins TestAmerica, Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197504-1

Laboratory: Eurofins TestAmerica, Edison

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Connecticut	State	PH-0200	09-30-20
DE Haz. Subst. Cleanup Act (HSCA)	State	<cert No.>	12-31-21
Georgia	State	12028 (NJ)	06-30-20
Massachusetts	State	M-NJ312	06-30-20
Massachusetts	State Program	M-NJ312	06-30-20
New Jersey	NELAP	12028	06-30-20
New York	NELAP	11452	04-01-20
Pennsylvania	NELAP	68-00522	02-28-20
Rhode Island	State	LAO00132	12-30-19
USDA	US Federal Programs	P330-18-00135	05-03-21

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-20
Connecticut	State	PH-0590	12-31-19
Florida	NELAP	E87225	06-30-20
Georgia	State	4062	02-23-20
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-20
Kansas	NELAP	E-10336	04-30-20
Kentucky (UST)	State	112225	02-23-20
Kentucky (WW)	State	KY98016	12-31-19
Minnesota	NELAP	OH00048	12-31-19
Minnesota (Petrofund)	State Program	3506	07-31-21
New Jersey	NELAP	OH001	06-30-20
New York	NELAP	10975	03-31-20
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-23-20
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-16-00404	12-28-19
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-20
West Virginia DEP	State	210	12-31-19

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197504-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL EDI
8260C SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL EDI
5030C	Purge and Trap	SW846	TAL EDI

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL EDI = Eurofins TestAmerica, Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197504-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
460-197504-1	Trip Blank	Water	11/21/19 15:30	11/23/19 13:50	
460-197504-2	MW-128S_112119	Water	11/21/19 15:30	11/23/19 13:50	

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Chain of Custody Record



THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratory location: Brighton — 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2783

Company Name: Arcadis Address: 28950 Cabot Drive, Suite 500 City/State/Zip: Novi, MI 48377 Phone: 248-994-2340 Project Name: Ford LTR Off-Site Project Number: 30016346.0002B PO # 30016346.0002B		Client Contact Regulatory Program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other Client Project Manager: Kris Hinsley Telephone: 248-994-2340 Email: krisfor@arcadis.com		Site Contact: Rachel Bielar Telephone: 248-946-6331 Lab Contact: Mike DellMonico Telephone: 330-497-9396		TestAmerica Laboratories, Inc. COC No.: _____ of _____ COCS	
Sample Identification Sample Date: _____ Sample Time: _____ Sample Name: <i>MW-1285-112119</i> Method of Ship/Carrier: _____ Shipping/Tracking No.: _____		Analyses <input type="checkbox"/> TAT if different from below <input type="checkbox"/> 3 weeks <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Analyses <input type="checkbox"/> 1,1-DCE 8260B <input type="checkbox"/> cis-1,2-DCE 8260B <input type="checkbox"/> Trans-1,2-DCE 8260B <input type="checkbox"/> PCE 8260B <input type="checkbox"/> TCE 8260B <input type="checkbox"/> Vinyl Chloride 8260B <input type="checkbox"/> 1,4-Dioxane 8260B SIM		Sample Specific Notes / Special Instructions: <i>TRIP BLANK</i> <i>3 VOCs 8260B</i> <i>3 VOCs 8260B STA</i>	
TRIP BLANK MW-1285-112119		<input type="checkbox"/> Air <input checked="" type="checkbox"/> Aqueous <input type="checkbox"/> Sediment <input type="checkbox"/> Solid <input type="checkbox"/> Other:	<input type="checkbox"/> H2SO4 <input type="checkbox"/> HNO3 <input type="checkbox"/> HCl <input type="checkbox"/> NaOH <input type="checkbox"/> ZnAc <input type="checkbox"/> NaOH <input type="checkbox"/> Unpres <input type="checkbox"/> Other:	<input type="checkbox"/> 1,1-DCE 8260B <input type="checkbox"/> cis-1,2-DCE 8260B <input type="checkbox"/> Trans-1,2-DCE 8260B <input type="checkbox"/> PCE 8260B <input type="checkbox"/> TCE 8260B <input type="checkbox"/> Vinyl Chloride 8260B <input type="checkbox"/> 1,4-Dioxane 8260B SIM	<input type="checkbox"/> 1,1-DCE 8260B <input type="checkbox"/> cis-1,2-DCE 8260B <input type="checkbox"/> Trans-1,2-DCE 8260B <input type="checkbox"/> PCE 8260B <input type="checkbox"/> TCE 8260B <input type="checkbox"/> Vinyl Chloride 8260B <input type="checkbox"/> 1,4-Dioxane 8260B SIM	<input type="checkbox"/> 1,1-DCE 8260B <input type="checkbox"/> cis-1,2-DCE 8260B <input type="checkbox"/> Trans-1,2-DCE 8260B <input type="checkbox"/> PCE 8260B <input type="checkbox"/> TCE 8260B <input type="checkbox"/> Vinyl Chloride 8260B <input type="checkbox"/> 1,4-Dioxane 8260B SIM	
Relinquished by: <i>RACHEL BIELAR</i> Relinquished by: <i>ARCADIS</i> Relinquished by: <i>ARCADIS</i> Relinquished by: <i>ARCADIS</i>		Company: Arcadis Company: Arcadis Company: Arcadis Company: Arcadis	Date/Time: 11/21/19 1730 Date/Time: 11/21/19 1830 Date/Time: 11/22/19 1015 Date/Time: 11/22/19 1015	Received by: <i>John Doe</i> Received by: <i>John Doe</i> Received by: <i>John Doe</i> Received by: <i>John Doe</i>	Company: Arcadis Company: Arcadis Company: Arcadis Company: Arcadis	Date/Time: 11/21/19 1730 Date/Time: 11/21/19 1830 Date/Time: 11/22/19 1015 Date/Time: 11/22/19 1015	
Special Instructions/QC Requirements & Comments: Submit all results through Cadena at jim.tomalia@cadenacom.com, Cadena #E203631 Level IV Reporting requested.		Sample Disposal: <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposed By Lab <input type="checkbox"/> Archive For _____ Months		Barcode: 460-197504 Chain of Custody			

BRN 5.08 CS 1055399
DBauch SD EPA 11/23 1350

**Eurofins TestAmerica Edison
Receipt Temperature and pH Log**

Page ____ of ____

Job Number:

197504

Number of Coolers: 1

IR Gun # 1

Cooler Temperatures

	RAW		CORRECTED		RAW		CORRECTED		RAW		CORRECTED	
	Temp	°C	Temp	°C	Temp	°C	Temp	°C	Temp	°C	Temp	°C
Cooler #1:	<u>50</u>	°C	<u>53</u>	°C	Cooler #4:	°C	°C	Cooler #7:	°C	°C	°C	°C
Cooler #2:	°C	°C	°C	°C	Cooler #5:	°C	°C	Cooler #8:	°C	°C	°C	°C
Cooler #3:	°C	°C	°C	°C	Cooler #6:	°C	°C	Cooler #9:	°C	°C	°C	°C

Ammonia COD Nitrate Nitrite Metals * Hardness Pest EPH or QAM Phenols Sulfide TKN TOC Total Cyanide Total Phos Other Other

TALS Sample Number	pH<2		pH<2		pH<2		pH<2		pH<2		pH<2		pH<2		pH<2		pH<2		pH<2		pH<2		
	RAW	CORRECTED	RAW	CORRECTED	RAW	CORRECTED	RAW	CORRECTED	RAW	CORRECTED	RAW	CORRECTED	RAW	CORRECTED	RAW	CORRECTED	RAW	CORRECTED	RAW	CORRECTED	RAW	CORRECTED	

If pH adjustments are required record the information below:

Sample No(s), adjusted: _____

Preservative Name/Conc.: _____

Lot # of Preservative(s): _____

Volume of Preservative used (ml): _____

Expiration Date: _____

Initials: [Signature]

Date: 11/23

The appropriate Project Manager and Department Manager should be notified about the samples which were pH adjusted.
* Samples for Metal analysis which are out of compliance must be acidified at least 24 hours prior to analysis.

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 460-197504-1

Login Number: 197504

List Source: Eurofins TestAmerica, Edison

List Number: 1

Creator: DiGuardia, Joseph L

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-134639-1
Client Project/Site: Ford LTP Off-Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
8/20/2020 9:46:58 AM

Michael DelMonico, Project Manager I
(330)497-9396
Michael.DelMonico@Eurofinset.com

LINKS

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results through
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www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134639-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134639-1

Job ID: 240-134639-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Off-Site

Report Number: 240-134639-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 8/7/2020 9:20 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 4.0° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-134639-1) and MW-128S_080420 (240-134639-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 08/14/2020.

cis-1,2-Dichloroethene failed the recovery criteria high for LCS 240-447176/4. Refer to the QC report for details.

The laboratory control sample (LCS) for 447176 recovered outside control limits for one or multiple analytes. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported: TRIP BLANK (240-134639-1), MW-128S_080420 (240-134639-2) and (LCS 240-447176/4).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-128S_080420 (240-134639-2) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 08/11/2020.

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134639-1

Job ID: 240-134639-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

An MS/MSD was done in 240-446478 however the sample and the MS/MSD could not be reported. The effected sample is MW-128S_080420 (240-134639-2).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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- 13
- 14

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134639-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134639-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-134639-1	TRIP BLANK	Water	08/04/20 00:00	08/07/20 09:20	
240-134639-2	MW-128S_080420	Water	08/04/20 11:10	08/07/20 09:20	

- 1
- 2
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- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134639-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134639-1

No Detections.

Client Sample ID: MW-128S_080420

Lab Sample ID: 240-134639-2

No Detections.

- 1
- 2
- 3
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- 8
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- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off-Site

Job ID: 240-134639-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134639-1

Date Collected: 08/04/20 00:00

Matrix: Water

Date Received: 08/07/20 09:20

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/14/20 11:29	1
cis-1,2-Dichloroethene	1.0	U *	1.0	0.38	ug/L			08/14/20 11:29	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/14/20 11:29	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/14/20 11:29	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/14/20 11:29	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/14/20 11:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		75 - 130		08/14/20 11:29	1
4-Bromofluorobenzene (Surr)	104		47 - 134		08/14/20 11:29	1
Toluene-d8 (Surr)	106		69 - 122		08/14/20 11:29	1
Dibromofluoromethane (Surr)	123		78 - 129		08/14/20 11:29	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off-Site

Job ID: 240-134639-1

Client Sample ID: MW-128S_080420

Lab Sample ID: 240-134639-2

Date Collected: 08/04/20 11:10

Matrix: Water

Date Received: 08/07/20 09:20

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L	-		08/11/20 07:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	75		70 - 133		08/11/20 07:01	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L	-		08/14/20 11:51	1
cis-1,2-Dichloroethene	1.0	U *	1.0	0.38	ug/L	-		08/14/20 11:51	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L	-		08/14/20 11:51	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L	-		08/14/20 11:51	1
Trichloroethene	1.0	U	1.0	0.36	ug/L	-		08/14/20 11:51	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L	-		08/14/20 11:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		75 - 130		08/14/20 11:51	1
4-Bromofluorobenzene (Surr)	99		47 - 134		08/14/20 11:51	1
Toluene-d8 (Surr)	99		69 - 122		08/14/20 11:51	1
Dibromofluoromethane (Surr)	115		78 - 129		08/14/20 11:51	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134639-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-134639-1	TRIP BLANK	102	104	106	123
240-134639-2	MW-128S_080420	99	99	99	115
240-134647-C-6 MS	Matrix Spike	103	107	105	125
240-134647-D-6 MSD	Matrix Spike Duplicate	103	103	105	124
LCS 240-447176/4	Lab Control Sample	102	102	107	123
MB 240-447176/6	Method Blank	102	103	105	120

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-133)
240-134639-2	MW-128S_080420	75
LCS 240-446478/4	Lab Control Sample	77
MB 240-446478/5	Method Blank	79

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134639-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-447176/6
Matrix: Water
Analysis Batch: 447176

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/14/20 09:38	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/14/20 09:38	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/14/20 09:38	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/14/20 09:38	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/14/20 09:38	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/14/20 09:38	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		75 - 130		08/14/20 09:38	1
4-Bromofluorobenzene (Surr)	103		47 - 134		08/14/20 09:38	1
Toluene-d8 (Surr)	105		69 - 122		08/14/20 09:38	1
Dibromofluoromethane (Surr)	120		78 - 129		08/14/20 09:38	1

Lab Sample ID: LCS 240-447176/4
Matrix: Water
Analysis Batch: 447176

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	12.4		ug/L		124	73 - 129
cis-1,2-Dichloroethene	10.0	12.5	*	ug/L		125	75 - 124
Tetrachloroethene	10.0	11.7		ug/L		117	70 - 125
trans-1,2-Dichloroethene	10.0	12.3		ug/L		123	74 - 130
Trichloroethene	10.0	11.4		ug/L		114	71 - 121
Vinyl chloride	10.0	11.8		ug/L		118	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	102		75 - 130
4-Bromofluorobenzene (Surr)	102		47 - 134
Toluene-d8 (Surr)	107		69 - 122
Dibromofluoromethane (Surr)	123		78 - 129

Lab Sample ID: 240-134647-C-6 MS
Matrix: Water
Analysis Batch: 447176

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U	10.0	11.2		ug/L		112	64 - 132
cis-1,2-Dichloroethene	1.0	U *	10.0	11.7		ug/L		117	68 - 121
Tetrachloroethene	1.0	U	10.0	9.90		ug/L		99	52 - 129
trans-1,2-Dichloroethene	1.0	U	10.0	12.0		ug/L		120	69 - 126
Trichloroethene	1.0	U	10.0	10.8		ug/L		108	56 - 124
Vinyl chloride	4.7		10.0	16.3		ug/L		115	49 - 136

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	103		75 - 130
4-Bromofluorobenzene (Surr)	107		47 - 134
Toluene-d8 (Surr)	105		69 - 122

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134639-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-134647-C-6 MS
Matrix: Water
Analysis Batch: 447176

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	125		78 - 129

Lab Sample ID: 240-134647-D-6 MSD
Matrix: Water
Analysis Batch: 447176

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD MSD		Unit	D	%Rec	%Rec.		RPD	Limit
				Result	Qualifier				Limits	RPD		
1,1-Dichloroethene	1.0	U	10.0	11.7		ug/L		117	64 - 132	4	35	
cis-1,2-Dichloroethene	1.0	U *	10.0	11.9		ug/L		119	68 - 121	1	35	
Tetrachloroethene	1.0	U	10.0	10.2		ug/L		102	52 - 129	3	35	
trans-1,2-Dichloroethene	1.0	U	10.0	11.5		ug/L		115	69 - 126	4	35	
Trichloroethene	1.0	U	10.0	10.6		ug/L		106	56 - 124	1	35	
Vinyl chloride	4.7		10.0	16.7		ug/L		120	49 - 136	3	35	

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	103		75 - 130
4-Bromofluorobenzene (Surr)	103		47 - 134
Toluene-d8 (Surr)	105		69 - 122
Dibromofluoromethane (Surr)	124		78 - 129

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-446478/5
Matrix: Water
Analysis Batch: 446478

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/11/20 05:46	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	79		70 - 133		08/11/20 05:46	1

Lab Sample ID: LCS 240-446478/4
Matrix: Water
Analysis Batch: 446478

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec.	
		Result	Qualifier				Limits	RPD
1,4-Dioxane	10.0	9.73		ug/L		97	80 - 135	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	77		70 - 133

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134639-1

GC/MS VOA

Analysis Batch: 446478

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134639-2	MW-128S_080420	Total/NA	Water	8260B SIM	
MB 240-446478/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-446478/4	Lab Control Sample	Total/NA	Water	8260B SIM	

Analysis Batch: 447176

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134639-1	TRIP BLANK	Total/NA	Water	8260B	
240-134639-2	MW-128S_080420	Total/NA	Water	8260B	
MB 240-447176/6	Method Blank	Total/NA	Water	8260B	
LCS 240-447176/4	Lab Control Sample	Total/NA	Water	8260B	
240-134647-C-6 MS	Matrix Spike	Total/NA	Water	8260B	
240-134647-D-6 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	



Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134639-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134639-1

Date Collected: 08/04/20 00:00

Matrix: Water

Date Received: 08/07/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	447176	08/14/20 11:29	LEE	TAL CAN

Client Sample ID: MW-128S_080420

Lab Sample ID: 240-134639-2

Date Collected: 08/04/20 11:10

Matrix: Water

Date Received: 08/07/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	447176	08/14/20 11:51	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	446478	08/11/20 07:01	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134639-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-20 *
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Canton

Chain of Custody Record

TestAmerica Laboratory location: Brighton --- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Client Contact Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240 Project Name: Ford LTP Off-Site Project Number: 30050315.402.04 PO # 30050315.402.04			Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other		
Client Project Manager: Kris Hlinsky Telephone: 248-994-2240 Email: krisloffler.hlinsky@arcadis.com			Lab Contact: Mike DeMontico Telephone: 330-497-9396		
Sampler Name: Emma Witherspoon			Analysis Turnaround Time TAT if different from below 10 day		
Method of Shipment/Carrier: Shipping/Tracking No:			Analysis Walk-in client Lab sampling Job/SDG No:		
Sample Identification TRIP BLANK MW-1285_080420			Sample Specific Notes / Special Instructions: 1 TRIP BLANK 43 VOLS FOR 8/6/20 3 VOLS FOR 8/26/20		
Sample Date: 8/4/20 Sample Time: 1110			Filtered Sample (Y/N) NG NG		
Matrix Aqueous <input checked="" type="checkbox"/> Air <input checked="" type="checkbox"/> Sediment <input type="checkbox"/> Solid <input type="checkbox"/> Other:			Containers & Preservatives H2SO4 <input type="checkbox"/> HNO3 <input type="checkbox"/> HCl <input checked="" type="checkbox"/> NaOH <input type="checkbox"/> ZnAc <input type="checkbox"/> Urea <input type="checkbox"/> Other:		
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Corrosive <input type="checkbox"/> Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unlabeled			Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		
Special Instructions/QC Requirements & Comments: Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203631 Level IV Reporting requested.			Company: Arcadis Received by: [Signature] Date/Time: 8/4/2020/1545		
Company: Arcadis Received by: [Signature] Date/Time: 8/6/2020/12:50			Company: Arcadis Received by: [Signature] Date/Time: 8/6/20 12:50		
Company: Arcadis Received by: [Signature] Date/Time: 8/6/20 13:00			Company: Arcadis Received by: [Signature] Date/Time: 8/7-20 9:20		



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Eurofins TestAmerica Canton Sample Receipt Form/Narrative					Login # : <u>134639</u>	
Canton Facility						
Client <u>Arcadis</u>		Site Name _____			Cooler unpacked by: <u>[Signature]</u>	
Cooler Received on <u>8-7-20</u>		Opened on <u>8-7-20</u>				
FedEx: 1 st <input checked="" type="checkbox"/> Grd <input type="checkbox"/> Exp <input type="checkbox"/> UPS <input type="checkbox"/> FAS <input type="checkbox"/> Clipper		Client Drop Off		TestAmerica Courier		Other _____
Receipt After-hours: Drop-off Date/Time				Storage Location		
TestAmerica Cooler # <u>7A</u>		Foam Box	Client Cooler	Box	Other _____	
Packing material used: <u>Bubble Wrap</u>		Foam	<u>Plastic Bag</u>	None	Other _____	
COOLANT: <u>Wet Ice</u>		Blue Ice	Dry Ice	Water	None	
1. Cooler temperature upon receipt		<input checked="" type="checkbox"/> See Multiple Cooler Form				
IR GUN# IR-10 (CF +0.7 °C)		Observed Cooler Temp. _____ °C	Corrected Cooler Temp. _____ °C			
IR GUN #IR-11 (CF +0.9 °C)		Observed Cooler Temp. _____ °C	Corrected Cooler Temp. _____ °C			
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity <u>4</u>		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No			
-Were the seals on the outside of the cooler(s) signed & dated?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	NA		
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No			
-Were tamper/custody seals intact and uncompromised?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	NA		
3. Shippers' packing slip attached to the cooler(s)?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No			
4. Did custody papers accompany the sample(s)?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No			
5. Were the custody papers relinquished & signed in the appropriate place?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No			
6. Was/were the person(s) who collected the samples clearly identified on the COC?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No			
7. Did all bottles arrive in good condition (Unbroken)?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No			
8. Could all bottle labels be reconciled with the COC?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No			
9. Were correct bottle(s) used for the test(s) indicated?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No			
10. Sufficient quantity received to perform indicated analyses?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No			
11. Are these work share samples?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No			
If yes, Questions 12-16 have been checked at the originating laboratory.						
12. Were all preserved sample(s) at the correct pH upon receipt?		Yes	No	<u>NA</u>	pH Strip Lot# <u>HC911298</u>	
13. Were VOAs on the COC?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No			
14. Were air bubbles >6 mm in any VOA vials? Larger than this.		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	NA		
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # <u>NA</u>		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No			
16. Was a LL Hg or Me Hg trip blank present?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No			
Contacted PM _____ Date _____ by _____		via Verbal Voice Mail Other _____				
Concerning _____						
17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES					Samples processed by: _____	

18. SAMPLE CONDITION						
Sample(s) _____ were received after the recommended holding time had expired.						
Sample(s) _____ were received in a broken container.						
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)						
19. SAMPLE PRESERVATION						
Sample(s) _____ were further preserved in the laboratory.						
Time preserved: _____ Preservative(s) added/Lot number(s): _____						
VOA Sample Preservation - Date/Time VOAs Frozen: _____						

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Miss Botenby

Eurofins TestAmerica Canton Sample Receipt Multiple Cooler Form

Cooler Description (Circle)	IR Gun # (Circle)		Observed Temp °C	Corrected Temp °C	Coolant (Circle)		
	Client	Box			Other	Wet Ice	Blue Ice
TA <input checked="" type="radio"/> Client <input type="radio"/> Box <input type="radio"/> Other	IR-10	<input checked="" type="radio"/> IR-11	3.1	4.0	<input checked="" type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA <input checked="" type="radio"/> Client <input type="radio"/> Box <input type="radio"/> Other	IR-10	<input checked="" type="radio"/> IR-11	1.2	2.2	<input checked="" type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA <input checked="" type="radio"/> Client <input type="radio"/> Box <input type="radio"/> Other	IR-10	<input checked="" type="radio"/> IR-11	1.3	2.2	<input checked="" type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA <input checked="" type="radio"/> Client <input type="radio"/> Box <input type="radio"/> Other	IR-10	<input checked="" type="radio"/> IR-11	1.6	2.5	<input checked="" type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA Client Box Other	IR-10	IR-11			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA Client Box Other	IR-10	IR-11			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA Client Box Other	IR-10	IR-11			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA Client Box Other	IR-10	IR-11			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA Client Box Other	IR-10	IR-11			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA Client Box Other	IR-10	IR-11			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA Client Box Other	IR-10	IR-11			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA Client Box Other	IR-10	IR-11			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA Client Box Other	IR-10	IR-11			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA Client Box Other	IR-10	IR-11			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA Client Box Other	IR-10	IR-11			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA Client Box Other	IR-10	IR-11			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA Client Box Other	IR-10	IR-11			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA Client Box Other	IR-10	IR-11			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA Client Box Other	IR-10	IR-11			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA Client Box Other	IR-10	IR-11			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA Client Box Other	IR-10	IR-11			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA Client Box Other	IR-10	IR-11			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA Client Box Other	IR-10	IR-11			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA Client Box Other	IR-10	IR-11			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA Client Box Other	IR-10	IR-11			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA Client Box Other	IR-10	IR-11			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA Client Box Other	IR-10	IR-11			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA Client Box Other	IR-10	IR-11			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA Client Box Other	IR-10	IR-11			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA Client Box Other	IR-10	IR-11			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA Client Box Other	IR-10	IR-11			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA Client Box Other	IR-10	IR-11			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA Client Box Other	IR-10	IR-11			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA Client Box Other	IR-10	IR-11			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
TA Client Box Other	IR-10	IR-11			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice

See Temperature Excursion Form

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton

4101 Shuffel Street NW

North Canton, OH 44720

Tel: (330)497-9396

TestAmerica Job ID: 240-106467-3

Client Project/Site: Ford LTP Livonia MI - E203631

For:

ARCADIS U.S., Inc.

28550 Cabot Drive

Suite 500

Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:

1/18/2019 2:37:01 PM

Michael DelMonico, Project Manager I

(330)497-9396

michael.delmonico@testamericainc.com

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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-106467-3

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-106467-3

Job ID: 240-106467-3

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Livonia MI - E203631

Report Number: 240-106467-3

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 1/3/2019 8:35 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.2° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples MW-128S_122718 (240-106467-2) and DUP-03_122718 (240-106467-3) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 01/08/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Samples MW-128S_122718 (240-106467-2) and DUP-03_122718 (240-106467-3) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 01/08/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-106467-3

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-106467-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-106467-2	MW-128S_122718	Water	12/27/18 09:55	01/03/19 08:35
240-106467-3	DUP-03_122718	Water	12/27/18 00:00	01/03/19 08:35

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- 11
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Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-106467-3

Client Sample ID: MW-128S_122718

Lab Sample ID: 240-106467-2

No Detections.

Client Sample ID: DUP-03_122718

Lab Sample ID: 240-106467-3

No Detections.

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This Detection Summary does not include radiochemical test results.

TestAmerica Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-106467-3

Client Sample ID: MW-128S_122718

Lab Sample ID: 240-106467-2

Date Collected: 12/27/18 09:55

Matrix: Water

Date Received: 01/03/19 08:35

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			01/08/19 19:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		63 - 125					01/08/19 19:19	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			01/08/19 15:49	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			01/08/19 15:49	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			01/08/19 15:49	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			01/08/19 15:49	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			01/08/19 15:49	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			01/08/19 15:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		70 - 121					01/08/19 15:49	1
4-Bromofluorobenzene (Surr)	73		59 - 120					01/08/19 15:49	1
Toluene-d8 (Surr)	75		70 - 123					01/08/19 15:49	1
Dibromofluoromethane (Surr)	113		75 - 128					01/08/19 15:49	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-106467-3

Client Sample ID: DUP-03_122718

Lab Sample ID: 240-106467-3

Date Collected: 12/27/18 00:00

Matrix: Water

Date Received: 01/03/19 08:35

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			01/08/19 19:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		63 - 125					01/08/19 19:45	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			01/08/19 16:11	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			01/08/19 16:11	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			01/08/19 16:11	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			01/08/19 16:11	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			01/08/19 16:11	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			01/08/19 16:11	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	116		70 - 121					01/08/19 16:11	1
4-Bromofluorobenzene (Surr)	75		59 - 120					01/08/19 16:11	1
Toluene-d8 (Surr)	79		70 - 123					01/08/19 16:11	1
Dibromofluoromethane (Surr)	118		75 - 128					01/08/19 16:11	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-106467-3

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-121)	BFB (59-120)	TOL (70-123)	DBFM (75-128)
240-106467-2	MW-128S_122718	113	73	75	113
240-106467-3	DUP-03_122718	116	75	79	118

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (63-125)
240-106467-2	MW-128S_122718	86
240-106467-3	DUP-03_122718	91

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-106467-3

GC/MS VOA

Analysis Batch: 363151

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-106467-2	MW-128S_122718	Total/NA	Water	8260B	
240-106467-3	DUP-03_122718	Total/NA	Water	8260B	

Analysis Batch: 363200

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-106467-2	MW-128S_122718	Total/NA	Water	8260B SIM	
240-106467-3	DUP-03_122718	Total/NA	Water	8260B SIM	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-106467-3

Client Sample ID: MW-128S_122718

Lab Sample ID: 240-106467-2

Date Collected: 12/27/18 09:55

Matrix: Water

Date Received: 01/03/19 08:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	363151	01/08/19 15:49	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	363200	01/08/19 19:19	SAM	TAL CAN

Client Sample ID: DUP-03_122718

Lab Sample ID: 240-106467-3

Date Collected: 12/27/18 00:00

Matrix: Water

Date Received: 01/03/19 08:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	363151	01/08/19 16:11	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	363200	01/08/19 19:45	SAM	TAL CAN

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-106467-3

Laboratory: TestAmerica Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-19 *
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19
Illinois	NELAP	5	200004	07-31-19
Kansas	NELAP	7	E-10336	04-30-19
Kentucky (UST)	State Program	4	58	02-23-19 *
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19
New York	NELAP	2	10975	03-31-19 *
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-19 *
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Client Information Client Contact: <u>Christina Weaver</u> Angela DeGrandis Company: ARCADIS U.S., Inc. Address: 28550 Cabot Drive Suite 500 City: Novi State: MI 48377 Phone: MI001454.0003 Email: angela.degrandis@arcadis-us.com Project Name: Ford LTP Livonia MI - E203631 Site: FORD LTP		Lab PM: DelMonico, Michael E-Mail: michael.delmonico@lestiamerica.com Carrier Tracking No(s): COC No: 240-56713-24439.2 Page: Page # of # Job #	
Due Date Requested: TAT Requested (days): <u>Standard</u> PO #: MI001454.0003 WO #: Cadema #: E203631 Project #: 24015353 SSOWF:		Analysis Requested: 1,4-Dioxane 82608 SIM 1,1-DCE 82608 cis-1,2-DCE, 82608 TRANS-1,2-DCE 82608 PCE 82608 TCE 82608 Vinyl Chloride 82608 HCL Reser vation	
Sample Identification MW-90-122718 MW-1285-122718 DUP-03-122718 MW-80SR-122718		Preservation Codes: M - Hexane N - None G - AsNaO2 P - Na2O4S O - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecalhydrate U - Acetone J - DI Water V - MCAA K - EDTA L - EDA W - pH 4-5 Z - other (Specify) Other:	
Sample Date 12/27/18 12/27/18 12/27/18 12/27/18		Sample Time 1215 0955 — 1500	
Sample Type (C=Comp, G=grab) G G G G		Matrix (Water, Solid, Other) Water Water Water Water	
Field Filtered Sample (Yes or No) N N N N		Perform MS/MSD (Yes or No) N N N N	
8260B - VOCs (Short List) 8260B SIM - Local Method		Total Number of Containers X X X X	
Special Instructions/Note: 240-106467 Chain of Custody		Special Instructions/OC Requirements: <u>Submit all results through Cadema at Sim-Tomaska C. Cadema.com Cadema #E203631</u>	
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For Months	
Deliverable Requested: <input type="checkbox"/> I, II, III <input checked="" type="checkbox"/> Other (specify)		Date/Time Received by: <u>Novi cold storage</u> Received by: <u>ARCADIS</u> Received by: <u>ARCADIS</u> Date/Time: 12/27/18 1612 Date/Time: 1/2/19 1138 Date/Time: 1/3/19 835	
Empty Kit Relinquished by: Christina Weaver / Christina Weaver Relinquished by: <u>Novi Cold Storage / Christina Weaver</u> Relinquished by: <u>ARCADIS</u> Date/Time: 12/27/18 1612 Date/Time: 1/2/19 1138 Date/Time: 1/3/19 1320		Date/Time Received by: <u>ARCADIS</u> Received by: <u>ARCADIS</u> Received by: <u>ARCADIS</u> Date/Time: 12/27/18 1612 Date/Time: 1/2/19 1138 Date/Time: 1/3/19 835	
Custody Seals Intact: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Custody Seal No.		Cooler Temperature(s) and Other Remains:	



TestAmerica Canton Sample Receipt Form/Narrative

Login # : 106467

Canton Facility

Client: ALCOA Site Name: Cooler unpacked by: Cooler Received on 1/3/19 Opened on 1/3/19 FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # Foam Box Client Cooler Box Other Packing material used: Bubble Wrap Foam Plastic Bag None Other COOLANT: Wet Ice Blue Ice Dry Ice Water None

- 1. Cooler temperature upon receipt IR GUN# IR-8 (CF -0.2 °C) Observed Cooler Temp. °C Corrected Cooler Temp. °C IR GUN #36 (CF +0°C) Observed Cooler Temp. °C Corrected Cooler Temp. °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity Yes No
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC854592
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? Yes No NA Larger than this.
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # Yes No
16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving: VOAs Oil and Grease TOC

Contacted PM Date by via Verbal Voice Mail Other Concerning

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: JL

18. SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired. Sample(s) were received in a broken container. Sample(s) were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory. Time preserved: Preservative(s) added/Lot number(s):

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

TestAmerica Job ID: 240-109196-1

Client Project/Site: Ford LTP Livonia MI - E203631

For:

ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
3/20/2019 9:23:32 AM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

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results through
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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-109196-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-109196-1

Job ID: 240-109196-1

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Livonia MI - E203631

Report Number: 240-109196-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control sample was within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, sample was diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The sample was received on 3/11/2019 8:50 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.8° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Sample MW-128S_030619 (240-109196-1) was analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The sample was analyzed on 03/11/2019.

The continuing calibration verification (CCV) associated with batch 371049 recovered above the upper control limit for Vinyl Chloride. The samples associated with this CCV were non-detects for the affected analyte; therefore, the data have been reported. The following sample is impacted: MW-128S_030619 (240-109196-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-128S_030619 (240-109196-1) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 03/11/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-109196-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-109196-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-109196-1	MW-128S_030619	Water	03/06/19 14:00	03/11/19 08:50

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-109196-1

Client Sample ID: MW-128S_030619

Lab Sample ID: 240-109196-1

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-109196-1

Client Sample ID: MW-128S_030619

Lab Sample ID: 240-109196-1

Date Collected: 03/06/19 14:00

Matrix: Water

Date Received: 03/11/19 08:50

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			03/11/19 21:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	83		63 - 125					03/11/19 21:40	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/11/19 18:40	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			03/11/19 18:40	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			03/11/19 18:40	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/11/19 18:40	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			03/11/19 18:40	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			03/11/19 18:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	120		70 - 121					03/11/19 18:40	1
4-Bromofluorobenzene (Surr)	93		59 - 120					03/11/19 18:40	1
Toluene-d8 (Surr)	108		70 - 123					03/11/19 18:40	1
Dibromofluoromethane (Surr)	107		75 - 128					03/11/19 18:40	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-109196-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-121)	BFB (59-120)	TOL (70-123)	DBFM (75-128)
240-108820-C-1 MS	Matrix Spike	112	115	125 X	105
240-108820-C-1 MSD	Matrix Spike Duplicate	101	109	117	93
240-109196-1	MW-128S_030619	120	93	108	107
LCS 240-371049/4	Lab Control Sample	103	111	119	95
MB 240-371049/6	Method Blank	119	102	114	112

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (63-125)
240-108876-C-7 MS	Matrix Spike	80
240-108876-C-7 MSD	Matrix Spike Duplicate	84
240-109196-1	MW-128S_030619	83
LCS 240-371078/4	Lab Control Sample	79
MB 240-371078/5	Method Blank	82

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (10-150)
MRL 240-371078/6	Lab Control Sample	78

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-109196-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-371049/6

Matrix: Water

Analysis Batch: 371049

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/11/19 12:02	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			03/11/19 12:02	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			03/11/19 12:02	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/11/19 12:02	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			03/11/19 12:02	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			03/11/19 12:02	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	119		70 - 121		03/11/19 12:02	1
4-Bromofluorobenzene (Surr)	102		59 - 120		03/11/19 12:02	1
Toluene-d8 (Surr)	114		70 - 123		03/11/19 12:02	1
Dibromofluoromethane (Surr)	112		75 - 128		03/11/19 12:02	1

Lab Sample ID: LCS 240-371049/4

Matrix: Water

Analysis Batch: 371049

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	10.2		ug/L		102	65 - 139
cis-1,2-Dichloroethene	10.0	9.78		ug/L		98	76 - 128
Tetrachloroethene	10.0	8.14		ug/L		81	74 - 130
trans-1,2-Dichloroethene	10.0	10.1		ug/L		101	78 - 133
Trichloroethene	10.0	8.29		ug/L		83	76 - 125
Vinyl chloride	10.0	11.9		ug/L		119	58 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	103		70 - 121
4-Bromofluorobenzene (Surr)	111		59 - 120
Toluene-d8 (Surr)	119		70 - 123
Dibromofluoromethane (Surr)	95		75 - 128

Lab Sample ID: 240-108820-C-1 MS

Matrix: Water

Analysis Batch: 371049

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	50	U	500	495		ug/L		99	53 - 140
cis-1,2-Dichloroethene	50	U	500	466		ug/L		93	64 - 130
Tetrachloroethene	50	U	500	345		ug/L		69	51 - 136
trans-1,2-Dichloroethene	50	U	500	469		ug/L		94	68 - 133
Trichloroethene	50	U	500	336		ug/L		67	55 - 131
Vinyl chloride	50	U	500	624		ug/L		125	43 - 154

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	112		70 - 121
4-Bromofluorobenzene (Surr)	115		59 - 120
Toluene-d8 (Surr)	125	X	70 - 123

TestAmerica Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-109196-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-108820-C-1 MS
Matrix: Water
Analysis Batch: 371049

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	105		75 - 128

Lab Sample ID: 240-108820-C-1 MSD
Matrix: Water
Analysis Batch: 371049

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	50	U	500	559		ug/L		112	53 - 140	12	35
cis-1,2-Dichloroethene	50	U	500	484		ug/L		97	64 - 130	4	21
Tetrachloroethene	50	U	500	421		ug/L		84	51 - 136	20	23
trans-1,2-Dichloroethene	50	U	500	504		ug/L		101	68 - 133	7	24
Trichloroethene	50	U	500	402		ug/L		80	55 - 131	18	23
Vinyl chloride	50	U	500	726		ug/L		145	43 - 154	15	29

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	101		70 - 121
4-Bromofluorobenzene (Surr)	109		59 - 120
Toluene-d8 (Surr)	117		70 - 123
Dibromofluoromethane (Surr)	93		75 - 128

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-371078/5
Matrix: Water
Analysis Batch: 371078

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			03/11/19 13:44	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	82		63 - 125		03/11/19 13:44	1

Lab Sample ID: LCS 240-371078/4
Matrix: Water
Analysis Batch: 371078

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	11.6		ug/L		116	59 - 131

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	79		63 - 125

TestAmerica Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-109196-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MRL 240-371078/6
Matrix: Water
Analysis Batch: 371078

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	0.00100	0.00112	J	ng/uL		112	10 - 150
Surrogate	%Recovery	MRL Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	78		10 - 150				

Lab Sample ID: 240-108876-C-7 MS
Matrix: Water
Analysis Batch: 371078

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	1.9	J	10.0	13.5		ug/L		116	52 - 129
Surrogate	%Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	80		63 - 125						

Lab Sample ID: 240-108876-C-7 MSD
Matrix: Water
Analysis Batch: 371078

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	1.9	J	10.0	13.6		ug/L		118	52 - 129	1	13
Surrogate	%Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	84		63 - 125								

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-109196-1

GC/MS VOA

Analysis Batch: 371049

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-109196-1	MW-128S_030619	Total/NA	Water	8260B	
MB 240-371049/6	Method Blank	Total/NA	Water	8260B	
LCS 240-371049/4	Lab Control Sample	Total/NA	Water	8260B	
240-108820-C-1 MS	Matrix Spike	Total/NA	Water	8260B	
240-108820-C-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Analysis Batch: 371078

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-109196-1	MW-128S_030619	Total/NA	Water	8260B SIM	
MB 240-371078/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-371078/4	Lab Control Sample	Total/NA	Water	8260B SIM	
MRL 240-371078/6	Lab Control Sample	Total/NA	Water	8260B SIM	
240-108876-C-7 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-108876-C-7 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-109196-1

Client Sample ID: MW-128S_030619

Lab Sample ID: 240-109196-1

Date Collected: 03/06/19 14:00

Matrix: Water

Date Received: 03/11/19 08:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	371049	03/11/19 18:40	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	371078	03/11/19 21:40	SAM	TAL CAN

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-109196-1

Laboratory: TestAmerica Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19
Illinois	NELAP	5	200004	07-31-19
Kansas	NELAP	7	E-10336	04-30-19 *
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19
New York	NELAP	2	10975	03-31-19 *
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Canton

TestAmerica Laboratory Location: Brighton — 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Regulatory program: DW NPDES RCRA Other

Client Project Manager: Kris Hinskey
 Telephone: 248-994-2240
 Email: kristoffer.hinskey@arcadis.com

Site Contact: Angela DeGrandis
 Telephone: 734-320-0065

Lab Contact: Mike DelMonico
 Telephone: 330-497-9396

Company Name: Arcadis
 Address: 28550 Cabot Drive, Suite 500
 City/State/Zip: Novi, MI, 48377
 Phone: 248-994-2240

Project Name: Ford LTP
 Project Number: ~~MT001454.0004.00002~~
 PO # ~~MT001454.0004.00002~~

Method of Shipment/Carrier: ~~MT001454.0004.00003~~
 Shipping/Tracking No: ~~MT001454.0004.00003~~

Analysis Turnaround Time
 TAT if different from below
 10 day 3 weeks 2 weeks 1 week 2 days 1 day

Containers & Preservatives
 H2SO4 HNO3 HCl NaOH ZnAc NaOH Other:

Matrix
 Air Aqueous Sediment Solid Other:

Sample Date: 3/16/19
 Sample Time: 1400

Filtered Sample (Y / N) Y N

Composite=C / Grab=G

Analysis	1,1-DCE 8260B	Cis-1,2-DCE 8260B	Trans-1,2-DCE 8260B	PCE 8260B	TCE 8260B	Vinyl Chloride 8260B	1,4-Dioxane 8260B SIM
	X	X	X	X	X	X	X

Sample Specific Notes / Special Instructions:
 3 VIALS FOR E260B
 3 VIALS FOR B260B SIM

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal By Lab Archive For _____ Months

240-109196 Chain of Custody

Possible Hazard Identification
 Non-Hazard Irritable Corrosive Flammable Toxic Unknown

Special Instructions/QC Requirements & Comments:
 Submit all results through Cadena at jim.tomalia@cadena.com, Cadena #E203631
 Level IV Reporting.

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
RACHEL BIELAK Paul Pella	ARCADIS	3/19/19 1430	NOVI COLD STORAGE	ARCADIS	3/19/19 1430
Cadella-Cintell	ARCADIS	3/18/19 13:20	Wil A. J.	TESTAMERICA	3/18/19 13:20
Jim S.	TESTAMERICA	3/18/19 14:40	Received in Laboratory by:	TESTAMERICA	3/11/19 850

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TestAmerica Canton Sample Receipt Form/Narrative

Login #: 109196

Canton Facility

Client: Arcadis Site Name: Cooler unpacked by: [Signature]
Cooler Received on: 3/11/19 Opened on: 3/11/19
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # [X] Foam Box Client Cooler Box Other
Packing material used: Bubble Wrap Foam Plastic Bag None Other
COOLANT: Wet Ice Blue Ice Dry Ice Water None

- 1. Cooler temperature upon receipt [X] See Multiple Cooler Form
IR GUN# IR-8 (CF -0.2 °C) Observed Cooler Temp. 2.0 °C Corrected Cooler Temp. 1.8 °C
IR GUN #36 (CF +0.7°C) Observed Cooler Temp. °C Corrected Cooler Temp. °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
- Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
- Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
- Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC861525
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? [X] Larger than this. Yes No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # Yes No
16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: [Signature]

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-113323-1

Client Project/Site: Ford LTP Livonia MI - E203631

For:

ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
6/11/2019 4:13:55 PM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113323-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F2	MS/MSD RPD exceeds control limits
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113323-1

Job ID: 240-113323-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Livonia MI - E203631

Report Number: 240-113323-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The sample was received on 5/25/2019 10:00 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 3.0° C and 4.0° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Sample MW-128S_052219 (240-113323-1) was analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The sample was analyzed on 06/04/2019.

The continuing calibration verification (CCV) associated with batch 384267 recovered above the upper control limit for Vinyl Chloride. The samples associated with this CCV were non-detects for the affected analyte; therefore, the data have been reported. The following samples are impacted: MW-128S_052219 (240-113323-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-128S_052219 (240-113323-1) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 05/31/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113323-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113323-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-113323-1	MW-128S_052219	Water	05/22/19 14:27	05/25/19 10:00	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113323-1

Client Sample ID: MW-128S_052219

Lab Sample ID: 240-113323-1

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113323-1

Client Sample ID: MW-128S_052219

Lab Sample ID: 240-113323-1

Date Collected: 05/22/19 14:27

Matrix: Water

Date Received: 05/25/19 10:00

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			05/31/19 18:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		63 - 125		05/31/19 18:18	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/04/19 04:28	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/04/19 04:28	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/04/19 04:28	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/04/19 04:28	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/04/19 04:28	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/04/19 04:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		70 - 121		06/04/19 04:28	1
4-Bromofluorobenzene (Surr)	86		59 - 120		06/04/19 04:28	1
Toluene-d8 (Surr)	96		70 - 123		06/04/19 04:28	1
Dibromofluoromethane (Surr)	99		75 - 128		06/04/19 04:28	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113323-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-121)	BFB (59-120)	TOL (70-123)	DBFM (75-128)
240-113323-1	MW-128S_052219	93	86	96	99
240-113326-E-1 MSD	Matrix Spike Duplicate	88	94	95	89
240-113326-F-1 MS	Matrix Spike	84	96	96	89
LCS 240-384267/4	Lab Control Sample	91	107	106	101
MB 240-384267/6	Method Blank	95	91	100	105

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (63-125)
240-113323-1	MW-128S_052219	110
240-113406-C-1 MS	Matrix Spike	110
240-113406-C-1 MSD	Matrix Spike Duplicate	110
LCS 240-383941/4	Lab Control Sample	105
MB 240-383941/5	Method Blank	109

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113323-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-384267/6
Matrix: Water
Analysis Batch: 384267

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/03/19 22:11	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/03/19 22:11	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/03/19 22:11	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/03/19 22:11	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/03/19 22:11	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/03/19 22:11	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		70 - 121		06/03/19 22:11	1
4-Bromofluorobenzene (Surr)	91		59 - 120		06/03/19 22:11	1
Toluene-d8 (Surr)	100		70 - 123		06/03/19 22:11	1
Dibromofluoromethane (Surr)	105		75 - 128		06/03/19 22:11	1

Lab Sample ID: LCS 240-384267/4
Matrix: Water
Analysis Batch: 384267

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	11.7		ug/L		117	65 - 139
cis-1,2-Dichloroethene	10.0	11.3		ug/L		113	76 - 128
Tetrachloroethene	10.0	9.27		ug/L		93	74 - 130
trans-1,2-Dichloroethene	10.0	11.2		ug/L		112	78 - 133
Trichloroethene	10.0	9.49		ug/L		95	76 - 125
Vinyl chloride	10.0	12.7		ug/L		127	58 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	91		70 - 121
4-Bromofluorobenzene (Surr)	107		59 - 120
Toluene-d8 (Surr)	106		70 - 123
Dibromofluoromethane (Surr)	101		75 - 128

Lab Sample ID: 240-113326-E-1 MSD
Matrix: Water
Analysis Batch: 384267

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	10.0	9.78		ug/L		98	53 - 140	11	35
cis-1,2-Dichloroethene	1.0	U	10.0	9.81		ug/L		98	64 - 130	11	21
Tetrachloroethene	1.0	U	10.0	7.38		ug/L		74	51 - 136	1	23
trans-1,2-Dichloroethene	1.0	U	10.0	9.41		ug/L		94	68 - 133	10	24
Trichloroethene	1.0	U	10.0	7.74		ug/L		77	55 - 131	4	23
Vinyl chloride	1.0	U	10.0	10.7		ug/L		107	43 - 154	1	29

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	88		70 - 121
4-Bromofluorobenzene (Surr)	94		59 - 120
Toluene-d8 (Surr)	95		70 - 123

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113323-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-113326-E-1 MSD
Matrix: Water
Analysis Batch: 384267

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Dibromofluoromethane (Surr)	89		75 - 128

Lab Sample ID: 240-113326-F-1 MS
Matrix: Water
Analysis Batch: 384267

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U	10.0	8.75		ug/L		88	53 - 140
cis-1,2-Dichloroethene	1.0	U	10.0	8.82		ug/L		88	64 - 130
Tetrachloroethene	1.0	U	10.0	7.31		ug/L		73	51 - 136
trans-1,2-Dichloroethene	1.0	U	10.0	8.53		ug/L		85	68 - 133
Trichloroethene	1.0	U	10.0	7.40		ug/L		74	55 - 131
Vinyl chloride	1.0	U	10.0	10.5		ug/L		105	43 - 154

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	84		70 - 121
4-Bromofluorobenzene (Surr)	96		59 - 120
Toluene-d8 (Surr)	96		70 - 123
Dibromofluoromethane (Surr)	89		75 - 128

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-383941/5
Matrix: Water
Analysis Batch: 383941

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			05/31/19 13:44	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		63 - 125		05/31/19 13:44	1

Lab Sample ID: LCS 240-383941/4
Matrix: Water
Analysis Batch: 383941

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	12.3		ug/L		123	59 - 131

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	105		63 - 125

Lab Sample ID: 240-113406-C-1 MS
Matrix: Water
Analysis Batch: 383941

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U F2	10.0	8.52		ug/L		85	52 - 129

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113323-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>MS</i> <i>%Recovery</i>	<i>MS</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	110		63 - 125

Lab Sample ID: 240-113406-C-1 MSD
 Matrix: Water
 Analysis Batch: 383941

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Total/NA

<i>Analyte</i>	<i>Sample</i> <i>Result</i>	<i>Sample</i> <i>Qualifier</i>	<i>Spike</i> <i>Added</i>	<i>MSD</i> <i>Result</i>	<i>MSD</i> <i>Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec.</i> <i>Limits</i>	<i>RPD</i>	<i>RPD</i> <i>Limit</i>
1,4-Dioxane	2.0	U F2	10.0	12.2	F2	ug/L		122	52 - 129	36	13

<i>Surrogate</i>	<i>MSD</i> <i>%Recovery</i>	<i>MSD</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	110		63 - 125

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QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113323-1

GC/MS VOA

Analysis Batch: 383941

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-113323-1	MW-128S_052219	Total/NA	Water	8260B SIM	
MB 240-383941/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-383941/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-113406-C-1 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-113406-C-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 384267

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-113323-1	MW-128S_052219	Total/NA	Water	8260B	
MB 240-384267/6	Method Blank	Total/NA	Water	8260B	
LCS 240-384267/4	Lab Control Sample	Total/NA	Water	8260B	
240-113326-E-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
240-113326-F-1 MS	Matrix Spike	Total/NA	Water	8260B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113323-1

Client Sample ID: MW-128S_052219

Lab Sample ID: 240-113323-1

Date Collected: 05/22/19 14:27

Matrix: Water

Date Received: 05/25/19 10:00

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Prepared or Analyzed</u>	<u>Analyst</u>	<u>Lab</u>
Total/NA	Analysis	8260B		1	384267	06/04/19 04:28	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	383941	05/31/19 18:18	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-113323-1


Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19 *
Illinois	NELAP	5	200004	07-31-19 *
Iowa	State Program	7	421	06-01-21
Kansas	NELAP	7	E-10336	04-30-20
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19 *
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19 *
New York	NELAP	2	10975	03-31-20
Ohio VAP	State Program	5	CL0024	06-05-21
Oregon	NELAP	10	4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19 *
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19 *
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Canton

Client Information Client Contact: Caitlin O'Neill Company: ARCADIS U.S. Inc. Address: 28550 Cabot Drive Suite 500 City: Novi State, Zip: MI, 48377 Phone: Email: Caitlin.O'Neill@arcadis.com Project Name: Ford LTP Livonia MI - E203631 Site: Ford LTP		Lab P/N: DelMonico, Michael E-Mail: michael.delmonico@testamericainc.com Carrier Tracking No(s): COC No: 240-60548-25803.8 Page: 1 of 1 Page 8 of 13 Job #: Analysis Requested	
Due Date Requested: TAT Requested (days): 10 PO #: M1201454-0004-00002 MI094348-0002-00002 WO #: Cadena #: E203631 Project #: 24015353 SSO#:		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
Sample Identification MW-1385-0522-19 Sample Date: 5/22/19 1427 Sample Time: G Matrix: Water Sample Type (C=comp, G=grab): G Preservation Code:		Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> A Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> A 8260B - VOCS (Short List) <input checked="" type="checkbox"/> A 8260B, 8260B SIM <input checked="" type="checkbox"/> A Total Number of Containers: 6 Special Instructions/Note:  240-113323 Chain of Custody	
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)			
Empty Kit Relinquished by: Relinquished by: <i>[Signature]</i> Date: 5/22/19 1830 Company: Arcadis Relinquished by: <i>[Signature]</i> Date: 5/24/19 08:45 Company: Arcadis Relinquished by: <i>[Signature]</i> Date: 5-24-19 1135 Company: EIA Custody Seals Intact: <input checked="" type="checkbox"/> Custody Seal No.: Δ Yes Δ No			
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/OC Requirements:			
Method of Shipment: Received by: <i>[Signature]</i> Date/Time: 5/22/19 1830 Company: Arcadis Received by: <i>[Signature]</i> Date/Time: 5-24-19 0845 Company: EIA Received by: <i>[Signature]</i> Date/Time: 5-25-19 1000 Company: EIA Cooler Temperature(s) °C and Other Remarks:			



TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility


Login # : 113323

Client Arcadis Site Name _____ Cooler unpacked by: Ryan Cribler
 Cooler Received on 5-25-19 Opened on 5-25-19 1000

FedEx: 1st Grd Exp² UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # 714 Foam Box _____ Client Cooler Box _____ Other _____
 Packing material used: Bubble Wrap Foam Plastic Bag None _____ Other _____
 COOLANT: Wet Ice Blue Ice Dry Ice Water None _____

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN# IR-8 (CF -0.2 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN #36 (CF +0.7 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 2 Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? total Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
 4. Did custody papers accompany the sample(s)? Yes No
 5. Were the custody papers relinquished & signed in the appropriate place? Yes No
 6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
 7. Did all bottles arrive in good condition (Unbroken)? Yes No
 8. Could all bottle labels be reconciled with the COC? Yes No
 9. Were correct bottle(s) used for the test(s) indicated? Yes No
 10. Sufficient quantity received to perform indicated analyses? Yes No
 11. Are these work share samples? Yes No
 If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC984738
 13. Were VOAs on the COC? Yes No
 14. Were air bubbles >6 mm in any VOA vials? Yes No NA  Larger than this.
 15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No
 16. Was a LL Hg or Me Hg trip blank present? _____ Yes No

Tests that are not checked for pH by Receiving:
 VOAs
 Oil and Grease
 TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

Ryan

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.

Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

Login #: 113323

TestAmerica Canton Sample Receipt Multiple Cooler Form

Cooler Description (Circle)				IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)		
TA	Client	Box	Other	IR-8 #36	4.2	4.0	Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-8 #36	3.2	3.0	Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-8 #36			Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-8 #36			Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-8 #36			Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-8 #36			Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-8 #36			Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-8 #36			Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-8 #36			Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-8 #36			Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-8 #36			Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-8 #36			Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-8 #36			Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-8 #36			Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-8 #36			Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-8 #36			Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-8 #36			Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-8 #36			Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-8 #36			Water	None	
TA	Client	Box	Other	IR-8 #36			Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-8 #36			Water	None	

See Temperature Excursion Form

DATA VERIFICATION REPORT



June 12, 2019

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631

Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater

Project number: MI001454.0002/3/4.00002/2B/3B

Event Specific Scope of Work References: Sample COC

Laboratory: TestAmerica - North Canton

Laboratory submittal: 113323-1

Sample date: 2019-05-22

Report received by CADENA: 2019-06-11

Initial Data Verification completed by CADENA: 2019-06-12

Number of Samples: 1

Sample Matrices: Water

Test Categories: GCMS VOC

Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

The following minor QC exceptions or missing information were noted:

GCMS VOC QC batch CCV response outliers as noted in the laboratory submittal case narrative were not used to qualify client sample results as part of this level 2 data package verification review.

GCMS VOC SIM QC batch MS/MSD RPD outlier was not determined using a client sample so qualification was not required based on these sample-specific QC outliers.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

SAMPLING AND ANALYSIS SUMMARY

CADENA Project ID: E203631

Laboratory: TestAmerica-North Canton

Laboratory Submittal: 113323-1

Lab Sample ID	Sample ID	Collection Date (mm/yy/dd)	Collection Time (hh:mm:ss)	Volatile Organics by GCMS	8260B with Single Ion Monitoring	Comment
2401133231	MW-128S_052219	5/22/2019	2:27:00	X	X	

Analytical Results Summary

Reportable Results Only

CADENA Project ID: E203631

Laboratory: TestAmerica - North Canton

Laboratory Submittal: 113323-1

Sample Name: MW-128S_052219

Lab Sample ID: 2401133231

Sample Date: 5/22/2019

Analyte	Cas No.	Result	Report		Valid	
			Limit	Units		Qualifier
GC/MS VOC						
<u>OSW-8260B</u>						
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	
Trichloroethene	79-01-6	ND	1.0	ug/l	---	
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	
<u>OSW-8260BBSim</u>						
1,4-Dioxane	123-91-1	ND	2.0	ug/l	---	

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-119316-1

Client Project/Site: Ford LTP Livonia MI - E203631

For:

ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



*Authorized for release by:
10/8/2019 12:07:57 PM*

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119316-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119316-1

Job ID: 240-119316-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Livonia MI - E203631

Report Number: 240-119316-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 9/24/2019 9:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.9° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples MW-128S_092019 (240-119316-1) and TRIP BLANK (1) (240-119316-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 10/02/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-128S_092019 (240-119316-1) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 09/27/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119316-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119316-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-119316-1	MW-128S_092019	Water	09/20/19 10:35	09/24/19 09:40	
240-119316-2	TRIP BLANK (1)	Water	09/20/19 00:00	09/24/19 09:40	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119316-1

Client Sample ID: MW-128S_092019

Lab Sample ID: 240-119316-1

No Detections.

Client Sample ID: TRIP BLANK (1)

Lab Sample ID: 240-119316-2

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119316-1

Client Sample ID: MW-128S_092019

Lab Sample ID: 240-119316-1

Date Collected: 09/20/19 10:35

Matrix: Water

Date Received: 09/24/19 09:40

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L	-		09/27/19 19:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	78		63 - 125		09/27/19 19:37	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		10/02/19 04:12	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L	-		10/02/19 04:12	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L	-		10/02/19 04:12	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		10/02/19 04:12	1
Trichloroethene	1.0	U	1.0	0.10	ug/L	-		10/02/19 04:12	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L	-		10/02/19 04:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	115		70 - 121		10/02/19 04:12	1
4-Bromofluorobenzene (Surr)	99		59 - 120		10/02/19 04:12	1
Toluene-d8 (Surr)	102		70 - 123		10/02/19 04:12	1
Dibromofluoromethane (Surr)	84		75 - 128		10/02/19 04:12	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119316-1

Client Sample ID: TRIP BLANK (1)

Lab Sample ID: 240-119316-2

Date Collected: 09/20/19 00:00

Matrix: Water

Date Received: 09/24/19 09:40

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/02/19 04:34	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/02/19 04:34	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/02/19 04:34	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/02/19 04:34	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/02/19 04:34	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/02/19 04:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	114		70 - 121		10/02/19 04:34	1
4-Bromofluorobenzene (Surr)	98		59 - 120		10/02/19 04:34	1
Toluene-d8 (Surr)	100		70 - 123		10/02/19 04:34	1
Dibromofluoromethane (Surr)	85		75 - 128		10/02/19 04:34	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119316-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (70-121)	BFB (59-120)	TOL (70-123)	DBFM (75-128)
240-119316-1	MW-128S_092019	115	99	102	84
240-119316-2	TRIP BLANK (1)	114	98	100	85
240-119319-D-1 MSD	Matrix Spike Duplicate	114	100	99	87
240-119319-E-1 MS	Matrix Spike	111	94	95	88
LCS 240-403458/4	Lab Control Sample	110	98	97	91
MB 240-403458/6	Method Blank	110	96	99	86

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA
		(63-125)
240-119294-A-1 MS	Matrix Spike	76
240-119294-A-1 MSD	Matrix Spike Duplicate	77
240-119316-1	MW-128S_092019	78
LCS 240-402866/4	Lab Control Sample	75
MB 240-402866/5	Method Blank	77

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119316-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-403458/6
Matrix: Water
Analysis Batch: 403458

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/01/19 22:16	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/01/19 22:16	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/01/19 22:16	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/01/19 22:16	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/01/19 22:16	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/01/19 22:16	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		70 - 121		10/01/19 22:16	1
4-Bromofluorobenzene (Surr)	96		59 - 120		10/01/19 22:16	1
Toluene-d8 (Surr)	99		70 - 123		10/01/19 22:16	1
Dibromofluoromethane (Surr)	86		75 - 128		10/01/19 22:16	1

Lab Sample ID: LCS 240-403458/4
Matrix: Water
Analysis Batch: 403458

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	8.78		ug/L		88	65 - 139
cis-1,2-Dichloroethene	10.0	9.72		ug/L		97	76 - 128
Tetrachloroethene	10.0	8.12		ug/L		81	74 - 130
trans-1,2-Dichloroethene	10.0	9.00		ug/L		90	78 - 133
Trichloroethene	10.0	7.92		ug/L		79	76 - 125
Vinyl chloride	10.0	7.94		ug/L		79	58 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	110		70 - 121
4-Bromofluorobenzene (Surr)	98		59 - 120
Toluene-d8 (Surr)	97		70 - 123
Dibromofluoromethane (Surr)	91		75 - 128

Lab Sample ID: 240-119319-D-1 MSD
Matrix: Water
Analysis Batch: 403458

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	10.0	6.73		ug/L		67	53 - 140	15	35
cis-1,2-Dichloroethene	1.0	U	10.0	8.77		ug/L		88	64 - 130	3	21
Tetrachloroethene	1.0	U	10.0	7.15		ug/L		72	51 - 136	5	23
trans-1,2-Dichloroethene	1.0	U	10.0	7.94		ug/L		79	68 - 133	8	24
Trichloroethene	1.0	U	10.0	6.96		ug/L		70	55 - 131	6	23
Vinyl chloride	1.0	U	10.0	6.64		ug/L		66	43 - 154	2	29

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	114		70 - 121
4-Bromofluorobenzene (Surr)	100		59 - 120
Toluene-d8 (Surr)	99		70 - 123

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119316-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-119319-D-1 MSD
Matrix: Water
Analysis Batch: 403458

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Dibromofluoromethane (Surr)	87		75 - 128

Lab Sample ID: 240-119319-E-1 MS
Matrix: Water
Analysis Batch: 403458

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U	10.0	7.79		ug/L		78	53 - 140
cis-1,2-Dichloroethene	1.0	U	10.0	8.99		ug/L		90	64 - 130
Tetrachloroethene	1.0	U	10.0	7.49		ug/L		75	51 - 136
trans-1,2-Dichloroethene	1.0	U	10.0	8.56		ug/L		86	68 - 133
Trichloroethene	1.0	U	10.0	7.37		ug/L		74	55 - 131
Vinyl chloride	1.0	U	10.0	6.74		ug/L		67	43 - 154

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	111		70 - 121
4-Bromofluorobenzene (Surr)	94		59 - 120
Toluene-d8 (Surr)	95		70 - 123
Dibromofluoromethane (Surr)	88		75 - 128

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-402866/5
Matrix: Water
Analysis Batch: 402866

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			09/27/19 11:40	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	77		63 - 125		09/27/19 11:40	1

Lab Sample ID: LCS 240-402866/4
Matrix: Water
Analysis Batch: 402866

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	11.8		ug/L		118	59 - 131

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	75		63 - 125

Lab Sample ID: 240-119294-A-1 MS
Matrix: Water
Analysis Batch: 402866

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	10.0	11.8		ug/L		118	52 - 129

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119316-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>MS</i> <i>%Recovery</i>	<i>MS</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	76		63 - 125

Lab Sample ID: 240-119294-A-1 MSD
 Matrix: Water
 Analysis Batch: 402866

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Total/NA

<i>Analyte</i>	<i>Sample</i> <i>Result</i>	<i>Sample</i> <i>Qualifier</i>	<i>Spike</i> <i>Added</i>	<i>MSD</i> <i>Result</i>	<i>MSD</i> <i>Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec.</i> <i>Limits</i>	<i>RPD</i>	<i>RPD</i> <i>Limit</i>
1,4-Dioxane	2.0	U	10.0	11.6		ug/L		116	52 - 129	1	13

<i>Surrogate</i>	<i>MSD</i> <i>%Recovery</i>	<i>MSD</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	77		63 - 125

- 1
- 2
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- 12
- 13
- 14

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119316-1

GC/MS VOA

Analysis Batch: 402866

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119316-1	MW-128S_092019	Total/NA	Water	8260B SIM	
MB 240-402866/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-402866/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-119294-A-1 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-119294-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 403458

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119316-1	MW-128S_092019	Total/NA	Water	8260B	
240-119316-2	TRIP BLANK (1)	Total/NA	Water	8260B	
MB 240-403458/6	Method Blank	Total/NA	Water	8260B	
LCS 240-403458/4	Lab Control Sample	Total/NA	Water	8260B	
240-119319-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
240-119319-E-1 MS	Matrix Spike	Total/NA	Water	8260B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119316-1

Client Sample ID: MW-128S_092019

Lab Sample ID: 240-119316-1

Date Collected: 09/20/19 10:35

Matrix: Water

Date Received: 09/24/19 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	403458	10/02/19 04:12	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	402866	09/27/19 19:37	SAM	TAL CAN

Client Sample ID: TRIP BLANK (1)

Lab Sample ID: 240-119316-2

Date Collected: 09/20/19 00:00

Matrix: Water

Date Received: 09/24/19 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	403458	10/02/19 04:34	LEE	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119316-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-20
Connecticut	State	PH-0590	12-31-19
Florida	NELAP	E87225	06-30-20
Georgia	State	4062	02-23-20
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-20
Kansas	NELAP	E-10336	04-30-20
Kentucky (UST)	State	112225	02-23-20
Kentucky (WW)	State	KY98016	12-31-19
Minnesota	NELAP	OH00048	12-31-19
Minnesota (Petrofund)	State Program	3506	07-31-21
New Jersey	NELAP	OH001	06-30-20
New York	NELAP	10975	03-31-20
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-23-20
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-16-00404	12-28-19
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-20
West Virginia DEP	State	210	12-31-19

TestAmerica Laboratory location: Brighton --- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Client Contact Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other		TestAmerica Laboratories, Inc. COC No: _____ Lab Contact: Mike DeMonico Telephone: 330-497-9396	
Client Project Manager: Kris Hinskey Telephone: 248-994-2240 Email: kristoffer.hinskey@arcadis.com		Site Contact: Rachel Bielak Telephone: 248-946-6331		For lab use only Walk-in client <input type="checkbox"/> Lab sampling <input type="checkbox"/> Job/SDG No: _____	
Project Name: Ford LTP Project Number: M1001454.0004.0002B PO # M1001454.0004.0002B		Method of Shipment/Carrier: Shipping/Tracking No:		Analysis 1,1-DCE 8260B Cis-1,2-DCE 8260B Trans-1,2-DCE 8260B PCE 8260B TCE 8260B Vinyl Chloride 8260B 1,4-Dioxane 8260B SIM	
Sample Identification MW-1085-0920/9 TOP blank		Matrix Air <input type="checkbox"/> Aqueous <input type="checkbox"/> Sediment <input type="checkbox"/> Solid <input type="checkbox"/> Other:		Filtered Sample (Y / N) Composite C / Grab C Containers & Preservatives H2SO4 <input type="checkbox"/> HNO3 <input type="checkbox"/> HCl <input type="checkbox"/> NaOH <input type="checkbox"/> NaCl <input type="checkbox"/> Uprts <input type="checkbox"/> Other:	
Sample Date 9-20-19 9-20-19		Sample Time 10:55 ---		Sample Specific Notes / Special Instructions: 61	
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Special Instructions/QC Requirements & Comments: Submit all results through Cadena at jim.tomalina@cadena.com, Cadena #E203631 Level IV Reporting requested.					
Relinquished by: <i>Gene for</i>		Company: Arcadis		Date/Time: 9-20-19 1600	
Relinquished by: <i>Gene for</i>		Company: Arcadis		Date/Time: 9-23-19 1100	
Relinquished by: <i>Molly Maxwell</i>		Company: EPA-MI		Date/Time: 9-23-19 1445	
Relinquished by: <i>Molly Maxwell</i>		Company: EPA-MI		Date/Time: 9-24-19 940	

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Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility


Login # : 119316

Client Arcadis Site Name _____
 Cooler Received on 9-24-19 Opened on 9-24-19 9:40
 FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Cooler unpacked by:
Ryan Gruber

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # TA Foam Box _____ Client Cooler _____ Box _____ Other _____
 Packing material used Bubble Wrap Foam Plastic Bag None Other _____
 COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. 1.2 °C Corrected Cooler Temp. 1.9 °C
 IR GUN #IR-11 (CF +0.9°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
 If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC991818
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials?  Larger than this. Yes No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 58506 Yes No
16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:
 VOAs
 Oil and Grease
 TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

RC

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.

Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-126137-1
Client Project/Site: Ford LTP Off Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
2/26/2020 12:02:17 PM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126137-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126137-1

Job ID: 240-126137-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Off Site

Report Number: 240-126137-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 2/12/2020 8:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.0° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-126137-1) and MW-128S_021020 (240-126137-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 02/14/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-128S_021020 (240-126137-2) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 02/18/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126137-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126137-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-126137-1	TRIP BLANK	Water	02/10/20 00:00	02/12/20 08:10	
240-126137-2	MW-128S_021020	Water	02/10/20 14:25	02/12/20 08:10	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126137-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-126137-1

No Detections.

Client Sample ID: MW-128S_021020

Lab Sample ID: 240-126137-2

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off Site

Job ID: 240-126137-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-126137-1

Date Collected: 02/10/20 00:00

Matrix: Water

Date Received: 02/12/20 08:10

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/14/20 19:22	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/14/20 19:22	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/14/20 19:22	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/14/20 19:22	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/14/20 19:22	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/14/20 19:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		75 - 130		02/14/20 19:22	1
4-Bromofluorobenzene (Surr)	62		47 - 134		02/14/20 19:22	1
Toluene-d8 (Surr)	84		69 - 122		02/14/20 19:22	1
Dibromofluoromethane (Surr)	127		78 - 129		02/14/20 19:22	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126137-1

Client Sample ID: MW-128S_021020

Lab Sample ID: 240-126137-2

Date Collected: 02/10/20 14:25

Matrix: Water

Date Received: 02/12/20 08:10

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L	-		02/18/20 14:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		70 - 133		02/18/20 14:50	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		02/14/20 21:44	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L	-		02/14/20 21:44	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L	-		02/14/20 21:44	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		02/14/20 21:44	1
Trichloroethene	1.0	U	1.0	0.10	ug/L	-		02/14/20 21:44	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L	-		02/14/20 21:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	115		75 - 130		02/14/20 21:44	1
4-Bromofluorobenzene (Surr)	65		47 - 134		02/14/20 21:44	1
Toluene-d8 (Surr)	85		69 - 122		02/14/20 21:44	1
Dibromofluoromethane (Surr)	120		78 - 129		02/14/20 21:44	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126137-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-126137-1	TRIP BLANK	113	62	84	127
240-126137-2	MW-128S_021020	115	65	85	120
240-126138-E-2 MS	Matrix Spike	90	95	92	103
240-126138-F-2 MSD	Matrix Spike Duplicate	90	87	90	96
LCS 240-422859/4	Lab Control Sample	95	101	101	100
MB 240-422859/7	Method Blank	105	71	90	114

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-133)
240-126137-2	MW-128S_021020	102
240-126150-A-5 MS	Matrix Spike	102
240-126150-A-5 MSD	Matrix Spike Duplicate	106
LCS 240-423128/4	Lab Control Sample	102
MB 240-423128/5	Method Blank	102

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126137-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-422859/7
Matrix: Water
Analysis Batch: 422859

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/14/20 14:12	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/14/20 14:12	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/14/20 14:12	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/14/20 14:12	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/14/20 14:12	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/14/20 14:12	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		75 - 130		02/14/20 14:12	1
4-Bromofluorobenzene (Surr)	71		47 - 134		02/14/20 14:12	1
Toluene-d8 (Surr)	90		69 - 122		02/14/20 14:12	1
Dibromofluoromethane (Surr)	114		78 - 129		02/14/20 14:12	1

Lab Sample ID: LCS 240-422859/4
Matrix: Water
Analysis Batch: 422859

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	10.2		ug/L		102	73 - 129
cis-1,2-Dichloroethene	10.0	10.4		ug/L		104	75 - 124
Tetrachloroethene	10.0	10.2		ug/L		102	70 - 125
trans-1,2-Dichloroethene	10.0	11.2		ug/L		112	74 - 130
Trichloroethene	10.0	10.3		ug/L		103	71 - 121
Vinyl chloride	10.0	7.32		ug/L		73	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	95		75 - 130
4-Bromofluorobenzene (Surr)	101		47 - 134
Toluene-d8 (Surr)	101		69 - 122
Dibromofluoromethane (Surr)	100		78 - 129

Lab Sample ID: 240-126138-E-2 MS
Matrix: Water
Analysis Batch: 422859

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U	10.0	9.22		ug/L		92	64 - 132
cis-1,2-Dichloroethene	1.0	U	10.0	9.84		ug/L		98	68 - 121
Tetrachloroethene	1.0	U	10.0	8.79		ug/L		88	52 - 129
trans-1,2-Dichloroethene	1.0	U	10.0	10.9		ug/L		109	69 - 126
Trichloroethene	1.0	U	10.0	9.51		ug/L		95	56 - 124
Vinyl chloride	1.0	U	10.0	7.92		ug/L		79	49 - 136

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	90		75 - 130
4-Bromofluorobenzene (Surr)	95		47 - 134
Toluene-d8 (Surr)	92		69 - 122

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126137-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-126138-E-2 MS
Matrix: Water
Analysis Batch: 422859

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	103		78 - 129

Lab Sample ID: 240-126138-F-2 MSD
Matrix: Water
Analysis Batch: 422859

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	10.0	9.02		ug/L		90	64 - 132	2	35
cis-1,2-Dichloroethene	1.0	U	10.0	9.96		ug/L		100	68 - 121	1	35
Tetrachloroethene	1.0	U	10.0	8.89		ug/L		89	52 - 129	1	35
trans-1,2-Dichloroethene	1.0	U	10.0	10.4		ug/L		104	69 - 126	5	35
Trichloroethene	1.0	U	10.0	9.30		ug/L		93	56 - 124	2	35
Vinyl chloride	1.0	U	10.0	7.07		ug/L		71	49 - 136	11	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	90		75 - 130
4-Bromofluorobenzene (Surr)	87		47 - 134
Toluene-d8 (Surr)	90		69 - 122
Dibromofluoromethane (Surr)	96		78 - 129

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-423128/5
Matrix: Water
Analysis Batch: 423128

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			02/18/20 06:05	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		70 - 133		02/18/20 06:05	1

Lab Sample ID: LCS 240-423128/4
Matrix: Water
Analysis Batch: 423128

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	9.22		ug/L		92	80 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	102		70 - 133

Lab Sample ID: 240-126150-A-5 MS
Matrix: Water
Analysis Batch: 423128

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	10.0	8.81		ug/L		88	46 - 170

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off Site

Job ID: 240-126137-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>MS</i> <i>%Recovery</i>	<i>MS</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	102		70 - 133

Lab Sample ID: 240-126150-A-5 MSD
Matrix: Water
Analysis Batch: 423128

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

<i>Analyte</i>	<i>Sample</i> <i>Result</i>	<i>Sample</i> <i>Qualifier</i>	<i>Spike</i> <i>Added</i>	<i>MSD</i> <i>Result</i>	<i>MSD</i> <i>Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec.</i> <i>Limits</i>	<i>RPD</i>	<i>RPD</i> <i>Limit</i>
1,4-Dioxane	2.0	U	10.0	8.76		ug/L		88	46 - 170	1	26

<i>Surrogate</i>	<i>MSD</i> <i>%Recovery</i>	<i>MSD</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	106		70 - 133

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QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126137-1

GC/MS VOA

Analysis Batch: 422859

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-126137-1	TRIP BLANK	Total/NA	Water	8260B	
240-126137-2	MW-128S_021020	Total/NA	Water	8260B	
MB 240-422859/7	Method Blank	Total/NA	Water	8260B	
LCS 240-422859/4	Lab Control Sample	Total/NA	Water	8260B	
240-126138-E-2 MS	Matrix Spike	Total/NA	Water	8260B	
240-126138-F-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Analysis Batch: 423128

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-126137-2	MW-128S_021020	Total/NA	Water	8260B SIM	
MB 240-423128/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-423128/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-126150-A-5 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-126150-A-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126137-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-126137-1

Date Collected: 02/10/20 00:00

Matrix: Water

Date Received: 02/12/20 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	422859	02/14/20 19:22	LRW	TAL CAN

Client Sample ID: MW-128S_021020

Lab Sample ID: 240-126137-2

Date Collected: 02/10/20 14:25

Matrix: Water

Date Received: 02/12/20 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	422859	02/14/20 21:44	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	423128	02/18/20 14:50	TJL2	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126137-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-20 *
Connecticut	State	PH-0590	12-31-19 *
Florida	NELAP	E87225	06-30-20
Georgia	State	4062	02-23-20 *
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-20
Kentucky (UST)	State	112225	02-23-20
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-20
New York	NELAP	10975	03-31-20
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-23-20 *
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-16-00404	12-28-19 *
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Canton

TestAmerica Laboratory location: Brighton — 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Client Contact Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240 Project Name: Ford LTP Off-Site Project Number: 30042006.0402.02 PO # 30042006.0402.02		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other		Client Project Manager: Kris Hinskey Telephone: 248-994-2240 Email: kristoffer.hinskey@arcadis.com Sampler Name: EILEEN REDNER Method of Shipment/Carrier: Shipping/Tracking No:		Site Contact: Julia McClafferty Telephone: 734-644-5131 Analysis Turnaround Time TAT if different from below 10 day <input checked="" type="checkbox"/> 3 weeks 1 week <input type="checkbox"/> 2 weeks 2 days <input type="checkbox"/> 1 week 1 day <input type="checkbox"/> 2 days		Lab Contact: Mike DeMonico Telephone: 330-997-9396		TestAmerica Laboratories, Inc. COC No: _____ of _____ COCs For lab use only Walk-in client Lab sampling Job/SDG No:	
Sample Identification TRIP BLANK MW-1285-021020		Matrix Air <input type="checkbox"/> Solid <input type="checkbox"/> Other: _____ Aqueous <input type="checkbox"/> Sediment <input type="checkbox"/> Other: _____ 1 b		Containers & Preservatives H2SO4 <input type="checkbox"/> HNO3 <input type="checkbox"/> HCl <input type="checkbox"/> NaOH <input type="checkbox"/> NaCl <input type="checkbox"/> Urines <input type="checkbox"/> Other: _____ 1 b		Filtered Sample (Y/N) NG X NG X		Analyses 1,1-DCE 8260B <input type="checkbox"/> 1,2-DCE 8260B <input type="checkbox"/> 1,4-Dioxane 8260B SIM <input type="checkbox"/> Vinyl Chloride 8260B <input type="checkbox"/> TCE 8260B <input type="checkbox"/> PCE 8260B <input type="checkbox"/> Trans-1,2-DCE 8260B <input type="checkbox"/> Cis-1,2-DCE 8260B <input type="checkbox"/>		Sample Specific Notes / Special Instructions: 1 TRIP BLANK 3 Vials for 8260B 3 Vials for 8260B SIM	
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		Special Instructions/QC Requirements & Comments: Submit all results through Cadena at jomalita@cadenaco.com. Cadena #E203631 Level IV Reporting requested.		Date/Time: 2/10/20 1715 Date/Time: 2/10/20 1830 Date/Time: 2/11/20 1100		Company: Arcadis Company: Arcadis Company: Arcadis		Date/Time: 2/10/20 115 Date/Time: 2/10/20 1830 Date/Time: 2/11/20 114	
Relinquished by: <i>[Signature]</i>		Relinquished by: <i>[Signature]</i>		Relinquished by: <i>[Signature]</i>		Received by: <i>[Signature]</i>		Received by: <i>[Signature]</i>		Received by: <i>[Signature]</i>	
ETA		2/10/20 1200		TA		2.12.20		810		810	



Eurofins TestAmerica Canton Sample Receipt Form/Narrative		Login # : <u>126137</u>
Canton Facility		
Client <u>Arceadis</u>	Site Name _____	Cooler unpacked by:
Cooler Received on <u>2-12-20</u>	Opened on <u>2-12-20</u>	
FedEx: 1 st <input checked="" type="checkbox"/> Grd' Exp	UPS FAS Clipper	Client Drop Off TestAmerica Courier Other
Receipt After-hours: Drop-off Date/Time		Storage Location
TestAmerica Cooler # <u>TA</u>	Foam Box	Client Cooler Box Other _____
Packing material used: <u>Bubble Wrap</u>	Foam Plastic Bag	None Other _____
COOLANT: <u>Wet Ice</u>	Blue Ice Dry Ice Water	None
1. Cooler temperature upon receipt	<input type="checkbox"/> See Multiple Cooler Form	
IR GUN# IR-10 (CF +0.7 °C)	Observed Cooler Temp. <u>23</u> °C	Corrected Cooler Temp. <u>30</u> °C
IR GUN #IR-11 (CF +0.9°C)	Observed Cooler Temp. _____ °C	Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity <u>1</u>	Yes	No
-Were the seals on the outside of the cooler(s) signed & dated?	Yes	No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	No
-Were tamper/custody seals intact and uncompromised?	Yes	No NA
3. Shippers' packing slip attached to the cooler(s)?	Yes	No
4. Did custody papers accompany the sample(s)?	Yes	No
5. Were the custody papers relinquished & signed in the appropriate place?	Yes	No
6. Was/were the person(s) who collected the samples clearly identified on the COC?	Yes	No
7. Did all bottles arrive in good condition (Unbroken)?	Yes	No
8. Could all bottle labels be reconciled with the COC?	Yes	No
9. Were correct bottle(s) used for the test(s) indicated?	Yes	No
10. Sufficient quantity received to perform indicated analyses?	Yes	No
11. Are these work share samples?	Yes	No
If yes, Questions 12-16 have been checked at the originating laboratory.		
12. Were all preserved sample(s) at the correct pH upon receipt?	Yes	No <u>NA</u> pH Strip Lot# <u>HC995364</u>
13. Were VOAs on the COC?	Yes	No
14. Were air bubbles >6 mm in any VOA vials? Larger than this.	Yes	No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____	Yes	No
16. Was a LL Hg or Me Hg trip blank present?	Yes	No
Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____		
Concerning _____		

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES	Samples processed by: <u>AG</u>
<hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	
18. SAMPLE CONDITION	
Sample(s) _____	were received after the recommended holding time had expired.
Sample(s) _____	were received in a broken container.
Sample(s) _____	were received with bubble >6 mm in diameter. (Notify PM)
19. SAMPLE PRESERVATION	
Sample(s) _____	were further preserved in the laboratory.
Time preserved: _____	Preservative(s) added/Lot number(s): _____
VOA Sample Preservation - Date/Time VOAs Frozen: _____	

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-130750-1
Client Project/Site: Ford LTP Off-Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
6/8/2020 10:14:41 AM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

LINKS

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results through
TotalAccess

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Visit us at:

www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130750-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130750-1

Job ID: 240-130750-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Off-Site

Report Number: 240-130750-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 5/22/2020 9:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.6° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-130750-1) and MW-128S_052020 (240-130750-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 06/01/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-128S_052020 (240-130750-2) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 06/02/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130750-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130750-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-130750-1	TRIP BLANK	Water	05/20/20 00:00	05/22/20 09:20	
240-130750-2	MW-128S_052020	Water	05/20/20 10:15	05/22/20 09:20	

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- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130750-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-130750-1

No Detections.

Client Sample ID: MW-128S_052020

Lab Sample ID: 240-130750-2

No Detections.

- 1
- 2
- 3
- 4
- 5
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- 7
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- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off-Site

Job ID: 240-130750-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-130750-1

Date Collected: 05/20/20 00:00

Matrix: Water

Date Received: 05/22/20 09:20

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 19:57	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/01/20 19:57	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/01/20 19:57	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 19:57	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/01/20 19:57	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/01/20 19:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		75 - 130		06/01/20 19:57	1
4-Bromofluorobenzene (Surr)	84		47 - 134		06/01/20 19:57	1
Toluene-d8 (Surr)	89		69 - 122		06/01/20 19:57	1
Dibromofluoromethane (Surr)	94		78 - 129		06/01/20 19:57	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off-Site

Job ID: 240-130750-1

Client Sample ID: MW-128S_052020

Lab Sample ID: 240-130750-2

Date Collected: 05/20/20 10:15

Matrix: Water

Date Received: 05/22/20 09:20

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			06/02/20 08:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		70 - 133		06/02/20 08:40	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 20:19	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/01/20 20:19	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/01/20 20:19	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 20:19	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/01/20 20:19	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/01/20 20:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	83		75 - 130		06/01/20 20:19	1
4-Bromofluorobenzene (Surr)	83		47 - 134		06/01/20 20:19	1
Toluene-d8 (Surr)	88		69 - 122		06/01/20 20:19	1
Dibromofluoromethane (Surr)	94		78 - 129		06/01/20 20:19	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130750-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-130714-B-2 MS	Matrix Spike	84	81	89	97
240-130714-B-2 MSD	Matrix Spike Duplicate	84	79	89	96
240-130750-1	TRIP BLANK	84	84	89	94
240-130750-2	MW-128S_052020	83	83	88	94
LCS 240-436343/5	Lab Control Sample	84	86	93	96
MB 240-436343/8	Method Blank	84	88	92	94

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-133)
240-130750-2	MW-128S_052020	101
240-130793-C-2 MS	Matrix Spike	103
240-130793-C-2 MSD	Matrix Spike Duplicate	102
LCS 240-436445/4	Lab Control Sample	93
MB 240-436445/5	Method Blank	93

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130750-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-436343/8
Matrix: Water
Analysis Batch: 436343

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 12:24	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/01/20 12:24	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/01/20 12:24	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 12:24	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/01/20 12:24	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/01/20 12:24	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		75 - 130		06/01/20 12:24	1
4-Bromofluorobenzene (Surr)	88		47 - 134		06/01/20 12:24	1
Toluene-d8 (Surr)	92		69 - 122		06/01/20 12:24	1
Dibromofluoromethane (Surr)	94		78 - 129		06/01/20 12:24	1

Lab Sample ID: LCS 240-436343/5
Matrix: Water
Analysis Batch: 436343

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	20.0	17.3		ug/L		87	73 - 129
cis-1,2-Dichloroethene	20.0	19.0		ug/L		95	75 - 124
Tetrachloroethene	20.0	17.2		ug/L		86	70 - 125
trans-1,2-Dichloroethene	20.0	16.9		ug/L		84	74 - 130
Trichloroethene	20.0	19.0		ug/L		95	71 - 121
Vinyl chloride	20.0	17.6		ug/L		88	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	84		75 - 130
4-Bromofluorobenzene (Surr)	86		47 - 134
Toluene-d8 (Surr)	93		69 - 122
Dibromofluoromethane (Surr)	96		78 - 129

Lab Sample ID: 240-130714-B-2 MS
Matrix: Water
Analysis Batch: 436343

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	5.6	J	200	169		ug/L		82	64 - 132
cis-1,2-Dichloroethene	250		200	431		ug/L		90	68 - 121
Tetrachloroethene	10	U	200	163		ug/L		82	52 - 129
trans-1,2-Dichloroethene	10	U	200	165		ug/L		82	69 - 126
Trichloroethene	10	U	200	181		ug/L		90	56 - 124
Vinyl chloride	10	U	200	161		ug/L		81	49 - 136

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	84		75 - 130
4-Bromofluorobenzene (Surr)	81		47 - 134
Toluene-d8 (Surr)	89		69 - 122

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130750-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-130714-B-2 MS
Matrix: Water
Analysis Batch: 436343

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	97		78 - 129

Lab Sample ID: 240-130714-B-2 MSD
Matrix: Water
Analysis Batch: 436343

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	5.6	J	200	181		ug/L		88	64 - 132	7	35
cis-1,2-Dichloroethene	250		200	443		ug/L		96	68 - 121	3	35
Tetrachloroethene	10	U	200	170		ug/L		85	52 - 129	4	35
trans-1,2-Dichloroethene	10	U	200	171		ug/L		86	69 - 126	4	35
Trichloroethene	10	U	200	189		ug/L		94	56 - 124	4	35
Vinyl chloride	10	U	200	165		ug/L		82	49 - 136	2	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	84		75 - 130
4-Bromofluorobenzene (Surr)	79		47 - 134
Toluene-d8 (Surr)	89		69 - 122
Dibromofluoromethane (Surr)	96		78 - 129

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-436445/5
Matrix: Water
Analysis Batch: 436445

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			06/02/20 05:36	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		70 - 133		06/02/20 05:36	1

Lab Sample ID: LCS 240-436445/4
Matrix: Water
Analysis Batch: 436445

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	9.10		ug/L		91	80 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	93		70 - 133

Lab Sample ID: 240-130793-C-2 MS
Matrix: Water
Analysis Batch: 436445

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	1.9	J	10.0	10.7		ug/L		89	46 - 170

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130750-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>MS %Recovery</i>	<i>MS Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	103		70 - 133

Lab Sample ID: 240-130793-C-2 MSD
Matrix: Water
Analysis Batch: 436445

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
1,4-Dioxane	1.9	J	10.0	10.7		ug/L		89	46 - 170	0	26

<i>Surrogate</i>	<i>MSD %Recovery</i>	<i>MSD Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	102		70 - 133

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QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130750-1

GC/MS VOA

Analysis Batch: 436343

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-130750-1	TRIP BLANK	Total/NA	Water	8260B	
240-130750-2	MW-128S_052020	Total/NA	Water	8260B	
MB 240-436343/8	Method Blank	Total/NA	Water	8260B	
LCS 240-436343/5	Lab Control Sample	Total/NA	Water	8260B	
240-130714-B-2 MS	Matrix Spike	Total/NA	Water	8260B	
240-130714-B-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Analysis Batch: 436445

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-130750-2	MW-128S_052020	Total/NA	Water	8260B SIM	
MB 240-436445/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-436445/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-130793-C-2 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-130793-C-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130750-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-130750-1

Date Collected: 05/20/20 00:00

Matrix: Water

Date Received: 05/22/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	436343	06/01/20 19:57	HMB	TAL CAN

Client Sample ID: MW-128S_052020

Lab Sample ID: 240-130750-2

Date Collected: 05/20/20 10:15

Matrix: Water

Date Received: 05/22/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	436343	06/01/20 20:19	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	436445	06/02/20 08:40	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-130750-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-20
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-20
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

09/16

TestAmerica Laboratory location: Brighton --- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Regulatory program: DW NPDES RCRA Other

Client Contact: Arcadis
Address: 28550 Cabot Drive, Suite 500
City/State/Zip: Novi, MI, 48377
Phone: 248-994-2240

Client Project Manager: Kris Hinskey
Telephone: 248-994-2240
Email: kris@hinskey@arcadis.com

Site Contact: Julia McClafferty
Telephone: 734-644-5131

Lab Contact: Mike DelMonico
Telephone: 330-497-9396

Company Name: Arcadis
Address: 28550 Cabot Drive, Suite 500
City/State/Zip: Novi, MI, 48377
Phone: 248-994-2240

Project Name: Ford LTP Off-Site
Project Number: 30050315.402.04
PO # 30050315.402.04

Sampler Name: CHRISTINA WEAVER
Method of Shipment/Carrier:
Shipping/Tracking No:

Sample Identification	Sample Date	Sample Time	Matrix			Containers & Preservatives			Filtered Sample (Y/N)	Composite C / Grab-G	Analyses						Sample Specific Notes / Special Instructions:		
			Aqueous	Sediment	Solid	Other:	H2SO4	HNO3			HCl	ZnAc	NaOH	Other:	1,4-DCE 8260B	cis-1,2-DCE 8260B		Trans-1,2-DCE 8260B	PCE 8260B
TRIP BLANK	---	---	1																1 TRIP BLANK
MW-1285-052020	5/20/20	1015	6																3 VOLS FOR 8260B 3 VOLS FOR 8260B SIM



Possible Hazard Identification
 Non-Hazard Irritant Unknown

Special Instructions/QC Requirements & Comments:

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal By Lab Archive For _____ Months

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Christina Weaver	ARCADIS	5/20/20 1400	RACHEL BIELAK Paul Jahn	ARCADIS	5/20/20 1400
RACHEL BIELAK Paul Jahn	ARCADIS	5/20/20 1620	NOVA COLD STORAGE	ARCADIS	5/20/20 1620
Christina Weaver	ARCADIS	5/21/20 0850	Company	ETA	5/21/20 8:54

Relinquished by Christina Weaver 5/20/20 8:56

Eurofins TestAmerica Canton Sample Receipt Form/Narrative

Login # : 130750

Canton Facility

Client Arcadis Site Name _____ Cooler unpacked by: Ryan C
 Cooler Received on 5-22-20 Opened on 5-22-20 9:20
 FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ **Storage Location** _____

TestAmerica Cooler # TA Foam Box Client Cooler Box Other _____
 Packing material used: Bubble Wrap Foam Plastic Bag None Other _____
 COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. 0.9 °C Corrected Cooler Temp. 1.6 °C
 IR GUN #IR-11 (CF +0.9 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
 4. Did custody papers accompany the sample(s)? Yes No
 5. Were the custody papers relinquished & signed in the appropriate place? Yes No
 6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
 7. Did all bottles arrive in good condition (Unbroken)? Yes No
 8. Could all bottle labels be reconciled with the COC? Yes No
 9. Were correct bottle(s) used for the test(s) indicated? Yes No
 10. Sufficient quantity received to perform indicated analyses? Yes No
 11. Are these work share samples? Yes No
 If yes, Questions 12-16 have been checked at the originating laboratory.
 12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC902937
 13. Were VOAs on the COC? Yes No
 14. Were air bubbles >6 mm in any VOA vials? Larger than this. Yes No NA
 15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 59072 Yes No
 16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:
 VOAs
 Oil and Grease
 TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____
 Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: RC

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____
 VOA Sample Preservation - Date/Time VOAs Frozen: _____

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-140866-1
Client Project/Site: Ford LTP - Off Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
12/3/2020 11:15:49 AM

Michael DelMonico, Project Manager I
(330)497-9396
Michael.DelMonico@Eurofinset.com

LINKS

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results through
TotalAccess

Have a Question?



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www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-140866-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-140866-1

Job ID: 240-140866-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP - Off Site

Report Number: 240-140866-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 11/24/2020 9:20 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.0° C and 3.0° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-140866-1) and MW-128S_111920 (240-140866-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/29/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-128S_111920 (240-140866-2) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 11/30/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-140866-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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- 10
- 11
- 12
- 13
- 14

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-140866-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-140866-1	TRIP BLANK	Water	11/19/20 00:00	11/24/20 09:20	
240-140866-2	MW-128S_111920	Water	11/19/20 10:45	11/24/20 09:20	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-140866-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-140866-1

No Detections.

Client Sample ID: MW-128S_111920

Lab Sample ID: 240-140866-2

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP - Off Site

Job ID: 240-140866-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-140866-1

Date Collected: 11/19/20 00:00

Matrix: Water

Date Received: 11/24/20 09:20

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/29/20 16:30	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/29/20 16:30	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/29/20 16:30	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/29/20 16:30	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/29/20 16:30	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/29/20 16:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		75 - 130		11/29/20 16:30	1
4-Bromofluorobenzene (Surr)	100		47 - 134		11/29/20 16:30	1
Toluene-d8 (Surr)	99		69 - 122		11/29/20 16:30	1
Dibromofluoromethane (Surr)	94		78 - 129		11/29/20 16:30	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP - Off Site

Job ID: 240-140866-1

Client Sample ID: MW-128S_111920

Lab Sample ID: 240-140866-2

Date Collected: 11/19/20 10:45

Matrix: Water

Date Received: 11/24/20 09:20

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/30/20 16:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		70 - 133		11/30/20 16:25	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/29/20 16:55	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/29/20 16:55	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/29/20 16:55	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/29/20 16:55	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/29/20 16:55	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/29/20 16:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		75 - 130		11/29/20 16:55	1
4-Bromofluorobenzene (Surr)	100		47 - 134		11/29/20 16:55	1
Toluene-d8 (Surr)	98		69 - 122		11/29/20 16:55	1
Dibromofluoromethane (Surr)	93		78 - 129		11/29/20 16:55	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-140866-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA	BFB	TOL	DBFM
		(75-130)	(47-134)	(69-122)	(78-129)
240-140742-D-2 MSD	Matrix Spike Duplicate	94	104	102	83
240-140742-E-2 MS	Matrix Spike	96	106	104	87
240-140866-1	TRIP BLANK	110	100	99	94
240-140866-2	MW-128S_111920	107	100	98	93
LCS 240-463144/5	Lab Control Sample	101	108	103	84
MB 240-463144/8	Method Blank	112	103	99	95

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA
		(70-133)
240-140866-2	MW-128S_111920	100
240-140875-A-4 MS	Matrix Spike	99
240-140875-A-4 MSD	Matrix Spike Duplicate	100
LCS 240-463229/4	Lab Control Sample	99
MB 240-463229/5	Method Blank	102

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-140866-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-463144/8
Matrix: Water
Analysis Batch: 463144

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/29/20 11:08	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/29/20 11:08	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/29/20 11:08	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/29/20 11:08	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/29/20 11:08	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/29/20 11:08	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	112		75 - 130		11/29/20 11:08	1
4-Bromofluorobenzene (Surr)	103		47 - 134		11/29/20 11:08	1
Toluene-d8 (Surr)	99		69 - 122		11/29/20 11:08	1
Dibromofluoromethane (Surr)	95		78 - 129		11/29/20 11:08	1

Lab Sample ID: LCS 240-463144/5
Matrix: Water
Analysis Batch: 463144

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
1,1-Dichloroethene	20.0	19.2		ug/L		96	73 - 129
cis-1,2-Dichloroethene	20.0	19.0		ug/L		95	75 - 124
Tetrachloroethene	20.0	17.1		ug/L		86	70 - 125
trans-1,2-Dichloroethene	20.0	19.0		ug/L		95	74 - 130
Trichloroethene	20.0	16.1		ug/L		80	71 - 121
Vinyl chloride	20.0	18.2		ug/L		91	61 - 134

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	101		75 - 130
4-Bromofluorobenzene (Surr)	108		47 - 134
Toluene-d8 (Surr)	103		69 - 122
Dibromofluoromethane (Surr)	84		78 - 129

Lab Sample ID: 240-140742-D-2 MSD
Matrix: Water
Analysis Batch: 463144

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample	Sample	Spike Added	MSD	MSD	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
	Result	Qualifier		Result	Qualifier						
1,1-Dichloroethene	1.0	U	20.0	22.1		ug/L		110	64 - 132	3	35
cis-1,2-Dichloroethene	1.0	U	20.0	21.0		ug/L		105	68 - 121	3	35
Tetrachloroethene	1.0	U	20.0	20.0		ug/L		100	52 - 129	3	35
trans-1,2-Dichloroethene	1.0	U	20.0	20.9		ug/L		105	69 - 126	2	35
Trichloroethene	1.0	U	20.0	18.5		ug/L		92	56 - 124	2	35
Vinyl chloride	1.0	U	20.0	15.6		ug/L		78	49 - 136	4	35

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	94		75 - 130
4-Bromofluorobenzene (Surr)	104		47 - 134
Toluene-d8 (Surr)	102		69 - 122

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-140866-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-140742-D-2 MSD
Matrix: Water
Analysis Batch: 463144

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Dibromofluoromethane (Surr)	83		78 - 129

Lab Sample ID: 240-140742-E-2 MS
Matrix: Water
Analysis Batch: 463144

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U	20.0	21.4		ug/L		107	64 - 132
cis-1,2-Dichloroethene	1.0	U	20.0	20.4		ug/L		102	68 - 121
Tetrachloroethene	1.0	U	20.0	19.4		ug/L		97	52 - 129
trans-1,2-Dichloroethene	1.0	U	20.0	20.5		ug/L		103	69 - 126
Trichloroethene	1.0	U	20.0	18.0		ug/L		90	56 - 124
Vinyl chloride	1.0	U	20.0	15.0		ug/L		75	49 - 136

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	96		75 - 130
4-Bromofluorobenzene (Surr)	106		47 - 134
Toluene-d8 (Surr)	104		69 - 122
Dibromofluoromethane (Surr)	87		78 - 129

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-463229/5
Matrix: Water
Analysis Batch: 463229

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/30/20 10:56	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		70 - 133		11/30/20 10:56	1

Lab Sample ID: LCS 240-463229/4
Matrix: Water
Analysis Batch: 463229

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	10.8		ug/L		108	80 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	99		70 - 133

Lab Sample ID: 240-140875-A-4 MS
Matrix: Water
Analysis Batch: 463229

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	10.0	10.7		ug/L		107	46 - 170

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP - Off Site

Job ID: 240-140866-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	99		70 - 133

Lab Sample ID: 240-140875-A-4 MSD
Matrix: Water
Analysis Batch: 463229

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
1,4-Dioxane	2.0	U	10.0	10.5		ug/L		105	46 - 170	1	26

<i>Surrogate</i>	<i>%Recovery</i>	<i>MSD MSD Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	100		70 - 133



QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-140866-1

GC/MS VOA

Analysis Batch: 463144

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-140866-1	TRIP BLANK	Total/NA	Water	8260B	
240-140866-2	MW-128S_111920	Total/NA	Water	8260B	
MB 240-463144/8	Method Blank	Total/NA	Water	8260B	
LCS 240-463144/5	Lab Control Sample	Total/NA	Water	8260B	
240-140742-D-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
240-140742-E-2 MS	Matrix Spike	Total/NA	Water	8260B	

Analysis Batch: 463229

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-140866-2	MW-128S_111920	Total/NA	Water	8260B SIM	
MB 240-463229/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-463229/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-140875-A-4 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-140875-A-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-140866-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-140866-1

Date Collected: 11/19/20 00:00

Matrix: Water

Date Received: 11/24/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	463144	11/29/20 16:30	HMB	TAL CAN

Client Sample ID: MW-128S_111920

Lab Sample ID: 240-140866-2

Date Collected: 11/19/20 10:45

Matrix: Water

Date Received: 11/24/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	463144	11/29/20 16:55	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	463229	11/30/20 16:25	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-140866-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-21
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-21
Texas	NELAP	T104704517-18-10	08-31-21
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-21
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

Chain of Custody Record

TestAmerica Laboratory location: Brighton --- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Regulatory program: DW NPDES RCRA Other

Client Contact: Arcadis
Address: 28550 Cabot Drive, Suite 500
City/State/Zip: Novi, MI, 48377
Phone: 248-994-2240
Project Name: Ford LTP Off-Site
Project Number: 30050315-402.04
PO # 30050315-402.04

Client Project Manager: Kris Hinsley
Telephone: 248-994-2240
Email: kristoffer.hinsley@arcadis.com

Site Contact: Julia McClafferty
Telephone: 734-644-5131

Lab Contact: Mike DelMonico
Telephone: 330-497-9396

Company Name: Arcadis
Address: 28550 Cabot Drive, Suite 500
City/State/Zip: Novi, MI, 48377
Phone: 248-994-2240
Project Name: Ford LTP Off-Site
Project Number: 30050315-402.04
PO # 30050315-402.04

Sampler Name: *EMMA Witherspoon*
Method of Shipment/Carrier:
Shipping/Tracking No:

Analysis Turnaround Time:
TAT, if different from below:
10 day
 3 weeks
 2 weeks
 1 week
 2 days
 1 day

Sample Identification	Sample Date	Sample Time	Matrix										Filtered Sample (Y/N)	Composite C / Grab G	Analyses	Sample Specific Notes / Special Instructions:							
			Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl	NaOH	ZnAc					Uptres	Other:					
TRIP BLANK	-	-	1													X	X	X	X	X	X	1 TRIP BLANK	
MW-1285-111920	11/19/20	1045-6	6													X	X	X	X	X	X	3 Vials for 8260B 2 Vials for 8260B SIM	



Possible Hazard Identification
 Non-Hazard Irritant Poison B Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal By Lab Archive For _____ Months

Special Instructions/QC Requirements & Comments:

Relinquished by: *EMMA Witherspoon* Company: Arcadis Date/Time: 11/19/20/1500
 Relinquished by: *Julia McClafferty* Company: Arcadis Date/Time: 11/23/20/1250
 Relinquished by: *W D* Company: ETA Date/Time: 11/23/20/1350

Received by: *Arcadis* Company: Arcadis Date/Time: 11/19/20/1500
 Received by: *ETA* Company: ETA Date/Time: 11/23/20/1250
 Received in Laboratory by: *ETA* Company: ETA Date/Time: 11-24-20 920

Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 1407666

Client Arcadis Site Name _____
 Cooler Received on 11-24-20 Opened on 11-24-20
 FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Cooler unpacked by:

Matt Snider

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # 1A Foam Box Client Cooler Box Other _____
 Packing material used: Bubble Wrap Foam Plastic Bag None Other _____
 COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN# IR-11 (CF +0.9 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN #IR-12 (CF +0.5 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes NO
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)? Yes No
10. Were correct bottle(s) used for the test(s) indicated? Yes No
11. Sufficient quantity received to perform indicated analyses? Yes No
12. Are these work share samples and all listed on the COC? Yes No
13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC907861
14. Were VOAs on the COC? Yes No
15. Were air bubbles >6 mm in any VOA vials? Yes No NA **← Larger than this.**
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No
17. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:
 VOAs
 Oil and Grease
 TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page

Samples processed by:

19. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____
 VOA Sample Preservation - Date/Time VOAs Frozen: _____

Login #: 140866

Eurofins TestAmerica Canton Sample Receipt Multiple Cooler Form					
Cooler Description (Circle)	IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)	
(TA) Client Box Other	(IR-11) IR-12	1.1	2.0	(Wet Ice) Water	Blue Ice None Dry Ice
(TA) Client Box Other	(IR-11) IR-12	2.1	3.0	(Wet Ice) Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice
TA Client Box Other	IR-11 IR-12			Wet Ice Water	Blue Ice None Dry Ice

See Temperature Excursion Form

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-134119-1
Client Project/Site: Ford LTP

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
8/12/2020 9:24:43 AM

Michael DelMonico, Project Manager I
(330)497-9396
Michael.DelMonico@Eurofinset.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.
X	Surrogate recovery exceeds control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Job ID: 240-134119-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP

Report Number: 240-134119-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 7/29/2020 9:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.1° C and 2.4° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TMW-20-01 (3.5-8.5)_072720 (240-134119-28) and TRIP BLANK (240-134119-29) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 08/01/2020 and 08/03/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS

Samples TMW-20-01 (0.5-1.0)_072720 (240-134119-1), TMW-20-01 (1-2)_07272020 (240-134119-2), TMW-20-01 (2-3)_07272020 (240-134119-3), TMW-20-01 (3-4)_07272020 (240-134119-4), TMW-20-01 (4-5)_07272020 (240-134119-5), TMW-20-01 (5-6)_07272020 (240-134119-6), TMW-20-01 (6-7)_07272020 (240-134119-7), SB-138 (0.5-1)_07272020 (240-134119-8), SB-138 (1-2)_072720 (240-134119-9), SB-138 (2-3)_072720 (240-134119-10), SB-138 (3-4)_072720 (240-134119-11), SB-138 (4-5)_072720 (240-134119-12), SB-139 (0.5-1)_072720 (240-134119-13), SB-139 (1-2)_072720 (240-134119-14), SB-139 (2-3)_072720 (240-134119-15), SB-139 (3-4)_072720 (240-134119-16), SB-140 (0.5-1)_072720 (240-134119-18), SB-140 (1-2)_072720 (240-134119-19), SB-140 (2-3)_072720 (240-134119-20), SB-140 (3-4)_072720 (240-134119-21), SB-140 (5-6)_072720 (240-134119-22), SB-140 (6-7)_072720 (240-134119-23), SB-139 (5-6)_072720 (240-134119-24), SB-139 (6-7)_072720 (240-134119-25), SB-138 (6-7)_072720 (240-134119-27), DUP-01 (240-134119-30) and DUP-02 (240-134119-31) were analyzed for volatile organic compounds in accordance

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Job ID: 240-134119-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

with EPA SW-846 Method 8260B. The samples were analyzed on 08/04/2020, 08/05/2020 and 08/06/2020.

trans-1,2-Dichloroethene was detected in method blank MB 240-445438/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Dibromofluoromethane (Surr) failed the surrogate recovery criteria high for SB-138 (3-4)_072720 (240-134119-11), SB-139 (0.5-1)_072720 (240-134119-13), SB-139 (2-3)_072720 (240-134119-15), and SB-138 (1-2)_072720 (240-134119-9).

4-Bromofluorobenzene (Surr) and Toluene-d8 (Surr) failed the surrogate recovery criteria high for TMW-20-01 (3-4)_072720 (240-134119-4). Refer to the QC report for details.

Trichloroethene failed the recovery criteria high for LCS 240-445438/2-A. Refer to the QC report for details.

This methanol preserved terra core was received leaking due to dirt on the threads and has a low methanol volume. A new sample was prepped from a bulk jar taken from the sample receiving refrigerator. If this jar was opened in another part of the lab it could have been contaminated: SB-139 (4-5)_072720 (240-134119-17), (240-134119-C-17 MS) and (240-134119-C-17 MSD).

The following sample was unable to be prepared and analyzed due to a lab accident: SB-138 (5-6)_072720 (240-134119-26).

Surrogate recovery for the following sample was outside the upper control limit: SB-138 (3-4)_072720 (240-134119-11). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Surrogate recovery for the following samples were outside of acceptance limits: TMW-20-01 (3-4)_072720 (240-134119-4), SB-138 (1-2)_072720 (240-134119-9), SB-139 (0.5-1)_072720 (240-134119-13) and SB-139 (2-3)_072720 (240-134119-15). There was insufficient sample to perform a re-extraction; therefore, the data have been reported.

The laboratory control sample (LCS) for preparation batch 240-445438 and analytical batch 240-445702 recovered outside control limits for the following analyte: Trichloroethene. This analyte was biased high in the LCS and was not detected above the reporting limit (RL) in the associated samples; therefore, the data have been reported: SB-140 (0.5-1)_072720 (240-134119-18), SB-140 (1-2)_072720 (240-134119-19), SB-140 (2-3)_072720 (240-134119-20), SB-140 (3-4)_072720 (240-134119-21), SB-140 (5-6)_072720 (240-134119-22), SB-140 (6-7)_072720 (240-134119-23), SB-139 (5-6)_072720 (240-134119-24), SB-139 (6-7)_072720 (240-134119-25) and SB-138 (6-7)_072720 (240-134119-27).

The laboratory control sample (LCS) for preparation batch 240-445438 and analytical batch 240-445537 recovered outside control limits for the following analyte: Trichloroethene. This analyte was biased high in the LCS and was not detected in the associated samples above the reporting limit (RL); therefore, the data have been reported: SB-138 (0.5-1)_072720 (240-134119-8), SB-138 (1-2)_072720 (240-134119-9), SB-138 (2-3)_072720 (240-134119-10), SB-138 (3-4)_072720 (240-134119-11), SB-138 (4-5)_072720 (240-134119-12), SB-139 (0.5-1)_072720 (240-134119-13), SB-139 (1-2)_072720 (240-134119-14), SB-139 (2-3)_072720 (240-134119-15), SB-139 (3-4)_072720 (240-134119-16) and (LCS 240-445438/2-A).

Batch preparation batch 240-445438 and analytical batch 240-445702 is reported without a matrix spike/matrix spike duplicate (MS/MSD). The batch MS/MSD was performed on another sample, and this test was canceled at client request. This MS/MSD result does not have immediate bearing on any samples except for the actual sample spiked. The associated laboratory control sample (LCS) met acceptance criteria and provides long-term precision and accuracy for this batch: SB-140 (0.5-1)_072720 (240-134119-18), SB-140 (1-2)_072720 (240-134119-19), SB-140 (2-3)_072720 (240-134119-20), SB-140 (3-4)_072720 (240-134119-21), SB-140 (5-6)_072720 (240-134119-22), SB-140 (6-7)_072720 (240-134119-23), SB-139 (5-6)_072720 (240-134119-24), SB-139 (6-7)_072720 (240-134119-25) and SB-138 (6-7)_072720 (240-134119-27).

Batch preparation batch 240-445438 and analytical batch 240-445537 is reported without a matrix spike/matrix spike duplicate (MS/MSD). The batch MS/MSD was performed on another sample, and this test was canceled at client request. This MS/MSD result does not have immediate bearing on any samples except for the actual sample spiked. The associated laboratory control sample (LCS) met acceptance criteria and provides long-term precision and accuracy for this batch: SB-138 (0.5-1)_072720 (240-134119-8), SB-138 (1-2)_072720 (240-134119-9), SB-138 (2-3)_072720 (240-134119-10), SB-138 (3-4)_072720 (240-134119-11), SB-138 (4-5)_072720 (240-134119-12), SB-139 (0.5-1)_072720 (240-134119-13), SB-139 (1-2)_072720 (240-134119-14), SB-139 (2-3)_072720 (240-134119-15) and SB-139 (3-4)_072720 (240-134119-16).

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Job ID: 240-134119-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 240-445619 and analytical batch 240-446008.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample TMW-20-01 (3.5-8.5)_072720 (240-134119-28) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 07/31/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples TMW-20-01 (0.5-1.0)_072720 (240-134119-1), TMW-20-01 (1-2)_07272020 (240-134119-2), TMW-20-01 (2-3)_07272020 (240-134119-3), TMW-20-01 (3-4)_07272020 (240-134119-4), TMW-20-01 (4-5)_07272020 (240-134119-5), TMW-20-01 (5-6)_07272020 (240-134119-6), TMW-20-01 (6-7)_07272020 (240-134119-7), SB-138 (0.5-1)_07272020 (240-134119-8), SB-138 (1-2)_072720 (240-134119-9), SB-138 (2-3)_072720 (240-134119-10), SB-138 (3-4)_072720 (240-134119-11), SB-138 (4-5)_072720 (240-134119-12), SB-139 (0.5-1)_072720 (240-134119-13), SB-139 (1-2)_072720 (240-134119-14), SB-139 (2-3)_072720 (240-134119-15), SB-139 (3-4)_072720 (240-134119-16), SB-140 (0.5-1)_072720 (240-134119-18), SB-140 (1-2)_072720 (240-134119-19), SB-140 (2-3)_072720 (240-134119-20), SB-140 (3-4)_072720 (240-134119-21), SB-140 (5-6)_072720 (240-134119-22), SB-140 (6-7)_072720 (240-134119-23), SB-139 (5-6)_072720 (240-134119-24), SB-139 (6-7)_072720 (240-134119-25), SB-138 (6-7)_072720 (240-134119-27), DUP-01 (240-134119-30) and DUP-02 (240-134119-31) were analyzed for percent solids in accordance with ASTM Method D2216-80. The samples were analyzed on 07/30/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B MI	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
Moisture	Percent Moisture	EPA	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-134119-1	TMW-20-01 (0.5-1.0)_072720	Solid	07/27/20 10:05	07/29/20 09:20	
240-134119-2	TMW-20-01 (1-2)_07272020	Solid	07/27/20 10:10	07/29/20 09:20	
240-134119-3	TMW-20-01 (2-3)_07272020	Solid	07/27/20 10:40	07/29/20 09:20	
240-134119-4	TMW-20-01 (3-4)_07272020	Solid	07/27/20 11:04	07/29/20 09:20	
240-134119-5	TMW-20-01 (4-5)_07272020	Solid	07/27/20 11:07	07/29/20 09:20	
240-134119-6	TMW-20-01 (5-6)_07272020	Solid	07/27/20 11:10	07/29/20 09:20	
240-134119-7	TMW-20-01 (6-7)_07272020	Solid	07/27/20 11:30	07/29/20 09:20	
240-134119-8	SB-138 (0.5-1)_07272020	Solid	07/27/20 12:23	07/29/20 09:20	
240-134119-9	SB-138 (1-2)_072720	Solid	07/27/20 12:30	07/29/20 09:20	
240-134119-10	SB-138 (2-3)_072720	Solid	07/27/20 12:39	07/29/20 09:20	
240-134119-11	SB-138 (3-4)_072720	Solid	07/27/20 12:49	07/29/20 09:20	
240-134119-12	SB-138 (4-5)_072720	Solid	07/27/20 12:51	07/29/20 09:20	
240-134119-13	SB-139 (0.5-1)_072720	Solid	07/27/20 13:10	07/29/20 09:20	
240-134119-14	SB-139 (1-2)_072720	Solid	07/27/20 13:13	07/29/20 09:20	
240-134119-15	SB-139 (2-3)_072720	Solid	07/27/20 13:16	07/29/20 09:20	
240-134119-16	SB-139 (3-4)_072720	Solid	07/27/20 13:20	07/29/20 09:20	
240-134119-18	SB-140 (0.5-1)_072720	Solid	07/27/20 13:33	07/29/20 09:20	
240-134119-19	SB-140 (1-2)_072720	Solid	07/27/20 13:37	07/29/20 09:20	
240-134119-20	SB-140 (2-3)_072720	Solid	07/27/20 14:50	07/29/20 09:20	
240-134119-21	SB-140 (3-4)_072720	Solid	07/27/20 14:55	07/29/20 09:20	
240-134119-22	SB-140 (5-6)_072720	Solid	07/27/20 15:06	07/29/20 09:20	
240-134119-23	SB-140 (6-7)_072720	Solid	07/27/20 15:09	07/29/20 09:20	
240-134119-24	SB-139 (5-6)_072720	Solid	07/27/20 15:17	07/29/20 09:20	
240-134119-25	SB-139 (6-7)_072720	Solid	07/27/20 15:19	07/29/20 09:20	
240-134119-27	SB-138 (6-7)_072720	Solid	07/27/20 15:30	07/29/20 09:20	
240-134119-28	TMW-20-01 (3.5-8.5)_072720	Water	07/27/20 16:52	07/29/20 09:20	
240-134119-29	TRIP BLANK	Water	07/27/20 00:00	07/29/20 09:20	
240-134119-30	DUP-01	Solid	07/27/20 00:00	07/29/20 09:20	
240-134119-31	DUP-02	Solid	07/27/20 00:00	07/29/20 09:20	

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: TMW-20-01 (0.5-1.0)_072720

Lab Sample ID: 240-134119-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	490		58	26	ug/Kg	1	☒	8260B MI	Total/NA

Client Sample ID: TMW-20-01 (1-2)_07272020

Lab Sample ID: 240-134119-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	1200		55	25	ug/Kg	1	☒	8260B MI	Total/NA

Client Sample ID: TMW-20-01 (2-3)_07272020

Lab Sample ID: 240-134119-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	460		67	30	ug/Kg	1	☒	8260B MI	Total/NA

Client Sample ID: TMW-20-01 (3-4)_07272020

Lab Sample ID: 240-134119-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	300		76	34	ug/Kg	1	☒	8260B MI	Total/NA

Client Sample ID: TMW-20-01 (4-5)_07272020

Lab Sample ID: 240-134119-5

No Detections.

Client Sample ID: TMW-20-01 (5-6)_07272020

Lab Sample ID: 240-134119-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	150		56	25	ug/Kg	1	☒	8260B MI	Total/NA

Client Sample ID: TMW-20-01 (6-7)_07272020

Lab Sample ID: 240-134119-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	24	J	49	22	ug/Kg	1	☒	8260B MI	Total/NA

Client Sample ID: SB-138 (0.5-1)_07272020

Lab Sample ID: 240-134119-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	1800		60	27	ug/Kg	1	☒	8260B MI	Total/NA
trans-1,2-Dichloroethene	25	J B	60	15	ug/Kg	1	☒	8260B MI	Total/NA

Client Sample ID: SB-138 (1-2)_072720

Lab Sample ID: 240-134119-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	480		48	22	ug/Kg	1	☒	8260B MI	Total/NA

Client Sample ID: SB-138 (2-3)_072720

Lab Sample ID: 240-134119-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	270		59	26	ug/Kg	1	☒	8260B MI	Total/NA

Client Sample ID: SB-138 (3-4)_072720

Lab Sample ID: 240-134119-11

No Detections.

Client Sample ID: SB-138 (4-5)_072720

Lab Sample ID: 240-134119-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	140		59	27	ug/Kg	1	☒	8260B MI	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-139 (0.5-1)_072720

Lab Sample ID: 240-134119-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	740		54	24	ug/Kg	1	☒	8260B MI	Total/NA

Client Sample ID: SB-139 (1-2)_072720

Lab Sample ID: 240-134119-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	3100		52	24	ug/Kg	1	☒	8260B MI	Total/NA
Trichloroethene	37	J *	52	14	ug/Kg	1	☒	8260B MI	Total/NA

Client Sample ID: SB-139 (2-3)_072720

Lab Sample ID: 240-134119-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	350		60	27	ug/Kg	1	☒	8260B MI	Total/NA

Client Sample ID: SB-139 (3-4)_072720

Lab Sample ID: 240-134119-16

No Detections.

Client Sample ID: SB-140 (0.5-1)_072720

Lab Sample ID: 240-134119-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	1000		58	26	ug/Kg	1	☒	8260B MI	Total/NA

Client Sample ID: SB-140 (1-2)_072720

Lab Sample ID: 240-134119-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	1500		45	20	ug/Kg	1	☒	8260B MI	Total/NA

Client Sample ID: SB-140 (2-3)_072720

Lab Sample ID: 240-134119-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	1300		52	23	ug/Kg	1	☒	8260B MI	Total/NA

Client Sample ID: SB-140 (3-4)_072720

Lab Sample ID: 240-134119-21

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	300		46	21	ug/Kg	1	☒	8260B MI	Total/NA
Trichloroethene	35	J *	46	13	ug/Kg	1	☒	8260B MI	Total/NA

Client Sample ID: SB-140 (5-6)_072720

Lab Sample ID: 240-134119-22

No Detections.

Client Sample ID: SB-140 (6-7)_072720

Lab Sample ID: 240-134119-23

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	98		55	25	ug/Kg	1	☒	8260B MI	Total/NA

Client Sample ID: SB-139 (5-6)_072720

Lab Sample ID: 240-134119-24

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	86		51	23	ug/Kg	1	☒	8260B MI	Total/NA

Client Sample ID: SB-139 (6-7)_072720

Lab Sample ID: 240-134119-25

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	140		58	26	ug/Kg	1	☒	8260B MI	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-138 (6-7)_072720

Lab Sample ID: 240-134119-27

No Detections.

Client Sample ID: TMW-20-01 (3.5-8.5)_072720

Lab Sample ID: 240-134119-28

No Detections.

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134119-29

No Detections.

Client Sample ID: DUP-01

Lab Sample ID: 240-134119-30

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	65		49	22	ug/Kg	1	☒	8260B MI	Total/NA

Client Sample ID: DUP-02

Lab Sample ID: 240-134119-31

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton



Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: TMW-20-01 (0.5-1.0)_072720

Lab Sample ID: 240-134119-1

Date Collected: 07/27/20 10:05

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 86.8

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	58	U	58	23	ug/Kg	☼	08/03/20 17:08	08/05/20 01:35	1
1,4-Dioxane	18000	U	18000	1600	ug/Kg	☼	08/03/20 17:08	08/05/20 01:35	1
cis-1,2-Dichloroethene	58	U	58	13	ug/Kg	☼	08/03/20 17:08	08/05/20 01:35	1
Tetrachloroethene	490		58	26	ug/Kg	☼	08/03/20 17:08	08/05/20 01:35	1
trans-1,2-Dichloroethene	58	U	58	14	ug/Kg	☼	08/03/20 17:08	08/05/20 01:35	1
Trichloroethene	58	U	58	16	ug/Kg	☼	08/03/20 17:08	08/05/20 01:35	1
Vinyl chloride	46	U	46	17	ug/Kg	☼	08/03/20 17:08	08/05/20 01:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		47 - 136	08/03/20 17:08	08/05/20 01:35	1
4-Bromofluorobenzene (Surr)	111		51 - 124	08/03/20 17:08	08/05/20 01:35	1
Dibromofluoromethane (Surr)	89		49 - 122	08/03/20 17:08	08/05/20 01:35	1
Toluene-d8 (Surr)	108		55 - 123	08/03/20 17:08	08/05/20 01:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	86.8		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	13.2		0.1	0.1	%			07/30/20 09:56	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: TMW-20-01 (1-2)_07272020

Lab Sample ID: 240-134119-2

Date Collected: 07/27/20 10:10

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 84.9

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	55	U	55	22	ug/Kg	☼	08/03/20 17:08	08/05/20 01:57	1
1,4-Dioxane	17000	U	17000	1500	ug/Kg	☼	08/03/20 17:08	08/05/20 01:57	1
cis-1,2-Dichloroethene	55	U	55	12	ug/Kg	☼	08/03/20 17:08	08/05/20 01:57	1
Tetrachloroethene	1200		55	25	ug/Kg	☼	08/03/20 17:08	08/05/20 01:57	1
trans-1,2-Dichloroethene	55	U	55	14	ug/Kg	☼	08/03/20 17:08	08/05/20 01:57	1
Trichloroethene	55	U	55	15	ug/Kg	☼	08/03/20 17:08	08/05/20 01:57	1
Vinyl chloride	44	U	44	16	ug/Kg	☼	08/03/20 17:08	08/05/20 01:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		47 - 136	08/03/20 17:08	08/05/20 01:57	1
4-Bromofluorobenzene (Surr)	112		51 - 124	08/03/20 17:08	08/05/20 01:57	1
Dibromofluoromethane (Surr)	90		49 - 122	08/03/20 17:08	08/05/20 01:57	1
Toluene-d8 (Surr)	110		55 - 123	08/03/20 17:08	08/05/20 01:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.9		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	15.1		0.1	0.1	%			07/30/20 09:56	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: TMW-20-01 (2-3)_07272020

Lab Sample ID: 240-134119-3

Date Collected: 07/27/20 10:40

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 76.8

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	67	U	67	27	ug/Kg	☼	08/03/20 17:08	08/05/20 02:20	1
1,4-Dioxane	21000	U	21000	1800	ug/Kg	☼	08/03/20 17:08	08/05/20 02:20	1
cis-1,2-Dichloroethene	67	U	67	15	ug/Kg	☼	08/03/20 17:08	08/05/20 02:20	1
Tetrachloroethene	460		67	30	ug/Kg	☼	08/03/20 17:08	08/05/20 02:20	1
trans-1,2-Dichloroethene	67	U	67	17	ug/Kg	☼	08/03/20 17:08	08/05/20 02:20	1
Trichloroethene	67	U	67	18	ug/Kg	☼	08/03/20 17:08	08/05/20 02:20	1
Vinyl chloride	54	U	54	20	ug/Kg	☼	08/03/20 17:08	08/05/20 02:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		47 - 136	08/03/20 17:08	08/05/20 02:20	1
4-Bromofluorobenzene (Surr)	123		51 - 124	08/03/20 17:08	08/05/20 02:20	1
Dibromofluoromethane (Surr)	101		49 - 122	08/03/20 17:08	08/05/20 02:20	1
Toluene-d8 (Surr)	122		55 - 123	08/03/20 17:08	08/05/20 02:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	76.8		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	23.2		0.1	0.1	%			07/30/20 09:56	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: TMW-20-01 (3-4)_07272020

Lab Sample ID: 240-134119-4

Date Collected: 07/27/20 11:04

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 69.8

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	76	U	76	30	ug/Kg	☼	08/03/20 17:08	08/05/20 02:42	1
1,4-Dioxane	24000	U	24000	2100	ug/Kg	☼	08/03/20 17:08	08/05/20 02:42	1
cis-1,2-Dichloroethene	76	U	76	17	ug/Kg	☼	08/03/20 17:08	08/05/20 02:42	1
Tetrachloroethene	300		76	34	ug/Kg	☼	08/03/20 17:08	08/05/20 02:42	1
trans-1,2-Dichloroethene	76	U	76	19	ug/Kg	☼	08/03/20 17:08	08/05/20 02:42	1
Trichloroethene	76	U	76	21	ug/Kg	☼	08/03/20 17:08	08/05/20 02:42	1
Vinyl chloride	61	U	61	23	ug/Kg	☼	08/03/20 17:08	08/05/20 02:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		47 - 136	08/03/20 17:08	08/05/20 02:42	1
4-Bromofluorobenzene (Surr)	129	X	51 - 124	08/03/20 17:08	08/05/20 02:42	1
Dibromofluoromethane (Surr)	105		49 - 122	08/03/20 17:08	08/05/20 02:42	1
Toluene-d8 (Surr)	128	X	55 - 123	08/03/20 17:08	08/05/20 02:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	69.8		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	30.2		0.1	0.1	%			07/30/20 09:56	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: TMW-20-01 (4-5)_07272020

Lab Sample ID: 240-134119-5

Date Collected: 07/27/20 11:07

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 87.4

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	52	U	52	21	ug/Kg	☼	08/03/20 17:08	08/05/20 03:05	1
1,4-Dioxane	16000	U	16000	1400	ug/Kg	☼	08/03/20 17:08	08/05/20 03:05	1
cis-1,2-Dichloroethene	52	U	52	12	ug/Kg	☼	08/03/20 17:08	08/05/20 03:05	1
Tetrachloroethene	52	U	52	24	ug/Kg	☼	08/03/20 17:08	08/05/20 03:05	1
trans-1,2-Dichloroethene	52	U	52	13	ug/Kg	☼	08/03/20 17:08	08/05/20 03:05	1
Trichloroethene	52	U	52	14	ug/Kg	☼	08/03/20 17:08	08/05/20 03:05	1
Vinyl chloride	42	U	42	16	ug/Kg	☼	08/03/20 17:08	08/05/20 03:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		47 - 136	08/03/20 17:08	08/05/20 03:05	1
4-Bromofluorobenzene (Surr)	110		51 - 124	08/03/20 17:08	08/05/20 03:05	1
Dibromofluoromethane (Surr)	88		49 - 122	08/03/20 17:08	08/05/20 03:05	1
Toluene-d8 (Surr)	108		55 - 123	08/03/20 17:08	08/05/20 03:05	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	87.4		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	12.6		0.1	0.1	%			07/30/20 09:56	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: TMW-20-01 (5-6)_07272020

Lab Sample ID: 240-134119-6

Date Collected: 07/27/20 11:10

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 85.3

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	56	U	56	22	ug/Kg	☼	08/03/20 17:08	08/05/20 03:28	1
1,4-Dioxane	18000	U	18000	1500	ug/Kg	☼	08/03/20 17:08	08/05/20 03:28	1
cis-1,2-Dichloroethene	56	U	56	13	ug/Kg	☼	08/03/20 17:08	08/05/20 03:28	1
Tetrachloroethene	150		56	25	ug/Kg	☼	08/03/20 17:08	08/05/20 03:28	1
trans-1,2-Dichloroethene	56	U	56	14	ug/Kg	☼	08/03/20 17:08	08/05/20 03:28	1
Trichloroethene	56	U	56	15	ug/Kg	☼	08/03/20 17:08	08/05/20 03:28	1
Vinyl chloride	45	U	45	17	ug/Kg	☼	08/03/20 17:08	08/05/20 03:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		47 - 136	08/03/20 17:08	08/05/20 03:28	1
4-Bromofluorobenzene (Surr)	106		51 - 124	08/03/20 17:08	08/05/20 03:28	1
Dibromofluoromethane (Surr)	87		49 - 122	08/03/20 17:08	08/05/20 03:28	1
Toluene-d8 (Surr)	107		55 - 123	08/03/20 17:08	08/05/20 03:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	85.3		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	14.7		0.1	0.1	%			07/30/20 09:56	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: TMW-20-01 (6-7)_07272020

Lab Sample ID: 240-134119-7

Date Collected: 07/27/20 11:30

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 90.4

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	49	U	49	20	ug/Kg	☼	08/03/20 17:08	08/05/20 03:50	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	08/03/20 17:08	08/05/20 03:50	1
cis-1,2-Dichloroethene	49	U	49	11	ug/Kg	☼	08/03/20 17:08	08/05/20 03:50	1
Tetrachloroethene	24	J	49	22	ug/Kg	☼	08/03/20 17:08	08/05/20 03:50	1
trans-1,2-Dichloroethene	49	U	49	12	ug/Kg	☼	08/03/20 17:08	08/05/20 03:50	1
Trichloroethene	49	U	49	13	ug/Kg	☼	08/03/20 17:08	08/05/20 03:50	1
Vinyl chloride	39	U	39	15	ug/Kg	☼	08/03/20 17:08	08/05/20 03:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		47 - 136	08/03/20 17:08	08/05/20 03:50	1
4-Bromofluorobenzene (Surr)	113		51 - 124	08/03/20 17:08	08/05/20 03:50	1
Dibromofluoromethane (Surr)	90		49 - 122	08/03/20 17:08	08/05/20 03:50	1
Toluene-d8 (Surr)	111		55 - 123	08/03/20 17:08	08/05/20 03:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	90.4		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	9.6		0.1	0.1	%			07/30/20 09:56	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-138 (0.5-1)_07272020

Lab Sample ID: 240-134119-8

Date Collected: 07/27/20 12:23

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 81.6

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	60	U	60	24	ug/Kg	☼	08/03/20 19:07	08/04/20 18:30	1
1,4-Dioxane	19000	U	19000	1600	ug/Kg	☼	08/03/20 19:07	08/04/20 18:30	1
cis-1,2-Dichloroethene	60	U	60	14	ug/Kg	☼	08/03/20 19:07	08/04/20 18:30	1
Tetrachloroethene	1800		60	27	ug/Kg	☼	08/03/20 19:07	08/04/20 18:30	1
trans-1,2-Dichloroethene	25 J B		60	15	ug/Kg	☼	08/03/20 19:07	08/04/20 18:30	1
Trichloroethene	60	U *	60	17	ug/Kg	☼	08/03/20 19:07	08/04/20 18:30	1
Vinyl chloride	48	U	48	18	ug/Kg	☼	08/03/20 19:07	08/04/20 18:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		47 - 136	08/03/20 19:07	08/04/20 18:30	1
4-Bromofluorobenzene (Surr)	90		51 - 124	08/03/20 19:07	08/04/20 18:30	1
Dibromofluoromethane (Surr)	116		49 - 122	08/03/20 19:07	08/04/20 18:30	1
Toluene-d8 (Surr)	94		55 - 123	08/03/20 19:07	08/04/20 18:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	81.6		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	18.4		0.1	0.1	%			07/30/20 09:56	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-138 (1-2)_072720

Lab Sample ID: 240-134119-9

Date Collected: 07/27/20 12:30

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 92.4

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	48	U	48	19	ug/Kg	☼	08/03/20 19:07	08/04/20 18:52	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	08/03/20 19:07	08/04/20 18:52	1
cis-1,2-Dichloroethene	48	U	48	11	ug/Kg	☼	08/03/20 19:07	08/04/20 18:52	1
Tetrachloroethene	480		48	22	ug/Kg	☼	08/03/20 19:07	08/04/20 18:52	1
trans-1,2-Dichloroethene	48	U	48	12	ug/Kg	☼	08/03/20 19:07	08/04/20 18:52	1
Trichloroethene	48	U *	48	13	ug/Kg	☼	08/03/20 19:07	08/04/20 18:52	1
Vinyl chloride	38	U	38	14	ug/Kg	☼	08/03/20 19:07	08/04/20 18:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	121		47 - 136	08/03/20 19:07	08/04/20 18:52	1
4-Bromofluorobenzene (Surr)	113		51 - 124	08/03/20 19:07	08/04/20 18:52	1
Dibromofluoromethane (Surr)	126	X	49 - 122	08/03/20 19:07	08/04/20 18:52	1
Toluene-d8 (Surr)	105		55 - 123	08/03/20 19:07	08/04/20 18:52	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	92.4		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	7.6		0.1	0.1	%			07/30/20 09:56	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-138 (2-3)_072720

Lab Sample ID: 240-134119-10

Date Collected: 07/27/20 12:39

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 84.5

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	59	U	59	23	ug/Kg	☼	08/03/20 19:07	08/04/20 19:15	1
1,4-Dioxane	18000	U	18000	1600	ug/Kg	☼	08/03/20 19:07	08/04/20 19:15	1
cis-1,2-Dichloroethene	59	U	59	13	ug/Kg	☼	08/03/20 19:07	08/04/20 19:15	1
Tetrachloroethene	270		59	26	ug/Kg	☼	08/03/20 19:07	08/04/20 19:15	1
trans-1,2-Dichloroethene	59	U	59	15	ug/Kg	☼	08/03/20 19:07	08/04/20 19:15	1
Trichloroethene	59	U *	59	16	ug/Kg	☼	08/03/20 19:07	08/04/20 19:15	1
Vinyl chloride	47	U	47	18	ug/Kg	☼	08/03/20 19:07	08/04/20 19:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		47 - 136	08/03/20 19:07	08/04/20 19:15	1
4-Bromofluorobenzene (Surr)	102		51 - 124	08/03/20 19:07	08/04/20 19:15	1
Dibromofluoromethane (Surr)	114		49 - 122	08/03/20 19:07	08/04/20 19:15	1
Toluene-d8 (Surr)	100		55 - 123	08/03/20 19:07	08/04/20 19:15	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.5		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	15.5		0.1	0.1	%			07/30/20 09:56	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-138 (3-4)_072720

Lab Sample ID: 240-134119-11

Date Collected: 07/27/20 12:49

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 90.1

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	56	U	56	23	ug/Kg	☼	08/03/20 19:07	08/04/20 19:37	1
1,4-Dioxane	18000	U	18000	1500	ug/Kg	☼	08/03/20 19:07	08/04/20 19:37	1
cis-1,2-Dichloroethene	56	U	56	13	ug/Kg	☼	08/03/20 19:07	08/04/20 19:37	1
Tetrachloroethene	56	U	56	25	ug/Kg	☼	08/03/20 19:07	08/04/20 19:37	1
trans-1,2-Dichloroethene	56	U	56	14	ug/Kg	☼	08/03/20 19:07	08/04/20 19:37	1
Trichloroethene	56	U *	56	15	ug/Kg	☼	08/03/20 19:07	08/04/20 19:37	1
Vinyl chloride	45	U	45	17	ug/Kg	☼	08/03/20 19:07	08/04/20 19:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	126		47 - 136	08/03/20 19:07	08/04/20 19:37	1
4-Bromofluorobenzene (Surr)	114		51 - 124	08/03/20 19:07	08/04/20 19:37	1
Dibromofluoromethane (Surr)	135	X	49 - 122	08/03/20 19:07	08/04/20 19:37	1
Toluene-d8 (Surr)	112		55 - 123	08/03/20 19:07	08/04/20 19:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	90.1		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	9.9		0.1	0.1	%			07/30/20 09:56	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-138 (4-5)_072720

Lab Sample ID: 240-134119-12

Date Collected: 07/27/20 12:51

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 82.6

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	59	U	59	24	ug/Kg	☼	08/03/20 19:07	08/04/20 20:00	1
1,4-Dioxane	18000	U	18000	1600	ug/Kg	☼	08/03/20 19:07	08/04/20 20:00	1
cis-1,2-Dichloroethene	59	U	59	13	ug/Kg	☼	08/03/20 19:07	08/04/20 20:00	1
Tetrachloroethene	140		59	27	ug/Kg	☼	08/03/20 19:07	08/04/20 20:00	1
trans-1,2-Dichloroethene	59	U	59	15	ug/Kg	☼	08/03/20 19:07	08/04/20 20:00	1
Trichloroethene	59	U *	59	16	ug/Kg	☼	08/03/20 19:07	08/04/20 20:00	1
Vinyl chloride	47	U	47	18	ug/Kg	☼	08/03/20 19:07	08/04/20 20:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	115		47 - 136	08/03/20 19:07	08/04/20 20:00	1
4-Bromofluorobenzene (Surr)	103		51 - 124	08/03/20 19:07	08/04/20 20:00	1
Dibromofluoromethane (Surr)	121		49 - 122	08/03/20 19:07	08/04/20 20:00	1
Toluene-d8 (Surr)	103		55 - 123	08/03/20 19:07	08/04/20 20:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	82.6		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	17.4		0.1	0.1	%			07/30/20 09:56	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-139 (0.5-1)_072720

Lab Sample ID: 240-134119-13

Date Collected: 07/27/20 13:10

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 85.9

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	54	U	54	22	ug/Kg	☼	08/03/20 19:07	08/04/20 20:22	1
1,4-Dioxane	17000	U	17000	1500	ug/Kg	☼	08/03/20 19:07	08/04/20 20:22	1
cis-1,2-Dichloroethene	54	U	54	12	ug/Kg	☼	08/03/20 19:07	08/04/20 20:22	1
Tetrachloroethene	740		54	24	ug/Kg	☼	08/03/20 19:07	08/04/20 20:22	1
trans-1,2-Dichloroethene	54	U	54	14	ug/Kg	☼	08/03/20 19:07	08/04/20 20:22	1
Trichloroethene	54	U *	54	15	ug/Kg	☼	08/03/20 19:07	08/04/20 20:22	1
Vinyl chloride	43	U	43	16	ug/Kg	☼	08/03/20 19:07	08/04/20 20:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	122		47 - 136	08/03/20 19:07	08/04/20 20:22	1
4-Bromofluorobenzene (Surr)	110		51 - 124	08/03/20 19:07	08/04/20 20:22	1
Dibromofluoromethane (Surr)	130	X	49 - 122	08/03/20 19:07	08/04/20 20:22	1
Toluene-d8 (Surr)	109		55 - 123	08/03/20 19:07	08/04/20 20:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	85.9		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	14.1		0.1	0.1	%			07/30/20 09:56	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-139 (1-2)_072720

Lab Sample ID: 240-134119-14

Date Collected: 07/27/20 13:13

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 87.8

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	52	U	52	21	ug/Kg	☼	08/03/20 19:07	08/04/20 20:45	1
1,4-Dioxane	16000	U	16000	1400	ug/Kg	☼	08/03/20 19:07	08/04/20 20:45	1
cis-1,2-Dichloroethene	52	U	52	12	ug/Kg	☼	08/03/20 19:07	08/04/20 20:45	1
Tetrachloroethene	3100		52	24	ug/Kg	☼	08/03/20 19:07	08/04/20 20:45	1
trans-1,2-Dichloroethene	52	U	52	13	ug/Kg	☼	08/03/20 19:07	08/04/20 20:45	1
Trichloroethene	37 J*		52	14	ug/Kg	☼	08/03/20 19:07	08/04/20 20:45	1
Vinyl chloride	42	U	42	16	ug/Kg	☼	08/03/20 19:07	08/04/20 20:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		47 - 136	08/03/20 19:07	08/04/20 20:45	1
4-Bromofluorobenzene (Surr)	91		51 - 124	08/03/20 19:07	08/04/20 20:45	1
Dibromofluoromethane (Surr)	110		49 - 122	08/03/20 19:07	08/04/20 20:45	1
Toluene-d8 (Surr)	92		55 - 123	08/03/20 19:07	08/04/20 20:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	87.8		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	12.2		0.1	0.1	%			07/30/20 09:56	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-139 (2-3)_072720

Lab Sample ID: 240-134119-15

Date Collected: 07/27/20 13:16

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 81.3

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	60	U	60	24	ug/Kg	☼	08/03/20 19:07	08/04/20 21:07	1
1,4-Dioxane	19000	U	19000	1600	ug/Kg	☼	08/03/20 19:07	08/04/20 21:07	1
cis-1,2-Dichloroethene	60	U	60	14	ug/Kg	☼	08/03/20 19:07	08/04/20 21:07	1
Tetrachloroethene	350		60	27	ug/Kg	☼	08/03/20 19:07	08/04/20 21:07	1
trans-1,2-Dichloroethene	60	U	60	15	ug/Kg	☼	08/03/20 19:07	08/04/20 21:07	1
Trichloroethene	60	U *	60	17	ug/Kg	☼	08/03/20 19:07	08/04/20 21:07	1
Vinyl chloride	48	U	48	18	ug/Kg	☼	08/03/20 19:07	08/04/20 21:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	119		47 - 136	08/03/20 19:07	08/04/20 21:07	1
4-Bromofluorobenzene (Surr)	106		51 - 124	08/03/20 19:07	08/04/20 21:07	1
Dibromofluoromethane (Surr)	123	X	49 - 122	08/03/20 19:07	08/04/20 21:07	1
Toluene-d8 (Surr)	104		55 - 123	08/03/20 19:07	08/04/20 21:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	81.3		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	18.7		0.1	0.1	%			07/30/20 09:56	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-139 (3-4)_072720

Lab Sample ID: 240-134119-16

Date Collected: 07/27/20 13:20

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 89.0

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	55	U	55	22	ug/Kg	☼	08/03/20 19:07	08/04/20 21:29	1
1,4-Dioxane	17000	U	17000	1500	ug/Kg	☼	08/03/20 19:07	08/04/20 21:29	1
cis-1,2-Dichloroethene	55	U	55	12	ug/Kg	☼	08/03/20 19:07	08/04/20 21:29	1
Tetrachloroethene	55	U	55	25	ug/Kg	☼	08/03/20 19:07	08/04/20 21:29	1
trans-1,2-Dichloroethene	55	U	55	14	ug/Kg	☼	08/03/20 19:07	08/04/20 21:29	1
Trichloroethene	55	U *	55	15	ug/Kg	☼	08/03/20 19:07	08/04/20 21:29	1
Vinyl chloride	44	U	44	16	ug/Kg	☼	08/03/20 19:07	08/04/20 21:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	116		47 - 136	08/03/20 19:07	08/04/20 21:29	1
4-Bromofluorobenzene (Surr)	102		51 - 124	08/03/20 19:07	08/04/20 21:29	1
Dibromofluoromethane (Surr)	120		49 - 122	08/03/20 19:07	08/04/20 21:29	1
Toluene-d8 (Surr)	101		55 - 123	08/03/20 19:07	08/04/20 21:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	89.0		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	11.0		0.1	0.1	%			07/30/20 09:56	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-140 (0.5-1)_072720

Lab Sample ID: 240-134119-18

Date Collected: 07/27/20 13:33

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 83.1

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	58	U	58	23	ug/Kg	☼	08/03/20 19:07	08/05/20 12:48	1
1,4-Dioxane	18000	U	18000	1600	ug/Kg	☼	08/03/20 19:07	08/05/20 12:48	1
cis-1,2-Dichloroethene	58	U	58	13	ug/Kg	☼	08/03/20 19:07	08/05/20 12:48	1
Tetrachloroethene	1000		58	26	ug/Kg	☼	08/03/20 19:07	08/05/20 12:48	1
trans-1,2-Dichloroethene	58	U	58	14	ug/Kg	☼	08/03/20 19:07	08/05/20 12:48	1
Trichloroethene	58	U *	58	16	ug/Kg	☼	08/03/20 19:07	08/05/20 12:48	1
Vinyl chloride	46	U	46	17	ug/Kg	☼	08/03/20 19:07	08/05/20 12:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		47 - 136	08/03/20 19:07	08/05/20 12:48	1
4-Bromofluorobenzene (Surr)	97		51 - 124	08/03/20 19:07	08/05/20 12:48	1
Dibromofluoromethane (Surr)	115		49 - 122	08/03/20 19:07	08/05/20 12:48	1
Toluene-d8 (Surr)	97		55 - 123	08/03/20 19:07	08/05/20 12:48	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	83.1		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	16.9		0.1	0.1	%			07/30/20 09:56	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-140 (1-2)_072720

Lab Sample ID: 240-134119-19

Date Collected: 07/27/20 13:37

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 93.6

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	45	U	45	18	ug/Kg	☼	08/03/20 19:07	08/05/20 13:10	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	08/03/20 19:07	08/05/20 13:10	1
cis-1,2-Dichloroethene	45	U	45	10	ug/Kg	☼	08/03/20 19:07	08/05/20 13:10	1
Tetrachloroethene	1500		45	20	ug/Kg	☼	08/03/20 19:07	08/05/20 13:10	1
trans-1,2-Dichloroethene	45	U	45	11	ug/Kg	☼	08/03/20 19:07	08/05/20 13:10	1
Trichloroethene	45	U *	45	12	ug/Kg	☼	08/03/20 19:07	08/05/20 13:10	1
Vinyl chloride	36	U	36	14	ug/Kg	☼	08/03/20 19:07	08/05/20 13:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		47 - 136	08/03/20 19:07	08/05/20 13:10	1
4-Bromofluorobenzene (Surr)	91		51 - 124	08/03/20 19:07	08/05/20 13:10	1
Dibromofluoromethane (Surr)	107		49 - 122	08/03/20 19:07	08/05/20 13:10	1
Toluene-d8 (Surr)	90		55 - 123	08/03/20 19:07	08/05/20 13:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	93.6		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	6.4		0.1	0.1	%			07/30/20 09:56	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-140 (2-3)_072720

Lab Sample ID: 240-134119-20

Date Collected: 07/27/20 14:50

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 87.0

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	52	U	52	21	ug/Kg	☼	08/03/20 19:07	08/05/20 13:33	1
1,4-Dioxane	16000	U	16000	1400	ug/Kg	☼	08/03/20 19:07	08/05/20 13:33	1
cis-1,2-Dichloroethene	52	U	52	12	ug/Kg	☼	08/03/20 19:07	08/05/20 13:33	1
Tetrachloroethene	1300		52	23	ug/Kg	☼	08/03/20 19:07	08/05/20 13:33	1
trans-1,2-Dichloroethene	52	U	52	13	ug/Kg	☼	08/03/20 19:07	08/05/20 13:33	1
Trichloroethene	52	U *	52	14	ug/Kg	☼	08/03/20 19:07	08/05/20 13:33	1
Vinyl chloride	41	U	41	15	ug/Kg	☼	08/03/20 19:07	08/05/20 13:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		47 - 136	08/03/20 19:07	08/05/20 13:33	1
4-Bromofluorobenzene (Surr)	96		51 - 124	08/03/20 19:07	08/05/20 13:33	1
Dibromofluoromethane (Surr)	114		49 - 122	08/03/20 19:07	08/05/20 13:33	1
Toluene-d8 (Surr)	96		55 - 123	08/03/20 19:07	08/05/20 13:33	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	87.0		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	13.0		0.1	0.1	%			07/30/20 09:56	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-140 (3-4)_072720

Lab Sample ID: 240-134119-21

Date Collected: 07/27/20 14:55

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 94.7

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	46	U	46	19	ug/Kg	☼	08/03/20 19:07	08/05/20 13:55	1
1,4-Dioxane	14000	U	14000	1300	ug/Kg	☼	08/03/20 19:07	08/05/20 13:55	1
cis-1,2-Dichloroethene	46	U	46	10	ug/Kg	☼	08/03/20 19:07	08/05/20 13:55	1
Tetrachloroethene	300		46	21	ug/Kg	☼	08/03/20 19:07	08/05/20 13:55	1
trans-1,2-Dichloroethene	46	U	46	12	ug/Kg	☼	08/03/20 19:07	08/05/20 13:55	1
Trichloroethene	35 J *		46	13	ug/Kg	☼	08/03/20 19:07	08/05/20 13:55	1
Vinyl chloride	37	U	37	14	ug/Kg	☼	08/03/20 19:07	08/05/20 13:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		47 - 136	08/03/20 19:07	08/05/20 13:55	1
4-Bromofluorobenzene (Surr)	89		51 - 124	08/03/20 19:07	08/05/20 13:55	1
Dibromofluoromethane (Surr)	106		49 - 122	08/03/20 19:07	08/05/20 13:55	1
Toluene-d8 (Surr)	88		55 - 123	08/03/20 19:07	08/05/20 13:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	94.7		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	5.3		0.1	0.1	%			07/30/20 09:56	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-140 (5-6)_072720

Lab Sample ID: 240-134119-22

Date Collected: 07/27/20 15:06

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 92.4

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	49	U	49	20	ug/Kg	☼	08/03/20 19:07	08/05/20 14:18	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	08/03/20 19:07	08/05/20 14:18	1
cis-1,2-Dichloroethene	49	U	49	11	ug/Kg	☼	08/03/20 19:07	08/05/20 14:18	1
Tetrachloroethene	49	U	49	22	ug/Kg	☼	08/03/20 19:07	08/05/20 14:18	1
trans-1,2-Dichloroethene	49	U	49	12	ug/Kg	☼	08/03/20 19:07	08/05/20 14:18	1
Trichloroethene	49	U *	49	13	ug/Kg	☼	08/03/20 19:07	08/05/20 14:18	1
Vinyl chloride	39	U	39	15	ug/Kg	☼	08/03/20 19:07	08/05/20 14:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		47 - 136	08/03/20 19:07	08/05/20 14:18	1
4-Bromofluorobenzene (Surr)	91		51 - 124	08/03/20 19:07	08/05/20 14:18	1
Dibromofluoromethane (Surr)	110		49 - 122	08/03/20 19:07	08/05/20 14:18	1
Toluene-d8 (Surr)	91		55 - 123	08/03/20 19:07	08/05/20 14:18	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	92.4		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	7.6		0.1	0.1	%			07/30/20 09:56	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-140 (6-7)_072720

Lab Sample ID: 240-134119-23

Date Collected: 07/27/20 15:09

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 86.9

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	55	U	55	22	ug/Kg	☼	08/03/20 19:07	08/05/20 14:40	1
1,4-Dioxane	17000	U	17000	1500	ug/Kg	☼	08/03/20 19:07	08/05/20 14:40	1
cis-1,2-Dichloroethene	55	U	55	12	ug/Kg	☼	08/03/20 19:07	08/05/20 14:40	1
Tetrachloroethene	98		55	25	ug/Kg	☼	08/03/20 19:07	08/05/20 14:40	1
trans-1,2-Dichloroethene	55	U	55	14	ug/Kg	☼	08/03/20 19:07	08/05/20 14:40	1
Trichloroethene	55	U *	55	15	ug/Kg	☼	08/03/20 19:07	08/05/20 14:40	1
Vinyl chloride	44	U	44	17	ug/Kg	☼	08/03/20 19:07	08/05/20 14:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		47 - 136	08/03/20 19:07	08/05/20 14:40	1
4-Bromofluorobenzene (Surr)	94		51 - 124	08/03/20 19:07	08/05/20 14:40	1
Dibromofluoromethane (Surr)	112		49 - 122	08/03/20 19:07	08/05/20 14:40	1
Toluene-d8 (Surr)	94		55 - 123	08/03/20 19:07	08/05/20 14:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	86.9		0.1	0.1	%			07/30/20 10:10	1
Percent Moisture	13.1		0.1	0.1	%			07/30/20 10:10	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-139 (5-6)_072720

Lab Sample ID: 240-134119-24

Date Collected: 07/27/20 15:17

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 87.7

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	51	U	51	20	ug/Kg	☼	08/03/20 19:07	08/05/20 15:03	1
1,4-Dioxane	16000	U	16000	1400	ug/Kg	☼	08/03/20 19:07	08/05/20 15:03	1
cis-1,2-Dichloroethene	51	U	51	12	ug/Kg	☼	08/03/20 19:07	08/05/20 15:03	1
Tetrachloroethene	86		51	23	ug/Kg	☼	08/03/20 19:07	08/05/20 15:03	1
trans-1,2-Dichloroethene	51	U	51	13	ug/Kg	☼	08/03/20 19:07	08/05/20 15:03	1
Trichloroethene	51	U *	51	14	ug/Kg	☼	08/03/20 19:07	08/05/20 15:03	1
Vinyl chloride	41	U	41	15	ug/Kg	☼	08/03/20 19:07	08/05/20 15:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		47 - 136	08/03/20 19:07	08/05/20 15:03	1
4-Bromofluorobenzene (Surr)	94		51 - 124	08/03/20 19:07	08/05/20 15:03	1
Dibromofluoromethane (Surr)	114		49 - 122	08/03/20 19:07	08/05/20 15:03	1
Toluene-d8 (Surr)	96		55 - 123	08/03/20 19:07	08/05/20 15:03	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	87.7		0.1	0.1	%			07/30/20 10:10	1
Percent Moisture	12.3		0.1	0.1	%			07/30/20 10:10	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-139 (6-7)_072720

Lab Sample ID: 240-134119-25

Date Collected: 07/27/20 15:19

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 83.7

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	58	U	58	23	ug/Kg	☼	08/03/20 19:07	08/05/20 15:25	1
1,4-Dioxane	18000	U	18000	1600	ug/Kg	☼	08/03/20 19:07	08/05/20 15:25	1
cis-1,2-Dichloroethene	58	U	58	13	ug/Kg	☼	08/03/20 19:07	08/05/20 15:25	1
Tetrachloroethene	140		58	26	ug/Kg	☼	08/03/20 19:07	08/05/20 15:25	1
trans-1,2-Dichloroethene	58	U	58	14	ug/Kg	☼	08/03/20 19:07	08/05/20 15:25	1
Trichloroethene	58	U *	58	16	ug/Kg	☼	08/03/20 19:07	08/05/20 15:25	1
Vinyl chloride	46	U	46	17	ug/Kg	☼	08/03/20 19:07	08/05/20 15:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		47 - 136	08/03/20 19:07	08/05/20 15:25	1
4-Bromofluorobenzene (Surr)	93		51 - 124	08/03/20 19:07	08/05/20 15:25	1
Dibromofluoromethane (Surr)	108		49 - 122	08/03/20 19:07	08/05/20 15:25	1
Toluene-d8 (Surr)	95		55 - 123	08/03/20 19:07	08/05/20 15:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	83.7		0.1	0.1	%			07/30/20 10:10	1
Percent Moisture	16.3		0.1	0.1	%			07/30/20 10:10	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-138 (6-7)_072720

Lab Sample ID: 240-134119-27

Date Collected: 07/27/20 15:30

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 88.9

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	50	U	50	20	ug/Kg	☼	08/03/20 19:07	08/05/20 15:48	1
1,4-Dioxane	15000	U	15000	1400	ug/Kg	☼	08/03/20 19:07	08/05/20 15:48	1
cis-1,2-Dichloroethene	50	U	50	11	ug/Kg	☼	08/03/20 19:07	08/05/20 15:48	1
Tetrachloroethene	50	U	50	22	ug/Kg	☼	08/03/20 19:07	08/05/20 15:48	1
trans-1,2-Dichloroethene	50	U	50	12	ug/Kg	☼	08/03/20 19:07	08/05/20 15:48	1
Trichloroethene	50	U *	50	14	ug/Kg	☼	08/03/20 19:07	08/05/20 15:48	1
Vinyl chloride	40	U	40	15	ug/Kg	☼	08/03/20 19:07	08/05/20 15:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		47 - 136	08/03/20 19:07	08/05/20 15:48	1
4-Bromofluorobenzene (Surr)	93		51 - 124	08/03/20 19:07	08/05/20 15:48	1
Dibromofluoromethane (Surr)	113		49 - 122	08/03/20 19:07	08/05/20 15:48	1
Toluene-d8 (Surr)	94		55 - 123	08/03/20 19:07	08/05/20 15:48	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	88.9		0.1	0.1	%			07/30/20 10:10	1
Percent Moisture	11.1		0.1	0.1	%			07/30/20 10:10	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: TMW-20-01 (3.5-8.5)_072720

Lab Sample ID: 240-134119-28

Date Collected: 07/27/20 16:52

Matrix: Water

Date Received: 07/29/20 09:20

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L	-		07/31/20 19:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		70 - 133		07/31/20 19:30	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L	-		08/01/20 23:43	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L	-		08/01/20 23:43	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L	-		08/01/20 23:43	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L	-		08/01/20 23:43	1
Trichloroethene	1.0	U	1.0	0.36	ug/L	-		08/01/20 23:43	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L	-		08/01/20 23:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	118		75 - 130		08/01/20 23:43	1
4-Bromofluorobenzene (Surr)	98		47 - 134		08/01/20 23:43	1
Toluene-d8 (Surr)	114		69 - 122		08/01/20 23:43	1
Dibromofluoromethane (Surr)	103		78 - 129		08/01/20 23:43	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134119-29

Date Collected: 07/27/20 00:00

Matrix: Water

Date Received: 07/29/20 09:20

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/03/20 23:52	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/03/20 23:52	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/03/20 23:52	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/03/20 23:52	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/03/20 23:52	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/03/20 23:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	125		75 - 130		08/03/20 23:52	1
4-Bromofluorobenzene (Surr)	96		47 - 134		08/03/20 23:52	1
Toluene-d8 (Surr)	110		69 - 122		08/03/20 23:52	1
Dibromofluoromethane (Surr)	103		78 - 129		08/03/20 23:52	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: DUP-01

Lab Sample ID: 240-134119-30

Date Collected: 07/27/20 00:00

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 90.9

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	49	U	49	20	ug/Kg	☼	08/04/20 19:52	08/06/20 20:22	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	08/04/20 19:52	08/06/20 20:22	1
cis-1,2-Dichloroethene	49	U	49	11	ug/Kg	☼	08/04/20 19:52	08/06/20 20:22	1
Tetrachloroethene	65		49	22	ug/Kg	☼	08/04/20 19:52	08/06/20 20:22	1
trans-1,2-Dichloroethene	49	U	49	12	ug/Kg	☼	08/04/20 19:52	08/06/20 20:22	1
Trichloroethene	49	U	49	14	ug/Kg	☼	08/04/20 19:52	08/06/20 20:22	1
Vinyl chloride	39	U	39	15	ug/Kg	☼	08/04/20 19:52	08/06/20 20:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	82		47 - 136	08/04/20 19:52	08/06/20 20:22	1
4-Bromofluorobenzene (Surr)	83		51 - 124	08/04/20 19:52	08/06/20 20:22	1
Dibromofluoromethane (Surr)	83		49 - 122	08/04/20 19:52	08/06/20 20:22	1
Toluene-d8 (Surr)	95		55 - 123	08/04/20 19:52	08/06/20 20:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	90.9		0.1	0.1	%			07/30/20 10:10	1
Percent Moisture	9.1		0.1	0.1	%			07/30/20 10:10	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: DUP-02

Lab Sample ID: 240-134119-31

Date Collected: 07/27/20 00:00

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 83.9

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	55	U	55	22	ug/Kg	☼	08/04/20 19:52	08/06/20 20:45	1
1,4-Dioxane	17000	U	17000	1500	ug/Kg	☼	08/04/20 19:52	08/06/20 20:45	1
cis-1,2-Dichloroethene	55	U	55	12	ug/Kg	☼	08/04/20 19:52	08/06/20 20:45	1
Tetrachloroethene	55	U	55	25	ug/Kg	☼	08/04/20 19:52	08/06/20 20:45	1
trans-1,2-Dichloroethene	55	U	55	14	ug/Kg	☼	08/04/20 19:52	08/06/20 20:45	1
Trichloroethene	55	U	55	15	ug/Kg	☼	08/04/20 19:52	08/06/20 20:45	1
Vinyl chloride	44	U	44	16	ug/Kg	☼	08/04/20 19:52	08/06/20 20:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		47 - 136	08/04/20 19:52	08/06/20 20:45	1
4-Bromofluorobenzene (Surr)	81		51 - 124	08/04/20 19:52	08/06/20 20:45	1
Dibromofluoromethane (Surr)	86		49 - 122	08/04/20 19:52	08/06/20 20:45	1
Toluene-d8 (Surr)	95		55 - 123	08/04/20 19:52	08/06/20 20:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	83.9		0.1	0.1	%			07/30/20 10:10	1
Percent Moisture	16.1		0.1	0.1	%			07/30/20 10:10	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-133764-G-4 MS	Matrix Spike	128	99	112	104
240-133764-H-4 MSD	Matrix Spike Duplicate	122	97	109	102
240-134118-D-12 MS	Matrix Spike	123	96	109	103
240-134118-E-12 MSD	Matrix Spike Duplicate	122	94	108	102
240-134119-28	TMW-20-01 (3.5-8.5)_072720	118	98	114	103
240-134119-29	TRIP BLANK	125	96	110	103
LCS 240-445248/4	Lab Control Sample	124	95	111	101
LCS 240-445379/4	Lab Control Sample	127	95	110	105
MB 240-445248/7	Method Blank	126	95	117	104
MB 240-445379/7	Method Blank	122	94	112	106

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (47-136)	BFB (51-124)	DBFM (49-122)	TOL (55-123)
240-134119-1	TMW-20-01 (0.5-1.0)_072720	94	111	89	108
240-134119-2	TMW-20-01 (1-2)_07272020	94	112	90	110
240-134119-3	TMW-20-01 (2-3)_07272020	107	123	101	122
240-134119-4	TMW-20-01 (3-4)_07272020	111	129 X	105	128 X
240-134119-5	TMW-20-01 (4-5)_07272020	93	110	88	108
240-134119-6	TMW-20-01 (5-6)_07272020	94	106	87	107
240-134119-7	TMW-20-01 (6-7)_07272020	95	113	90	111
240-134119-8	SB-138 (0.5-1)_07272020	111	90	116	94
240-134119-9	SB-138 (1-2)_072720	121	113	126 X	105
240-134119-10	SB-138 (2-3)_072720	110	102	114	100
240-134119-11	SB-138 (3-4)_072720	126	114	135 X	112
240-134119-12	SB-138 (4-5)_072720	115	103	121	103
240-134119-13	SB-139 (0.5-1)_072720	122	110	130 X	109
240-134119-14	SB-139 (1-2)_072720	105	91	110	92
240-134119-15	SB-139 (2-3)_072720	119	106	123 X	104
240-134119-16	SB-139 (3-4)_072720	116	102	120	101
240-134119-18	SB-140 (0.5-1)_072720	109	97	115	97
240-134119-19	SB-140 (1-2)_072720	103	91	107	90
240-134119-20	SB-140 (2-3)_072720	105	96	114	96
240-134119-21	SB-140 (3-4)_072720	102	89	106	88
240-134119-22	SB-140 (5-6)_072720	106	91	110	91
240-134119-23	SB-140 (6-7)_072720	108	94	112	94
240-134119-24	SB-139 (5-6)_072720	109	94	114	96
240-134119-25	SB-139 (6-7)_072720	105	93	108	95
240-134119-27	SB-138 (6-7)_072720	111	93	113	94
240-134119-30	DUP-01	82	83	83	95
240-134119-31	DUP-02	86	81	86	95

Eurofins TestAmerica, Canton

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Method: 8260B MI - Volatile Organic Compounds (GC/MS) (Continued)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (47-136)	BFB (51-124)	DBFM (49-122)	TOL (55-123)
240-134182-B-28-A MS	Matrix Spike	88	102	84	100
240-134182-C-28-A MSD	Matrix Spike Duplicate	85	107	86	103
LCS 240-445424/2-A	Lab Control Sample	84	98	80	97
LCS 240-445438/2-A	Lab Control Sample	96	89	107	88
LCS 240-445619/2-A	Lab Control Sample	69	77	74	85
MB 240-445424/1-A	Method Blank	82	93	76	93
MB 240-445438/1-A	Method Blank	101	88	106	87
MB 240-445619/1-A	Method Blank	71	73	74	84

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA
		(70-133)
240-134119-28	TMW-20-01 (3.5-8.5)_072720	85
240-134235-C-2 MS	Matrix Spike	87
240-134235-C-2 MSD	Matrix Spike Duplicate	85
LCS 240-445137/4	Lab Control Sample	82
MB 240-445137/5	Method Blank	82

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-445248/7
Matrix: Water
Analysis Batch: 445248

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/01/20 15:01	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/01/20 15:01	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/01/20 15:01	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/01/20 15:01	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/01/20 15:01	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/01/20 15:01	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	126		75 - 130		08/01/20 15:01	1
4-Bromofluorobenzene (Surr)	95		47 - 134		08/01/20 15:01	1
Toluene-d8 (Surr)	117		69 - 122		08/01/20 15:01	1
Dibromofluoromethane (Surr)	104		78 - 129		08/01/20 15:01	1

Lab Sample ID: LCS 240-445248/4
Matrix: Water
Analysis Batch: 445248

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	9.68		ug/L		97	73 - 129
cis-1,2-Dichloroethene	10.0	9.70		ug/L		97	75 - 124
Tetrachloroethene	10.0	11.4		ug/L		114	70 - 125
trans-1,2-Dichloroethene	10.0	9.38		ug/L		94	74 - 130
Trichloroethene	10.0	9.05		ug/L		90	71 - 121
Vinyl chloride	10.0	12.1		ug/L		121	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	124		75 - 130
4-Bromofluorobenzene (Surr)	95		47 - 134
Toluene-d8 (Surr)	111		69 - 122
Dibromofluoromethane (Surr)	101		78 - 129

Lab Sample ID: 240-134118-D-12 MS
Matrix: Water
Analysis Batch: 445248

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Trichloroethene	1.0	U	10.0	8.69		ug/L		87	56 - 124
Vinyl chloride	1.0	U	10.0	12.4		ug/L		124	49 - 136

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	123		75 - 130
4-Bromofluorobenzene (Surr)	96		47 - 134
Toluene-d8 (Surr)	109		69 - 122
Dibromofluoromethane (Surr)	103		78 - 129

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-134118-E-12 MSD
Matrix: Water
Analysis Batch: 445248

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Trichloroethene	1.0	U	10.0	9.68		ug/L		97	56 - 124	11	35
Vinyl chloride	1.0	U	10.0	12.8		ug/L		128	49 - 136	3	35
MSD MSD											
Surrogate	%Recovery	Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	122		75 - 130								
4-Bromofluorobenzene (Surr)	94		47 - 134								
Toluene-d8 (Surr)	108		69 - 122								
Dibromofluoromethane (Surr)	102		78 - 129								

Lab Sample ID: MB 240-445379/7
Matrix: Water
Analysis Batch: 445379

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/03/20 16:25	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/03/20 16:25	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/03/20 16:25	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/03/20 16:25	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/03/20 16:25	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/03/20 16:25	1
MB MB									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	122		75 - 130					08/03/20 16:25	1
4-Bromofluorobenzene (Surr)	94		47 - 134					08/03/20 16:25	1
Toluene-d8 (Surr)	112		69 - 122					08/03/20 16:25	1
Dibromofluoromethane (Surr)	106		78 - 129					08/03/20 16:25	1

Lab Sample ID: LCS 240-445379/4
Matrix: Water
Analysis Batch: 445379

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	9.38		ug/L		94	73 - 129
cis-1,2-Dichloroethene	10.0	9.02		ug/L		90	75 - 124
Tetrachloroethene	10.0	10.9		ug/L		109	70 - 125
trans-1,2-Dichloroethene	10.0	9.26		ug/L		93	74 - 130
Trichloroethene	10.0	8.49		ug/L		85	71 - 121
Vinyl chloride	10.0	12.0		ug/L		120	61 - 134
LCS LCS							
Surrogate	%Recovery	Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	127		75 - 130				
4-Bromofluorobenzene (Surr)	95		47 - 134				
Toluene-d8 (Surr)	110		69 - 122				
Dibromofluoromethane (Surr)	105		78 - 129				

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-133764-G-4 MS
Matrix: Water
Analysis Batch: 445379

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	Limits
	Result	Qualifier	Added	Result	Qualifier					
1,1-Dichloroethene	1.0	U	10.0	10.6		ug/L		106	64 - 132	
cis-1,2-Dichloroethene	1.0	U	10.0	9.61		ug/L		96	68 - 121	
Tetrachloroethene	1.0	U	10.0	12.0		ug/L		120	52 - 129	
trans-1,2-Dichloroethene	1.0	U	10.0	9.98		ug/L		100	69 - 126	
Trichloroethene	1.0	U	10.0	8.99		ug/L		90	56 - 124	
Vinyl chloride	1.0	U	10.0	13.3		ug/L		133	49 - 136	
MS MS										
Surrogate	%Recovery	Qualifier	Limits							
1,2-Dichloroethane-d4 (Surr)	128		75 - 130							
4-Bromofluorobenzene (Surr)	99		47 - 134							
Toluene-d8 (Surr)	112		69 - 122							
Dibromofluoromethane (Surr)	104		78 - 129							

Lab Sample ID: 240-133764-H-4 MSD
Matrix: Water
Analysis Batch: 445379

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	Limits	RPD	RPD Limit
	Result	Qualifier	Added	Result	Qualifier							
1,1-Dichloroethene	1.0	U	10.0	10.3		ug/L		103	64 - 132	3	35	
cis-1,2-Dichloroethene	1.0	U	10.0	9.82		ug/L		98	68 - 121	2	35	
Tetrachloroethene	1.0	U	10.0	11.9		ug/L		119	52 - 129	1	35	
trans-1,2-Dichloroethene	1.0	U	10.0	10.3		ug/L		103	69 - 126	3	35	
Trichloroethene	1.0	U	10.0	9.31		ug/L		93	56 - 124	4	35	
Vinyl chloride	1.0	U	10.0	12.8		ug/L		128	49 - 136	4	35	
MSD MSD												
Surrogate	%Recovery	Qualifier	Limits									
1,2-Dichloroethane-d4 (Surr)	122		75 - 130									
4-Bromofluorobenzene (Surr)	97		47 - 134									
Toluene-d8 (Surr)	109		69 - 122									
Dibromofluoromethane (Surr)	102		78 - 129									

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-445424/1-A
Matrix: Solid
Analysis Batch: 445595

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445424

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	40	U	40	16	ug/Kg		08/03/20 17:08	08/04/20 18:24	1
1,4-Dioxane	13000	U	13000	1100	ug/Kg		08/03/20 17:08	08/04/20 18:24	1
cis-1,2-Dichloroethene	40	U	40	9.0	ug/Kg		08/03/20 17:08	08/04/20 18:24	1
Tetrachloroethene	40	U	40	18	ug/Kg		08/03/20 17:08	08/04/20 18:24	1
trans-1,2-Dichloroethene	40	U	40	10	ug/Kg		08/03/20 17:08	08/04/20 18:24	1
Trichloroethene	40	U	40	11	ug/Kg		08/03/20 17:08	08/04/20 18:24	1
Vinyl chloride	32	U	32	12	ug/Kg		08/03/20 17:08	08/04/20 18:24	1
MB MB									
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
1,2-Dichloroethane-d4 (Surr)	82		47 - 136	08/03/20 17:08	08/04/20 18:24	1			

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Method: 8260B MI - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-445424/1-A
Matrix: Solid
Analysis Batch: 445595

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445424

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	93		51 - 124	08/03/20 17:08	08/04/20 18:24	1
Dibromofluoromethane (Surr)	76		49 - 122	08/03/20 17:08	08/04/20 18:24	1
Toluene-d8 (Surr)	93		55 - 123	08/03/20 17:08	08/04/20 18:24	1

Lab Sample ID: LCS 240-445424/2-A
Matrix: Solid
Analysis Batch: 445595

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445424

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,1-Dichloroethene	1000	1060		ug/Kg		106	48 - 140
1,4-Dioxane	20000	20300		ug/Kg		101	44 - 154
cis-1,2-Dichloroethene	1000	838		ug/Kg		84	76 - 120
Tetrachloroethene	1000	1020		ug/Kg		102	75 - 124
trans-1,2-Dichloroethene	1000	1060		ug/Kg		106	74 - 125
Trichloroethene	1000	995		ug/Kg		99	75 - 123
Vinyl chloride	1000	1050		ug/Kg		105	39 - 140

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	84		47 - 136
4-Bromofluorobenzene (Surr)	98		51 - 124
Dibromofluoromethane (Surr)	80		49 - 122
Toluene-d8 (Surr)	97		55 - 123

Lab Sample ID: 240-134182-B-28-A MS
Matrix: Solid
Analysis Batch: 445595

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 445424

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
1,1-Dichloroethene	43	U	1040	1100		ug/Kg	☼	107	20 - 150
1,4-Dioxane	13000	U F1	20700	31700	F1	ug/Kg	☼	153	48 - 149
cis-1,2-Dichloroethene	43	U	1040	926		ug/Kg	☼	89	35 - 130
Tetrachloroethene	43	U	1040	1120		ug/Kg	☼	108	13 - 144
trans-1,2-Dichloroethene	43	U	1040	1200		ug/Kg	☼	115	31 - 138
Trichloroethene	43	U	1040	1120		ug/Kg	☼	108	10 - 162
Vinyl chloride	34	U	1040	1220		ug/Kg	☼	118	15 - 150

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	88		47 - 136
4-Bromofluorobenzene (Surr)	102		51 - 124
Dibromofluoromethane (Surr)	84		49 - 122
Toluene-d8 (Surr)	100		55 - 123

Lab Sample ID: 240-134182-C-28-A MSD
Matrix: Solid
Analysis Batch: 445595

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 445424

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	
										Limit	RPD
1,1-Dichloroethene	43	U	1060	1240		ug/Kg	☼	117	20 - 150	12	40

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Method: 8260B MI - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-134182-C-28-A MSD

Matrix: Solid

Analysis Batch: 445595

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 445424

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	13000	U F1	21100	21600		ug/Kg	☼	102	48 - 149	38	40
cis-1,2-Dichloroethene	43	U	1060	994		ug/Kg	☼	94	35 - 130	7	40
Tetrachloroethene	43	U	1060	1210		ug/Kg	☼	114	13 - 144	8	40
trans-1,2-Dichloroethene	43	U	1060	1280		ug/Kg	☼	121	31 - 138	7	40
Trichloroethene	43	U	1060	1210		ug/Kg	☼	115	10 - 162	8	40
Vinyl chloride	34	U	1060	1230		ug/Kg	☼	117	15 - 150	1	40

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	85		47 - 136
4-Bromofluorobenzene (Surr)	107		51 - 124
Dibromofluoromethane (Surr)	86		49 - 122
Toluene-d8 (Surr)	103		55 - 123

Lab Sample ID: MB 240-445438/1-A

Matrix: Solid

Analysis Batch: 445537

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 445438

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	40	U	40	16	ug/Kg		08/03/20 19:07	08/04/20 17:46	1
1,4-Dioxane	13000	U	13000	1100	ug/Kg		08/03/20 19:07	08/04/20 17:46	1
cis-1,2-Dichloroethene	40	U	40	9.0	ug/Kg		08/03/20 19:07	08/04/20 17:46	1
Tetrachloroethene	40	U	40	18	ug/Kg		08/03/20 19:07	08/04/20 17:46	1
trans-1,2-Dichloroethene	10.2	J	40	10	ug/Kg		08/03/20 19:07	08/04/20 17:46	1
Trichloroethene	40	U	40	11	ug/Kg		08/03/20 19:07	08/04/20 17:46	1
Vinyl chloride	32	U	32	12	ug/Kg		08/03/20 19:07	08/04/20 17:46	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		47 - 136	08/03/20 19:07	08/04/20 17:46	1
4-Bromofluorobenzene (Surr)	88		51 - 124	08/03/20 19:07	08/04/20 17:46	1
Dibromofluoromethane (Surr)	106		49 - 122	08/03/20 19:07	08/04/20 17:46	1
Toluene-d8 (Surr)	87		55 - 123	08/03/20 19:07	08/04/20 17:46	1

Lab Sample ID: LCS 240-445438/2-A

Matrix: Solid

Analysis Batch: 445537

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 445438

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1000	1190		ug/Kg		119	48 - 140
1,4-Dioxane	20000	23600		ug/Kg		118	44 - 154
cis-1,2-Dichloroethene	1000	1140		ug/Kg		114	76 - 120
Tetrachloroethene	1000	1130		ug/Kg		113	75 - 124
trans-1,2-Dichloroethene	1000	1140		ug/Kg		114	74 - 125
Trichloroethene	1000	1240	*	ug/Kg		124	75 - 123
Vinyl chloride	1000	1220		ug/Kg		122	39 - 140

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	96		47 - 136
4-Bromofluorobenzene (Surr)	89		51 - 124

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Method: 8260B MI - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-445438/2-A
Matrix: Solid
Analysis Batch: 445537

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445438

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	107		49 - 122
Toluene-d8 (Surr)	88		55 - 123

Lab Sample ID: MB 240-445619/1-A
Matrix: Solid
Analysis Batch: 446008

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445619

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	40	U	40	16	ug/Kg		08/04/20 19:52	08/06/20 19:38	1
1,4-Dioxane	13000	U	13000	1100	ug/Kg		08/04/20 19:52	08/06/20 19:38	1
cis-1,2-Dichloroethene	40	U	40	9.0	ug/Kg		08/04/20 19:52	08/06/20 19:38	1
Tetrachloroethene	40	U	40	18	ug/Kg		08/04/20 19:52	08/06/20 19:38	1
trans-1,2-Dichloroethene	40	U	40	10	ug/Kg		08/04/20 19:52	08/06/20 19:38	1
Trichloroethene	40	U	40	11	ug/Kg		08/04/20 19:52	08/06/20 19:38	1
Vinyl chloride	32	U	32	12	ug/Kg		08/04/20 19:52	08/06/20 19:38	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	71		47 - 136	08/04/20 19:52	08/06/20 19:38	1
4-Bromofluorobenzene (Surr)	73		51 - 124	08/04/20 19:52	08/06/20 19:38	1
Dibromofluoromethane (Surr)	74		49 - 122	08/04/20 19:52	08/06/20 19:38	1
Toluene-d8 (Surr)	84		55 - 123	08/04/20 19:52	08/06/20 19:38	1

Lab Sample ID: LCS 240-445619/2-A
Matrix: Solid
Analysis Batch: 446008

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445619

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	Limits
		Result	Qualifier				
1,1-Dichloroethene	1000	914		ug/Kg		91	48 - 140
1,4-Dioxane	20000	17900		ug/Kg		90	44 - 154
cis-1,2-Dichloroethene	1000	897		ug/Kg		90	76 - 120
Tetrachloroethene	1000	855		ug/Kg		86	75 - 124
trans-1,2-Dichloroethene	1000	960		ug/Kg		96	74 - 125
Trichloroethene	1000	825		ug/Kg		82	75 - 123
Vinyl chloride	1000	998		ug/Kg		100	39 - 140

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	69		47 - 136
4-Bromofluorobenzene (Surr)	77		51 - 124
Dibromofluoromethane (Surr)	74		49 - 122
Toluene-d8 (Surr)	85		55 - 123

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-445137/5
Matrix: Water
Analysis Batch: 445137

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			07/31/20 13:43	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	82		70 - 133					07/31/20 13:43	1

Lab Sample ID: LCS 240-445137/4
Matrix: Water
Analysis Batch: 445137

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	12.0		ug/L		120	80 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	82		70 - 133				

Lab Sample ID: 240-134235-C-2 MS
Matrix: Water
Analysis Batch: 445137

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	33		20.0	56.5		ug/L		116	46 - 170
Surrogate	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	87		70 - 133						

Lab Sample ID: 240-134235-C-2 MSD
Matrix: Water
Analysis Batch: 445137

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	33		20.0	58.9		ug/L		127	46 - 170	4	26
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	85		70 - 133								

Method: Moisture - Percent Moisture

Lab Sample ID: 240-134119-5 DU
Matrix: Solid
Analysis Batch: 444900

Client Sample ID: TMW-20-01 (4-5)_07272020
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	87.4		87.4		%		0	20
Percent Moisture	12.6		12.6		%		0.3	20

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QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Method: Moisture - Percent Moisture (Continued)

Lab Sample ID: 240-134119-14 DU

Matrix: Solid

Analysis Batch: 444900

Client Sample ID: SB-139 (1-2)_072720

Prep Type: Total/NA

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD
	Result	Qualifier	Result	Qualifier				Limit
Percent Solids	87.8		87.5		%		0.4	20
Percent Moisture	12.2		12.5		%		3	20

Lab Sample ID: 240-134119-23 DU

Matrix: Solid

Analysis Batch: 444900

Client Sample ID: SB-140 (6-7)_072720

Prep Type: Total/NA

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD
	Result	Qualifier	Result	Qualifier				Limit
Percent Solids	86.9		87.4		%		0.5	20
Percent Moisture	13.1		12.6		%		3	20



QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

GC/MS VOA

Analysis Batch: 445137

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134119-28	TMW-20-01 (3.5-8.5)_072720	Total/NA	Water	8260B SIM	
MB 240-445137/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-445137/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-134235-C-2 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-134235-C-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 445248

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134119-28	TMW-20-01 (3.5-8.5)_072720	Total/NA	Water	8260B	
MB 240-445248/7	Method Blank	Total/NA	Water	8260B	
LCS 240-445248/4	Lab Control Sample	Total/NA	Water	8260B	
240-134118-D-12 MS	Matrix Spike	Total/NA	Water	8260B	
240-134118-E-12 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Analysis Batch: 445379

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134119-29	TRIP BLANK	Total/NA	Water	8260B	
MB 240-445379/7	Method Blank	Total/NA	Water	8260B	
LCS 240-445379/4	Lab Control Sample	Total/NA	Water	8260B	
240-133764-G-4 MS	Matrix Spike	Total/NA	Water	8260B	
240-133764-H-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Prep Batch: 445424

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134119-1	TMW-20-01 (0.5-1.0)_072720	Total/NA	Solid	5030B	
240-134119-2	TMW-20-01 (1-2)_07272020	Total/NA	Solid	5030B	
240-134119-3	TMW-20-01 (2-3)_07272020	Total/NA	Solid	5030B	
240-134119-4	TMW-20-01 (3-4)_07272020	Total/NA	Solid	5030B	
240-134119-5	TMW-20-01 (4-5)_07272020	Total/NA	Solid	5030B	
240-134119-6	TMW-20-01 (5-6)_07272020	Total/NA	Solid	5030B	
240-134119-7	TMW-20-01 (6-7)_07272020	Total/NA	Solid	5030B	
MB 240-445424/1-A	Method Blank	Total/NA	Solid	5030B	
LCS 240-445424/2-A	Lab Control Sample	Total/NA	Solid	5030B	
240-134182-B-28-A MS	Matrix Spike	Total/NA	Solid	5030B	
240-134182-C-28-A MSD	Matrix Spike Duplicate	Total/NA	Solid	5030B	

Prep Batch: 445438

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134119-8	SB-138 (0.5-1)_07272020	Total/NA	Solid	5030B	
240-134119-9	SB-138 (1-2)_072720	Total/NA	Solid	5030B	
240-134119-10	SB-138 (2-3)_072720	Total/NA	Solid	5030B	
240-134119-11	SB-138 (3-4)_072720	Total/NA	Solid	5030B	
240-134119-12	SB-138 (4-5)_072720	Total/NA	Solid	5030B	
240-134119-13	SB-139 (0.5-1)_072720	Total/NA	Solid	5030B	
240-134119-14	SB-139 (1-2)_072720	Total/NA	Solid	5030B	
240-134119-15	SB-139 (2-3)_072720	Total/NA	Solid	5030B	
240-134119-16	SB-139 (3-4)_072720	Total/NA	Solid	5030B	
240-134119-18	SB-140 (0.5-1)_072720	Total/NA	Solid	5030B	
240-134119-19	SB-140 (1-2)_072720	Total/NA	Solid	5030B	
240-134119-20	SB-140 (2-3)_072720	Total/NA	Solid	5030B	
240-134119-21	SB-140 (3-4)_072720	Total/NA	Solid	5030B	

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QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

GC/MS VOA (Continued)

Prep Batch: 445438 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134119-22	SB-140 (5-6)_072720	Total/NA	Solid	5030B	
240-134119-23	SB-140 (6-7)_072720	Total/NA	Solid	5030B	
240-134119-24	SB-139 (5-6)_072720	Total/NA	Solid	5030B	
240-134119-25	SB-139 (6-7)_072720	Total/NA	Solid	5030B	
240-134119-27	SB-138 (6-7)_072720	Total/NA	Solid	5030B	
MB 240-445438/1-A	Method Blank	Total/NA	Solid	5030B	
LCS 240-445438/2-A	Lab Control Sample	Total/NA	Solid	5030B	

Analysis Batch: 445537

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134119-8	SB-138 (0.5-1)_07272020	Total/NA	Solid	8260B MI	445438
240-134119-9	SB-138 (1-2)_072720	Total/NA	Solid	8260B MI	445438
240-134119-10	SB-138 (2-3)_072720	Total/NA	Solid	8260B MI	445438
240-134119-11	SB-138 (3-4)_072720	Total/NA	Solid	8260B MI	445438
240-134119-12	SB-138 (4-5)_072720	Total/NA	Solid	8260B MI	445438
240-134119-13	SB-139 (0.5-1)_072720	Total/NA	Solid	8260B MI	445438
240-134119-14	SB-139 (1-2)_072720	Total/NA	Solid	8260B MI	445438
240-134119-15	SB-139 (2-3)_072720	Total/NA	Solid	8260B MI	445438
240-134119-16	SB-139 (3-4)_072720	Total/NA	Solid	8260B MI	445438
MB 240-445438/1-A	Method Blank	Total/NA	Solid	8260B MI	445438
LCS 240-445438/2-A	Lab Control Sample	Total/NA	Solid	8260B MI	445438

Analysis Batch: 445595

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134119-1	TMW-20-01 (0.5-1.0)_072720	Total/NA	Solid	8260B MI	445424
240-134119-2	TMW-20-01 (1-2)_07272020	Total/NA	Solid	8260B MI	445424
240-134119-3	TMW-20-01 (2-3)_07272020	Total/NA	Solid	8260B MI	445424
240-134119-4	TMW-20-01 (3-4)_07272020	Total/NA	Solid	8260B MI	445424
240-134119-5	TMW-20-01 (4-5)_07272020	Total/NA	Solid	8260B MI	445424
240-134119-6	TMW-20-01 (5-6)_07272020	Total/NA	Solid	8260B MI	445424
240-134119-7	TMW-20-01 (6-7)_07272020	Total/NA	Solid	8260B MI	445424
MB 240-445424/1-A	Method Blank	Total/NA	Solid	8260B MI	445424
LCS 240-445424/2-A	Lab Control Sample	Total/NA	Solid	8260B MI	445424
240-134182-B-28-A MS	Matrix Spike	Total/NA	Solid	8260B MI	445424
240-134182-C-28-A MSD	Matrix Spike Duplicate	Total/NA	Solid	8260B MI	445424

Prep Batch: 445619

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134119-30	DUP-01	Total/NA	Solid	5030B	
240-134119-31	DUP-02	Total/NA	Solid	5030B	
MB 240-445619/1-A	Method Blank	Total/NA	Solid	5030B	
LCS 240-445619/2-A	Lab Control Sample	Total/NA	Solid	5030B	

Analysis Batch: 445702

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134119-18	SB-140 (0.5-1)_072720	Total/NA	Solid	8260B MI	445438
240-134119-19	SB-140 (1-2)_072720	Total/NA	Solid	8260B MI	445438
240-134119-20	SB-140 (2-3)_072720	Total/NA	Solid	8260B MI	445438
240-134119-21	SB-140 (3-4)_072720	Total/NA	Solid	8260B MI	445438
240-134119-22	SB-140 (5-6)_072720	Total/NA	Solid	8260B MI	445438
240-134119-23	SB-140 (6-7)_072720	Total/NA	Solid	8260B MI	445438

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QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

GC/MS VOA (Continued)

Analysis Batch: 445702 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134119-24	SB-139 (5-6)_072720	Total/NA	Solid	8260B MI	445438
240-134119-25	SB-139 (6-7)_072720	Total/NA	Solid	8260B MI	445438
240-134119-27	SB-138 (6-7)_072720	Total/NA	Solid	8260B MI	445438

Analysis Batch: 446008

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134119-30	DUP-01	Total/NA	Solid	8260B MI	445619
240-134119-31	DUP-02	Total/NA	Solid	8260B MI	445619
MB 240-445619/1-A	Method Blank	Total/NA	Solid	8260B MI	445619
LCS 240-445619/2-A	Lab Control Sample	Total/NA	Solid	8260B MI	445619

General Chemistry

Analysis Batch: 444900

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134119-1	TMW-20-01 (0.5-1.0)_072720	Total/NA	Solid	Moisture	
240-134119-2	TMW-20-01 (1-2)_07272020	Total/NA	Solid	Moisture	
240-134119-3	TMW-20-01 (2-3)_07272020	Total/NA	Solid	Moisture	
240-134119-4	TMW-20-01 (3-4)_07272020	Total/NA	Solid	Moisture	
240-134119-5	TMW-20-01 (4-5)_07272020	Total/NA	Solid	Moisture	
240-134119-6	TMW-20-01 (5-6)_07272020	Total/NA	Solid	Moisture	
240-134119-7	TMW-20-01 (6-7)_07272020	Total/NA	Solid	Moisture	
240-134119-8	SB-138 (0.5-1)_07272020	Total/NA	Solid	Moisture	
240-134119-9	SB-138 (1-2)_072720	Total/NA	Solid	Moisture	
240-134119-10	SB-138 (2-3)_072720	Total/NA	Solid	Moisture	
240-134119-11	SB-138 (3-4)_072720	Total/NA	Solid	Moisture	
240-134119-12	SB-138 (4-5)_072720	Total/NA	Solid	Moisture	
240-134119-13	SB-139 (0.5-1)_072720	Total/NA	Solid	Moisture	
240-134119-14	SB-139 (1-2)_072720	Total/NA	Solid	Moisture	
240-134119-15	SB-139 (2-3)_072720	Total/NA	Solid	Moisture	
240-134119-16	SB-139 (3-4)_072720	Total/NA	Solid	Moisture	
240-134119-18	SB-140 (0.5-1)_072720	Total/NA	Solid	Moisture	
240-134119-19	SB-140 (1-2)_072720	Total/NA	Solid	Moisture	
240-134119-20	SB-140 (2-3)_072720	Total/NA	Solid	Moisture	
240-134119-21	SB-140 (3-4)_072720	Total/NA	Solid	Moisture	
240-134119-22	SB-140 (5-6)_072720	Total/NA	Solid	Moisture	
240-134119-23	SB-140 (6-7)_072720	Total/NA	Solid	Moisture	
240-134119-24	SB-139 (5-6)_072720	Total/NA	Solid	Moisture	
240-134119-25	SB-139 (6-7)_072720	Total/NA	Solid	Moisture	
240-134119-27	SB-138 (6-7)_072720	Total/NA	Solid	Moisture	
240-134119-30	DUP-01	Total/NA	Solid	Moisture	
240-134119-31	DUP-02	Total/NA	Solid	Moisture	
240-134119-5 DU	TMW-20-01 (4-5)_07272020	Total/NA	Solid	Moisture	
240-134119-14 DU	SB-139 (1-2)_072720	Total/NA	Solid	Moisture	
240-134119-23 DU	SB-140 (6-7)_072720	Total/NA	Solid	Moisture	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: TMW-20-01 (0.5-1.0)_072720

Lab Sample ID: 240-134119-1

Date Collected: 07/27/20 10:05

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Client Sample ID: TMW-20-01 (0.5-1.0)_072720

Lab Sample ID: 240-134119-1

Date Collected: 07/27/20 10:05

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 86.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/05/20 01:35	TJL1	TAL CAN

Client Sample ID: TMW-20-01 (1-2)_07272020

Lab Sample ID: 240-134119-2

Date Collected: 07/27/20 10:10

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Client Sample ID: TMW-20-01 (1-2)_07272020

Lab Sample ID: 240-134119-2

Date Collected: 07/27/20 10:10

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 84.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/05/20 01:57	TJL1	TAL CAN

Client Sample ID: TMW-20-01 (2-3)_07272020

Lab Sample ID: 240-134119-3

Date Collected: 07/27/20 10:40

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Client Sample ID: TMW-20-01 (2-3)_07272020

Lab Sample ID: 240-134119-3

Date Collected: 07/27/20 10:40

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 76.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/05/20 02:20	TJL1	TAL CAN

Client Sample ID: TMW-20-01 (3-4)_07272020

Lab Sample ID: 240-134119-4

Date Collected: 07/27/20 11:04

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

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Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: TMW-20-01 (3-4)_07272020

Lab Sample ID: 240-134119-4

Date Collected: 07/27/20 11:04

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 69.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/05/20 02:42	TJL1	TAL CAN

Client Sample ID: TMW-20-01 (4-5)_07272020

Lab Sample ID: 240-134119-5

Date Collected: 07/27/20 11:07

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Client Sample ID: TMW-20-01 (4-5)_07272020

Lab Sample ID: 240-134119-5

Date Collected: 07/27/20 11:07

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 87.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/05/20 03:05	TJL1	TAL CAN

Client Sample ID: TMW-20-01 (5-6)_07272020

Lab Sample ID: 240-134119-6

Date Collected: 07/27/20 11:10

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Client Sample ID: TMW-20-01 (5-6)_07272020

Lab Sample ID: 240-134119-6

Date Collected: 07/27/20 11:10

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 85.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/05/20 03:28	TJL1	TAL CAN

Client Sample ID: TMW-20-01 (6-7)_07272020

Lab Sample ID: 240-134119-7

Date Collected: 07/27/20 11:30

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: TMW-20-01 (6-7)_07272020

Lab Sample ID: 240-134119-7

Date Collected: 07/27/20 11:30

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 90.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/05/20 03:50	TJL1	TAL CAN

Client Sample ID: SB-138 (0.5-1)_07272020

Lab Sample ID: 240-134119-8

Date Collected: 07/27/20 12:23

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Client Sample ID: SB-138 (0.5-1)_07272020

Lab Sample ID: 240-134119-8

Date Collected: 07/27/20 12:23

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 81.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445537	08/04/20 18:30	HMB	TAL CAN

Client Sample ID: SB-138 (1-2)_072720

Lab Sample ID: 240-134119-9

Date Collected: 07/27/20 12:30

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Client Sample ID: SB-138 (1-2)_072720

Lab Sample ID: 240-134119-9

Date Collected: 07/27/20 12:30

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 92.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445537	08/04/20 18:52	HMB	TAL CAN

Client Sample ID: SB-138 (2-3)_072720

Lab Sample ID: 240-134119-10

Date Collected: 07/27/20 12:39

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-138 (2-3)_072720

Lab Sample ID: 240-134119-10

Date Collected: 07/27/20 12:39

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 84.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445537	08/04/20 19:15	HMB	TAL CAN

Client Sample ID: SB-138 (3-4)_072720

Lab Sample ID: 240-134119-11

Date Collected: 07/27/20 12:49

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Client Sample ID: SB-138 (3-4)_072720

Lab Sample ID: 240-134119-11

Date Collected: 07/27/20 12:49

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 90.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445537	08/04/20 19:37	HMB	TAL CAN

Client Sample ID: SB-138 (4-5)_072720

Lab Sample ID: 240-134119-12

Date Collected: 07/27/20 12:51

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Client Sample ID: SB-138 (4-5)_072720

Lab Sample ID: 240-134119-12

Date Collected: 07/27/20 12:51

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 82.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445537	08/04/20 20:00	HMB	TAL CAN

Client Sample ID: SB-139 (0.5-1)_072720

Lab Sample ID: 240-134119-13

Date Collected: 07/27/20 13:10

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-139 (0.5-1)_072720

Lab Sample ID: 240-134119-13

Date Collected: 07/27/20 13:10

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 85.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445537	08/04/20 20:22	HMB	TAL CAN

Client Sample ID: SB-139 (1-2)_072720

Lab Sample ID: 240-134119-14

Date Collected: 07/27/20 13:13

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Client Sample ID: SB-139 (1-2)_072720

Lab Sample ID: 240-134119-14

Date Collected: 07/27/20 13:13

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 87.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445537	08/04/20 20:45	HMB	TAL CAN

Client Sample ID: SB-139 (2-3)_072720

Lab Sample ID: 240-134119-15

Date Collected: 07/27/20 13:16

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Client Sample ID: SB-139 (2-3)_072720

Lab Sample ID: 240-134119-15

Date Collected: 07/27/20 13:16

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 81.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445537	08/04/20 21:07	HMB	TAL CAN

Client Sample ID: SB-139 (3-4)_072720

Lab Sample ID: 240-134119-16

Date Collected: 07/27/20 13:20

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-139 (3-4)_072720

Lab Sample ID: 240-134119-16

Date Collected: 07/27/20 13:20

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 89.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445537	08/04/20 21:29	HMB	TAL CAN

Client Sample ID: SB-140 (0.5-1)_072720

Lab Sample ID: 240-134119-18

Date Collected: 07/27/20 13:33

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Client Sample ID: SB-140 (0.5-1)_072720

Lab Sample ID: 240-134119-18

Date Collected: 07/27/20 13:33

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 83.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445702	08/05/20 12:48	HMB	TAL CAN

Client Sample ID: SB-140 (1-2)_072720

Lab Sample ID: 240-134119-19

Date Collected: 07/27/20 13:37

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Client Sample ID: SB-140 (1-2)_072720

Lab Sample ID: 240-134119-19

Date Collected: 07/27/20 13:37

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 93.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445702	08/05/20 13:10	HMB	TAL CAN

Client Sample ID: SB-140 (2-3)_072720

Lab Sample ID: 240-134119-20

Date Collected: 07/27/20 14:50

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-140 (2-3)_072720

Lab Sample ID: 240-134119-20

Date Collected: 07/27/20 14:50

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 87.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445702	08/05/20 13:33	HMB	TAL CAN

Client Sample ID: SB-140 (3-4)_072720

Lab Sample ID: 240-134119-21

Date Collected: 07/27/20 14:55

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Client Sample ID: SB-140 (3-4)_072720

Lab Sample ID: 240-134119-21

Date Collected: 07/27/20 14:55

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 94.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445702	08/05/20 13:55	HMB	TAL CAN

Client Sample ID: SB-140 (5-6)_072720

Lab Sample ID: 240-134119-22

Date Collected: 07/27/20 15:06

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Client Sample ID: SB-140 (5-6)_072720

Lab Sample ID: 240-134119-22

Date Collected: 07/27/20 15:06

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 92.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445702	08/05/20 14:18	HMB	TAL CAN

Client Sample ID: SB-140 (6-7)_072720

Lab Sample ID: 240-134119-23

Date Collected: 07/27/20 15:09

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 10:10	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-140 (6-7)_072720

Lab Sample ID: 240-134119-23

Date Collected: 07/27/20 15:09

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 86.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445702	08/05/20 14:40	HMB	TAL CAN

Client Sample ID: SB-139 (5-6)_072720

Lab Sample ID: 240-134119-24

Date Collected: 07/27/20 15:17

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 10:10	BWL	TAL CAN

Client Sample ID: SB-139 (5-6)_072720

Lab Sample ID: 240-134119-24

Date Collected: 07/27/20 15:17

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 87.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445702	08/05/20 15:03	HMB	TAL CAN

Client Sample ID: SB-139 (6-7)_072720

Lab Sample ID: 240-134119-25

Date Collected: 07/27/20 15:19

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 10:10	BWL	TAL CAN

Client Sample ID: SB-139 (6-7)_072720

Lab Sample ID: 240-134119-25

Date Collected: 07/27/20 15:19

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 83.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445702	08/05/20 15:25	HMB	TAL CAN

Client Sample ID: SB-138 (6-7)_072720

Lab Sample ID: 240-134119-27

Date Collected: 07/27/20 15:30

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 10:10	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-138 (6-7)_072720

Lab Sample ID: 240-134119-27

Date Collected: 07/27/20 15:30

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 88.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445702	08/05/20 15:48	HMB	TAL CAN

Client Sample ID: TMW-20-01 (3.5-8.5)_072720

Lab Sample ID: 240-134119-28

Date Collected: 07/27/20 16:52

Matrix: Water

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	445248	08/01/20 23:43	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	445137	07/31/20 19:30	SAM	TAL CAN

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134119-29

Date Collected: 07/27/20 00:00

Matrix: Water

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	445379	08/03/20 23:52	LRW	TAL CAN

Client Sample ID: DUP-01

Lab Sample ID: 240-134119-30

Date Collected: 07/27/20 00:00

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 10:10	BWL	TAL CAN

Client Sample ID: DUP-01

Lab Sample ID: 240-134119-30

Date Collected: 07/27/20 00:00

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 90.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445619	08/04/20 19:52	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	446008	08/06/20 20:22	TJL1	TAL CAN

Client Sample ID: DUP-02

Lab Sample ID: 240-134119-31

Date Collected: 07/27/20 00:00

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 10:10	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: DUP-02

Lab Sample ID: 240-134119-31

Date Collected: 07/27/20 00:00

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 83.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445619	08/04/20 19:52	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	446008	08/06/20 20:45	TJL1	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

- 1
- 2
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Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-20 *
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.



MICHIGAN
190

Chain of Custody Record

376186



Environment Testin
TestAmerica

Address:

TAL-8210

Regulatory Program: DW NPDES RCRA Other:

Client Contact
Company Name: ARCADIS
Address: 28550 CABOT DRIVE #500
City/State/Zip: NOVI MI 48377
Phone: _____
Fax: _____
Project Name: FORD LTP
Site: LEVONIA MI
PO #: 30050315.303.01

Project Manager: KRIS HUNESKY
Tel/Email: 249-579-5402
Analysis Turnaround Time
 CALENDAR DAYS WORKING DAYS
TAT if different from Below
 2 weeks
 1 week
 2 days
 1 day

Site Contact: IAN DROST
Date: 7/27/2020
Carrier: _____
COC No: 1 of 3 COCs

Lab Contact: _____
For Lab Use Only:
Walk-in Client: _____
Lab Sampling: _____
Job / SDG No: _____

Sample Identification

Sample ID	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.
TMW-20-01(0.5-0)-072720	7/27/20	1005	G	S	2
TMW-20-01(1-2)-072720	7/27/20	1010	G	S	2
TMW-20-01(2-3)-072720	7/27/20	1040	G	S	2
TMW-20-01(3-4)-072720	7/27/20	1104	G	S	2
TMW-20-01(4-5)-072720	7/27/20	1107	G	S	2
TMW-20-01(5-6)-072720	7/27/20	1110	G	S	2
TMW-20-01(6-7)-072720	7/27/20	1130	G	S	2
SB-138(0.5-1)-072720	7/27/20	1223	G	S	2
SB-138(1-2)-072720	7/27/20	1230	G	S	2
SB-138(2-3)-072720	7/27/20	1239	G	S	2
SB-138(3-4)-072720	7/27/20	1249	G	S	2
SB-138(4-5)-072720	7/27/20	1251	G	S	2

Sample Specific Notes:
/14) 40ML MECH (1) 40Z DR

Sample ID	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS (Y/N)	SEPA METHOD BSC
TMW-20-01(0.5-0)-072720	7/27/20	1005	G	S	2	M	N	Z
TMW-20-01(1-2)-072720	7/27/20	1010	G	S	2	N	N	Z
TMW-20-01(2-3)-072720	7/27/20	1040	G	S	2	N	N	Z
TMW-20-01(3-4)-072720	7/27/20	1104	G	S	2	N	N	Z
TMW-20-01(4-5)-072720	7/27/20	1107	G	S	2	N	N	Z
TMW-20-01(5-6)-072720	7/27/20	1110	G	S	2	N	N	Z
TMW-20-01(6-7)-072720	7/27/20	1130	G	S	2	N	N	Z
SB-138(0.5-1)-072720	7/27/20	1223	G	S	2	N	N	Z
SB-138(1-2)-072720	7/27/20	1230	G	S	2	N	N	Z
SB-138(2-3)-072720	7/27/20	1239	G	S	2	N	N	Z
SB-138(3-4)-072720	7/27/20	1249	G	S	2	N	N	Z
SB-138(4-5)-072720	7/27/20	1251	G	S	2	N	N	Z



Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH (6=Other) MECH
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
 Non-Hazard Flammable Skin Irritant Poison B Unknown

Special Instructions/QC Requirements & Comments: ANALYZE FOR: PCE, TCE, 1,1-DCE, 1,1-DCE, TRANS-1,2-DCE, VC, 1,4-DIOXANE. LEVEL IV REPORTING. SUMMIT ALL RESULTS THROUGH CAODENA AT JEM.TOMALHACCAODENA.COM. #E20372B

Custody Seal No.: _____
Custody Seals Intact: Yes No

Relinquished by: _____
Relinquished by: _____
Relinquished by: _____

Received by: _____
Received by: _____
Received in Laboratory by: _____

Date/Time: 7/28/20 07:30
Date/Time: 7-29-20 930
Date/Time: _____

Company: ARCADIS
Company: EUROFINS
Company: _____

Return to Client: Disposal by Lab Archive for _____ Months

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)



MICHIGAN
190

Chain of Custody Record

376187



Environment Testlab
TestAmerica

TAL-8211

Address:

Regulatory Program: DW NPDES RCRA Other: _____

Client Contact
 Company Name: **ARCADIS**
 Address: **28550 CABOT DRIVE**
 City/State/Zip: **ANN ARBOR MI 48106**
 Phone: _____
 Fax: _____
 Project Name: **FORD LTP**
 Site: **LIVONIA, MI**
 P.O.#: **36050315.303.01**

Project Manager: **KRIS HAVESKY**
 Tel/Email: **269-574-5402**
 Analysis Turnaround Time
 CALENDAR DAYS WORKING DAYS
 TAT if different from Below
 2 weeks **STANDARD**
 1 week **TAT**
 2 days
 1 day

Site Contact: **IAN DROST**
 Lab Contact: _____
 Date: **7/27/20**
 Carrier: _____
 COC No: **2** of **3** COCs

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Sample Specific Notes:
SB-139(05-1)-072720	07/27/20	1310	G	S	2	N	N	(1)-40 mL MEH (1)-402.21
SB-139(1-2)-072720	07/27/20	1313	G	S	2	N	N	" "
SB-139(2-3)-072720	07/27/20	1316	G	S	2	N	N	" "
SB-139(3-4)-072720	07/27/20	1320	G	S	2	N	N	" "
SB-139(4-5)-072720	07/27/20	1325	G	S	2	N	N	" "
SB-140(05-1)-072720	07/27/20	1333	G	S	2	N	N	" "
SB-140(1-2)-072720	07/27/20	1337	G	S	2	N	N	" "
SB-140(2-3)-072720	07/27/20	1450	G	S	2	N	N	" "
SB-140(3-4)-072720	07/27/20	1455	G	S	2	N	N	" "
SB-140(5-6)-072720	07/27/20	1506	G	S	2	N	N	" "
SB-140(6-7)-072720	07/27/20	1509	G	S	2	N	N	" "
SB-139(5-6)-072720	07/27/20	1517	G	S	2	N	N	" "

Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other: **MEH**

Possible Hazard Identification: _____
 Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard Flammable Skin Irritant Poison B Unknown

Return to Client Dispose by Lab Archive for _____ Months

Special Instructions/QC Requirements & Comments: **ANALYZE FOR: PCB/TCE; 1,1-DCE; 1,2-DCE; TRANS-1,2-DCE; VC; 1,4-Dioxane**
LEVEL III REPORTING. SUBMIT ALL RESULTS THROUGH CADENA @ IMA-TO-MALIA@CADENA.COM #E203728

Custody Seal No.: _____
 Cooler Temp. (C): Obs'd: _____ Corrd: _____ Term ID No.: _____

Relinquished by: *[Signature]* Company: **ARCADIS** Date/Time: **7/28/20 0730**
 Relinquished by: *[Signature]* Company: **EUROFINS** Date/Time: **7/28/20 0740**
 Relinquished by: *[Signature]* Company: **EUROFINS** Date/Time: **7-29-20 920**



MICHIGAN
190

Chain of Custody Record

376184



Environment Testini
TestAmerica

Address:

TAL-8210

Regulatory Program: DW NPDES RCRA Other:

Client Contact
Company Name: ARCAOIS
Address: 28550 CABOT DRIVE
City/State/Zip: NOVI MI / 48377
Phone:
Fax:
Project Name: FORD LTP
Site: LIVONIA MI
P.O.#: 30050315303.01

Project Manager: KRIS HAJESKY
Tel/Email: 269-579-5402
Analysis Turnaround Time
 CALENDAR DAYS WORKING DAYS
TAT if different from Below
 2 weeks STANDARD
 1 week TAT
 2 days
 1 day

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Lab Contact:	Site Contact:	Date:	COC No:
58-139(6-7)-072720	7/27/20	1519	G	S	2	N	N	USEPH Method 8260	JAM DROST	7/27/2020	3
58-138(5-6)-072720	7/27/20	1525	G	S	2	N	N	METHOD 8260			
58-138(6-7)-072720	7/27/20	1530	G	S	2	N	N	METHOD 8260			
TANW-20-01(3.5-8.5)-072720	7/27/20	1652	G	GW	6	N	N	33			
TRIP BLANK	7/27/20	-	G	GW	3	N	N	33			
OUP-01	7/27/20	-	G	S	2	N	N				
OUP-02	7/27/20	-	G	S	2	N	N				

Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other, MeOH

Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Special Instructions/QC Requirements & Comments: ANALYZE FOR: PCE; TCE; 1,1-DCE; CIS-1,2-DCE; TRANS-1,2-DCE; VCJ; 1,4-DIOXANE. LEVEL IN REPORTING. SUBMIT ALL RESULTS THROUGH CADENA @ JEM.TOMALIA@CADENA.COM #E20372E

Relinquished by: *Cherish Wu*
Relinquished by: *W*
Relinquished by:

Received by: *W*
Received by: *W*
Received in Laboratory by:

Company: ARCAOIS
Company: EUROFINIS
Company:

Date/Time: 7/28/20 0730
Date/Time: 7/28/20 0740
Date/Time:

Custody Seal No.:
Cooler Temp (°C): Obs'd:
Therm ID No.:

Return to Client: Disposal by Lab: Archive for: _____ Months



Eurofins TestAmerica Canton Sample Receipt Form/Narrative		Login # : <u>134119</u>
Canton Facility		
Client <u>Arcadis</u>	Site Name _____	Cooler unpacked by <u>[Signature]</u>
Cooler Received on <u>7-29-20</u>	Opened on <u>7-29-20</u>	
FedEx: 1 st <input checked="" type="radio"/> Grd <input type="radio"/> Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____		
Receipt After-hours: Drop-off Date/Time		Storage Location
TestAmerica Cooler # <u>TA</u>	Foam Box <input type="checkbox"/> Client Cooler <input type="checkbox"/> Box <input type="checkbox"/> Other _____	
Packing material used: <u>Bubble Wrap</u> <u>Foam</u> <u>Plastic Bag</u> None _____ Other _____		
COOLANT: <u>Wet Ice</u> Blife Ice _____ Dry Ice _____ Water _____ None _____		
1. Cooler temperature upon receipt		<input checked="" type="checkbox"/> See Multiple Cooler Form
IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C		
IR GUN #IR-11 (CF +0.9 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C		
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity <u>2</u>		<input checked="" type="radio"/> Yes No _____
-Were the seals on the outside of the cooler(s) signed & dated?		<input checked="" type="radio"/> Yes No NA _____
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?		<input checked="" type="radio"/> Yes No _____
-Were tamper/custody seals intact and uncompromised?		<input checked="" type="radio"/> Yes No NA _____
3. Shippers' packing slip attached to the cooler(s)?		<input checked="" type="radio"/> Yes No _____
4. Did custody papers accompany the sample(s)?		<input checked="" type="radio"/> Yes No _____
5. Were the custody papers relinquished & signed in the appropriate place?		<input checked="" type="radio"/> Yes No _____
6. Was/were the person(s) who collected the samples clearly identified on the COC?		<input checked="" type="radio"/> Yes No _____
7. Did all bottles arrive in good condition (Unbroken)?		<input checked="" type="radio"/> Yes No _____
8. Could all bottle labels be reconciled with the COC?		<input checked="" type="radio"/> Yes No _____
9. Were correct bottle(s) used for the test(s) indicated?		<input checked="" type="radio"/> Yes No _____
10. Sufficient quantity received to perform indicated analyses?		<input checked="" type="radio"/> Yes No _____
11. Are these work share samples?		<input checked="" type="radio"/> Yes No _____
If yes, Questions 12-16 have been checked at the originating laboratory.		
12. Were all preserved sample(s) at the correct pH upon receipt?		<input checked="" type="radio"/> Yes No <u>NA</u> pH Strip Lot# <u>HC911298</u>
13. Were VOAs on the COC?		<input checked="" type="radio"/> Yes No _____
14. Were air bubbles >6 mm in any VOA vials? <input checked="" type="radio"/> Larger than this.		<input checked="" type="radio"/> Yes No NA _____
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # <u>NA</u>		<input checked="" type="radio"/> Yes No _____
16. Was a LL Hg or Me Hg trip blank present?		<input checked="" type="radio"/> Yes No _____
Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____		
Concerning _____		
17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES		Samples processed by: _____
_____ _____ _____ _____		
18. SAMPLE CONDITION		
Sample(s) _____ were received after the recommended holding time had expired.		
Sample(s) _____ were received in a broken container.		
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)		
19. SAMPLE PRESERVATION		
Sample(s) _____ were further preserved in the laboratory.		
Time preserved: _____ Preservative(s) added/Lot number(s): _____		
VOA Sample Preservation - Date/Time VOAs Frozen: _____		

Tests that are not checked for pH by Receiving:
 VOAs
 Oil and Grease
 TOC

1
2
3
4
5
6
7
8
9
10
11
12
13
14

Eurofins TestAmerica Canton Sample Receipt Multiple Cooler Form

Cooler Description (Circle)	IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)
TA Client Box Other	IR-10 IR-11	1.5	2.9	Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11	1.2	2.1	Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None

See Temperature Excursion Form

ANALYTICAL REPORT

Job Number: 240-134119-1

Job Description: Ford LTP

For:

ARCADIS U.S., Inc.

28550 Cabot Drive

Suite 500

Novi, MI 48377

Attention: Kristoffer Hinskey



Approved for release.
Michael DeI Monico
Project Manager I
8/12/2020 9:25 AM

Michael DeI Monico, Project Manager I
4101 Shuffel Street NW, North Canton, OH, 44720
(330)497-9396
Michael.DeI Monico@Eurofinset.com
08/12/2020

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of TestAmerica and its client. All questions regarding this report should be directed to the TestAmerica Project Manager who has signed this report.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins TestAmerica Project Manager.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Eurofins TestAmerica, Canton

4101 Shuffel Street NW, North Canton, OH 44720

Tel (330) 497-9396 Fax (330) 497-0772 www.testamericainc.com

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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.
X	Surrogate recovery exceeds control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP

Report Number: 240-134119-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 7/29/2020 9:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.1° C and 2.4° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TMW-20-01 (3.5-8.5)_072720 (240-134119-28) and TRIP BLANK (240-134119-29) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 08/01/2020 and 08/03/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS

Samples TMW-20-01 (0.5-1.0)_072720 (240-134119-1), TMW-20-01 (1-2)_07272020 (240-134119-2), TMW-20-01 (2-3)_07272020 (240-134119-3), TMW-20-01 (3-4)_07272020 (240-134119-4), TMW-20-01 (4-5)_07272020 (240-134119-5), TMW-20-01 (5-6)_07272020 (240-134119-6), TMW-20-01 (6-7)_07272020 (240-134119-7), SB-138 (0.5-1)_07272020 (240-134119-8), SB-138 (1-2)_072720 (240-134119-9), SB-138 (2-3)_072720 (240-134119-10), SB-138 (3-4)_072720 (240-134119-11), SB-138 (4-5)_072720 (240-134119-12), SB-139 (0.5-1)_072720 (240-134119-13), SB-139 (1-2)_072720 (240-134119-14), SB-139 (2-3)_072720 (240-134119-15), SB-139 (3-4)_072720 (240-134119-16), SB-140 (0.5-1)_072720 (240-134119-18), SB-140 (1-2)_072720 (240-134119-19), SB-140 (2-3)_072720 (240-134119-20), SB-140 (3-4)_072720 (240-134119-21), SB-140 (5-6)_072720 (240-134119-22), SB-140 (6-7)_072720 (240-134119-23), SB-139 (5-6)_072720 (240-134119-24), SB-139 (6-7)_072720 (240-134119-25), SB-138 (6-7)_072720 (240-134119-27), DUP-01 (240-134119-30) and DUP-02 (240-134119-31) were analyzed for volatile organic compounds in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 08/04/2020, 08/05/2020 and 08/06/2020.

trans-1,2-Dichloroethene was detected in method blank MB 240-445438/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Dibromofluoromethane (Surr) failed the surrogate recovery criteria high for SB-138 (3-4)_072720 (240-134119-11), SB-139 (0.5-1)_072720 (240-134119-13), SB-139 (2-3)_072720 (240-134119-15), and SB-138 (1-2)_072720 (240-134119-9).

4-Bromofluorobenzene (Surr) and Toluene-d8 (Surr) failed the surrogate recovery criteria high for TMW-20-01 (3-4)_07272020 (240-134119-4). Refer to the QC report for details.

Trichloroethene failed the recovery criteria high for LCS 240-445438/2-A. Refer to the QC report for details.

This methanol preserved terra core was received leaking due to dirt on the threads and has a low methanol volume. A new sample was prepped from a bulk jar taken from the sample receiving refrigerator. If this jar was opened in another part of the lab it could have been contaminated: SB-139 (4-5)_072720 (240-134119-17), (240-134119-C-17 MS) and (240-134119-C-17 MSD).

The following sample was unable to be prepared and analyzed due to a lab accident: SB-138 (5-6)_072720 (240-134119-26).

Surrogate recovery for the following sample was outside the upper control limit: SB-138 (3-4)_072720 (240-134119-11). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Surrogate recovery for the following samples were outside of acceptance limits: TMW-20-01 (3-4)_07272020 (240-134119-4), SB-138 (1-2)_072720 (240-134119-9), SB-139 (0.5-1)_072720 (240-134119-13) and SB-139 (2-3)_072720 (240-134119-15). There was insufficient sample to perform a re-extraction; therefore, the data have been reported.

The laboratory control sample (LCS) for preparation batch 240-445438 and analytical batch 240-445702 recovered outside control limits for the following analyte: Trichloroethene. This analyte was biased high in the LCS and was not detected above the reporting limit (RL) in the associated samples; therefore, the data have been reported: SB-140 (0.5-1)_072720 (240-134119-18), SB-140 (1-2)_072720 (240-134119-19), SB-140 (2-3)_072720 (240-134119-20), SB-140 (3-4)_072720 (240-134119-21), SB-140 (5-6)_072720 (240-134119-22), SB-140 (6-7)_072720 (240-134119-23), SB-139 (5-6)_072720 (240-134119-24), SB-139 (6-7)_072720 (240-134119-25) and SB-138 (6-7)_072720 (240-134119-27).

The laboratory control sample (LCS) for preparation batch 240-445438 and analytical batch 240-445537 recovered outside control limits for the following analyte: Trichloroethene. This analyte was biased high in the LCS and was not detected in the associated samples above the reporting limit (RL); therefore, the data have been reported: SB-138 (0.5-1)_07272020 (240-134119-8), SB-138 (1-2)_072720 (240-134119-9), SB-138 (2-3)_072720 (240-134119-10), SB-138 (3-4)_072720 (240-134119-11), SB-138 (4-5)_072720 (240-134119-12), SB-139 (0.5-1)_072720 (240-134119-13), SB-139 (1-2)_072720 (240-134119-14), SB-139 (2-3)_072720 (240-134119-15), SB-139 (3-4)_072720 (240-134119-16) and (LCS 240-445438/2-A).

Batch preparation batch 240-445438 and analytical batch 240-445702 is reported without a matrix spike/matrix spike duplicate (MS/MSD). The batch MS/MSD was performed on another sample, and this test was canceled at client request. This MS/MSD result does not have immediate bearing on any samples except for the actual sample spiked. The associated laboratory control sample (LCS) met acceptance criteria and provides long-term precision and accuracy for this batch: SB-140 (0.5-1)_072720 (240-134119-18), SB-140 (1-2)_072720 (240-134119-19), SB-140 (2-3)_072720 (240-134119-20), SB-140 (3-4)_072720 (240-134119-21), SB-140 (5-6)_072720 (240-134119-22), SB-140 (6-7)_072720 (240-134119-23), SB-139 (5-6)_072720 (240-134119-24), SB-139 (6-7)_072720 (240-134119-25) and SB-138 (6-7)_072720 (240-134119-27).

Batch preparation batch 240-445438 and analytical batch 240-445537 is reported without a matrix spike/matrix spike duplicate (MS/MSD). The batch MS/MSD was performed on another sample, and this test was canceled at client request. This MS/MSD result does not have immediate bearing on any samples except for the actual sample spiked. The associated laboratory control sample (LCS) met acceptance criteria and provides long-term precision and accuracy for this batch: SB-138 (0.5-1)_07272020 (240-134119-8), SB-138 (1-2)_072720 (240-134119-9), SB-138 (2-3)_072720 (240-134119-10), SB-138 (3-4)_072720 (240-134119-11), SB-138 (4-5)_072720 (240-134119-12), SB-139 (0.5-1)_072720 (240-134119-13), SB-139 (1-2)_072720 (240-134119-14), SB-139 (2-3)_072720 (240-134119-15) and SB-139 (3-4)_072720 (240-134119-16).

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 240-445619 and analytical batch 240-446008.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample TMW-20-01 (3.5-8.5)_072720 (240-134119-28) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 07/31/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples TMW-20-01 (0.5-1.0)_072720 (240-134119-1), TMW-20-01 (1-2)_07272020 (240-134119-2), TMW-20-01 (2-3)_07272020 (240-134119-3), TMW-20-01 (3-4)_07272020 (240-134119-4), TMW-20-01 (4-5)_07272020 (240-134119-5), TMW-20-01 (5-6)_07272020 (240-134119-6), TMW-20-01 (6-7)_07272020 (240-134119-7), SB-138 (0.5-1)_07272020 (240-134119-8), SB-138 (1-2)_072720 (240-134119-9), SB-138 (2-3)_072720 (240-134119-10), SB-138 (3-4)_072720 (240-134119-11), SB-138 (4-5)_072720 (240-134119-12), SB-139 (0.5-1)_072720 (240-134119-13), SB-139 (1-2)_072720 (240-134119-14), SB-139 (2-3)_072720 (240-134119-15), SB-139 (3-4)_072720 (240-134119-16), SB-140 (0.5-1)_072720 (240-134119-18), SB-140 (1-2)_072720 (240-134119-19), SB-140 (2-3)_072720 (240-134119-20), SB-140 (3-4)_072720 (240-134119-21), SB-140 (5-6)_072720 (240-134119-22), SB-140 (6-7)_072720 (240-134119-23), SB-139 (5-6)_072720 (240-134119-24), SB-139 (6-7)_072720 (240-134119-25), SB-138 (6-7)_072720 (240-134119-27), DUP-01 (240-134119-30) and DUP-02 (240-134119-31) were analyzed for percent solids in accordance with ASTM Method D2216-80. The samples were analyzed on 07/30/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: TMW-20-01 (0.5-1.0)_072720

Lab Sample ID: 240-134119-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	490		58	26	ug/Kg	1	☼	8260B MI	Total/NA

Client Sample ID: TMW-20-01 (1-2)_07272020

Lab Sample ID: 240-134119-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	1200		55	25	ug/Kg	1	☼	8260B MI	Total/NA

Client Sample ID: TMW-20-01 (2-3)_07272020

Lab Sample ID: 240-134119-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	460		67	30	ug/Kg	1	☼	8260B MI	Total/NA

Client Sample ID: TMW-20-01 (3-4)_07272020

Lab Sample ID: 240-134119-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	300		76	34	ug/Kg	1	☼	8260B MI	Total/NA

Client Sample ID: TMW-20-01 (4-5)_07272020

Lab Sample ID: 240-134119-5

No Detections.

Client Sample ID: TMW-20-01 (5-6)_07272020

Lab Sample ID: 240-134119-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	150		56	25	ug/Kg	1	☼	8260B MI	Total/NA

Client Sample ID: TMW-20-01 (6-7)_07272020

Lab Sample ID: 240-134119-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	24	J	49	22	ug/Kg	1	☼	8260B MI	Total/NA

Client Sample ID: SB-138 (0.5-1)_07272020

Lab Sample ID: 240-134119-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	1800		60	27	ug/Kg	1	☼	8260B MI	Total/NA
trans-1,2-Dichloroethene	25	J B	60	15	ug/Kg	1	☼	8260B MI	Total/NA

Client Sample ID: SB-138 (1-2)_072720

Lab Sample ID: 240-134119-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	480		48	22	ug/Kg	1	☼	8260B MI	Total/NA

Client Sample ID: SB-138 (2-3)_072720

Lab Sample ID: 240-134119-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	270		59	26	ug/Kg	1	☼	8260B MI	Total/NA

Client Sample ID: SB-138 (3-4)_072720

Lab Sample ID: 240-134119-11

No Detections.

Client Sample ID: SB-138 (4-5)_072720

Lab Sample ID: 240-134119-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	140		59	27	ug/Kg	1	☼	8260B MI	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-139 (0.5-1)_072720

Lab Sample ID: 240-134119-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	740		54	24	ug/Kg	1	☼	8260B MI	Total/NA

Client Sample ID: SB-139 (1-2)_072720

Lab Sample ID: 240-134119-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	3100		52	24	ug/Kg	1	☼	8260B MI	Total/NA
Trichloroethene	37	J *	52	14	ug/Kg	1	☼	8260B MI	Total/NA

Client Sample ID: SB-139 (2-3)_072720

Lab Sample ID: 240-134119-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	350		60	27	ug/Kg	1	☼	8260B MI	Total/NA

Client Sample ID: SB-139 (3-4)_072720

Lab Sample ID: 240-134119-16

No Detections.

Client Sample ID: SB-140 (0.5-1)_072720

Lab Sample ID: 240-134119-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	1000		58	26	ug/Kg	1	☼	8260B MI	Total/NA

Client Sample ID: SB-140 (1-2)_072720

Lab Sample ID: 240-134119-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	1500		45	20	ug/Kg	1	☼	8260B MI	Total/NA

Client Sample ID: SB-140 (2-3)_072720

Lab Sample ID: 240-134119-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	1300		52	23	ug/Kg	1	☼	8260B MI	Total/NA

Client Sample ID: SB-140 (3-4)_072720

Lab Sample ID: 240-134119-21

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	300		46	21	ug/Kg	1	☼	8260B MI	Total/NA
Trichloroethene	35	J *	46	13	ug/Kg	1	☼	8260B MI	Total/NA

Client Sample ID: SB-140 (5-6)_072720

Lab Sample ID: 240-134119-22

No Detections.

Client Sample ID: SB-140 (6-7)_072720

Lab Sample ID: 240-134119-23

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	98		55	25	ug/Kg	1	☼	8260B MI	Total/NA

Client Sample ID: SB-139 (5-6)_072720

Lab Sample ID: 240-134119-24

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	86		51	23	ug/Kg	1	☼	8260B MI	Total/NA

Client Sample ID: SB-139 (6-7)_072720

Lab Sample ID: 240-134119-25

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	140		58	26	ug/Kg	1	☼	8260B MI	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-138 (6-7)_072720

Lab Sample ID: 240-134119-27

No Detections.

Client Sample ID: TMW-20-01 (3.5-8.5)_072720

Lab Sample ID: 240-134119-28

No Detections.

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134119-29

No Detections.

Client Sample ID: DUP-01

Lab Sample ID: 240-134119-30

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	65		49	22	ug/Kg	1	☼	8260B MI	Total/NA

Client Sample ID: DUP-02

Lab Sample ID: 240-134119-31

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: TMW-20-01 (0.5-1.0)_072720

Lab Sample ID: 240-134119-1

Date Collected: 07/27/20 10:05

Matrix: Solid

Date Received: 07/29/20 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	86.8		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	13.2		0.1	0.1	%			07/30/20 09:56	1

Client Sample ID: TMW-20-01 (0.5-1.0)_072720

Lab Sample ID: 240-134119-1

Date Collected: 07/27/20 10:05

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 86.8

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	58	U	58	23	ug/Kg	☼	08/03/20 17:08	08/05/20 01:35	1
1,4-Dioxane	18000	U	18000	1600	ug/Kg	☼	08/03/20 17:08	08/05/20 01:35	1
cis-1,2-Dichloroethene	58	U	58	13	ug/Kg	☼	08/03/20 17:08	08/05/20 01:35	1
Tetrachloroethene	490		58	26	ug/Kg	☼	08/03/20 17:08	08/05/20 01:35	1
trans-1,2-Dichloroethene	58	U	58	14	ug/Kg	☼	08/03/20 17:08	08/05/20 01:35	1
Trichloroethene	58	U	58	16	ug/Kg	☼	08/03/20 17:08	08/05/20 01:35	1
Vinyl chloride	46	U	46	17	ug/Kg	☼	08/03/20 17:08	08/05/20 01:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		47 - 136	08/03/20 17:08	08/05/20 01:35	1
4-Bromofluorobenzene (Surr)	111		51 - 124	08/03/20 17:08	08/05/20 01:35	1
Dibromofluoromethane (Surr)	89		49 - 122	08/03/20 17:08	08/05/20 01:35	1
Toluene-d8 (Surr)	108		55 - 123	08/03/20 17:08	08/05/20 01:35	1

Client Sample ID: TMW-20-01 (1-2)_07272020

Lab Sample ID: 240-134119-2

Date Collected: 07/27/20 10:10

Matrix: Solid

Date Received: 07/29/20 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.9		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	15.1		0.1	0.1	%			07/30/20 09:56	1

Client Sample ID: TMW-20-01 (1-2)_07272020

Lab Sample ID: 240-134119-2

Date Collected: 07/27/20 10:10

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 84.9

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	55	U	55	22	ug/Kg	☼	08/03/20 17:08	08/05/20 01:57	1
1,4-Dioxane	17000	U	17000	1500	ug/Kg	☼	08/03/20 17:08	08/05/20 01:57	1
cis-1,2-Dichloroethene	55	U	55	12	ug/Kg	☼	08/03/20 17:08	08/05/20 01:57	1
Tetrachloroethene	1200		55	25	ug/Kg	☼	08/03/20 17:08	08/05/20 01:57	1
trans-1,2-Dichloroethene	55	U	55	14	ug/Kg	☼	08/03/20 17:08	08/05/20 01:57	1
Trichloroethene	55	U	55	15	ug/Kg	☼	08/03/20 17:08	08/05/20 01:57	1
Vinyl chloride	44	U	44	16	ug/Kg	☼	08/03/20 17:08	08/05/20 01:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		47 - 136	08/03/20 17:08	08/05/20 01:57	1
4-Bromofluorobenzene (Surr)	112		51 - 124	08/03/20 17:08	08/05/20 01:57	1
Dibromofluoromethane (Surr)	90		49 - 122	08/03/20 17:08	08/05/20 01:57	1
Toluene-d8 (Surr)	110		55 - 123	08/03/20 17:08	08/05/20 01:57	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: TMW-20-01 (2-3)_07272020

Lab Sample ID: 240-134119-3

Date Collected: 07/27/20 10:40

Matrix: Solid

Date Received: 07/29/20 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	76.8		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	23.2		0.1	0.1	%			07/30/20 09:56	1

Client Sample ID: TMW-20-01 (2-3)_07272020

Lab Sample ID: 240-134119-3

Date Collected: 07/27/20 10:40

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 76.8

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	67	U	67	27	ug/Kg	☼	08/03/20 17:08	08/05/20 02:20	1
1,4-Dioxane	21000	U	21000	1800	ug/Kg	☼	08/03/20 17:08	08/05/20 02:20	1
cis-1,2-Dichloroethene	67	U	67	15	ug/Kg	☼	08/03/20 17:08	08/05/20 02:20	1
Tetrachloroethene	460		67	30	ug/Kg	☼	08/03/20 17:08	08/05/20 02:20	1
trans-1,2-Dichloroethene	67	U	67	17	ug/Kg	☼	08/03/20 17:08	08/05/20 02:20	1
Trichloroethene	67	U	67	18	ug/Kg	☼	08/03/20 17:08	08/05/20 02:20	1
Vinyl chloride	54	U	54	20	ug/Kg	☼	08/03/20 17:08	08/05/20 02:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		47 - 136	08/03/20 17:08	08/05/20 02:20	1
4-Bromofluorobenzene (Surr)	123		51 - 124	08/03/20 17:08	08/05/20 02:20	1
Dibromofluoromethane (Surr)	101		49 - 122	08/03/20 17:08	08/05/20 02:20	1
Toluene-d8 (Surr)	122		55 - 123	08/03/20 17:08	08/05/20 02:20	1

Client Sample ID: TMW-20-01 (3-4)_07272020

Lab Sample ID: 240-134119-4

Date Collected: 07/27/20 11:04

Matrix: Solid

Date Received: 07/29/20 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	69.8		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	30.2		0.1	0.1	%			07/30/20 09:56	1

Client Sample ID: TMW-20-01 (3-4)_07272020

Lab Sample ID: 240-134119-4

Date Collected: 07/27/20 11:04

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 69.8

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	76	U	76	30	ug/Kg	☼	08/03/20 17:08	08/05/20 02:42	1
1,4-Dioxane	24000	U	24000	2100	ug/Kg	☼	08/03/20 17:08	08/05/20 02:42	1
cis-1,2-Dichloroethene	76	U	76	17	ug/Kg	☼	08/03/20 17:08	08/05/20 02:42	1
Tetrachloroethene	300		76	34	ug/Kg	☼	08/03/20 17:08	08/05/20 02:42	1
trans-1,2-Dichloroethene	76	U	76	19	ug/Kg	☼	08/03/20 17:08	08/05/20 02:42	1
Trichloroethene	76	U	76	21	ug/Kg	☼	08/03/20 17:08	08/05/20 02:42	1
Vinyl chloride	61	U	61	23	ug/Kg	☼	08/03/20 17:08	08/05/20 02:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		47 - 136	08/03/20 17:08	08/05/20 02:42	1
4-Bromofluorobenzene (Surr)	129	X	51 - 124	08/03/20 17:08	08/05/20 02:42	1
Dibromofluoromethane (Surr)	105		49 - 122	08/03/20 17:08	08/05/20 02:42	1
Toluene-d8 (Surr)	128	X	55 - 123	08/03/20 17:08	08/05/20 02:42	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: TMW-20-01 (4-5)_07272020

Lab Sample ID: 240-134119-5

Date Collected: 07/27/20 11:07

Matrix: Solid

Date Received: 07/29/20 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	87.4		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	12.6		0.1	0.1	%			07/30/20 09:56	1

Client Sample ID: TMW-20-01 (4-5)_07272020

Lab Sample ID: 240-134119-5

Date Collected: 07/27/20 11:07

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 87.4

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	52	U	52	21	ug/Kg	☼	08/03/20 17:08	08/05/20 03:05	1
1,4-Dioxane	16000	U	16000	1400	ug/Kg	☼	08/03/20 17:08	08/05/20 03:05	1
cis-1,2-Dichloroethene	52	U	52	12	ug/Kg	☼	08/03/20 17:08	08/05/20 03:05	1
Tetrachloroethene	52	U	52	24	ug/Kg	☼	08/03/20 17:08	08/05/20 03:05	1
trans-1,2-Dichloroethene	52	U	52	13	ug/Kg	☼	08/03/20 17:08	08/05/20 03:05	1
Trichloroethene	52	U	52	14	ug/Kg	☼	08/03/20 17:08	08/05/20 03:05	1
Vinyl chloride	42	U	42	16	ug/Kg	☼	08/03/20 17:08	08/05/20 03:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		47 - 136	08/03/20 17:08	08/05/20 03:05	1
4-Bromofluorobenzene (Surr)	110		51 - 124	08/03/20 17:08	08/05/20 03:05	1
Dibromofluoromethane (Surr)	88		49 - 122	08/03/20 17:08	08/05/20 03:05	1
Toluene-d8 (Surr)	108		55 - 123	08/03/20 17:08	08/05/20 03:05	1

Client Sample ID: TMW-20-01 (5-6)_07272020

Lab Sample ID: 240-134119-6

Date Collected: 07/27/20 11:10

Matrix: Solid

Date Received: 07/29/20 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	85.3		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	14.7		0.1	0.1	%			07/30/20 09:56	1

Client Sample ID: TMW-20-01 (5-6)_07272020

Lab Sample ID: 240-134119-6

Date Collected: 07/27/20 11:10

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 85.3

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	56	U	56	22	ug/Kg	☼	08/03/20 17:08	08/05/20 03:28	1
1,4-Dioxane	18000	U	18000	1500	ug/Kg	☼	08/03/20 17:08	08/05/20 03:28	1
cis-1,2-Dichloroethene	56	U	56	13	ug/Kg	☼	08/03/20 17:08	08/05/20 03:28	1
Tetrachloroethene	150		56	25	ug/Kg	☼	08/03/20 17:08	08/05/20 03:28	1
trans-1,2-Dichloroethene	56	U	56	14	ug/Kg	☼	08/03/20 17:08	08/05/20 03:28	1
Trichloroethene	56	U	56	15	ug/Kg	☼	08/03/20 17:08	08/05/20 03:28	1
Vinyl chloride	45	U	45	17	ug/Kg	☼	08/03/20 17:08	08/05/20 03:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		47 - 136	08/03/20 17:08	08/05/20 03:28	1
4-Bromofluorobenzene (Surr)	106		51 - 124	08/03/20 17:08	08/05/20 03:28	1
Dibromofluoromethane (Surr)	87		49 - 122	08/03/20 17:08	08/05/20 03:28	1
Toluene-d8 (Surr)	107		55 - 123	08/03/20 17:08	08/05/20 03:28	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: TMW-20-01 (6-7)_07272020

Lab Sample ID: 240-134119-7

Date Collected: 07/27/20 11:30

Matrix: Solid

Date Received: 07/29/20 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	90.4		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	9.6		0.1	0.1	%			07/30/20 09:56	1

Client Sample ID: TMW-20-01 (6-7)_07272020

Lab Sample ID: 240-134119-7

Date Collected: 07/27/20 11:30

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 90.4

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	49	U	49	20	ug/Kg	☼	08/03/20 17:08	08/05/20 03:50	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	08/03/20 17:08	08/05/20 03:50	1
cis-1,2-Dichloroethene	49	U	49	11	ug/Kg	☼	08/03/20 17:08	08/05/20 03:50	1
Tetrachloroethene	24	J	49	22	ug/Kg	☼	08/03/20 17:08	08/05/20 03:50	1
trans-1,2-Dichloroethene	49	U	49	12	ug/Kg	☼	08/03/20 17:08	08/05/20 03:50	1
Trichloroethene	49	U	49	13	ug/Kg	☼	08/03/20 17:08	08/05/20 03:50	1
Vinyl chloride	39	U	39	15	ug/Kg	☼	08/03/20 17:08	08/05/20 03:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		47 - 136	08/03/20 17:08	08/05/20 03:50	1
4-Bromofluorobenzene (Surr)	113		51 - 124	08/03/20 17:08	08/05/20 03:50	1
Dibromofluoromethane (Surr)	90		49 - 122	08/03/20 17:08	08/05/20 03:50	1
Toluene-d8 (Surr)	111		55 - 123	08/03/20 17:08	08/05/20 03:50	1

Client Sample ID: SB-138 (0.5-1)_07272020

Lab Sample ID: 240-134119-8

Date Collected: 07/27/20 12:23

Matrix: Solid

Date Received: 07/29/20 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	81.6		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	18.4		0.1	0.1	%			07/30/20 09:56	1

Client Sample ID: SB-138 (0.5-1)_07272020

Lab Sample ID: 240-134119-8

Date Collected: 07/27/20 12:23

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 81.6

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	60	U	60	24	ug/Kg	☼	08/03/20 19:07	08/04/20 18:30	1
1,4-Dioxane	19000	U	19000	1600	ug/Kg	☼	08/03/20 19:07	08/04/20 18:30	1
cis-1,2-Dichloroethene	60	U	60	14	ug/Kg	☼	08/03/20 19:07	08/04/20 18:30	1
Tetrachloroethene	1800		60	27	ug/Kg	☼	08/03/20 19:07	08/04/20 18:30	1
trans-1,2-Dichloroethene	25	J B	60	15	ug/Kg	☼	08/03/20 19:07	08/04/20 18:30	1
Trichloroethene	60	U *	60	17	ug/Kg	☼	08/03/20 19:07	08/04/20 18:30	1
Vinyl chloride	48	U	48	18	ug/Kg	☼	08/03/20 19:07	08/04/20 18:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		47 - 136	08/03/20 19:07	08/04/20 18:30	1
4-Bromofluorobenzene (Surr)	90		51 - 124	08/03/20 19:07	08/04/20 18:30	1
Dibromofluoromethane (Surr)	116		49 - 122	08/03/20 19:07	08/04/20 18:30	1
Toluene-d8 (Surr)	94		55 - 123	08/03/20 19:07	08/04/20 18:30	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-138 (1-2)_072720

Lab Sample ID: 240-134119-9

Date Collected: 07/27/20 12:30

Matrix: Solid

Date Received: 07/29/20 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	92.4		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	7.6		0.1	0.1	%			07/30/20 09:56	1

Client Sample ID: SB-138 (1-2)_072720

Lab Sample ID: 240-134119-9

Date Collected: 07/27/20 12:30

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 92.4

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	48	U	48	19	ug/Kg	☼	08/03/20 19:07	08/04/20 18:52	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	08/03/20 19:07	08/04/20 18:52	1
cis-1,2-Dichloroethene	48	U	48	11	ug/Kg	☼	08/03/20 19:07	08/04/20 18:52	1
Tetrachloroethene	480		48	22	ug/Kg	☼	08/03/20 19:07	08/04/20 18:52	1
trans-1,2-Dichloroethene	48	U	48	12	ug/Kg	☼	08/03/20 19:07	08/04/20 18:52	1
Trichloroethene	48	U*	48	13	ug/Kg	☼	08/03/20 19:07	08/04/20 18:52	1
Vinyl chloride	38	U	38	14	ug/Kg	☼	08/03/20 19:07	08/04/20 18:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	121		47 - 136	08/03/20 19:07	08/04/20 18:52	1
4-Bromofluorobenzene (Surr)	113		51 - 124	08/03/20 19:07	08/04/20 18:52	1
Dibromofluoromethane (Surr)	126	X	49 - 122	08/03/20 19:07	08/04/20 18:52	1
Toluene-d8 (Surr)	105		55 - 123	08/03/20 19:07	08/04/20 18:52	1

Client Sample ID: SB-138 (2-3)_072720

Lab Sample ID: 240-134119-10

Date Collected: 07/27/20 12:39

Matrix: Solid

Date Received: 07/29/20 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.5		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	15.5		0.1	0.1	%			07/30/20 09:56	1

Client Sample ID: SB-138 (2-3)_072720

Lab Sample ID: 240-134119-10

Date Collected: 07/27/20 12:39

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 84.5

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	59	U	59	23	ug/Kg	☼	08/03/20 19:07	08/04/20 19:15	1
1,4-Dioxane	18000	U	18000	1600	ug/Kg	☼	08/03/20 19:07	08/04/20 19:15	1
cis-1,2-Dichloroethene	59	U	59	13	ug/Kg	☼	08/03/20 19:07	08/04/20 19:15	1
Tetrachloroethene	270		59	26	ug/Kg	☼	08/03/20 19:07	08/04/20 19:15	1
trans-1,2-Dichloroethene	59	U	59	15	ug/Kg	☼	08/03/20 19:07	08/04/20 19:15	1
Trichloroethene	59	U*	59	16	ug/Kg	☼	08/03/20 19:07	08/04/20 19:15	1
Vinyl chloride	47	U	47	18	ug/Kg	☼	08/03/20 19:07	08/04/20 19:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		47 - 136	08/03/20 19:07	08/04/20 19:15	1
4-Bromofluorobenzene (Surr)	102		51 - 124	08/03/20 19:07	08/04/20 19:15	1
Dibromofluoromethane (Surr)	114		49 - 122	08/03/20 19:07	08/04/20 19:15	1
Toluene-d8 (Surr)	100		55 - 123	08/03/20 19:07	08/04/20 19:15	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-138 (3-4)_072720

Lab Sample ID: 240-134119-11

Date Collected: 07/27/20 12:49

Matrix: Solid

Date Received: 07/29/20 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	90.1		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	9.9		0.1	0.1	%			07/30/20 09:56	1

Client Sample ID: SB-138 (3-4)_072720

Lab Sample ID: 240-134119-11

Date Collected: 07/27/20 12:49

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 90.1

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	56	U	56	23	ug/Kg	☼	08/03/20 19:07	08/04/20 19:37	1
1,4-Dioxane	18000	U	18000	1500	ug/Kg	☼	08/03/20 19:07	08/04/20 19:37	1
cis-1,2-Dichloroethene	56	U	56	13	ug/Kg	☼	08/03/20 19:07	08/04/20 19:37	1
Tetrachloroethene	56	U	56	25	ug/Kg	☼	08/03/20 19:07	08/04/20 19:37	1
trans-1,2-Dichloroethene	56	U	56	14	ug/Kg	☼	08/03/20 19:07	08/04/20 19:37	1
Trichloroethene	56	U*	56	15	ug/Kg	☼	08/03/20 19:07	08/04/20 19:37	1
Vinyl chloride	45	U	45	17	ug/Kg	☼	08/03/20 19:07	08/04/20 19:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	126		47 - 136	08/03/20 19:07	08/04/20 19:37	1
4-Bromofluorobenzene (Surr)	114		51 - 124	08/03/20 19:07	08/04/20 19:37	1
Dibromofluoromethane (Surr)	135	X	49 - 122	08/03/20 19:07	08/04/20 19:37	1
Toluene-d8 (Surr)	112		55 - 123	08/03/20 19:07	08/04/20 19:37	1

Client Sample ID: SB-138 (4-5)_072720

Lab Sample ID: 240-134119-12

Date Collected: 07/27/20 12:51

Matrix: Solid

Date Received: 07/29/20 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	82.6		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	17.4		0.1	0.1	%			07/30/20 09:56	1

Client Sample ID: SB-138 (4-5)_072720

Lab Sample ID: 240-134119-12

Date Collected: 07/27/20 12:51

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 82.6

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	59	U	59	24	ug/Kg	☼	08/03/20 19:07	08/04/20 20:00	1
1,4-Dioxane	18000	U	18000	1600	ug/Kg	☼	08/03/20 19:07	08/04/20 20:00	1
cis-1,2-Dichloroethene	59	U	59	13	ug/Kg	☼	08/03/20 19:07	08/04/20 20:00	1
Tetrachloroethene	140		59	27	ug/Kg	☼	08/03/20 19:07	08/04/20 20:00	1
trans-1,2-Dichloroethene	59	U	59	15	ug/Kg	☼	08/03/20 19:07	08/04/20 20:00	1
Trichloroethene	59	U*	59	16	ug/Kg	☼	08/03/20 19:07	08/04/20 20:00	1
Vinyl chloride	47	U	47	18	ug/Kg	☼	08/03/20 19:07	08/04/20 20:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	115		47 - 136	08/03/20 19:07	08/04/20 20:00	1
4-Bromofluorobenzene (Surr)	103		51 - 124	08/03/20 19:07	08/04/20 20:00	1
Dibromofluoromethane (Surr)	121		49 - 122	08/03/20 19:07	08/04/20 20:00	1
Toluene-d8 (Surr)	103		55 - 123	08/03/20 19:07	08/04/20 20:00	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-139 (0.5-1)_072720

Lab Sample ID: 240-134119-13

Date Collected: 07/27/20 13:10

Matrix: Solid

Date Received: 07/29/20 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	85.9		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	14.1		0.1	0.1	%			07/30/20 09:56	1

Client Sample ID: SB-139 (0.5-1)_072720

Lab Sample ID: 240-134119-13

Date Collected: 07/27/20 13:10

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 85.9

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	54	U	54	22	ug/Kg	☼	08/03/20 19:07	08/04/20 20:22	1
1,4-Dioxane	17000	U	17000	1500	ug/Kg	☼	08/03/20 19:07	08/04/20 20:22	1
cis-1,2-Dichloroethene	54	U	54	12	ug/Kg	☼	08/03/20 19:07	08/04/20 20:22	1
Tetrachloroethene	740		54	24	ug/Kg	☼	08/03/20 19:07	08/04/20 20:22	1
trans-1,2-Dichloroethene	54	U	54	14	ug/Kg	☼	08/03/20 19:07	08/04/20 20:22	1
Trichloroethene	54	U*	54	15	ug/Kg	☼	08/03/20 19:07	08/04/20 20:22	1
Vinyl chloride	43	U	43	16	ug/Kg	☼	08/03/20 19:07	08/04/20 20:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	122		47 - 136	08/03/20 19:07	08/04/20 20:22	1
4-Bromofluorobenzene (Surr)	110		51 - 124	08/03/20 19:07	08/04/20 20:22	1
Dibromofluoromethane (Surr)	130	X	49 - 122	08/03/20 19:07	08/04/20 20:22	1
Toluene-d8 (Surr)	109		55 - 123	08/03/20 19:07	08/04/20 20:22	1

Client Sample ID: SB-139 (1-2)_072720

Lab Sample ID: 240-134119-14

Date Collected: 07/27/20 13:13

Matrix: Solid

Date Received: 07/29/20 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	87.8		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	12.2		0.1	0.1	%			07/30/20 09:56	1

Client Sample ID: SB-139 (1-2)_072720

Lab Sample ID: 240-134119-14

Date Collected: 07/27/20 13:13

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 87.8

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	52	U	52	21	ug/Kg	☼	08/03/20 19:07	08/04/20 20:45	1
1,4-Dioxane	16000	U	16000	1400	ug/Kg	☼	08/03/20 19:07	08/04/20 20:45	1
cis-1,2-Dichloroethene	52	U	52	12	ug/Kg	☼	08/03/20 19:07	08/04/20 20:45	1
Tetrachloroethene	3100		52	24	ug/Kg	☼	08/03/20 19:07	08/04/20 20:45	1
trans-1,2-Dichloroethene	52	U	52	13	ug/Kg	☼	08/03/20 19:07	08/04/20 20:45	1
Trichloroethene	37	J*	52	14	ug/Kg	☼	08/03/20 19:07	08/04/20 20:45	1
Vinyl chloride	42	U	42	16	ug/Kg	☼	08/03/20 19:07	08/04/20 20:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		47 - 136	08/03/20 19:07	08/04/20 20:45	1
4-Bromofluorobenzene (Surr)	91		51 - 124	08/03/20 19:07	08/04/20 20:45	1
Dibromofluoromethane (Surr)	110		49 - 122	08/03/20 19:07	08/04/20 20:45	1
Toluene-d8 (Surr)	92		55 - 123	08/03/20 19:07	08/04/20 20:45	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-139 (2-3)_072720

Lab Sample ID: 240-134119-15

Date Collected: 07/27/20 13:16

Matrix: Solid

Date Received: 07/29/20 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	81.3		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	18.7		0.1	0.1	%			07/30/20 09:56	1

Client Sample ID: SB-139 (2-3)_072720

Lab Sample ID: 240-134119-15

Date Collected: 07/27/20 13:16

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 81.3

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	60	U	60	24	ug/Kg	☼	08/03/20 19:07	08/04/20 21:07	1
1,4-Dioxane	19000	U	19000	1600	ug/Kg	☼	08/03/20 19:07	08/04/20 21:07	1
cis-1,2-Dichloroethene	60	U	60	14	ug/Kg	☼	08/03/20 19:07	08/04/20 21:07	1
Tetrachloroethene	350		60	27	ug/Kg	☼	08/03/20 19:07	08/04/20 21:07	1
trans-1,2-Dichloroethene	60	U	60	15	ug/Kg	☼	08/03/20 19:07	08/04/20 21:07	1
Trichloroethene	60	U*	60	17	ug/Kg	☼	08/03/20 19:07	08/04/20 21:07	1
Vinyl chloride	48	U	48	18	ug/Kg	☼	08/03/20 19:07	08/04/20 21:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	119		47 - 136	08/03/20 19:07	08/04/20 21:07	1
4-Bromofluorobenzene (Surr)	106		51 - 124	08/03/20 19:07	08/04/20 21:07	1
Dibromofluoromethane (Surr)	123	X	49 - 122	08/03/20 19:07	08/04/20 21:07	1
Toluene-d8 (Surr)	104		55 - 123	08/03/20 19:07	08/04/20 21:07	1

Client Sample ID: SB-139 (3-4)_072720

Lab Sample ID: 240-134119-16

Date Collected: 07/27/20 13:20

Matrix: Solid

Date Received: 07/29/20 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	89.0		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	11.0		0.1	0.1	%			07/30/20 09:56	1

Client Sample ID: SB-139 (3-4)_072720

Lab Sample ID: 240-134119-16

Date Collected: 07/27/20 13:20

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 89.0

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	55	U	55	22	ug/Kg	☼	08/03/20 19:07	08/04/20 21:29	1
1,4-Dioxane	17000	U	17000	1500	ug/Kg	☼	08/03/20 19:07	08/04/20 21:29	1
cis-1,2-Dichloroethene	55	U	55	12	ug/Kg	☼	08/03/20 19:07	08/04/20 21:29	1
Tetrachloroethene	55	U	55	25	ug/Kg	☼	08/03/20 19:07	08/04/20 21:29	1
trans-1,2-Dichloroethene	55	U	55	14	ug/Kg	☼	08/03/20 19:07	08/04/20 21:29	1
Trichloroethene	55	U*	55	15	ug/Kg	☼	08/03/20 19:07	08/04/20 21:29	1
Vinyl chloride	44	U	44	16	ug/Kg	☼	08/03/20 19:07	08/04/20 21:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	116		47 - 136	08/03/20 19:07	08/04/20 21:29	1
4-Bromofluorobenzene (Surr)	102		51 - 124	08/03/20 19:07	08/04/20 21:29	1
Dibromofluoromethane (Surr)	120		49 - 122	08/03/20 19:07	08/04/20 21:29	1
Toluene-d8 (Surr)	101		55 - 123	08/03/20 19:07	08/04/20 21:29	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-140 (0.5-1)_072720

Lab Sample ID: 240-134119-18

Date Collected: 07/27/20 13:33

Matrix: Solid

Date Received: 07/29/20 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	83.1		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	16.9		0.1	0.1	%			07/30/20 09:56	1

Client Sample ID: SB-140 (0.5-1)_072720

Lab Sample ID: 240-134119-18

Date Collected: 07/27/20 13:33

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 83.1

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	58	U	58	23	ug/Kg	☼	08/03/20 19:07	08/05/20 12:48	1
1,4-Dioxane	18000	U	18000	1600	ug/Kg	☼	08/03/20 19:07	08/05/20 12:48	1
cis-1,2-Dichloroethene	58	U	58	13	ug/Kg	☼	08/03/20 19:07	08/05/20 12:48	1
Tetrachloroethene	1000		58	26	ug/Kg	☼	08/03/20 19:07	08/05/20 12:48	1
trans-1,2-Dichloroethene	58	U	58	14	ug/Kg	☼	08/03/20 19:07	08/05/20 12:48	1
Trichloroethene	58	U*	58	16	ug/Kg	☼	08/03/20 19:07	08/05/20 12:48	1
Vinyl chloride	46	U	46	17	ug/Kg	☼	08/03/20 19:07	08/05/20 12:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		47 - 136	08/03/20 19:07	08/05/20 12:48	1
4-Bromofluorobenzene (Surr)	97		51 - 124	08/03/20 19:07	08/05/20 12:48	1
Dibromofluoromethane (Surr)	115		49 - 122	08/03/20 19:07	08/05/20 12:48	1
Toluene-d8 (Surr)	97		55 - 123	08/03/20 19:07	08/05/20 12:48	1

Client Sample ID: SB-140 (1-2)_072720

Lab Sample ID: 240-134119-19

Date Collected: 07/27/20 13:37

Matrix: Solid

Date Received: 07/29/20 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	93.6		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	6.4		0.1	0.1	%			07/30/20 09:56	1

Client Sample ID: SB-140 (1-2)_072720

Lab Sample ID: 240-134119-19

Date Collected: 07/27/20 13:37

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 93.6

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	45	U	45	18	ug/Kg	☼	08/03/20 19:07	08/05/20 13:10	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	08/03/20 19:07	08/05/20 13:10	1
cis-1,2-Dichloroethene	45	U	45	10	ug/Kg	☼	08/03/20 19:07	08/05/20 13:10	1
Tetrachloroethene	1500		45	20	ug/Kg	☼	08/03/20 19:07	08/05/20 13:10	1
trans-1,2-Dichloroethene	45	U	45	11	ug/Kg	☼	08/03/20 19:07	08/05/20 13:10	1
Trichloroethene	45	U*	45	12	ug/Kg	☼	08/03/20 19:07	08/05/20 13:10	1
Vinyl chloride	36	U	36	14	ug/Kg	☼	08/03/20 19:07	08/05/20 13:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		47 - 136	08/03/20 19:07	08/05/20 13:10	1
4-Bromofluorobenzene (Surr)	91		51 - 124	08/03/20 19:07	08/05/20 13:10	1
Dibromofluoromethane (Surr)	107		49 - 122	08/03/20 19:07	08/05/20 13:10	1
Toluene-d8 (Surr)	90		55 - 123	08/03/20 19:07	08/05/20 13:10	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-140 (2-3)_072720

Lab Sample ID: 240-134119-20

Date Collected: 07/27/20 14:50

Matrix: Solid

Date Received: 07/29/20 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	87.0		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	13.0		0.1	0.1	%			07/30/20 09:56	1

Client Sample ID: SB-140 (2-3)_072720

Lab Sample ID: 240-134119-20

Date Collected: 07/27/20 14:50

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 87.0

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	52	U	52	21	ug/Kg	☼	08/03/20 19:07	08/05/20 13:33	1
1,4-Dioxane	16000	U	16000	1400	ug/Kg	☼	08/03/20 19:07	08/05/20 13:33	1
cis-1,2-Dichloroethene	52	U	52	12	ug/Kg	☼	08/03/20 19:07	08/05/20 13:33	1
Tetrachloroethene	1300		52	23	ug/Kg	☼	08/03/20 19:07	08/05/20 13:33	1
trans-1,2-Dichloroethene	52	U	52	13	ug/Kg	☼	08/03/20 19:07	08/05/20 13:33	1
Trichloroethene	52	U*	52	14	ug/Kg	☼	08/03/20 19:07	08/05/20 13:33	1
Vinyl chloride	41	U	41	15	ug/Kg	☼	08/03/20 19:07	08/05/20 13:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		47 - 136	08/03/20 19:07	08/05/20 13:33	1
4-Bromofluorobenzene (Surr)	96		51 - 124	08/03/20 19:07	08/05/20 13:33	1
Dibromofluoromethane (Surr)	114		49 - 122	08/03/20 19:07	08/05/20 13:33	1
Toluene-d8 (Surr)	96		55 - 123	08/03/20 19:07	08/05/20 13:33	1

Client Sample ID: SB-140 (3-4)_072720

Lab Sample ID: 240-134119-21

Date Collected: 07/27/20 14:55

Matrix: Solid

Date Received: 07/29/20 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	94.7		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	5.3		0.1	0.1	%			07/30/20 09:56	1

Client Sample ID: SB-140 (3-4)_072720

Lab Sample ID: 240-134119-21

Date Collected: 07/27/20 14:55

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 94.7

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	46	U	46	19	ug/Kg	☼	08/03/20 19:07	08/05/20 13:55	1
1,4-Dioxane	14000	U	14000	1300	ug/Kg	☼	08/03/20 19:07	08/05/20 13:55	1
cis-1,2-Dichloroethene	46	U	46	10	ug/Kg	☼	08/03/20 19:07	08/05/20 13:55	1
Tetrachloroethene	300		46	21	ug/Kg	☼	08/03/20 19:07	08/05/20 13:55	1
trans-1,2-Dichloroethene	46	U	46	12	ug/Kg	☼	08/03/20 19:07	08/05/20 13:55	1
Trichloroethene	35	J*	46	13	ug/Kg	☼	08/03/20 19:07	08/05/20 13:55	1
Vinyl chloride	37	U	37	14	ug/Kg	☼	08/03/20 19:07	08/05/20 13:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		47 - 136	08/03/20 19:07	08/05/20 13:55	1
4-Bromofluorobenzene (Surr)	89		51 - 124	08/03/20 19:07	08/05/20 13:55	1
Dibromofluoromethane (Surr)	106		49 - 122	08/03/20 19:07	08/05/20 13:55	1
Toluene-d8 (Surr)	88		55 - 123	08/03/20 19:07	08/05/20 13:55	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-140 (5-6)_072720

Lab Sample ID: 240-134119-22

Date Collected: 07/27/20 15:06

Matrix: Solid

Date Received: 07/29/20 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	92.4		0.1	0.1	%			07/30/20 09:56	1
Percent Moisture	7.6		0.1	0.1	%			07/30/20 09:56	1

Client Sample ID: SB-140 (5-6)_072720

Lab Sample ID: 240-134119-22

Date Collected: 07/27/20 15:06

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 92.4

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	49	U	49	20	ug/Kg	☼	08/03/20 19:07	08/05/20 14:18	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	08/03/20 19:07	08/05/20 14:18	1
cis-1,2-Dichloroethene	49	U	49	11	ug/Kg	☼	08/03/20 19:07	08/05/20 14:18	1
Tetrachloroethene	49	U	49	22	ug/Kg	☼	08/03/20 19:07	08/05/20 14:18	1
trans-1,2-Dichloroethene	49	U	49	12	ug/Kg	☼	08/03/20 19:07	08/05/20 14:18	1
Trichloroethene	49	U *	49	13	ug/Kg	☼	08/03/20 19:07	08/05/20 14:18	1
Vinyl chloride	39	U	39	15	ug/Kg	☼	08/03/20 19:07	08/05/20 14:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		47 - 136	08/03/20 19:07	08/05/20 14:18	1
4-Bromofluorobenzene (Surr)	91		51 - 124	08/03/20 19:07	08/05/20 14:18	1
Dibromofluoromethane (Surr)	110		49 - 122	08/03/20 19:07	08/05/20 14:18	1
Toluene-d8 (Surr)	91		55 - 123	08/03/20 19:07	08/05/20 14:18	1

Client Sample ID: SB-140 (6-7)_072720

Lab Sample ID: 240-134119-23

Date Collected: 07/27/20 15:09

Matrix: Solid

Date Received: 07/29/20 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	86.9		0.1	0.1	%			07/30/20 10:10	1
Percent Moisture	13.1		0.1	0.1	%			07/30/20 10:10	1

Client Sample ID: SB-140 (6-7)_072720

Lab Sample ID: 240-134119-23

Date Collected: 07/27/20 15:09

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 86.9

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	55	U	55	22	ug/Kg	☼	08/03/20 19:07	08/05/20 14:40	1
1,4-Dioxane	17000	U	17000	1500	ug/Kg	☼	08/03/20 19:07	08/05/20 14:40	1
cis-1,2-Dichloroethene	55	U	55	12	ug/Kg	☼	08/03/20 19:07	08/05/20 14:40	1
Tetrachloroethene	98		55	25	ug/Kg	☼	08/03/20 19:07	08/05/20 14:40	1
trans-1,2-Dichloroethene	55	U	55	14	ug/Kg	☼	08/03/20 19:07	08/05/20 14:40	1
Trichloroethene	55	U *	55	15	ug/Kg	☼	08/03/20 19:07	08/05/20 14:40	1
Vinyl chloride	44	U	44	17	ug/Kg	☼	08/03/20 19:07	08/05/20 14:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		47 - 136	08/03/20 19:07	08/05/20 14:40	1
4-Bromofluorobenzene (Surr)	94		51 - 124	08/03/20 19:07	08/05/20 14:40	1
Dibromofluoromethane (Surr)	112		49 - 122	08/03/20 19:07	08/05/20 14:40	1
Toluene-d8 (Surr)	94		55 - 123	08/03/20 19:07	08/05/20 14:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-139 (5-6)_072720

Lab Sample ID: 240-134119-24

Date Collected: 07/27/20 15:17

Matrix: Solid

Date Received: 07/29/20 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	87.7		0.1	0.1	%			07/30/20 10:10	1
Percent Moisture	12.3		0.1	0.1	%			07/30/20 10:10	1

Client Sample ID: SB-139 (5-6)_072720

Lab Sample ID: 240-134119-24

Date Collected: 07/27/20 15:17

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 87.7

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	51	U	51	20	ug/Kg	☼	08/03/20 19:07	08/05/20 15:03	1
1,4-Dioxane	16000	U	16000	1400	ug/Kg	☼	08/03/20 19:07	08/05/20 15:03	1
cis-1,2-Dichloroethene	51	U	51	12	ug/Kg	☼	08/03/20 19:07	08/05/20 15:03	1
Tetrachloroethene	86		51	23	ug/Kg	☼	08/03/20 19:07	08/05/20 15:03	1
trans-1,2-Dichloroethene	51	U	51	13	ug/Kg	☼	08/03/20 19:07	08/05/20 15:03	1
Trichloroethene	51	U*	51	14	ug/Kg	☼	08/03/20 19:07	08/05/20 15:03	1
Vinyl chloride	41	U	41	15	ug/Kg	☼	08/03/20 19:07	08/05/20 15:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		47 - 136	08/03/20 19:07	08/05/20 15:03	1
4-Bromofluorobenzene (Surr)	94		51 - 124	08/03/20 19:07	08/05/20 15:03	1
Dibromofluoromethane (Surr)	114		49 - 122	08/03/20 19:07	08/05/20 15:03	1
Toluene-d8 (Surr)	96		55 - 123	08/03/20 19:07	08/05/20 15:03	1

Client Sample ID: SB-139 (6-7)_072720

Lab Sample ID: 240-134119-25

Date Collected: 07/27/20 15:19

Matrix: Solid

Date Received: 07/29/20 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	83.7		0.1	0.1	%			07/30/20 10:10	1
Percent Moisture	16.3		0.1	0.1	%			07/30/20 10:10	1

Client Sample ID: SB-139 (6-7)_072720

Lab Sample ID: 240-134119-25

Date Collected: 07/27/20 15:19

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 83.7

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	58	U	58	23	ug/Kg	☼	08/03/20 19:07	08/05/20 15:25	1
1,4-Dioxane	18000	U	18000	1600	ug/Kg	☼	08/03/20 19:07	08/05/20 15:25	1
cis-1,2-Dichloroethene	58	U	58	13	ug/Kg	☼	08/03/20 19:07	08/05/20 15:25	1
Tetrachloroethene	140		58	26	ug/Kg	☼	08/03/20 19:07	08/05/20 15:25	1
trans-1,2-Dichloroethene	58	U	58	14	ug/Kg	☼	08/03/20 19:07	08/05/20 15:25	1
Trichloroethene	58	U*	58	16	ug/Kg	☼	08/03/20 19:07	08/05/20 15:25	1
Vinyl chloride	46	U	46	17	ug/Kg	☼	08/03/20 19:07	08/05/20 15:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		47 - 136	08/03/20 19:07	08/05/20 15:25	1
4-Bromofluorobenzene (Surr)	93		51 - 124	08/03/20 19:07	08/05/20 15:25	1
Dibromofluoromethane (Surr)	108		49 - 122	08/03/20 19:07	08/05/20 15:25	1
Toluene-d8 (Surr)	95		55 - 123	08/03/20 19:07	08/05/20 15:25	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-138 (6-7)_072720

Lab Sample ID: 240-134119-27

Date Collected: 07/27/20 15:30

Matrix: Solid

Date Received: 07/29/20 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	88.9		0.1	0.1	%			07/30/20 10:10	1
Percent Moisture	11.1		0.1	0.1	%			07/30/20 10:10	1

Client Sample ID: SB-138 (6-7)_072720

Lab Sample ID: 240-134119-27

Date Collected: 07/27/20 15:30

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 88.9

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	50	U	50	20	ug/Kg	☼	08/03/20 19:07	08/05/20 15:48	1
1,4-Dioxane	15000	U	15000	1400	ug/Kg	☼	08/03/20 19:07	08/05/20 15:48	1
cis-1,2-Dichloroethene	50	U	50	11	ug/Kg	☼	08/03/20 19:07	08/05/20 15:48	1
Tetrachloroethene	50	U	50	22	ug/Kg	☼	08/03/20 19:07	08/05/20 15:48	1
trans-1,2-Dichloroethene	50	U	50	12	ug/Kg	☼	08/03/20 19:07	08/05/20 15:48	1
Trichloroethene	50	U*	50	14	ug/Kg	☼	08/03/20 19:07	08/05/20 15:48	1
Vinyl chloride	40	U	40	15	ug/Kg	☼	08/03/20 19:07	08/05/20 15:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		47 - 136	08/03/20 19:07	08/05/20 15:48	1
4-Bromofluorobenzene (Surr)	93		51 - 124	08/03/20 19:07	08/05/20 15:48	1
Dibromofluoromethane (Surr)	113		49 - 122	08/03/20 19:07	08/05/20 15:48	1
Toluene-d8 (Surr)	94		55 - 123	08/03/20 19:07	08/05/20 15:48	1

Client Sample ID: TMW-20-01 (3.5-8.5)_072720

Lab Sample ID: 240-134119-28

Date Collected: 07/27/20 16:52

Matrix: Water

Date Received: 07/29/20 09:20

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			07/31/20 19:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		70 - 133		07/31/20 19:30	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/01/20 23:43	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/01/20 23:43	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/01/20 23:43	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/01/20 23:43	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/01/20 23:43	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/01/20 23:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	118		75 - 130		08/01/20 23:43	1
4-Bromofluorobenzene (Surr)	98		47 - 134		08/01/20 23:43	1
Toluene-d8 (Surr)	114		69 - 122		08/01/20 23:43	1
Dibromofluoromethane (Surr)	103		78 - 129		08/01/20 23:43	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134119-29

Date Collected: 07/27/20 00:00

Matrix: Water

Date Received: 07/29/20 09:20

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/03/20 23:52	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/03/20 23:52	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/03/20 23:52	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/03/20 23:52	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/03/20 23:52	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/03/20 23:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	125		75 - 130		08/03/20 23:52	1
4-Bromofluorobenzene (Surr)	96		47 - 134		08/03/20 23:52	1
Toluene-d8 (Surr)	110		69 - 122		08/03/20 23:52	1
Dibromofluoromethane (Surr)	103		78 - 129		08/03/20 23:52	1

Client Sample ID: DUP-01

Lab Sample ID: 240-134119-30

Date Collected: 07/27/20 00:00

Matrix: Solid

Date Received: 07/29/20 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	90.9		0.1	0.1	%			07/30/20 10:10	1
Percent Moisture	9.1		0.1	0.1	%			07/30/20 10:10	1

Client Sample ID: DUP-01

Lab Sample ID: 240-134119-30

Date Collected: 07/27/20 00:00

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 90.9

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	49	U	49	20	ug/Kg	☼	08/04/20 19:52	08/06/20 20:22	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	08/04/20 19:52	08/06/20 20:22	1
cis-1,2-Dichloroethene	49	U	49	11	ug/Kg	☼	08/04/20 19:52	08/06/20 20:22	1
Tetrachloroethene	65		49	22	ug/Kg	☼	08/04/20 19:52	08/06/20 20:22	1
trans-1,2-Dichloroethene	49	U	49	12	ug/Kg	☼	08/04/20 19:52	08/06/20 20:22	1
Trichloroethene	49	U	49	14	ug/Kg	☼	08/04/20 19:52	08/06/20 20:22	1
Vinyl chloride	39	U	39	15	ug/Kg	☼	08/04/20 19:52	08/06/20 20:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	82		47 - 136	08/04/20 19:52	08/06/20 20:22	1
4-Bromofluorobenzene (Surr)	83		51 - 124	08/04/20 19:52	08/06/20 20:22	1
Dibromofluoromethane (Surr)	83		49 - 122	08/04/20 19:52	08/06/20 20:22	1
Toluene-d8 (Surr)	95		55 - 123	08/04/20 19:52	08/06/20 20:22	1

Client Sample ID: DUP-02

Lab Sample ID: 240-134119-31

Date Collected: 07/27/20 00:00

Matrix: Solid

Date Received: 07/29/20 09:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	83.9		0.1	0.1	%			07/30/20 10:10	1
Percent Moisture	16.1		0.1	0.1	%			07/30/20 10:10	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: DUP-02

Lab Sample ID: 240-134119-31

Date Collected: 07/27/20 00:00

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 83.9

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	55	U	55	22	ug/Kg	☼	08/04/20 19:52	08/06/20 20:45	1
1,4-Dioxane	17000	U	17000	1500	ug/Kg	☼	08/04/20 19:52	08/06/20 20:45	1
cis-1,2-Dichloroethene	55	U	55	12	ug/Kg	☼	08/04/20 19:52	08/06/20 20:45	1
Tetrachloroethene	55	U	55	25	ug/Kg	☼	08/04/20 19:52	08/06/20 20:45	1
trans-1,2-Dichloroethene	55	U	55	14	ug/Kg	☼	08/04/20 19:52	08/06/20 20:45	1
Trichloroethene	55	U	55	15	ug/Kg	☼	08/04/20 19:52	08/06/20 20:45	1
Vinyl chloride	44	U	44	16	ug/Kg	☼	08/04/20 19:52	08/06/20 20:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		47 - 136	08/04/20 19:52	08/06/20 20:45	1
4-Bromofluorobenzene (Surr)	81		51 - 124	08/04/20 19:52	08/06/20 20:45	1
Dibromofluoromethane (Surr)	86		49 - 122	08/04/20 19:52	08/06/20 20:45	1
Toluene-d8 (Surr)	95		55 - 123	08/04/20 19:52	08/06/20 20:45	1

Default Detection Limits

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Prep: 5030B

Analyte	RL	MDL	Units
1,1-Dichloroethene	40	16	ug/Kg
1,4-Dioxane	13000	1100	ug/Kg
cis-1,2-Dichloroethene	40	9.0	ug/Kg
Tetrachloroethene	40	18	ug/Kg
trans-1,2-Dichloroethene	40	10	ug/Kg
Trichloroethene	40	11	ug/Kg
Vinyl chloride	32	12	ug/Kg

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	RL	MDL	Units
1,4-Dioxane	2.0	0.86	ug/L

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	RL	MDL	Units
1,1-Dichloroethene	1.0	0.46	ug/L
cis-1,2-Dichloroethene	1.0	0.38	ug/L
Tetrachloroethene	1.0	0.33	ug/L
trans-1,2-Dichloroethene	1.0	0.43	ug/L
Trichloroethene	1.0	0.36	ug/L
Vinyl chloride	1.0	0.50	ug/L

General Chemistry

Analyte	RL	MDL	Units
Percent Moisture	0.1	0.1	%
Percent Solids	0.1	0.1	%

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-133764-G-4 MS	Matrix Spike	128	99	112	104
240-133764-H-4 MSD	Matrix Spike Duplicate	122	97	109	102
240-134118-D-12 MS	Matrix Spike	123	96	109	103
240-134118-E-12 MSD	Matrix Spike Duplicate	122	94	108	102
240-134119-28	TMW-20-01 (3.5-8.5)_072720	118	98	114	103
240-134119-29	TRIP BLANK	125	96	110	103
LCS 240-445248/4	Lab Control Sample	124	95	111	101
LCS 240-445379/4	Lab Control Sample	127	95	110	105
MB 240-445248/7	Method Blank	126	95	117	104
MB 240-445379/7	Method Blank	122	94	112	106

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (47-136)	BFB (51-124)	DBFM (49-122)	TOL (55-123)
240-134119-1	TMW-20-01 (0.5-1.0)_072720	94	111	89	108
240-134119-2	TMW-20-01 (1-2)_07272020	94	112	90	110
240-134119-3	TMW-20-01 (2-3)_07272020	107	123	101	122
240-134119-4	TMW-20-01 (3-4)_07272020	111	129 X	105	128 X
240-134119-5	TMW-20-01 (4-5)_07272020	93	110	88	108
240-134119-6	TMW-20-01 (5-6)_07272020	94	106	87	107
240-134119-7	TMW-20-01 (6-7)_07272020	95	113	90	111
240-134119-8	SB-138 (0.5-1)_07272020	111	90	116	94
240-134119-9	SB-138 (1-2)_072720	121	113	126 X	105
240-134119-10	SB-138 (2-3)_072720	110	102	114	100
240-134119-11	SB-138 (3-4)_072720	126	114	135 X	112
240-134119-12	SB-138 (4-5)_072720	115	103	121	103
240-134119-13	SB-139 (0.5-1)_072720	122	110	130 X	109
240-134119-14	SB-139 (1-2)_072720	105	91	110	92
240-134119-15	SB-139 (2-3)_072720	119	106	123 X	104
240-134119-16	SB-139 (3-4)_072720	116	102	120	101
240-134119-18	SB-140 (0.5-1)_072720	109	97	115	97
240-134119-19	SB-140 (1-2)_072720	103	91	107	90
240-134119-20	SB-140 (2-3)_072720	105	96	114	96
240-134119-21	SB-140 (3-4)_072720	102	89	106	88
240-134119-22	SB-140 (5-6)_072720	106	91	110	91
240-134119-23	SB-140 (6-7)_072720	108	94	112	94
240-134119-24	SB-139 (5-6)_072720	109	94	114	96
240-134119-25	SB-139 (6-7)_072720	105	93	108	95
240-134119-27	SB-138 (6-7)_072720	111	93	113	94
240-134119-30	DUP-01	82	83	83	95
240-134119-31	DUP-02	86	81	86	95

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Method: 8260B MI - Volatile Organic Compounds (GC/MS) (Continued)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (47-136)	BFB (51-124)	DBFM (49-122)	TOL (55-123)
240-134182-B-28-A MS	Matrix Spike	88	102	84	100
240-134182-C-28-A MSD	Matrix Spike Duplicate	85	107	86	103
LCS 240-445424/2-A	Lab Control Sample	84	98	80	97
LCS 240-445438/2-A	Lab Control Sample	96	89	107	88
LCS 240-445619/2-A	Lab Control Sample	69	77	74	85
MB 240-445424/1-A	Method Blank	82	93	76	93
MB 240-445438/1-A	Method Blank	101	88	106	87
MB 240-445619/1-A	Method Blank	71	73	74	84

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		DCA (70-133)
240-134119-28	TMW-20-01 (3.5-8.5)_072720	85
240-134235-C-2 MS	Matrix Spike	87
240-134235-C-2 MSD	Matrix Spike Duplicate	85
LCS 240-445137/4	Lab Control Sample	82
MB 240-445137/5	Method Blank	82

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-445248/7

Matrix: Water

Analysis Batch: 445248

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/01/20 15:01	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/01/20 15:01	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/01/20 15:01	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/01/20 15:01	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/01/20 15:01	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/01/20 15:01	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	126		75 - 130		08/01/20 15:01	1
4-Bromofluorobenzene (Surr)	95		47 - 134		08/01/20 15:01	1
Toluene-d8 (Surr)	117		69 - 122		08/01/20 15:01	1
Dibromofluoromethane (Surr)	104		78 - 129		08/01/20 15:01	1

Lab Sample ID: LCS 240-445248/4

Matrix: Water

Analysis Batch: 445248

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	9.68		ug/L		97	73 - 129
cis-1,2-Dichloroethene	10.0	9.70		ug/L		97	75 - 124
Tetrachloroethene	10.0	11.4		ug/L		114	70 - 125
trans-1,2-Dichloroethene	10.0	9.38		ug/L		94	74 - 130
Trichloroethene	10.0	9.05		ug/L		90	71 - 121
Vinyl chloride	10.0	12.1		ug/L		121	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	124		75 - 130
4-Bromofluorobenzene (Surr)	95		47 - 134
Toluene-d8 (Surr)	111		69 - 122
Dibromofluoromethane (Surr)	101		78 - 129

Lab Sample ID: MB 240-445379/7

Matrix: Water

Analysis Batch: 445379

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/03/20 16:25	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/03/20 16:25	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/03/20 16:25	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/03/20 16:25	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/03/20 16:25	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/03/20 16:25	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	122		75 - 130		08/03/20 16:25	1
4-Bromofluorobenzene (Surr)	94		47 - 134		08/03/20 16:25	1
Toluene-d8 (Surr)	112		69 - 122		08/03/20 16:25	1

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QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-445379/7
Matrix: Water
Analysis Batch: 445379

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Dibromofluoromethane (Surr)	106		78 - 129		08/03/20 16:25	1

Lab Sample ID: LCS 240-445379/4
Matrix: Water
Analysis Batch: 445379

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	10.0	9.02		ug/L		90	75 - 124
Tetrachloroethene	10.0	10.9		ug/L		109	70 - 125
trans-1,2-Dichloroethene	10.0	9.26		ug/L		93	74 - 130
Trichloroethene	10.0	8.49		ug/L		85	71 - 121
Vinyl chloride	10.0	12.0		ug/L		120	61 - 134

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	127		75 - 130
4-Bromofluorobenzene (Surr)	95		47 - 134
Toluene-d8 (Surr)	110		69 - 122
Dibromofluoromethane (Surr)	105		78 - 129

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-445424/1-A
Matrix: Solid
Analysis Batch: 445595

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445424

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	40	U	40	16	ug/Kg		08/03/20 17:08	08/04/20 18:24	1
1,4-Dioxane	13000	U	13000	1100	ug/Kg		08/03/20 17:08	08/04/20 18:24	1
cis-1,2-Dichloroethene	40	U	40	9.0	ug/Kg		08/03/20 17:08	08/04/20 18:24	1
Tetrachloroethene	40	U	40	18	ug/Kg		08/03/20 17:08	08/04/20 18:24	1
trans-1,2-Dichloroethene	40	U	40	10	ug/Kg		08/03/20 17:08	08/04/20 18:24	1
Trichloroethene	40	U	40	11	ug/Kg		08/03/20 17:08	08/04/20 18:24	1
Vinyl chloride	32	U	32	12	ug/Kg		08/03/20 17:08	08/04/20 18:24	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	82		47 - 136	08/03/20 17:08	08/04/20 18:24	1
4-Bromofluorobenzene (Surr)	93		51 - 124	08/03/20 17:08	08/04/20 18:24	1
Dibromofluoromethane (Surr)	76		49 - 122	08/03/20 17:08	08/04/20 18:24	1
Toluene-d8 (Surr)	93		55 - 123	08/03/20 17:08	08/04/20 18:24	1

Lab Sample ID: LCS 240-445424/2-A
Matrix: Solid
Analysis Batch: 445595

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445424

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	20000	20300		ug/Kg		101	44 - 154

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QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Method: 8260B MI - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-445424/2-A
Matrix: Solid
Analysis Batch: 445595

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445424
%Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
cis-1,2-Dichloroethene	1000	838		ug/Kg		84	76 - 120
Tetrachloroethene	1000	1020		ug/Kg		102	75 - 124
trans-1,2-Dichloroethene	1000	1060		ug/Kg		106	74 - 125
Trichloroethene	1000	995		ug/Kg		99	75 - 123
Vinyl chloride	1000	1050		ug/Kg		105	39 - 140

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	84		47 - 136
4-Bromofluorobenzene (Surr)	98		51 - 124
Dibromofluoromethane (Surr)	80		49 - 122
Toluene-d8 (Surr)	97		55 - 123

Lab Sample ID: MB 240-445438/1-A
Matrix: Solid
Analysis Batch: 445537

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445438

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	40	U	40	16	ug/Kg		08/03/20 19:07	08/04/20 17:46	1
1,4-Dioxane	13000	U	13000	1100	ug/Kg		08/03/20 19:07	08/04/20 17:46	1
cis-1,2-Dichloroethene	40	U	40	9.0	ug/Kg		08/03/20 19:07	08/04/20 17:46	1
Tetrachloroethene	40	U	40	18	ug/Kg		08/03/20 19:07	08/04/20 17:46	1
trans-1,2-Dichloroethene	10.2	J	40	10	ug/Kg		08/03/20 19:07	08/04/20 17:46	1
Trichloroethene	40	U	40	11	ug/Kg		08/03/20 19:07	08/04/20 17:46	1
Vinyl chloride	32	U	32	12	ug/Kg		08/03/20 19:07	08/04/20 17:46	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		47 - 136	08/03/20 19:07	08/04/20 17:46	1
4-Bromofluorobenzene (Surr)	88		51 - 124	08/03/20 19:07	08/04/20 17:46	1
Dibromofluoromethane (Surr)	106		49 - 122	08/03/20 19:07	08/04/20 17:46	1
Toluene-d8 (Surr)	87		55 - 123	08/03/20 19:07	08/04/20 17:46	1

Lab Sample ID: LCS 240-445438/2-A
Matrix: Solid
Analysis Batch: 445537

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445438
%Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,1-Dichloroethene	1000	1190		ug/Kg		119	48 - 140
1,4-Dioxane	20000	23600		ug/Kg		118	44 - 154
cis-1,2-Dichloroethene	1000	1140		ug/Kg		114	76 - 120
Tetrachloroethene	1000	1130		ug/Kg		113	75 - 124
trans-1,2-Dichloroethene	1000	1140		ug/Kg		114	74 - 125
Trichloroethene	1000	1240	*	ug/Kg		124	75 - 123
Vinyl chloride	1000	1220		ug/Kg		122	39 - 140

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	96		47 - 136
4-Bromofluorobenzene (Surr)	89		51 - 124
Dibromofluoromethane (Surr)	107		49 - 122

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Method: 8260B MI - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-445438/2-A
Matrix: Solid
Analysis Batch: 445537

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445438

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	88		55 - 123

Lab Sample ID: MB 240-445619/1-A
Matrix: Solid
Analysis Batch: 446008

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445619

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	40	U	40	16	ug/Kg		08/04/20 19:52	08/06/20 19:38	1
1,4-Dioxane	13000	U	13000	1100	ug/Kg		08/04/20 19:52	08/06/20 19:38	1
cis-1,2-Dichloroethene	40	U	40	9.0	ug/Kg		08/04/20 19:52	08/06/20 19:38	1
Tetrachloroethene	40	U	40	18	ug/Kg		08/04/20 19:52	08/06/20 19:38	1
trans-1,2-Dichloroethene	40	U	40	10	ug/Kg		08/04/20 19:52	08/06/20 19:38	1
Trichloroethene	40	U	40	11	ug/Kg		08/04/20 19:52	08/06/20 19:38	1
Vinyl chloride	32	U	32	12	ug/Kg		08/04/20 19:52	08/06/20 19:38	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	71		47 - 136	08/04/20 19:52	08/06/20 19:38	1
4-Bromofluorobenzene (Surr)	73		51 - 124	08/04/20 19:52	08/06/20 19:38	1
Dibromofluoromethane (Surr)	74		49 - 122	08/04/20 19:52	08/06/20 19:38	1
Toluene-d8 (Surr)	84		55 - 123	08/04/20 19:52	08/06/20 19:38	1

Lab Sample ID: LCS 240-445619/2-A
Matrix: Solid
Analysis Batch: 446008

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445619

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	Limits
		Result	Qualifier				
1,1-Dichloroethene	1000	914		ug/Kg		91	48 - 140
1,4-Dioxane	20000	17900		ug/Kg		90	44 - 154
cis-1,2-Dichloroethene	1000	897		ug/Kg		90	76 - 120
Tetrachloroethene	1000	855		ug/Kg		86	75 - 124
trans-1,2-Dichloroethene	1000	960		ug/Kg		96	74 - 125
Trichloroethene	1000	825		ug/Kg		82	75 - 123
Vinyl chloride	1000	998		ug/Kg		100	39 - 140

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	69		47 - 136
4-Bromofluorobenzene (Surr)	77		51 - 124
Dibromofluoromethane (Surr)	74		49 - 122
Toluene-d8 (Surr)	85		55 - 123

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-445137/5
Matrix: Water
Analysis Batch: 445137

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			07/31/20 13:43	1

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QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-445137/5
Matrix: Water
Analysis Batch: 445137

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	82		70 - 133		07/31/20 13:43	1

Lab Sample ID: LCS 240-445137/4
Matrix: Water
Analysis Batch: 445137

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	12.0		ug/L		120	80 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	82		70 - 133

Method: Moisture - Percent Moisture

Lab Sample ID: 240-134119-5 DU
Matrix: Solid
Analysis Batch: 444900

Client Sample ID: TMW-20-01 (4-5)_07272020
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	87.4		87.4		%		0	20
Percent Moisture	12.6		12.6		%		0.3	20

Lab Sample ID: 240-134119-14 DU
Matrix: Solid
Analysis Batch: 444900

Client Sample ID: SB-139 (1-2)_072720
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	87.8		87.5		%		0.4	20
Percent Moisture	12.2		12.5		%		3	20

Lab Sample ID: 240-134119-23 DU
Matrix: Solid
Analysis Batch: 444900

Client Sample ID: SB-140 (6-7)_072720
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	86.9		87.4		%		0.5	20
Percent Moisture	13.1		12.6		%		3	20

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

GC/MS VOA

Analysis Batch: 445137

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134119-28	TMW-20-01 (3.5-8.5)_072720	Total/NA	Water	8260B SIM	
MB 240-445137/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-445137/4	Lab Control Sample	Total/NA	Water	8260B SIM	

Analysis Batch: 445248

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134119-28	TMW-20-01 (3.5-8.5)_072720	Total/NA	Water	8260B	
MB 240-445248/7	Method Blank	Total/NA	Water	8260B	
LCS 240-445248/4	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 445379

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134119-29	TRIP BLANK	Total/NA	Water	8260B	
MB 240-445379/7	Method Blank	Total/NA	Water	8260B	
LCS 240-445379/4	Lab Control Sample	Total/NA	Water	8260B	

Prep Batch: 445424

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134119-1	TMW-20-01 (0.5-1.0)_072720	Total/NA	Solid	5030B	
240-134119-2	TMW-20-01 (1-2)_07272020	Total/NA	Solid	5030B	
240-134119-3	TMW-20-01 (2-3)_07272020	Total/NA	Solid	5030B	
240-134119-4	TMW-20-01 (3-4)_07272020	Total/NA	Solid	5030B	
240-134119-5	TMW-20-01 (4-5)_07272020	Total/NA	Solid	5030B	
240-134119-6	TMW-20-01 (5-6)_07272020	Total/NA	Solid	5030B	
240-134119-7	TMW-20-01 (6-7)_07272020	Total/NA	Solid	5030B	
MB 240-445424/1-A	Method Blank	Total/NA	Solid	5030B	
LCS 240-445424/2-A	Lab Control Sample	Total/NA	Solid	5030B	

Prep Batch: 445438

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134119-8	SB-138 (0.5-1)_07272020	Total/NA	Solid	5030B	
240-134119-9	SB-138 (1-2)_072720	Total/NA	Solid	5030B	
240-134119-10	SB-138 (2-3)_072720	Total/NA	Solid	5030B	
240-134119-11	SB-138 (3-4)_072720	Total/NA	Solid	5030B	
240-134119-12	SB-138 (4-5)_072720	Total/NA	Solid	5030B	
240-134119-13	SB-139 (0.5-1)_072720	Total/NA	Solid	5030B	
240-134119-14	SB-139 (1-2)_072720	Total/NA	Solid	5030B	
240-134119-15	SB-139 (2-3)_072720	Total/NA	Solid	5030B	
240-134119-16	SB-139 (3-4)_072720	Total/NA	Solid	5030B	
240-134119-18	SB-140 (0.5-1)_072720	Total/NA	Solid	5030B	
240-134119-19	SB-140 (1-2)_072720	Total/NA	Solid	5030B	
240-134119-20	SB-140 (2-3)_072720	Total/NA	Solid	5030B	
240-134119-21	SB-140 (3-4)_072720	Total/NA	Solid	5030B	
240-134119-22	SB-140 (5-6)_072720	Total/NA	Solid	5030B	
240-134119-23	SB-140 (6-7)_072720	Total/NA	Solid	5030B	
240-134119-24	SB-139 (5-6)_072720	Total/NA	Solid	5030B	
240-134119-25	SB-139 (6-7)_072720	Total/NA	Solid	5030B	
240-134119-27	SB-138 (6-7)_072720	Total/NA	Solid	5030B	
MB 240-445438/1-A	Method Blank	Total/NA	Solid	5030B	
LCS 240-445438/2-A	Lab Control Sample	Total/NA	Solid	5030B	

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

GC/MS VOA

Analysis Batch: 445537

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134119-8	SB-138 (0.5-1)_07272020	Total/NA	Solid	8260B MI	445438
240-134119-9	SB-138 (1-2)_072720	Total/NA	Solid	8260B MI	445438
240-134119-10	SB-138 (2-3)_072720	Total/NA	Solid	8260B MI	445438
240-134119-11	SB-138 (3-4)_072720	Total/NA	Solid	8260B MI	445438
240-134119-12	SB-138 (4-5)_072720	Total/NA	Solid	8260B MI	445438
240-134119-13	SB-139 (0.5-1)_072720	Total/NA	Solid	8260B MI	445438
240-134119-14	SB-139 (1-2)_072720	Total/NA	Solid	8260B MI	445438
240-134119-15	SB-139 (2-3)_072720	Total/NA	Solid	8260B MI	445438
240-134119-16	SB-139 (3-4)_072720	Total/NA	Solid	8260B MI	445438
MB 240-445438/1-A	Method Blank	Total/NA	Solid	8260B MI	445438
LCS 240-445438/2-A	Lab Control Sample	Total/NA	Solid	8260B MI	445438

Analysis Batch: 445595

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134119-1	TMW-20-01 (0.5-1.0)_072720	Total/NA	Solid	8260B MI	445424
240-134119-2	TMW-20-01 (1-2)_07272020	Total/NA	Solid	8260B MI	445424
240-134119-3	TMW-20-01 (2-3)_07272020	Total/NA	Solid	8260B MI	445424
240-134119-4	TMW-20-01 (3-4)_07272020	Total/NA	Solid	8260B MI	445424
240-134119-5	TMW-20-01 (4-5)_07272020	Total/NA	Solid	8260B MI	445424
240-134119-6	TMW-20-01 (5-6)_07272020	Total/NA	Solid	8260B MI	445424
240-134119-7	TMW-20-01 (6-7)_07272020	Total/NA	Solid	8260B MI	445424
MB 240-445424/1-A	Method Blank	Total/NA	Solid	8260B MI	445424
LCS 240-445424/2-A	Lab Control Sample	Total/NA	Solid	8260B MI	445424

Prep Batch: 445619

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134119-30	DUP-01	Total/NA	Solid	5030B	
240-134119-31	DUP-02	Total/NA	Solid	5030B	
MB 240-445619/1-A	Method Blank	Total/NA	Solid	5030B	
LCS 240-445619/2-A	Lab Control Sample	Total/NA	Solid	5030B	

Analysis Batch: 445702

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134119-18	SB-140 (0.5-1)_072720	Total/NA	Solid	8260B MI	445438
240-134119-19	SB-140 (1-2)_072720	Total/NA	Solid	8260B MI	445438
240-134119-20	SB-140 (2-3)_072720	Total/NA	Solid	8260B MI	445438
240-134119-21	SB-140 (3-4)_072720	Total/NA	Solid	8260B MI	445438
240-134119-22	SB-140 (5-6)_072720	Total/NA	Solid	8260B MI	445438
240-134119-23	SB-140 (6-7)_072720	Total/NA	Solid	8260B MI	445438
240-134119-24	SB-139 (5-6)_072720	Total/NA	Solid	8260B MI	445438
240-134119-25	SB-139 (6-7)_072720	Total/NA	Solid	8260B MI	445438
240-134119-27	SB-138 (6-7)_072720	Total/NA	Solid	8260B MI	445438

Analysis Batch: 446008

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134119-30	DUP-01	Total/NA	Solid	8260B MI	445619
240-134119-31	DUP-02	Total/NA	Solid	8260B MI	445619
MB 240-445619/1-A	Method Blank	Total/NA	Solid	8260B MI	445619
LCS 240-445619/2-A	Lab Control Sample	Total/NA	Solid	8260B MI	445619

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

General Chemistry

Analysis Batch: 444900

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134119-1	TMW-20-01 (0.5-1.0)_072720	Total/NA	Solid	Moisture	
240-134119-2	TMW-20-01 (1-2)_07272020	Total/NA	Solid	Moisture	
240-134119-3	TMW-20-01 (2-3)_07272020	Total/NA	Solid	Moisture	
240-134119-4	TMW-20-01 (3-4)_07272020	Total/NA	Solid	Moisture	
240-134119-5	TMW-20-01 (4-5)_07272020	Total/NA	Solid	Moisture	
240-134119-6	TMW-20-01 (5-6)_07272020	Total/NA	Solid	Moisture	
240-134119-7	TMW-20-01 (6-7)_07272020	Total/NA	Solid	Moisture	
240-134119-8	SB-138 (0.5-1)_07272020	Total/NA	Solid	Moisture	
240-134119-9	SB-138 (1-2)_072720	Total/NA	Solid	Moisture	
240-134119-10	SB-138 (2-3)_072720	Total/NA	Solid	Moisture	
240-134119-11	SB-138 (3-4)_072720	Total/NA	Solid	Moisture	
240-134119-12	SB-138 (4-5)_072720	Total/NA	Solid	Moisture	
240-134119-13	SB-139 (0.5-1)_072720	Total/NA	Solid	Moisture	
240-134119-14	SB-139 (1-2)_072720	Total/NA	Solid	Moisture	
240-134119-15	SB-139 (2-3)_072720	Total/NA	Solid	Moisture	
240-134119-16	SB-139 (3-4)_072720	Total/NA	Solid	Moisture	
240-134119-18	SB-140 (0.5-1)_072720	Total/NA	Solid	Moisture	
240-134119-19	SB-140 (1-2)_072720	Total/NA	Solid	Moisture	
240-134119-20	SB-140 (2-3)_072720	Total/NA	Solid	Moisture	
240-134119-21	SB-140 (3-4)_072720	Total/NA	Solid	Moisture	
240-134119-22	SB-140 (5-6)_072720	Total/NA	Solid	Moisture	
240-134119-23	SB-140 (6-7)_072720	Total/NA	Solid	Moisture	
240-134119-24	SB-139 (5-6)_072720	Total/NA	Solid	Moisture	
240-134119-25	SB-139 (6-7)_072720	Total/NA	Solid	Moisture	
240-134119-27	SB-138 (6-7)_072720	Total/NA	Solid	Moisture	
240-134119-30	DUP-01	Total/NA	Solid	Moisture	
240-134119-31	DUP-02	Total/NA	Solid	Moisture	
240-134119-5 DU	TMW-20-01 (4-5)_07272020	Total/NA	Solid	Moisture	
240-134119-14 DU	SB-139 (1-2)_072720	Total/NA	Solid	Moisture	
240-134119-23 DU	SB-140 (6-7)_072720	Total/NA	Solid	Moisture	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: TMW-20-01 (0.5-1.0)_072720

Lab Sample ID: 240-134119-1

Date Collected: 07/27/20 10:05

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Client Sample ID: TMW-20-01 (0.5-1.0)_072720

Lab Sample ID: 240-134119-1

Date Collected: 07/27/20 10:05

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 86.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/05/20 01:35	TJL1	TAL CAN

Client Sample ID: TMW-20-01 (1-2)_07272020

Lab Sample ID: 240-134119-2

Date Collected: 07/27/20 10:10

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Client Sample ID: TMW-20-01 (1-2)_07272020

Lab Sample ID: 240-134119-2

Date Collected: 07/27/20 10:10

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 84.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/05/20 01:57	TJL1	TAL CAN

Client Sample ID: TMW-20-01 (2-3)_07272020

Lab Sample ID: 240-134119-3

Date Collected: 07/27/20 10:40

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Client Sample ID: TMW-20-01 (2-3)_07272020

Lab Sample ID: 240-134119-3

Date Collected: 07/27/20 10:40

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 76.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/05/20 02:20	TJL1	TAL CAN

Client Sample ID: TMW-20-01 (3-4)_07272020

Lab Sample ID: 240-134119-4

Date Collected: 07/27/20 11:04

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: TMW-20-01 (3-4)_07272020

Lab Sample ID: 240-134119-4

Date Collected: 07/27/20 11:04

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 69.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/05/20 02:42	TJL1	TAL CAN

Client Sample ID: TMW-20-01 (4-5)_07272020

Lab Sample ID: 240-134119-5

Date Collected: 07/27/20 11:07

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Client Sample ID: TMW-20-01 (4-5)_07272020

Lab Sample ID: 240-134119-5

Date Collected: 07/27/20 11:07

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 87.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/05/20 03:05	TJL1	TAL CAN

Client Sample ID: TMW-20-01 (5-6)_07272020

Lab Sample ID: 240-134119-6

Date Collected: 07/27/20 11:10

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Client Sample ID: TMW-20-01 (5-6)_07272020

Lab Sample ID: 240-134119-6

Date Collected: 07/27/20 11:10

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 85.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/05/20 03:28	TJL1	TAL CAN

Client Sample ID: TMW-20-01 (6-7)_07272020

Lab Sample ID: 240-134119-7

Date Collected: 07/27/20 11:30

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: TMW-20-01 (6-7)_07272020

Lab Sample ID: 240-134119-7

Date Collected: 07/27/20 11:30

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 90.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/05/20 03:50	TJL1	TAL CAN

Client Sample ID: SB-138 (0.5-1)_07272020

Lab Sample ID: 240-134119-8

Date Collected: 07/27/20 12:23

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Client Sample ID: SB-138 (0.5-1)_07272020

Lab Sample ID: 240-134119-8

Date Collected: 07/27/20 12:23

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 81.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445537	08/04/20 18:30	HMB	TAL CAN

Client Sample ID: SB-138 (1-2)_072720

Lab Sample ID: 240-134119-9

Date Collected: 07/27/20 12:30

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Client Sample ID: SB-138 (1-2)_072720

Lab Sample ID: 240-134119-9

Date Collected: 07/27/20 12:30

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 92.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445537	08/04/20 18:52	HMB	TAL CAN

Client Sample ID: SB-138 (2-3)_072720

Lab Sample ID: 240-134119-10

Date Collected: 07/27/20 12:39

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-138 (2-3)_072720

Lab Sample ID: 240-134119-10

Date Collected: 07/27/20 12:39

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 84.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445537	08/04/20 19:15	HMB	TAL CAN

Client Sample ID: SB-138 (3-4)_072720

Lab Sample ID: 240-134119-11

Date Collected: 07/27/20 12:49

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Client Sample ID: SB-138 (3-4)_072720

Lab Sample ID: 240-134119-11

Date Collected: 07/27/20 12:49

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 90.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445537	08/04/20 19:37	HMB	TAL CAN

Client Sample ID: SB-138 (4-5)_072720

Lab Sample ID: 240-134119-12

Date Collected: 07/27/20 12:51

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Client Sample ID: SB-138 (4-5)_072720

Lab Sample ID: 240-134119-12

Date Collected: 07/27/20 12:51

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 82.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445537	08/04/20 20:00	HMB	TAL CAN

Client Sample ID: SB-139 (0.5-1)_072720

Lab Sample ID: 240-134119-13

Date Collected: 07/27/20 13:10

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-139 (0.5-1)_072720

Lab Sample ID: 240-134119-13

Date Collected: 07/27/20 13:10

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 85.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445537	08/04/20 20:22	HMB	TAL CAN

Client Sample ID: SB-139 (1-2)_072720

Lab Sample ID: 240-134119-14

Date Collected: 07/27/20 13:13

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Client Sample ID: SB-139 (1-2)_072720

Lab Sample ID: 240-134119-14

Date Collected: 07/27/20 13:13

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 87.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445537	08/04/20 20:45	HMB	TAL CAN

Client Sample ID: SB-139 (2-3)_072720

Lab Sample ID: 240-134119-15

Date Collected: 07/27/20 13:16

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Client Sample ID: SB-139 (2-3)_072720

Lab Sample ID: 240-134119-15

Date Collected: 07/27/20 13:16

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 81.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445537	08/04/20 21:07	HMB	TAL CAN

Client Sample ID: SB-139 (3-4)_072720

Lab Sample ID: 240-134119-16

Date Collected: 07/27/20 13:20

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-139 (3-4)_072720

Lab Sample ID: 240-134119-16

Date Collected: 07/27/20 13:20

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 89.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445537	08/04/20 21:29	HMB	TAL CAN

Client Sample ID: SB-140 (0.5-1)_072720

Lab Sample ID: 240-134119-18

Date Collected: 07/27/20 13:33

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Client Sample ID: SB-140 (0.5-1)_072720

Lab Sample ID: 240-134119-18

Date Collected: 07/27/20 13:33

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 83.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445702	08/05/20 12:48	HMB	TAL CAN

Client Sample ID: SB-140 (1-2)_072720

Lab Sample ID: 240-134119-19

Date Collected: 07/27/20 13:37

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Client Sample ID: SB-140 (1-2)_072720

Lab Sample ID: 240-134119-19

Date Collected: 07/27/20 13:37

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 93.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445702	08/05/20 13:10	HMB	TAL CAN

Client Sample ID: SB-140 (2-3)_072720

Lab Sample ID: 240-134119-20

Date Collected: 07/27/20 14:50

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-140 (2-3)_072720

Lab Sample ID: 240-134119-20

Date Collected: 07/27/20 14:50

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 87.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445702	08/05/20 13:33	HMB	TAL CAN

Client Sample ID: SB-140 (3-4)_072720

Lab Sample ID: 240-134119-21

Date Collected: 07/27/20 14:55

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Client Sample ID: SB-140 (3-4)_072720

Lab Sample ID: 240-134119-21

Date Collected: 07/27/20 14:55

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 94.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445702	08/05/20 13:55	HMB	TAL CAN

Client Sample ID: SB-140 (5-6)_072720

Lab Sample ID: 240-134119-22

Date Collected: 07/27/20 15:06

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 09:56	BWL	TAL CAN

Client Sample ID: SB-140 (5-6)_072720

Lab Sample ID: 240-134119-22

Date Collected: 07/27/20 15:06

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 92.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445702	08/05/20 14:18	HMB	TAL CAN

Client Sample ID: SB-140 (6-7)_072720

Lab Sample ID: 240-134119-23

Date Collected: 07/27/20 15:09

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 10:10	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-140 (6-7)_072720

Lab Sample ID: 240-134119-23

Date Collected: 07/27/20 15:09

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 86.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445702	08/05/20 14:40	HMB	TAL CAN

Client Sample ID: SB-139 (5-6)_072720

Lab Sample ID: 240-134119-24

Date Collected: 07/27/20 15:17

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 10:10	BWL	TAL CAN

Client Sample ID: SB-139 (5-6)_072720

Lab Sample ID: 240-134119-24

Date Collected: 07/27/20 15:17

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 87.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445702	08/05/20 15:03	HMB	TAL CAN

Client Sample ID: SB-139 (6-7)_072720

Lab Sample ID: 240-134119-25

Date Collected: 07/27/20 15:19

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 10:10	BWL	TAL CAN

Client Sample ID: SB-139 (6-7)_072720

Lab Sample ID: 240-134119-25

Date Collected: 07/27/20 15:19

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 83.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445702	08/05/20 15:25	HMB	TAL CAN

Client Sample ID: SB-138 (6-7)_072720

Lab Sample ID: 240-134119-27

Date Collected: 07/27/20 15:30

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 10:10	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: SB-138 (6-7)_072720

Lab Sample ID: 240-134119-27

Date Collected: 07/27/20 15:30

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 88.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445438	08/03/20 19:07	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445702	08/05/20 15:48	HMB	TAL CAN

Client Sample ID: TMW-20-01 (3.5-8.5)_072720

Lab Sample ID: 240-134119-28

Date Collected: 07/27/20 16:52

Matrix: Water

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	445248	08/01/20 23:43	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	445137	07/31/20 19:30	SAM	TAL CAN

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134119-29

Date Collected: 07/27/20 00:00

Matrix: Water

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	445379	08/03/20 23:52	LRW	TAL CAN

Client Sample ID: DUP-01

Lab Sample ID: 240-134119-30

Date Collected: 07/27/20 00:00

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 10:10	BWL	TAL CAN

Client Sample ID: DUP-01

Lab Sample ID: 240-134119-30

Date Collected: 07/27/20 00:00

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 90.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445619	08/04/20 19:52	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	446008	08/06/20 20:22	TJL1	TAL CAN

Client Sample ID: DUP-02

Lab Sample ID: 240-134119-31

Date Collected: 07/27/20 00:00

Matrix: Solid

Date Received: 07/29/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	444900	07/30/20 10:10	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Client Sample ID: DUP-02

Lab Sample ID: 240-134119-31

Date Collected: 07/27/20 00:00

Matrix: Solid

Date Received: 07/29/20 09:20

Percent Solids: 83.9

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Prepared or Analyzed</u>	<u>Analyst</u>	<u>Lab</u>
Total/NA	Prep	5030B			445619	08/04/20 19:52	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	446008	08/06/20 20:45	TJL1	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-20 *
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B MI	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
Moisture	Percent Moisture	EPA	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134119-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-134119-1	TMW-20-01 (0.5-1.0)_072720	Solid	07/27/20 10:05	07/29/20 09:20	
240-134119-2	TMW-20-01 (1-2)_07272020	Solid	07/27/20 10:10	07/29/20 09:20	
240-134119-3	TMW-20-01 (2-3)_07272020	Solid	07/27/20 10:40	07/29/20 09:20	
240-134119-4	TMW-20-01 (3-4)_07272020	Solid	07/27/20 11:04	07/29/20 09:20	
240-134119-5	TMW-20-01 (4-5)_07272020	Solid	07/27/20 11:07	07/29/20 09:20	
240-134119-6	TMW-20-01 (5-6)_07272020	Solid	07/27/20 11:10	07/29/20 09:20	
240-134119-7	TMW-20-01 (6-7)_07272020	Solid	07/27/20 11:30	07/29/20 09:20	
240-134119-8	SB-138 (0.5-1)_07272020	Solid	07/27/20 12:23	07/29/20 09:20	
240-134119-9	SB-138 (1-2)_072720	Solid	07/27/20 12:30	07/29/20 09:20	
240-134119-10	SB-138 (2-3)_072720	Solid	07/27/20 12:39	07/29/20 09:20	
240-134119-11	SB-138 (3-4)_072720	Solid	07/27/20 12:49	07/29/20 09:20	
240-134119-12	SB-138 (4-5)_072720	Solid	07/27/20 12:51	07/29/20 09:20	
240-134119-13	SB-139 (0.5-1)_072720	Solid	07/27/20 13:10	07/29/20 09:20	
240-134119-14	SB-139 (1-2)_072720	Solid	07/27/20 13:13	07/29/20 09:20	
240-134119-15	SB-139 (2-3)_072720	Solid	07/27/20 13:16	07/29/20 09:20	
240-134119-16	SB-139 (3-4)_072720	Solid	07/27/20 13:20	07/29/20 09:20	
240-134119-18	SB-140 (0.5-1)_072720	Solid	07/27/20 13:33	07/29/20 09:20	
240-134119-19	SB-140 (1-2)_072720	Solid	07/27/20 13:37	07/29/20 09:20	
240-134119-20	SB-140 (2-3)_072720	Solid	07/27/20 14:50	07/29/20 09:20	
240-134119-21	SB-140 (3-4)_072720	Solid	07/27/20 14:55	07/29/20 09:20	
240-134119-22	SB-140 (5-6)_072720	Solid	07/27/20 15:06	07/29/20 09:20	
240-134119-23	SB-140 (6-7)_072720	Solid	07/27/20 15:09	07/29/20 09:20	
240-134119-24	SB-139 (5-6)_072720	Solid	07/27/20 15:17	07/29/20 09:20	
240-134119-25	SB-139 (6-7)_072720	Solid	07/27/20 15:19	07/29/20 09:20	
240-134119-27	SB-138 (6-7)_072720	Solid	07/27/20 15:30	07/29/20 09:20	
240-134119-28	TMW-20-01 (3.5-8.5)_072720	Water	07/27/20 16:52	07/29/20 09:20	
240-134119-29	TRIP BLANK	Water	07/27/20 00:00	07/29/20 09:20	
240-134119-30	DUP-01	Solid	07/27/20 00:00	07/29/20 09:20	
240-134119-31	DUP-02	Solid	07/27/20 00:00	07/29/20 09:20	

GC/MS VOA MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Instrument ID: A3UX10 Analysis Batch Number: 419116Lab Sample ID: STD8260 240-419116/2 IC Client Sample ID: _____Date Analyzed: 01/15/20 15:09 Lab File ID: UXX5174.D GC Column: DB-624 ID: 0.18 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,2,3-Trichlorobenzene		Invalid Compound ID	williams1 a	01/20/20 15:37
1,2,4-Trichlorobenzene		Invalid Compound ID	williams1 a	01/20/20 16:44
Hexachlorobutadiene		Invalid Compound ID	williams1 a	01/20/20 15:51
Naphthalene		Invalid Compound ID	williams1 a	01/20/20 15:37
Vinyl acetate		Invalid Compound ID	williams1 a	01/20/20 15:50

Lab Sample ID: STD8260 240-419116/3 IC Client Sample ID: _____Date Analyzed: 01/15/20 15:34 Lab File ID: UXX5175.D GC Column: DB-624 ID: 0.18 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,2,3-Trichlorobenzene		Invalid Compound ID	williams1 a	01/20/20 15:37
Naphthalene		Invalid Compound ID	williams1 a	01/20/20 15:37

Lab Sample ID: STD8260 240-419116/8 IC Client Sample ID: _____Date Analyzed: 01/15/20 17:40 Lab File ID: UXX5180.D GC Column: DB-624 ID: 0.18 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane		Invalid Compound ID	williams1 a	01/20/20 16:43

GC/MS VOA MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Instrument ID: A3UX12 Analysis Batch Number: 442964Lab Sample ID: STD8260 240-442964/9 IC Client Sample ID: _____Date Analyzed: 07/16/20 17:43 Lab File ID: U1279113.D GC Column: DB-624 ID: 0.18 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
2-Chloroethyl vinyl ether	6.09	Invalid Compound ID	laveyt	07/16/20 20:34
4-Methyl-2-pentanone (MIBK)	6.35	Invalid Compound ID	laveyt	07/16/20 20:54
1,2-Dichloroethane-d4 (Surr)		Invalid Compound ID	laveyt	07/16/20 20:28
1,4-Dioxane		Invalid Compound ID	laveyt	07/16/20 20:33
2-Hexanone		Invalid Compound ID	laveyt	07/16/20 20:55
2-Methyl-2-propanol		Invalid Compound ID	laveyt	07/16/20 21:11
4-Bromofluorobenzene (Surr)		Invalid Compound ID	laveyt	07/16/20 20:28
Acetone		Invalid Compound ID	laveyt	07/16/20 18:54
Chloromethane		Invalid Compound ID	laveyt	07/16/20 20:36
Dibromofluoromethane (Surr)		Invalid Compound ID	laveyt	07/16/20 20:28
Hexane		Invalid Compound ID	laveyt	07/16/20 20:37
n-Heptane		Invalid Compound ID	laveyt	07/16/20 18:56
Toluene-d8 (Surr)		Invalid Compound ID	laveyt	07/16/20 18:52
Vinyl acetate		Invalid Compound ID	laveyt	07/16/20 20:37

Lab Sample ID: STD8260 240-442964/10 I Client Sample ID: _____Date Analyzed: 07/16/20 18:05 Lab File ID: U1279114.D GC Column: DB-624 ID: 0.18 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,2-Dichloroethane-d4 (Surr)		Invalid Compound ID	laveyt	07/16/20 20:29
4-Bromofluorobenzene (Surr)		Invalid Compound ID	laveyt	07/16/20 20:29
Dibromofluoromethane (Surr)		Invalid Compound ID	laveyt	07/16/20 20:29
Toluene-d8 (Surr)		Invalid Compound ID	laveyt	07/16/20 20:29

GC/MS VOA MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Instrument ID: A3UX12 Analysis Batch Number: 442964

Lab Sample ID: STD8260 240-442964/12 I Client Sample ID: _____

Date Analyzed: 07/16/20 18:50 Lab File ID: U1279116.D GC Column: DB-624 ID: 0.18 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Chloromethane	1.58	Split Peak	laveyt	07/16/20 19:12

GC/MS VOA MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Instrument ID: A3UX19 Analysis Batch Number: 337765

Lab Sample ID: STD8260 240-337765/13 I Client Sample ID: _____

Date Analyzed: 07/24/18 20:04 Lab File ID: U1900794.d GC Column: DB-624 ID: 0.18 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane		Invalid Compound ID	laveyt	07/25/18 10:11
2-Methyl-2-propanol		Invalid Compound ID	laveyt	07/25/18 09:53
Acetone		Invalid Compound ID	laveyt	07/25/18 09:52
Bromoform		Invalid Compound ID	laveyt	07/25/18 09:54
Methylene Chloride		Invalid Compound ID	laveyt	07/25/18 09:52
n-Heptane		Invalid Compound ID	laveyt	07/25/18 09:54
1,3-Dichlorobenzene	10.81	Peak assignment corrected	laveyt	07/25/18 09:51

GC/MS VOA MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Instrument ID: A3UX19 Analysis Batch Number: 342718Lab Sample ID: STD8260 240-342718/13 I Client Sample ID: _____Date Analyzed: 08/27/18 19:23 Lab File ID: U1901329.d GC Column: DB-624 ID: 0.18 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane		Invalid Compound ID	laveyt	08/27/18 19:49
Acetone		Invalid Compound ID	laveyt	08/27/18 19:48
Methylene Chloride		Invalid Compound ID	laveyt	08/27/18 19:48
Naphthalene		Invalid Compound ID	laveyt	08/27/18 20:00
n-Heptane		Invalid Compound ID	laveyt	08/27/18 19:48
Tetrahydrofuran		Invalid Compound ID	laveyt	08/27/18 19:48
trans-1,4-Dichloro-2-butene		Invalid Compound ID	laveyt	08/27/18 19:50
1,3-Dichlorobenzene	10.82	Peak assignment corrected	laveyt	08/27/18 19:47

GC/MS VOA MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Instrument ID: A3UX9 Analysis Batch Number: 440459Lab Sample ID: STD8260 240-440459/8 IC Client Sample ID: _____Date Analyzed: 06/29/20 10:22 Lab File ID: UX988356.D GC Column: DB-624 ID: 0.18 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
n-Heptane	5.88	Invalid Compound ID	bosworthh	07/01/20 12:11
1,2-Dichloroethane-d4 (Surr)		Invalid Compound ID	bosworthh	07/01/20 12:37
1,4-Dioxane		Invalid Compound ID	bosworthh	06/29/20 12:56
2,2-Dichloropropane		Invalid Compound ID	bosworthh	07/01/20 12:10
2-Methyl-2-propanol		Invalid Compound ID	bosworthh	07/01/20 08:22
4-Bromofluorobenzene (Surr)		Invalid Compound ID	bosworthh	07/01/20 12:37
Acetone		Invalid Compound ID	bosworthh	07/01/20 09:51
Acrolein		Invalid Compound ID	bosworthh	07/01/20 09:52
Chloromethane		Invalid Compound ID	bosworthh	07/01/20 12:08
Dibromofluoromethane (Surr)		Invalid Compound ID	bosworthh	07/01/20 12:37
Dichlorofluoromethane		Invalid Compound ID	bosworthh	07/01/20 12:08
Methylene Chloride		Invalid Compound ID	bosworthh	07/01/20 12:10
Tetrahydrofuran		Invalid Compound ID	bosworthh	07/01/20 12:11
Toluene-d8 (Surr)		Invalid Compound ID	bosworthh	07/01/20 12:37
trans-1,4-Dichloro-2-butene		Invalid Compound ID	bosworthh	07/01/20 12:12

Lab Sample ID: STD8260 240-440459/14 I Client Sample ID: _____Date Analyzed: 06/29/20 12:37 Lab File ID: UX988362.D GC Column: DB-624 ID: 0.18 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Dibromofluoromethane (Surr)	5.27	Invalid Compound ID	bosworthh	07/01/20 12:24
1,2-Dichloroethane-d4 (Surr)	5.57	Invalid Compound ID	bosworthh	07/01/20 12:24
Toluene-d8 (Surr)	7.25	Invalid Compound ID	bosworthh	07/01/20 12:24
4-Bromofluorobenzene (Surr)	9.68	Invalid Compound ID	bosworthh	07/01/20 12:24
Acetone		Invalid Compound ID	bosworthh	07/01/20 09:52
Acrolein		Invalid Compound ID	bosworthh	07/01/20 09:53

GC/MS VOA MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Instrument ID: A3UX2 Analysis Batch Number: 424238Lab Sample ID: IC 240-424238/5 Client Sample ID: _____Date Analyzed: 02/25/20 17:40 Lab File ID: X29302.D GC Column: ZB-624 ID: 0.53 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane	5.88	Poor chromatography	macenczak s	02/26/20 08:58

Lab Sample ID: ICIS 240-424238/6 Client Sample ID: _____Date Analyzed: 02/25/20 18:06 Lab File ID: X29303.D GC Column: ZB-624 ID: 0.53 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane	5.88	Poor chromatography	macenczak s	02/26/20 08:57

Lab Sample ID: IC 240-424238/7 Client Sample ID: _____Date Analyzed: 02/25/20 18:32 Lab File ID: X29304.D GC Column: ZB-624 ID: 0.53 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane	5.88	Poor chromatography	macenczak s	02/26/20 08:57

Lab Sample ID: IC 240-424238/8 Client Sample ID: _____Date Analyzed: 02/25/20 18:58 Lab File ID: X29305.D GC Column: ZB-624 ID: 0.53 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane	5.87	Poor chromatography	macenczak s	02/26/20 08:56

GC/MS VOA MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Instrument ID: A3UX2 Analysis Batch Number: 424238

Lab Sample ID: IC 240-424238/9 Client Sample ID: _____

Date Analyzed: 02/25/20 19:24 Lab File ID: X29306.D GC Column: ZB-624 ID: 0.53 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane	5.90	Poor chromatography	macenczak s	02/26/20 08:56

Lab Sample ID: ICV 240-424238/11 Client Sample ID: _____

Date Analyzed: 02/25/20 20:15 Lab File ID: X29308.D GC Column: ZB-624 ID: 0.53 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane	5.88	Poor chromatography	macenczak s	02/26/20 09:03

GC/MS VOA MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Instrument ID: A3UX2 Analysis Batch Number: 445137Lab Sample ID: CCVIS 240-445137/3 Client Sample ID: _____Date Analyzed: 07/31/20 12:53 Lab File ID: X21081.D GC Column: ZB-624 ID: 0.53 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane (IS)	5.80	Poor chromatography	macenczak s	07/31/20 13:11
1,4-Dioxane	5.88	Poor chromatography	macenczak s	07/31/20 13:11

Lab Sample ID: LCS 240-445137/4 Client Sample ID: _____Date Analyzed: 07/31/20 13:18 Lab File ID: X21082.D GC Column: ZB-624 ID: 0.53 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane (IS)	5.81	Poor chromatography	macenczak s	07/31/20 13:39
1,4-Dioxane	5.88	Poor chromatography	macenczak s	07/31/20 13:39

Lab Sample ID: MB 240-445137/5 Client Sample ID: _____Date Analyzed: 07/31/20 13:43 Lab File ID: X21083.D GC Column: ZB-624 ID: 0.53 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane		Invalid Compound ID	macenczak s	07/31/20 14:06

Lab Sample ID: 240-134235-C-2 MS Client Sample ID: _____Date Analyzed: 07/31/20 17:27 Lab File ID: X21092.D GC Column: ZB-624 ID: 0.53 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane (IS)	5.80	Poor chromatography	macenczak s	08/03/20 10:38
1,4-Dioxane	5.88	Poor chromatography	macenczak s	08/03/20 10:38

GC/MS VOA MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Instrument ID: A3UX2 Analysis Batch Number: 445137

Lab Sample ID: 240-134235-C-2 MSD Client Sample ID: _____

Date Analyzed: 07/31/20 17:51 Lab File ID: X21093.D GC Column: ZB-624 ID: 0.53 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane (IS)	5.80	Poor chromatography	macenczak s	08/03/20 10:38
1,4-Dioxane	5.88	Poor chromatography	macenczak s	08/03/20 10:39

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
vm100is_stk_A_00005	12/08/20	06/08/20	MEOH, Lot 230446	50 mL	vm30241_00007	2 mL	1,4-Dichlorobenzene-d4	100 ug/mL
							Chlorobenzene-d5	100 ug/mL
							Fluorobenzene	100 ug/mL
.vm30241_00007	01/31/23		restek, Lot A0134242		(Purchased Reagent)		1,4-Dichlorobenzene-d4	2500 ug/mL
							Chlorobenzene-d5	2500 ug/mL
							Fluorobenzene	2500 ug/mL
vm150is_00164	03/25/20	02/25/20	MEOH, Lot +221000000230446J+	5 mL	VM568718_00017	3 mL	Dioxane-d8 (IS)	3000 ug/mL
							Fluorobenzene	150 ug/mL
.VM568718_00017	01/31/24		restek, Lot A0145169		(Purchased Reagent)		Dioxane-d8 (IS)	5000 ug/mL
							Fluorobenzene	250 ug/mL
vm150is_00174	08/09/20	07/09/20	MEOH, Lot 0000230446	5 mL	VM568718_00018	3 mL	Dioxane-d8 (IS)	3000 ug/mL
							Fluorobenzene	150 ug/mL
.VM568718_00018	01/31/24		restek, Lot A0145169		(Purchased Reagent)		Dioxane-d8 (IS)	5000 ug/mL
							Fluorobenzene	250 ug/mL
vm150is_00174	08/09/20	07/09/20	MEOH, Lot 0000230446	5 mL	VM567650_00033	300 uL	1,2-Dichloroethane-d4 (Surr)	150 ug/mL
.VM567650_00033	11/30/23		Restek, Lot A0143613		(Purchased Reagent)		1,2-Dichloroethane-d4 (Surr)	2500 ug/mL
VM50IS_00080	06/16/20	12/16/19	MEOH, Lot 177891	50 mL	VM568718_00017	10 mL	1,4-Dichlorobenzene-d4	50 ug/mL
							Chlorobenzene-d5	50 ug/mL
							Fluorobenzene	50 ug/mL
.VM568718_00017	01/31/24		restek, Lot A0145169		(Purchased Reagent)		1,4-Dichlorobenzene-d4	250 ug/mL
							Chlorobenzene-d5	250 ug/mL
							Fluorobenzene	250 ug/mL
VM50IS_00084	11/21/20	05/21/20	MEOH, Lot 177891	50 mL	VM568718_00017	10 mL	1,4-Dichlorobenzene-d4	50 ug/mL
							Chlorobenzene-d5	50 ug/mL
							Fluorobenzene	50 ug/mL
.VM568718_00017	01/31/24		restek, Lot A0145169		(Purchased Reagent)		1,4-Dichlorobenzene-d4	250 ug/mL
							Chlorobenzene-d5	250 ug/mL
							Fluorobenzene	250 ug/mL
vm50is_stk_A_00001	11/14/18	05/14/18	MEOH, Lot 191720	50 mL	vm30241_00007	1 mL	1,4-Dichlorobenzene-d4	50 ug/mL
							Chlorobenzene-d5	50 ug/mL
							Fluorobenzene	50 ug/mL
.vm30241_00007	01/31/23		restek, Lot A0134242		(Purchased Reagent)		1,4-Dichlorobenzene-d4	2500 ug/mL
							Chlorobenzene-d5	2500 ug/mL
							Fluorobenzene	2500 ug/mL
vm50is_stk_A_00006	08/06/20	02/06/20	MEOH, Lot 230446	50 mL	vm30241_00007	1 mL	1,4-Dichlorobenzene-d4	50 ug/mL
							Chlorobenzene-d5	50 ug/mL
							Fluorobenzene	50 ug/mL
.vm30241_00007	01/31/23		restek, Lot A0134242		(Purchased Reagent)		1,4-Dichlorobenzene-d4	2500 ug/mL
							Chlorobenzene-d5	2500 ug/mL
							Fluorobenzene	2500 ug/mL
vm50ss_00329	07/27/18	07/20/18	MEOH, Lot na	4 mL	vm50ss_stk_00078	4 mL	1,2-Dichloroethane-d4 (Surr)	50 ug/mL
							4-Bromofluorobenzene (Surr)	50 ug/mL
							Dibromofluoromethane (Surr)	50 ug/mL
							Toluene-d8 (Surr)	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.vm50ss_stk_00078	12/20/18	06/20/18	MEOH, Lot 178178	200 mL	VM567650_00029	4 mL	1,2-Dichloroethane-d4 (Surr)	50 ug/mL
							4-Bromofluorobenzene (Surr)	50 ug/mL
							Dibromofluoromethane (Surr)	50 ug/mL
							Toluene-d8 (Surr)	50 ug/mL
..VM567650_00029	01/31/22		Restek, Lot A0124069			(Purchased Reagent)	1,2-Dichloroethane-d4 (Surr)	2500 ug/mL
							4-Bromofluorobenzene (Surr)	2500 ug/mL
							Dibromofluoromethane (Surr)	2500 ug/mL
							Toluene-d8 (Surr)	2500 ug/mL
vm50ss_00333	08/29/18	08/22/18	MEOH, Lot na	4 mL	vm50ss_stk_00078	4 mL	1,2-Dichloroethane-d4 (Surr)	50 ug/mL
							4-Bromofluorobenzene (Surr)	50 ug/mL
							Dibromofluoromethane (Surr)	50 ug/mL
							Toluene-d8 (Surr)	50 ug/mL
.vm50ss_stk_00078	12/20/18	06/20/18	MEOH, Lot 178178	200 mL	VM567650_00029	4 mL	1,2-Dichloroethane-d4 (Surr)	50 ug/mL
							4-Bromofluorobenzene (Surr)	50 ug/mL
							Dibromofluoromethane (Surr)	50 ug/mL
							Toluene-d8 (Surr)	50 ug/mL
..VM567650_00029	01/31/22		Restek, Lot A0124069			(Purchased Reagent)	1,2-Dichloroethane-d4 (Surr)	2500 ug/mL
							4-Bromofluorobenzene (Surr)	2500 ug/mL
							Dibromofluoromethane (Surr)	2500 ug/mL
							Toluene-d8 (Surr)	2500 ug/mL
vm50ss_00387	01/21/20	01/14/20	MEOH, Lot na	5 mL	vm50ss_stk_00083	5 mL	1,2-Dichloroethane-d4 (Surr)	50 ug/mL
							4-Bromofluorobenzene (Surr)	50 ug/mL
							Dibromofluoromethane (Surr)	50 ug/mL
							Toluene-d8 (Surr)	50 ug/mL
.vm50ss_stk_00083	06/24/20	12/24/19	MEOH, Lot 0000230446	200 mL	VM567650_00032	4 mL	1,2-Dichloroethane-d4 (Surr)	50 ug/mL
							4-Bromofluorobenzene (Surr)	50 ug/mL
							Dibromofluoromethane (Surr)	50 ug/mL
							Toluene-d8 (Surr)	50 ug/mL
..VM567650_00032	07/30/23		Restek, Lot A0139582			(Purchased Reagent)	1,2-Dichloroethane-d4 (Surr)	2500 ug/mL
							4-Bromofluorobenzene (Surr)	2500 ug/mL
							Dibromofluoromethane (Surr)	2500 ug/mL
							Toluene-d8 (Surr)	2500 ug/mL
vm50ss_00391	02/27/20	02/20/20	MEOH, Lot na	5 mL	vm50ss_stk_00083	5 mL	1,2-Dichloroethane-d4 (Surr)	50 ug/mL
.vm50ss_stk_00083	06/24/20	12/24/19	MEOH, Lot 0000230446	200 mL	VM567650_00032	4 mL	1,2-Dichloroethane-d4 (Surr)	50 ug/mL
..VM567650_00032	07/30/23		Restek, Lot A0139582			(Purchased Reagent)	1,2-Dichloroethane-d4 (Surr)	2500 ug/mL
vm50ss_00408	06/30/20	06/23/20	MEOH, Lot na	5 mL	vm50ss_stk_00085	5 mL	1,2-Dichloroethane-d4 (Surr)	50 ug/mL
							4-Bromofluorobenzene (Surr)	50 ug/mL
							Dibromofluoromethane (Surr)	50 ug/mL
							Toluene-d8 (Surr)	50 ug/mL
.vm50ss_stk_00085	11/21/20	05/21/20	MEOH, Lot 0000230446	200 mL	VM567650_00032	4 mL	1,2-Dichloroethane-d4 (Surr)	50 ug/mL
							4-Bromofluorobenzene (Surr)	50 ug/mL
							Dibromofluoromethane (Surr)	50 ug/mL
							Toluene-d8 (Surr)	50 ug/mL
..VM567650_00032	07/30/23		Restek, Lot A0139582			(Purchased Reagent)	1,2-Dichloroethane-d4 (Surr)	2500 ug/mL
							4-Bromofluorobenzene (Surr)	2500 ug/mL
							Dibromofluoromethane (Surr)	2500 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Toluene-d8 (Surr)	2500 ug/mL
vm50ss_00410	07/16/20	07/09/20	MEOH, Lot na	5 mL	vm50ss_stk_00085	5 mL	1,2-Dichloroethane-d4 (Surr)	50 ug/mL
							4-Bromofluorobenzene (Surr)	50 ug/mL
							Dibromofluoromethane (Surr)	50 ug/mL
							Toluene-d8 (Surr)	50 ug/mL
.vm50ss_stk_00085	11/21/20	05/21/20	MEOH, Lot 0000230446	200 mL	VM567650_00032	4 mL	1,2-Dichloroethane-d4 (Surr)	50 ug/mL
							4-Bromofluorobenzene (Surr)	50 ug/mL
							Dibromofluoromethane (Surr)	50 ug/mL
							Toluene-d8 (Surr)	50 ug/mL
..VM567650_00032	07/30/23		Restek, Lot A0139582		(Purchased Reagent)		1,2-Dichloroethane-d4 (Surr)	2500 ug/mL
							4-Bromofluorobenzene (Surr)	2500 ug/mL
							Dibromofluoromethane (Surr)	2500 ug/mL
							Toluene-d8 (Surr)	2500 ug/mL
vm50ss_00413	08/11/20	08/04/20	MEOH, Lot na	5 mL	vm50ss_stk_00085	5 mL	1,2-Dichloroethane-d4 (Surr)	50 ug/mL
							4-Bromofluorobenzene (Surr)	50 ug/mL
							Dibromofluoromethane (Surr)	50 ug/mL
							Toluene-d8 (Surr)	50 ug/mL
.vm50ss_stk_00085	11/21/20	05/21/20	MEOH, Lot 0000230446	200 mL	VM567650_00032	4 mL	1,2-Dichloroethane-d4 (Surr)	50 ug/mL
							4-Bromofluorobenzene (Surr)	50 ug/mL
							Dibromofluoromethane (Surr)	50 ug/mL
							Toluene-d8 (Surr)	50 ug/mL
..VM567650_00032	07/30/23		Restek, Lot A0139582		(Purchased Reagent)		1,2-Dichloroethane-d4 (Surr)	2500 ug/mL
							4-Bromofluorobenzene (Surr)	2500 ug/mL
							Dibromofluoromethane (Surr)	2500 ug/mL
							Toluene-d8 (Surr)	2500 ug/mL
vm50ss_stk_00077	09/27/18	03/27/18	MEOH, Lot 0000136118	200 mL	VM567650_00027	4 mL	1,2-Dichloroethane-d4 (Surr)	50 ug/mL
							4-Bromofluorobenzene (Surr)	50 ug/mL
							Dibromofluoromethane (Surr)	50 ug/mL
							Toluene-d8 (Surr)	50 ug/mL
.VM567650_00027	07/31/21		Restek, Lot A0120212		(Purchased Reagent)		1,2-Dichloroethane-d4 (Surr)	2500 ug/mL
							4-Bromofluorobenzene (Surr)	2500 ug/mL
							Dibromofluoromethane (Surr)	2500 ug/mL
							Toluene-d8 (Surr)	2500 ug/mL
vm50ss_stk_00085	11/21/20	05/21/20	MEOH, Lot 0000230446	200 mL	VM567650_00032	4 mL	1,2-Dichloroethane-d4 (Surr)	50 ug/mL
							4-Bromofluorobenzene (Surr)	50 ug/mL
							Dibromofluoromethane (Surr)	50 ug/mL
							Toluene-d8 (Surr)	50 ug/mL
.VM567650_00032	07/30/23		Restek, Lot A0139582		(Purchased Reagent)		1,2-Dichloroethane-d4 (Surr)	2500 ug/mL
							4-Bromofluorobenzene (Surr)	2500 ug/mL
							Dibromofluoromethane (Surr)	2500 ug/mL
							Toluene-d8 (Surr)	2500 ug/mL
vmarolistdw_00256	07/26/18	07/19/18	MEOH, Lot na	4 mL	VMACROLSTD_00062	4 mL	Acrolein	250 ug/mL
.VMACROLSTD_00062	08/31/18	06/01/18	MEOH, Lot 178178	100 mL	VM568720_00028	1.25 mL	Acrolein	250 ug/mL
..VM568720_00028	08/31/18		restek, Lot A0135693		(Purchased Reagent)		Acrolein	20000 ug/mL
vmarolistdw_00260	08/27/18	08/20/18	MEOH, Lot na	4 mL	VMACROLSTD_00062	4 mL	Acrolein	250 ug/mL
.VMACROLSTD_00062	08/31/18	06/01/18	MEOH, Lot 178178	100 mL	VM568720_00028	1.25 mL	Acrolein	250 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..VM568720_00028	08/31/18		restek, Lot A0135693			(Purchased Reagent)	Acrolein	20000 ug/mL
vmarolistdw_00350	06/30/20	06/26/20	MEOH, Lot na	5 mL	VMACROLSTD_00084	5 mL	Acrolein	250 ug/mL
.VMACROLSTD_00084	06/30/20	05/31/20	MEOH, Lot 0000230446	20 mL	VM568720_00038	0.25 mL	Acrolein	250 ug/mL
..VM568720_00038	04/30/21		restek, Lot A0154578			(Purchased Reagent)	Acrolein	20000 ug/mL
vmarolistdw_00352	07/16/20	07/09/20	MEOH, Lot na	5 mL	VMACROLSTD_00085	5 mL	Acrolein	250 ug/mL
.VMACROLSTD_00085	08/01/20	07/01/20	MEOH, Lot 0000230446	20 mL	VM568720_00037	0.25 mL	Acrolein	250 ug/mL
..VM568720_00037	04/30/21		restek, Lot A0154578			(Purchased Reagent)	Acrolein	20000 ug/mL
vmbfb_00020							1,2-Dichloroethene, Total 1,3-Dichloropropene, Total Tentatively Identified Compound Total BTEX Trihalomethanes, Total Xylenes, Total	
.vm30026_00002	07/31/21		restek, Lot A0120567		vm30026_00002	1.25 mL	BFB	50 ug/mL
						(Purchased Reagent)	BFB	2000 ug/mL
vmbfb_00024							1,2-Dichloroethene, Total 1,3-Dichloropropene, Total Tentatively Identified Compound Total BTEX Trihalomethanes, Total Xylenes, Total	
.vm30026_00003	08/31/23		restek, Lot A0141187		vm30026_00003	1.25 mL	BFB	50 ug/mL
						(Purchased Reagent)	BFB	2000 ug/mL
vmbfb_00025							1,2-Dichloroethene, Total 1,3-Dichloropropene, Total Tentatively Identified Compound Total BTEX Trihalomethanes, Total Xylenes, Total	
.vm30026_00003	08/31/23		restek, Lot A0141187		vm30026_00003	1.25 mL	BFB	50 ug/mL
						(Purchased Reagent)	BFB	2000 ug/mL
vmdiox_spike_00213	02/27/20	02/20/20	MEOH, Lot na	1 mL	VMSIMSTOSPIKE_00018	1 mL	1,4-Dioxane	50 ug/mL
.VMSIMSTOSPIKE_00018	04/13/20	01/13/20	MEOH, Lot +221000000230446J+	100 mL	VMNSIMIX2_00008	100 uL	1,4-Dioxane	50 ug/mL
..VMNSIMIX2_00008	06/30/20		NSI Soln, Inc., Lot 062019			(Purchased Reagent)	1,4-Dioxane	50000 ug/mL
vmdiox_spike_00231	08/07/20	07/31/20	MEOH, Lot na	1 mL	VMSIMSTOSPIKE_00020	1 mL	1,4-Dioxane	50 ug/mL
.VMSIMSTOSPIKE_00020	09/24/20	06/24/20	MEOH, Lot +221000000230446J+	100 mL	VMNSIMIX2_00009	100 uL	1,4-Dioxane	50 ug/mL
..VMNSIMIX2_00009	05/31/21		NSI Soln, Inc., Lot 200527			(Purchased Reagent)	1,4-Dioxane	50000 ug/mL
vmdioxanew_00200	02/27/20	02/20/20	MEOH, Lot na	1 mL	vmdioxane_00026	1 mL	1,4-Dioxane	100 ug/mL
.vmdioxane_00026	03/24/20	12/24/19	MEOH, Lot +221000000230446J+	50 mL	VM30287_00015	2.5 mL	1,4-Dioxane	100 ug/mL
..VM30287_00015	04/30/22		Restek, Lot A0126604			(Purchased Reagent)	1,4-Dioxane	2000 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

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Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
vmdioxanew_00219	08/07/20	07/31/20	MEOH, Lot na	1 mL	vmdioxane_00028	1 mL	1,4-Dioxane	100 ug/mL
.vmdioxane_00028	09/24/20	06/24/20	MEOH, Lot +221000000230446J+	50 mL	VM30287_00016	2.5 mL	1,4-Dioxane	100 ug/mL
..VM30287_00016	08/31/24		Restek, Lot A0151797		(Purchased Reagent)		1,4-Dioxane	2000 ug/mL
VMENCORESS_00569	08/10/20	08/03/20	MEOH, Lot na	5 mL	VM567650_00034	5 mL	1,2-Dichloroethane-d4 (Surr)	2500 ug/mL
							4-Bromofluorobenzene (Surr)	2500 ug/mL
							Dibromofluoromethane (Surr)	2500 ug/mL
							Toluene-d8 (Surr)	2500 ug/mL
.VM567650_00034	07/31/23		Restek, Lot A0139582		(Purchased Reagent)		1,2-Dichloroethane-d4 (Surr)	2500 ug/mL
							4-Bromofluorobenzene (Surr)	2500 ug/mL
							Dibromofluoromethane (Surr)	2500 ug/mL
							Toluene-d8 (Surr)	2500 ug/mL
VMENFASA_00589	08/05/20	07/29/20	MEOH, Lot NA	5 mL	VMFASA_00064	5 mL	Acrolein	250 ug/mL
.VMFASA_00064	10/09/20	07/09/20	MEOH, Lot 0000230446	100 mL	VM568720S_00036	1.25 mL	Acrolein	250 ug/mL
..VM568720S_00036	04/30/21		restek, Lot A0154553		(Purchased Reagent)		Acrolein	20000 ug/mL
VMENFASA_00590	08/10/20	08/03/20	MEOH, Lot NA	5 mL	VMFASA_00064	5 mL	Acrolein	250 ug/mL
.VMFASA_00064	10/09/20	07/09/20	MEOH, Lot 0000230446	100 mL	VM568720S_00036	1.25 mL	Acrolein	250 ug/mL
..VM568720S_00036	04/30/21		restek, Lot A0154553		(Purchased Reagent)		Acrolein	20000 ug/mL
VMENFASG_00633	08/10/20	08/03/20	MEOH, Lot NA	5 mL	VMFASG_00097	5 mL	Bromomethane	50 ug/mL
							Butadiene	50 ug/mL
							Chloroethane	50 ug/mL
							Chloromethane	50 ug/mL
							Dichlorodifluoromethane	50 ug/mL
							Dichlorofluoromethane	50 ug/mL
							Trichlorofluoromethane	50 ug/mL
							Vinyl chloride	50 ug/mL
.VMFASG_00097	09/03/20	08/03/20	MEOH, Lot 0000230446	100 mL	vm569722S_00007	2 mL	Bromomethane	50 ug/mL
							Butadiene	50 ug/mL
							Chloroethane	50 ug/mL
							Chloromethane	50 ug/mL
							Dichlorodifluoromethane	50 ug/mL
							Dichlorofluoromethane	50 ug/mL
							Trichlorofluoromethane	50 ug/mL
							Vinyl chloride	50 ug/mL
..vm569722S_00007	10/31/21		Restek, Lot A0142117		(Purchased Reagent)		Bromomethane	2500 ug/mL
							Butadiene	2500 ug/mL
							Chloroethane	2500 ug/mL
							Chloromethane	2500 ug/mL
							Dichlorodifluoromethane	2500 ug/mL
							Dichlorofluoromethane	2500 ug/mL
							Trichlorofluoromethane	2500 ug/mL
							Vinyl chloride	2500 ug/mL
VMENFASG_00634	08/11/20	08/04/20	MEOH, Lot NA	5 mL	VMFASG_00097	5 mL	Bromomethane	50 ug/mL
							Butadiene	50 ug/mL
							Chloroethane	50 ug/mL
							Chloromethane	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

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Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration	
					Reagent ID	Volume Added			
.VMFASG_00097	09/03/20	08/03/20	MEOH, Lot 0000230446	100 mL	vm569722S_00007	2 mL	Dichlorodifluoromethane	50 ug/mL	
							Dichlorofluoromethane	50 ug/mL	
							Trichlorofluoromethane	50 ug/mL	
							Vinyl chloride	50 ug/mL	
							Bromomethane	50 ug/mL	
							Butadiene	50 ug/mL	
							Chloroethane	50 ug/mL	
							Chloromethane	50 ug/mL	
							Dichlorodifluoromethane	50 ug/mL	
							Dichlorofluoromethane	50 ug/mL	
..vm569722S_00007	10/31/21		Restek, Lot A0142117				(Purchased Reagent)	Bromomethane	2500 ug/mL
							Butadiene	2500 ug/mL	
							Chloroethane	2500 ug/mL	
							Chloromethane	2500 ug/mL	
							Dichlorodifluoromethane	2500 ug/mL	
							Dichlorofluoromethane	2500 ug/mL	
							Trichlorofluoromethane	2500 ug/mL	
Vinyl chloride	2500 ug/mL								
VMNFASP_00602	08/05/20	07/29/20	MEOH, Lot NA	5 mL	VMRFASP_00067	5 mL	2-Butanone (MEK)	100 ug/mL	
							2-Hexanone	100 ug/mL	
							4-Methyl-2-pentanone (MIBK)	100 ug/mL	
							Acetone	100 ug/mL	
							2-Chloroethyl vinyl ether	50 ug/mL	
							Vinyl acetate	50 ug/mL	
							1,1,1,2-Tetrachloroethane	50 ug/mL	
							1,1,1-Trichloroethane	50 ug/mL	
							1,1,2,2-Tetrachloroethane	50 ug/mL	
							1,1,2-Trichloro-1,2,2-trifluoroethane	50 ug/mL	
							1,1,2-Trichloroethane	50 ug/mL	
							1,1-Dichloroethane	50 ug/mL	
							1,1-Dichloroethene	50 ug/mL	
							1,1-Dichloropropene	50 ug/mL	
							1,2,3-Trichlorobenzene	50 ug/mL	
							1,2,3-Trichloropropane	50 ug/mL	
							1,2,4-Trichlorobenzene	50 ug/mL	
							1,2,4-Trimethylbenzene	50 ug/mL	
							1,2-Dibromo-3-Chloropropane	50 ug/mL	
							1,2-Dichlorobenzene	50 ug/mL	
							1,2-Dichloroethane	50 ug/mL	
							1,2-Dichloropropane	50 ug/mL	
							1,3,5-Trimethylbenzene	50 ug/mL	
							1,3-Dichlorobenzene	50 ug/mL	
							1,3-Dichloropropane	50 ug/mL	
							1,4-Dichlorobenzene	50 ug/mL	
							1,4-Dioxane	1000 ug/mL	

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							2,2-Dichloropropane	50 ug/mL
							2-Chlorotoluene	50 ug/mL
							2-Methyl-2-propanol	500 ug/mL
							3-Chloro-1-propene	50 ug/mL
							4-Chlorotoluene	50 ug/mL
							4-Isopropyltoluene	50 ug/mL
							Acrylonitrile	500 ug/mL
							Benzene	50 ug/mL
							Bromobenzene	50 ug/mL
							Bromoform	50 ug/mL
							Carbon disulfide	50 ug/mL
							Carbon tetrachloride	50 ug/mL
							Chlorobenzene	50 ug/mL
							Chlorobromomethane	50 ug/mL
							Chlorodibromomethane	50 ug/mL
							Chloroform	50 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							cis-1,3-Dichloropropene	50 ug/mL
							Cyclohexane	50 ug/mL
							Dibromomethane	50 ug/mL
							Dichlorobromomethane	50 ug/mL
							Ethyl ether	50 ug/mL
							Ethyl methacrylate	50 ug/mL
							Ethylbenzene	50 ug/mL
							Ethylene Dibromide	50 ug/mL
							Hexachlorobutadiene	50 ug/mL
							Hexane	50 ug/mL
							Iodomethane	50 ug/mL
							Isobutyl alcohol	1250 ug/mL
							Isopropylbenzene	50 ug/mL
							m-Xylene & p-Xylene	50 ug/mL
							Methyl acetate	100 ug/mL
							Methyl tert-butyl ether	50 ug/mL
							Methylcyclohexane	50 ug/mL
							Methylene Chloride	50 ug/mL
							n-Butylbenzene	50 ug/mL
							n-Heptane	50 ug/mL
							N-Propylbenzene	50 ug/mL
							Naphthalene	50 ug/mL
							o-Xylene	50 ug/mL
							sec-Butylbenzene	50 ug/mL
							Styrene	50 ug/mL
							tert-Butylbenzene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							Tetrahydrofuran	100 ug/mL
							Toluene	50 ug/mL
							Total BTEX	250 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration		
					Reagent ID	Volume Added				
.VMRFASP_00067	09/18/20	06/18/20	MEOH, Lot 0000230446	100 mL	VM569721S_00005	0.8 mL	trans-1,3-Dichloropropene	50 ug/mL		
							trans-1,4-Dichloro-2-butene	50 ug/mL		
							Trichloroethene	50 ug/mL		
							Trihalomethanes, Total	200 ug/mL		
							Xylenes, Total	100 ug/mL		
							2-Butanone (MEK)	100 ug/mL		
							2-Hexanone	100 ug/mL		
							4-Methyl-2-pentanone (MIBK)	100 ug/mL		
							Acetone	100 ug/mL		
							VM569723S_00008	2 mL	2-Chloroethyl vinyl ether	50 ug/mL
							VM569724S_00029	1 mL	Vinyl acetate	50 ug/mL
							VM571992S_00006	2 mL	1,1,1,2-Tetrachloroethane	50 ug/mL
									1,1,1-Trichloroethane	50 ug/mL
									1,1,2,2-Tetrachloroethane	50 ug/mL
									1,1,2-Trichloro-1,2,2-trifluor oethane	50 ug/mL
									1,1,2-Trichloroethane	50 ug/mL
									1,1-Dichloroethane	50 ug/mL
									1,1-Dichloroethene	50 ug/mL
									1,1-Dichloropropene	50 ug/mL
									1,2,3-Trichlorobenzene	50 ug/mL
									1,2,3-Trichloropropane	50 ug/mL
									1,2,4-Trichlorobenzene	50 ug/mL
									1,2,4-Trimethylbenzene	50 ug/mL
									1,2-Dibromo-3-Chloropropane	50 ug/mL
									1,2-Dichlorobenzene	50 ug/mL
									1,2-Dichloroethane	50 ug/mL
									1,2-Dichloropropane	50 ug/mL
									1,3,5-Trimethylbenzene	50 ug/mL
									1,3-Dichlorobenzene	50 ug/mL
									1,3-Dichloropropane	50 ug/mL
									1,4-Dichlorobenzene	50 ug/mL
									1,4-Dioxane	1000 ug/mL
									2,2-Dichloropropane	50 ug/mL
2-Chlorotoluene	50 ug/mL									
2-Methyl-2-propanol	500 ug/mL									
3-Chloro-1-propene	50 ug/mL									
4-Chlorotoluene	50 ug/mL									
4-Isopropyltoluene	50 ug/mL									
Acrylonitrile	500 ug/mL									
Benzene	50 ug/mL									
Bromobenzene	50 ug/mL									
Bromoform	50 ug/mL									
Carbon disulfide	50 ug/mL									
Carbon tetrachloride	50 ug/mL									
Chlorobenzene	50 ug/mL									
Chlorobromomethane	50 ug/mL									
Chlorodibromomethane	50 ug/mL									

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Chloroform	50 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							cis-1,3-Dichloropropene	50 ug/mL
							Cyclohexane	50 ug/mL
							Dibromomethane	50 ug/mL
							Dichlorobromomethane	50 ug/mL
							Ethyl ether	50 ug/mL
							Ethyl methacrylate	50 ug/mL
							Ethylbenzene	50 ug/mL
							Ethylene Dibromide	50 ug/mL
							Hexachlorobutadiene	50 ug/mL
							Hexane	50 ug/mL
							Iodomethane	50 ug/mL
							Isobutyl alcohol	1250 ug/mL
							Isopropylbenzene	50 ug/mL
							m-Xylene & p-Xylene	50 ug/mL
							Methyl acetate	100 ug/mL
							Methyl tert-butyl ether	50 ug/mL
							Methylcyclohexane	50 ug/mL
							Methylene Chloride	50 ug/mL
							n-Butylbenzene	50 ug/mL
							n-Heptane	50 ug/mL
							N-Propylbenzene	50 ug/mL
							Naphthalene	50 ug/mL
							o-Xylene	50 ug/mL
							sec-Butylbenzene	50 ug/mL
							Styrene	50 ug/mL
							tert-Butylbenzene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							Tetrahydrofuran	100 ug/mL
							Toluene	50 ug/mL
							Total BTEX	250 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							trans-1,3-Dichloropropene	50 ug/mL
							trans-1,4-Dichloro-2-butene	50 ug/mL
							Trichloroethene	50 ug/mL
							Trihalomethanes, Total	200 ug/mL
							Xylenes, Total	100 ug/mL
..VM569721S_00005	12/31/20		Restek, Lot A0133078			(Purchased Reagent)	2-Butanone (MEK)	12500 ug/mL
							2-Hexanone	12500 ug/mL
							4-Methyl-2-pentanone (MIBK)	12500 ug/mL
							Acetone	12500 ug/mL
..VM569723S_00008	11/30/21		Restek, Lot A0143264			(Purchased Reagent)	2-Chloroethyl vinyl ether	2500 ug/mL
..VM569724S_00029	09/30/21		Restek, Lot A0158728			(Purchased Reagent)	Vinyl acetate	5000 ug/mL
..VM571992S_00006	06/30/21		Restek, Lot A0144202			(Purchased Reagent)	1,1,1,2-Tetrachloroethane	2500 ug/mL
							1,1,1-Trichloroethane	2500 ug/mL
							1,1,2,2-Tetrachloroethane	2500 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							1,1,2-Trichloro-1,2,2-trifluoroethane	2500 ug/mL
							1,1,2-Trichloroethane	2500 ug/mL
							1,1-Dichloroethane	2500 ug/mL
							1,1-Dichloroethene	2500 ug/mL
							1,1-Dichloropropene	2500 ug/mL
							1,2,3-Trichlorobenzene	2500 ug/mL
							1,2,3-Trichloropropene	2500 ug/mL
							1,2,4-Trichlorobenzene	2500 ug/mL
							1,2,4-Trimethylbenzene	2500 ug/mL
							1,2-Dibromo-3-Chloropropene	2500 ug/mL
							1,2-Dichlorobenzene	2500 ug/mL
							1,2-Dichloroethane	2500 ug/mL
							1,2-Dichloropropene	2500 ug/mL
							1,3,5-Trimethylbenzene	2500 ug/mL
							1,3-Dichlorobenzene	2500 ug/mL
							1,3-Dichloropropene	2500 ug/mL
							1,4-Dichlorobenzene	2500 ug/mL
							1,4-Dioxane	50000 ug/mL
							2,2-Dichloropropene	2500 ug/mL
							2-Chlorotoluene	2500 ug/mL
							2-Methyl-2-propanol	25000 ug/mL
							3-Chloro-1-propene	2500 ug/mL
							4-Chlorotoluene	2500 ug/mL
							4-Isopropyltoluene	2500 ug/mL
							Acrylonitrile	25000 ug/mL
							Benzene	2500 ug/mL
							Bromobenzene	2500 ug/mL
							Bromoform	2500 ug/mL
							Carbon disulfide	2500 ug/mL
							Carbon tetrachloride	2500 ug/mL
							Chlorobenzene	2500 ug/mL
							Chlorobromomethane	2500 ug/mL
							Chlorodibromomethane	2500 ug/mL
							Chloroform	2500 ug/mL
							cis-1,2-Dichloroethene	2500 ug/mL
							cis-1,3-Dichloropropene	2500 ug/mL
							Cyclohexane	2500 ug/mL
							Dibromomethane	2500 ug/mL
							Dichlorobromomethane	2500 ug/mL
							Ethyl ether	2500 ug/mL
							Ethyl methacrylate	2500 ug/mL
							Ethylbenzene	2500 ug/mL
							Ethylene Dibromide	2500 ug/mL
							Hexachlorobutadiene	2500 ug/mL
							Hexane	2500 ug/mL
							Iodomethane	2500 ug/mL
							Isobutyl alcohol	62500 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Isopropylbenzene	2500 ug/mL
							m-Xylene & p-Xylene	2500 ug/mL
							Methyl acetate	5000 ug/mL
							Methyl tert-butyl ether	2500 ug/mL
							Methylcyclohexane	2500 ug/mL
							Methylene Chloride	2500 ug/mL
							n-Butylbenzene	2500 ug/mL
							n-Heptane	2500 ug/mL
							N-Propylbenzene	2500 ug/mL
							Naphthalene	2500 ug/mL
							o-Xylene	2500 ug/mL
							sec-Butylbenzene	2500 ug/mL
							Styrene	2500 ug/mL
							tert-Butylbenzene	2500 ug/mL
							Tetrachloroethene	2500 ug/mL
							Tetrahydrofuran	5000 ug/mL
							Toluene	2500 ug/mL
							Total BTEX	12500 ug/mL
							trans-1,2-Dichloroethene	2500 ug/mL
							trans-1,3-Dichloropropene	2500 ug/mL
							trans-1,4-Dichloro-2-butene	2500 ug/mL
							Trichloroethene	2500 ug/mL
							Trihalomethanes, Total	10000 ug/mL
							Xylenes, Total	5000 ug/mL
VMNFASP_00603	08/10/20	08/03/20	MEOH, Lot NA	5 mL	VMRFASP_00067	5 mL	2-Butanone (MEK)	100 ug/mL
							2-Hexanone	100 ug/mL
							4-Methyl-2-pentanone (MIBK)	100 ug/mL
							Acetone	100 ug/mL
							2-Chloroethyl vinyl ether	50 ug/mL
							Vinyl acetate	50 ug/mL
							1,1,1,2-Tetrachloroethane	50 ug/mL
							1,1,1-Trichloroethane	50 ug/mL
							1,1,2,2-Tetrachloroethane	50 ug/mL
							1,1,2-Trichloro-1,2,2-trifluoroethane	50 ug/mL
							1,1,2-Trichloroethane	50 ug/mL
							1,1-Dichloroethane	50 ug/mL
							1,1-Dichloroethene	50 ug/mL
							1,1-Dichloropropene	50 ug/mL
							1,2,3-Trichlorobenzene	50 ug/mL
							1,2,3-Trichloropropane	50 ug/mL
							1,2,4-Trichlorobenzene	50 ug/mL
							1,2,4-Trimethylbenzene	50 ug/mL
							1,2-Dibromo-3-Chloropropane	50 ug/mL
							1,2-Dichlorobenzene	50 ug/mL
							1,2-Dichloroethane	50 ug/mL
							1,2-Dichloropropane	50 ug/mL
							1,3,5-Trimethylbenzene	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							1,3-Dichlorobenzene	50 ug/mL
							1,3-Dichloropropane	50 ug/mL
							1,4-Dichlorobenzene	50 ug/mL
							1,4-Dioxane	1000 ug/mL
							2,2-Dichloropropane	50 ug/mL
							2-Chlorotoluene	50 ug/mL
							2-Methyl-2-propanol	500 ug/mL
							3-Chloro-1-propene	50 ug/mL
							4-Chlorotoluene	50 ug/mL
							4-Isopropyltoluene	50 ug/mL
							Acrylonitrile	500 ug/mL
							Benzene	50 ug/mL
							Bromobenzene	50 ug/mL
							Bromoform	50 ug/mL
							Carbon disulfide	50 ug/mL
							Carbon tetrachloride	50 ug/mL
							Chlorobenzene	50 ug/mL
							Chlorobromomethane	50 ug/mL
							Chlorodibromomethane	50 ug/mL
							Chloroform	50 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							cis-1,3-Dichloropropene	50 ug/mL
							Cyclohexane	50 ug/mL
							Dibromomethane	50 ug/mL
							Dichlorobromomethane	50 ug/mL
							Ethyl ether	50 ug/mL
							Ethyl methacrylate	50 ug/mL
							Ethylbenzene	50 ug/mL
							Ethylene Dibromide	50 ug/mL
							Hexachlorobutadiene	50 ug/mL
							Hexane	50 ug/mL
							Iodomethane	50 ug/mL
							Isobutyl alcohol	1250 ug/mL
							Isopropylbenzene	50 ug/mL
							m-Xylene & p-Xylene	50 ug/mL
							Methyl acetate	100 ug/mL
							Methyl tert-butyl ether	50 ug/mL
							Methylcyclohexane	50 ug/mL
							Methylene Chloride	50 ug/mL
							n-Butylbenzene	50 ug/mL
							n-Heptane	50 ug/mL
							N-Propylbenzene	50 ug/mL
							Naphthalene	50 ug/mL
							o-Xylene	50 ug/mL
							sec-Butylbenzene	50 ug/mL
							Styrene	50 ug/mL
							tert-Butylbenzene	50 ug/mL
							Tetrachloroethene	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration							
					Reagent ID	Volume Added									
							Tetrahydrofuran	100 ug/mL							
							Toluene	50 ug/mL							
							Total BTEX	250 ug/mL							
							trans-1,2-Dichloroethene	50 ug/mL							
							trans-1,3-Dichloropropene	50 ug/mL							
							trans-1,4-Dichloro-2-butene	50 ug/mL							
							Trichloroethene	50 ug/mL							
							Trihalomethanes, Total	200 ug/mL							
.VMRFASP_00067	09/18/20	06/18/20	MEOH, Lot 0000230446	100 mL	VM569721S_00005	0.8 mL	2-Butanone (MEK)	100 ug/mL							
							2-Hexanone	100 ug/mL							
							4-Methyl-2-pentanone (MIBK)	100 ug/mL							
							Acetone	100 ug/mL							
							VM569723S_00008	2 mL	2-Chloroethyl vinyl ether	50 ug/mL					
							VM569724S_00029	1 mL	Vinyl acetate	50 ug/mL					
							VM571992S_00006							1,1,1,2-Tetrachloroethane	50 ug/mL
														1,1,1-Trichloroethane	50 ug/mL
														1,1,2,2-Tetrachloroethane	50 ug/mL
														1,1,2-Trichloro-1,2,2-trifluoroethane	50 ug/mL
														1,1,2-Trichloroethane	50 ug/mL
														1,1-Dichloroethane	50 ug/mL
														1,1-Dichloroethene	50 ug/mL
														1,1-Dichloropropene	50 ug/mL
														1,2,3-Trichlorobenzene	50 ug/mL
														1,2,3-Trichloropropane	50 ug/mL
														1,2,4-Trichlorobenzene	50 ug/mL
														1,2,4-Trimethylbenzene	50 ug/mL
														1,2-Dibromo-3-Chloropropane	50 ug/mL
														1,2-Dichlorobenzene	50 ug/mL
														1,2-Dichloroethane	50 ug/mL
														1,2-Dichloropropane	50 ug/mL
														1,3,5-Trimethylbenzene	50 ug/mL
														1,3-Dichlorobenzene	50 ug/mL
														1,3-Dichloropropane	50 ug/mL
														1,4-Dichlorobenzene	50 ug/mL
														1,4-Dioxane	1000 ug/mL
														2,2-Dichloropropane	50 ug/mL
														2-Chlorotoluene	50 ug/mL
														2-Methyl-2-propanol	500 ug/mL
														3-Chloro-1-propene	50 ug/mL
														4-Chlorotoluene	50 ug/mL
														4-Isopropyltoluene	50 ug/mL
Acrylonitrile	500 ug/mL														
Benzene	50 ug/mL														
Bromobenzene	50 ug/mL														
Bromoform	50 ug/mL														
Carbon disulfide	50 ug/mL														

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Carbon tetrachloride	50 ug/mL
							Chlorobenzene	50 ug/mL
							Chlorobromomethane	50 ug/mL
							Chlorodibromomethane	50 ug/mL
							Chloroform	50 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							cis-1,3-Dichloropropene	50 ug/mL
							Cyclohexane	50 ug/mL
							Dibromomethane	50 ug/mL
							Dichlorobromomethane	50 ug/mL
							Ethyl ether	50 ug/mL
							Ethyl methacrylate	50 ug/mL
							Ethylbenzene	50 ug/mL
							Ethylene Dibromide	50 ug/mL
							Hexachlorobutadiene	50 ug/mL
							Hexane	50 ug/mL
							Iodomethane	50 ug/mL
							Isobutyl alcohol	1250 ug/mL
							Isopropylbenzene	50 ug/mL
							m-Xylene & p-Xylene	50 ug/mL
							Methyl acetate	100 ug/mL
							Methyl tert-butyl ether	50 ug/mL
							Methylcyclohexane	50 ug/mL
							Methylene Chloride	50 ug/mL
							n-Butylbenzene	50 ug/mL
							n-Heptane	50 ug/mL
							N-Propylbenzene	50 ug/mL
							Naphthalene	50 ug/mL
							o-Xylene	50 ug/mL
							sec-Butylbenzene	50 ug/mL
							Styrene	50 ug/mL
							tert-Butylbenzene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							Tetrahydrofuran	100 ug/mL
							Toluene	50 ug/mL
							Total BTEX	250 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							trans-1,3-Dichloropropene	50 ug/mL
							trans-1,4-Dichloro-2-butene	50 ug/mL
							Trichloroethene	50 ug/mL
							Trihalomethanes, Total	200 ug/mL
							Xylenes, Total	100 ug/mL
..VM569721S_00005	12/31/20		Restek, Lot A0133078			(Purchased Reagent)	2-Butanone (MEK)	12500 ug/mL
							2-Hexanone	12500 ug/mL
							4-Methyl-2-pentanone (MIBK)	12500 ug/mL
							Acetone	12500 ug/mL
..VM569723S_00008	11/30/21		Restek, Lot A0143264			(Purchased Reagent)	2-Chloroethyl vinyl ether	2500 ug/mL
..VM569724S_00029	09/30/21		Restek, Lot A0158728			(Purchased Reagent)	Vinyl acetate	5000 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..VM571992S_00006	06/30/21		Restek, Lot A0144202			(Purchased Reagent)	1,1,1,2-Tetrachloroethane	2500 ug/mL
							1,1,1-Trichloroethane	2500 ug/mL
							1,1,2,2-Tetrachloroethane	2500 ug/mL
							1,1,2-Trichloro-1,2,2-trifluoroethane	2500 ug/mL
							1,1,2-Trichloroethane	2500 ug/mL
							1,1-Dichloroethane	2500 ug/mL
							1,1-Dichloroethene	2500 ug/mL
							1,1-Dichloropropene	2500 ug/mL
							1,2,3-Trichlorobenzene	2500 ug/mL
							1,2,3-Trichloropropane	2500 ug/mL
							1,2,4-Trichlorobenzene	2500 ug/mL
							1,2,4-Trimethylbenzene	2500 ug/mL
							1,2-Dibromo-3-Chloropropane	2500 ug/mL
							1,2-Dichlorobenzene	2500 ug/mL
							1,2-Dichloroethane	2500 ug/mL
							1,2-Dichloropropane	2500 ug/mL
							1,3,5-Trimethylbenzene	2500 ug/mL
							1,3-Dichlorobenzene	2500 ug/mL
							1,3-Dichloropropane	2500 ug/mL
							1,4-Dichlorobenzene	2500 ug/mL
							1,4-Dioxane	50000 ug/mL
							2,2-Dichloropropane	2500 ug/mL
							2-Chlorotoluene	2500 ug/mL
							2-Methyl-2-propanol	25000 ug/mL
							3-Chloro-1-propene	2500 ug/mL
							4-Chlorotoluene	2500 ug/mL
							4-Isopropyltoluene	2500 ug/mL
							Acrylonitrile	25000 ug/mL
							Benzene	2500 ug/mL
							Bromobenzene	2500 ug/mL
							Bromoform	2500 ug/mL
							Carbon disulfide	2500 ug/mL
							Carbon tetrachloride	2500 ug/mL
							Chlorobenzene	2500 ug/mL
							Chlorobromomethane	2500 ug/mL
							Chlorodibromomethane	2500 ug/mL
							Chloroform	2500 ug/mL
							cis-1,2-Dichloroethene	2500 ug/mL
							cis-1,3-Dichloropropene	2500 ug/mL
							Cyclohexane	2500 ug/mL
							Dibromomethane	2500 ug/mL
							Dichlorobromomethane	2500 ug/mL
							Ethyl ether	2500 ug/mL
							Ethyl methacrylate	2500 ug/mL
							Ethylbenzene	2500 ug/mL
							Ethylene Dibromide	2500 ug/mL
							Hexachlorobutadiene	2500 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Hexane	2500 ug/mL
							Iodomethane	2500 ug/mL
							Isobutyl alcohol	62500 ug/mL
							Isopropylbenzene	2500 ug/mL
							m-Xylene & p-Xylene	2500 ug/mL
							Methyl acetate	5000 ug/mL
							Methyl tert-butyl ether	2500 ug/mL
							Methylcyclohexane	2500 ug/mL
							Methylene Chloride	2500 ug/mL
							n-Butylbenzene	2500 ug/mL
							n-Heptane	2500 ug/mL
							N-Propylbenzene	2500 ug/mL
							Naphthalene	2500 ug/mL
							o-Xylene	2500 ug/mL
							sec-Butylbenzene	2500 ug/mL
							Styrene	2500 ug/mL
							tert-Butylbenzene	2500 ug/mL
							Tetrachloroethene	2500 ug/mL
							Tetrahydrofuran	5000 ug/mL
							Toluene	2500 ug/mL
							Total BTEX	12500 ug/mL
							trans-1,2-Dichloroethene	2500 ug/mL
							trans-1,3-Dichloropropene	2500 ug/mL
							trans-1,4-Dichloro-2-butene	2500 ug/mL
							Trichloroethene	2500 ug/mL
							Trihalomethanes, Total	10000 ug/mL
							Xylenes, Total	5000 ug/mL
VMFASAW 00312	01/21/20	01/14/20	MEOH, Lot NA	5 mL	VMFASA 00058	5 mL	Acrolein	250 ug/mL
.VMFASA 00058	01/31/20	11/01/19	MEOH, Lot 0000230446	100 mL	VM568720S_00035	1.25 mL	Acrolein	250 ug/mL
..vm568720S_00035	01/31/20		restek, Lot A0150981		(Purchased Reagent)		Acrolein	20000 ug/mL
VMFASGW 00271	08/28/18	08/21/18	MEOH, Lot NA	4 mL	VMFASG 00074	4 mL	Vinyl chloride	50 ug/mL
.VMFASG 00074	09/13/18	08/13/18	MEOH, Lot 0000196626	100 mL	vm569722S_00004	2 mL	Vinyl chloride	50 ug/mL
..vm569722S_00004	11/30/18		Restek, Lot A0115484		(Purchased Reagent)		Vinyl chloride	2500 ug/mL
VMFASGW 00343	01/22/20	01/15/20	MEOH, Lot NA	5 mL	VMFASG 00090	5 mL	Vinyl chloride	50 ug/mL
.VMFASG 00090	01/30/20	12/30/19	MEOH, Lot 0000230446	100 mL	vm569722S_00006	2 mL	Vinyl chloride	50 ug/mL
..vm569722S_00006	12/31/20		Restek, Lot A0133344		(Purchased Reagent)		Vinyl chloride	2500 ug/mL
VMFASGW 00365	06/30/20	06/26/20	MEOH, Lot NA	5 mL	VMFASG 00095	5 mL	Vinyl chloride	50 ug/mL
.VMFASG 00095	06/30/20	05/31/20	MEOH, Lot 0000230446	100 mL	vm569722S_00007	2 mL	Vinyl chloride	50 ug/mL
..vm569722S_00007	10/31/21		Restek, Lot A0142117		(Purchased Reagent)		Vinyl chloride	2500 ug/mL
VMFASGW 00367	07/16/20	07/09/20	MEOH, Lot NA	5 mL	VMFASG 00096	5 mL	Vinyl chloride	50 ug/mL
.VMFASG 00096	08/01/20	07/01/20	MEOH, Lot 0000230446	100 mL	vm569722S_00007	2 mL	Vinyl chloride	50 ug/mL
..vm569722S_00007	10/31/21		Restek, Lot A0142117		(Purchased Reagent)		Vinyl chloride	2500 ug/mL
VMFASGW 00369	08/01/20	07/25/20	MEOH, Lot NA	5 mL	VMFASG 00096	5 mL	Vinyl chloride	50 ug/mL
.VMFASG 00096	08/01/20	07/01/20	MEOH, Lot 0000230446	100 mL	vm569722S_00007	2 mL	Vinyl chloride	50 ug/mL
..vm569722S_00007	10/31/21		Restek, Lot A0142117		(Purchased Reagent)		Vinyl chloride	2500 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
VMFASGW_00370	08/10/20	08/03/20	MEOH, Lot NA	5 mL	VMFASG_00097	5 mL	Vinyl chloride	50 ug/mL
.VMFASG_00097	09/03/20	08/03/20	MEOH, Lot 0000230446	100 mL	vm569722S_00007	2 mL	Vinyl chloride	50 ug/mL
..vm569722S_00007	10/31/21		Restek, Lot A0142117		(Purchased Reagent)		Vinyl chloride	2500 ug/mL
VMFASPW_00264	09/03/18	08/27/18	MEOH, Lot n/a	4 mL	VMRFASP_00049	4 mL	1,1-Dichloroethene	50 ug/mL
							1,4-Dioxane	1000 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							Trichloroethene	50 ug/mL
.VMRFASP_00049	10/31/18	07/18/18	MEOH, Lot 0000196626	100 mL	VM571992S_00002	2 mL	1,1-Dichloroethene	50 ug/mL
							1,4-Dioxane	1000 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							Trichloroethene	50 ug/mL
..VM571992S_00002	12/31/18		Restek, Lot A0123775		(Purchased Reagent)		1,1-Dichloroethene	2500 ug/mL
							1,4-Dioxane	50000 ug/mL
							cis-1,2-Dichloroethene	2500 ug/mL
							Tetrachloroethene	2500 ug/mL
							trans-1,2-Dichloroethene	2500 ug/mL
							Trichloroethene	2500 ug/mL
VMFASPW_00334	01/21/20	01/14/20	MEOH, Lot n/a	5 mL	VMRFASP_00063	5 mL	1,1-Dichloroethene	50 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							Trichloroethene	50 ug/mL
.VMRFASP_00063	01/31/20	01/06/20	MEOH, Lot 0000230446	50 mL	VM571992S_00005	1 mL	1,1-Dichloroethene	50 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							Trichloroethene	50 ug/mL
..VM571992S_00005	06/30/21		Restek, Lot A0144202		(Purchased Reagent)		1,1-Dichloroethene	2500 ug/mL
							cis-1,2-Dichloroethene	2500 ug/mL
							Tetrachloroethene	2500 ug/mL
							trans-1,2-Dichloroethene	2500 ug/mL
							Trichloroethene	2500 ug/mL
VMFASPW_00356	07/03/20	06/26/20	MEOH, Lot n/a	5 mL	VMRFASP_00067	5 mL	1,1-Dichloroethene	50 ug/mL
							1,4-Dioxane	1000 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							Trichloroethene	50 ug/mL
.VMRFASP_00067	09/18/20	06/18/20	MEOH, Lot 0000230446	100 mL	VM571992S_00006	2 mL	1,1-Dichloroethene	50 ug/mL
							1,4-Dioxane	1000 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..VM571992S_00006	06/30/21		Restek, Lot A0144202			(Purchased Reagent)	Trichloroethene	50 ug/mL
							1,1-Dichloroethene	2500 ug/mL
							1,4-Dioxane	50000 ug/mL
							cis-1,2-Dichloroethene	2500 ug/mL
							Tetrachloroethene	2500 ug/mL
							trans-1,2-Dichloroethene	2500 ug/mL
Trichloroethene	2500 ug/mL							
VMFASPW_00358	07/20/20	07/13/20	MEOH, Lot n/a	5 mL	VMRFASP_00067	5 mL	1,1-Dichloroethene	50 ug/mL
							1,4-Dioxane	1000 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							Trichloroethene	50 ug/mL
.VMRFASP_00067	09/18/20	06/18/20	MEOH, Lot 0000230446	100 mL	VM571992S_00006	2 mL	1,1-Dichloroethene	50 ug/mL
							1,4-Dioxane	1000 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							Trichloroethene	50 ug/mL
..VM571992S_00006	06/30/21		Restek, Lot A0144202			(Purchased Reagent)	1,1-Dichloroethene	2500 ug/mL
							1,4-Dioxane	50000 ug/mL
							cis-1,2-Dichloroethene	2500 ug/mL
							Tetrachloroethene	2500 ug/mL
							trans-1,2-Dichloroethene	2500 ug/mL
							Trichloroethene	2500 ug/mL
VMFASPW_00360	08/05/20	07/29/20	MEOH, Lot n/a	5 mL	VMRFASP_00067	5 mL	1,1-Dichloroethene	50 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							Trichloroethene	50 ug/mL
							.VMRFASP_00067	09/18/20
cis-1,2-Dichloroethene	50 ug/mL							
Tetrachloroethene	50 ug/mL							
trans-1,2-Dichloroethene	50 ug/mL							
Trichloroethene	50 ug/mL							
..VM571992S_00006	06/30/21		Restek, Lot A0144202			(Purchased Reagent)		
							cis-1,2-Dichloroethene	2500 ug/mL
							Tetrachloroethene	2500 ug/mL
							trans-1,2-Dichloroethene	2500 ug/mL
							Trichloroethene	2500 ug/mL
							vmrgas_00255	07/30/18
Butadiene	50 ug/mL							
Chloroethane	50 ug/mL							
Chloromethane	50 ug/mL							
Dichlorodifluoromethane	50 ug/mL							
Dichlorofluoromethane	50 ug/mL							
Trichlorofluoromethane	50 ug/mL							

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.vm569722_00011	10/31/20		Restek, Lot A0131502			(Purchased Reagent)	Vinyl chloride	50 ug/mL
							Bromomethane	2500 ug/mL
							Butadiene	2500 ug/mL
							Chloroethane	2500 ug/mL
							Chloromethane	2500 ug/mL
							Dichlorodifluoromethane	2500 ug/mL
							Dichlorofluoromethane	2500 ug/mL
Trichlorofluoromethane	2500 ug/mL							
vmrgas_00259	08/31/18	08/24/18	MEOH, Lot 0000196628	10 mL	vm569722_00011	0.2 mL	Bromomethane	50 ug/mL
							Butadiene	50 ug/mL
							Chloroethane	50 ug/mL
							Chloromethane	50 ug/mL
							Dichlorodifluoromethane	50 ug/mL
							Dichlorofluoromethane	50 ug/mL
							Trichlorofluoromethane	50 ug/mL
.vm569722_00011	10/31/20		Restek, Lot A0131502			(Purchased Reagent)	Bromomethane	2500 ug/mL
							Butadiene	2500 ug/mL
							Chloroethane	2500 ug/mL
							Chloromethane	2500 ug/mL
							Dichlorodifluoromethane	2500 ug/mL
							Dichlorofluoromethane	2500 ug/mL
							Trichlorofluoromethane	2500 ug/mL
VMRGAS_00323	01/21/20	01/14/20	MEOH, Lot 0000230446	10 mL	vm569722_00013	0.2 mL	Bromomethane	50 ug/mL
							Butadiene	50 ug/mL
							Chloroethane	50 ug/mL
							Chloromethane	50 ug/mL
							Dichlorodifluoromethane	50 ug/mL
							Dichlorofluoromethane	50 ug/mL
							Trichlorofluoromethane	50 ug/mL
.vm569722_00013	11/30/21		Restek, Lot A0143158			(Purchased Reagent)	Bromomethane	2500 ug/mL
							Butadiene	2500 ug/mL
							Chloroethane	2500 ug/mL
							Chloromethane	2500 ug/mL
							Dichlorodifluoromethane	2500 ug/mL
							Dichlorofluoromethane	2500 ug/mL
							Trichlorofluoromethane	2500 ug/mL
vmrgas_00344	06/30/20	06/23/20	MEOH, Lot 0000230446	10 mL	vm569722_00014	0.2 mL	Bromomethane	50 ug/mL
							Butadiene	50 ug/mL
							Chloroethane	50 ug/mL
							Chloromethane	50 ug/mL
							Dichlorodifluoromethane	50 ug/mL
							Dichlorofluoromethane	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.vm569722_00014	03/31/22		Restek, Lot A0146651			(Purchased Reagent)	Trichlorofluoromethane	50 ug/mL
							Vinyl chloride	50 ug/mL
							Bromomethane	2500 ug/mL
							Butadiene	2500 ug/mL
							Chloroethane	2500 ug/mL
							Chloromethane	2500 ug/mL
							Dichlorodifluoromethane	2500 ug/mL
							Dichlorofluoromethane	2500 ug/mL
VMRGAS_00347	07/22/20	07/15/20	MEOH, Lot 0000230446	10 mL	vm569722_00015	0.2 mL	Bromomethane	50 ug/mL
							Butadiene	50 ug/mL
							Chloroethane	50 ug/mL
							Chloromethane	50 ug/mL
							Dichlorodifluoromethane	50 ug/mL
							Dichlorofluoromethane	50 ug/mL
							Trichlorofluoromethane	50 ug/mL
							Vinyl chloride	50 ug/mL
.vm569722_00015	11/30/22		Restek, Lot A0154679			(Purchased Reagent)	Bromomethane	2500 ug/mL
							Butadiene	2500 ug/mL
							Chloroethane	2500 ug/mL
							Chloromethane	2500 ug/mL
							Dichlorodifluoromethane	2500 ug/mL
							Dichlorofluoromethane	2500 ug/mL
							Trichlorofluoromethane	2500 ug/mL
							Vinyl chloride	2500 ug/mL
VMRGAS_00349	08/07/20	07/31/20	MEOH, Lot 0000230446	10 mL	vm569722_00015	0.2 mL	Vinyl chloride	50 ug/mL
							.vm569722_00015	11/30/22
vmrprimw_00292	07/26/18	07/19/18	MEOH, Lot NA	4 mL	VMRPRIM_00028	4 mL	2-Butanone (MEK)	100 ug/mL
							2-Hexanone	100 ug/mL
							4-Methyl-2-pentanone (MIBK)	100 ug/mL
							Acetone	100 ug/mL
							2-Chloroethyl vinyl ether	100 ug/mL
							Vinyl acetate	50 ug/mL
							1,1,1,2-Tetrachloroethane	50 ug/mL
							1,1,1-Trichloroethane	50 ug/mL
							1,1,2,2-Tetrachloroethane	50 ug/mL
							1,1,2-Trichloro-1,2,2-trifluoroethane	50 ug/mL
							1,1,2-Trichloroethane	50 ug/mL
							1,1-Dichloroethane	50 ug/mL
							1,1-Dichloroethene	50 ug/mL
							1,1-Dichloropropene	50 ug/mL
							1,2,3-Trichlorobenzene	50 ug/mL
							1,2,3-Trichloropropane	50 ug/mL
							1,2,4-Trichlorobenzene	50 ug/mL
1,2,4-Trimethylbenzene	50 ug/mL							

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							1,2-Dibromo-3-Chloropropane	50 ug/mL
							1,2-Dichlorobenzene	50 ug/mL
							1,2-Dichloroethane	50 ug/mL
							1,2-Dichloropropane	50 ug/mL
							1,3,5-Trimethylbenzene	50 ug/mL
							1,3-Dichlorobenzene	50 ug/mL
							1,3-Dichloropropane	50 ug/mL
							1,4-Dichlorobenzene	50 ug/mL
							1,4-Dioxane	1000 ug/mL
							2,2-Dichloropropane	50 ug/mL
							2-Chlorotoluene	50 ug/mL
							2-Methyl-2-propanol	500 ug/mL
							3-Chloro-1-propene	50 ug/mL
							4-Chlorotoluene	50 ug/mL
							4-Isopropyltoluene	50 ug/mL
							Acrylonitrile	500 ug/mL
							Benzene	50 ug/mL
							Bromobenzene	50 ug/mL
							Bromoform	50 ug/mL
							Carbon disulfide	50 ug/mL
							Carbon tetrachloride	50 ug/mL
							Chlorobenzene	50 ug/mL
							Chlorobromomethane	50 ug/mL
							Chlorodibromomethane	50 ug/mL
							Chloroform	50 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							cis-1,3-Dichloropropene	50 ug/mL
							Cyclohexane	50 ug/mL
							Dibromomethane	50 ug/mL
							Dichlorobromomethane	50 ug/mL
							Ethyl ether	50 ug/mL
							Ethyl methacrylate	50 ug/mL
							Ethylbenzene	50 ug/mL
							Ethylene Dibromide	50 ug/mL
							Hexachlorobutadiene	50 ug/mL
							Hexane	50 ug/mL
							Iodomethane	50 ug/mL
							Isobutyl alcohol	1250 ug/mL
							Isopropylbenzene	50 ug/mL
							m-Xylene & p-Xylene	50 ug/mL
							Methyl acetate	100 ug/mL
							Methyl tert-butyl ether	50 ug/mL
							Methylcyclohexane	50 ug/mL
							Methylene Chloride	50 ug/mL
							n-Butylbenzene	50 ug/mL
							n-Heptane	50 ug/mL
							N-Propylbenzene	50 ug/mL
							Naphthalene	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration		
					Reagent ID	Volume Added				
							o-Xylene	50 ug/mL		
							sec-Butylbenzene	50 ug/mL		
							Styrene	50 ug/mL		
							tert-Butylbenzene	50 ug/mL		
							Tetrachloroethene	50 ug/mL		
							Tetrahydrofuran	100 ug/mL		
							Toluene	50 ug/mL		
							trans-1,2-Dichloroethene	50 ug/mL		
							trans-1,3-Dichloropropene	50 ug/mL		
							trans-1,4-Dichloro-2-butene	50 ug/mL		
.VMRPRIM_00028	07/29/18	04/29/18	MEOH, Lot 0000177891	50 mL	VM569721_00002	0.4 mL	Trichloroethene	50 ug/mL		
							2-Butanone (MEK)	100 ug/mL		
							2-Hexanone	100 ug/mL		
							4-Methyl-2-pentanone (MIBK)	100 ug/mL		
							Acetone	100 ug/mL		
							VM569723_00003	2 mL	2-Chloroethyl vinyl ether	100 ug/mL
							VM569724_00014	0.5 mL	Vinyl acetate	50 ug/mL
							VM571992_00001	1 mL	1,1,1,2-Tetrachloroethane	50 ug/mL
									1,1,1-Trichloroethane	50 ug/mL
									1,1,2,2-Tetrachloroethane	50 ug/mL
									1,1,2-Trichloro-1,2,2-trifluoroethane	50 ug/mL
									1,1,2-Trichloroethane	50 ug/mL
									1,1-Dichloroethane	50 ug/mL
									1,1-Dichloroethene	50 ug/mL
									1,1-Dichloropropene	50 ug/mL
									1,2,3-Trichlorobenzene	50 ug/mL
									1,2,3-Trichloropropane	50 ug/mL
									1,2,4-Trichlorobenzene	50 ug/mL
									1,2,4-Trimethylbenzene	50 ug/mL
									1,2-Dibromo-3-Chloropropane	50 ug/mL
									1,2-Dichlorobenzene	50 ug/mL
									1,2-Dichloroethane	50 ug/mL
									1,2-Dichloropropane	50 ug/mL
									1,3,5-Trimethylbenzene	50 ug/mL
									1,3-Dichlorobenzene	50 ug/mL
									1,3-Dichloropropane	50 ug/mL
									1,4-Dichlorobenzene	50 ug/mL
									1,4-Dioxane	1000 ug/mL
									2,2-Dichloropropane	50 ug/mL
									2-Chlorotoluene	50 ug/mL
									2-Methyl-2-propanol	500 ug/mL
									3-Chloro-1-propene	50 ug/mL
									4-Chlorotoluene	50 ug/mL
									4-Isopropyltoluene	50 ug/mL
Acrylonitrile	500 ug/mL									
Benzene	50 ug/mL									
Bromobenzene	50 ug/mL									

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Bromoform	50 ug/mL
							Carbon disulfide	50 ug/mL
							Carbon tetrachloride	50 ug/mL
							Chlorobenzene	50 ug/mL
							Chlorobromomethane	50 ug/mL
							Chlorodibromomethane	50 ug/mL
							Chloroform	50 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							cis-1,3-Dichloropropene	50 ug/mL
							Cyclohexane	50 ug/mL
							Dibromomethane	50 ug/mL
							Dichlorobromomethane	50 ug/mL
							Ethyl ether	50 ug/mL
							Ethyl methacrylate	50 ug/mL
							Ethylbenzene	50 ug/mL
							Ethylene Dibromide	50 ug/mL
							Hexachlorobutadiene	50 ug/mL
							Hexane	50 ug/mL
							Iodomethane	50 ug/mL
							Isobutyl alcohol	1250 ug/mL
							Isopropylbenzene	50 ug/mL
							m-Xylene & p-Xylene	50 ug/mL
							Methyl acetate	100 ug/mL
							Methyl tert-butyl ether	50 ug/mL
							Methylcyclohexane	50 ug/mL
							Methylene Chloride	50 ug/mL
							n-Butylbenzene	50 ug/mL
							n-Heptane	50 ug/mL
							N-Propylbenzene	50 ug/mL
							Naphthalene	50 ug/mL
							o-Xylene	50 ug/mL
							sec-Butylbenzene	50 ug/mL
							Styrene	50 ug/mL
							tert-Butylbenzene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							Tetrahydrofuran	100 ug/mL
							Toluene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							trans-1,3-Dichloropropene	50 ug/mL
							trans-1,4-Dichloro-2-butene	50 ug/mL
							Trichloroethene	50 ug/mL
..VM569721_00002	08/31/18		Restek, Lot A0113194		(Purchased Reagent)		2-Butanone (MEK)	12500 ug/mL
							2-Hexanone	12500 ug/mL
							4-Methyl-2-pentanone (MIBK)	12500 ug/mL
							Acetone	12500 ug/mL
..VM569723_00003	07/31/18		restek, Lot A0112895		(Purchased Reagent)		2-Chloroethyl vinyl ether	2500 ug/mL
..VM569724_00014	07/31/18		Restek, Lot A0134268		(Purchased Reagent)		Vinyl acetate	5000 ug/mL
..VM571992_00001	12/31/18		Restek, Lot A0123711		(Purchased Reagent)		1,1,1,2-Tetrachloroethane	2500 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							1,1,1-Trichloroethane	2500 ug/mL
							1,1,2,2-Tetrachloroethane	2500 ug/mL
							1,1,2-Trichloro-1,2,2-trifluoroethane	2500 ug/mL
							1,1,2-Trichloroethane	2500 ug/mL
							1,1-Dichloroethane	2500 ug/mL
							1,1-Dichloroethene	2500 ug/mL
							1,1-Dichloropropene	2500 ug/mL
							1,2,3-Trichlorobenzene	2500 ug/mL
							1,2,3-Trichloropropane	2500 ug/mL
							1,2,4-Trichlorobenzene	2500 ug/mL
							1,2,4-Trimethylbenzene	2500 ug/mL
							1,2-Dibromo-3-Chloropropane	2500 ug/mL
							1,2-Dichlorobenzene	2500 ug/mL
							1,2-Dichloroethane	2500 ug/mL
							1,2-Dichloropropane	2500 ug/mL
							1,3,5-Trimethylbenzene	2500 ug/mL
							1,3-Dichlorobenzene	2500 ug/mL
							1,3-Dichloropropane	2500 ug/mL
							1,4-Dichlorobenzene	2500 ug/mL
							1,4-Dioxane	50000 ug/mL
							2,2-Dichloropropane	2500 ug/mL
							2-Chlorotoluene	2500 ug/mL
							2-Methyl-2-propanol	25000 ug/mL
							3-Chloro-1-propene	2500 ug/mL
							4-Chlorotoluene	2500 ug/mL
							4-Isopropyltoluene	2500 ug/mL
							Acrylonitrile	25000 ug/mL
							Benzene	2500 ug/mL
							Bromobenzene	2500 ug/mL
							Bromoform	2500 ug/mL
							Carbon disulfide	2500 ug/mL
							Carbon tetrachloride	2500 ug/mL
							Chlorobenzene	2500 ug/mL
							Chlorobromomethane	2500 ug/mL
							Chlorodibromomethane	2500 ug/mL
							Chloroform	2500 ug/mL
							cis-1,2-Dichloroethene	2500 ug/mL
							cis-1,3-Dichloropropene	2500 ug/mL
							Cyclohexane	2500 ug/mL
							Dibromomethane	2500 ug/mL
							Dichlorobromomethane	2500 ug/mL
							Ethyl ether	2500 ug/mL
							Ethyl methacrylate	2500 ug/mL
							Ethylbenzene	2500 ug/mL
							Ethylene Dibromide	2500 ug/mL
							Hexachlorobutadiene	2500 ug/mL
							Hexane	2500 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Iodomethane	2500 ug/mL
							Isobutyl alcohol	62500 ug/mL
							Isopropylbenzene	2500 ug/mL
							m-Xylene & p-Xylene	2500 ug/mL
							Methyl acetate	5000 ug/mL
							Methyl tert-butyl ether	2500 ug/mL
							Methylcyclohexane	2500 ug/mL
							Methylene Chloride	2500 ug/mL
							n-Butylbenzene	2500 ug/mL
							n-Heptane	2500 ug/mL
							N-Propylbenzene	2500 ug/mL
							Naphthalene	2500 ug/mL
							o-Xylene	2500 ug/mL
							sec-Butylbenzene	2500 ug/mL
							Styrene	2500 ug/mL
							tert-Butylbenzene	2500 ug/mL
							Tetrachloroethene	2500 ug/mL
							Tetrahydrofuran	5000 ug/mL
							Toluene	2500 ug/mL
							trans-1,2-Dichloroethene	2500 ug/mL
							trans-1,3-Dichloropropene	2500 ug/mL
							trans-1,4-Dichloro-2-butene	2500 ug/mL
							Trichloroethene	2500 ug/mL
vmrprimw_00297	08/29/18	08/22/18	MEOH, Lot NA	4 mL	VMRPRIM_00029	4 mL	2-Butanone (MEK)	100 ug/mL
							2-Hexanone	100 ug/mL
							4-Methyl-2-pentanone (MIBK)	100 ug/mL
							Acetone	100 ug/mL
							2-Chloroethyl vinyl ether	100 ug/mL
							Vinyl acetate	50 ug/mL
							1,1,1,2-Tetrachloroethane	50 ug/mL
							1,1,1-Trichloroethane	50 ug/mL
							1,1,2,2-Tetrachloroethane	50 ug/mL
							1,1,2-Trichloro-1,2,2-trifluor oethane	50 ug/mL
							1,1,2-Trichloroethane	50 ug/mL
							1,1-Dichloroethane	50 ug/mL
							1,1-Dichloroethene	50 ug/mL
							1,1-Dichloropropene	50 ug/mL
							1,2,3-Trichlorobenzene	50 ug/mL
							1,2,3-Trichloropropane	50 ug/mL
							1,2,4-Trichlorobenzene	50 ug/mL
							1,2,4-Trimethylbenzene	50 ug/mL
							1,2-Dibromo-3-Chloropropane	50 ug/mL
							1,2-Dichlorobenzene	50 ug/mL
							1,2-Dichloroethane	50 ug/mL
							1,2-Dichloropropane	50 ug/mL
							1,3,5-Trimethylbenzene	50 ug/mL
							1,3-Dichlorobenzene	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							1,3-Dichloropropane	50 ug/mL
							1,4-Dichlorobenzene	50 ug/mL
							1,4-Dioxane	1000 ug/mL
							2,2-Dichloropropane	50 ug/mL
							2-Chlorotoluene	50 ug/mL
							2-Methyl-2-propanol	500 ug/mL
							3-Chloro-1-propene	50 ug/mL
							4-Chlorotoluene	50 ug/mL
							4-Isopropyltoluene	50 ug/mL
							Acrylonitrile	500 ug/mL
							Benzene	50 ug/mL
							Bromobenzene	50 ug/mL
							Bromoform	50 ug/mL
							Carbon disulfide	50 ug/mL
							Carbon tetrachloride	50 ug/mL
							Chlorobenzene	50 ug/mL
							Chlorobromomethane	50 ug/mL
							Chlorodibromomethane	50 ug/mL
							Chloroform	50 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							cis-1,3-Dichloropropene	50 ug/mL
							Cyclohexane	50 ug/mL
							Dibromomethane	50 ug/mL
							Dichlorobromomethane	50 ug/mL
							Ethyl ether	50 ug/mL
							Ethyl methacrylate	50 ug/mL
							Ethylbenzene	50 ug/mL
							Ethylene Dibromide	50 ug/mL
							Hexachlorobutadiene	50 ug/mL
							Hexane	50 ug/mL
							Iodomethane	50 ug/mL
							Isobutyl alcohol	1250 ug/mL
							Isopropylbenzene	50 ug/mL
							m-Xylene & p-Xylene	50 ug/mL
							Methyl acetate	100 ug/mL
							Methyl tert-butyl ether	50 ug/mL
							Methylcyclohexane	50 ug/mL
							Methylene Chloride	50 ug/mL
							n-Butylbenzene	50 ug/mL
							n-Heptane	50 ug/mL
							N-Propylbenzene	50 ug/mL
							Naphthalene	50 ug/mL
							o-Xylene	50 ug/mL
							sec-Butylbenzene	50 ug/mL
							Styrene	50 ug/mL
							tert-Butylbenzene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							Tetrahydrofuran	100 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Toluene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							trans-1,3-Dichloropropene	50 ug/mL
							trans-1,4-Dichloro-2-butene	50 ug/mL
							Trichloroethene	50 ug/mL
.VMRPRIM_00029	10/31/18	07/28/18	MEOH, Lot 0000196626	50 mL	VM569721_00004	0.4 mL	2-Butanone (MEK)	100 ug/mL
							2-Hexanone	100 ug/mL
							4-Methyl-2-pentanone (MIBK)	100 ug/mL
							Acetone	100 ug/mL
							2-Chloroethyl vinyl ether	100 ug/mL
					VM569723_00004	2 mL	Vinyl acetate	50 ug/mL
					VM569724_00016	0.5 mL	1,1,1,2-Tetrachloroethane	50 ug/mL
					VM571992_00001	1 mL	1,1,1-Trichloroethane	50 ug/mL
							1,1,2,2-Tetrachloroethane	50 ug/mL
							1,1,2-Trichloro-1,2,2-trifluoroethane	50 ug/mL
							1,1,2-Trichloroethane	50 ug/mL
							1,1-Dichloroethane	50 ug/mL
							1,1-Dichloroethene	50 ug/mL
							1,1-Dichloropropene	50 ug/mL
							1,2,3-Trichlorobenzene	50 ug/mL
							1,2,3-Trichloropropene	50 ug/mL
							1,2,4-Trichlorobenzene	50 ug/mL
							1,2,4-Trimethylbenzene	50 ug/mL
							1,2-Dibromo-3-Chloropropane	50 ug/mL
							1,2-Dichlorobenzene	50 ug/mL
							1,2-Dichloroethane	50 ug/mL
							1,2-Dichloropropene	50 ug/mL
							1,3,5-Trimethylbenzene	50 ug/mL
							1,3-Dichlorobenzene	50 ug/mL
							1,3-Dichloropropene	50 ug/mL
							1,4-Dichlorobenzene	50 ug/mL
							1,4-Dioxane	1000 ug/mL
							2,2-Dichloropropane	50 ug/mL
							2-Chlorotoluene	50 ug/mL
							2-Methyl-2-propanol	500 ug/mL
							3-Chloro-1-propene	50 ug/mL
							4-Chlorotoluene	50 ug/mL
							4-Isopropyltoluene	50 ug/mL
Acrylonitrile	500 ug/mL							
Benzene	50 ug/mL							
Bromobenzene	50 ug/mL							
Bromoform	50 ug/mL							
Carbon disulfide	50 ug/mL							
Carbon tetrachloride	50 ug/mL							
Chlorobenzene	50 ug/mL							
Chlorobromomethane	50 ug/mL							
Chlorodibromomethane	50 ug/mL							

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Chloroform	50 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							cis-1,3-Dichloropropene	50 ug/mL
							Cyclohexane	50 ug/mL
							Dibromomethane	50 ug/mL
							Dichlorobromomethane	50 ug/mL
							Ethyl ether	50 ug/mL
							Ethyl methacrylate	50 ug/mL
							Ethylbenzene	50 ug/mL
							Ethylene Dibromide	50 ug/mL
							Hexachlorobutadiene	50 ug/mL
							Hexane	50 ug/mL
							Iodomethane	50 ug/mL
							Isobutyl alcohol	1250 ug/mL
							Isopropylbenzene	50 ug/mL
							m-Xylene & p-Xylene	50 ug/mL
							Methyl acetate	100 ug/mL
							Methyl tert-butyl ether	50 ug/mL
							Methylcyclohexane	50 ug/mL
							Methylene Chloride	50 ug/mL
							n-Butylbenzene	50 ug/mL
							n-Heptane	50 ug/mL
							N-Propylbenzene	50 ug/mL
							Naphthalene	50 ug/mL
							o-Xylene	50 ug/mL
							sec-Butylbenzene	50 ug/mL
							Styrene	50 ug/mL
							tert-Butylbenzene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							Tetrahydrofuran	100 ug/mL
							Toluene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							trans-1,3-Dichloropropene	50 ug/mL
							trans-1,4-Dichloro-2-butene	50 ug/mL
							Trichloroethene	50 ug/mL
..VM569721_00004	11/30/18		Restek, Lot A0115554		(Purchased Reagent)		2-Butanone (MEK)	12500 ug/mL
							2-Hexanone	12500 ug/mL
							4-Methyl-2-pentanone (MIBK)	12500 ug/mL
							Acetone	12500 ug/mL
..VM569723_00004	11/30/18		restek, Lot A0115628		(Purchased Reagent)		2-Chloroethyl vinyl ether	2500 ug/mL
..VM569724_00016	10/31/18		Restek, Lot A0137562		(Purchased Reagent)		Vinyl acetate	5000 ug/mL
..VM571992_00001	12/31/18		Restek, Lot A0123711		(Purchased Reagent)		1,1,1,2-Tetrachloroethane	2500 ug/mL
							1,1,1-Trichloroethane	2500 ug/mL
							1,1,2,2-Tetrachloroethane	2500 ug/mL
							1,1,2-Trichloro-1,2,2-trifluoroethane	2500 ug/mL
							1,1,2-Trichloroethane	2500 ug/mL
							1,1-Dichloroethane	2500 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							1,1-Dichloroethene	2500 ug/mL
							1,1-Dichloropropene	2500 ug/mL
							1,2,3-Trichlorobenzene	2500 ug/mL
							1,2,3-Trichloropropane	2500 ug/mL
							1,2,4-Trichlorobenzene	2500 ug/mL
							1,2,4-Trimethylbenzene	2500 ug/mL
							1,2-Dibromo-3-Chloropropane	2500 ug/mL
							1,2-Dichlorobenzene	2500 ug/mL
							1,2-Dichloroethane	2500 ug/mL
							1,2-Dichloropropane	2500 ug/mL
							1,3,5-Trimethylbenzene	2500 ug/mL
							1,3-Dichlorobenzene	2500 ug/mL
							1,3-Dichloropropane	2500 ug/mL
							1,4-Dichlorobenzene	2500 ug/mL
							1,4-Dioxane	50000 ug/mL
							2,2-Dichloropropane	2500 ug/mL
							2-Chlorotoluene	2500 ug/mL
							2-Methyl-2-propanol	25000 ug/mL
							3-Chloro-1-propene	2500 ug/mL
							4-Chlorotoluene	2500 ug/mL
							4-Isopropyltoluene	2500 ug/mL
							Acrylonitrile	25000 ug/mL
							Benzene	2500 ug/mL
							Bromobenzene	2500 ug/mL
							Bromoform	2500 ug/mL
							Carbon disulfide	2500 ug/mL
							Carbon tetrachloride	2500 ug/mL
							Chlorobenzene	2500 ug/mL
							Chlorobromomethane	2500 ug/mL
							Chlorodibromomethane	2500 ug/mL
							Chloroform	2500 ug/mL
							cis-1,2-Dichloroethene	2500 ug/mL
							cis-1,3-Dichloropropane	2500 ug/mL
							Cyclohexane	2500 ug/mL
							Dibromomethane	2500 ug/mL
							Dichlorobromomethane	2500 ug/mL
							Ethyl ether	2500 ug/mL
							Ethyl methacrylate	2500 ug/mL
							Ethylbenzene	2500 ug/mL
							Ethylene Dibromide	2500 ug/mL
							Hexachlorobutadiene	2500 ug/mL
							Hexane	2500 ug/mL
							Iodomethane	2500 ug/mL
							Isobutyl alcohol	62500 ug/mL
							Isopropylbenzene	2500 ug/mL
							m-Xylene & p-Xylene	2500 ug/mL
							Methyl acetate	5000 ug/mL
							Methyl tert-butyl ether	2500 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Methylcyclohexane	2500 ug/mL
							Methylene Chloride	2500 ug/mL
							n-Butylbenzene	2500 ug/mL
							n-Heptane	2500 ug/mL
							N-Propylbenzene	2500 ug/mL
							Naphthalene	2500 ug/mL
							o-Xylene	2500 ug/mL
							sec-Butylbenzene	2500 ug/mL
							Styrene	2500 ug/mL
							tert-Butylbenzene	2500 ug/mL
							Tetrachloroethene	2500 ug/mL
							Tetrahydrofuran	5000 ug/mL
							Toluene	2500 ug/mL
							trans-1,2-Dichloroethene	2500 ug/mL
							trans-1,3-Dichloropropene	2500 ug/mL
							trans-1,4-Dichloro-2-butene	2500 ug/mL
							Trichloroethene	2500 ug/mL
VMRPRIMW_00369	01/21/20	01/14/20	MEOH, Lot NA	5 mL	VMRPRIM_00042	5 mL	2-Butanone (MEK)	100 ug/mL
							2-Hexanone	100 ug/mL
							4-Methyl-2-pentanone (MIBK)	100 ug/mL
							Acetone	100 ug/mL
							2-Chloroethyl vinyl ether	100 ug/mL
							Vinyl acetate	50 ug/mL
							1,1,1,2-Tetrachloroethane	50 ug/mL
							1,1,1-Trichloroethane	50 ug/mL
							1,1,2,2-Tetrachloroethane	50 ug/mL
							1,1,2-Trichloro-1,2,2-trifluoroethane	50 ug/mL
							1,1,2-Trichloroethane	50 ug/mL
							1,1-Dichloroethane	50 ug/mL
							1,1-Dichloroethene	50 ug/mL
							1,1-Dichloropropene	50 ug/mL
							1,2,3-Trichlorobenzene	50 ug/mL
							1,2,3-Trichloropropane	50 ug/mL
							1,2,4-Trichlorobenzene	50 ug/mL
							1,2,4-Trimethylbenzene	50 ug/mL
							1,2-Dibromo-3-Chloropropane	50 ug/mL
							1,2-Dichlorobenzene	50 ug/mL
							1,2-Dichloroethane	50 ug/mL
							1,2-Dichloropropane	50 ug/mL
							1,3,5-Trimethylbenzene	50 ug/mL
							1,3-Dichlorobenzene	50 ug/mL
							1,3-Dichloropropane	50 ug/mL
							1,4-Dichlorobenzene	50 ug/mL
							1,4-Dioxane	1000 ug/mL
							2,2-Dichloropropane	50 ug/mL
							2-Chlorotoluene	50 ug/mL
							2-Methyl-2-propanol	500 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							3-Chloro-1-propene	50 ug/mL
							4-Chlorotoluene	50 ug/mL
							4-Isopropyltoluene	50 ug/mL
							Acrylonitrile	500 ug/mL
							Benzene	50 ug/mL
							Bromobenzene	50 ug/mL
							Bromoform	50 ug/mL
							Carbon disulfide	50 ug/mL
							Carbon tetrachloride	50 ug/mL
							Chlorobenzene	50 ug/mL
							Chlorobromomethane	50 ug/mL
							Chlorodibromomethane	50 ug/mL
							Chloroform	50 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							cis-1,3-Dichloropropene	50 ug/mL
							Cyclohexane	50 ug/mL
							Dibromomethane	50 ug/mL
							Dichlorobromomethane	50 ug/mL
							Ethyl ether	50 ug/mL
							Ethyl methacrylate	50 ug/mL
							Ethylbenzene	50 ug/mL
							Ethylene Dibromide	50 ug/mL
							Hexachlorobutadiene	50 ug/mL
							Hexane	50 ug/mL
							Iodomethane	50 ug/mL
							Isobutyl alcohol	1250 ug/mL
							Isopropylbenzene	50 ug/mL
							m-Xylene & p-Xylene	50 ug/mL
							Methyl acetate	100 ug/mL
							Methyl tert-butyl ether	50 ug/mL
							Methylcyclohexane	50 ug/mL
							Methylene Chloride	50 ug/mL
							n-Butylbenzene	50 ug/mL
							n-Heptane	50 ug/mL
							N-Propylbenzene	50 ug/mL
							Naphthalene	50 ug/mL
							o-Xylene	50 ug/mL
							sec-Butylbenzene	50 ug/mL
							Styrene	50 ug/mL
							tert-Butylbenzene	50 ug/mL
							Tetrachloroethene	50 ug/mL
Tetrahydrofuran	100 ug/mL							
Toluene	50 ug/mL							
trans-1,2-Dichloroethene	50 ug/mL							
trans-1,3-Dichloropropene	50 ug/mL							
trans-1,4-Dichloro-2-butene	50 ug/mL							
Trichloroethene	50 ug/mL							
.VMRPRIM_00042	01/31/20	12/12/19	MEOH, Lot 0000230446	50 mL	VM569721_00006	0.4 mL	2-Butanone (MEK)	100 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							2-Hexanone	100 ug/mL
							4-Methyl-2-pentanone (MIBK)	100 ug/mL
							Acetone	100 ug/mL
					VM569723_00008	2 mL	2-Chloroethyl vinyl ether	100 ug/mL
					VM569724_00021	0.5 mL	Vinyl acetate	50 ug/mL
					VM571992_00003	1 mL	1,1,1,2-Tetrachloroethane	50 ug/mL
							1,1,1-Trichloroethane	50 ug/mL
							1,1,2,2-Tetrachloroethane	50 ug/mL
							1,1,2-Trichloro-1,2,2-trifluoroethane	50 ug/mL
							1,1,2-Trichloroethane	50 ug/mL
							1,1-Dichloroethane	50 ug/mL
							1,1-Dichloroethene	50 ug/mL
							1,1-Dichloropropene	50 ug/mL
							1,2,3-Trichlorobenzene	50 ug/mL
							1,2,3-Trichloropropane	50 ug/mL
							1,2,4-Trichlorobenzene	50 ug/mL
							1,2,4-Trimethylbenzene	50 ug/mL
							1,2-Dibromo-3-Chloropropane	50 ug/mL
							1,2-Dichlorobenzene	50 ug/mL
							1,2-Dichloroethane	50 ug/mL
							1,2-Dichloropropane	50 ug/mL
							1,3,5-Trimethylbenzene	50 ug/mL
							1,3-Dichlorobenzene	50 ug/mL
							1,3-Dichloropropane	50 ug/mL
							1,4-Dichlorobenzene	50 ug/mL
							1,4-Dioxane	1000 ug/mL
							2,2-Dichloropropane	50 ug/mL
							2-Chlorotoluene	50 ug/mL
							2-Methyl-2-propanol	500 ug/mL
							3-Chloro-1-propene	50 ug/mL
							4-Chlorotoluene	50 ug/mL
							4-Isopropyltoluene	50 ug/mL
							Acrylonitrile	500 ug/mL
							Benzene	50 ug/mL
							Bromobenzene	50 ug/mL
							Bromoform	50 ug/mL
							Carbon disulfide	50 ug/mL
							Carbon tetrachloride	50 ug/mL
							Chlorobenzene	50 ug/mL
							Chlorobromomethane	50 ug/mL
							Chlorodibromomethane	50 ug/mL
							Chloroform	50 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							cis-1,3-Dichloropropane	50 ug/mL
							Cyclohexane	50 ug/mL
							Dibromomethane	50 ug/mL
							Dichlorobromomethane	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Ethyl ether	50 ug/mL
							Ethyl methacrylate	50 ug/mL
							Ethylbenzene	50 ug/mL
							Ethylene Dibromide	50 ug/mL
							Hexachlorobutadiene	50 ug/mL
							Hexane	50 ug/mL
							Iodomethane	50 ug/mL
							Isobutyl alcohol	1250 ug/mL
							Isopropylbenzene	50 ug/mL
							m-Xylene & p-Xylene	50 ug/mL
							Methyl acetate	100 ug/mL
							Methyl tert-butyl ether	50 ug/mL
							Methylcyclohexane	50 ug/mL
							Methylene Chloride	50 ug/mL
							n-Butylbenzene	50 ug/mL
							n-Heptane	50 ug/mL
							N-Propylbenzene	50 ug/mL
							Naphthalene	50 ug/mL
							o-Xylene	50 ug/mL
							sec-Butylbenzene	50 ug/mL
							Styrene	50 ug/mL
							tert-Butylbenzene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							Tetrahydrofuran	100 ug/mL
							Toluene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							trans-1,3-Dichloropropene	50 ug/mL
							trans-1,4-Dichloro-2-butene	50 ug/mL
							Trichloroethene	50 ug/mL
..VM569721_00006	04/30/21		Restek, Lot A0137509		(Purchased Reagent)		2-Butanone (MEK)	12500 ug/mL
							2-Hexanone	12500 ug/mL
							4-Methyl-2-pentanone (MIBK)	12500 ug/mL
							Acetone	12500 ug/mL
..VM569723_00008	02/28/22		restek, Lot A0146250		(Purchased Reagent)		2-Chloroethyl vinyl ether	2500 ug/mL
..VM569724_00021	01/31/20		Restek, Lot A0150515		(Purchased Reagent)		Vinyl acetate	5000 ug/mL
..VM571992_00003	06/30/21		Restek, Lot A0143774		(Purchased Reagent)		1,1,1,2-Tetrachloroethane	2500 ug/mL
							1,1,1-Trichloroethane	2500 ug/mL
							1,1,2,2-Tetrachloroethane	2500 ug/mL
							1,1,2-Trichloro-1,2,2-trifluoroethane	2500 ug/mL
							1,1,2-Trichloroethane	2500 ug/mL
							1,1-Dichloroethane	2500 ug/mL
							1,1-Dichloroethene	2500 ug/mL
							1,1-Dichloropropene	2500 ug/mL
							1,2,3-Trichlorobenzene	2500 ug/mL
							1,2,3-Trichloropropane	2500 ug/mL
							1,2,4-Trichlorobenzene	2500 ug/mL
							1,2,4-Trimethylbenzene	2500 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							1,2-Dibromo-3-Chloropropane	2500 ug/mL
							1,2-Dichlorobenzene	2500 ug/mL
							1,2-Dichloroethane	2500 ug/mL
							1,2-Dichloropropane	2500 ug/mL
							1,3,5-Trimethylbenzene	2500 ug/mL
							1,3-Dichlorobenzene	2500 ug/mL
							1,3-Dichloropropane	2500 ug/mL
							1,4-Dichlorobenzene	2500 ug/mL
							1,4-Dioxane	50000 ug/mL
							2,2-Dichloropropane	2500 ug/mL
							2-Chlorotoluene	2500 ug/mL
							2-Methyl-2-propanol	25000 ug/mL
							3-Chloro-1-propene	2500 ug/mL
							4-Chlorotoluene	2500 ug/mL
							4-Isopropyltoluene	2500 ug/mL
							Acrylonitrile	25000 ug/mL
							Benzene	2500 ug/mL
							Bromobenzene	2500 ug/mL
							Bromoform	2500 ug/mL
							Carbon disulfide	2500 ug/mL
							Carbon tetrachloride	2500 ug/mL
							Chlorobenzene	2500 ug/mL
							Chlorobromomethane	2500 ug/mL
							Chlorodibromomethane	2500 ug/mL
							Chloroform	2500 ug/mL
							cis-1,2-Dichloroethene	2500 ug/mL
							cis-1,3-Dichloropropene	2500 ug/mL
							Cyclohexane	2500 ug/mL
							Dibromomethane	2500 ug/mL
							Dichlorobromomethane	2500 ug/mL
							Ethyl ether	2500 ug/mL
							Ethyl methacrylate	2500 ug/mL
							Ethylbenzene	2500 ug/mL
							Ethylene Dibromide	2500 ug/mL
							Hexachlorobutadiene	2500 ug/mL
							Hexane	2500 ug/mL
							Iodomethane	2500 ug/mL
							Isobutyl alcohol	62500 ug/mL
							Isopropylbenzene	2500 ug/mL
							m-Xylene & p-Xylene	2500 ug/mL
							Methyl acetate	5000 ug/mL
							Methyl tert-butyl ether	2500 ug/mL
							Methylcyclohexane	2500 ug/mL
							Methylene Chloride	2500 ug/mL
							n-Butylbenzene	2500 ug/mL
							n-Heptane	2500 ug/mL
							N-Propylbenzene	2500 ug/mL
							Naphthalene	2500 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							o-Xylene	2500 ug/mL
							sec-Butylbenzene	2500 ug/mL
							Styrene	2500 ug/mL
							tert-Butylbenzene	2500 ug/mL
							Tetrachloroethene	2500 ug/mL
							Tetrahydrofuran	5000 ug/mL
							Toluene	2500 ug/mL
							trans-1,2-Dichloroethene	2500 ug/mL
							trans-1,3-Dichloropropene	2500 ug/mL
							trans-1,4-Dichloro-2-butene	2500 ug/mL
							Trichloroethene	2500 ug/mL
vmrprimw_00391	06/29/20	06/22/20	MEOH, Lot NA	5 mL	VMRPRIM_00045	5 mL	2-Butanone (MEK)	100 ug/mL
							2-Hexanone	100 ug/mL
							4-Methyl-2-pentanone (MIBK)	100 ug/mL
							Acetone	100 ug/mL
							2-Chloroethyl vinyl ether	100 ug/mL
							Vinyl acetate	50 ug/mL
							1,1,1,2-Tetrachloroethane	50 ug/mL
							1,1,1-Trichloroethane	50 ug/mL
							1,1,2,2-Tetrachloroethane	50 ug/mL
							1,1,2-Trichloro-1,2,2-trifluoroethane	50 ug/mL
							1,1,2-Trichloroethane	50 ug/mL
							1,1-Dichloroethane	50 ug/mL
							1,1-Dichloroethene	50 ug/mL
							1,1-Dichloropropene	50 ug/mL
							1,2,3-Trichlorobenzene	50 ug/mL
							1,2,3-Trichloropropane	50 ug/mL
							1,2,4-Trichlorobenzene	50 ug/mL
							1,2,4-Trimethylbenzene	50 ug/mL
							1,2-Dibromo-3-Chloropropane	50 ug/mL
							1,2-Dichlorobenzene	50 ug/mL
							1,2-Dichloroethane	50 ug/mL
							1,2-Dichloropropane	50 ug/mL
							1,3,5-Trimethylbenzene	50 ug/mL
							1,3-Dichlorobenzene	50 ug/mL
							1,3-Dichloropropane	50 ug/mL
							1,4-Dichlorobenzene	50 ug/mL
							1,4-Dioxane	1000 ug/mL
							2,2-Dichloropropane	50 ug/mL
							2-Chlorotoluene	50 ug/mL
							2-Methyl-2-propanol	500 ug/mL
							3-Chloro-1-propene	50 ug/mL
							4-Chlorotoluene	50 ug/mL
							4-Isopropyltoluene	50 ug/mL
							Acrylonitrile	500 ug/mL
							Benzene	50 ug/mL
							Bromobenzene	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Bromoform	50 ug/mL
							Carbon disulfide	50 ug/mL
							Carbon tetrachloride	50 ug/mL
							Chlorobenzene	50 ug/mL
							Chlorobromomethane	50 ug/mL
							Chlorodibromomethane	50 ug/mL
							Chloroform	50 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							cis-1,3-Dichloropropene	50 ug/mL
							Cyclohexane	50 ug/mL
							Dibromomethane	50 ug/mL
							Dichlorobromomethane	50 ug/mL
							Ethyl ether	50 ug/mL
							Ethyl methacrylate	50 ug/mL
							Ethylbenzene	50 ug/mL
							Ethylene Dibromide	50 ug/mL
							Hexachlorobutadiene	50 ug/mL
							Hexane	50 ug/mL
							Iodomethane	50 ug/mL
							Isobutyl alcohol	1250 ug/mL
							Isopropylbenzene	50 ug/mL
							m-Xylene & p-Xylene	50 ug/mL
							Methyl acetate	100 ug/mL
							Methyl tert-butyl ether	50 ug/mL
							Methylcyclohexane	50 ug/mL
							Methylene Chloride	50 ug/mL
							n-Butylbenzene	50 ug/mL
							n-Heptane	50 ug/mL
							N-Propylbenzene	50 ug/mL
							Naphthalene	50 ug/mL
							o-Xylene	50 ug/mL
							sec-Butylbenzene	50 ug/mL
							Styrene	50 ug/mL
							tert-Butylbenzene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							Tetrahydrofuran	100 ug/mL
							Toluene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							trans-1,3-Dichloropropene	50 ug/mL
							trans-1,4-Dichloro-2-butene	50 ug/mL
							Trichloroethene	50 ug/mL
.VMRPRIM_00045	08/01/20	05/01/20	MEOH, Lot 0000230446	50 mL	VM569721_00006	0.4 mL	2-Butanone (MEK)	100 ug/mL
							2-Hexanone	100 ug/mL
							4-Methyl-2-pentanone (MIBK)	100 ug/mL
							Acetone	100 ug/mL
					VM569723_00008	2 mL	2-Chloroethyl vinyl ether	100 ug/mL
					VM569724_00024	0.5 mL	Vinyl acetate	50 ug/mL
					VM571992_00003	1 mL	1,1,1,2-Tetrachloroethane	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							1,1,1-Trichloroethane	50 ug/mL
							1,1,2,2-Tetrachloroethane	50 ug/mL
							1,1,2-Trichloro-1,2,2-trifluoroethane	50 ug/mL
							1,1,2-Trichloroethane	50 ug/mL
							1,1-Dichloroethane	50 ug/mL
							1,1-Dichloroethene	50 ug/mL
							1,1-Dichloropropene	50 ug/mL
							1,2,3-Trichlorobenzene	50 ug/mL
							1,2,3-Trichloropropane	50 ug/mL
							1,2,4-Trichlorobenzene	50 ug/mL
							1,2,4-Trimethylbenzene	50 ug/mL
							1,2-Dibromo-3-Chloropropane	50 ug/mL
							1,2-Dichlorobenzene	50 ug/mL
							1,2-Dichloroethane	50 ug/mL
							1,2-Dichloropropane	50 ug/mL
							1,3,5-Trimethylbenzene	50 ug/mL
							1,3-Dichlorobenzene	50 ug/mL
							1,3-Dichloropropane	50 ug/mL
							1,4-Dichlorobenzene	50 ug/mL
							1,4-Dioxane	1000 ug/mL
							2,2-Dichloropropane	50 ug/mL
							2-Chlorotoluene	50 ug/mL
							2-Methyl-2-propanol	500 ug/mL
							3-Chloro-1-propene	50 ug/mL
							4-Chlorotoluene	50 ug/mL
							4-Isopropyltoluene	50 ug/mL
							Acrylonitrile	500 ug/mL
							Benzene	50 ug/mL
							Bromobenzene	50 ug/mL
							Bromoform	50 ug/mL
							Carbon disulfide	50 ug/mL
							Carbon tetrachloride	50 ug/mL
							Chlorobenzene	50 ug/mL
							Chlorobromomethane	50 ug/mL
							Chlorodibromomethane	50 ug/mL
							Chloroform	50 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							cis-1,3-Dichloropropene	50 ug/mL
							Cyclohexane	50 ug/mL
							Dibromomethane	50 ug/mL
							Dichlorobromomethane	50 ug/mL
							Ethyl ether	50 ug/mL
							Ethyl methacrylate	50 ug/mL
							Ethylbenzene	50 ug/mL
							Ethylene Dibromide	50 ug/mL
							Hexachlorobutadiene	50 ug/mL
							Hexane	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Iodomethane	50 ug/mL
							Isobutyl alcohol	1250 ug/mL
							Isopropylbenzene	50 ug/mL
							m-Xylene & p-Xylene	50 ug/mL
							Methyl acetate	100 ug/mL
							Methyl tert-butyl ether	50 ug/mL
							Methylcyclohexane	50 ug/mL
							Methylene Chloride	50 ug/mL
							n-Butylbenzene	50 ug/mL
							n-Heptane	50 ug/mL
							N-Propylbenzene	50 ug/mL
							Naphthalene	50 ug/mL
							o-Xylene	50 ug/mL
							sec-Butylbenzene	50 ug/mL
							Styrene	50 ug/mL
							tert-Butylbenzene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							Tetrahydrofuran	100 ug/mL
							Toluene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							trans-1,3-Dichloropropene	50 ug/mL
							trans-1,4-Dichloro-2-butene	50 ug/mL
							Trichloroethene	50 ug/mL
..VM569721_00006	04/30/21		Restek, Lot A0137509			(Purchased Reagent)	2-Butanone (MEK)	12500 ug/mL
							2-Hexanone	12500 ug/mL
							4-Methyl-2-pentanone (MIBK)	12500 ug/mL
							Acetone	12500 ug/mL
..VM569723_00008	02/28/22		restek, Lot A0146250			(Purchased Reagent)	2-Chloroethyl vinyl ether	2500 ug/mL
..VM569724_00024	07/31/21		Restek, Lot A0156559			(Purchased Reagent)	Vinyl acetate	5000 ug/mL
..VM571992_00003	06/30/21		Restek, Lot A0143774			(Purchased Reagent)	1,1,1,2-Tetrachloroethane	2500 ug/mL
							1,1,1-Trichloroethane	2500 ug/mL
							1,1,2,2-Tetrachloroethane	2500 ug/mL
							1,1,2-Trichloro-1,2,2-trifluoroethane	2500 ug/mL
							1,1,2-Trichloroethane	2500 ug/mL
							1,1-Dichloroethane	2500 ug/mL
							1,1-Dichloroethene	2500 ug/mL
							1,1-Dichloropropene	2500 ug/mL
							1,2,3-Trichlorobenzene	2500 ug/mL
							1,2,3-Trichloropropane	2500 ug/mL
							1,2,4-Trichlorobenzene	2500 ug/mL
							1,2,4-Trimethylbenzene	2500 ug/mL
							1,2-Dibromo-3-Chloropropane	2500 ug/mL
							1,2-Dichlorobenzene	2500 ug/mL
							1,2-Dichloroethane	2500 ug/mL
							1,2-Dichloropropane	2500 ug/mL
							1,3,5-Trimethylbenzene	2500 ug/mL
							1,3-Dichlorobenzene	2500 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							1,3-Dichloropropane	2500 ug/mL
							1,4-Dichlorobenzene	2500 ug/mL
							1,4-Dioxane	50000 ug/mL
							2,2-Dichloropropane	2500 ug/mL
							2-Chlorotoluene	2500 ug/mL
							2-Methyl-2-propanol	25000 ug/mL
							3-Chloro-1-propene	2500 ug/mL
							4-Chlorotoluene	2500 ug/mL
							4-Isopropyltoluene	2500 ug/mL
							Acrylonitrile	25000 ug/mL
							Benzene	2500 ug/mL
							Bromobenzene	2500 ug/mL
							Bromoform	2500 ug/mL
							Carbon disulfide	2500 ug/mL
							Carbon tetrachloride	2500 ug/mL
							Chlorobenzene	2500 ug/mL
							Chlorobromomethane	2500 ug/mL
							Chlorodibromomethane	2500 ug/mL
							Chloroform	2500 ug/mL
							cis-1,2-Dichloroethene	2500 ug/mL
							cis-1,3-Dichloropropene	2500 ug/mL
							Cyclohexane	2500 ug/mL
							Dibromomethane	2500 ug/mL
							Dichlorobromomethane	2500 ug/mL
							Ethyl ether	2500 ug/mL
							Ethyl methacrylate	2500 ug/mL
							Ethylbenzene	2500 ug/mL
							Ethylene Dibromide	2500 ug/mL
							Hexachlorobutadiene	2500 ug/mL
							Hexane	2500 ug/mL
							Iodomethane	2500 ug/mL
							Isobutyl alcohol	62500 ug/mL
							Isopropylbenzene	2500 ug/mL
							m-Xylene & p-Xylene	2500 ug/mL
							Methyl acetate	5000 ug/mL
							Methyl tert-butyl ether	2500 ug/mL
							Methylcyclohexane	2500 ug/mL
							Methylene Chloride	2500 ug/mL
							n-Butylbenzene	2500 ug/mL
							n-Heptane	2500 ug/mL
							N-Propylbenzene	2500 ug/mL
							Naphthalene	2500 ug/mL
							o-Xylene	2500 ug/mL
							sec-Butylbenzene	2500 ug/mL
							Styrene	2500 ug/mL
							tert-Butylbenzene	2500 ug/mL
							Tetrachloroethene	2500 ug/mL
							Tetrahydrofuran	5000 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Toluene	2500 ug/mL
							trans-1,2-Dichloroethene	2500 ug/mL
							trans-1,3-Dichloropropene	2500 ug/mL
							trans-1,4-Dichloro-2-butene	2500 ug/mL
							Trichloroethene	2500 ug/mL
vmrprimw_00394	07/23/20	07/16/20	MEOH, Lot NA	5 mL	VMRPRIM_00045	5 mL	2-Butanone (MEK)	100 ug/mL
							2-Hexanone	100 ug/mL
							4-Methyl-2-pentanone (MIBK)	100 ug/mL
							Acetone	100 ug/mL
							2-Chloroethyl vinyl ether	100 ug/mL
							Vinyl acetate	50 ug/mL
							1,1,1,2-Tetrachloroethane	50 ug/mL
							1,1,1-Trichloroethane	50 ug/mL
							1,1,2,2-Tetrachloroethane	50 ug/mL
							1,1,2-Trichloro-1,2,2-trifluoroethane	50 ug/mL
							1,1,2-Trichloroethane	50 ug/mL
							1,1-Dichloroethane	50 ug/mL
							1,1-Dichloroethene	50 ug/mL
							1,1-Dichloropropene	50 ug/mL
							1,2,3-Trichlorobenzene	50 ug/mL
							1,2,3-Trichloropropane	50 ug/mL
							1,2,4-Trichlorobenzene	50 ug/mL
							1,2,4-Trimethylbenzene	50 ug/mL
							1,2-Dibromo-3-Chloropropane	50 ug/mL
							1,2-Dichlorobenzene	50 ug/mL
							1,2-Dichloroethane	50 ug/mL
							1,2-Dichloropropane	50 ug/mL
							1,3,5-Trimethylbenzene	50 ug/mL
							1,3-Dichlorobenzene	50 ug/mL
							1,3-Dichloropropane	50 ug/mL
							1,4-Dichlorobenzene	50 ug/mL
							1,4-Dioxane	1000 ug/mL
							2,2-Dichloropropane	50 ug/mL
							2-Chlorotoluene	50 ug/mL
							2-Methyl-2-propanol	500 ug/mL
							3-Chloro-1-propene	50 ug/mL
							4-Chlorotoluene	50 ug/mL
							4-Isopropyltoluene	50 ug/mL
							Acrylonitrile	500 ug/mL
							Benzene	50 ug/mL
							Bromobenzene	50 ug/mL
							Bromoform	50 ug/mL
							Carbon disulfide	50 ug/mL
							Carbon tetrachloride	50 ug/mL
							Chlorobenzene	50 ug/mL
							Chlorobromomethane	50 ug/mL
							Chlorodibromomethane	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Chloroform	50 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							cis-1,3-Dichloropropene	50 ug/mL
							Cyclohexane	50 ug/mL
							Dibromomethane	50 ug/mL
							Dichlorobromomethane	50 ug/mL
							Ethyl ether	50 ug/mL
							Ethyl methacrylate	50 ug/mL
							Ethylbenzene	50 ug/mL
							Ethylene Dibromide	50 ug/mL
							Hexachlorobutadiene	50 ug/mL
							Hexane	50 ug/mL
							Iodomethane	50 ug/mL
							Isobutyl alcohol	1250 ug/mL
							Isopropylbenzene	50 ug/mL
							m-Xylene & p-Xylene	50 ug/mL
							Methyl acetate	100 ug/mL
							Methyl tert-butyl ether	50 ug/mL
							Methylcyclohexane	50 ug/mL
							Methylene Chloride	50 ug/mL
							n-Butylbenzene	50 ug/mL
							n-Heptane	50 ug/mL
							N-Propylbenzene	50 ug/mL
							Naphthalene	50 ug/mL
							o-Xylene	50 ug/mL
							sec-Butylbenzene	50 ug/mL
							Styrene	50 ug/mL
							tert-Butylbenzene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							Tetrahydrofuran	100 ug/mL
							Toluene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							trans-1,3-Dichloropropene	50 ug/mL
							trans-1,4-Dichloro-2-butene	50 ug/mL
							Trichloroethene	50 ug/mL
.VMRPRIM_00045	08/01/20	05/01/20	MEOH, Lot 0000230446	50 mL	VM569721_00006	0.4 mL	2-Butanone (MEK)	100 ug/mL
							2-Hexanone	100 ug/mL
							4-Methyl-2-pentanone (MIBK)	100 ug/mL
							Acetone	100 ug/mL
					VM569723_00008	2 mL	2-Chloroethyl vinyl ether	100 ug/mL
					VM569724_00024	0.5 mL	Vinyl acetate	50 ug/mL
					VM571992_00003	1 mL	1,1,1,2-Tetrachloroethane	50 ug/mL
							1,1,1-Trichloroethane	50 ug/mL
							1,1,2,2-Tetrachloroethane	50 ug/mL
							1,1,2-Trichloro-1,2,2-trifluoroethane	50 ug/mL
							1,1,2-Trichloroethane	50 ug/mL
							1,1-Dichloroethane	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							1,1-Dichloroethene	50 ug/mL
							1,1-Dichloropropene	50 ug/mL
							1,2,3-Trichlorobenzene	50 ug/mL
							1,2,3-Trichloropropane	50 ug/mL
							1,2,4-Trichlorobenzene	50 ug/mL
							1,2,4-Trimethylbenzene	50 ug/mL
							1,2-Dibromo-3-Chloropropane	50 ug/mL
							1,2-Dichlorobenzene	50 ug/mL
							1,2-Dichloroethane	50 ug/mL
							1,2-Dichloropropane	50 ug/mL
							1,3,5-Trimethylbenzene	50 ug/mL
							1,3-Dichlorobenzene	50 ug/mL
							1,3-Dichloropropane	50 ug/mL
							1,4-Dichlorobenzene	50 ug/mL
							1,4-Dioxane	1000 ug/mL
							2,2-Dichloropropane	50 ug/mL
							2-Chlorotoluene	50 ug/mL
							2-Methyl-2-propanol	500 ug/mL
							3-Chloro-1-propene	50 ug/mL
							4-Chlorotoluene	50 ug/mL
							4-Isopropyltoluene	50 ug/mL
							Acrylonitrile	500 ug/mL
							Benzene	50 ug/mL
							Bromobenzene	50 ug/mL
							Bromoform	50 ug/mL
							Carbon disulfide	50 ug/mL
							Carbon tetrachloride	50 ug/mL
							Chlorobenzene	50 ug/mL
							Chlorobromomethane	50 ug/mL
							Chlorodibromomethane	50 ug/mL
							Chloroform	50 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							cis-1,3-Dichloropropane	50 ug/mL
							Cyclohexane	50 ug/mL
							Dibromomethane	50 ug/mL
							Dichlorobromomethane	50 ug/mL
							Ethyl ether	50 ug/mL
							Ethyl methacrylate	50 ug/mL
							Ethylbenzene	50 ug/mL
							Ethylene Dibromide	50 ug/mL
							Hexachlorobutadiene	50 ug/mL
							Hexane	50 ug/mL
							Iodomethane	50 ug/mL
							Isobutyl alcohol	1250 ug/mL
							Isopropylbenzene	50 ug/mL
							m-Xylene & p-Xylene	50 ug/mL
							Methyl acetate	100 ug/mL
							Methyl tert-butyl ether	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Methylcyclohexane	50 ug/mL
							Methylene Chloride	50 ug/mL
							n-Butylbenzene	50 ug/mL
							n-Heptane	50 ug/mL
							N-Propylbenzene	50 ug/mL
							Naphthalene	50 ug/mL
							o-Xylene	50 ug/mL
							sec-Butylbenzene	50 ug/mL
							Styrene	50 ug/mL
							tert-Butylbenzene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							Tetrahydrofuran	100 ug/mL
							Toluene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							trans-1,3-Dichloropropene	50 ug/mL
							trans-1,4-Dichloro-2-butene	50 ug/mL
							Trichloroethene	50 ug/mL
..VM569721_00006	04/30/21		Restek, Lot A0137509		(Purchased Reagent)		2-Butanone (MEK)	12500 ug/mL
							2-Hexanone	12500 ug/mL
							4-Methyl-2-pentanone (MIBK)	12500 ug/mL
							Acetone	12500 ug/mL
..VM569723_00008	02/28/22		restek, Lot A0146250		(Purchased Reagent)		2-Chloroethyl vinyl ether	2500 ug/mL
..VM569724_00024	07/31/21		Restek, Lot A0156559		(Purchased Reagent)		Vinyl acetate	5000 ug/mL
..VM571992_00003	06/30/21		Restek, Lot A0143774		(Purchased Reagent)		1,1,1,2-Tetrachloroethane	2500 ug/mL
							1,1,1-Trichloroethane	2500 ug/mL
							1,1,2,2-Tetrachloroethane	2500 ug/mL
							1,1,2-Trichloro-1,2,2-trifluoroethane	2500 ug/mL
							1,1,2-Trichloroethane	2500 ug/mL
							1,1-Dichloroethane	2500 ug/mL
							1,1-Dichloroethene	2500 ug/mL
							1,1-Dichloropropene	2500 ug/mL
							1,2,3-Trichlorobenzene	2500 ug/mL
							1,2,3-Trichloropropane	2500 ug/mL
							1,2,4-Trichlorobenzene	2500 ug/mL
							1,2,4-Trimethylbenzene	2500 ug/mL
							1,2-Dibromo-3-Chloropropane	2500 ug/mL
							1,2-Dichlorobenzene	2500 ug/mL
							1,2-Dichloroethane	2500 ug/mL
							1,2-Dichloropropane	2500 ug/mL
							1,3,5-Trimethylbenzene	2500 ug/mL
							1,3-Dichlorobenzene	2500 ug/mL
							1,3-Dichloropropene	2500 ug/mL
							1,4-Dichlorobenzene	2500 ug/mL
							1,4-Dioxane	5000 ug/mL
							2,2-Dichloropropane	2500 ug/mL
							2-Chlorotoluene	2500 ug/mL
							2-Methyl-2-propanol	25000 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							3-Chloro-1-propene	2500 ug/mL
							4-Chlorotoluene	2500 ug/mL
							4-Isopropyltoluene	2500 ug/mL
							Acrylonitrile	25000 ug/mL
							Benzene	2500 ug/mL
							Bromobenzene	2500 ug/mL
							Bromoform	2500 ug/mL
							Carbon disulfide	2500 ug/mL
							Carbon tetrachloride	2500 ug/mL
							Chlorobenzene	2500 ug/mL
							Chlorobromomethane	2500 ug/mL
							Chlorodibromomethane	2500 ug/mL
							Chloroform	2500 ug/mL
							cis-1,2-Dichloroethene	2500 ug/mL
							cis-1,3-Dichloropropene	2500 ug/mL
							Cyclohexane	2500 ug/mL
							Dibromomethane	2500 ug/mL
							Dichlorobromomethane	2500 ug/mL
							Ethyl ether	2500 ug/mL
							Ethyl methacrylate	2500 ug/mL
							Ethylbenzene	2500 ug/mL
							Ethylene Dibromide	2500 ug/mL
							Hexachlorobutadiene	2500 ug/mL
							Hexane	2500 ug/mL
							Iodomethane	2500 ug/mL
							Isobutyl alcohol	62500 ug/mL
							Isopropylbenzene	2500 ug/mL
							m-Xylene & p-Xylene	2500 ug/mL
							Methyl acetate	5000 ug/mL
							Methyl tert-butyl ether	2500 ug/mL
							Methylcyclohexane	2500 ug/mL
							Methylene Chloride	2500 ug/mL
							n-Butylbenzene	2500 ug/mL
							n-Heptane	2500 ug/mL
							N-Propylbenzene	2500 ug/mL
							Naphthalene	2500 ug/mL
							o-Xylene	2500 ug/mL
							sec-Butylbenzene	2500 ug/mL
							Styrene	2500 ug/mL
							tert-Butylbenzene	2500 ug/mL
							Tetrachloroethene	2500 ug/mL
							Tetrahydrofuran	5000 ug/mL
							Toluene	2500 ug/mL
							trans-1,2-Dichloroethene	2500 ug/mL
							trans-1,3-Dichloropropene	2500 ug/mL
							trans-1,4-Dichloro-2-butene	2500 ug/mL
							Trichloroethene	2500 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
VMRPRIMW_00397	08/06/20	07/30/20	MEOH, Lot NA	5 mL	VMRPRIM_00046	5 mL	1,1-Dichloroethene	50 ug/mL
							1,4-Dioxane	1000 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
.VMRPRIM_00046	09/30/20	06/30/20	MEOH, Lot 0000230446	50 mL	VM571992_00003	1 mL	1,1-Dichloroethene	50 ug/mL
							1,4-Dioxane	1000 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
..VM571992_00003	06/30/21		Restek, Lot A0143774		(Purchased Reagent)		1,1-Dichloroethene	2500 ug/mL
							1,4-Dioxane	50000 ug/mL
							cis-1,2-Dichloroethene	2500 ug/mL
							Tetrachloroethene	2500 ug/mL
							trans-1,2-Dichloroethene	2500 ug/mL
							Trichloroethene	2500 ug/mL

Reagent

vm30026_00002

V-M 30026-00002

Rec: 4/11/17 (5)



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Certificate of Analysis



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 30026 Lot No.: A0120567
 Description : 4-Bromofluorobenzene Mixture
4-Bromofluorobenzene 2000µg/mL, P&T Methanol, 1mL/ampul
 Container Size : 2 mL Pkg Amt: > 1 mL
 Expiration Date : July 31, 2021 Storage: 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	1-Bromo-4-Fluorobenzene (BFB) CAS # 460-00-4 (Lot 20401KOV) Purity 99%	2,019.3 µg/mL	+/- 11.8506	µg/mL	Gravimetric
			+/- 113.2335	µg/mL	Unstressed
			+/- 115.8825	µg/mL	Stressed

Solvent: P&T Methanol
 CAS # 67-56-1
 Purity 99%

Reagent

vm30026_00003

REC: 11/28/18
VM 30026-00003



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Catalog No. : 30026 Lot No.: A0141187
Description : 4-Bromofluorobenzene Mixture
4-Bromofluorobenzene 2000µg/mL, P&T Methanol, 1mL/ampul
Container Size : 2 mL Pkg Amt: > 1 mL
Expiration Date : August 31, 2023 Storage: 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	1-Bromo-4-fluorobenzene (BFB) CAS # 460-00-4 (Lot 20401KO) Purity 99%	2,004.7 µg/mL	+/- 11.7645	µg/mL	Gravimetric
			+/- 112.4110	µg/mL	Unstressed
			+/- 115.0408	µg/mL	Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

Reagent

vm30241_00007



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Catalog No. : 30241 **Lot No.:** A0134242

Description : 8260A Internal Standard Mix
8260A Internal Standard Mix 2,500 µg/mL, P&T Methanol, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : January 31, 2023 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)			
1	Fluorobenzene	2,503.6 µg/mL	+/-	14.5561	µg/mL	Gravimetric
	CAS # 462-06-6 (Lot BCBK8171V)		+/-	140.3744	µg/mL	Unstressed
	Purity 99%		+/-	143.6590	µg/mL	Stressed
2	Chlorobenzene-d5	2,506.4 µg/mL	+/-	14.5724	µg/mL	Gravimetric
	CAS # 3114-55-4 (Lot PR-22736)		+/-	140.5314	µg/mL	Unstressed
	Purity 99%		+/-	143.8196	µg/mL	Stressed
3	1,4-Dichlorobenzene-d4	2,513.4 µg/mL	+/-	14.6131	µg/mL	Gravimetric
	CAS # 3855-82-1 (Lot PR-18488)		+/-	140.9238	µg/mL	Unstressed
	Purity 99%		+/-	144.2213	µg/mL	Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

VM30241-00007

REC'D
5-4-18

Reagent

VM30287_00015

VM30287_00015

Rec: 12/15/17



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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 30287 Lot No.: A0126604
Description : 1,4-Dioxane Standard
1,4-Dioxane 2000µg/mL, P&T Methanol, 1mL/ampul
Container Size : 2 mL Pkg Amt: > 1 mL
Expiration Date : April 30, 2022 Storage: 0°C or colder

CERTIFIED VALUES

Table with 4 main columns: Elution Order, Compound, Grav. Conc. (weight/volume), and Expanded Uncertainty (95% C.L.; K=2). Row 1: 1, 1,4-Dioxane (CAS # 123-91-1, Purity 99%, Lot SHBF2002V), 2,009.2 µg/mL, +/- 11.7911 µg/mL (Gravimetric), +/- 43.0471 µg/mL (Unstressed), +/- 44.2968 µg/mL (Stressed).

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

Reagent

VM30287_00016

Rec: 2/13/20
VM 30287-000/6



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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 30287 Lot No.: A0151797
 Description : 1,4-Dioxane Standard
1,4-Dioxane 2000µg/mL, P&T Methanol, 1mL/ampul
 Container Size : 2 mL Pkg Amt: > 1 mL
 Expiration Date : August 31, 2024 Storage: 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	1,4-Dioxane CAS # 123-91-1 Purity 99% (Lot SHBK6493)	2,008.0 µg/mL	+/- 11.7841	µg/mL	Gravimetric
			+/- 43.0214	µg/mL	Unstressed
			+/- 44.2703	µg/mL	Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

Reagent

VM567650_00027

vm56 7650-00027 Rec: 4/10/17 (39)



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Catalog No. : 567650 **Lot No.:** A0120212
Description : 8260 Surrogate Standard
8260 Surrogate Standard 2,500 ug/ml, P&T Methanol, 5 ml/ampul
Container Size : 5 mL **Pkg Amt:** > 5 mL
Expiration Date : July 31, 2021 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Dibromofluoromethane	2,521.3 µg/mL	+/-	14.6591	µg/mL Gravimetric
	CAS # 1868-53-7 (Lot 032015)		+/-	141.3668	µg/mL Unstressed
	Purity 99%		+/-	144.6746	µg/mL Stressed
2	1,2-Dichloroethane-d4	2,523.7 µg/mL	+/-	14.6730	µg/mL Gravimetric
	CAS # 17060-07-0 (Lot 14C-191)		+/-	141.5014	µg/mL Unstressed
	Purity 99%		+/-	144.8123	µg/mL Stressed
3	Toluene-d8	2,523.6 µg/mL	+/-	14.6724	µg/mL Gravimetric
	CAS # 2037-26-5 (Lot PR-26623)		+/-	141.4957	µg/mL Unstressed
	Purity 99%		+/-	144.8066	µg/mL Stressed
4	1-Bromo-4-fluorobenzene (BFB)	2,510.9 µg/mL	+/-	14.5986	µg/mL Gravimetric
	CAS # 460-00-4 (Lot 20401KOV)		+/-	140.7837	µg/mL Unstressed
	Purity 99%		+/-	144.0778	µg/mL Stressed

Solvent: P&T Methanol
 CAS # 67-56-1
 Purity 99%

Reagent

VM567650_00029



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REC: 8/22/17
 VM 567650-00029

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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 567650 Lot No.: A0124069
 Description : 8260 Surrogate Standard
8260 Surrogate Standard 2,500 ug/ml, P&T Methanol, 5 ml/ampul
 Container Size : 5 mL Pkg Amt: > 5 mL
 Expiration Date : January 31, 2022 Storage: 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L., K=2)		
1	Dibromofluoromethane CAS # 1868-53-7 (Lot 0012016) Purity 99%	2,521.2 µg/mL	+/- 14.6582	µg/mL	Gravimetric
			+/- 141.3584	µg/mL	Unstressed
			+/- 144.6660	µg/mL	Stressed
2	1,2-Dichloroethane-d4 CAS # 17060-07-0 (Lot PR-25433) Purity 98%	2,513.8 µg/mL	+/- 14.6157	µg/mL	Gravimetric
			+/- 140.9489	µg/mL	Unstressed
			+/- 144.2469	µg/mL	Stressed
3	Toluene-d8 CAS # 2037-26-5 (Lot PR-27311) Purity 99%	2,519.4 µg/mL	+/- 14.6480	µg/mL	Gravimetric
			+/- 141.2603	µg/mL	Unstressed
			+/- 144.5656	µg/mL	Stressed
4	1-Bromo-4-fluorobenzene (BFB) CAS # 460-00-4 (Lot 20401KOV) Purity 99%	2,520.8 µg/mL	+/- 14.6559	µg/mL	Gravimetric
			+/- 141.3360	µg/mL	Unstressed
			+/- 144.6430	µg/mL	Stressed

Solvent: P&T Methanol
 CAS # 67-56-1
 Purity 99%

Reagent

VM567650_00033

vm 567650-00033 Rec: 4/9/19



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Catalog No. : 567650 **Lot No.:** A0143613
Description : 8260 Surrogate Standard
8260 Surrogate Standard 2,500µg/mL, P&T Methanol, 5mL/ampul
Container Size : 5 mL **Pkg Amt:** > 5 mL
Expiration Date : November 30, 2023 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)			
1	Dibromofluoromethane	2,506.4 µg/mL	+/-	14.5724	µg/mL	Gravimetric
	CAS # 1868-53-7 (Lot 0012017)		+/-	140.5314	µg/mL	Unstressed
	Purity 99%		+/-	143.8196	µg/mL	Stressed
2	1,2-Dichloroethane-d4	2,503.8 µg/mL	+/-	14.5570	µg/mL	Gravimetric
	CAS # 17060-07-0 (Lot PR-29377)		+/-	140.3828	µg/mL	Unstressed
	Purity 99%		+/-	143.6676	µg/mL	Stressed
3	Toluene-d8	2,512.2 µg/mL	+/-	14.6059	µg/mL	Gravimetric
	CAS # 2037-26-5 (Lot PR-27311)		+/-	140.8538	µg/mL	Unstressed
	Purity 99%		+/-	144.1496	µg/mL	Stressed
4	1-Bromo-4-fluorobenzene (BFB)	2,501.8 µg/mL	+/-	14.5457	µg/mL	Gravimetric
	CAS # 460-00-4 (Lot 20401KO)		+/-	140.2734	µg/mL	Unstressed
	Purity 99%		+/-	143.5557	µg/mL	Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

Reagent

VM567650_00034

vm567650-00034 Rec: 4/9/19



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Catalog No. : 567650 **Lot No.:** A0139582
Description : 8260 Surrogate Standard
8260 Surrogate Standard 2,500µg/mL, P&T Methanol, 5mL/ampul
Container Size : 5 mL **Pkg Amt:** > 5 mL
Expiration Date : July 31, 2023 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)			
1	Dibromofluoromethane	2,500.5 µg/mL	+/-	14.5381	µg/mL	Gravimetric
	CAS # 1868-53-7 (Lot 0012017)		+/-	140.2006	µg/mL	Unstressed
	Purity 99%		+/-	143.4811	µg/mL	Stressed
2	1,2-Dichloroethane-d4	2,500.4 µg/mL	+/-	14.5375	µg/mL	Gravimetric
	CAS # 17060-07-0 (Lot PR-26748)		+/-	140.1949	µg/mL	Unstressed
	Purity 99%		+/-	143.4753	µg/mL	Stressed
3	Toluene-d8	2,500.0 µg/mL	+/-	14.5352	µg/mL	Gravimetric
	CAS # 2037-26-5 (Lot PR-27981)		+/-	140.1725	µg/mL	Unstressed
	Purity 99%		+/-	143.4524	µg/mL	Stressed
4	1-Bromo-4-fluorobenzene (BFB)	2,500.4 µg/mL	+/-	14.5375	µg/mL	Gravimetric
	CAS # 460-00-4 (Lot 20401KO)		+/-	140.1949	µg/mL	Unstressed
	Purity 99%		+/-	143.4753	µg/mL	Stressed

Solvent: P&T Methanol
 CAS # 67-56-1
 Purity 99%

Reagent

VM568718_00017

V M 568718-00017 Rec: 7/12/19



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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 568718 **Lot No.:** A0145169
Description : 8260 Internal Standard 2014
8260 Internal Standard 2014 250-5,000µg/mL, P&T Methanol/Water (90:10), 5mL/ampul
Container Size : 5 mL **Pkg Amt:** > 5 mL
Expiration Date : January 31, 2024 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	tert-Butyl-d9-alcohol	5,044.0 µg/mL	+/-	29.3246	µg/mL Gravimetric
	CAS # 25725-11-5 (Lot CD-107)		+/-	107.9918	µg/mL Unstressed
	Purity 98%		+/-	111.1314	µg/mL Stressed
2	2-Butanone-d5	1,254.2 µg/mL	+/-	7.2922	µg/mL Gravimetric
	CAS # 24313-50-6 (Lot M-276)		+/-	26.8533	µg/mL Unstressed
	Purity 99%		+/-	27.6340	µg/mL Stressed
3	Fluorobenzene	252.1 µg/mL	+/-	1.4689	µg/mL Gravimetric
	CAS # 462-06-6 (Lot BCBK8171V)		+/-	5.3977	µg/mL Unstressed
	Purity 99%		+/-	5.5545	µg/mL Stressed
4	1,4-Dioxane-d8	5,027.8 µg/mL	+/-	29.2304	µg/mL Gravimetric
	CAS # 17647-74-4 (Lot I-19942)		+/-	107.6448	µg/mL Unstressed
	Purity 99%		+/-	110.7743	µg/mL Stressed
5	Chlorobenzene-d5	250.6 µg/mL	+/-	1.4603	µg/mL Gravimetric
	CAS # 3114-55-4 (Lot PR-23926)		+/-	5.3661	µg/mL Unstressed
	Purity 99%		+/-	5.5220	µg/mL Stressed
6	1,4-Dichlorobenzene-d4	251.6 µg/mL	+/-	1.4660	µg/mL Gravimetric
	CAS # 3855-82-1 (Lot PR-18488)		+/-	5.3871	µg/mL Unstressed
	Purity 99%		+/-	5.5436	µg/mL Stressed

Reagent

VM568718_00018

Rec: 12/4/19
VM568718-00018



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Catalog No. : 568718 Lot No.: A0145169
 Description : 8260 Internal Standard 2014
8260 Internal Standard 2014 250-5,000µg/mL, P&T Methanol/Water (90:10), 5mL/ampul
 Container Size : 5 mL Pkg Amt: > 5 mL
 Expiration Date : January 31, 2024 Storage: 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	tert-Butyl-d9-alcohol CAS # 25725-11-5 Purity 98% (Lot CD-107)	5,044.0 µg/mL	+/-	29.3246	µg/mL Gravimetric
			+/-	107.9918	µg/mL Unstressed
			+/-	111.1314	µg/mL Stressed
2	2-Butanone-d5 CAS # 24313-50-6 Purity 99% (Lot M-276)	1,254.2 µg/mL	+/-	7.2922	µg/mL Gravimetric
			+/-	26.8533	µg/mL Unstressed
			+/-	27.6340	µg/mL Stressed
3	Fluorobenzene CAS # 462-06-6 Purity 99% (Lot BCBK8171V)	252.1 µg/mL	+/-	1.4689	µg/mL Gravimetric
			+/-	5.3977	µg/mL Unstressed
			+/-	5.5545	µg/mL Stressed
4	1,4-Dioxane-d8 CAS # 17647-74-4 Purity 99% (Lot I-19942)	5,027.8 µg/mL	+/-	29.2304	µg/mL Gravimetric
			+/-	107.6448	µg/mL Unstressed
			+/-	110.7743	µg/mL Stressed
5	Chlorobenzene-d5 CAS # 3114-55-4 Purity 99% (Lot PR-23926)	250.6 µg/mL	+/-	1.4603	µg/mL Gravimetric
			+/-	5.3661	µg/mL Unstressed
			+/-	5.5220	µg/mL Stressed
6	1,4-Dichlorobenzene-d4 CAS # 3855-82-1 Purity 99% (Lot PR-18488)	251.6 µg/mL	+/-	1.4660	µg/mL Gravimetric
			+/-	5.3871	µg/mL Unstressed
			+/-	5.5436	µg/mL Stressed

Reagent

VM568720_00028

rec: 6/1/18

VM 568 720 - 00028



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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 568720 **Lot No.:** A0135693

Description : 8260 List 1/Std #5 Acrolein High
8260 List 1/Std #5 Acrolein High 19,750µg/mL, Water, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : August 31, 2018 **Storage:** 0°C or colder

Handling: This product is photosensitive.

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)			
			Value	Unit	Method	Condition
1	Acrolein	19,777.5 µg/mL	+/-	115.8016	µg/mL	Gravimetric
	CAS # 107-02-8 (Lot 171116JLM)		+/-	634.1288	µg/mL	Unstressed
	Purity 99%		+/-	737.1054	µg/mL	Stressed

Solvent: Water
CAS # 7732-18-5
Purity 99%

Reagent

VM568720_00037

Rec: 11/6/20 VM568720_00037



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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 568720 **Lot No.:** A0154578
Description : 8260 List 1/Std #5 Acrolein High
8260 List 1/Std #5 Acrolein High 19,750µg/mL, Water, 1mL/ampul
Container Size : 2 mL **Pkg Amt:** > 1 mL
Expiration Date : April 30, 2021 **Storage:** 0°C or colder
Handling: This product is photosensitive.

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Acrolein CAS # 107-02-8 Purity 99% (Lot D0012019410)	19,810.7 µg/mL	+/- 115.9958	µg/mL	Gravimetric
			+/- 395.7642	µg/mL	Unstressed
			+/- 887.8866	µg/mL	Stressed

Solvent: Water
 CAS # 7732-18-5
 Purity 99%

Reagent

VM568720_00038

UM 568720 - 0038

Rec: 3/10/20

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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 568720 **Lot No.:** A0154578

Description : 8260 List 1/Std #5 Acrolein High
8260 List 1/Std #5 Acrolein High 19,750µg/mL, Water, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : April 30, 2021 **Storage:** 0°C or colder

Handling: This product is photosensitive.

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
			+/-	µg/mL	
1	Acrolein CAS # 107-02-8 Purity 99% (Lot D0012019410)	19,810.7 µg/mL	+/- 115.9958	µg/mL	Gravimetric
			+/- 395.7642	µg/mL	Unstressed
			+/- 887.8866	µg/mL	Stressed
Solvent:	Water CAS # 7732-18-5 Purity 99%				

Reagent

VM568720S_00035

vm568720s - 00035 Rec: 10/17/19



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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 568720.SEC **Lot No.:** A0150981

Description : 8260 List 1/Std #5 Acrolein High
8260 List 1/Std #5 Acrolein High 19,750µg/mL, Water, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : January 31, 2020 **Storage:** 0°C or colder

Handling: This product is photosensitive.

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)
1	Acrolein CAS # 107-02-8.SEC (Lot CSBLJM) Purity 97%	19,750.5 µg/mL	+/- 115.6435 µg/mL Gravimetric +/- 633.2629 µg/mL Unstressed +/- 736.0988 µg/mL Stressed

Solvent: Water
CAS # 7732-18-5
Purity 99%

Reagent

VM568720S_00036

Rec: 1/16/19 VM 568720 SEC → 000306



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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 568720.SEC **Lot No.:** A0154553
Description : 8260 List 1/Std #5 Acrolein High
8260 List 1/Std #5 Acrolein High 19,750µg/mL, Water, 1mL/ampul
Container Size : 2 mL **Pkg Amt:** > 1 mL
Expiration Date : April 30, 2021 **Storage:** 0°C or colder
Handling: This product is photosensitive.

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)
1	Acrolein CAS # 107-02-8.SEC (Lot D8402600-1024) Purity 97%	19,750.0 µg/mL	+/- 115.6405 µg/mL Gravimetric +/- 394.5517 µg/mL Unstressed +/- 885.1665 µg/mL Stressed

Solvent: Water
 CAS # 7732-18-5
 Purity 99%

Reagent

VM569721_00002

VM569721-00002

Rec: 9/16/15



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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 569721 Lot No.: A0113194
 Description : 8260 List 1/ Std #2 Ketones (2015)
8260 List 1/ Std #2 Ketones (2015) 12,500 µg/ml, P&T Methanol/Water (90:10), 1 ml/ampul
 Container Size : 2 mL Pkg Amt: > 1 mL
 Expiration Date : August 31, 2018 Storage: 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L., K=2)
1	Acetone CAS # 67-64-1 (Lot 07196AK) Purity 99%	12,510.0 µg/mL	+/- 73.2488 µg/mL Gravimetric +/- 665.8110 µg/mL Unstressed +/- 666.5452 µg/mL Stressed
2	2-Butanone (MEK) CAS # 78-93-3 (Lot BCBK4358V) Purity 99%	12,527.5 µg/mL	+/- 73.3513 µg/mL Gravimetric +/- 666.7424 µg/mL Unstressed +/- 667.4776 µg/mL Stressed
3	4-Methyl-2-pentanone (MIBK) CAS # 108-10-1 (Lot SHBF5332V) Purity 99%	12,503.0 µg/mL	+/- 73.2078 µg/mL Gravimetric +/- 665.4385 µg/mL Unstressed +/- 666.1722 µg/mL Stressed
4	2-Hexanone CAS # 591-78-6 (Lot MKBN7380V) Purity 99%	12,509.0 µg/mL	+/- 73.2429 µg/mL Gravimetric +/- 665.7578 µg/mL Unstressed +/- 666.4919 µg/mL Stressed

Solvent: P&T Methanol/Water (90:10)
 CAS # 67-56-1/7732-18-5
 Purity 99%

Reagent

VM569721_00004

Rec: 1-25-17

VM569721-00004



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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 569721 Lot No.: A0115554
 Description : 8260 List 1/ Std #2 Ketones (2015)
8260 List 1/ Std #2 Ketones (2015) 12,500 µg/ml, P&T Methanol/Water (90:10), 1 ml/ampul
 Container Size : 2 mL Pkg Amt: > 1 mL
 Expiration Date : November 30, 2018 Storage: 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)			
1	Acetone	12,501.8 µg/mL	+/-	72.6865	µg/mL	Gravimetric
	CAS # 67-64-1 (Lot 07196AK)		+/-	754.2890	µg/mL	Unstressed
	Purity 99%		+/-	756.0798	µg/mL	Stressed
2	2-Butanone (MEK)	12,499.7 µg/mL	+/-	72.6744	µg/mL	Gravimetric
	CAS # 78-93-3 (Lot SHBG0444V)		+/-	754.1625	µg/mL	Unstressed
	Purity 98%		+/-	755.9530	µg/mL	Stressed
3	4-Methyl-2-pentanone (MIBK)	12,500.6 µg/mL	+/-	72.6796	µg/mL	Gravimetric
	CAS # 108-10-1 (Lot SHBF9556V)		+/-	754.2166	µg/mL	Unstressed
	Purity 99%		+/-	756.0072	µg/mL	Stressed
4	2-Hexanone	12,502.4 µg/mL	+/-	72.6900	µg/mL	Gravimetric
	CAS # 591-78-6 (Lot MKBT3158V)		+/-	754.3252	µg/mL	Unstressed
	Purity 99%		+/-	756.1161	µg/mL	Stressed

Solvent: P&T Methanol/Water (90:10)
 CAS # 67-56-1/7732-18-5
 Purity 99%

Reagent

VM569721_00006

RCCL: 12/4/18
 VM569721-00006



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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 569721 **Lot No.:** A0137509
Description : 8260 List 1/ Std #2 Ketones (2015)
8260 List 1/ Std #2 Ketones (2015) 12,500µg/mL, P&T Methanol/Water (90:10), 1mL/ampul
Container Size : 2 mL **Pkg Amt:** > 1 mL
Expiration Date : April 30, 2021 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L., K=2)			
1	Acetone	12,619.0 µg/mL	+/-	73.8870	µg/mL	Gravimetric
	CAS # 67-64-1 (Lot SHBH6933)		+/-	761.4104	µg/mL	Unstressed
	Purity 99%		+/-	763.2179	µg/mL	Stressed
2	2-Butanone (MEK)	12,602.0 µg/mL	+/-	73.7875	µg/mL	Gravimetric
	CAS # 78-93-3 (Lot SHBF2461V)		+/-	760.3846	µg/mL	Unstressed
	Purity 99%		+/-	762.1897	µg/mL	Stressed
3	4-Methyl-2-pentanone (MIBK)	12,531.0 µg/mL	+/-	73.3718	µg/mL	Gravimetric
	CAS # 108-10-1 (Lot SHBH7006)		+/-	756.1006	µg/mL	Unstressed
	Purity 99%		+/-	757.8955	µg/mL	Stressed
4	2-Hexanone	12,606.0 µg/mL	+/-	73.8109	µg/mL	Gravimetric
	CAS # 591-78-6 (Lot MKBW0198V)		+/-	760.6260	µg/mL	Unstressed
	Purity 99%		+/-	762.4316	µg/mL	Stressed

Solvent: P&T Methanol/Water (90:10)
 CAS # 67-56-1/7732-18-5
 Purity 99%

Reagent

VM569721S_00005



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VM569721g-00005

Rec: 6/15/18

20 vials



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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 569721.SEC **Lot No.:** A0133078
Description : 8260 List 1/ Std #2 Ketones (2015)
8260 List 1/ Std #2 Ketones (2015) 12,500µg/mL, P&T Methanol/Water (90:10), 1mL/ampul
Container Size : 2 mL **Pkg Amt:** > 1 mL
Expiration Date : December 31, 2020 **Storage:** 0°C or colder

C E R T I F I E D V A L U E S

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Acetone	12,504.8 µg/mL	+/-	73.2184	µg/mL Gravimetric
	CAS # 67-64-1.SEC (Lot P14A572)		+/-	754.5197	µg/mL Unstressed
	Purity 99%		+/-	756.3109	µg/mL Stressed
2	2-Butanone (MEK)	12,504.0 µg/mL	+/-	73.2137	µg/mL Gravimetric
	CAS # 78-93-3.SEC (Lot RA58J)		+/-	754.4715	µg/mL Unstressed
	Purity 99%		+/-	756.2625	µg/mL Stressed
3	4-Methyl-2-pentanone (MIBK)	12,500.8 µg/mL	+/-	73.1949	µg/mL Gravimetric
	CAS # 108-10-1.SEC (Lot E29T040)		+/-	754.2784	µg/mL Unstressed
	Purity 99%		+/-	756.0689	µg/mL Stressed
4	2-Hexanone	12,503.6 µg/mL	+/-	73.2113	µg/mL Gravimetric
	CAS # 591-78-6.SEC (Lot V3NRA)		+/-	754.4473	µg/mL Unstressed
	Purity 99%		+/-	756.2383	µg/mL Stressed

Solvent: P&T Methanol/Water (90:10)
CAS # 67-56-1/7732-18-5
Purity 99%

Reagent

vm569722_00011

Rec: 4/17/18
 VM569722-00011



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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 569722 **Lot No.:** A0131502
Description : 8260 List 1 / Std #3 Gases (2015)
8260 List 1 / Std #3 Gases (2015) 2,500µg/mL, P&T Methanol, 1mL/ampul
Container Size : 2 mL **Pkg Amt:** > 1 mL
Expiration Date : October 31, 2020 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)			
1	Dichlorodifluoromethane (CFC-12)	2,501.3 µg/mL	+/-	20.2137	µg/mL	Gravimetric
	CAS # 75-71-8 (Lot Q167-08)		+/-	140.9452	µg/mL	Unstressed
	Purity 99%		+/-	144.2108	µg/mL	Stressed
2	Chloromethane (methyl chloride)	2,504.9 µg/mL	+/-	24.8531	µg/mL	Gravimetric
	CAS # 74-87-3 (Lot SHBG9707V)		+/-	141.8827	µg/mL	Unstressed
	Purity 99%		+/-	145.1364	µg/mL	Stressed
3	Vinyl chloride	2,498.3 µg/mL	+/-	21.7258	µg/mL	Gravimetric
	CAS # 75-01-4 (Lot 1026101231B1)		+/-	141.0069	µg/mL	Unstressed
	Purity 99%		+/-	144.2635	µg/mL	Stressed
4	1,3-Butadiene	2,499.9 µg/mL	+/-	19.8572	µg/mL	Gravimetric
	CAS # 106-99-0 (Lot SHBH7966)		+/-	140.8167	µg/mL	Unstressed
	Purity 99%		+/-	144.0816	µg/mL	Stressed
5	Bromomethane (methyl bromide)	2,500.4 µg/mL	+/-	24.9675	µg/mL	Gravimetric
	CAS # 74-83-9 (Lot 101604)		+/-	141.6590	µg/mL	Unstressed
	Purity 99%		+/-	144.9064	µg/mL	Stressed
6	Chloroethane (ethyl chloride)	2,500.1 µg/mL	+/-	25.2649	µg/mL	Gravimetric
	CAS # 75-00-3 (Lot 23593)		+/-	141.6931	µg/mL	Unstressed
	Purity 99%		+/-	144.9388	µg/mL	Stressed
7	Dichlorofluoromethane (CFC-21)	2,500.0 µg/mL	+/-	16.7114	µg/mL	Gravimetric
	CAS # 75-43-4 (Lot 4938100)		+/-	140.4149	µg/mL	Unstressed
	Purity 99%		+/-	143.6892	µg/mL	Stressed

8	Trichlorofluoromethane (CFC-11)	2,499.5 µg/mL	+/- 20.7085	µg/mL	Gravimetric
	CAS # 75-69-4 (Lot SHBH4155V)		+/- 140.9189	µg/mL	Unstressed
	Purity 99%		+/- 144.1805	µg/mL	Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

Tech Tips:

Raw material may contain trace amounts of tert-Butanol.

Column:
60m x 0.25mm x 1.4µm
Rtx-502.2 (cat.#10916)

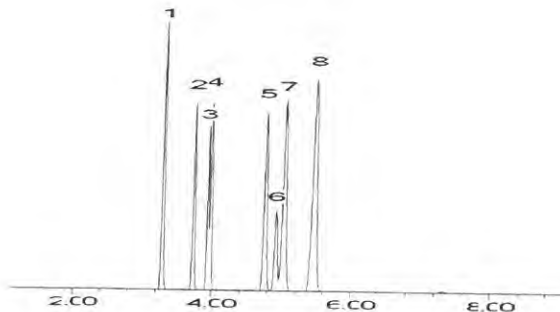
Carrier Gas:
helium-constant flow 2.0 mL/min.

Temp. Program:
40°C (hold 6 min.) to 100°C
@ 6°C/min.

Inj. Temp:
200°C

Det. Temp:
250°C

Det. Type:
MSD



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

F. Joseph Tallon
F. Joseph Tallon - Mix Technician

Date Mixed: 10-Oct-2017

Balance: B251644995

Jennifer I. Pollino
Jennifer Pollino - Operations Tech-ARM QC

Date Passed: 12-Oct-2017

Manufactured under Restek's ISO 9001:2008
Registered Quality System
Certificate #FM 80397

Reagent

vm569722_00013

Rec: 7/23/19

VM569722-00013



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Catalog No. : 569722 **Lot No.:** A0143158

Description : 8260 List 1 / Std #3 Gases (2015)

8260 List 1 / Std #3 Gases (2015) 2,500µg/mL, P&T Methanol, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : November 30, 2021 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)			
1	Dichlorodifluoromethane (CFC-12)	2,500.9 µg/mL	+/-	17.2023	µg/mL	Gravimetric
	CAS # 75-71-8 (Lot 00012554)		+/-	140.5234	µg/mL	Unstressed
	Purity 99%		+/-	143.7976	µg/mL	Stressed
2	Chloromethane (methyl chloride)	2,500.4 µg/mL	+/-	17.0791	µg/mL	Gravimetric
	CAS # 74-87-3 (Lot SHBJ6334)		+/-	140.4796	µg/mL	Unstressed
	Purity 99%		+/-	143.7534	µg/mL	Stressed
3	Vinyl chloride	2,500.4 µg/mL	+/-	16.5693	µg/mL	Gravimetric
	CAS # 75-01-4 (Lot 00012557)		+/-	140.4224	µg/mL	Unstressed
	Purity 99%		+/-	143.6977	µg/mL	Stressed
4	1,3-Butadiene	2,500.1 µg/mL	+/-	17.0785	µg/mL	Gravimetric
	CAS # 106-99-0 (Lot SHBK2299)		+/-	140.4623	µg/mL	Unstressed
	Purity 99%		+/-	143.7357	µg/mL	Stressed
5	Bromomethane (methyl bromide)	2,500.9 µg/mL	+/-	16.5511	µg/mL	Gravimetric
	CAS # 74-83-9 (Lot 101604)		+/-	140.4457	µg/mL	Unstressed
	Purity 99%		+/-	143.7217	µg/mL	Stressed
6	Chloroethane (ethyl chloride)	2,502.0 µg/mL	+/-	16.0409	µg/mL	Gravimetric
	CAS # 75-00-3 (Lot 107-401039114-1)		+/-	140.4480	µg/mL	Unstressed
	Purity 99%		+/-	143.7268	µg/mL	Stressed
7	Dichlorofluoromethane (CFC-21)	2,500.0 µg/mL	+/-	14.5352	µg/mL	Gravimetric
	CAS # 75-43-4 (Lot 7766400)		+/-	140.1725	µg/mL	Unstressed
	Purity 99%		+/-	143.4524	µg/mL	Stressed

8	Trichlorofluoromethane (CFC-11)	2,500.8 µg/mL	+/- 17.8012	µg/mL	Gravimetric
	CAS # 75-69-4 (Lot SHBH4155V)		+/- 140.5946	µg/mL	Unstressed
	Purity 99%		+/- 143.8670	µg/mL	Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

Tech Tips:

Raw material may contain trace amounts of tert-Butanol.

Column:
60m x 0.25mm x 1.4µm
Rtx-502.2 (cat.#10916)

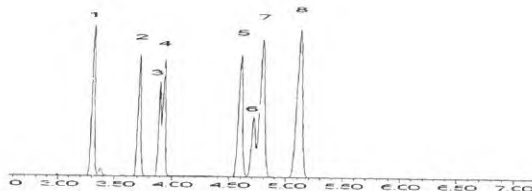
Carrier Gas:
helium-constant pressure 30 psi

Temp. Program:
40°C (hold 2 min.) to 240°C
@ 8°C/min. (hold 5 min.)

Inj. Temp:
200°C

Det. Temp:
250°C

Det. Type:
MSD



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Joseph Jaglowski
Joseph Jaglowski - Mix Technician

Date Mixed: 12-Nov-2018 **Balance:** B707717271

Jennifer Pollino
Jennifer Pollino - Operations Tech-ARM QC

Date Passed: 11-Dec-2018

Manufactured under Restek's ISO 9001:2015
Registered Quality System
Certificate #FM 80397

Reagent

vm569722_00014



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VM569722 - 000X14
 Rec: 9/9/19
 Sam 9/11/19

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Catalog No. : 569722 **Lot No.:** A0146651
Description : 8260 List 1 / Std #3 Gases (2015)
8260 List 1 / Std #3 Gases (2015) 2,500µg/mL, P&T Methanol, 1mL/ampul
Container Size : 2 mL **Pkg Amt:** > 1 mL
Expiration Date : March 31, 2022 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)			
1	Dichlorodifluoromethane (CFC-12)	2,500.2 µg/mL	+/-	19.5056	µg/mL	Gravimetric
	CAS # 75-71-8 (Lot 00012554)		+/-	140.7858	µg/mL	Unstressed
	Purity 99%		+/-	144.0522	µg/mL	Stressed
2	Chloromethane (methyl chloride)	2,501.5 µg/mL	+/-	20.4136	µg/mL	Gravimetric
	CAS # 74-87-3 (Lot SHBJ6334)		+/-	140.9867	µg/mL	Unstressed
	Purity 99%		+/-	144.2520	µg/mL	Stressed
3	Vinyl chloride	2,502.6 µg/mL	+/-	19.3699	µg/mL	Gravimetric
	CAS # 75-01-4 (Lot 00012557)		+/-	140.9018	µg/mL	Unstressed
	Purity 99%		+/-	144.1719	µg/mL	Stressed
4	1,3-Butadiene	2,502.4 µg/mL	+/-	21.0409	µg/mL	Gravimetric
	CAS # 106-99-0 (Lot SHBK2299)		+/-	141.1253	µg/mL	Unstressed
	Purity 99%		+/-	144.3895	µg/mL	Stressed
5	Bromomethane (methyl bromide)	2,501.9 µg/mL	+/-	18.1039	µg/mL	Gravimetric
	CAS # 74-83-9 (Lot 101604)		+/-	140.6930	µg/mL	Unstressed
	Purity 99%		+/-	143.9660	µg/mL	Stressed
6	Chloroethane (ethyl chloride)	2,498.4 µg/mL	+/-	18.1959	µg/mL	Gravimetric
	CAS # 75-00-3 (Lot 107-401039114-1)		+/-	140.5102	µg/mL	Unstressed
	Purity 99%		+/-	143.7782	µg/mL	Stressed
7	Dichlorofluoromethane (CFC-21)	2,500.0 µg/mL	+/-	14.5352	µg/mL	Gravimetric
	CAS # 75-43-4 (Lot 7978700)		+/-	140.1725	µg/mL	Unstressed
	Purity 99%		+/-	143.4524	µg/mL	Stressed

8	Trichlorofluoromethane (CFC-11)	2,505.7 µg/mL	+/- 19.3191	µg/mL	Gravimetric
	CAS # 75-69-4 (Lot SHBH4155V)		+/- 141.0656	µg/mL	Unstressed
	Purity 99%		+/- 144.3399	µg/mL	Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

Tech Tips:

Raw material may contain trace amounts of tert-Butanol.

Column:
60m x 0.25mm x 1.4µm
Rtx-502.2 (cat.#10916)

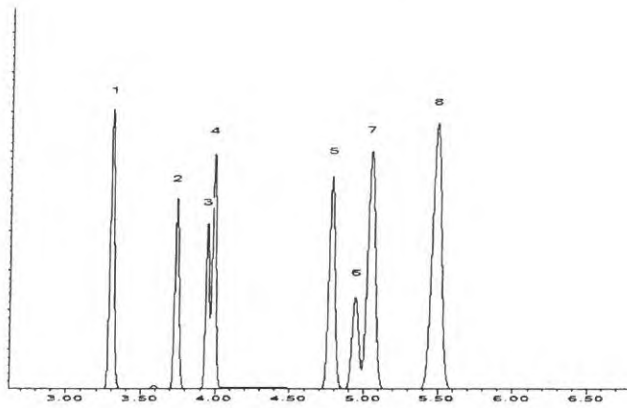
Carrier Gas:
helium-constant pressure 30 psi

Temp. Program:
40°C (hold 2 min.) to 240°C
@ 8°C/min. (hold 5 min.)

Inj. Temp:
200°C

Det. Temp:
250°C

Det. Type:
MSD



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Tom Suckar
Tom Suckar - Mix Technician

Date Mixed: 05-Mar-2019

Balance: B707717271

John Lidgett
John Lidgett - AD Chemist

Date Passed: 12-Mar-2019

Manufactured under Restek's ISO 9001:2015
Registered Quality System
Certificate #FM 80397

Reagent

vm569722_00015



110 Benner Circle
 Bellefonte, PA 16823-8812
 Tel: (800)356-1688
 Fax: (814)353-1309

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

Rec: 4/14/20
 VMS69722-00015



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 569722 **Lot No.:** A0154679
Description : 8260 List 1 / Std #3 Gases (2015)
8260 List 1 / Std #3 Gases (2015) 2,500µg/mL, P&T Methanol, 1mL/ampul
Container Size : 2 mL **Pkg Amt:** > 1 mL
Expiration Date : November 30, 2022 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)			
1	Dichlorodifluoromethane (CFC-12)	2,502.7 µg/mL	+/-	18.2705	µg/mL	Gravimetric
	CAS # 75-71-8 (Lot 00012554)		+/-	140.7566	µg/mL	Unstressed
	Purity 99%		+/-	144.0300	µg/mL	Stressed
2	Chloromethane (methyl chloride)	2,500.3 µg/mL	+/-	18.7547	µg/mL	Gravimetric
	CAS # 74-87-3 (Lot SHBK6571)		+/-	140.6865	µg/mL	Unstressed
	Purity 99%		+/-	143.9553	µg/mL	Stressed
3	Vinyl chloride	2,501.1 µg/mL	+/-	18.5858	µg/mL	Gravimetric
	CAS # 75-01-4 (Lot 00015559)		+/-	140.7083	µg/mL	Unstressed
	Purity 99%		+/-	143.9787	µg/mL	Stressed
4	1,3-Butadiene	2,497.1 µg/mL	+/-	17.5808	µg/mL	Gravimetric
	CAS # 106-99-0 (Lot SHBK2299)		+/-	140.3628	µg/mL	Unstressed
	Purity 99%		+/-	143.6309	µg/mL	Stressed
5	Bromomethane (methyl bromide)	2,500.8 µg/mL	+/-	23.3138	µg/mL	Gravimetric
	CAS # 74-83-9 (Lot 101604)		+/-	141.3956	µg/mL	Unstressed
	Purity 99%		+/-	144.6498	µg/mL	Stressed
6	Chloroethane (ethyl chloride)	2,499.0 µg/mL	+/-	21.4252	µg/mL	Gravimetric
	CAS # 75-00-3 (Lot 107-401039114-1)		+/-	140.9973	µg/mL	Unstressed
	Purity 99%		+/-	144.2558	µg/mL	Stressed
7	Dichlorofluoromethane (CFC-21)	2,500.0 µg/mL	+/-	14.5352	µg/mL	Gravimetric
	CAS # 75-43-4 (Lot 4938100)		+/-	140.1725	µg/mL	Unstressed
	Purity 99%		+/-	143.4524	µg/mL	Stressed

8	Trichlorofluoromethane (CFC-11)	2,499.6 µg/mL	+/- 21.2368	µg/mL	Gravimetric
	CAS # 75-69-4 (Lot 25931)		+/- 141.0019	µg/mL	Unstressed
	Purity 99%		+/- 144.2618	µg/mL	Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

Tech Tips:

Raw material may contain trace amounts of tert-Butanol.

Column:
 60m x 0.25mm x 1.4µm
 Rtx-502.2 (cat.#10916)

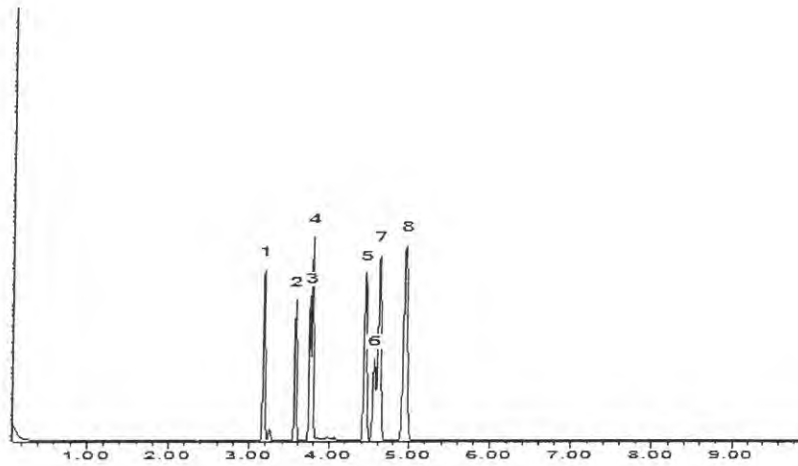
Carrier Gas:
 helium-constant pressure 30 psi

Temp. Program:
 40°C (hold 2 min.) to 240°C
 @ 8°C/min. (hold 5 min.)

Inj. Temp:
 200°C

Det. Temp:
 250°C

Det. Type:
 MSD



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.


 Tom Suckar - Mix Technician

Date Mixed: 04-Nov-2019 **Balance:** B707717271


 Feng-Yun Lo - QC Analyst


Date Passed: 10-Nov-2019

Manufactured under Restek's ISO 9001:2015
 Registered Quality System
 Certificate #FM 80397

Reagent

vm569722s_00004

VM 569722_S - 00004

Rec'd 7/12/16 



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Certificate of Analysis



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FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 569722.sec Lot No.: A0115484

Description : 8260 List 1 / Std #3 Gases (2015)
8260 List 1 / Std #3 Gases (2015) 2,500 ug/ml. P&T Methanol. 1 ml/ampul

Container Size : 2 mL Pkg Amt: > 1 mL

Expiration Date : November 30, 2018 Storage: 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Dichlorodifluoromethane (CFC-12) CAS # 75-71-8.SEC (Lot 22274) Purity 99%	2,505.6 µg/mL	-/- 16.6251	µg/mL	Gravimetric
			+/+ 140.7169	µg/mL	Unstressed
			-/- 143.9990	µg/mL	Stressed
2	Chloromethane (methyl chloride) CAS # 74-87-3.SEC (Lot 18343) Purity 99%	2,517.3 µg/mL	+/- 17.5796	µg/mL	Gravimetric
			+/- 141.4522	µg/mL	Unstressed
			+/- 144.7477	µg/mL	Stressed
3	Vinyl chloride CAS # 75-01-4.SEC (Lot MKBK6872V) Purity 99%	2,510.2 µg/mL	-/- 16.6342	µg/mL	Gravimetric
			+/- 140.9727	µg/mL	Unstressed
			-/- 144.2609	µg/mL	Stressed
4	1,3-Butadiene CAS # 106-99-0.SEC (Lot 22331) Purity 99%	2,516.5 µg/mL	-/- 17.4874	µg/mL	Gravimetric
			+/- 141.4240	µg/mL	Unstressed
			+/- 144.7182	µg/mL	Stressed
5	Bromomethane (methyl bromide) CAS # 74-83-9.SEC (Lot Q119-46) Purity 99%	2,511.5 µg/mL	+/- 16.8310	µg/mL	Gravimetric
			+/- 141.0664	µg/mL	Unstressed
			+/- 144.3557	µg/mL	Stressed
6	Chloroethane (ethyl chloride) CAS # 75-00-3.SEC (Lot 00004202) Purity 99%	2,504.8 µg/mL	+/- 16.4341	µg/mL	Gravimetric
			+/- 140.6469	µg/mL	Unstressed
			+/- 143.9283	µg/mL	Stressed
7	Dichlorofluoromethane (CFC-21) CAS # 75-43-4.SEC (Lot SHBC0858V) Purity 99%	2,500.5 µg/mL	+/- 16.1659	µg/mL	Gravimetric
			-/- 140.3776	µg/mL	Unstressed
			+/- 143.6540	µg/mL	Stressed

Trichlorofluoromethane (CF₃)₂ 2.524.5 µg/mL +/- 16.8928 µg/mL Gravimetric
 CAS # 75-69-4 SEC (Lot Q12B-59) +/- 141.7952 µg/mL Unstressed
 Purity 99% +/- 145.1017 µg/mL Stressed

Solvent: P&T Methanol
 CAS # 67-56-1
 Purity 99%

Column:
 60m x 0.25mm x 1.4µm
 Rtx-502.2 (cat.#10916)

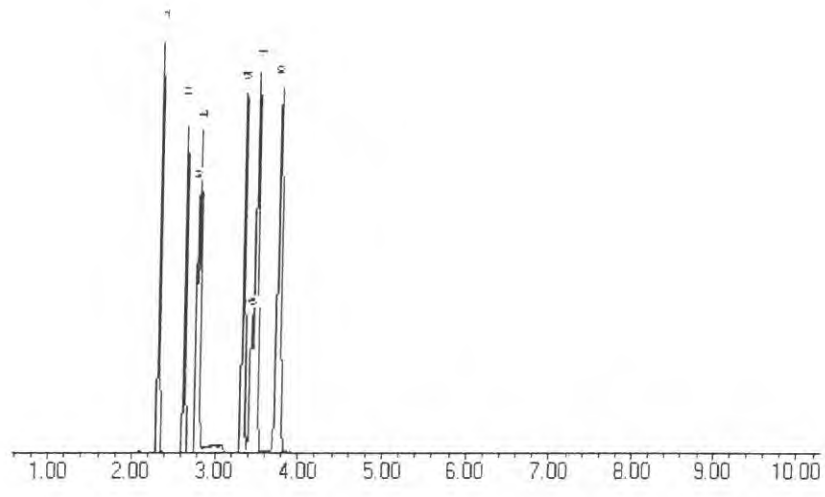
Carrier Gas:
 helium-constant flow 2.0 mL/min.

Temp. Program:
 40°C (hold 6 min.) to 100°C
 @ 6°C/min.

Inj. Temp:
 200°C

Det. Temp:
 250°C

Det. Type:
 MSD



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Lane Kibe
 Lane Kibe - Mix Technician

Date Mixed: 17-Nov-2015 Balance: 1127510105

Jennifer L. Pollino
 Jennifer L. Pollino - QC Analyst

Date Passed: 10-Dec-2015

Manufactured under Restek's ISO 9001:2008
 Registered Quality System
 Certificate #FM 80397

Reagent

vm569722s_00006



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 Tel: (800)356-1688
 Fax: (814)353-1309

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

Rec: 6/15/18

20 vial

VM569722S-00006



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 569722.SEC **Lot No.:** A0133344

Description : 8260 List 1 / Std #3 Gases (2015)
8260 List 1 / Std #3 Gases (2015) 2,500µg/mL, P&T Methanol, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : December 31, 2020 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)			
1	Dichlorofluoromethane (CFC-21)	2,500.0 µg/mL	+/-	14.5352	µg/mL	Gravimetric
	CAS # 75-43-4 * (Lot 4938100)		+/-	140.1725	µg/mL	Unstressed
	Purity 99%		+/-	143.4524	µg/mL	Stressed
2	Chloromethane (methyl chloride)	2,521.6 µg/mL	+/-	17.0984	µg/mL	Gravimetric
	CAS # 74-87-3.SEC (Lot 18343)		+/-	141.6588	µg/mL	Unstressed
	Purity 99%		+/-	144.9608	µg/mL	Stressed
3	Vinyl chloride	2,502.2 µg/mL	+/-	18.3289	µg/mL	Gravimetric
	CAS # 75-01-4.SEC (Lot MKBK6872V)		+/-	140.7354	µg/mL	Unstressed
	Purity 99%		+/-	144.0080	µg/mL	Stressed
4	1,3-Butadiene	2,513.3 µg/mL	+/-	16.7862	µg/mL	Gravimetric
	CAS # 106-99-0.SEC (Lot 24033)		+/-	141.1580	µg/mL	Unstressed
	Purity 99%		+/-	144.4497	µg/mL	Stressed
5	Bromomethane (methyl bromide)	2,524.8 µg/mL	+/-	22.7878	µg/mL	Gravimetric
	CAS # 74-83-9.SEC (Lot Q119-46)		+/-	142.6298	µg/mL	Unstressed
	Purity 99%		+/-	145.9179	µg/mL	Stressed
6	Chloroethane (ethyl chloride)	2,515.6 µg/mL	+/-	20.9811	µg/mL	Gravimetric
	CAS # 75-00-3.SEC (Lot 00004202)		+/-	141.8493	µg/mL	Unstressed
	Purity 99%		+/-	145.1315	µg/mL	Stressed
7	Dichlorodifluoromethane (CFC-12)	2,509.0 µg/mL	+/-	17.4430	µg/mL	Gravimetric
	CAS # 75-71-8.SEC (Lot 24186)		+/-	141.0029	µg/mL	Unstressed
	Purity 99%		+/-	144.2872	µg/mL	Stressed

8	Trichlorofluoromethane (CFC-11)	2,497.4 µg/mL	+/- 22.1815	µg/mL	Gravimetric
	CAS # 75-69-4.SEC (Lot 253600)		+/- 141.0261	µg/mL	Unstressed
	Purity 99%		+/- 144.2798	µg/mL	Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

* Restek is unable to identify a reliable and/or acceptable second source for this material - the same batch of neat material may have been used to produce both the primary and secondary standard. The primary and secondary standards were prepared using different equipment and personnel.

Tech Tips:

Raw material may contain trace amounts of tert-Butanol.

Column:
60m x 0.25mm x 1.4µm
Rtx-502.2 (cat.#10916)

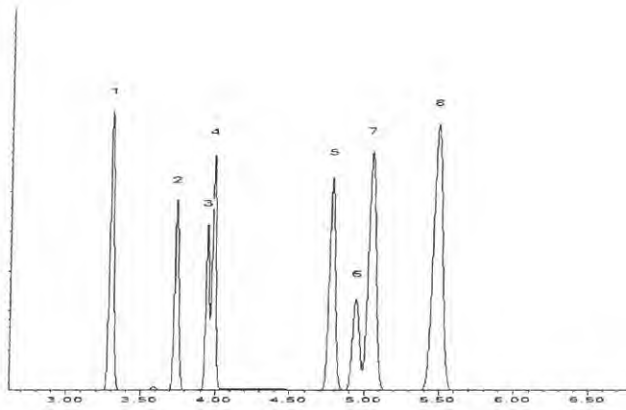
Carrier Gas:
helium-constant flow 2.0 mL/min.

Temp. Program:
40°C (hold 6 min.) to 100°C
@ 6°C/min.

Inj. Temp:
200°C

Det. Temp:
250°C

Det. Type:
MSD



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Lane Kibe
Lane Kibe - Mix Technician

Date Mixed: 14-Dec-2017 Balance: 1128342314

Justin Albertson
Justin Albertson - Operations Tech-ARM QC

Date Passed: 20-Dec-2017

Manufactured under Restek's ISO 9001:2008
Registered Quality System
Certificate #FM 80397

Reagent

vm569722s_00007

Ref: 1-23-19
 VMS697225-00007



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FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 569722.SEC **Lot No.:** A0142117
Description : 8260 List 1 / Std #3 Gases (2015)
8260 List 1 / Std #3 Gases (2015) 2,500µg/mL, P&T Methanol, 1mL/ampul
Container Size : 2 mL **Pkg Amt:** > 1 mL
Expiration Date : October 31, 2021 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)			
1	Dichlorodifluoromethane (CFC-12)	2,503.0 µg/mL	+/-	23.3708	µg/mL	Gravimetric
	CAS # 75-71-8.SEC (Lot 24847)		+/-	141.5277	µg/mL	Unstressed
	Purity 99%		+/-	144.7846	µg/mL	Stressed
2	Chloromethane (methyl chloride)	2,497.4 µg/mL	+/-	25.3963	µg/mL	Gravimetric
	CAS # 74-87-3.SEC (Lot 18343)		+/-	141.5662	µg/mL	Unstressed
	Purity 99%		+/-	144.8078	µg/mL	Stressed
3	Vinyl chloride	2,501.8 µg/mL	+/-	19.5755	µg/mL	Gravimetric
	CAS # 75-01-4.SEC (Lot MKBK6872V)		+/-	140.8855	µg/mL	Unstressed
	Purity 99%		+/-	144.1539	µg/mL	Stressed
4	1,3-Butadiene	2,505.3 µg/mL	+/-	20.9927	µg/mL	Gravimetric
	CAS # 106-99-0.SEC (Lot 22331)		+/-	141.2797	µg/mL	Unstressed
	Purity 99%		+/-	144.5480	µg/mL	Stressed
5	Bromomethane (methyl bromide)	2,498.6 µg/mL	+/-	25.6449	µg/mL	Gravimetric
	CAS # 74-83-9.SEC (Lot Q119-46)		+/-	141.6796	µg/mL	Unstressed
	Purity 99%		+/-	144.9218	µg/mL	Stressed
6	Chloroethane (ethyl chloride)	2,498.9 µg/mL	+/-	24.9623	µg/mL	Gravimetric
	CAS # 75-00-3.SEC (Lot 00004202)		+/-	141.5741	µg/mL	Unstressed
	Purity 99%		+/-	144.8194	µg/mL	Stressed
7	Dichlorofluoromethane (CFC-21)	2,500.0 µg/mL	+/-	14.6714	µg/mL	Gravimetric
	CAS # 75-43-4 * (Lot 7766400)		+/-	140.1867	µg/mL	Unstressed
	Purity 99%		+/-	143.4662	µg/mL	Stressed

8	Trichlorofluoromethane (CFC-11)	2,501.7	µg/mL	+/-	23.1926	µg/mL	Gravimetric
	CAS # 75-69-4.SEC (Lot 253600)			+/-	141.4285	µg/mL	Unstressed
	Purity 99%			+/-	144.6844	µg/mL	Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

* Restek is unable to identify a reliable and/or acceptable second source for this material - the same batch of neat material may have been used to produce both the primary and secondary standard. The primary and secondary standards were prepared using different equipment and personnel.

Tech Tips:

Raw material may contain trace amounts of tert-Butanol.

Column:
 60m x 0.25mm x 1.4µm
 Rtx-502.2 (cat.#10916)

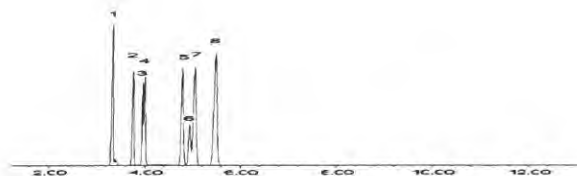
Carrier Gas:
 helium-constant flow 2.0 mL/min.

Temp. Program:
 40°C (hold 6 min.) to 100°C
 @ 6°C/min.

Inj. Temp:
 200°C

Det. Temp:
 250°C

Det. Type:
 MSD



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Michael Mage

Date Mixed: 04-Oct-2018 **Balance:** 1127510105

Jennifer J Pollino
 Jennifer Pollino - Operations Tech-ARM QC

Date Passed: 08-Oct-2018

Manufactured under Restek's ISO 9001:2015
 Registered Quality System
 Certificate #FM 80397

Reagent

VM569723_00003



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FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 569723 Lot No.: A0112895
 Description : 8260 List 1 / Std #4 2-CEVE (2015)
8260 List 1 / Std #4 2-CEVE (2015) 2,500 ug/ml, P&T Methanol, 1 ml/ampul
 Container Size : 2 mL Pkg Amt: > 1 mL
 Expiration Date : July 31, 2018 Storage: 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	2-Chloroethyl vinyl ether CAS # 110-75-8 Purity 99% (Lot MKBK2735V)	2,503.2 µg/mL	+/- 14.6902	µg/mL	Gravimetric
			+/- 53.1239	µg/mL	Unstressed
			+/- 53.3593	µg/mL	Stressed

Solvent: P&T Methanol
 CAS # 67-56-1
 Purity 99%

Tech Tips:

Degradation of tetrachloroethylene to pentachloroethane may occur if solutions containing 2-chloroethyl vinyl ether are combined with solutions that contain tetrachloroethylene.

Reagent

VM569723_00004



CERTIFIED REFERENCE MATERIAL

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 Bellefonte, PA 16823-8812
 Tel: (800)356-1688
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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 569723 Lot No.: A0115628
 Description : 8260 List 1 / Std #4 2-CEVE (2015)
8260 List 1 / Std #4 2-CEVE (2015) 2,500 ug/ml, P&T Methanol, 1 ml/ampul
 Container Size : 2 mL Pkg Amt: > 1 mL
 Expiration Date : November 30, 2018 Storage: 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	2-Chloroethyl vinyl ether CAS # 110-75-8 Purity 99% (Lot MKBK2735V)	2,509.2 µg/mL	+/- 14.5887	µg/mL	Gravimetric
			+/- 53.7223	µg/mL	Unstressed
			+/- 55.2841	µg/mL	Stressed

Solvent: P&T Methanol
 CAS # 67-56-1
 Purity 99%

Tech Tips:

Degradation of tetrachloroethylene to pentachloroethane may occur if solutions containing 2-chloroethyl vinyl ether are combined with solutions that contain tetrachloroethylene.

Reagent

VM569723_00008



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 Bellefonte, PA 16823-8812
 Tel: (800)356-1688
 Fax: (814)353-1309

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

Rec: 9/9/19
 VM569723-00008



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 569723 **Lot No.:** A0146250
Description : 8260 List 1 / Std #4 2-CEVE (2015)
8260 List 1 / Std #4 2-CEVE (2015) 2,500µg/mL, P&T Methanol, 1mL/ampul
Container Size : 2 mL **Pkg Amt:** > 1 mL
Expiration Date : February 28, 2022 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	2-Chloroethyl vinyl ether CAS # 110-75-8 Purity 99% (Lot MKBS6526V)	2,500.0 µg/mL	+/- 14.5352	µg/mL	Gravimetric
			+/- 53.5253	µg/mL	Unstressed
			+/- 55.0814	µg/mL	Stressed

Solvent: P&T Methanol
 CAS # 67-56-1
 Purity 99%

Tech Tips:

Degradation of tetrachloroethylene to pentachloroethane may occur if solutions containing 2-chloroethyl vinyl ether are combined with solutions that contain tetrachloroethylene.

Reagent

VM569723S_00008

Rec: 9/9/19
 VM5697235-00008



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 Bellefonte, PA 16823-8812
 Tel: (800)356-1688
 Fax: (814)353-1309

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Certificate of Analysis



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 569723.SEC **Lot No.:** A0143264
Description : 8260 List 1 / Std #4 2-CEVE (2015)
8260 List 1 / Std #4 2-CEVE (2015) 2,500µg/mL, P&T Methanol, 1mL/ampul
Container Size : 2 mL **Pkg Amt:** > 1 mL
Expiration Date : November 30, 2021 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	2-Chloroethyl vinyl ether CAS # 110-75-8.SEC (Lot BQZ2K-QD) Purity 99%	2,502.8 µg/mL	+/- 14.6878	µg/mL	Gravimetric
			+/- 53.6224	µg/mL	Unstressed
			+/- 55.1792	µg/mL	Stressed

Solvent: P&T Methanol
 CAS # 67-56-1
 Purity 99%

Tech Tips:

Degradation of tetrachloroethylene to pentachloroethane may occur if solutions containing 2-chloroethyl vinyl ether are combined with solutions that contain tetrachloroethylene.

Reagent

VM569724_00014

Rec'd 4/17/18

VM 569724_00014



CERTIFIED REFERENCE MATERIAL

110 Benner Circle
 Bellefonte, PA 16823-8812
 Tel: (800)356-1688
 Fax: (814)353-1309

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Certificate of Analysis



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Catalog No. : 569724 **Lot No.:** A0134268
Description : 8260 List 1 / Std #6 Vinyl Acetate (2015)
8260 List 1 / Std #6 Vinyl Acetate (2015) 5,000µg/mL, P&T Methanol, 1mL/ampul
Container Size : 2 mL **Pkg Amt:** > 1 mL
Expiration Date : July 31, 2018 **Storage:** 0°C or colder
Handling: This product is photosensitive.

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)
1	Vinyl acetate CAS # 108-05-4 Purity 99% (Lot STBD7333V)	5,014.0 µg/mL	+/- 29.3581 µg/mL Gravimetric +/- 302.5368 µg/mL Unstressed +/- 303.2550 µg/mL Stressed

Solvent: P&T Methanol
 CAS # 67-56-1
 Purity 99%

Tech Tips:

Vinyl acetate is a volatile organic ester included in the target lists of several US EPA and other methods. Under acidic conditions, esters react with alcohols to form new esters (transesterification). Methanol-based mixes containing halogenated compounds are slightly acidic, so it is important to minimize exposure of vinyl acetate to mixes of halogenated compounds in methanol. For this reason, we offer vinyl acetate in individual solution, and suggest that it be introduced into the working level calibration solution immediately before use. This will minimize problems and ensure more consistent results.

Reagent

VM569724_00016



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 Bellefonte, PA 16823-8812
 Tel: (800)356-1688
 Fax: (814)353-1309

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UM 569 724 - 022/16

Rec'd 7/13/18

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis



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Catalog No. : 569724 **Lot No.:** A0137562
Description : 8260 List 1 / Std #6 Vinyl Acetate (2015)
8260 List 1 / Std #6 Vinyl Acetate (2015) 5,000µg/mL, P&T Methanol, 1mL/ampul
Container Size : 2 mL **Pkg Amt:** > 1 mL
Expiration Date : October 31, 2018 **Storage:** 0°C or colder
Handling: This product is photosensitive.

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)
1	Vinyl acetate CAS # 108-05-4 Purity 99% (Lot STBD7333V)	5,020.0 µg/mL	+/- 29.4602 µg/mL Gravimetric +/- 302.9053 µg/mL Unstressed +/- 303.6243 µg/mL Stressed

Solvent: P&T Methanol
 CAS # 67-56-1
 Purity 99%

Tech Tips:

Vinyl acetate is a volatile organic ester included in the target lists of several US EPA and other methods. Under acidic conditions, esters react with alcohols to form new esters (transesterification). Methanol-based mixes containing halogenated compounds are slightly acidic, so it is important to minimize exposure of vinyl acetate to mixes of halogenated compounds in methanol. For this reason, we offer vinyl acetate in individual solution, and suggest that it be introduced into the working level calibration solution immediately before use. This will minimize problems and ensure more consistent results.

Reagent

VM569724_00021

vm 569724-00021 Rec: 9/6/19



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 Bellefonte, PA 16823-8812
 Tel: (800)356-1688
 Fax: (814)353-1309

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Certificate of Analysis



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 569724 Lot No.: A0150515
 Description : 8260 List 1 / Std #6 Vinyl Acetate (2015)
 8260 List 1 / Std #6 Vinyl Acetate (2015) 5,000µg/mL, P&T Methanol, 1mL/ampul
 Container Size : 2 mL Pkg Amt: > 1 mL
 Expiration Date : January 31, 2020 Storage: 0°C or colder
 Handling: This product is photosensitive.

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)
1	Vinyl acetate CAS # 108-05-4 Purity 99% (Lot STBD7333V)	5,024.0 µg/mL	+/- 29.4836 µg/mL Gravimetric +/- 303.1467 µg/mL Unstressed +/- 303.8663 µg/mL Stressed

Solvent: P&T Methanol
 CAS # 67-56-1
 Purity 99%

Tech Tips:

Vinyl acetate is a volatile organic ester included in the target lists of several US EPA and other methods. Under acidic conditions, esters react with alcohols to form new esters (transesterification). Methanol-based mixes containing halogenated compounds are slightly acidic, so it is important to minimize exposure of vinyl acetate to mixes of halogenated compounds in methanol. For this reason, we offer vinyl acetate in individual solution, and suggest that it be introduced into the working level calibration solution immediately before use. This will minimize problems and ensure more consistent results.

Reagent

VM569724_00024

Rec'd 4-20-20

VM569724 - 00024



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Fax: (814)353-1309

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Catalog No. : 569724 **Lot No.:** A0156559

Description : 8260 List 1 / Std #6 Vinyl Acetate (2015)
8260 List 1 / Std #6 Vinyl Acetate (2015) 5,000µg/mL, P&T Methanol, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : July 31, 2021 **Storage:** 0°C or colder

Handling: This product is photosensitive.

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)
1	Vinyl acetate CAS # 108-05-4 Purity 99% (Lot 192709KJ)	5,040.0 µg/mL	+/- 29.5103 µg/mL Gravimetric +/- 304.1056 µg/mL Unstressed +/- 304.8275 µg/mL Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

Specific Reference Material Notes:

08 April 2020
Expiration date extended from July 31, 2020 to July 31, 2021.

Tech Tips:

Vinyl acetate is a volatile organic ester included in the target lists of several US EPA and other methods. Under acidic conditions, esters react with alcohols to form new esters (transesterification). Methanol-based mixes containing halogenated compounds are slightly acidic, so it is important to minimize exposure of vinyl acetate to mixes of halogenated compounds in methanol. For this reason, we offer vinyl acetate in individual solution, and suggest that it be introduced into the working level calibration solution immediately before use. This will minimize problems and ensure more consistent results.

Reagent

VM569724S_00029

Rec'd: 4/12/19

VMS697245-00029



CERTIFIED REFERENCE MATERIAL



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Fax: (814)353-1309

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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 569724.SEC Lot No.: A0158728

Description : 8260 List 1 / Std #6 Vinyl Acetate (2015)
8260 List 1 / Std #6 Vinyl Acetate (2015) 5,000µg/mL, P&T Methanol, 1mL/ampul

Container Size : 2 mL Pkg Amt: > 1 mL

Expiration Date : September 30, 2021 Storage: 0°C or colder

Handling: This product is photosensitive.

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L., K=2)
1	Vinyl acetate CAS # 108-05-4.SEC (Lot 190320CGKJ) Purity 99%	5,034.0 µg/mL	+/- 29.5423 µg/mL Gravimetric +/- 303.7501 µg/mL Unstressed +/- 304.4711 µg/mL Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

Specific Reference Material Notes:

08 April 2020
Expiration date extended from September 30, 2020 to September 30, 2021.

Tech Tips:

Vinyl acetate is a volatile organic ester included in the target lists of several US EPA and other methods. Under acidic conditions, esters react with alcohols to form new esters (transesterification). Methanol-based mixes containing halogenated compounds are slightly acidic, so it is important to minimize exposure of vinyl acetate to mixes of halogenated compounds in methanol. For this reason, we offer vinyl acetate in individual solution, and suggest that it be introduced into the working level calibration solution immediately before use. This will minimize problems and ensure more consistent results.

Reagent

VM571992_00001

Rec: 1-25-17
VM571992-00001



CERTIFIED REFERENCE MATERIAL

110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

Certificate of Analysis



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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 571992 Lot No.: A0123711
 Description : 8260 List 1 / Std #1 MegaMix (2017)
8260 List 1 / Std #1 MegaMix (2017) 1250-62500 µg/ml, P&T Methanol, 1 ml/ampul
 Container Size : 2 mL Pkg Amt: > 1 mL
 Expiration Date : December 31, 2018 Storage: 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)			
1	Diethyl ether (ethyl ether) CAS # 60-29-7 (Lot SHBG1462V) Purity 99%	2,501.3 µg/mL	+/- 14.5425	µg/mL	Gravimetric	
			+/- 150.9115	µg/mL	Unstressed	
			+/- 151.2698	µg/mL	Stressed	
2	1,1,2-Trichlorotrifluoroethane (CFC-113) CAS # 76-13-1 (Lot 00009482) Purity 99%	2,505.1 µg/mL	+/- 14.5650	µg/mL	Gravimetric	
			+/- 151.1453	µg/mL	Unstressed	
			+/- 151.5041	µg/mL	Stressed	
3	1,1-dichloroethene CAS # 75-35-4 (Lot SHBG8609V) Purity 99%	2,511.5 µg/mL	+/- 14.6021	µg/mL	Gravimetric	
			+/- 151.5299	µg/mL	Unstressed	
			+/- 151.8897	µg/mL	Stressed	
4	tert-Butanol (TBA) CAS # 75-65-0 (Lot SHBF0688V) Purity 99%	25,001.8 µg/mL	+/- 145.3547	µg/mL	Gravimetric	
			+/- 1,508.4656	µg/mL	Unstressed	
			+/- 1,512.0470	µg/mL	Stressed	
5	Methyl acetate CAS # 79-20-9 (Lot SHBG4345V) Purity 99%	5,000.5 µg/mL	+/- 29.0733	µg/mL	Gravimetric	
			+/- 301.7023	µg/mL	Unstressed	
			+/- 302.4186	µg/mL	Stressed	
6	Iodomethane (methyl iodide) CAS # 74-88-4 (Lot SHBF2149V) Purity 99%	2,502.9 µg/mL	+/- 14.5519	µg/mL	Gravimetric	
			+/- 151.0095	µg/mL	Unstressed	
			+/- 151.3681	µg/mL	Stressed	
7	Allyl chloride (3-chloropropene) CAS # 107-05-1 (Lot SHBF8133V) Purity 99%	2,517.1 µg/mL	+/- 14.6348	µg/mL	Gravimetric	
			+/- 151.8693	µg/mL	Unstressed	
			+/- 152.2299	µg/mL	Stressed	

19000-5PP1.216V

8	Methylene chloride (dichloromethane) CAS # 75-09-2 Purity 99%	(Lot SHBH2578V)	2,502.1 µg/mL	+/- 14.5476 +/- 150.9643 +/- 151.3227	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
9	Carbon disulfide CAS # 75-15-0 Purity 99%	(Lot S20A856)	2,501.4 µg/mL	+/- 14.5432 +/- 150.9190 +/- 151.2773	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
10	Acrylonitrile CAS # 107-13-1 Purity 99%	(Lot T07B2030)	25,001.3 µg/mL	+/- 145.3518 +/- 1,508.4355 +/- 1,512.0167	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
11	Methyl-tert-butyl ether (MTBE) CAS # 1634-04-4 Purity 99%	(Lot SHBG2655V)	2,505.3 µg/mL	+/- 14.5657 +/- 151.1528 +/- 151.5117	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
12	cis-1,2-Dichloroethene CAS # 156-59-2 Purity 98%	(Lot MKBV2831V)	2,500.5 µg/mL	+/- 14.5379 +/- 150.8644 +/- 151.2226	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
13	n-Hexane (C6) CAS # 110-54-3 Purity 99%	(Lot SHBG2674V)	2,503.8 µg/mL	+/- 14.5570 +/- 151.0623 +/- 151.4210	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
14	1,1-Dichloroethane CAS # 75-34-3 Purity 99%	(Lot 00008621)	2,500.4 µg/mL	+/- 14.5374 +/- 150.8587 +/- 151.2169	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
15	2,2-Dichloropropane CAS # 594-20-7 Purity 98%	(Lot BCBR0622V)	2,501.0 µg/mL	+/- 14.5408 +/- 150.8940 +/- 151.2522	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
16	trans-1,2-Dichloroethene CAS # 156-60-5 Purity 99%	(Lot 09431AEV)	2,503.8 µg/mL	+/- 14.5570 +/- 151.0623 +/- 151.4210	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
17	Isobutanol (2-Methyl-1-propanol) CAS # 78-83-1 Purity 99%	(Lot SHBG8201V)	62,512.5 µg/mL	+/- 363.4341 +/- 3,771.6543 +/- 3,780.6088	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
18	chloroform CAS # 67-66-3 Purity 99%	(Lot MKBV2089V)	2,501.9 µg/mL	+/- 14,5461 +/- 150.9492 +/- 151.3076	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
19	Bromochloromethane CAS # 74-97-5 Purity 99%	(Lot 00004559)	2,503.3 µg/mL	+/- 14.5541 +/- 151.0322 +/- 151.3907	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
20	Tetrahydrofuran CAS # 109-99-9 Purity 99%	(Lot SHBG2910V)	5,001.3 µg/mL	+/- 29.0777 +/- 301.7476 +/- 302.4640	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
21	1,1,1-trichloroethane CAS # 71-55-6 Purity 99%	(Lot B15W12061)	2,500.3 µg/mL	+/- 14.5367 +/- 150.8512 +/- 151.2093	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
22	Cyclohexane CAS # 110-82-7 Purity 99%	(Lot MKBX4768V)	2,502.0 µg/mL	+/- 14.5468 +/- 150.9567 +/- 151.3151	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
23	1,1-Dichloropropene CAS # 563-58-6 Purity 99%	(Lot 160727JLM)	2,500.5 µg/mL	+/- 14.5381 +/- 150.8662 +/- 151.2244	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

24	carbon tetrachloride CAS # 56-23-5 Purity 99%	(Lot SHBG1763V)	2,503.3 µg/mL	+/- 14,5541 +/- 151.0322 +/- 151.3907	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
25	n-Heptane (C7) CAS # 142-82-5 Purity 99%	(Lot SHBG6171V)	2,505.5 µg/mL	+/- 14,5672 +/- 151.1679 +/- 151.5268	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
26	1,2-Dichloroethane CAS # 107-06-2 Purity 99%	(Lot SHBF9313V)	2,504.8 µg/mL	+/- 14,5628 +/- 151.1227 +/- 151.4815	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
27	Benzene CAS # 71-43-2 Purity 99%	(Lot SHBH2056V)	2,506.9 µg/mL	+/- 14,5752 +/- 151.2509 +/- 151.6100	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
28	Trichloroethene CAS # 79-01-6 Purity 99%	(Lot SHBH1955V)	2,502.4 µg/mL	+/- 14,5490 +/- 150.9794 +/- 151.3378	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
29	Methylcyclohexane CAS # 108-87-2 Purity 98%	(Lot SHBG0634V)	2,500.3 µg/mL	+/- 14,5372 +/- 150.8570 +/- 151.2152	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
30	1,2-Dichloropropane CAS # 78-87-5 Purity 99%	(Lot 01113D0V)	2,503.0 µg/mL	+/- 14,5527 +/- 151.0171 +/- 151.3756	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
31	1,4-Dioxane CAS # 123-91-1 Purity 99%	(Lot SHBH2584V)	50,011.4 µg/mL	+/- 290,7552 +/- 3,017,4064 +/- 3,024,5702	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
32	Dibromomethane CAS # 74-95-3 Purity 98%	(Lot 10183283)	2,501.9 µg/mL	+/- 14,5465 +/- 150.9531 +/- 151.3115	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
33	cis-1,3-Dichloropropene CAS # 10061-01-5 Purity 99%	(Lot 22622)	2,501.0 µg/mL	+/- 14,5410 +/- 150.8964 +/- 151.2547	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
34	Toluene CAS # 108-88-3 Purity 99%	(Lot SHBH1932V)	2,504.3 µg/mL	+/- 14,5599 +/- 151.0925 +/- 151.4512	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
35	Ethyl methacrylate CAS # 97-63-2 Purity 99%	(Lot SHBD9190V)	2,506.9 µg/mL	+/- 14,5752 +/- 151.2509 +/- 151.6100	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
36	trans-1,3-Dichloropropene CAS # 10061-02-6 Purity 99%	(Lot C584177)	2,503.6 µg/mL	+/- 14,5563 +/- 151.0548 +/- 151.4134	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
37	1,1,2-Trichloroethane CAS # 79-00-5 Purity 99%	(Lot FGB01)	2,501.0 µg/mL	+/- 14,5410 +/- 150.8964 +/- 151.2547	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
38	1,3-Dichloropropane CAS # 142-28-9 Purity 99%	(Lot BCBG2162V)	2,503.5 µg/mL	+/- 14,5556 +/- 151.0472 +/- 151.4059	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
39	Tetrachloroethene CAS # 127-18-4 Purity 99%	(Lot SHBD9374V)	2,500.9 µg/mL	+/- 14,5403 +/- 150.8889 +/- 151.2471	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

40	dibromochloromethane CAS # 124-48-1 Purity 98%	(Lot MKBW3597V)	2,500.2 µg/mL	+/- 14.5365 +/- 150.8497 +/- 151.2078	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
41	1,2-Dibromoethane (EDB) CAS # 106-93-4 Purity 99%	(Lot BCBH3877V)	2,501.3 µg/mL	+/- 14.5425 +/- 150.9115 +/- 151.2698	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
42	Chlorobenzene CAS # 108-90-7 Purity 99%	(Lot SHBF0505V)	2,500.1 µg/mL	+/- 14.5359 +/- 150.8436 +/- 151.2017	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
43	m-Xylene CAS # 108-38-3 Purity 99%	(Lot SHBG4347V)	1,250.3 µg/mL	+/- 7.2691 +/- 75.4331 +/- 75.6122	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
44	p-Xylene CAS # 106-42-3 Purity 99%	(Lot SHBG3928V)	1,251.3 µg/mL	+/- 7.2749 +/- 75.4935 +/- 75.6727	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
45	Ethylbenzene CAS # 100-41-4 Purity 99%	(Lot SHBG5920V)	2,503.3 µg/mL	+/- 14.5541 +/- 151.0322 +/- 151.3907	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
46	1,1,1,2-Tetrachloroethane CAS # 630-20-6 Purity 99%	(Lot MKBS3769V)	2,500.3 µg/mL	+/- 14.5367 +/- 150.8512 +/- 151.2093	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
47	o-Xylene CAS # 95-47-6 Purity 99%	(Lot SHBH3432V)	2,504.9 µg/mL	+/- 14.5636 +/- 151.1302 +/- 151.4890	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
48	Styrene CAS # 100-42-5 Purity 99%	(Lot MKBS7097V)	2,506.3 µg/mL	+/- 14.5716 +/- 151.2132 +/- 151.5722	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
49	Isopropylbenzene (cumene) CAS # 98-82-8 Purity 99%	(Lot I0185056)	2,501.6 µg/mL	+/- 14.5447 +/- 150.9341 +/- 151.2925	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
50	bromoform CAS # 75-25-2 Purity 99%	(Lot SHBD8459V)	2,502.9 µg/mL	+/- 14.5519 +/- 151.0095 +/- 151.3681	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
51	bromodichloromethane CAS # 75-27-4 Purity 97%	(Lot MKBW5506V)	2,506.8 µg/mL	+/- 14.5750 +/- 151.2490 +/- 151.6081	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
52	1,1,2,2-Tetrachloroethane CAS # 79-34-5 Purity 99%	(Lot CFA4D)	2,501.3 µg/mL	+/- 14.5425 +/- 150.9115 +/- 151.2698	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
53	1,2,3-Trichloropropane CAS # 96-18-4 Purity 99%	(Lot BCBH8722V)	2,508.5 µg/mL	+/- 14.5846 +/- 151.3489 +/- 151.7082	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
54	trans-1,4-dichloro-2-butene CAS # 110-57-6 Purity 95%	(Lot MKBP6041V)	2,500.8 µg/mL	+/- 14.5396 +/- 150.8817 +/- 151.2399	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
55	n-Propylbenzene CAS # 103-65-1 Purity 99%	(Lot MKBJ0332V)	2,501.9 µg/mL	+/- 14.5461 +/- 150.9492 +/- 151.3076	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

56	Bromobenzene		2,507.0	µg/mL	+/-	14.5759	µg/mL	Gravimetric
	CAS #	108-86-1	(Lot MKBD4032V)		+/-	151.2584	µg/mL	Unstressed
	Purity	99%			+/-	151.6175	µg/mL	Stressed
57	1,3,5-Trimethylbenzene		2,501.1	µg/mL	+/-	14.5418	µg/mL	Gravimetric
	CAS #	108-67-8	(Lot BCBQ2165V)		+/-	150.9040	µg/mL	Unstressed
	Purity	99%			+/-	151.2622	µg/mL	Stressed
58	2-Chlorotoluene		2,500.6	µg/mL	+/-	14.5388	µg/mL	Gravimetric
	CAS #	95-49-8	(Lot MKBW5554V)		+/-	150.8738	µg/mL	Unstressed
	Purity	99%			+/-	151.2320	µg/mL	Stressed
59	4-Chlorotoluene		2,501.3	µg/mL	+/-	14.5425	µg/mL	Gravimetric
	CAS #	106-43-4	(Lot MKBL7753V)		+/-	150.9115	µg/mL	Unstressed
	Purity	99%			+/-	151.2698	µg/mL	Stressed
60	tert-Butylbenzene		2,507.0	µg/mL	+/-	14.5759	µg/mL	Gravimetric
	CAS #	98-06-6	(Lot S52237V)		+/-	151.2584	µg/mL	Unstressed
	Purity	99%			+/-	151.6175	µg/mL	Stressed
61	1,2,4-Trimethylbenzene		2,500.8	µg/mL	+/-	14.5401	µg/mL	Gravimetric
	CAS #	95-63-6	(Lot MKBJ6229V)		+/-	150.8866	µg/mL	Unstressed
	Purity	98%			+/-	151.2448	µg/mL	Stressed
62	sec-Butylbenzene		2,505.4	µg/mL	+/-	14.5665	µg/mL	Gravimetric
	CAS #	135-98-8	(Lot MKBR9260V)		+/-	151.1604	µg/mL	Unstressed
	Purity	99%			+/-	151.5193	µg/mL	Stressed
63	p-Isopropyltoluene (p-Cymene)		2,503.8	µg/mL	+/-	14.5570	µg/mL	Gravimetric
	CAS #	99-87-6	(Lot MKBS2604V)		+/-	151.0623	µg/mL	Unstressed
	Purity	99%			+/-	151.4210	µg/mL	Stressed
64	1,3-Dichlorobenzene		2,503.9	µg/mL	+/-	14.5577	µg/mL	Gravimetric
	CAS #	541-73-1	(Lot BCBM5751V)		+/-	151.0699	µg/mL	Unstressed
	Purity	99%			+/-	151.4285	µg/mL	Stressed
65	1,4-Dichlorobenzene		2,509.9	µg/mL	+/-	14.5926	µg/mL	Gravimetric
	CAS #	106-46-7	(Lot MKBS1350V)		+/-	151.4319	µg/mL	Unstressed
	Purity	99%			+/-	151.7914	µg/mL	Stressed
66	n-Butylbenzene		2,503.3	µg/mL	+/-	14.5541	µg/mL	Gravimetric
	CAS #	104-51-8	(Lot 09418JJV)		+/-	151.0322	µg/mL	Unstressed
	Purity	99%			+/-	151.3907	µg/mL	Stressed
67	1,2-Dichlorobenzene		2,503.8	µg/mL	+/-	14.5570	µg/mL	Gravimetric
	CAS #	95-50-1	(Lot SHBD7331V)		+/-	151.0623	µg/mL	Unstressed
	Purity	99%			+/-	151.4210	µg/mL	Stressed
68	1,2-Dibromo-3-chloropropane		2,505.0	µg/mL	+/-	14.5643	µg/mL	Gravimetric
	CAS #	96-12-8	(Lot FBL01)		+/-	151.1378	µg/mL	Unstressed
	Purity	99%			+/-	151.4966	µg/mL	Stressed
69	1,2,4-Trichlorobenzene		2,505.3	µg/mL	+/-	14.5657	µg/mL	Gravimetric
	CAS #	120-82-1	(Lot SHBC5541V)		+/-	151.1528	µg/mL	Unstressed
	Purity	99%			+/-	151.5117	µg/mL	Stressed
70	Hexachlorobutadiene		2,506.5	µg/mL	+/-	14.5728	µg/mL	Gravimetric
	CAS #	87-68-3	(Lot J31X013)		+/-	151.2266	µg/mL	Unstressed
	Purity	98%			+/-	151.5856	µg/mL	Stressed
71	Naphthalene		2,500.9	µg/mL	+/-	14.5403	µg/mL	Gravimetric
	CAS #	91-20-3	(Lot MKBW2603V)		+/-	150.8889	µg/mL	Unstressed
	Purity	99%			+/-	151.2471	µg/mL	Stressed

72	1,2,3-Trichlorobenzene		2,511.1 µg/mL	+/- 14.5999	µg/mL	Gravimetric
	CAS # 87-61-6	(Lot 12912PFV)		+/- 151.5073	µg/mL	Unstressed
	Purity 99%			+/- 151.8670	µg/mL	Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

Column:
60m x 0.25mm x 1.4µm
Rtx-502.2 (cat.#10916)

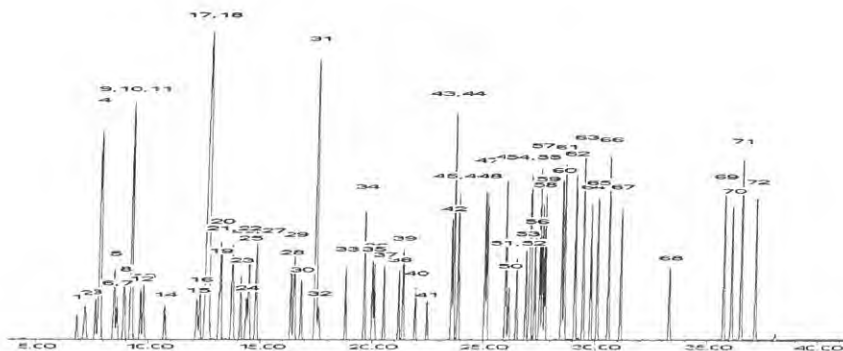
Carrier Gas:
helium-constant pressure 30 psi

Temp. Program:
40°C (hold 6 min.) to 240°C
@ 6°C/min, (hold 10 min.)

Inj. Temp:
200°C

Det. Temp:
250°C

Det. Type:
MSD



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

F. Joseph Tallon
F. Joseph Tallon - Mix Technician

Date Mixed: 22-Dec-2016 **Balance:** B251644995

Jennifer J Pollino
Jennifer Pollino - Operations Tech-ARM QC

Date Passed: 04-Jan-2017

Manufactured under Restek's ISO 9001:2008
Registered Quality System
Certificate #FM 80397

Reagent

VM571992_00003

Rec: 5/31/19

VM571992 - 00003



CERTIFIED REFERENCE MATERIAL

110 Benner Circle
 Bellefonte, PA 16823-8812
 Tel: (800)356-1688
 Fax: (814)353-1309

www.restek.com

Certificate of Analysis



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 571992 **Lot No.:** A0143774
Description : 8260 List 1 / Std #1 MegaMix (2017)
8260 List 1 / Std #1 MegaMix (2017) 1,250-62,500µg/mL, P&T Methanol, 1mL/ampul
Container Size : 2 mL **Pkg Amt:** > 1 mL
Expiration Date : June 30, 2021 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)			
1	Diethyl ether (ethyl ether)	2,500.6 µg/mL	+/-	14.5388	µg/mL	Gravimetric
	CAS # 60-29-7 (Lot SHBJ5713)		+/-	150.8738	µg/mL	Unstressed
	Purity 99%		+/-	151.2320	µg/mL	Stressed
2	1,1,2-Trichlorotrifluoroethane (CFC-113)	2,501.6 µg/mL	+/-	14.5447	µg/mL	Gravimetric
	CAS # 76-13-1 (Lot 00009482)		+/-	150.9341	µg/mL	Unstressed
	Purity 99%		+/-	151.2925	µg/mL	Stressed
3	1,1-dichloroethene	2,501.9 µg/mL	+/-	14.5461	µg/mL	Gravimetric
	CAS # 75-35-4 (Lot SHBG8609V)		+/-	150.9492	µg/mL	Unstressed
	Purity 99%		+/-	151.3076	µg/mL	Stressed
4	tert-Butanol (TBA)	25,008.1 µg/mL	+/-	145.3918	µg/mL	Gravimetric
	CAS # 75-65-0 (Lot SHBJ9404)		+/-	1,508.8503	µg/mL	Unstressed
	Purity 99%		+/-	1,512.4325	µg/mL	Stressed
5	Methyl acetate	5,000.8 µg/mL	+/-	29.0748	µg/mL	Gravimetric
	CAS # 79-20-9 (Lot SHBG4345V)		+/-	301.7174	µg/mL	Unstressed
	Purity 99%		+/-	302.4337	µg/mL	Stressed
6	Iodomethane (methyl iodide)	2,500.6 µg/mL	+/-	14.5388	µg/mL	Gravimetric
	CAS # 74-88-4 (Lot SHBH4362V)		+/-	150.8738	µg/mL	Unstressed
	Purity 99%		+/-	151.2320	µg/mL	Stressed
7	Allyl chloride (3-chloropropene)	2,502.0 µg/mL	+/-	14.5468	µg/mL	Gravimetric
	CAS # 107-05-1 (Lot WXBB7852V)		+/-	150.9567	µg/mL	Unstressed
	Purity 99%		+/-	151.3151	µg/mL	Stressed

8	Methylene chloride (dichloromethane) CAS # 75-09-2 (Lot SHBK5095) Purity 99%	2,500.8 µg/mL	+/- 14.5396 +/- 150.8813 +/- 151.2395	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
9	Carbon disulfide CAS # 75-15-0 (Lot U22D706) Purity 99%	2,501.1 µg/mL	+/- 14.5418 +/- 150.9040 +/- 151.2622	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
10	Acrylonitrile CAS # 107-13-1 (Lot R15D047) Purity 99%	25,010.4 µg/mL	+/- 145.4049 +/- 1,508.9860 +/- 1,512,5686	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
11	Methyl-tert-butyl ether (MTBE) CAS # 1634-04-4 (Lot SHBH9526) Purity 99%	2,500.3 µg/mL	+/- 14.5367 +/- 150.8512 +/- 151.2093	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
12	cis-1,2-Dichloroethene CAS # 156-59-2 (Lot MKBX5945V) Purity 99%	2,501.3 µg/mL	+/- 14.5425 +/- 150.9115 +/- 151.2698	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
13	n-Hexane (C6) CAS # 110-54-3 (Lot SHBH8106) Purity 99%	2,500.8 µg/mL	+/- 14.5396 +/- 150.8813 +/- 151.2395	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
14	1,1-Dichloroethane CAS # 75-34-3 (Lot 462600) Purity 99%	2,500.4 µg/mL	+/- 14.5374 +/- 150.8587 +/- 151.2169	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
15	2,2-Dichloropropane CAS # 594-20-7 (Lot BCBT5124) Purity 99%	2,500.9 µg/mL	+/- 14.5403 +/- 150.8889 +/- 151.2471	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
16	trans-1,2-Dichloroethene CAS # 156-60-5 (Lot MKBH9850V) Purity 99%	2,500.3 µg/mL	+/- 14.5367 +/- 150.8512 +/- 151.2093	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
17	Isobutanol (2-Methyl-1-propanol) CAS # 78-83-1 (Lot SHBK0551) Purity 99%	62,500.9 µg/mL	+/- 363.3665 +/- 3,770.9529 +/- 3,779.9058	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
18	chloroform CAS # 67-66-3 (Lot SHBJ9076) Purity 99%	2,500.5 µg/mL	+/- 14.5381 +/- 150.8662 +/- 151.2244	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
19	Bromochloromethane CAS # 74-97-5 (Lot 00008541) Purity 98%	2,500.6 µg/mL	+/- 14.5387 +/- 150.8718 +/- 151.2300	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
20	Tetrahydrofuran CAS # 109-99-9 (Lot SHBJ6179) Purity 99%	5,000.6 µg/mL	+/- 29.0741 +/- 301.7099 +/- 302.4262	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
21	1,1,1-trichloroethane CAS # 71-55-6 (Lot B15W12061) Purity 99%	2,500.8 µg/mL	+/- 14.5396 +/- 150.8813 +/- 151.2395	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
22	Cyclohexane CAS # 110-82-7 (Lot MKCC9660) Purity 99%	2,500.9 µg/mL	+/- 14.5403 +/- 150.8889 +/- 151.2471	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
23	1,1-Dichloropropene CAS # 563-58-6 (Lot 180531JLM) Purity 99%	2,500.6 µg/mL	+/- 14.5388 +/- 150.8738 +/- 151.2320	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

24	carbon tetrachloride CAS # 56-23-5 Purity 99%	(Lot SHBJ2110)	2,501.1 µg/mL	+/- +/- +/-	14.5418 150.9040 151.2622	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
25	n-Heptane (C7) CAS # 142-82-5 Purity 99%	(Lot SHBJ2424)	2,501.6 µg/mL	+/- +/- +/-	14.5447 150.9341 151.2925	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
26	1,2-Dichloroethane CAS # 107-06-2 Purity 99%	(Lot SHBJ0707)	2,501.3 µg/mL	+/- +/- +/-	14.5425 150.9115 151.2698	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
27	Benzene CAS # 71-43-2 Purity 99%	(Lot SHBJ5344)	2,500.9 µg/mL	+/- +/- +/-	14.5403 150.8889 151.2471	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
28	Trichloroethene CAS # 79-01-6 Purity 99%	(Lot SHBH1955V)	2,500.5 µg/mL	+/- +/- +/-	14.5381 150.8662 151.2244	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
29	Methylcyclohexane CAS # 108-87-2 Purity 99%	(Lot SHBJ0457)	2,501.6 µg/mL	+/- +/- +/-	14.5447 150.9341 151.2925	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
30	1,2-Dichloropropane CAS # 78-87-5 Purity 99%	(Lot BCBR0882V)	2,500.5 µg/mL	+/- +/- +/-	14.5381 150.8662 151.2244	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
31	1,4-Dioxane CAS # 123-91-1 Purity 99%	(Lot SHBJ7415)	50,001.1 µg/mL	+/- +/- +/-	290.6957 3,016.7880 3,023.9503	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
32	Dibromomethane CAS # 74-95-3 Purity 99%	(Lot 10201030)	2,502.0 µg/mL	+/- +/- +/-	14.5468 150.9567 151.3151	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
33	cis-1,3-Dichloropropene CAS # 10061-01-5 Purity 99%	(Lot 25076)	2,501.4 µg/mL	+/- +/- +/-	14.5432 150.9190 151.2773	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
34	Toluene CAS # 108-88-3 Purity 99%	(Lot SHBJ5659)	2,500.1 µg/mL	+/- +/- +/-	14.5359 150.8436 151.2017	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
35	Ethyl methacrylate CAS # 97-63-2 Purity 99%	(Lot 69796APV)	2,502.8 µg/mL	+/- +/- +/-	14.5512 151.0020 151.3605	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
36	trans-1,3-Dichloropropene CAS # 10061-02-6 Purity 98%	(Lot C797620)	2,500.6 µg/mL	+/- +/- +/-	14.5387 150.8718 151.2300	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
37	1,1,2-Trichloroethane CAS # 79-00-5 Purity 99%	(Lot FGB01)	2,500.4 µg/mL	+/- +/- +/-	14.5374 150.8587 151.2169	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
38	1,3-Dichloropropane CAS # 142-28-9 Purity 99%	(Lot BCBG2162V)	2,500.9 µg/mL	+/- +/- +/-	14.5403 150.8889 151.2471	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
39	Tetrachloroethene CAS # 127-18-4 Purity 99%	(Lot SHBH9691)	2,501.0 µg/mL	+/- +/- +/-	14.5410 150.8964 151.2547	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

40	dibromochloromethane CAS # 124-48-1 Purity 98%	(Lot MKCC0877)	2,502.4 µg/mL	+/- 14.5493 +/- 150.9827 +/- 151.3411	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
41	1,2-Dibromoethane (EDB) CAS # 106-93-4 Purity 99%	(Lot BCBH3877V)	2,500.4 µg/mL	+/- 14.5374 +/- 150.8587 +/- 151.2169	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
42	Chlorobenzene CAS # 108-90-7 Purity 99%	(Lot SHBH4459V)	2,501.1 µg/mL	+/- 14.5418 +/- 150.9040 +/- 151.2622	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
43	m-Xylene CAS # 108-38-3 Purity 99%	(Lot SHBJ2338)	1,251.5 µg/mL	+/- 7.2763 +/- 75.5085 +/- 75.6878	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
44	p-Xylene CAS # 106-42-3 Purity 99%	(Lot SHBJ0052)	1,250.1 µg/mL	+/- 7.2683 +/- 75.4256 +/- 75.6047	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
45	Ethylbenzene CAS # 100-41-4 Purity 99%	(Lot SHBJ3183)	2,500.0 µg/mL	+/- 14.5352 +/- 150.8361 +/- 151.1942	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
46	1,1,1,2-Tetrachloroethane CAS # 630-20-6 Purity 99%	(Lot MKBS3769V)	2,500.0 µg/mL	+/- 14.5352 +/- 150.8361 +/- 151.1942	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
47	o-Xylene CAS # 95-47-6 Purity 99%	(Lot SHBH7231)	2,500.8 µg/mL	+/- 14.5396 +/- 150.8813 +/- 151.2395	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
48	Styrene CAS # 100-42-5 Purity 99%	(Lot MKCC9766)	2,500.0 µg/mL	+/- 14.5352 +/- 150.8361 +/- 151.1942	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
49	Isopropylbenzene (cumene) CAS # 98-82-8 Purity 99%	(Lot 10185056)	2,500.1 µg/mL	+/- 14.5359 +/- 150.8436 +/- 151.2017	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
50	bromoform CAS # 75-25-2 Purity 99%	(Lot SHBG3138V)	2,501.0 µg/mL	+/- 14.5410 +/- 150.8964 +/- 151.2547	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
51	bromodichloromethane CAS # 75-27-4 Purity 99%	(Lot MKCF8470)	2,501.6 µg/mL	+/- 14.5447 +/- 150.9341 +/- 151.2925	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
52	1,1,2,2-Tetrachloroethane CAS # 79-34-5 Purity 99%	(Lot CFA4D)	2,500.5 µg/mL	+/- 14.5381 +/- 150.8662 +/- 151.2244	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
53	1,2,3-Trichloropropane CAS # 96-18-4 Purity 99%	(Lot BCBH8722V)	2,501.3 µg/mL	+/- 14.5425 +/- 150.9115 +/- 151.2698	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
54	trans-1,4-dichloro-2-butene CAS # 110-57-6 Purity 94%	(Lot MKBX7788V)	2,500.0 µg/mL	+/- 14.5355 +/- 150.8389 +/- 151.1971	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
55	n-Propylbenzene CAS # 103-65-1 Purity 99%	(Lot WXBC3346V)	2,500.0 µg/mL	+/- 14.5352 +/- 150.8361 +/- 151.1942	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

56	Bromobenzene CAS # 108-86-1 Purity 99%	(Lot WXBC5147V)	2,500.1 µg/mL	+/- 14.5359 +/- 150.8436 +/- 151.2017	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
57	1,3,5-Trimethylbenzene CAS # 108-67-8 Purity 99%	(Lot BCBS7648V)	2,500.5 µg/mL	+/- 14.5381 +/- 150.8662 +/- 151.2244	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
58	2-Chlorotoluene CAS # 95-49-8 Purity 99%	(Lot MKBW5554V)	2,500.1 µg/mL	+/- 14.5359 +/- 150.8436 +/- 151.2017	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
59	4-Chlorotoluene CAS # 106-43-4 Purity 99%	(Lot MKBL7753V)	2,500.9 µg/mL	+/- 14.5403 +/- 150.8889 +/- 151.2471	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
60	tert-Butylbenzene CAS # 98-06-6 Purity 99%	(Lot STBD6954V)	2,500.1 µg/mL	+/- 14.5359 +/- 150.8436 +/- 151.2017	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
61	1,2,4-Trimethylbenzene CAS # 95-63-6 Purity 97%	(Lot MKBH5027V)	2,499.9 µg/mL	+/- 14.5348 +/- 150.8320 +/- 151.1901	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
62	sec-Butylbenzene CAS # 135-98-8 Purity 99%	(Lot MKBR9260V)	2,501.1 µg/mL	+/- 14.5418 +/- 150.9040 +/- 151.2622	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
63	p-Isopropyltoluene (p-Cymene) CAS # 99-87-6 Purity 99%	(Lot MKBV3556V)	2,501.1 µg/mL	+/- 14.5418 +/- 150.9040 +/- 151.2622	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
64	1,3-Dichlorobenzene CAS # 541-73-1 Purity 99%	(Lot BCBQ7100V)	2,501.4 µg/mL	+/- 14.5432 +/- 150.9190 +/- 151.2773	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
65	1,4-Dichlorobenzene CAS # 106-46-7 Purity 99%	(Lot MKBS4401V)	2,501.5 µg/mL	+/- 14.5439 +/- 150.9266 +/- 151.2849	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
66	n-Butylbenzene CAS # 104-51-8 Purity 99%	(Lot 09804AE)	2,501.0 µg/mL	+/- 14.5410 +/- 150.8964 +/- 151.2547	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
67	1,2-Dichlorobenzene CAS # 95-50-1 Purity 99%	(Lot SHBG3111V)	2,502.9 µg/mL	+/- 14.5519 +/- 151.0095 +/- 151.3681	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
68	1,2-Dibromo-3-chloropropane CAS # 96-12-8 Purity 99%	(Lot FBL01)	2,502.0 µg/mL	+/- 14.5468 +/- 150.9567 +/- 151.3151	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
69	1,2,4-Trichlorobenzene CAS # 120-82-1 Purity 99%	(Lot SHBJ9215)	2,502.1 µg/mL	+/- 14.5476 +/- 150.9643 +/- 151.3227	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
70	Hexachlorobutadiene CAS # 87-68-3 Purity 99%	(Lot J31X013)	2,501.5 µg/mL	+/- 14.5439 +/- 150.9266 +/- 151.2849	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
71	Naphthalene CAS # 91-20-3 Purity 99%	(Lot MKBZ8680V)	2,502.8 µg/mL	+/- 14.5512 +/- 151.0020 +/- 151.3605	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

72	1,2,3-Trichlorobenzene		2,502.5 µg/mL	+/-	14.5498	µg/mL	Gravimetric
	CAS # 87-61-6	(Lot MKBX7627V)		+/-	150.9869	µg/mL	Unstressed
	Purity 99%			+/-	151.3454	µg/mL	Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

Column:
60m x 0.25mm x 1.4µm
Rtx-502.2 (cat.#10916)

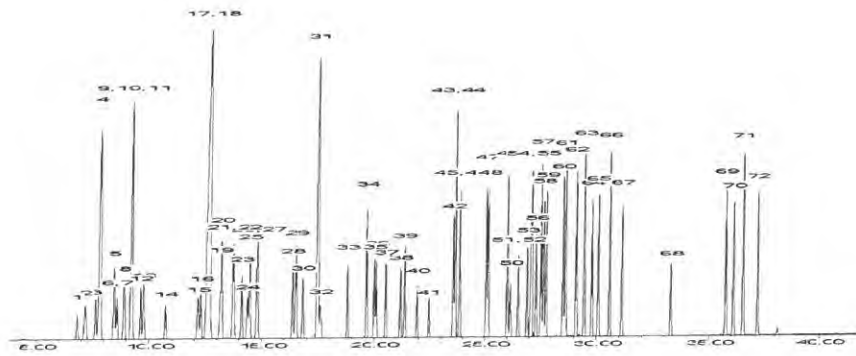
Carrier Gas:
helium-constant pressure 30 psi

Temp. Program:
40°C (hold 6 min.) to 240°C
@ 6°C/min. (hold 10 min.)

Inj. Temp:
200°C

Det. Temp:
250°C

Det. Type:
MSD



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

F. Joseph Tallon
F. Joseph Tallon - Mix Technician

Date Mixed: 05-Dec-2018 **Balance:** B251644995

Diane Shaffer
Diane Shaffer - Operations Tech-ARM QC

Date Passed: 21-Dec-2018

Manufactured under Restek's ISO 9001:2015
Registered Quality System
Certificate #FM 80397

Reagent

VM571992S_00002



110 Benner Circle
 Bellefonte, PA 16823-8812
 Tel: (800)356-1688
 Fax: (814)353-1309

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

Rev: 5/24/17
 VM5719925-00002



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 571992.sec **Lot No.:** A0123775
Description : 8260 List 1 / Std #1 MegaMix (2017)
8260 List 1 / Std #1 MegaMix (2017) 1250-62500 µg/ml, P&T Methanol, 1 ml/ampul
Container Size : 2 mL **Pkg Amt:** > 1 mL
Expiration Date : December 31, 2018 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Diethyl ether (ethyl ether) CAS # 60-29-7.SEC (Lot F23X068) Purity 98%	2,501.2 µg/mL	+/- 14.5422 µg/mL +/- 150.9088 µg/mL +/- 151.2671 µg/mL	Gravimetric Unstressed Stressed	
2	1,1,2-Trichlorotrifluoroethane (CFC-113) CAS # 76-13-1.SEC (Lot 18342) Purity 99%	2,501.1 µg/mL	+/- 14.5418 µg/mL +/- 150.9040 µg/mL +/- 151.2622 µg/mL	Gravimetric Unstressed Stressed	
3	1,1-Dichloroethene CAS # 75-35-4.SEC (Lot 2767000) Purity 99%	2,500.5 µg/mL	+/- 14.5381 µg/mL +/- 150.8662 µg/mL +/- 151.2244 µg/mL	Gravimetric Unstressed Stressed	
4	tert-Butanol (TBA) CAS # 75-65-0.SEC (Lot XYXDO) Purity 98%	25,003.1 µg/mL	+/- 145.3626 µg/mL +/- 1,508.5475 µg/mL +/- 1,512.1291 µg/mL	Gravimetric Unstressed Stressed	
5	Methyl acetate CAS # 79-20-9.SEC (Lot YDGVD) Purity 99%	5,000.4 µg/mL	+/- 29.0726 µg/mL +/- 301.6948 µg/mL +/- 302.4111 µg/mL	Gravimetric Unstressed Stressed	
6	Iodomethane (methyl iodide) CAS # 74-88-4.SEC (Lot Y25A027) Purity 99%	2,500.4 µg/mL	+/- 14.5374 µg/mL +/- 150.8587 µg/mL +/- 151.2169 µg/mL	Gravimetric Unstressed Stressed	
7	Allyl chloride (3-chloropropene) CAS # 107-05-1.SEC (Lot VEBOC) Purity 98%	2,500.1 µg/mL	+/- 14.5358 µg/mL +/- 150.8423 µg/mL +/- 151.2004 µg/mL	Gravimetric Unstressed Stressed	

8	Methylene chloride (dichloromethane) CAS # 75-09-2.SEC Purity 99%	(Lot FJM02)	2,500.8 µg/mL	+/- 14,5396 +/- 150.8813 +/- 151.2395	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
9	Carbon disulfide CAS # 75-15-0.SEC Purity 99%	(Lot MKBL1376V)	2,500.9 µg/mL	+/- 14,5403 +/- 150.8889 +/- 151.2471	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
10	Acrylonitrile CAS # 107-13-1.SEC Purity 99%	(Lot UERIL)	25,000.9 µg/mL	+/- 145,3496 +/- 1,508.4128 +/- 1,511.9941	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
11	Methyl-tert-butyl ether (MTBE) CAS # 1634-04-4.SEC Purity 99%	(Lot ZAQA-MS)	2,500.0 µg/mL	+/- 14,5352 +/- 150.8361 +/- 151.1942	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
12	cis-1,2-Dichloroethene CAS # 156-59-2.SEC Purity 98%	(Lot HGC01-BLKT)	2,500.7 µg/mL	+/- 14,5394 +/- 150.8792 +/- 151.2374	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
13	n-Hexane (C6) CAS # 110-54-3.SEC Purity 99%	(Lot 10188491)	2,501.5 µg/mL	+/- 14,5439 +/- 150.9266 +/- 151.2849	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
14	1,1-Dichloroethane CAS # 75-34-3.SEC Purity 99%	(Lot 5379000)	2,500.3 µg/mL	+/- 14,5367 +/- 150.8512 +/- 151,2093	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
15	2,2-Dichloropropane CAS # 594-20-7.SEC Purity 98%	(Lot 17E8E)	2,500.1 µg/mL	+/- 14,5358 +/- 150.8423 +/- 151.2004	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
16	trans-1,2-Dichloroethene CAS # 156-60-5.SEC Purity 97%	(Lot TS5UB)	2,500.2 µg/mL	+/- 14,5362 +/- 150.8466 +/- 151.2048	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
17	Isobutanol (2-Methyl-1-propanol) CAS # 78-83-1.SEC Purity 99%	(Lot 83NHII)	62,506.9 µg/mL	+/- 363,4014 +/- 3,771.3149 +/- 3,780.2687	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
18	Chloroform CAS # 67-66-3.SEC Purity 99%	(Lot 1297547)	2,500.1 µg/mL	+/- 14,5359 +/- 150.8436 +/- 151.2017	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
19	Bromochloromethane CAS # 74-97-5.SEC Purity 99%	(Lot 5670200)	2,501.1 µg/mL	+/- 14,5418 +/- 150.9040 +/- 151.2622	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
20	Tetrahydrofuran CAS # 109-99-9.SEC Purity 99%	(Lot K3V7J-SJ)	5,002.3 µg/mL	+/- 29,0835 +/- 301.8079 +/- 302.5245	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
21	1,1,1-Trichloroethane CAS # 71-55-6.SEC Purity 98%	(Lot CS160712)	2,500.7 µg/mL	+/- 14,5394 +/- 150.8792 +/- 151.2374	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
22	Cyclohexane CAS # 110-82-7.SEC Purity 99%	(Lot YADRA)	2,501.0 µg/mL	+/- 14,5410 +/- 150.8964 +/- 151.2547	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
23	1,1-Dichloropropene CAS # 563-58-6.SEC Purity 96%	(Lot 5221100)	2,501.3 µg/mL	+/- 14,5427 +/- 150.9133 +/- 151.2716	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

24	Carbon tetrachloride CAS # 56-23-5.SEC Purity 99%	(Lot 11466)	2,500.5 µg/mL	+/-	14.5381 150.8662 151.2244	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
25	n-Heptane (C7) CAS # 142-82-5.SEC Purity 99%	(Lot OGM01)	2,500.5 µg/mL	+/-	14.5381 150.8662 151.2244	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
26	1,2-Dichloroethane CAS # 107-06-2.SEC Purity 99%	(Lot FO6PK)	2,500.1 µg/mL	+/-	14.5359 150.8436 151.2017	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
27	Benzene CAS # 71-43-2.SEC Purity 99%	(Lot B28Y008)	2,501.5 µg/mL	+/-	14.5439 150.9266 151.2849	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
28	Trichloroethene CAS # 79-01-6.SEC Purity 99%	(Lot H04X050)	2,501.0 µg/mL	+/-	14.5410 150.8964 151.2547	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
29	Methylcyclohexane CAS # 108-87-2.SEC Purity 99%	(Lot 24MSD-CD)	2,500.9 µg/mL	+/-	14.5403 150.8889 151.2471	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
30	1,2-Dichloropropane CAS # 78-87-5.SEC Purity 99%	(Lot OGG01)	2,501.1 µg/mL	+/-	14.5418 150.9040 151.2622	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
31	1,4-Dioxane CAS # 123-91-1.SEC Purity 99%	(Lot MUFZH)	50,007.1 µg/mL	+/-	290.7305 3,017.1500 3,024.3132	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
32	Dibromomethane CAS # 74-95-3.SEC Purity 99%	(Lot FGI01-OICF)	2,501.6 µg/mL	+/-	14.5447 150.9341 151.2925	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
33	cis-1,3-Dichloropropene CAS # 10061-01-5.SEC Purity 99%	(Lot 487OA)	2,500.1 µg/mL	+/-	14.5359 150.8436 151.2017	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
34	Toluene CAS # 108-88-3.SEC Purity 99%	(Lot YND2B-BD)	2,500.0 µg/mL	+/-	14.5352 150.8361 151.1942	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
35	Ethyl methacrylate CAS # 97-63-2.SEC Purity 99%	(Lot MLWYK-L.S)	2,500.5 µg/mL	+/-	14.5381 150.8662 151.2244	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
36	trans-1,3-Dichloropropene CAS # 10061-02-6.SEC Purity 99%	(Lot ZDMSL)	2,500.5 µg/mL	+/-	14.5381 150.8662 151.2244	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
37	1,1,2-Trichloroethane CAS # 79-00-5.SEC Purity 98%	(Lot 5034600)	2,500.8 µg/mL	+/-	14.5401 150.8866 151.2448	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
38	1,3-Dichloropropane CAS # 142-28-9.SEC Purity 99%	(Lot AGN01-EFPC)	2,500.5 µg/mL	+/-	14.5381 150.8662 151.2244	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
39	Tetrachloroethene CAS # 127-18-4.SEC Purity 99%	(Lot F09W014)	2,501.3 µg/mL	+/-	14.5425 150.9115 151.2698	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

40	Dibromochloromethane CAS # 124-48-1.SEC Purity 97%	(Lot 10181507)	2,500.4 µg/mL	+/- 14.5376 +/- 150.8613 +/- 151.2194	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
41	1,2-Dibromoethane (EDB) CAS # 106-93-4.SEC Purity 99%	(Lot 3505900)	2,500.5 µg/mL	+/- 14.5381 +/- 150.8662 +/- 151.2244	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
42	Chlorobenzene CAS # 108-90-7.SEC Purity 99%	(Lot 1161936)	2,501.0 µg/mL	+/- 14.5410 +/- 150.8964 +/- 151.2547	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
43	m-Xylene CAS # 108-38-3.SEC Purity 99%	(Lot OUKMG-GB)	1,250.9 µg/mL	+/- 7.2727 +/- 75.4708 +/- 75.6500	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
44	p-Xylene CAS # 106-42-3.SEC Purity 99%	(Lot GM01)	1,250.5 µg/mL	+/- 7.2705 +/- 75.4482 +/- 75.6273	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
45	Ethylbenzene CAS # 100-41-4.SEC Purity 99%	(Lot PI4SE)	2,500.9 µg/mL	+/- 14.5403 +/- 150.8889 +/- 151.2471	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
46	1,1,1,2-Tetrachloroethane CAS # 630-20-6.SEC Purity 99%	(Lot GC01)	2,501.1 µg/mL	+/- 14.5418 +/- 150.9040 +/- 151.2622	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
47	o-Xylene CAS # 95-47-6.SEC Purity 99%	(Lot FGL01-KTPK)	2,500.9 µg/mL	+/- 14.5403 +/- 150.8889 +/- 151.2471	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
48	Styrene CAS # 100-42-5.SEC Purity 99%	(Lot OFIOL-1A)	2,500.4 µg/mL	+/- 14.5374 +/- 150.8587 +/- 151.2169	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
49	Isopropylbenzene (cumene) CAS # 98-82-8.SEC Purity 99%	(Lot 2PHXG-IH)	2,500.5 µg/mL	+/- 14.5381 +/- 150.8662 +/- 151.2244	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
50	Bromoform CAS # 75-25-2.SEC Purity 99%	(Lot 5139000)	2,502.3 µg/mL	+/- 14.5483 +/- 150.9718 +/- 151.3303	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
51	Bromodichloromethane CAS # 75-27-4.SEC Purity 98%	(Lot 13780)	2,500.1 µg/mL	+/- 14.5358 +/- 150.8423 +/- 151.2004	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
52	1,1,2,2-Tetrachloroethane CAS # 79-34-5.SEC Purity 99%	(Lot CFA4D-AQ)	2,501.3 µg/mL	+/- 14.5425 +/- 150.9115 +/- 151.2698	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
53	1,2,3-Trichloropropane CAS # 96-18-4.SEC Purity 98%	(Lot OGI01)	2,500.1 µg/mL	+/- 14.5358 +/- 150.8423 +/- 151.2004	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
54	trans-1,4-Dichloro-2-butene CAS # 110-57-6.SEC Purity 98%	(Lot 100700-3)	2,501.0 µg/mL	+/- 14.5408 +/- 150.8940 +/- 151.2522	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
55	n-Propylbenzene CAS # 103-65-1.SEC Purity 99%	(Lot T2HFC-IT)	2,500.0 µg/mL	+/- 14.5352 +/- 150.8361 +/- 151.1942	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

56	Bromobenzene CAS # 108-86-1.SEC Purity 99%	(Lot 2FUHG-EM)	2,500.1 µg/mL	+/- 14.5359 +/- 150.8436 +/- 151.2017	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
57	1,3,5-Trimethylbenzene CAS # 108-67-8.SEC Purity 99%	(Lot TOOOF)	2,500.3 µg/mL	+/- 14.5367 +/- 150.8512 +/- 151.2093	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
58	2-Chlorotoluene CAS # 95-49-8.SEC Purity 99%	(Lot SW8QG-AO)	2,500.9 µg/mL	+/- 14.5403 +/- 150.8889 +/- 151.2471	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
59	4-Chlorotoluene CAS # 106-43-4.SEC Purity 99%	(Lot P4XHJ-AO)	2,500.5 µg/mL	+/- 14.5381 +/- 150.8662 +/- 151.2244	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
60	tert-Butylbenzene CAS # 98-06-6.SEC Purity 99%	(Lot OGN01-CA1)	2,500.1 µg/mL	+/- 14.5359 +/- 150.8436 +/- 151.2017	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
61	1,2,4-Trimethylbenzene CAS # 95-63-6.SEC Purity 99%	(Lot SC7LO-QA)	2,500.4 µg/mL	+/- 14.5374 +/- 150.8587 +/- 151.2169	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
62	sec-Butylbenzene CAS # 135-98-8.SEC Purity 99%	(Lot OGN01-IMA)	2,501.4 µg/mL	+/- 14.5432 +/- 150.9190 +/- 151.2773	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
63	4-Isopropyltoluene (p-cymene) CAS # 99-87-6.SEC Purity 99%	(Lot 5221800)	2,501.3 µg/mL	+/- 14.5425 +/- 150.9115 +/- 151.2698	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
64	1,3-Dichlorobenzene CAS # 541-73-1.SEC Purity 99%	(Lot FMDFD)	2,500.9 µg/mL	+/- 14.5403 +/- 150.8889 +/- 151.2471	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
65	1,4-Dichlorobenzene CAS # 106-46-7.SEC Purity 99%	(Lot 4Y5DC)	2,500.8 µg/mL	+/- 14.5396 +/- 150.8813 +/- 151.2395	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
66	n-Butylbenzene CAS # 104-51-8.SEC Purity 99%	(Lot OGN01-PNP)	2,500.8 µg/mL	+/- 14.5396 +/- 150.8813 +/- 151.2395	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
67	1,2-Dichlorobenzene CAS # 95-50-1.SEC Purity 99%	(Lot R6QDM)	2,501.0 µg/mL	+/- 14.5410 +/- 150.8964 +/- 151.2547	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
68	1,2-Dibromo-3-chloropropane CAS # 96-12-8.SEC Purity 98%	(Lot LC00408V)	2,501.5 µg/mL	+/- 14.5436 +/- 150.9236 +/- 151.2819	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
69	1,2,4-Trichlorobenzene CAS # 120-82-1.SEC Purity 99%	(Lot 3LYYC)	2,502.5 µg/mL	+/- 14.5498 +/- 150.9869 +/- 151.3454	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
70	Hexachlorobutadiene CAS # 87-68-3.SEC Purity 97%	(Lot 5526800)	2,501.4 µg/mL	+/- 14.5433 +/- 150.9198 +/- 151.2781	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
71	Naphthalene CAS # 91-20-3.SEC Purity 99%	(Lot SKZ5N)	2,501.8 µg/mL	+/- 14.5454 +/- 150.9417 +/- 151.3000	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

72	1,2,3-Trichlorobenzene		2,500.7 µg/mL	+/- 14.5394	µg/mL	Gravimetric
	CAS # 87-61-6.SEC	(Lot A0043055)		+/- 150.8792	µg/mL	Unstressed
	Purity 98%			+/- 151.2374	µg/mL	Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

Column:
60m x 0.25mm x 1.4µm
Rtx-502.2 (cat.#10916)

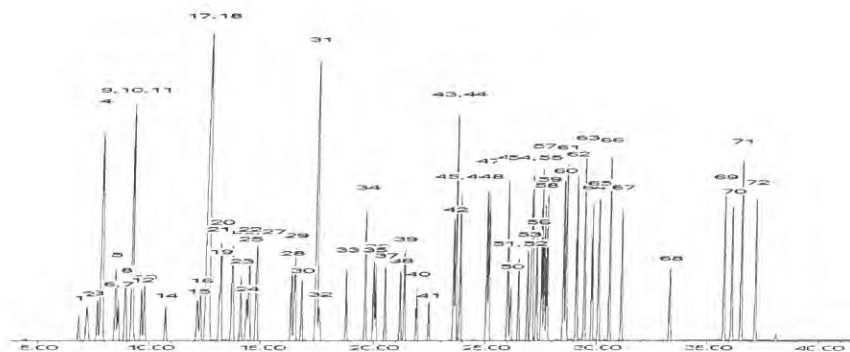
Carrier Gas:
helium-constant pressure 30 psi

Temp. Program:
40°C (hold 6 min.) to 240°C
@ 6°C/min. (hold 10 min.)

Inj. Temp:
200°C

Det. Temp:
250°C

Det. Type:
MSD



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Michael Mays

Date Mixed: 28-Dec-2016 **Balance:** 1127510105

Jennifer J Pollino
Jennifer Pollino - Operations Tech-ARM QC

Date Passed: 04-Jan-2017

Manufactured under Restek's ISO 9001:2008
Registered Quality System
Certificate #FM 80397

Reagent

VM571992S_00005

Rec: 5/31/19
VMS 719925 - 00005



110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 571992.SEC Lot No.: A0144202
 Description : 8260 List 1 / Std #1 MegaMix (2017)
 8260 List 1 / Std #1 MegaMix (2017) 1,250-62,500µg/mL, P&T Methanol, 1mL/ampul
 Container Size : 2 mL Pkg Amt: > 1 mL
 Expiration Date : June 30, 2021 Storage: 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)			
1	Diethyl ether (ethyl ether)	2,517.0 µg/mL	+/-	14.6339	µg/mL	Gravimetric
	CAS # 60-29-7.SEC (Lot F23X068)		+/-	151.8598	µg/mL	Unstressed
	Purity 98%		+/-	152.2203	µg/mL	Stressed
2	1,1,2-Trichlorotrifluoroethane (CFC-113)	2,506.7 µg/mL	+/-	14.5740	µg/mL	Gravimetric
	CAS # 76-13-1.SEC (Lot 18342)		+/-	151.2383	µg/mL	Unstressed
	Purity 99%		+/-	151.5974	µg/mL	Stressed
3	1,1-Dichloroethene	2,503.3 µg/mL	+/-	14.5546	µg/mL	Gravimetric
	CAS # 75-35-4.SEC (Lot 7692300)		+/-	151.0372	µg/mL	Unstressed
	Purity 99%		+/-	151.3958	µg/mL	Stressed
4	tert-Butanol (TBA)	25,000.8 µg/mL	+/-	145.3491	µg/mL	Gravimetric
	CAS # 75-65-0.SEC (Lot XYXDO)		+/-	1,508.4071	µg/mL	Unstressed
	Purity 98%		+/-	1,511.9883	µg/mL	Stressed
5	Methyl acetate	5,002.3 µg/mL	+/-	29.0840	µg/mL	Gravimetric
	CAS # 79-20-9.SEC (Lot UCNEL)		+/-	301.8129	µg/mL	Unstressed
	Purity 99%		+/-	302.5295	µg/mL	Stressed
6	Iodomethane (methyl iodide)	2,503.5 µg/mL	+/-	14.5556	µg/mL	Gravimetric
	CAS # 74-88-4.SEC (Lot Y25A027)		+/-	151.0472	µg/mL	Unstressed
	Purity 99%		+/-	151.4059	µg/mL	Stressed
7	Allyl chloride (3-chloropropene)	2,511.7 µg/mL	+/-	14.6030	µg/mL	Gravimetric
	CAS # 107-05-1.SEC (Lot H3HG C)		+/-	151.5400	µg/mL	Unstressed
	Purity 99%		+/-	151.8998	µg/mL	Stressed

8	Methylene chloride (dichloromethane) CAS # 75-09-2,SEC (Lot FGM02) Purity 99%	2,506.7 µg/mL	+/- 14.5740 +/- 151.2383 +/- 151.5974	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
9	Carbon disulfide CAS # 75-15-0,SEC (Lot MKBL1376V) Purity 99%	2,500.7 µg/mL	+/- 14.5391 +/- 150.8763 +/- 151.2345	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
10	Acrylonitrile CAS # 107-13-1,SEC (Lot UERIL) Purity 99%	25,001.2 µg/mL	+/- 145.3513 +/- 1,508.4304 +/- 1,512.0117	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
11	Methyl-tert-butyl ether (MTBE) CAS # 1634-04-4,SEC (Lot ZHKYA) Purity 99%	2,501.5 µg/mL	+/- 14.5439 +/- 150.9266 +/- 151.2849	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
12	cis-1,2-Dichloroethene CAS # 156-59-2,SEC (Lot HGC01-BLKT) Purity 98%	2,501.3 µg/mL	+/- 14.5427 +/- 150.9137 +/- 151.2720	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
13	n-Hexane (C6) CAS # 110-54-3,SEC (Lot K24W001) Purity 97%	2,503.2 µg/mL	+/- 14.5541 +/- 151.0320 +/- 151.3905	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
14	1,1-Dichloroethane CAS # 75-34-3,SEC (Lot 5379000) Purity 99%	2,502.0 µg/mL	+/- 14.5468 +/- 150.9567 +/- 151.3151	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
15	2,2-Dichloropropane CAS # 594-20-7,SEC (Lot I7E8E) Purity 98%	2,503.2 µg/mL	+/- 14.5541 +/- 151.0320 +/- 151.3905	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
16	trans-1,2-Dichloroethene CAS # 156-60-5,SEC (Lot TS5UB) Purity 97%	2,501.0 µg/mL	+/- 14.5409 +/- 150.8954 +/- 151.2537	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
17	Isobutanol (2-Methyl-1-propanol) CAS # 78-83-1,SEC (Lot PH2XK) Purity 99%	62,508.3 µg/mL	+/- 363.4098 +/- 3,771.4029 +/- 3,780.3569	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
18	Chloroform CAS # 67-66-3,SEC (Lot 1297547) Purity 99%	2,500.5 µg/mL	+/- 14.5381 +/- 150.8662 +/- 151.2244	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
19	Bromochloromethane CAS # 74-97-5,SEC (Lot 5670200) Purity 99%	2,507.0 µg/mL	+/- 14.5759 +/- 151.2584 +/- 151.6175	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
20	Tetrahydrofuran CAS # 109-99-9,SEC (Lot 8DAOJ) Purity 99%	5,006.7 µg/mL	+/- 29.1092 +/- 302.0744 +/- 302.7916	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
21	1,1,1-Trichloroethane CAS # 71-55-6,SEC (Lot 7998000) Purity 99%	2,507.7 µg/mL	+/- 14.5798 +/- 151.2986 +/- 151.6579	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
22	Cyclohexane CAS # 110-82-7,SEC (Lot YADRA) Purity 99%	2,508.0 µg/mL	+/- 14.5817 +/- 151.3188 +/- 151.6780	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
23	1,1-Dichloropropene CAS # 563-58-6,SEC (Lot 5221100) Purity 96%	2,502.4 µg/mL	+/- 14.5492 +/- 150.9809 +/- 151.3393	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

24	Carbon tetrachloride CAS # 56-23-5.SEC Purity 99%	(Lot 11466)	2,510.3 µg/mL	+/- 14.5953 +/- 151.4595 +/- 151.8191	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
25	n-Heptane (C7) CAS # 142-82-5.SEC Purity 99%	(Lot TFHUC)	2,511.8 µg/mL	+/- 14.6040 +/- 151.5500 +/- 151.9098	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
26	1,2-Dichloroethane CAS # 107-06-2.SEC Purity 99%	(Lot FO6PK)	2,501.3 µg/mL	+/- 14.5430 +/- 150.9165 +/- 151.2748	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
27	Benzene CAS # 71-43-2.SEC Purity 99%	(Lot B28Y008)	2,504.8 µg/mL	+/- 14.5633 +/- 151.1277 +/- 151.4865	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
28	Trichloroethene CAS # 79-01-6.SEC Purity 99%	(Lot H04X050)	2,508.7 µg/mL	+/- 14.5856 +/- 151.3590 +/- 151.7183	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
29	Methylcyclohexane CAS # 108-87-2.SEC Purity 99%	(Lot Q02QG)	2,504.5 µg/mL	+/- 14.5614 +/- 151.1076 +/- 151.4663	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
30	1,2-Dichloropropane CAS # 78-87-5.SEC Purity 99%	(Lot ERRBI-RH)	2,504.0 µg/mL	+/- 14.5585 +/- 151.0774 +/- 151.4361	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
31	1,4-Dioxane CAS # 123-91-1.SEC Purity 99%	(Lot YVP2C)	50,008.0 µg/mL	+/- 290.7356 +/- 3,017.2028 +/- 3,024.3661	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
32	Dibromomethane CAS # 74-95-3.SEC Purity 99%	(Lot FGI01-OICH)	2,509.5 µg/mL	+/- 14.5904 +/- 151.4093 +/- 151.7687	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
33	cis-1,3-Dichloropropene CAS # 10061-01-5.SEC Purity 99%	(Lot 487QA)	2,502.0 µg/mL	+/- 14.5468 +/- 150.9567 +/- 151.3151	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
34	Toluene CAS # 108-88-3.SEC Purity 99%	(Lot YND2B-BD)	2,501.5 µg/mL	+/- 14.5439 +/- 150.9266 +/- 151.2849	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
35	Ethyl methacrylate CAS # 97-63-2.SEC Purity 99%	(Lot MLWYK-LS)	2,508.8 µg/mL	+/- 14.5866 +/- 151.3690 +/- 151.7284	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
36	trans-1,3-Dichloropropene CAS # 10061-02-6.SEC Purity 96%	(Lot ZDMSL)	2,502.9 µg/mL	+/- 14.5520 +/- 151.0098 +/- 151.3684	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
37	1,1,2-Trichloroethane CAS # 79-00-5.SEC Purity 99%	(Lot 7871500)	2,502.5 µg/mL	+/- 14.5498 +/- 150.9869 +/- 151.3454	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
38	1,3-Dichloropropane CAS # 142-28-9.SEC Purity 99%	(Lot AGN01-EFPC)	2,502.7 µg/mL	+/- 14.5507 +/- 150.9970 +/- 151.3555	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
39	Tetrachloroethene CAS # 127-18-4.SEC Purity 99%	(Lot F09W014)	2,505.0 µg/mL	+/- 14.5643 +/- 151.1378 +/- 151.4966	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

40	Dibromochloromethane CAS # 124-48-1.SEC Purity 97%	(Lot 10206360)	2,502.4 µg/mL	+/- 14.5494 +/- 150.9832 +/- 151.3417	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
41	1,2-Dibromoethane (EDB) CAS # 106-93-4.SEC Purity 99%	(Lot 3505900)	2,503.3 µg/mL	+/- 14.5546 +/- 151.0372 +/- 151.3958	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
42	Chlorobenzene CAS # 108-90-7.SEC Purity 99%	(Lot 1161936)	2,504.8 µg/mL	+/- 14.5633 +/- 151.1277 +/- 151.4865	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
43	m-Xylene CAS # 108-38-3.SEC Purity 99%	(Lot OUKMG-GB)	1,251.7 µg/mL	+/- 7.2941 +/- 75.5202 +/- 75.6995	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
44	p-Xylene CAS # 106-42-3.SEC Purity 99%	(Lot GM01)	1,253.7 µg/mL	+/- 7.3058 +/- 75.6409 +/- 75.8205	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
45	Ethylbenzene CAS # 100-41-4.SEC Purity 99%	(Lot PI4SE)	2,503.5 µg/mL	+/- 14.5556 +/- 151.0472 +/- 151.4059	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
46	1,1,1,2-Tetrachloroethane CAS # 630-20-6.SEC Purity 99%	(Lot GC01)	2,506.7 µg/mL	+/- 14.5740 +/- 151.2383 +/- 151.5974	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
47	o-Xylene CAS # 95-47-6.SEC Purity 99%	(Lot FGL01)	2,504.2 µg/mL	+/- 14.5594 +/- 151.0875 +/- 151.4462	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
48	Styrene CAS # 100-42-5.SEC Purity 99%	(Lot OFIOL-IA)	2,507.2 µg/mL	+/- 14.5769 +/- 151.2685 +/- 151.6276	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
49	Isopropylbenzene (cumene) CAS # 98-82-8.SEC Purity 99%	(Lot 2PHXG-IH)	2,505.2 µg/mL	+/- 14.5653 +/- 151.1478 +/- 151.5067	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
50	Bromoform CAS # 75-25-2.SEC Purity 97%	(Lot 5461400)	2,500.5 µg/mL	+/- 14.5381 +/- 150.8661 +/- 151.2243	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
51	Bromodichloromethane CAS # 75-27-4.SEC Purity 98%	(Lot 13780)	2,501.3 µg/mL	+/- 14.5427 +/- 150.9137 +/- 151.2720	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
52	1,1,2,2-Tetrachloroethane CAS # 79-34-5.SEC Purity 99%	(Lot CFA4D-AQ)	2,502.0 µg/mL	+/- 14.5468 +/- 150.9567 +/- 151.3151	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
53	1,2,3-Trichloropropane CAS # 96-18-4.SEC Purity 99%	(Lot GUHZN)	2,505.7 µg/mL	+/- 14.5682 +/- 151.1780 +/- 151.5369	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
54	trans-1,4-Dichloro-2-butene CAS # 110-57-6.SEC Purity 98%	(Lot 100700-3)	2,514.2 µg/mL	+/- 14.6177 +/- 151.6922 +/- 152.0524	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
55	n-Propylbenzene CAS # 103-65-1.SEC Purity 99%	(Lot T2HFC)	2,503.7 µg/mL	+/- 14.5565 +/- 151.0573 +/- 151.4159	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

56	Bromobenzene CAS # 108-86-1.SEC Purity 99%	(Lot 2FUHG-EM)	2,506.2 µg/mL	+/- 14.5711 +/- 151.2081 +/- 151.5671	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
57	1,3,5-Trimethylbenzene CAS # 108-67-8.SEC Purity 99%	(Lot FGH02-CMLN)	2,510.0 µg/mL	+/- 14.5934 +/- 151.4394 +/- 151.7990	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
58	2-Chlorotoluene CAS # 95-49-8.SEC Purity 99%	(Lot SW8QG-AO)	2,504.7 µg/mL	+/- 14.5623 +/- 151.1176 +/- 151.4764	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
59	4-Chlorotoluene CAS # 106-43-4.SEC Purity 99%	(Lot P4XHJ-AO)	2,509.2 µg/mL	+/- 14.5885 +/- 151.3891 +/- 151.7486	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
60	tert-Butylbenzene CAS # 98-06-6.SEC Purity 99%	(Lot D6OHC)	2,505.8 µg/mL	+/- 14.5691 +/- 151.1880 +/- 151.5470	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
61	1,2,4-Trimethylbenzene CAS # 95-63-6.SEC Purity 99%	(Lot JMIYD)	2,508.7 µg/mL	+/- 14.5856 +/- 151.3590 +/- 151.7183	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
62	sec-Butylbenzene CAS # 135-98-8.SEC Purity 99%	(Lot OGN01-IMA)	2,504.7 µg/mL	+/- 14.5623 +/- 151.1176 +/- 151.4764	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
63	4-Isopropyltoluene (p-cymene) CAS # 99-87-6.SEC Purity 99%	(Lot 6628200)	2,500.3 µg/mL	+/- 14.5372 +/- 150.8562 +/- 151.2143	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
64	1,3-Dichlorobenzene CAS # 541-73-1.SEC Purity 99%	(Lot FMDFD)	2,506.3 µg/mL	+/- 14.5720 +/- 151.2182 +/- 151.5772	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
65	1,4-Dichlorobenzene CAS # 106-46-7.SEC Purity 99%	(Lot 4Y5DC)	2,509.8 µg/mL	+/- 14.5924 +/- 151.4294 +/- 151.7889	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
66	n-Butylbenzene CAS # 104-51-8.SEC Purity 99%	(Lot MMPGA)	2,513.7 µg/mL	+/- 14.6147 +/- 151.6607 +/- 152.0207	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
67	1,2-Dichlorobenzene CAS # 95-50-1.SEC Purity 99%	(Lot R6QDM)	2,501.8 µg/mL	+/- 14.5459 +/- 150.9467 +/- 151.3051	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
68	1,2-Dibromo-3-chloropropane CAS # 96-12-8.SEC Purity 98%	(Lot LC00408V)	2,508.5 µg/mL	+/- 14.5845 +/- 151.3473 +/- 151.7066	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
69	1,2,4-Trichlorobenzene CAS # 120-82-1.SEC Purity 99%	(Lot 3LYYC)	2,503.3 µg/mL	+/- 14.5546 +/- 151.0372 +/- 151.3958	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
70	Hexachlorobutadiene CAS # 87-68-3.SEC Purity 97%	(Lot 5526800)	2,504.4 µg/mL	+/- 14.5607 +/- 151.1002 +/- 151.4590	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
71	Naphthalene CAS # 91-20-3.SEC Purity 99%	(Lot 4KW3H-00)	2,503.3 µg/mL	+/- 14.5546 +/- 151.0372 +/- 151.3958	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

72	1,2,3-Trichlorobenzene		2,512.2 µg/mL	+/- 14.6063	µg/mL	Gravimetric
	CAS # 87-61-6.SEC	(Lot A0043055)		+/- 151.5740	µg/mL	Unstressed
	Purity 98%			+/- 151.9338	µg/mL	Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

Column:
60m x 0.25mm x 1.4µm
Rtx-502.2 (cat.#10916)

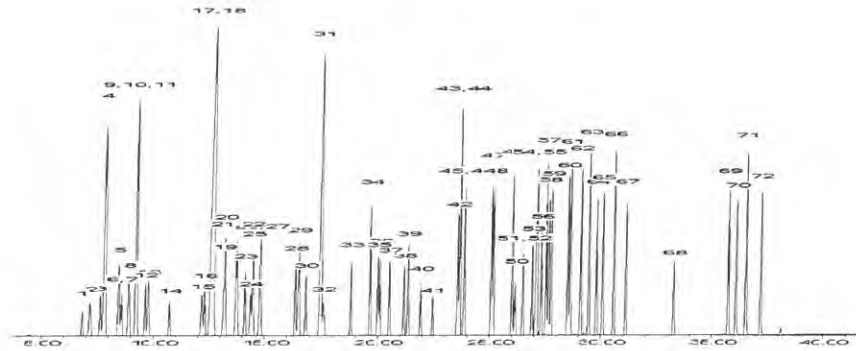
Carrier Gas:
helium-constant pressure 30 psi

Temp. Program:
40°C (hold 6 min.) to 240°C
@ 6°C/min. (hold 10 min.)

Inj. Temp:
200°C

Det. Temp:
250°C

Det. Type:
MSD



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Brandon Reish
Brandon Reish - Mix Technician

Date Mixed: 17-Dec-2018 **Balance:** 1127510105

Diane Shaffer
Diane Shaffer - Operations Tech-ARM QC

Date Passed: 21-Dec-2018

Manufactured under Restek's ISO 9001:2015
Registered Quality System
Certificate #FM 80397

Reagent

VM571992S_00006



110 Benner Circle
 Bellefonte, PA 16823-8812
 Tel: (800)356-1688
 Fax: (814)353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

Rec: 9/9/14
 VM 5719925-00006



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 571992.SEC **Lot No.:** A0144202
Description : 8260 List 1 / Std #1 MegaMix (2017)
8260 List 1 / Std #1 MegaMix (2017) 1,250-62,500µg/mL, P&T Methanol, 1mL/ampul
Container Size : 2 mL **Pkg Amt:** > 1 mL
Expiration Date : June 30, 2021 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L., K=2)		
1	Diethyl ether (ethyl ether) CAS # 60-29-7.SEC (Lot F23X068) Purity 98%	2,517.0 µg/mL	+/- 14.6339	µg/mL	Gravimetric
			+/- 151.8598	µg/mL	Unstressed
			+/- 152.2203	µg/mL	Stressed
2	1,1,2-Trichlorotrifluoroethane (CFC-113) CAS # 76-13-1.SEC (Lot 18342) Purity 99%	2,506.7 µg/mL	+/- 14.5740	µg/mL	Gravimetric
			+/- 151.2383	µg/mL	Unstressed
			+/- 151.5974	µg/mL	Stressed
3	1,1-Dichloroethene CAS # 75-35-4.SEC (Lot 7692300) Purity 99%	2,503.3 µg/mL	+/- 14.5546	µg/mL	Gravimetric
			+/- 151.0372	µg/mL	Unstressed
			+/- 151.3958	µg/mL	Stressed
4	tert-Butanol (TBA) CAS # 75-65-0.SEC (Lot XYXDO) Purity 98%	25,000.8 µg/mL	+/- 145.3491	µg/mL	Gravimetric
			+/- 1,508.4071	µg/mL	Unstressed
			+/- 1,511.9883	µg/mL	Stressed
5	Methyl acetate CAS # 79-20-9.SEC (Lot UCNEL) Purity 99%	5,002.3 µg/mL	+/- 29.0840	µg/mL	Gravimetric
			+/- 301.8129	µg/mL	Unstressed
			+/- 302.5295	µg/mL	Stressed
6	Iodomethane (methyl iodide) CAS # 74-88-4.SEC (Lot Y25A027) Purity 99%	2,503.5 µg/mL	+/- 14.5556	µg/mL	Gravimetric
			+/- 151.0472	µg/mL	Unstressed
			+/- 151.4059	µg/mL	Stressed
7	Allyl chloride (3-chloropropene) CAS # 107-05-1.SEC (Lot H3HGC) Purity 99%	2,511.7 µg/mL	+/- 14.6030	µg/mL	Gravimetric
			+/- 151.5400	µg/mL	Unstressed
			+/- 151.8998	µg/mL	Stressed

8	Methylene chloride (dichloromethane) CAS # 75-09-2.SEC (Lot FGM02) Purity 99%	2,506.7 µg/mL	+/- 14.5740 +/- 151.2383 +/- 151.5974	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
9	Carbon disulfide CAS # 75-15-0.SEC (Lot MKBL1376V) Purity 99%	2,500.7 µg/mL	+/- 14.5391 +/- 150.8763 +/- 151.2345	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
10	Acrylonitrile CAS # 107-13-1.SEC (Lot UERIL) Purity 99%	25,001.2 µg/mL	+/- 145.3513 +/- 1,508.4304 +/- 1,512.0117	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
11	Methyl-tert-butyl ether (MTBE) CAS # 1634-04-4.SEC (Lot ZHKYA) Purity 99%	2,501.5 µg/mL	+/- 14.5439 +/- 150.9266 +/- 151.2849	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
12	cis-1,2-Dichloroethene CAS # 156-59-2.SEC (Lot HGC01-BLKT) Purity 98%	2,501.3 µg/mL	+/- 14.5427 +/- 150.9137 +/- 151.2720	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
13	n-Hexane (C6) CAS # 110-54-3.SEC (Lot K24W001) Purity 97%	2,503.2 µg/mL	+/- 14.5541 +/- 151.0320 +/- 151.3905	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
14	1,1-Dichloroethane CAS # 75-34-3.SEC (Lot 5379000) Purity 99%	2,502.0 µg/mL	+/- 14.5468 +/- 150.9567 +/- 151.3151	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
15	2,2-Dichloropropane CAS # 594-20-7.SEC (Lot I7E8E) Purity 98%	2,503.2 µg/mL	+/- 14.5541 +/- 151.0320 +/- 151.3905	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
16	trans-1,2-Dichloroethene CAS # 156-60-5.SEC (Lot TS5UB) Purity 97%	2,501.0 µg/mL	+/- 14.5409 +/- 150.8954 +/- 151.2537	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
17	Isobutanol (2-Methyl-1-propanol) CAS # 78-83-1.SEC (Lot PH2XK) Purity 99%	62,508.3 µg/mL	+/- 363.4098 +/- 3,771.4029 +/- 3,780.3569	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
18	Chloroform CAS # 67-66-3.SEC (Lot 1297547) Purity 99%	2,500.5 µg/mL	+/- 14.5381 +/- 150.8662 +/- 151.2244	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
19	Bromochloromethane CAS # 74-97-5.SEC (Lot 5670200) Purity 99%	2,507.0 µg/mL	+/- 14.5759 +/- 151.2584 +/- 151.6175	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
20	Tetrahydrofuran CAS # 109-99-9.SEC (Lot 8DAOJ) Purity 99%	5,006.7 µg/mL	+/- 29.1092 +/- 302.0744 +/- 302.7916	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
21	1,1,1-Trichloroethane CAS # 71-55-6.SEC (Lot 7998000) Purity 99%	2,507.7 µg/mL	+/- 14.5798 +/- 151.2986 +/- 151.6579	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
22	Cyclohexane CAS # 110-82-7.SEC (Lot YADRA) Purity 99%	2,508.0 µg/mL	+/- 14.5817 +/- 151.3188 +/- 151.6780	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
23	1,1-Dichloropropene CAS # 563-58-6.SEC (Lot 5221100) Purity 96%	2,502.4 µg/mL	+/- 14.5492 +/- 150.9809 +/- 151.3393	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

24	Carbon tetrachloride CAS # 56-23-5.SEC Purity 99%	(Lot I1466)	2,510.3 µg/mL	+/- 14.5953 +/- 151.4595 +/- 151.8191	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
25	n-Heptane (C7) CAS # 142-82-5.SEC Purity 99%	(Lot TFHUC)	2,511.8 µg/mL	+/- 14.6040 +/- 151.5500 +/- 151.9098	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
26	1,2-Dichloroethane CAS # 107-06-2.SEC Purity 99%	(Lot FO6PK)	2,501.3 µg/mL	+/- 14.5430 +/- 150.9165 +/- 151.2748	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
27	Benzene CAS # 71-43-2.SEC Purity 99%	(Lot B28Y008)	2,504.8 µg/mL	+/- 14.5633 +/- 151.1277 +/- 151.4865	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
28	Trichloroethene CAS # 79-01-6.SEC Purity 99%	(Lot H04X050)	2,508.7 µg/mL	+/- 14.5856 +/- 151.3590 +/- 151.7183	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
29	Methylcyclohexane CAS # 108-87-2.SEC Purity 99%	(Lot Q02QG)	2,504.5 µg/mL	+/- 14.5614 +/- 151.1076 +/- 151.4663	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
30	1,2-Dichloropropane CAS # 78-87-5.SEC Purity 99%	(Lot ERRBI-RH)	2,504.0 µg/mL	+/- 14.5585 +/- 151.0774 +/- 151.4361	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
31	1,4-Dioxane CAS # 123-91-1.SEC Purity 99%	(Lot YVP2C)	50,008.0 µg/mL	+/- 290.7356 +/- 3,017.2028 +/- 3,024.3661	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
32	Dibromomethane CAS # 74-95-3.SEC Purity 99%	(Lot FGI01-OICH)	2,509.5 µg/mL	+/- 14.5904 +/- 151.4093 +/- 151.7687	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
33	cis-1,3-Dichloropropene CAS # 10061-01-5.SEC Purity 99%	(Lot 487OA)	2,502.0 µg/mL	+/- 14.5468 +/- 150.9567 +/- 151.3151	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
34	Toluene CAS # 108-88-3.SEC Purity 99%	(Lot YND2B-BD)	2,501.5 µg/mL	+/- 14.5439 +/- 150.9266 +/- 151.2849	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
35	Ethyl methacrylate CAS # 97-63-2.SEC Purity 99%	(Lot MLWYK-LS)	2,508.8 µg/mL	+/- 14.5866 +/- 151.3690 +/- 151.7284	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
36	trans-1,3-Dichloropropene CAS # 10061-02-6.SEC Purity 96%	(Lot ZDMSL)	2,502.9 µg/mL	+/- 14.5520 +/- 151.0098 +/- 151.3684	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
37	1,1,2-Trichloroethane CAS # 79-00-5.SEC Purity 99%	(Lot 7871500)	2,502.5 µg/mL	+/- 14.5498 +/- 150.9869 +/- 151.3454	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
38	1,3-Dichloropropane CAS # 142-28-9.SEC Purity 99%	(Lot AGN01-EFPC)	2,502.7 µg/mL	+/- 14.5507 +/- 150.9970 +/- 151.3555	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
39	Tetrachloroethene CAS # 127-18-4.SEC Purity 99%	(Lot F09W014)	2,505.0 µg/mL	+/- 14.5643 +/- 151.1378 +/- 151.4966	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

40	Dibromochloromethane CAS # 124-48-1.SEC Purity 97%	(Lot 10206360)	2,502.4 µg/mL	+/- 14.5494 +/- 150.9832 +/- 151.3417	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
41	1,2-Dibromoethane (EDB) CAS # 106-93-4.SEC Purity 99%	(Lot 3505900)	2,503.3 µg/mL	+/- 14.5546 +/- 151.0372 +/- 151.3958	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
42	Chlorobenzene CAS # 108-90-7.SEC Purity 99%	(Lot 1161936)	2,504.8 µg/mL	+/- 14.5633 +/- 151.1277 +/- 151.4865	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
43	m-Xylene CAS # 108-38-3.SEC Purity 99%	(Lot OUKMG-GB)	1,251.7 µg/mL	+/- 7.2941 +/- 75.5202 +/- 75.6995	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
44	p-Xylene CAS # 106-42-3.SEC Purity 99%	(Lot GM01)	1,253.7 µg/mL	+/- 7.3058 +/- 75.6409 +/- 75.8205	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
45	Ethylbenzene CAS # 100-41-4.SEC Purity 99%	(Lot PI4SE)	2,503.5 µg/mL	+/- 14.5556 +/- 151.0472 +/- 151.4059	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
46	1,1,1,2-Tetrachloroethane CAS # 630-20-6.SEC Purity 99%	(Lot GC01)	2,506.7 µg/mL	+/- 14.5740 +/- 151.2383 +/- 151.5974	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
47	o-Xylene CAS # 95-47-6.SEC Purity 99%	(Lot FGL01)	2,504.2 µg/mL	+/- 14.5594 +/- 151.0875 +/- 151.4462	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
48	Styrene CAS # 100-42-5.SEC Purity 99%	(Lot OFIOL-IA)	2,507.2 µg/mL	+/- 14.5769 +/- 151.2685 +/- 151.6276	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
49	Isopropylbenzene (cumene) CAS # 98-82-8.SEC Purity 99%	(Lot 2PHXG-IH)	2,505.2 µg/mL	+/- 14.5653 +/- 151.1478 +/- 151.5067	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
50	Bromoform CAS # 75-25-2.SEC Purity 97%	(Lot 5461400)	2,500.5 µg/mL	+/- 14.5381 +/- 150.8661 +/- 151.2243	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
51	Bromodichloromethane CAS # 75-27-4.SEC Purity 98%	(Lot 13780)	2,501.3 µg/mL	+/- 14.5427 +/- 150.9137 +/- 151.2720	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
52	1,1,2,2-Tetrachloroethane CAS # 79-34-5.SEC Purity 99%	(Lot CFA4D-AQ)	2,502.0 µg/mL	+/- 14.5468 +/- 150.9567 +/- 151.3151	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
53	1,2,3-Trichloropropane CAS # 96-18-4.SEC Purity 99%	(Lot GUHZN)	2,505.7 µg/mL	+/- 14.5682 +/- 151.1780 +/- 151.5369	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
54	trans-1,4-Dichloro-2-butene CAS # 110-57-6.SEC Purity 98%	(Lot 100700-3)	2,514.2 µg/mL	+/- 14.6177 +/- 151.6922 +/- 152.0524	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
55	n-Propylbenzene CAS # 103-65-1.SEC Purity 99%	(Lot T2HFC)	2,503.7 µg/mL	+/- 14.5565 +/- 151.0573 +/- 151.4159	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

56	Bromobenzene		2,506.2	µg/mL	+/-	14.5711	µg/mL	Gravimetric
	CAS #	108-86-1.SEC (Lot 2FUHG-EM)			+/-	151.2081	µg/mL	Unstressed
	Purity	99%			+/-	151.5671	µg/mL	Stressed
57	1,3,5-Trimethylbenzene		2,510.0	µg/mL	+/-	14.5934	µg/mL	Gravimetric
	CAS #	108-67-8.SEC (Lot FGH02-CMLN)			+/-	151.4394	µg/mL	Unstressed
	Purity	99%			+/-	151.7990	µg/mL	Stressed
58	2-Chlorotoluene		2,504.7	µg/mL	+/-	14.5623	µg/mL	Gravimetric
	CAS #	95-49-8.SEC (Lot SW8QG-AO)			+/-	151.1176	µg/mL	Unstressed
	Purity	99%			+/-	151.4764	µg/mL	Stressed
59	4-Chlorotoluene		2,509.2	µg/mL	+/-	14.5885	µg/mL	Gravimetric
	CAS #	106-43-4.SEC (Lot P4XHJ-AO)			+/-	151.3891	µg/mL	Unstressed
	Purity	99%			+/-	151.7486	µg/mL	Stressed
60	tert-Butylbenzene		2,505.8	µg/mL	+/-	14.5691	µg/mL	Gravimetric
	CAS #	98-06-6.SEC (Lot D6OHC)			+/-	151.1880	µg/mL	Unstressed
	Purity	99%			+/-	151.5470	µg/mL	Stressed
61	1,2,4-Trimethylbenzene		2,508.7	µg/mL	+/-	14.5856	µg/mL	Gravimetric
	CAS #	95-63-6.SEC (Lot JMIYD)			+/-	151.3590	µg/mL	Unstressed
	Purity	99%			+/-	151.7183	µg/mL	Stressed
62	sec-Butylbenzene		2,504.7	µg/mL	+/-	14.5623	µg/mL	Gravimetric
	CAS #	135-98-8.SEC (Lot OGN01-IMA)			+/-	151.1176	µg/mL	Unstressed
	Purity	99%			+/-	151.4764	µg/mL	Stressed
63	4-Isopropyltoluene (p-cymene)		2,500.3	µg/mL	+/-	14.5372	µg/mL	Gravimetric
	CAS #	99-87-6.SEC (Lot 6628200)			+/-	150.8562	µg/mL	Unstressed
	Purity	99%			+/-	151.2143	µg/mL	Stressed
64	1,3-Dichlorobenzene		2,506.3	µg/mL	+/-	14.5720	µg/mL	Gravimetric
	CAS #	541-73-1.SEC (Lot FMDFD)			+/-	151.2182	µg/mL	Unstressed
	Purity	99%			+/-	151.5772	µg/mL	Stressed
65	1,4-Dichlorobenzene		2,509.8	µg/mL	+/-	14.5924	µg/mL	Gravimetric
	CAS #	106-46-7.SEC (Lot 4Y5DC)			+/-	151.4294	µg/mL	Unstressed
	Purity	99%			+/-	151.7889	µg/mL	Stressed
66	n-Butylbenzene		2,513.7	µg/mL	+/-	14.6147	µg/mL	Gravimetric
	CAS #	104-51-8.SEC (Lot MMPGA)			+/-	151.6607	µg/mL	Unstressed
	Purity	99%			+/-	152.0207	µg/mL	Stressed
67	1,2-Dichlorobenzene		2,501.8	µg/mL	+/-	14.5459	µg/mL	Gravimetric
	CAS #	95-50-1.SEC (Lot R6QDM)			+/-	150.9467	µg/mL	Unstressed
	Purity	99%			+/-	151.3051	µg/mL	Stressed
68	1,2-Dibromo-3-chloropropane		2,508.5	µg/mL	+/-	14.5845	µg/mL	Gravimetric
	CAS #	96-12-8.SEC (Lot LC00408V)			+/-	151.3473	µg/mL	Unstressed
	Purity	98%			+/-	151.7066	µg/mL	Stressed
69	1,2,4-Trichlorobenzene		2,503.3	µg/mL	+/-	14.5546	µg/mL	Gravimetric
	CAS #	120-82-1.SEC (Lot 3LYYC)			+/-	151.0372	µg/mL	Unstressed
	Purity	99%			+/-	151.3958	µg/mL	Stressed
70	Hexachlorobutadiene		2,504.4	µg/mL	+/-	14.5607	µg/mL	Gravimetric
	CAS #	87-68-3.SEC (Lot 5526800)			+/-	151.1002	µg/mL	Unstressed
	Purity	97%			+/-	151.4590	µg/mL	Stressed
71	Naphthalene		2,503.3	µg/mL	+/-	14.5546	µg/mL	Gravimetric
	CAS #	91-20-3.SEC (Lot 4KW3H-OO)			+/-	151.0372	µg/mL	Unstressed
	Purity	99%			+/-	151.3958	µg/mL	Stressed

72	1,2,3-Trichlorobenzene		2,512.2 µg/mL	+/- 14.6063	µg/mL	Gravimetric
	CAS # 87-61-6.SEC	(Lot A0043055)		+/- 151.5740	µg/mL	Unstressed
	Purity 98%			+/- 151.9338	µg/mL	Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

Column:
60m x 0.25mm x 1.4µm
Rtx-502.2 (cat.#10916)

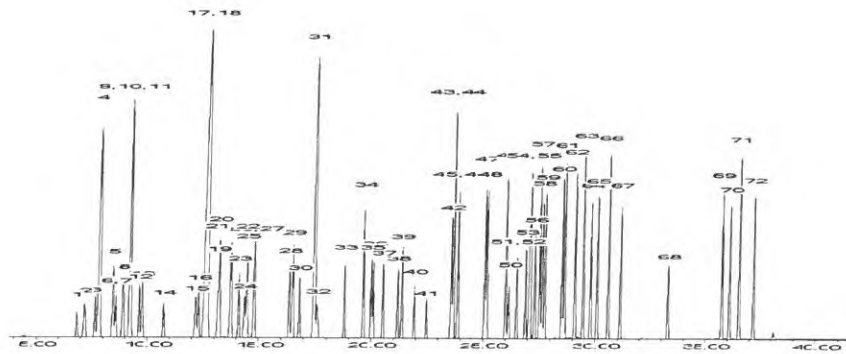
Carrier Gas:
helium-constant pressure 30 psi

Temp. Program:
40°C (hold 6 min.) to 240°C
@ 6°C/min. (hold 10 min.)

Inj. Temp:
200°C

Det. Temp:
250°C

Det. Type:
MSD



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Brandon Reish

Brandon Reish - Mix Technician

Date Mixed: 17-Dec-2018 Balance: 1127510105

Diane Shaffer

Diane Shaffer - Operations Tech-ARM QC

Date Passed: 21-Dec-2018

Manufactured under Restek's ISO 9001:2015
Registered Quality System
Certificate #FM 80397

Reagent

VMNSIMIX2_00008

Certificate of Analysis

8260 Extras Mix 2

Catalog Number: Q-3383
Lot Number: 062019
Manufacture Date: 06/20/2019

Expiration: 06/30/2020
Solvent: Methanol/Water
Hazards: Irritant, Toxic

<u>Analyte</u>	<u>CAS</u>	<u>Analyte Purity</u>	<u>Gravimetric Concentration (ug/mL)</u>
Ethylene oxide	75-21-8	99.0%	25000 ± 176
Epichlorohydrin	106-89-8	99.9%	9998 ± 70
Propylene oxide	75-56-9	99.0%	10001 ± 71
1,4-Dioxane	123-91-1	100%	50002 ± 353

Packaging, Storage, Instructions For Use

This standard is packaged in a flame-sealed ampule and **must be stored at -15 to -30°C**. To use this standard, allow it to reach room temperature. Mix it gently by inversion. Inspect for precipitate. If present, sonicate for a few minutes to redissolve. Open the ampule and withdraw an aliquot appropriate for your application.

Traceability Information

Analyte Source Materials: The highest purity analyte source materials are used in the manufacture of this standard. The actual purity is referenced above.

Method: This standard was verified gravimetrically.

Balance: All analytical balances are calibrated on a semiannual basis by an ISO 17025 accredited calibration laboratory and are traceable to NIST. Traceable Calibration Certificate available upon request.

All balances are checked daily by an in-house standard operating procedure. The weights used for this daily verification are calibrated annually by an ISO 17025 accredited calibration laboratory and are certified traceable to NIST. Certificate of Calibration and Traceability available upon request.

Thermometer: All thermometers are NIST traceable through thermometers that are calibrated annually by an ISO 17025 accredited calibration laboratory.

Glassware: All glassware used in the manufacture of our standards is Class A. An in-house standard operating procedure is used to verify all glassware prior to it being placed into service. Volumetric pipeters are calibrated every four months by an ISO 17025 accredited calibration laboratory.



nsi lab solutions

protect more. test more.

7212 ACC Blvd. | Raleigh, NC 27617 | 800.234.7837

Catalog Number: Q-3383

Lot Number: 062019

Intended Uses

- Calibration of analytical instruments
- Validation of analytical methods
- Preparation of working level reference materials, i.e. "check standards"
- Detection limit studies

Homogeneity

This standard was thoroughly mixed in production and is guaranteed homogenous.

Kenneth Grzybowski

Kenneth Grzybowski, Organics Department Manager

Mark Hammersla

Mark Hammersla, President



ISO 9001:2015 UL Registered Firm - Certificate # 10002343 QM15



Reagent

VMNSIMIX2_00009

Certificate of Analysis

8620 Extra Mix 2

Catalog Number: Q-3383
Lot Number: 200527
Manufacture Date: 05/27/2020

Expiration: 05/31/2021
Solvent: 1:1 Methanol:Water
Hazards: Irritant, Toxic

<u>Analyte</u>	<u>CAS</u>	<u>Analyte Purity</u>	<u>Gravimetric Concentration (ug/mL)</u>
Epichlorohydrin	106-89-8	99.9%	9998.2 ± 93.1
Propylene oxide	75-56-9	99.0%	9998.4 ± 93.1
1,4-Dioxane	123-91-1	100%	49998.7 ± 465.5
Ethylene Oxide	75-21-8	99.0%	24900.0 ± 231.8

This certified reference material (CRM) was manufactured and certified by NSI Lab Solutions according to quality procedures meeting our accreditation requirements of ISO 17034:2015 and ISO/IEC 17025:2017. Our certificates and scopes of accreditation may be viewed at www.anab.org.

Packaging, Storage, Instructions For Use

This CRM is packaged in a flame-sealed ampule and must be stored at -10°C to -20°C. To use this CRM, allow it to reach room temperature. Mix it gently by inversion. Inspect for precipitate. If present, sonicate for a few minutes to redissolve. Open the ampule and withdraw an aliquot appropriate for your application.

Traceability Information

Analyte Source Materials: The highest purity analyte source materials are used in the manufacture of this standard. The actual purity is referenced above.

Method: This CRM was verified Volumetrically and Analytically.

Balance: All analytical balances are calibrated on a semiannual basis by an ISO 17025 accredited calibration laboratory and are traceable to NIST. Traceable Calibration Certificate available upon request.

All balances are checked daily by an in-house standard operating procedure. The weights used for this daily verification are calibrated annually by an ISO 17025 accredited calibration laboratory and are certified traceable to NIST. Certificate of Calibration and Traceability available upon request.

Catalog Number: Q-3383
Lot Number: 200527

Thermometer: All thermometers are NIST traceable through thermometers that are calibrated annually by an ISO 17025 accredited calibration laboratory.

Glassware: All glassware used in the manufacture of our standards is Class A. An in-house standard operating procedure is used to verify all glassware prior to it being placed into service. Volumetric pipetors are calibrated every four months by an ISO 17025 accredited calibration laboratory.

Intended Uses

- Calibration of analytical instruments
- Validation of analytical methods
- Preparation of working level reference materials, i.e. "check standards"
- Detection limit studies

Homogeneity

This CRM was thoroughly mixed in production and is guaranteed homogenous.

Ken Grzybowski

Ken Grzybowski, Organics Department Manager

Mark Hammersla

Mark Hammersla, President

8260B_MI

Volatile Organic Compounds (GC/MS)

FORM II
GC/MS VOA SURROGATE RECOVERY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.: _____

Matrix: Solid

Level: Medium

GC Column (1): DB-624 ID: 0.18 (mm)

Client Sample ID	Lab Sample ID	DBFM #	DCA #	TOL #	BFB #
TMW-20-01 (0.5-1.0) 072720	240-134119-1	89	94	108	111
TMW-20-01 (1-2) 07272020	240-134119-2	90	94	110	112
TMW-20-01 (2-3) 07272020	240-134119-3	101	107	122	123
TMW-20-01 (3-4) 07272020	240-134119-4	105	111	128 X	129 X
TMW-20-01 (4-5) 07272020	240-134119-5	88	93	108	110
TMW-20-01 (5-6) 07272020	240-134119-6	87	94	107	106
TMW-20-01 (6-7) 07272020	240-134119-7	90	95	111	113
SB-138 (0.5-1) 07272020	240-134119-8	116	111	94	90
SB-138 (1-2) 072720	240-134119-9	126 X	121	105	113
SB-138 (2-3) 072720	240-134119-10	114	110	100	102
SB-138 (3-4) 072720	240-134119-11	135 X	126	112	114
SB-138 (4-5) 072720	240-134119-12	121	115	103	103
SB-139 (0.5-1) 072720	240-134119-13	130 X	122	109	110
SB-139 (1-2) 072720	240-134119-14	110	105	92	91
SB-139 (2-3) 072720	240-134119-15	123 X	119	104	106
SB-139 (3-4) 072720	240-134119-16	120	116	101	102
SB-140 (0.5-1) 072720	240-134119-18	115	109	97	97
SB-140 (1-2) 072720	240-134119-19	107	103	90	91
SB-140 (2-3) 072720	240-134119-20	114	105	96	96
SB-140 (3-4) 072720	240-134119-21	106	102	88	89
SB-140 (5-6) 072720	240-134119-22	110	106	91	91
SB-140 (6-7) 072720	240-134119-23	112	108	94	94
SB-139 (5-6) 072720	240-134119-24	114	109	96	94
SB-139 (6-7) 072720	240-134119-25	108	105	95	93

QC LIMITS

DBFM = Dibromofluoromethane (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)

49-122
47-136
55-123
51-124

Column to be used to flag recovery values

FORM II
GC/MS VOA SURROGATE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Matrix: Solid Level: Medium

GC Column (1): DB-624 ID: 0.18 (mm)

Client Sample ID	Lab Sample ID	DBFM #	DCA #	TOL #	BFB #
SB-138 (6-7) 072720	240-134119-27	113	111	94	93
DUP-01	240-134119-30	83	82	95	83
DUP-02	240-134119-31	86	86	95	81
	MB 240-445424/1-A	76	82	93	93
	MB 240-445438/1-A	106	101	87	88
	MB 240-445619/1-A	74	71	84	73
	LCS 240-445424/2-A	80	84	97	98
	LCS 240-445438/2-A	107	96	88	89
	LCS 240-445619/2-A	74	69	85	77
	240-134182-B-28- A MS	84	88	100	102
	240-134182-C-28- A MSD	86	85	103	107

DBFM = Dibromofluoromethane (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)

QC LIMITS
49-122
47-136
55-123
51-124

Column to be used to flag recovery values

FORM II 8260B MI

FORM III
GC/MS VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Matrix: Solid Level: Medium Lab File ID: U1279495a.D

Lab ID: LCS 240-445424/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC	QC LIMITS REC	#
1,1-Dichloroethene	1000	1060	106	48-140	
1,4-Dioxane	20000	20300	101	44-154	
cis-1,2-Dichloroethene	1000	838	84	76-120	
Tetrachloroethene	1000	1020	102	75-124	
trans-1,2-Dichloroethene	1000	1060	106	74-125	
Trichloroethene	1000	995	99	75-123	
Vinyl chloride	1000	1050	105	39-140	

Column to be used to flag recovery and RPD values

FORM III
GC/MS VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Matrix: Solid Level: Medium Lab File ID: UX989095.D

Lab ID: LCS 240-445438/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC	QC LIMITS REC	#
1,1-Dichloroethene	1000	1190	119	48-140	
1,4-Dioxane	20000	23600	118	44-154	
cis-1,2-Dichloroethene	1000	1140	114	76-120	
Tetrachloroethene	1000	1130	113	75-124	
trans-1,2-Dichloroethene	1000	1140	114	74-125	
Trichloroethene	1000	1240	124	75-123	*
Vinyl chloride	1000	1220	122	39-140	

Column to be used to flag recovery and RPD values

FORM III
GC/MS VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Matrix: Solid Level: Medium Lab File ID: U1916165.d

Lab ID: LCS 240-445619/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC	QC LIMITS REC	#
1,1-Dichloroethene	1000	914	91	48-140	
1,4-Dioxane	20000	17900	90	44-154	
cis-1,2-Dichloroethene	1000	897	90	76-120	
Tetrachloroethene	1000	855	86	75-124	
trans-1,2-Dichloroethene	1000	960	96	74-125	
Trichloroethene	1000	825	82	75-123	
Vinyl chloride	1000	998	100	39-140	

Column to be used to flag recovery and RPD values

FORM III
GC/MS VOA MATRIX SPIKE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Matrix: Solid Level: Medium Lab File ID: U1279506a.D

Lab ID: 240-134182-B-28-A MS Client ID: _____

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC	QC LIMITS REC	#
1,1-Dichloroethene	1040	43 U	1100	107	20-150	
1,4-Dioxane	20700	13000 U	31700	153	48-149	F1
cis-1,2-Dichloroethene	1040	43 U	926	89	35-130	
Tetrachloroethene	1040	43 U	1120	108	13-144	
trans-1,2-Dichloroethene	1040	43 U	1200	115	31-138	
Trichloroethene	1040	43 U	1120	108	10-162	
Vinyl chloride	1040	34 U	1220	118	15-150	

Column to be used to flag recovery and RPD values

FORM III
GC/MS VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Matrix: Solid Level: Medium Lab File ID: U1279507a.D

Lab ID: 240-134182-C-28-A MSD Client ID: _____

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
1,1-Dichloroethene	1060	1240	117	12	40	20-150	
1,4-Dioxane	21100	21600	102	38	40	48-149	
cis-1,2-Dichloroethene	1060	994	94	7	40	35-130	
Tetrachloroethene	1060	1210	114	8	40	13-144	
trans-1,2-Dichloroethene	1060	1280	121	7	40	31-138	
Trichloroethene	1060	1210	115	8	40	10-162	
Vinyl chloride	1060	1230	117	1	40	15-150	

Column to be used to flag recovery and RPD values

FORM IV
GC/MS VOA METHOD BLANK SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab File ID: U1279494a.D Lab Sample ID: MB 240-445424/1-A
 Matrix: Solid Heated Purge: (Y/N) N
 Instrument ID: A3UX12 Date Analyzed: 08/04/2020 18:24
 GC Column: DB-624 ID: 0.18 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 240-445424/2-A	U1279495a.D	08/04/2020 18:51
	240-134182-B-28-A MS	U1279506a.D	08/04/2020 22:57
	240-134182-C-28-A MSD	U1279507a.D	08/04/2020 23:20
TMW-20-01 (0.5-1.0)_072720	240-134119-1	U1279513.D	08/05/2020 01:35
TMW-20-01 (1-2)_07272020	240-134119-2	U1279514.D	08/05/2020 01:57
TMW-20-01 (2-3)_07272020	240-134119-3	U1279515.D	08/05/2020 02:20
TMW-20-01 (3-4)_07272020	240-134119-4	U1279516.D	08/05/2020 02:42
TMW-20-01 (4-5)_07272020	240-134119-5	U1279517.D	08/05/2020 03:05
TMW-20-01 (5-6)_07272020	240-134119-6	U1279518a.D	08/05/2020 03:28
TMW-20-01 (6-7)_07272020	240-134119-7	U1279519.D	08/05/2020 03:50

FORM IV
GC/MS VOA METHOD BLANK SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab File ID: UX989094.D Lab Sample ID: MB 240-445438/1-A
 Matrix: Solid Heated Purge: (Y/N) N
 Instrument ID: A3UX9 Date Analyzed: 08/04/2020 17:46
 GC Column: DB-624 ID: 0.18 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 240-445438/2-A	UX989095.D	08/04/2020 18:08
SB-138 (0.5-1)_07272020	240-134119-8	UX989096.D	08/04/2020 18:30
SB-138 (1-2)_072720	240-134119-9	UX989097.D	08/04/2020 18:52
SB-138 (2-3)_072720	240-134119-10	UX989098.D	08/04/2020 19:15
SB-138 (3-4)_072720	240-134119-11	UX989099.D	08/04/2020 19:37
SB-138 (4-5)_072720	240-134119-12	UX989100.D	08/04/2020 20:00
SB-139 (0.5-1)_072720	240-134119-13	UX989101.D	08/04/2020 20:22
SB-139 (1-2)_072720	240-134119-14	UX989102.D	08/04/2020 20:45
SB-139 (2-3)_072720	240-134119-15	UX989103.D	08/04/2020 21:07
SB-139 (3-4)_072720	240-134119-16	UX989104.D	08/04/2020 21:29
SB-140 (0.5-1)_072720	240-134119-18	UX989116.D	08/05/2020 12:48
SB-140 (1-2)_072720	240-134119-19	UX989117.D	08/05/2020 13:10
SB-140 (2-3)_072720	240-134119-20	UX989118.D	08/05/2020 13:33
SB-140 (3-4)_072720	240-134119-21	UX989119.D	08/05/2020 13:55
SB-140 (5-6)_072720	240-134119-22	UX989120.D	08/05/2020 14:18
SB-140 (6-7)_072720	240-134119-23	UX989121.D	08/05/2020 14:40
SB-139 (5-6)_072720	240-134119-24	UX989122.D	08/05/2020 15:03
SB-139 (6-7)_072720	240-134119-25	UX989123.D	08/05/2020 15:25
SB-138 (6-7)_072720	240-134119-27	UX989124.D	08/05/2020 15:48

FORM IV
GC/MS VOA METHOD BLANK SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab File ID: U1916164.d Lab Sample ID: MB 240-445619/1-A
 Matrix: Solid Heated Purge: (Y/N) N
 Instrument ID: A3UX19 Date Analyzed: 08/06/2020 19:38
 GC Column: DB-624 ID: 0.18 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 240-445619/2-A	U1916165.d	08/06/2020 20:00
DUP-01	240-134119-30	U1916166.d	08/06/2020 20:22
DUP-02	240-134119-31	U1916167.d	08/06/2020 20:45

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab File ID: BFB4436a.D BFB Injection Date: 07/16/2020
 Instrument ID: A3UX12 BFB Injection Time: 16:09
 Analysis Batch No.: 442964

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15.0 - 40.0 % of mass 95	21.2	
75	30.0 - 60.0 % of mass 95	51.6	
95	Base Peak, 100% relative abundance	100.0	
96	5.0 - 9.0 % of mass 95	6.7	
173	Less than 2.0 % of mass 174	0.0	(0.0) 1
174	50.0 - 120.00 % of mass 95	86.5	
175	5.0 - 9.0 % of mass 174	6.3	(7.3) 1
176	95.0 - 101.0 % of mass 174	84.1	(97.2) 1
177	5.0 - 9.0 % of mass 176	5.5	(6.6) 2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	STD8260 240-442964/9	U1279113.D	07/16/2020	17:43
	STD8260 240-442964/10	U1279114.D	07/16/2020	18:05
	STD8260 240-442964/11	U1279115.D	07/16/2020	18:27
	STD8260 240-442964/12	U1279116.D	07/16/2020	18:50
	ICIS 240-442964/13	U1279117.D	07/16/2020	19:12
	STD8260 240-442964/14	U1279118.D	07/16/2020	19:35
	STD8260 240-442964/15	U1279119.D	07/16/2020	19:57
	STD8260 240-442964/16	U1279120.D	07/16/2020	20:20
	ICV 240-442964/17	U1279121.D	07/16/2020	20:43

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab File ID: BFB4451.D BFB Injection Date: 08/04/2020
 Instrument ID: A3UX12 BFB Injection Time: 15:54
 Analysis Batch No.: 445595

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15.0 - 40.0 % of mass 95	19.7	
75	30.0 - 60.0 % of mass 95	48.4	
95	Base Peak, 100% relative abundance	100.0	
96	5.0 - 9.0 % of mass 95	6.6	
173	Less than 2.0 % of mass 174	0.0	(0.0) 1
174	50.0 - 120.00 % of mass 95	83.7	
175	5.0 - 9.0 % of mass 174	6.2	(7.4) 1
176	95.0 - 101.0 % of mass 174	81.2	(97.1) 1
177	5.0 - 9.0 % of mass 176	5.4	(6.7) 2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	CCV 240-445595/3	U1279489.D	08/04/2020	16:16
	CCVIS 240-445595/4	U1279490.D	08/04/2020	16:38
	MB 240-445424/1-A	U1279494a.D	08/04/2020	18:24
	LCS 240-445424/2-A	U1279495a.D	08/04/2020	18:51
	240-134182-B-28-A MS	U1279506a.D	08/04/2020	22:57
	240-134182-C-28-A MSD	U1279507a.D	08/04/2020	23:20
TMW-20-01 (0.5-1.0) 072720	240-134119-1	U1279513.D	08/05/2020	1:35
TMW-20-01 (1-2) 07272020	240-134119-2	U1279514.D	08/05/2020	1:57
TMW-20-01 (2-3) 07272020	240-134119-3	U1279515.D	08/05/2020	2:20
TMW-20-01 (3-4) 07272020	240-134119-4	U1279516.D	08/05/2020	2:42
TMW-20-01 (4-5) 07272020	240-134119-5	U1279517.D	08/05/2020	3:05
TMW-20-01 (5-6) 07272020	240-134119-6	U1279518a.D	08/05/2020	3:28
TMW-20-01 (6-7) 07272020	240-134119-7	U1279519.D	08/05/2020	3:50

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab File ID: bfb036.d BFB Injection Date: 07/24/2018
 Instrument ID: A3UX19 BFB Injection Time: 17:22
 Analysis Batch No.: 337765

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0 % of mass 95	21.1
75	30.0 - 60.0 % of mass 95	53.5
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0 % of mass 95	6.8
173	Less than 2.0 % of mass 174	1.1 (1.2) 1
174	50.0 - 120.00 % of mass 95	84.3
175	5.0 - 9.0 % of mass 174	6.2 (7.4) 1
176	95.0 - 101.0 % of mass 174	80.7 (95.7) 1
177	5.0 - 9.0 % of mass 176	5.4 (6.6) 2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	STD8260 240-337765/2	U1900783.d	07/24/2018	17:50
	STD8260 240-337765/3	U1900784.d	07/24/2018	18:13
	STD8260 240-337765/9	U1900790.d	07/24/2018	18:35
	ICIS 240-337765/10	U1900791.d	07/24/2018	18:57
	STD8260 240-337765/11	U1900792.d	07/24/2018	19:20
	STD8260 240-337765/12	U1900793.d	07/24/2018	19:42
	STD8260 240-337765/13	U1900794.d	07/24/2018	20:04

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab File ID: bfb037.d BFB Injection Date: 07/25/2018
 Instrument ID: A3UX19 BFB Injection Time: 11:28
 Analysis Batch No.: 337916

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15.0 - 40.0 % of mass 95	21.4	
75	30.0 - 60.0 % of mass 95	52.5	
95	Base Peak, 100% relative abundance	100.0	
96	5.0 - 9.0 % of mass 95	6.8	
173	Less than 2.0 % of mass 174	1.1	(1.3) 1
174	50.0 - 120.00 % of mass 95	82.7	
175	5.0 - 9.0 % of mass 174	6.4	(7.8) 1
176	95.0 - 101.0 % of mass 174	80.3	(97.1) 1
177	5.0 - 9.0 % of mass 176	5.2	(6.5) 2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	ICV 240-337916/14	U1900808.d	07/25/2018	15:37

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab File ID: bfb058.d BFB Injection Date: 08/27/2018
 Instrument ID: A3UX19 BFB Injection Time: 16:23
 Analysis Batch No.: 342718

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0 % of mass 95	17.5
75	30.0 - 60.0 % of mass 95	49.5
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0 % of mass 95	6.5
173	Less than 2.0 % of mass 174	0.6 (0.6) 1
174	50.0 - 120.00 % of mass 95	94.9
175	5.0 - 9.0 % of mass 174	7.3 (7.7) 1
176	95.0 - 101.0 % of mass 174	92.7 (97.7) 1
177	5.0 - 9.0 % of mass 176	5.9 (6.4) 2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	STD8260 240-342718/7	U1901323.d	08/27/2018	17:09
	STD8260 240-342718/8	U1901324.d	08/27/2018	17:31
	STD8260 240-342718/9	U1901325.d	08/27/2018	17:53
	ICIS 240-342718/10	U1901326.d	08/27/2018	18:16
	STD8260 240-342718/11	U1901327.d	08/27/2018	18:38
	STD8260 240-342718/12	U1901328.d	08/27/2018	19:01
	STD8260 240-342718/13	U1901329.d	08/27/2018	19:23
	ICV 240-342718/14	U1901330.d	08/27/2018	19:45

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab File ID: bfb592.d BFB Injection Date: 08/06/2020
 Instrument ID: A3UX19 BFB Injection Time: 17:23
 Analysis Batch No.: 446008

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0 % of mass 95	17.1
75	30.0 - 60.0 % of mass 95	48.1
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0 % of mass 95	6.7
173	Less than 2.0 % of mass 174	0.0 (0.0) 1
174	50.0 - 120.00 % of mass 95	85.4
175	5.0 - 9.0 % of mass 174	7.3 (8.5) 1
176	95.0 - 101.0 % of mass 174	83.5 (97.8) 1
177	5.0 - 9.0 % of mass 176	5.6 (6.7) 2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	CCV 240-446008/3	U1916159.d	08/06/2020	17:45
	CCVIS 240-446008/4	U1916160.d	08/06/2020	18:08
	MB 240-445619/1-A	U1916164.d	08/06/2020	19:38
	LCS 240-445619/2-A	U1916165.d	08/06/2020	20:00
DUP-01	240-134119-30	U1916166.d	08/06/2020	20:22
DUP-02	240-134119-31	U1916167.d	08/06/2020	20:45

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab File ID: BFB1008.D BFB Injection Date: 06/29/2020
 Instrument ID: A3UX9 BFB Injection Time: 09:36
 Analysis Batch No.: 440459

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0 % of mass 95	23.9
75	30.0 - 60.0 % of mass 95	57.4
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0 % of mass 95	7.1
173	Less than 2.0 % of mass 174	0.0 (0.0) 1
174	50.0 - 120.00 % of mass 95	89.8
175	5.0 - 9.0 % of mass 174	7.4 (8.2) 1
176	95.0 - 101.0 % of mass 174	85.7 (95.4) 1
177	5.0 - 9.0 % of mass 176	5.5 (6.4) 2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	STD8260 240-440459/8	UX988356.D	06/29/2020	10:22
	STD8260 240-440459/9	UX988357.D	06/29/2020	10:44
	STD8260 240-440459/10	UX988358.D	06/29/2020	11:07
	ICIS 240-440459/11	UX988359.D	06/29/2020	11:29
	STD8260 240-440459/12	UX988360.D	06/29/2020	11:52
	STD8260 240-440459/13	UX988361.D	06/29/2020	12:14
	STD8260 240-440459/14	UX988362.D	06/29/2020	12:37
	ICV 240-440459/15	UX988363.D	06/29/2020	12:59

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab File ID: BFB1032.D BFB Injection Date: 08/04/2020
 Instrument ID: A3UX9 BFB Injection Time: 09:37
 Analysis Batch No.: 445537

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0 % of mass 95	20.9
75	30.0 - 60.0 % of mass 95	52.0
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0 % of mass 95	6.4
173	Less than 2.0 % of mass 174	0.0 (0.0) 1
174	50.0 - 120.00 % of mass 95	95.4
175	5.0 - 9.0 % of mass 174	7.6 (8.0) 1
176	95.0 - 101.0 % of mass 174	92.5 (97.0) 1
177	5.0 - 9.0 % of mass 176	5.9 (6.3) 2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	CCVIS 240-445537/3	UX989074.D	08/04/2020	10:03
	CCV 240-445537/4	UX989075.D	08/04/2020	10:26
	MB 240-445438/1-A	UX989094.D	08/04/2020	17:46
	LCS 240-445438/2-A	UX989095.D	08/04/2020	18:08
SB-138 (0.5-1) 07272020	240-134119-8	UX989096.D	08/04/2020	18:30
SB-138 (1-2) 072720	240-134119-9	UX989097.D	08/04/2020	18:52
SB-138 (2-3) 072720	240-134119-10	UX989098.D	08/04/2020	19:15
SB-138 (3-4) 072720	240-134119-11	UX989099.D	08/04/2020	19:37
SB-138 (4-5) 072720	240-134119-12	UX989100.D	08/04/2020	20:00
SB-139 (0.5-1) 072720	240-134119-13	UX989101.D	08/04/2020	20:22
SB-139 (1-2) 072720	240-134119-14	UX989102.D	08/04/2020	20:45
SB-139 (2-3) 072720	240-134119-15	UX989103.D	08/04/2020	21:07
SB-139 (3-4) 072720	240-134119-16	UX989104.D	08/04/2020	21:29

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Lab File ID: BFB1033.D BFB Injection Date: 08/05/2020

Instrument ID: A3UX9 BFB Injection Time: 09:07

Analysis Batch No.: 445702

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0 % of mass 95	21.0
75	30.0 - 60.0 % of mass 95	52.1
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0 % of mass 95	6.9
173	Less than 2.0 % of mass 174	0.0 (0.0) 1
174	50.0 - 120.00 % of mass 95	94.6
175	5.0 - 9.0 % of mass 174	7.1 (7.5) 1
176	95.0 - 101.0 % of mass 174	91.6 (96.8) 1
177	5.0 - 9.0 % of mass 176	6.0 (6.6) 2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	CCVIS 240-445702/3	UX989108.D	08/05/2020	9:34
	CCV 240-445702/4	UX989109.D	08/05/2020	9:57
SB-140 (0.5-1) 072720	240-134119-18	UX989116.D	08/05/2020	12:48
SB-140 (1-2) 072720	240-134119-19	UX989117.D	08/05/2020	13:10
SB-140 (2-3) 072720	240-134119-20	UX989118.D	08/05/2020	13:33
SB-140 (3-4) 072720	240-134119-21	UX989119.D	08/05/2020	13:55
SB-140 (5-6) 072720	240-134119-22	UX989120.D	08/05/2020	14:18
SB-140 (6-7) 072720	240-134119-23	UX989121.D	08/05/2020	14:40
SB-139 (5-6) 072720	240-134119-24	UX989122.D	08/05/2020	15:03
SB-139 (6-7) 072720	240-134119-25	UX989123.D	08/05/2020	15:25
SB-138 (6-7) 072720	240-134119-27	UX989124.D	08/05/2020	15:48
	240-134119-C-17-B MS MS	UX989128.D	08/05/2020	17:18
	240-134119-C-17-C MSD MSD	UX989129.D	08/05/2020	17:40

FORM VIII
GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Sample No.: ICIS 240-442964/13 Date Analyzed: 07/16/2020 19:12
 Instrument ID: A3UX12 GC Column: DB-624 ID: 0.18 (mm)
 Lab File ID (Standard): U1279117.D Heated Purge: (Y/N) N
 Calibration ID: 57832

	FB		CBNZd5		DCBd4	
	AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MID-POINT	930091	5.10	747849	7.75	400649	9.97
UPPER LIMIT	1860182	5.60	1495698	8.25	801298	10.47
LOWER LIMIT	465046	4.60	373925	7.25	200325	9.47
LAB SAMPLE ID	CLIENT SAMPLE ID					
ICV 240-442964/17	993337	5.10	838058	7.75	407737	9.97
CCVIS 240-445595/4	1127735	5.10	738729	7.75	363181	9.97

FB = Fluorobenzene
 CBNZd5 = Chlorobenzene-d5
 DCBd4 = 1,4-Dichlorobenzene-d4
 Area Limit = 50%-200% of internal standard area
 RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Sample No.: CCVIS 240-445595/4 Date Analyzed: 08/04/2020 16:38
 Instrument ID: A3UX12 GC Column: DB-624 ID: 0.18 (mm)
 Lab File ID (Standard): U1279490.D Heated Purge: (Y/N) N
 Calibration ID: 57832

	FB		CBNZd5		DCBd4		
	AREA #	RT #	AREA #	RT #	AREA #	RT #	
12/24 HOUR STD	1127735	5.10	738729	7.75	363181	9.97	
UPPER LIMIT	2255470	5.60	1477458	8.25	726362	10.47	
LOWER LIMIT	563868	4.60	369365	7.25	181591	9.47	
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 240-445424/1-A		1115717	5.10	751371	7.75	374333	9.97
LCS 240-445424/2-A		1167295	5.08	803421	7.75	396353	9.97
240-134182-B-28-A MS		1060054	5.10	741525	7.75	391344	9.97
240-134182-C-28-A MSD		1098106	5.10	766667	7.75	392940	9.97
240-134119-1	TMW-20-01 (0.5-1.0) 072720	1074662	5.10	702431	7.75	364784	9.97
240-134119-2	TMW-20-01 (1-2) 07272020	1073610	5.10	688737	7.75	358990	9.97
240-134119-3	TMW-20-01 (2-3) 07272020	1060400	5.10	701544	7.75	369196	9.97
240-134119-4	TMW-20-01 (3-4) 07272020	1085193	5.10	705978	7.75	353975	9.97
240-134119-5	TMW-20-01 (4-5) 07272020	1085160	5.10	710597	7.75	352465	9.97
240-134119-6	TMW-20-01 (5-6) 07272020	1090680	5.10	718779	7.75	375427	9.97
240-134119-7	TMW-20-01 (6-7) 07272020	1067640	5.10	682424	7.75	336860	9.97

FB = Fluorobenzene

CBNZd5 = Chlorobenzene-d5

DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area

RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Sample No.: ICIS 240-342718/10 Date Analyzed: 08/27/2018 18:16
 Instrument ID: A3UX19 GC Column: DB-624 ID: 0.18 (mm)
 Lab File ID (Standard): U1901326.d Heated Purge: (Y/N) N
 Calibration ID: 46686

	FB		CBNZd5		DCBd4	
	AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MID-POINT	972482	5.65	783101	8.50	430906	10.88
UPPER LIMIT	1944964	6.15	1566202	9.00	861812	11.38
LOWER LIMIT	486241	5.15	391551	8.00	215453	10.38
LAB SAMPLE ID	CLIENT SAMPLE ID					
ICV 240-342718/14	955207	5.65	765531	8.50	424750	10.88
CCVIS 240-446008/4	1008282	5.67	721822	8.50	392493	10.88

FB = Fluorobenzene

CBNZd5 = Chlorobenzene-d5

DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area

RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Sample No.: CCVIS 240-446008/4 Date Analyzed: 08/06/2020 18:08
 Instrument ID: A3UX19 GC Column: DB-624 ID: 0.18 (mm)
 Lab File ID (Standard): U1916160.d Heated Purge: (Y/N) N
 Calibration ID: 57282

	FB		CBNZd5		DCBd4		
	AREA #	RT #	AREA #	RT #	AREA #	RT #	
12/24 HOUR STD	1008282	5.67	721822	8.50	392493	10.88	
UPPER LIMIT	2016564	6.17	1443644	9.00	784986	11.38	
LOWER LIMIT	504141	5.17	360911	8.00	196247	10.38	
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 240-445619/1-A		962857	5.65	694053	8.50	348619	10.90
LCS 240-445619/2-A		992035	5.67	703466	8.50	373500	10.90
240-134119-30	DUP-01	977391	5.65	705424	8.50	353116	10.90
240-134119-31	DUP-02	988828	5.65	708199	8.50	357512	10.90

FB = Fluorobenzene

CBNZd5 = Chlorobenzene-d5

DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area

RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Sample No.: ICIS 240-440459/11 Date Analyzed: 06/29/2020 11:29
 Instrument ID: A3UX9 GC Column: DB-624 ID: 0.18 (mm)
 Lab File ID (Standard): UX988359.D Heated Purge: (Y/N) N
 Calibration ID: 57650

	FB		CBNZd5		DCBd4	
	AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MID-POINT	1066616	5.87	824710	8.57	469576	10.82
UPPER LIMIT	2133232	6.37	1649420	9.07	939152	11.32
LOWER LIMIT	533308	5.37	412355	8.07	234788	10.32
LAB SAMPLE ID	CLIENT SAMPLE ID					
ICV 240-440459/15	1192236	5.87	889467	8.58	499905	10.81
CCVIS 240-445537/3	1324707	5.87	1250397	8.58	767182	10.82
CCVIS 240-445702/3	1352769	5.87	1300622	8.57	779877	10.82

FB = Fluorobenzene

CBNZd5 = Chlorobenzene-d5

DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area

RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Sample No.: CCVIS 240-445537/3 Date Analyzed: 08/04/2020 10:03
 Instrument ID: A3UX9 GC Column: DB-624 ID: 0.18 (mm)
 Lab File ID (Standard): UX989074.D Heated Purge: (Y/N) N
 Calibration ID: 57654

	FB		CBNZd5		DCBd4		
	AREA #	RT #	AREA #	RT #	AREA #	RT #	
12/24 HOUR STD	1324707	5.87	1250397	8.58	767182	10.82	
UPPER LIMIT	2649414	6.37	2500794	9.08	1534364	11.32	
LOWER LIMIT	662354	5.37	625199	8.08	383591	10.32	
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCV 240-445537/4		1339096	5.88	1241868	8.57	734219	10.82
MB 240-445438/1-A		1288673	5.87	1194946	8.58	704262	10.82
LCS 240-445438/2-A		1380378	5.87	1277709	8.57	757488	10.81
240-134119-8	SB-138 (0.5-1) 07272020	1390157	5.87	1282972	8.58	768057	10.81
240-134119-9	SB-138 (1-2) 072720	1295477	5.87	1232018	8.57	723501	10.82
240-134119-10	SB-138 (2-3) 072720	1361153	5.87	1292401	8.58	759259	10.81
240-134119-11	SB-138 (3-4) 072720	1368681	5.87	1289709	8.57	761875	10.81
240-134119-12	SB-138 (4-5) 072720	1300461	5.87	1218984	8.58	721029	10.81
240-134119-13	SB-139 (0.5-1) 072720	1245157	5.87	1192547	8.58	694798	10.82
240-134119-14	SB-139 (1-2) 072720	1338459	5.87	1272325	8.58	746875	10.81
240-134119-15	SB-139 (2-3) 072720	1360641	5.87	1274214	8.58	747100	10.82
240-134119-16	SB-139 (3-4) 072720	1354530	5.87	1250759	8.57	744204	10.82

FB = Fluorobenzene

CBNZd5 = Chlorobenzene-d5

DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area

RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Sample No.: CCVIS 240-445702/3 Date Analyzed: 08/05/2020 09:34
 Instrument ID: A3UX9 GC Column: DB-624 ID: 0.18 (mm)
 Lab File ID (Standard): UX989108.D Heated Purge: (Y/N) N
 Calibration ID: 57654

	FB		CBNZd5		DCBd4		
	AREA #	RT #	AREA #	RT #	AREA #	RT #	
12/24 HOUR STD	1352769	5.87	1300622	8.57	779877	10.82	
UPPER LIMIT	2705538	6.37	2601244	9.07	1559754	11.32	
LOWER LIMIT	676385	5.37	650311	8.07	389939	10.32	
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCV 240-445702/4		1327712	5.86	1287958	8.57	757889	10.82
240-134119-18	SB-140 (0.5-1)_072720	1317592	5.87	1264756	8.58	754910	10.81
240-134119-19	SB-140 (1-2)_072720	1314946	5.87	1249912	8.57	736986	10.82
240-134119-20	SB-140 (2-3)_072720	1322474	5.87	1255224	8.57	732337	10.82
240-134119-21	SB-140 (3-4)_072720	1344079	5.86	1276740	8.57	755086	10.82
240-134119-22	SB-140 (5-6)_072720	1355190	5.87	1297886	8.58	764574	10.82
240-134119-23	SB-140 (6-7)_072720	1363981	5.87	1287935	8.57	747186	10.81
240-134119-24	SB-139 (5-6)_072720	1365649	5.87	1274472	8.58	757726	10.82
240-134119-25	SB-139 (6-7)_072720	1373362	5.87	1276271	8.58	758610	10.81
240-134119-27	SB-138 (6-7)_072720	1326064	5.87	1246804	8.58	734315	10.81

FB = Fluorobenzene

CBNZd5 = Chlorobenzene-d5

DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area

RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
SDG No.: _____
Client Sample ID: TMW-20-01 Lab Sample ID: 240-134119-1
(0.5-1.0) 072720
Matrix: Solid Lab File ID: U1279513.D
Analysis Method: 8260B MI Date Collected: 07/27/2020 10:05
Sample wt/vol: 8.957(g) Date Analyzed: 08/05/2020 01:35
Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
Soil Extract Vol.: 10.0 (mL) GC Column: DB-624 ID: 0.18 (mm)
% Moisture: 13.2 Level: (low/med) Medium
Analysis Batch No.: 445595 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	58	U	58	23
123-91-1	1,4-Dioxane	18000	U	18000	1600
156-59-2	cis-1,2-Dichloroethene	58	U	58	13
127-18-4	Tetrachloroethene	490		58	26
156-60-5	trans-1,2-Dichloroethene	58	U	58	14
79-01-6	Trichloroethene	58	U	58	16
75-01-4	Vinyl chloride	46	U	46	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	94		47-136
460-00-4	4-Bromofluorobenzene (Surr)	111		51-124
1868-53-7	Dibromofluoromethane (Surr)	89		49-122
2037-26-5	Toluene-d8 (Surr)	108		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279513.D
 Lims ID: 240-134119-A-1-A
 Client ID: TMW-20-01 (0.5-1.0)_072720
 Sample Type: Client
 Inject. Date: 05-Aug-2020 01:35:30 ALS Bottle#: 26 Worklist Smp#: 28
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-028
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:07:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 15:48:41

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1074662	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	702431	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.971	-0.001	96	364784	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.527	4.539	-0.012	94	284323	19.9	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	95	365785	21.0	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1146724	24.1	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.846	8.858	-0.012	89	404064	24.8	
12 Vinyl chloride	62		1.699				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166	6.989	7.000	-0.011	98	95007	6.81	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279513.D

Injection Date: 05-Aug-2020 01:35:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134119-A-1-A

Lab Sample ID: 240-134119-1

Worklist Smp#: 28

Client ID: TMW-20-01 (0.5-1.0)_072720

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

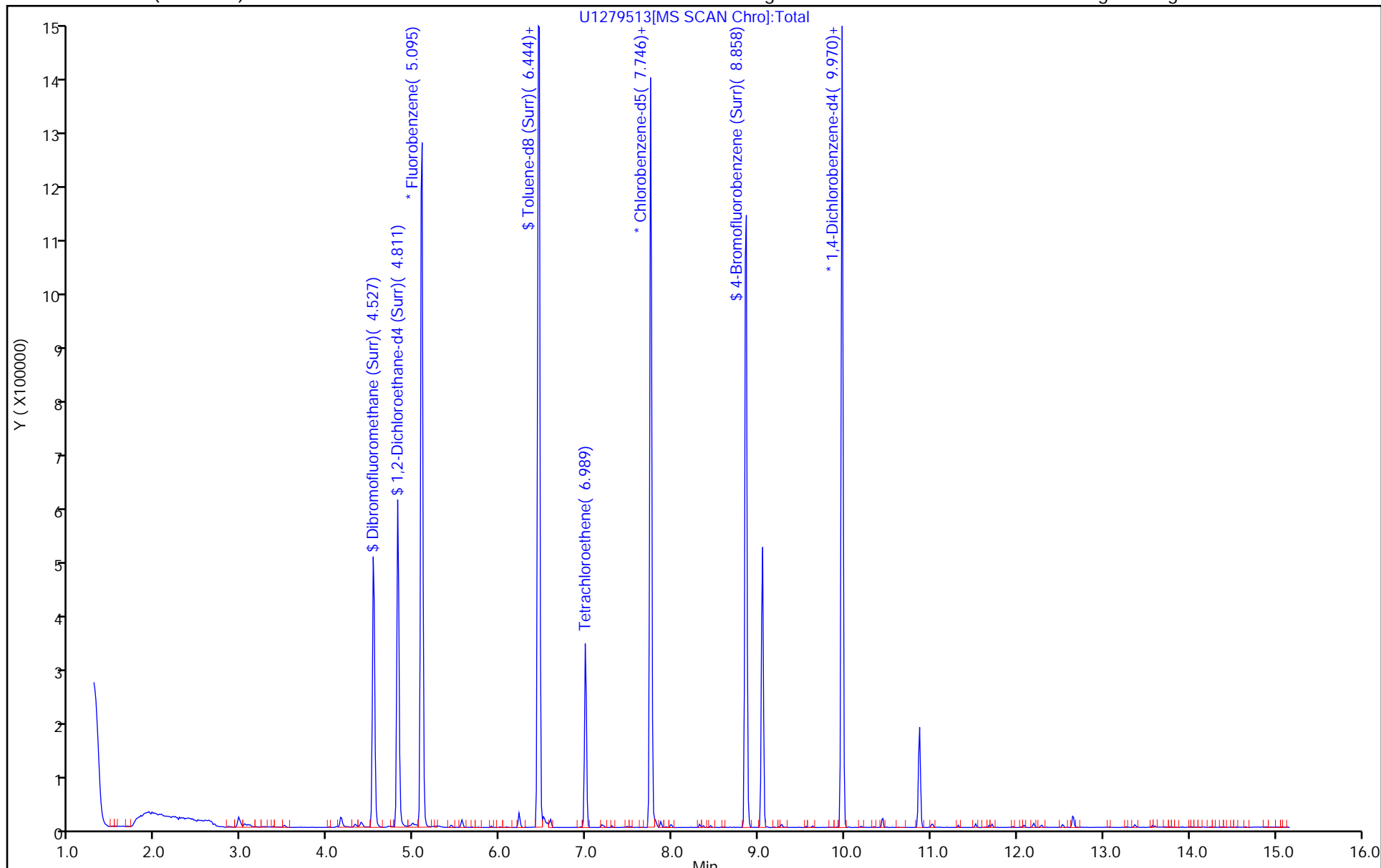
ALS Bottle#: 26

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279513.D
 Lims ID: 240-134119-A-1-A
 Client ID: TMW-20-01 (0.5-1.0)_072720
 Sample Type: Client
 Inject. Date: 05-Aug-2020 01:35:30 ALS Bottle#: 26 Worklist Smp#: 28
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-028
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:07:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 15:48:41

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	19.9	79.73
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	21.0	83.81
\$ 6 Toluene-d8 (Surr)	25.0	24.1	96.55
\$ 7 4-Bromofluorobenzene (Surr)	25.0	24.8	99.36

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279513.D

Injection Date: 05-Aug-2020 01:35:30

Instrument ID: A3UX12

Lims ID: 240-134119-A-1-A

Lab Sample ID: 240-134119-1

Client ID: TMW-20-01 (0.5-1.0)_072720

Operator ID: 001904

ALS Bottle#: 26

Worklist Smp#: 28

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

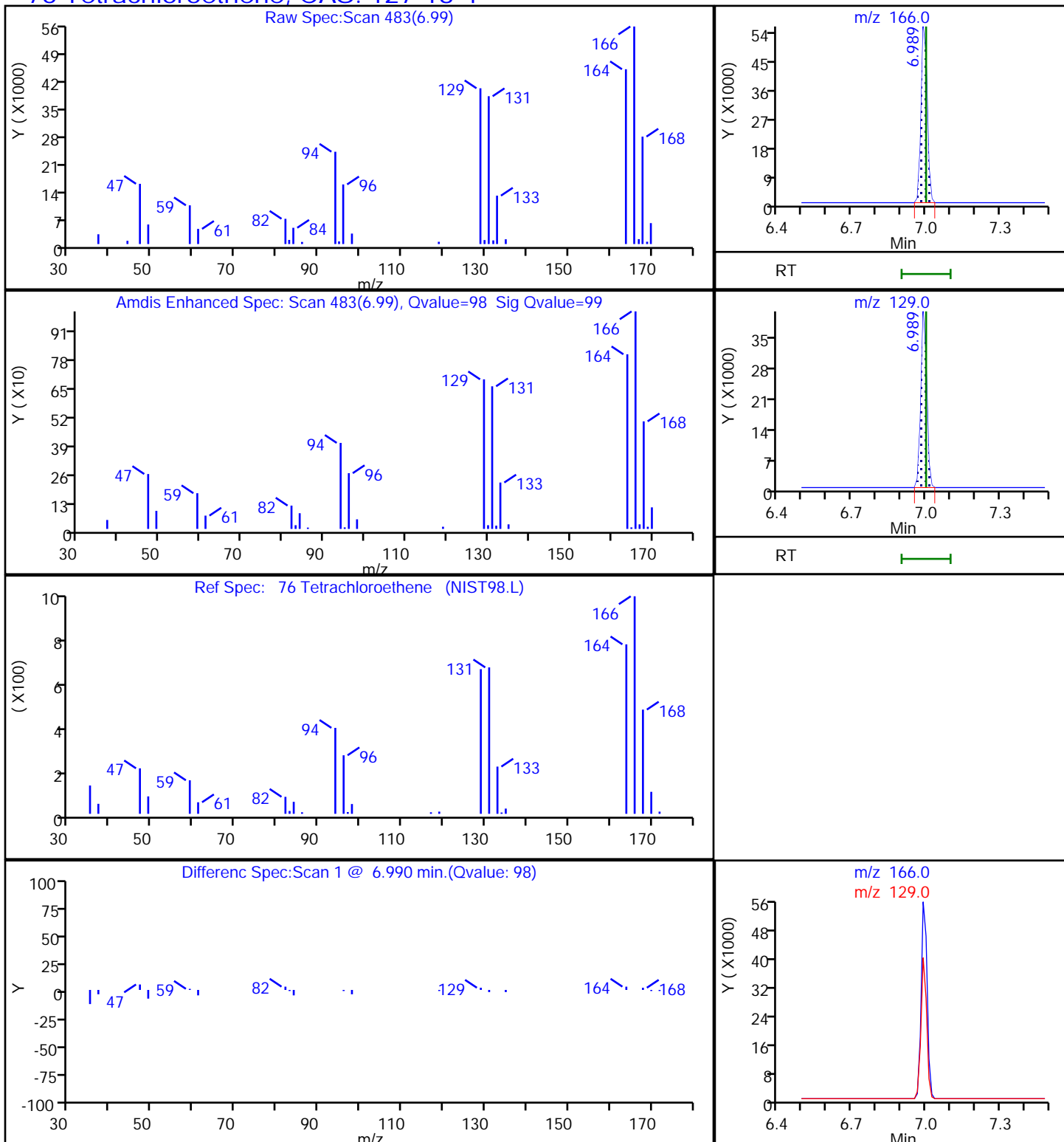
Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

76 Tetrachloroethene, CAS: 127-18-4



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: TMW-20-01 (1-2)_07272020 Lab Sample ID: 240-134119-2
 Matrix: Solid Lab File ID: U1279514.D
 Analysis Method: 8260B MI Date Collected: 07/27/2020 10:10
 Sample wt/vol: 9.889(g) Date Analyzed: 08/05/2020 01:57
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0 (mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 15.1 Level: (low/med) Medium
 Analysis Batch No.: 445595 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	55	U	55	22
123-91-1	1,4-Dioxane	17000	U	17000	1500
156-59-2	cis-1,2-Dichloroethene	55	U	55	12
127-18-4	Tetrachloroethene	1200		55	25
156-60-5	trans-1,2-Dichloroethene	55	U	55	14
79-01-6	Trichloroethene	55	U	55	15
75-01-4	Vinyl chloride	44	U	44	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	94		47-136
460-00-4	4-Bromofluorobenzene (Surr)	112		51-124
1868-53-7	Dibromofluoromethane (Surr)	90		49-122
2037-26-5	Toluene-d8 (Surr)	110		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279514.D
 Lims ID: 240-134119-A-2-A
 Client ID: TMW-20-01 (1-2)_07272020
 Sample Type: Client
 Inject. Date: 05-Aug-2020 01:57:30 ALS Bottle#: 27 Worklist Smp#: 29
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-029
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:07:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 15:48:47

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1073610	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	688737	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.971	-0.001	96	358990	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.527	4.539	-0.012	94	279710	19.6	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	94	357236	20.5	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1110507	23.8	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	94	386877	24.3	
12 Vinyl chloride	62		1.699				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166	6.988	7.000	-0.012	98	245001	17.9	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279514.D

Injection Date: 05-Aug-2020 01:57:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134119-A-2-A

Lab Sample ID: 240-134119-2

Worklist Smp#: 29

Client ID: TMW-20-01 (1-2)_07272020

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

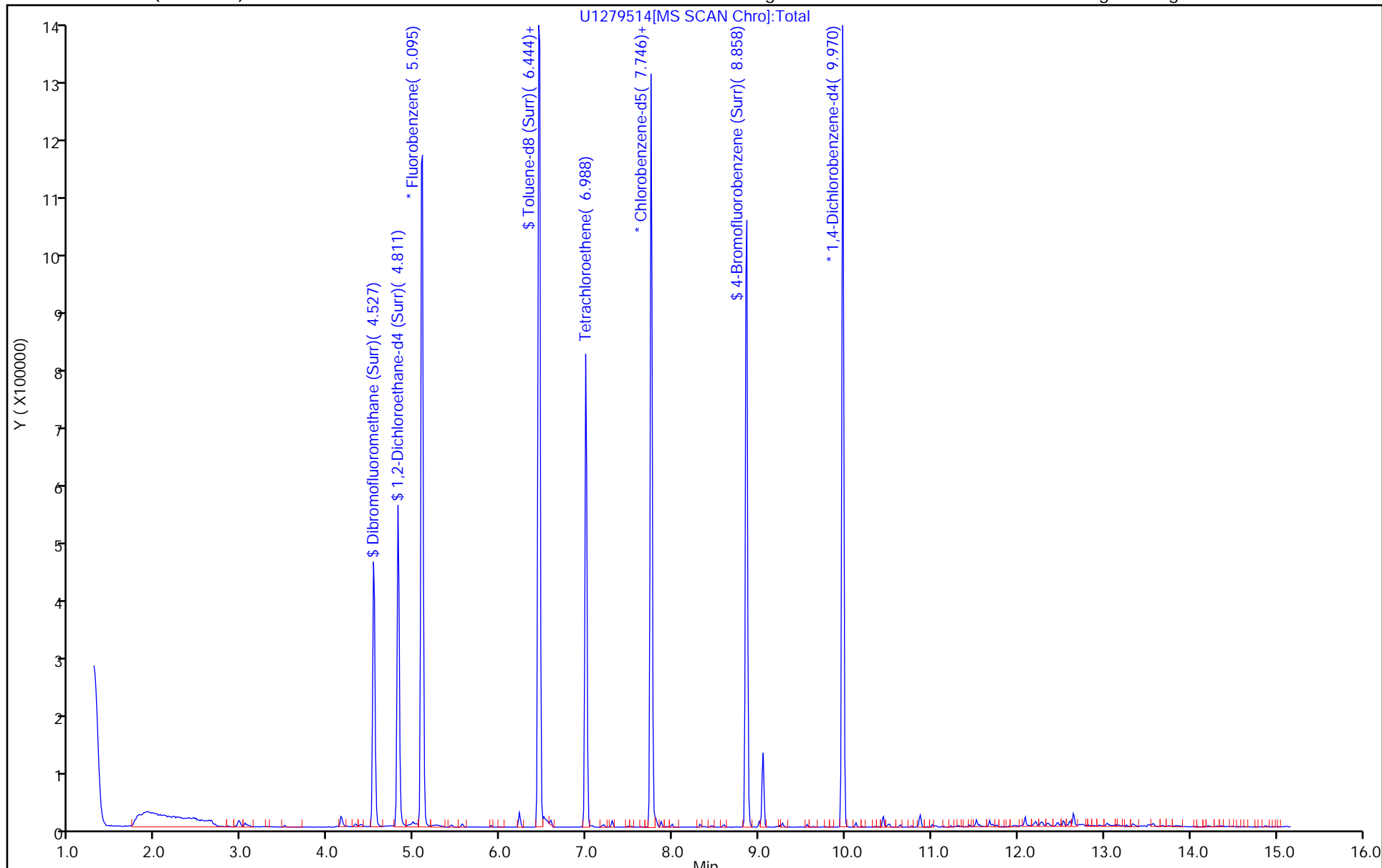
ALS Bottle#: 27

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279514.D
 Lims ID: 240-134119-A-2-A
 Client ID: TMW-20-01 (1-2)_07272020
 Sample Type: Client
 Inject. Date: 05-Aug-2020 01:57:30 ALS Bottle#: 27 Worklist Smp#: 29
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-029
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:07:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 15:48:47

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	19.6	78.51
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	20.5	81.93
\$ 6 Toluene-d8 (Surr)	25.0	23.8	95.36
\$ 7 4-Bromofluorobenzene (Surr)	25.0	24.3	97.02

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279514.D

Injection Date: 05-Aug-2020 01:57:30

Instrument ID: A3UX12

Lims ID: 240-134119-A-2-A

Lab Sample ID: 240-134119-2

Client ID: TMW-20-01 (1-2)_07272020

Operator ID: 001904

ALS Bottle#: 27

Worklist Smp#: 29

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

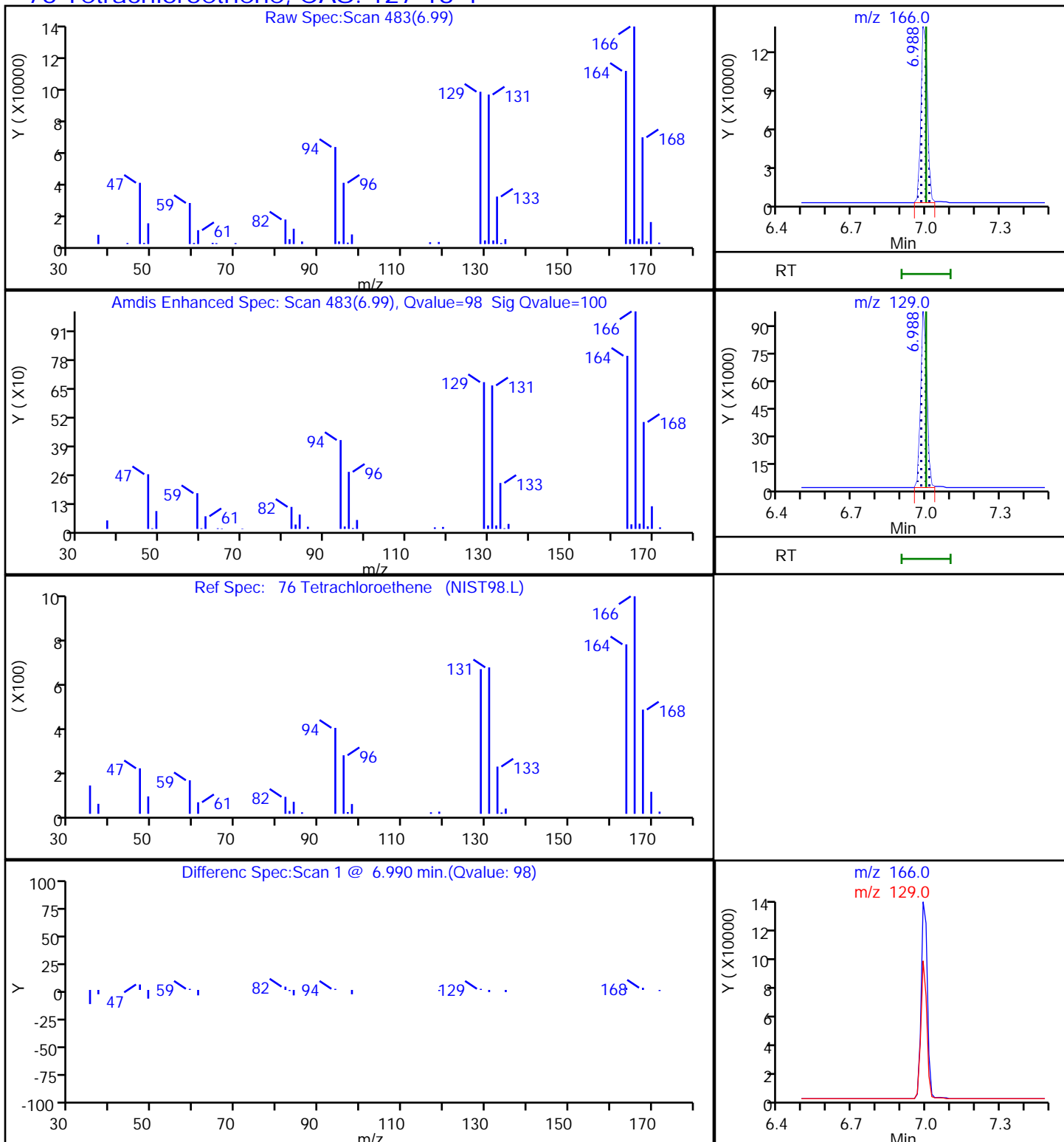
Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

76 Tetrachloroethene, CAS: 127-18-4



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: TMW-20-01 (2-3)_07272020 Lab Sample ID: 240-134119-3
 Matrix: Solid Lab File ID: U1279515.D
 Analysis Method: 8260B MI Date Collected: 07/27/2020 10:40
 Sample wt/vol: 9.469(g) Date Analyzed: 08/05/2020 02:20
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0 (mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 23.2 Level: (low/med) Medium
 Analysis Batch No.: 445595 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	67	U	67	27
123-91-1	1,4-Dioxane	21000	U	21000	1800
156-59-2	cis-1,2-Dichloroethene	67	U	67	15
127-18-4	Tetrachloroethene	460		67	30
156-60-5	trans-1,2-Dichloroethene	67	U	67	17
79-01-6	Trichloroethene	67	U	67	18
75-01-4	Vinyl chloride	54	U	54	20

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	107		47-136
460-00-4	4-Bromofluorobenzene (Surr)	123		51-124
1868-53-7	Dibromofluoromethane (Surr)	101		49-122
2037-26-5	Toluene-d8 (Surr)	122		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279515.D
 Lims ID: 240-134119-A-3-A
 Client ID: TMW-20-01 (2-3)_07272020
 Sample Type: Client
 Inject. Date: 05-Aug-2020 02:20:30 ALS Bottle#: 28 Worklist Smp#: 30
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-030
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:07:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 15:48:53

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1060400	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	701544	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.971	-0.001	96	369196	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.527	4.539	-0.012	94	290865	20.7	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	94	377274	21.9	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1191099	25.1	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	95	410611	25.3	
12 Vinyl chloride	62		1.699				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166	6.988	7.000	-0.012	98	77201	5.54	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279515.D

Injection Date: 05-Aug-2020 02:20:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134119-A-3-A

Lab Sample ID: 240-134119-3

Worklist Smp#: 30

Client ID: TMW-20-01 (2-3)_07272020

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

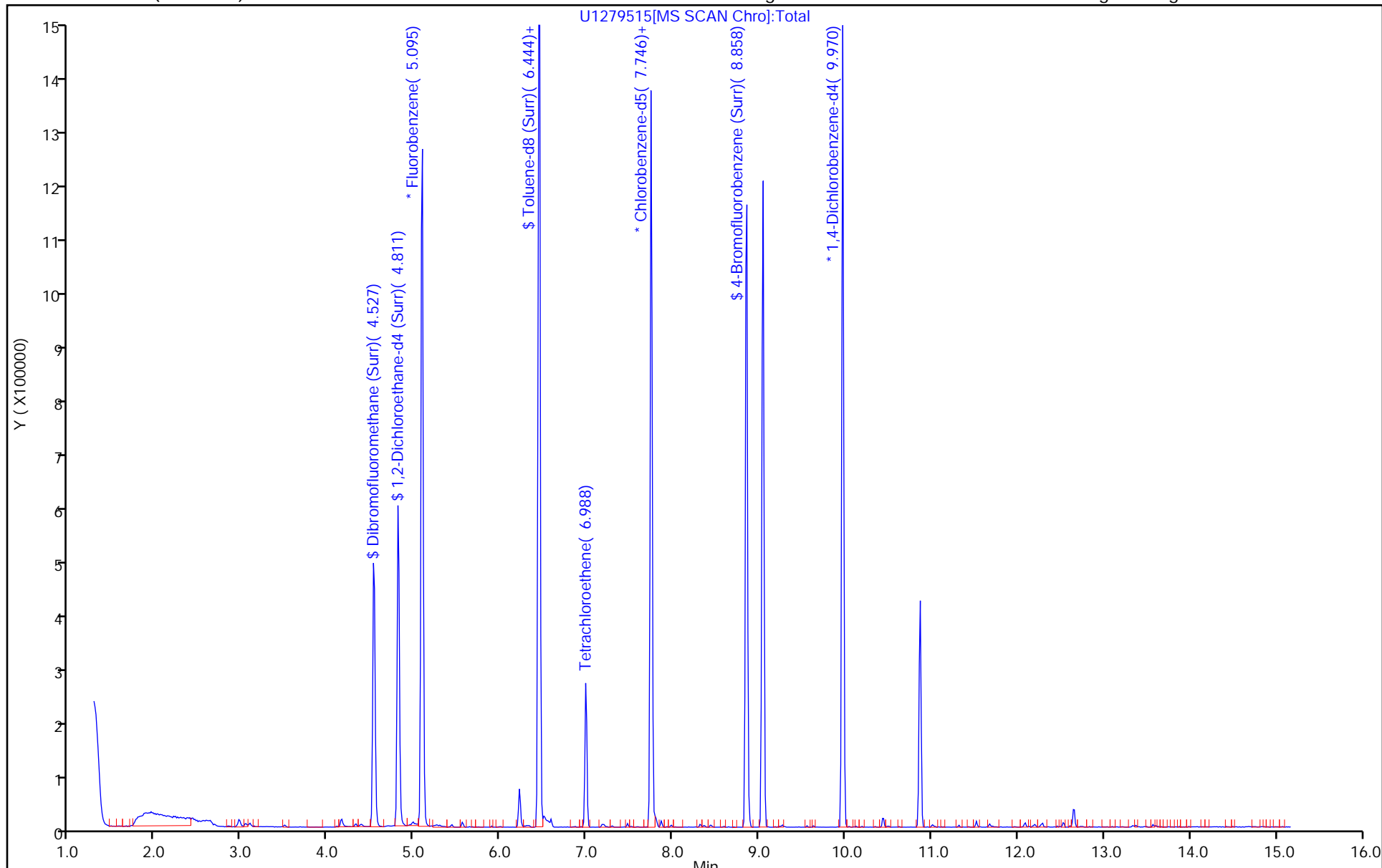
ALS Bottle#: 28

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279515.D
 Lims ID: 240-134119-A-3-A
 Client ID: TMW-20-01 (2-3)_07272020
 Sample Type: Client
 Inject. Date: 05-Aug-2020 02:20:30 ALS Bottle#: 28 Worklist Smp#: 30
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-030
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:07:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 15:48:53

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	20.7	82.66
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	21.9	87.61
\$ 6 Toluene-d8 (Surr)	25.0	25.1	100.41
\$ 7 4-Bromofluorobenzene (Surr)	25.0	25.3	101.10

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279515.D

Injection Date: 05-Aug-2020 02:20:30

Instrument ID: A3UX12

Lims ID: 240-134119-A-3-A

Lab Sample ID: 240-134119-3

Client ID: TMW-20-01 (2-3)_07272020

Operator ID: 001904

ALS Bottle#: 28

Worklist Smp#: 30

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

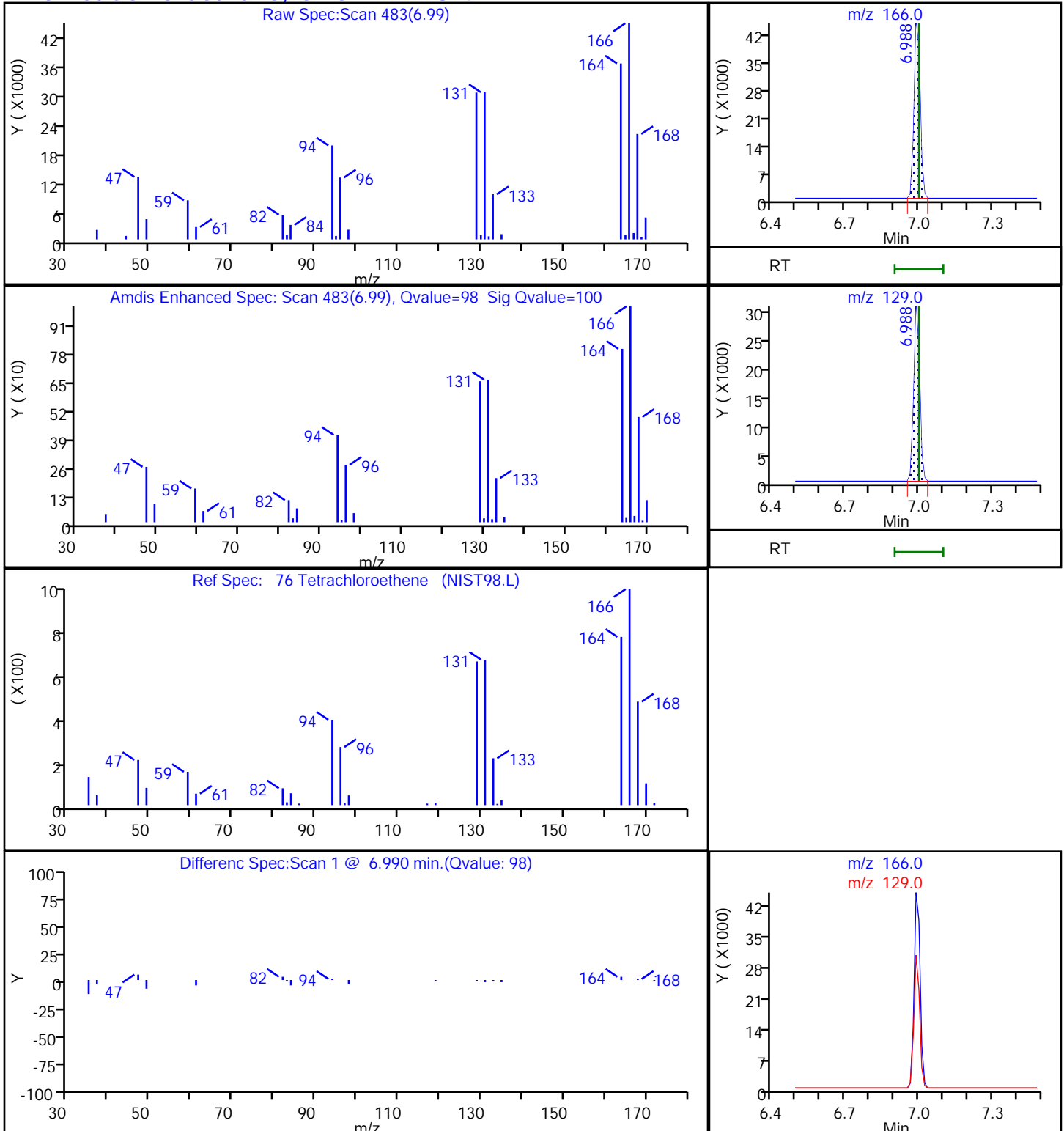
Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

76 Tetrachloroethene, CAS: 127-18-4



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: TMW-20-01 (3-4)_07272020 Lab Sample ID: 240-134119-4
 Matrix: Solid Lab File ID: U1279516.D
 Analysis Method: 8260B MI Date Collected: 07/27/2020 11:04
 Sample wt/vol: 9.795(g) Date Analyzed: 08/05/2020 02:42
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 30.2 Level: (low/med) Medium
 Analysis Batch No.: 445595 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	76	U	76	30
123-91-1	1,4-Dioxane	24000	U	24000	2100
156-59-2	cis-1,2-Dichloroethene	76	U	76	17
127-18-4	Tetrachloroethene	300		76	34
156-60-5	trans-1,2-Dichloroethene	76	U	76	19
79-01-6	Trichloroethene	76	U	76	21
75-01-4	Vinyl chloride	61	U	61	23

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	111		47-136
460-00-4	4-Bromofluorobenzene (Surr)	129	X	51-124
1868-53-7	Dibromofluoromethane (Surr)	105		49-122
2037-26-5	Toluene-d8 (Surr)	128	X	55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279516.D
 Lims ID: 240-134119-A-4-A
 Client ID: TMW-20-01 (3-4)_07272020
 Sample Type: Client
 Inject. Date: 05-Aug-2020 02:42:30 ALS Bottle#: 29 Worklist Smp#: 31
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-031
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:07:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 15:48:58

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	98	1085193	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	705978	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.971	9.971	0.000	96	353975	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	291554	20.2	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.823	4.823	0.000	94	377425	21.4	
\$ 6 Toluene-d8 (Surr)	98	6.456	6.456	0.000	93	1182790	24.8	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	92	405731	24.8	
12 Vinyl chloride	62		1.699				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166	7.000	7.000	0.000	98	43584	3.11	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279516.D

Injection Date: 05-Aug-2020 02:42:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134119-A-4-A

Lab Sample ID: 240-134119-4

Worklist Smp#: 31

Client ID: TMW-20-01 (3-4)_07272020

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

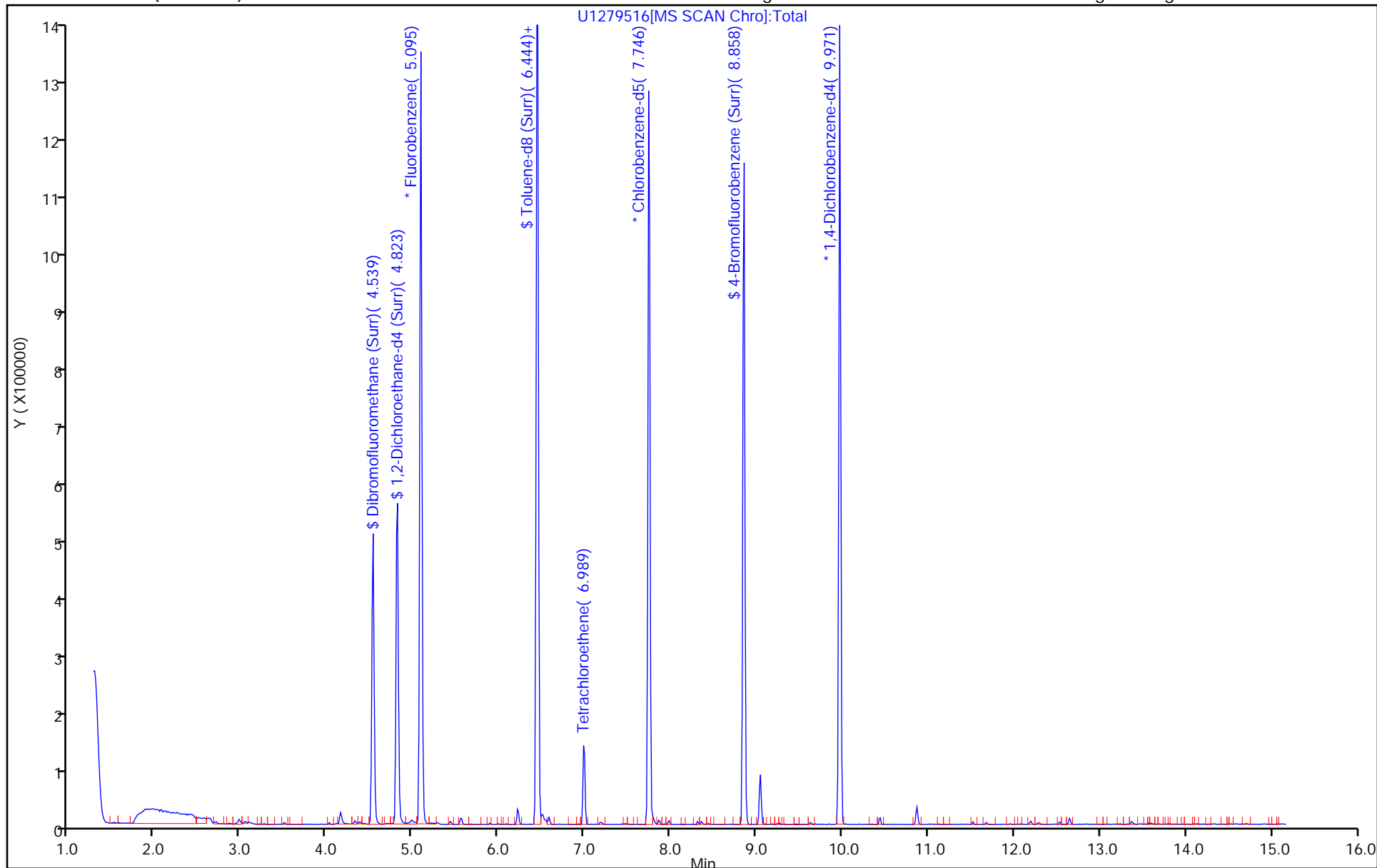
ALS Bottle#: 29

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279516.D
 Lims ID: 240-134119-A-4-A
 Client ID: TMW-20-01 (3-4)_07272020
 Sample Type: Client
 Inject. Date: 05-Aug-2020 02:42:30 ALS Bottle#: 29 Worklist Smp#: 31
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-031
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:07:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 15:48:58

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	20.2	80.97
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	21.4	85.64
\$ 6 Toluene-d8 (Surr)	25.0	24.8	99.08
\$ 7 4-Bromofluorobenzene (Surr)	25.0	24.8	99.27

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279516.D

Injection Date: 05-Aug-2020 02:42:30

Instrument ID: A3UX12

Lims ID: 240-134119-A-4-A

Lab Sample ID: 240-134119-4

Client ID: TMW-20-01 (3-4)_07272020

Operator ID: 001904

ALS Bottle#: 29

Worklist Smp#: 31

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

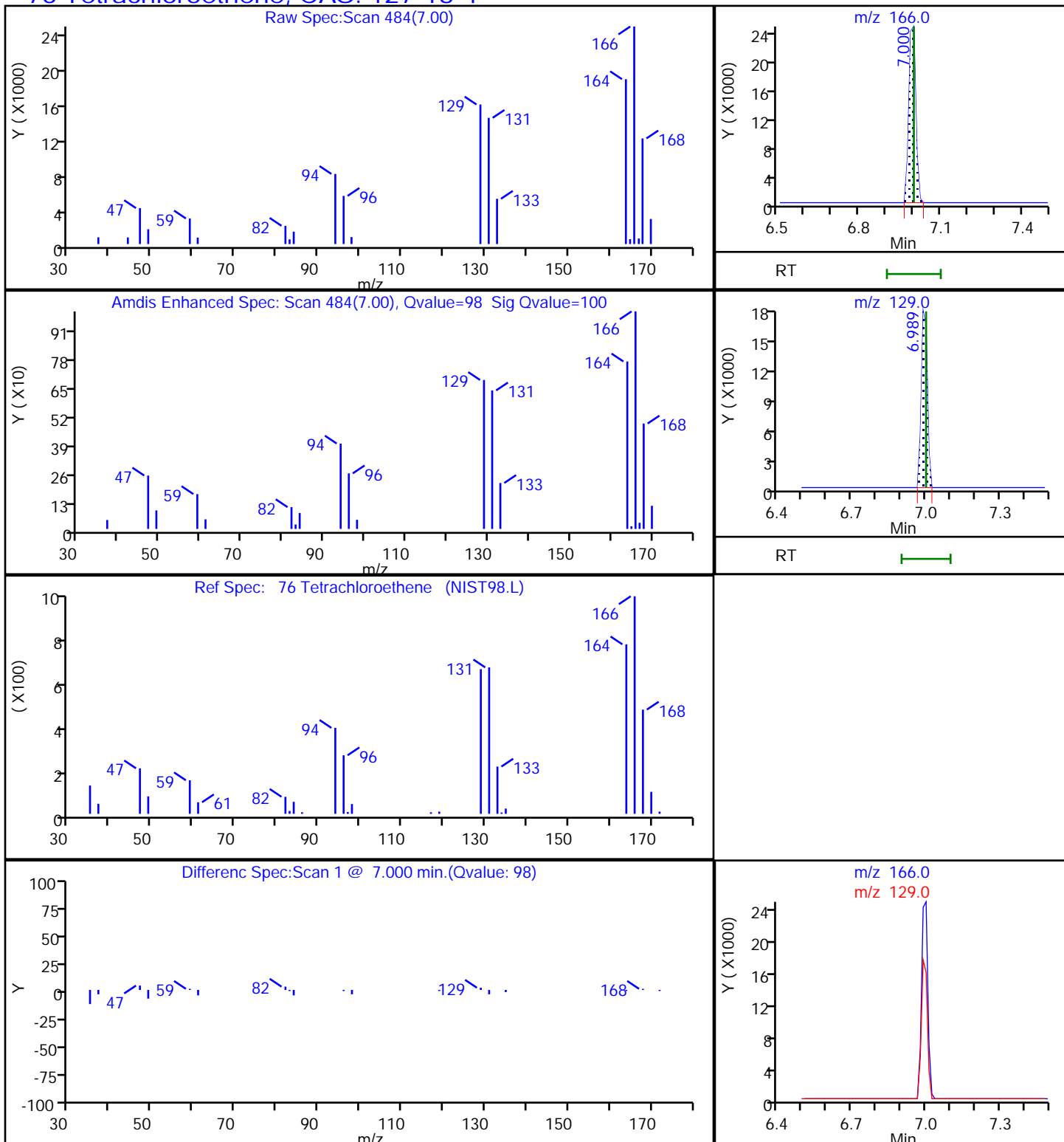
Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

76 Tetrachloroethene, CAS: 127-18-4



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: TMW-20-01 (4-5)_07272020 Lab Sample ID: 240-134119-5
 Matrix: Solid Lab File ID: U1279517.D
 Analysis Method: 8260B MI Date Collected: 07/27/2020 11:07
 Sample wt/vol: 9.791(g) Date Analyzed: 08/05/2020 03:05
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0 (mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 12.6 Level: (low/med) Medium
 Analysis Batch No.: 445595 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	52	U	52	21
123-91-1	1,4-Dioxane	16000	U	16000	1400
156-59-2	cis-1,2-Dichloroethene	52	U	52	12
127-18-4	Tetrachloroethene	52	U	52	24
156-60-5	trans-1,2-Dichloroethene	52	U	52	13
79-01-6	Trichloroethene	52	U	52	14
75-01-4	Vinyl chloride	42	U	42	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	93		47-136
460-00-4	4-Bromofluorobenzene (Surr)	110		51-124
1868-53-7	Dibromofluoromethane (Surr)	88		49-122
2037-26-5	Toluene-d8 (Surr)	108		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279517.D
 Lims ID: 240-134119-A-5-A
 Client ID: TMW-20-01 (4-5)_07272020
 Sample Type: Client
 Inject. Date: 05-Aug-2020 03:05:30 ALS Bottle#: 30 Worklist Smp#: 32
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-032
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:07:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 15:49:03

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	98	1085160	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	88	710597	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.971	-0.001	96	352465	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	93	281355	19.5	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.823	4.823	0.000	94	366630	20.8	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1152361	24.0	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	94	403722	24.5	
12 Vinyl chloride	62		1.699				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166	7.000	7.000	0.000	89	3066	0.2173	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279517.D

Injection Date: 05-Aug-2020 03:05:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134119-A-5-A

Lab Sample ID: 240-134119-5

Worklist Smp#: 32

Client ID: TMW-20-01 (4-5)_07272020

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

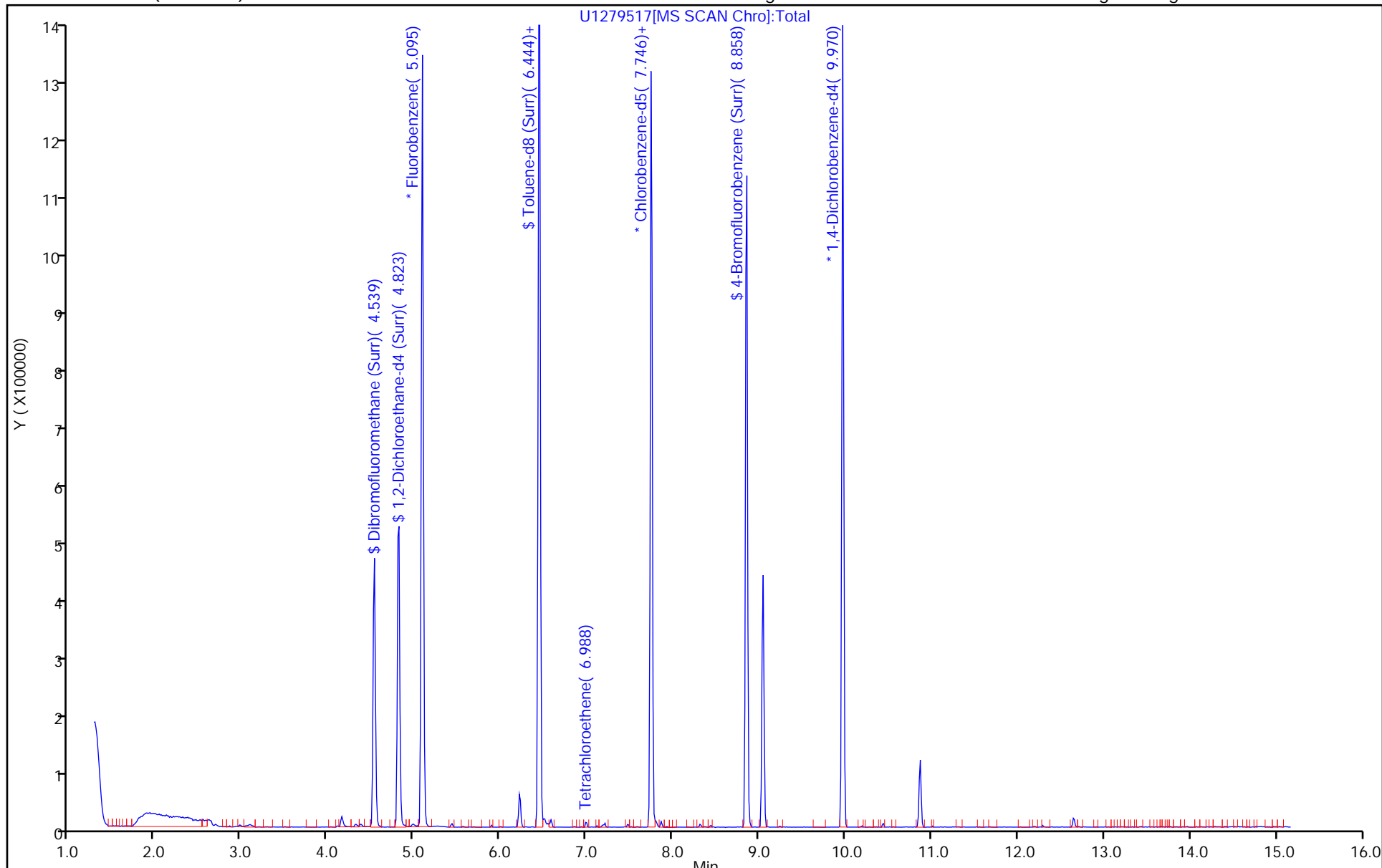
ALS Bottle#: 30

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279517.D
 Lims ID: 240-134119-A-5-A
 Client ID: TMW-20-01 (4-5)_07272020
 Sample Type: Client
 Inject. Date: 05-Aug-2020 03:05:30 ALS Bottle#: 30 Worklist Smp#: 32
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-032
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:07:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 15:49:03

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	19.5	78.14
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	20.8	83.19
\$ 6 Toluene-d8 (Surr)	25.0	24.0	95.91
\$ 7 4-Bromofluorobenzene (Surr)	25.0	24.5	98.13

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: TMW-20-01 (5-6)_07272020 Lab Sample ID: 240-134119-6
 Matrix: Solid Lab File ID: U1279518a.D
 Analysis Method: 8260B MI Date Collected: 07/27/2020 11:10
 Sample wt/vol: 9.504(g) Date Analyzed: 08/05/2020 03:28
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0 (mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 14.7 Level: (low/med) Medium
 Analysis Batch No.: 445595 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	56	U	56	22
123-91-1	1,4-Dioxane	18000	U	18000	1500
156-59-2	cis-1,2-Dichloroethene	56	U	56	13
127-18-4	Tetrachloroethene	150		56	25
156-60-5	trans-1,2-Dichloroethene	56	U	56	14
79-01-6	Trichloroethene	56	U	56	15
75-01-4	Vinyl chloride	45	U	45	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	94		47-136
460-00-4	4-Bromofluorobenzene (Surr)	106		51-124
1868-53-7	Dibromofluoromethane (Surr)	87		49-122
2037-26-5	Toluene-d8 (Surr)	107		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279518a.D
 Lims ID: 240-134119-A-6-A
 Client ID: TMW-20-01 (5-6)_07272020
 Sample Type: Client
 Inject. Date: 05-Aug-2020 03:28:30 ALS Bottle#: 31 Worklist Smp#: 33
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-033
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:07:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt

Date: 05-Aug-2020 15:49:09

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	98	1090680	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	88	718779	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.971	-0.001	96	375427	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	275845	19.1	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	94	364813	20.6	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1137244	23.4	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	94	388453	23.3	
12 Vinyl chloride	62		1.699				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166	7.000	7.000	0.000	97	30767	2.16	

Reagents:

vm50is_stk_a_00006

Amount Added: 2.00

Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279518a.D

Injection Date: 05-Aug-2020 03:28:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134119-A-6-A

Lab Sample ID: 240-134119-6

Worklist Smp#: 33

Client ID: TMW-20-01 (5-6)_07272020

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

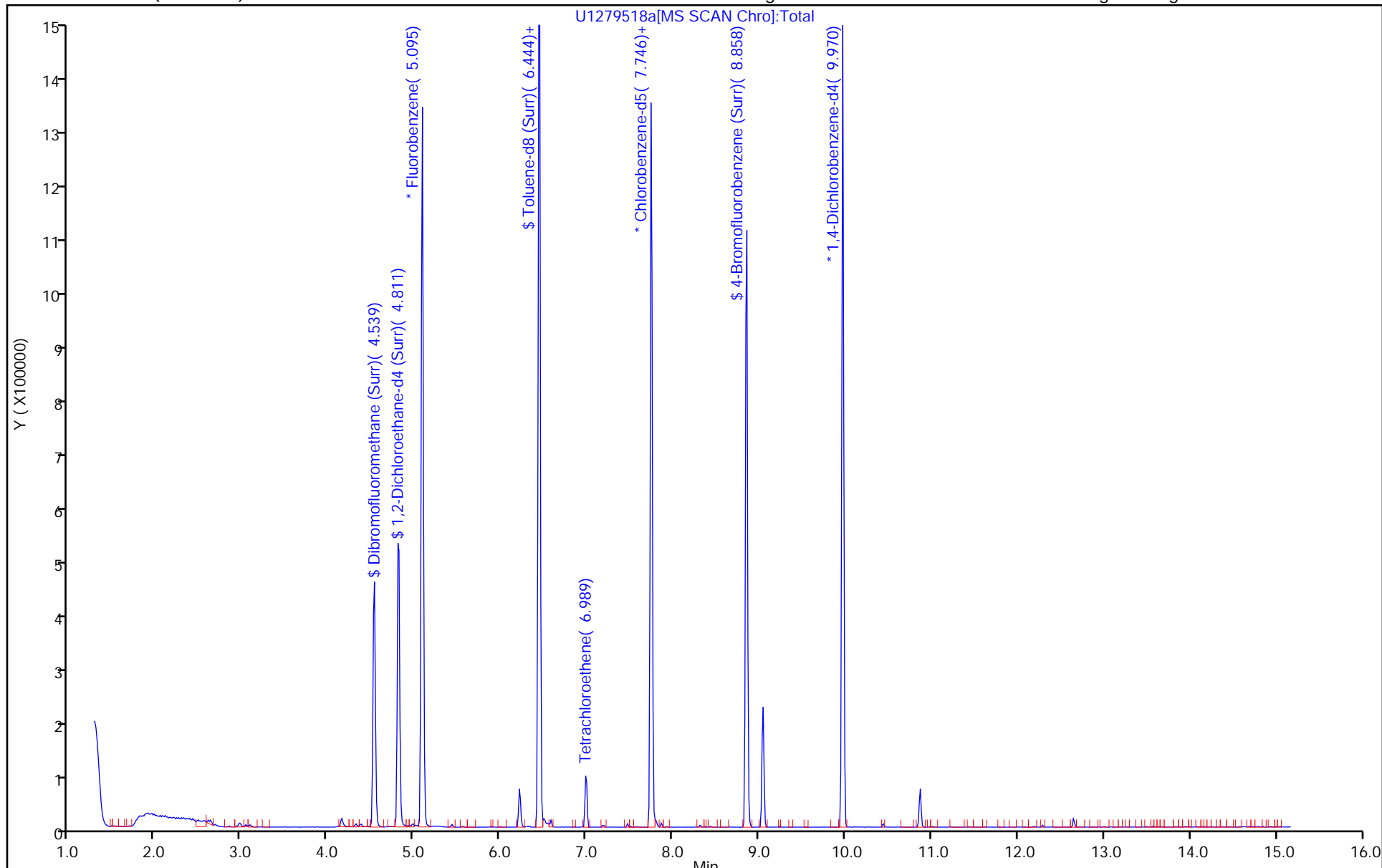
ALS Bottle#: 31

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279518a.D
 Lims ID: 240-134119-A-6-A
 Client ID: TMW-20-01 (5-6)_07272020
 Sample Type: Client
 Inject. Date: 05-Aug-2020 03:28:30 ALS Bottle#: 31 Worklist Smp#: 33
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-033
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:07:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 15:49:09

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	19.1	76.22
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	20.6	82.36
\$ 6 Toluene-d8 (Surr)	25.0	23.4	93.57
\$ 7 4-Bromofluorobenzene (Surr)	25.0	23.3	93.35

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279518a.D

Injection Date: 05-Aug-2020 03:28:30

Instrument ID: A3UX12

Lims ID: 240-134119-A-6-A

Lab Sample ID: 240-134119-6

Client ID: TMW-20-01 (5-6)_07272020

Operator ID: 001904

ALS Bottle#: 31

Worklist Smp#: 33

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

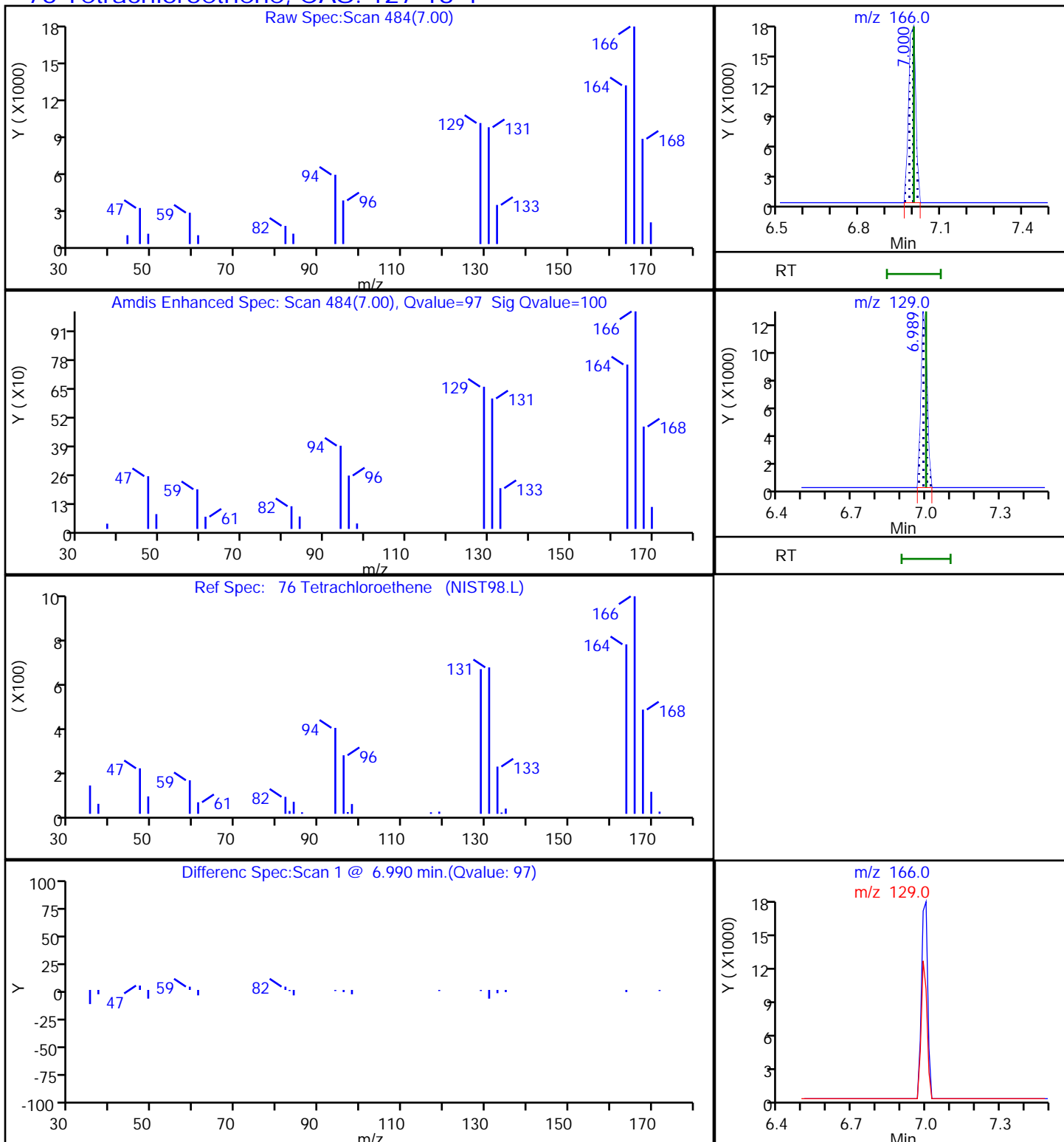
Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

76 Tetrachloroethene, CAS: 127-18-4



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: TMW-20-01 (6-7)_07272020 Lab Sample ID: 240-134119-7
 Matrix: Solid Lab File ID: U1279519.D
 Analysis Method: 8260B MI Date Collected: 07/27/2020 11:30
 Sample wt/vol: 9.92(g) Date Analyzed: 08/05/2020 03:50
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 9.6 Level: (low/med) Medium
 Analysis Batch No.: 445595 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	49	U	49	20
123-91-1	1,4-Dioxane	15000	U	15000	1300
156-59-2	cis-1,2-Dichloroethene	49	U	49	11
127-18-4	Tetrachloroethene	24	J	49	22
156-60-5	trans-1,2-Dichloroethene	49	U	49	12
79-01-6	Trichloroethene	49	U	49	13
75-01-4	Vinyl chloride	39	U	39	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	95		47-136
460-00-4	4-Bromofluorobenzene (Surr)	113		51-124
1868-53-7	Dibromofluoromethane (Surr)	90		49-122
2037-26-5	Toluene-d8 (Surr)	111		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279519.D
 Lims ID: 240-134119-A-7-A
 Client ID: TMW-20-01 (6-7)_07272020
 Sample Type: Client
 Inject. Date: 05-Aug-2020 03:50:30 ALS Bottle#: 32 Worklist Smp#: 34
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-034
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:07:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 15:49:15

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1067640	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	682424	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.971	9.971	0.000	96	336860	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	290448	20.5	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	95	374734	21.6	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1172991	25.4	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	92	407021	25.8	
12 Vinyl chloride	62		1.699				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166	6.989	7.000	-0.011	95	5223	0.3855	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279519.D

Injection Date: 05-Aug-2020 03:50:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134119-A-7-A

Lab Sample ID: 240-134119-7

Worklist Smp#: 34

Client ID: TMW-20-01 (6-7)_07272020

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

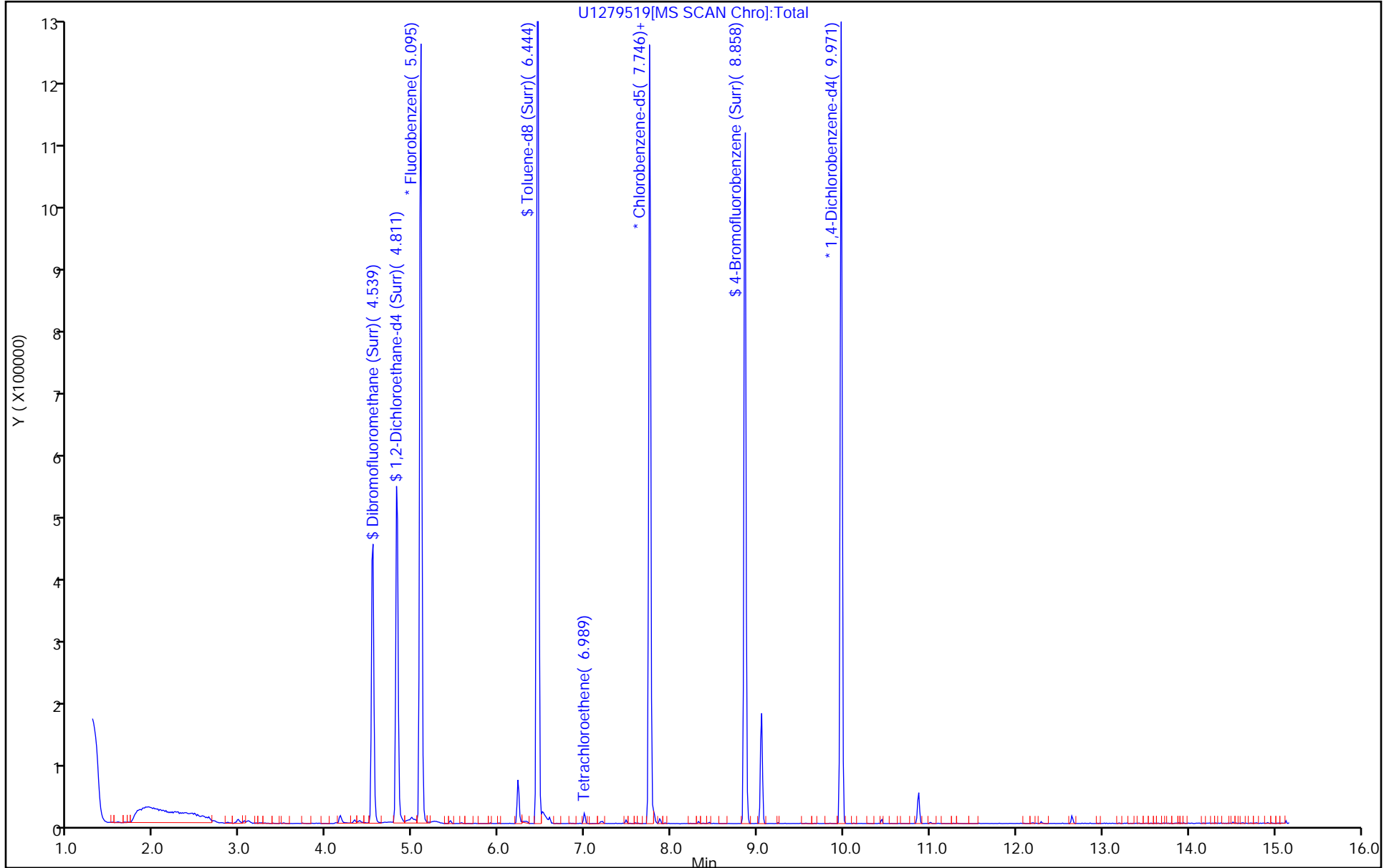
ALS Bottle#: 32

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279519.D
 Lims ID: 240-134119-A-7-A
 Client ID: TMW-20-01 (6-7)_07272020
 Sample Type: Client
 Inject. Date: 05-Aug-2020 03:50:30 ALS Bottle#: 32 Worklist Smp#: 34
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-034
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:07:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 15:49:15

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	20.5	81.98
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	21.6	86.43
\$ 6 Toluene-d8 (Surr)	25.0	25.4	101.65
\$ 7 4-Bromofluorobenzene (Surr)	25.0	25.8	103.02

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279519.D

Injection Date: 05-Aug-2020 03:50:30

Instrument ID: A3UX12

Lims ID: 240-134119-A-7-A

Lab Sample ID: 240-134119-7

Client ID: TMW-20-01 (6-7)_07272020

Operator ID: 001904

ALS Bottle#: 32

Worklist Smp#: 34

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

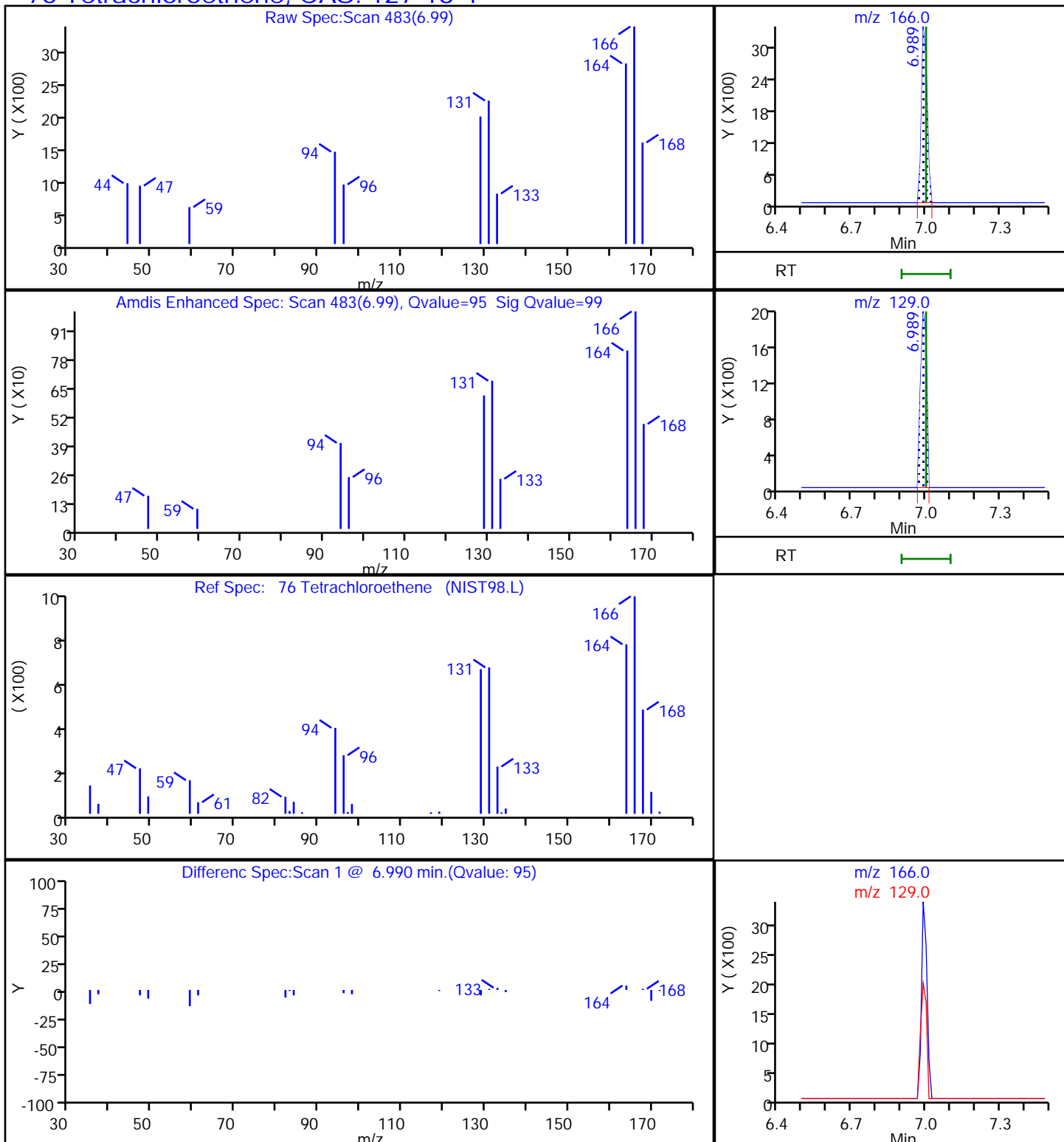
Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

76 Tetrachloroethene, CAS: 127-18-4



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: SB-138 (0.5-1)_07272020 Lab Sample ID: 240-134119-8
 Matrix: Solid Lab File ID: UX989096.D
 Analysis Method: 8260B MI Date Collected: 07/27/2020 12:23
 Sample wt/vol: 9.582(g) Date Analyzed: 08/04/2020 18:30
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 18.4 Level: (low/med) Medium
 Analysis Batch No.: 445537 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	60	U	60	24
123-91-1	1,4-Dioxane	19000	U	19000	1600
156-59-2	cis-1,2-Dichloroethene	60	U	60	14
127-18-4	Tetrachloroethene	1800		60	27
156-60-5	trans-1,2-Dichloroethene	25	J B	60	15
79-01-6	Trichloroethene	60	U *	60	17
75-01-4	Vinyl chloride	48	U	48	18

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	111		47-136
460-00-4	4-Bromofluorobenzene (Surr)	90		51-124
1868-53-7	Dibromofluoromethane (Surr)	116		49-122
2037-26-5	Toluene-d8 (Surr)	94		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989096.D
 Lims ID: 240-134119-A-8-A
 Client ID: SB-138 (0.5-1)_07272020
 Sample Type: Client
 Inject. Date: 04-Aug-2020 18:30:30 ALS Bottle#: 25 Worklist Smp#: 25
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100652-025
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 08:31:28 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1061

First Level Reviewer: bosworthh

Date: 05-Aug-2020 08:33:34

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.865	5.876	-0.011	99	1390157	20.0	
* 2 Chlorobenzene-d5	117	8.575	8.574	0.001	86	1282972	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.812	10.823	-0.011	94	768057	20.0	
\$ 4 Dibromofluoromethane (Surr)	113	5.274	5.274	0.000	95	474367	24.7	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.570	5.570	0.000	100	612547	23.6	
\$ 6 Toluene-d8 (Surr)	98	7.250	7.250	0.000	93	1739116	20.0	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.687	9.688	-0.001	96	592339	19.1	
11 Vinyl chloride	62		2.115				ND	
24 1,1-Dichloroethene	61		3.298				ND	
34 trans-1,2-Dichloroethene	61	3.984	3.996	-0.012	96	9783	0.3346	
43 cis-1,2-Dichloroethene	96		4.872				ND	
60 Trichloroethene	130	6.197	6.185	0.012	32	2653	0.1202	
65 1,4-Dioxane	88		6.481				ND	
78 Tetrachloroethene	166	7.818	7.818	0.000	97	591665	24.2	

Reagents:

vm100is_stk_A_00005

Amount Added: 1.00

Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989096.D

Injection Date: 04-Aug-2020 18:30:30

Instrument ID: A3UX9

Operator ID: 001765

Lims ID: 240-134119-A-8-A

Lab Sample ID: 240-134119-8

Worklist Smp#: 25

Client ID: SB-138 (0.5-1)_07272020

Purge Vol: 5.000 mL

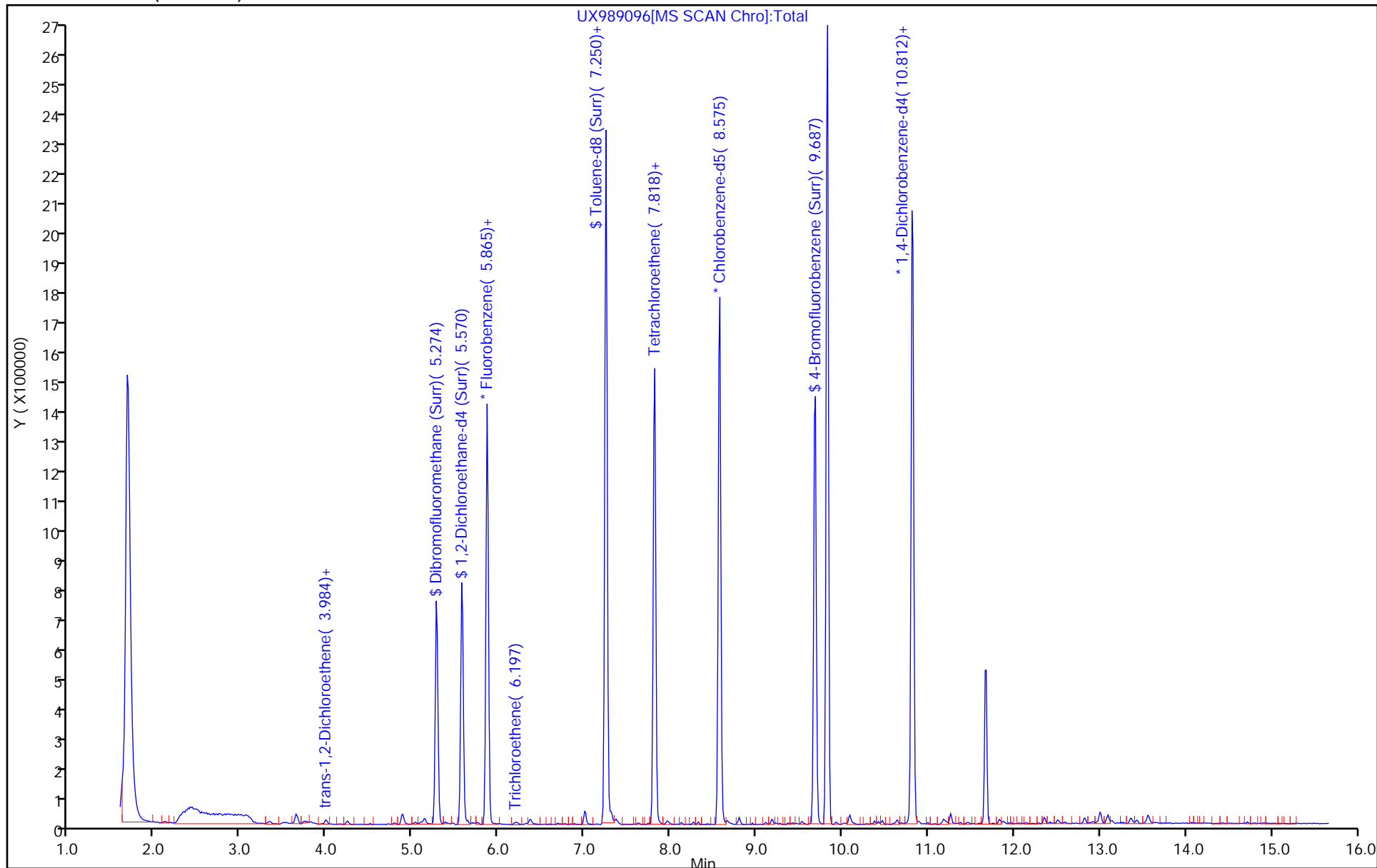
Dil. Factor: 1.0000

ALS Bottle#: 25

Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989096.D
 Lims ID: 240-134119-A-8-A
 Client ID: SB-138 (0.5-1)_07272020
 Sample Type: Client
 Inject. Date: 04-Aug-2020 18:30:30 ALS Bottle#: 25 Worklist Smp#: 25
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100652-025
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 08:31:28 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1061

First Level Reviewer: bosworthh

Date: 05-Aug-2020 08:33:34

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	24.7	98.70
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	23.6	94.30
\$ 6 Toluene-d8 (Surr)	25.0	20.0	80.01
\$ 7 4-Bromofluorobenzene (Surr)	25.0	19.1	76.38

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989096.D

Injection Date: 04-Aug-2020 18:30:30

Instrument ID: A3UX9

Lims ID: 240-134119-A-8-A

Lab Sample ID: 240-134119-8

Client ID: SB-138 (0.5-1)_07272020

Operator ID: 001765

ALS Bottle#: 25

Worklist Smp#: 25

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

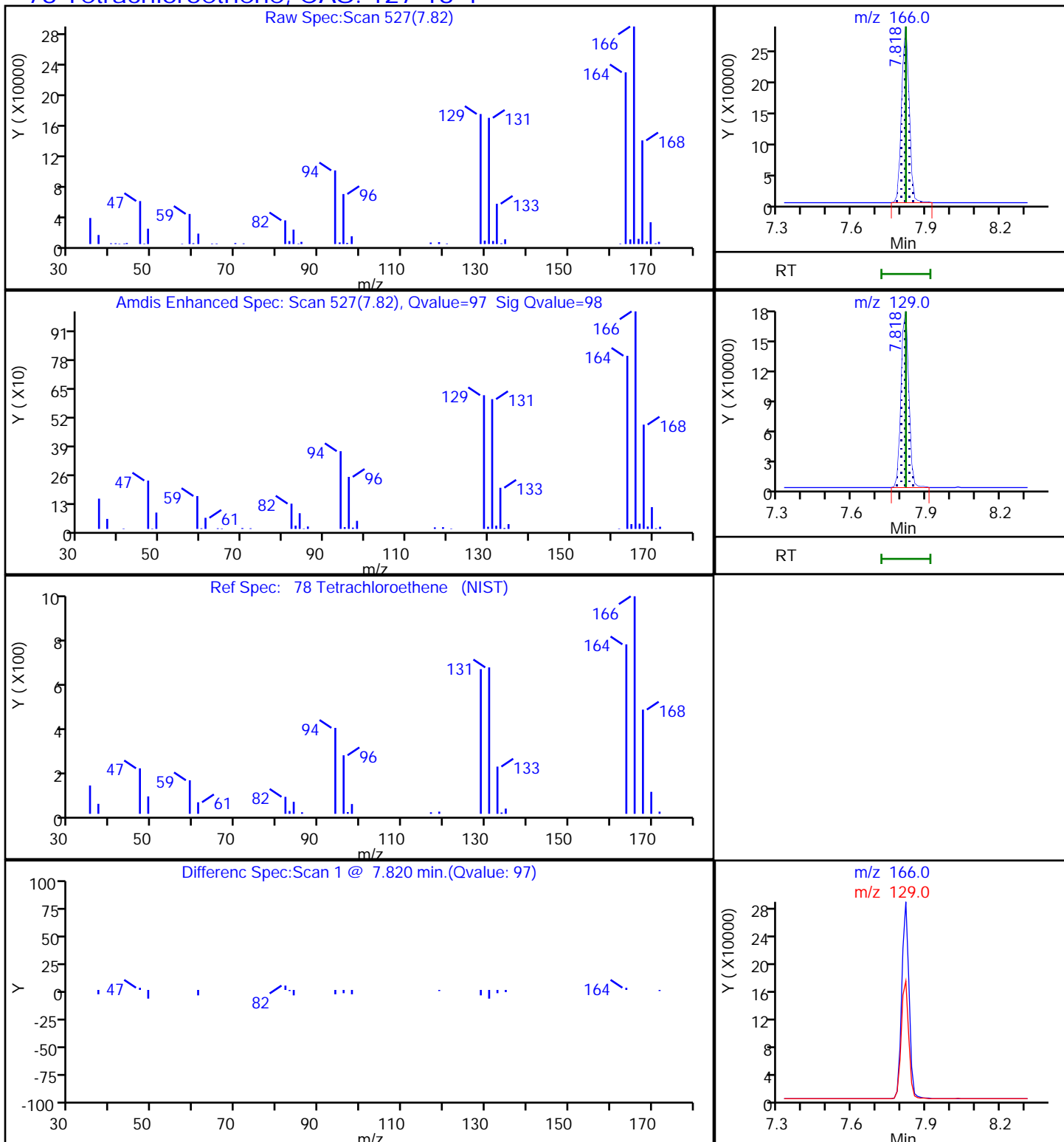
Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

78 Tetrachloroethene, CAS: 127-18-4



Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989096.D

Injection Date: 04-Aug-2020 18:30:30

Instrument ID: A3UX9

Lims ID: 240-134119-A-8-A

Lab Sample ID: 240-134119-8

Client ID: SB-138 (0.5-1)_07272020

Operator ID: 001765

ALS Bottle#: 25

Worklist Smp#: 25

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

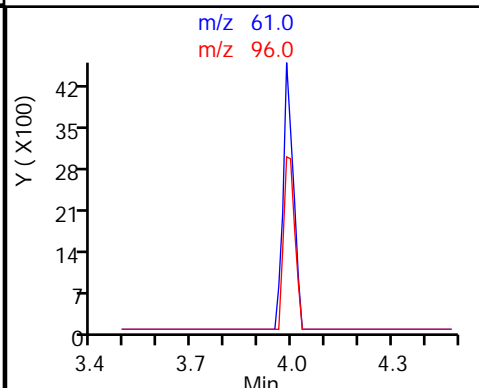
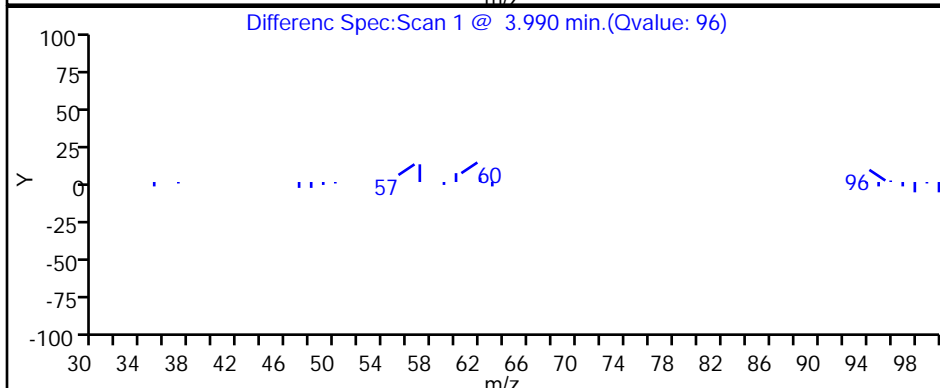
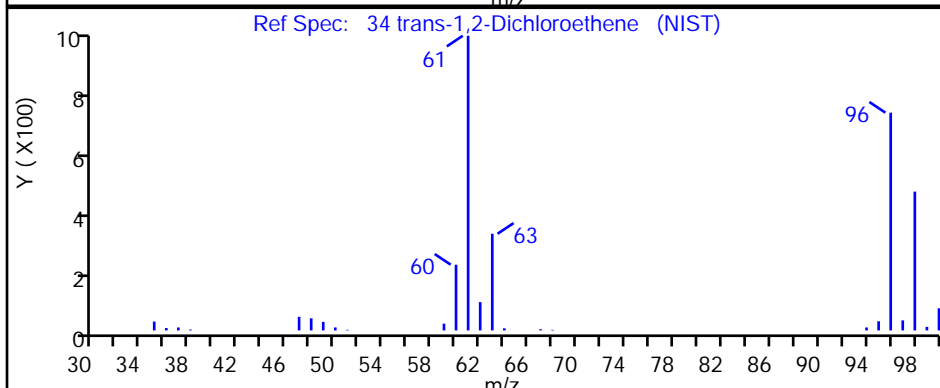
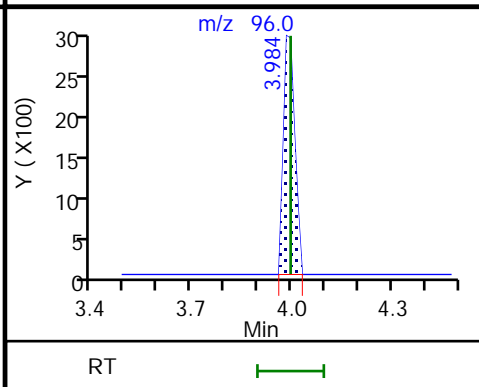
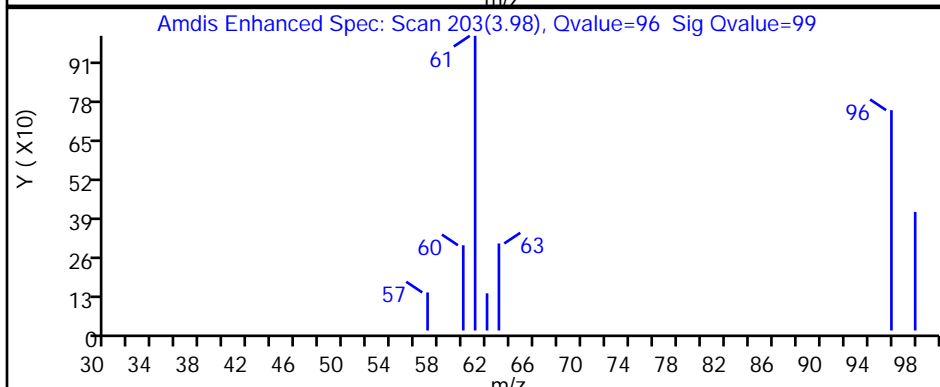
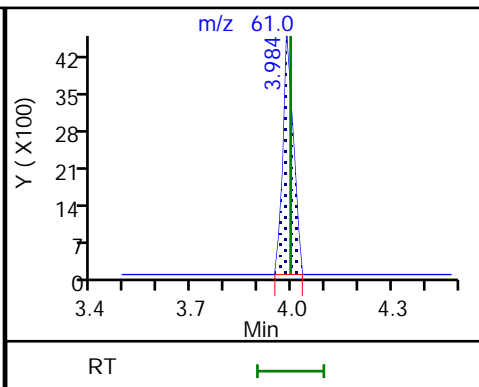
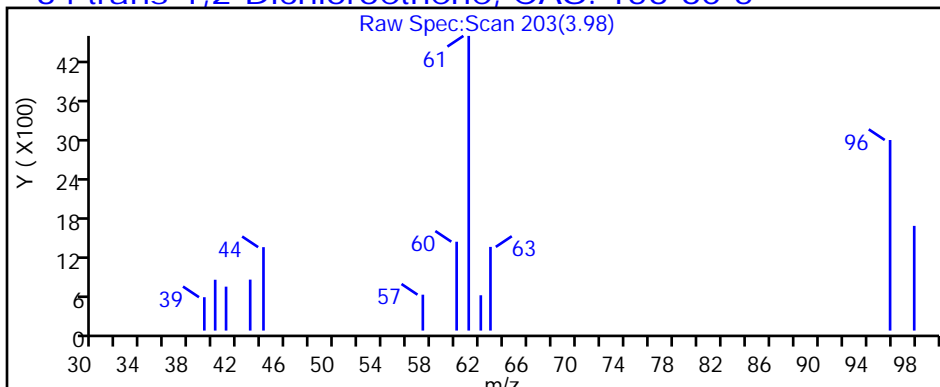
Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

34 trans-1,2-Dichloroethene, CAS: 156-60-5



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: SB-138 (1-2)_072720 Lab Sample ID: 240-134119-9
 Matrix: Solid Lab File ID: UX989097.D
 Analysis Method: 8260B MI Date Collected: 07/27/2020 12:30
 Sample wt/vol: 9.669(g) Date Analyzed: 08/04/2020 18:52
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0 (mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 7.6 Level: (low/med) Medium
 Analysis Batch No.: 445537 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	48	U	48	19
123-91-1	1,4-Dioxane	15000	U	15000	1300
156-59-2	cis-1,2-Dichloroethene	48	U	48	11
127-18-4	Tetrachloroethene	480		48	22
156-60-5	trans-1,2-Dichloroethene	48	U	48	12
79-01-6	Trichloroethene	48	U *	48	13
75-01-4	Vinyl chloride	38	U	38	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	121		47-136
460-00-4	4-Bromofluorobenzene (Surr)	113		51-124
1868-53-7	Dibromofluoromethane (Surr)	126	X	49-122
2037-26-5	Toluene-d8 (Surr)	105		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989097.D
 Lims ID: 240-134119-A-9-A
 Client ID: SB-138 (1-2)_072720
 Sample Type: Client
 Inject. Date: 04-Aug-2020 18:52:30 ALS Bottle#: 26 Worklist Smp#: 26
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100652-026
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 08:31:28 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1061

First Level Reviewer: bosworthh

Date: 05-Aug-2020 08:33:46

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.865	5.876	-0.012	99	1295477	20.0	
* 2 Chlorobenzene-d5	117	8.574	8.574	0.000	85	1232018	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.822	10.823	-0.001	94	723501	20.0	
\$ 4 Dibromofluoromethane (Surr)	113	5.273	5.274	-0.001	94	526809	29.4	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.569	5.570	-0.001	99	680740	28.1	
\$ 6 Toluene-d8 (Surr)	98	7.249	7.250	-0.001	93	2038425	24.4	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.687	9.688	-0.002	96	782637	26.3	
11 Vinyl chloride	62		2.115				ND	
24 1,1-Dichloroethene	61		3.298				ND	
34 trans-1,2-Dichloroethene	61		3.996				ND	
43 cis-1,2-Dichloroethene	96		4.872				ND	
60 Trichloroethene	130		6.185				ND	
65 1,4-Dioxane	88		6.481				ND	
78 Tetrachloroethene	166	7.817	7.818	-0.001	97	186339	7.94	

Reagents:

vm100is_stk_A_00005

Amount Added: 1.00

Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989097.D

Injection Date: 04-Aug-2020 18:52:30

Instrument ID: A3UX9

Operator ID: 001765

Lims ID: 240-134119-A-9-A

Lab Sample ID: 240-134119-9

Worklist Smp#: 26

Client ID: SB-138 (1-2)_072720

Purge Vol: 5.000 mL

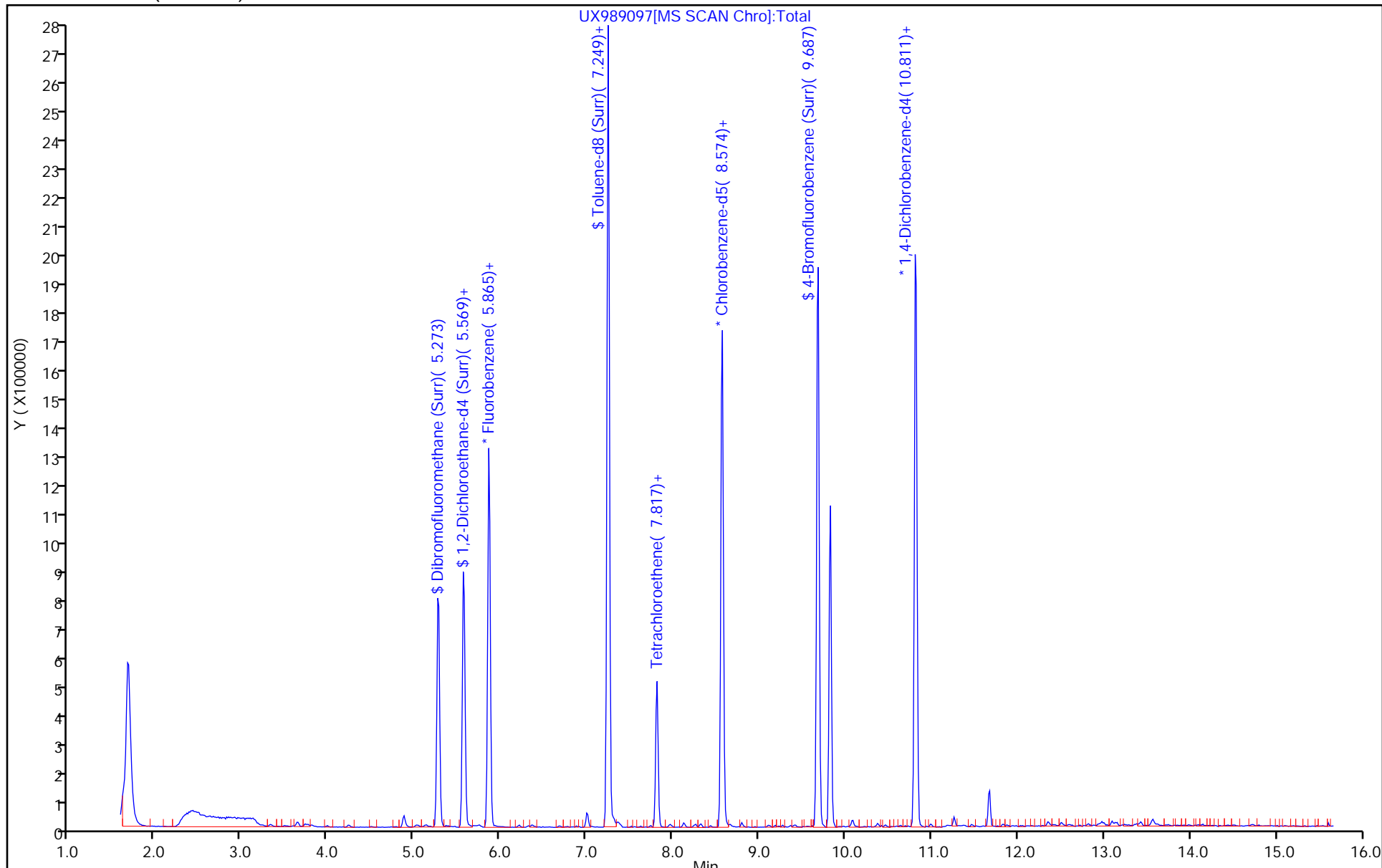
Dil. Factor: 1.0000

ALS Bottle#: 26

Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989097.D
 Lims ID: 240-134119-A-9-A
 Client ID: SB-138 (1-2)_072720
 Sample Type: Client
 Inject. Date: 04-Aug-2020 18:52:30 ALS Bottle#: 26 Worklist Smp#: 26
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100652-026
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 08:31:28 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1061

First Level Reviewer: bosworthh

Date: 05-Aug-2020 08:33:46

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	29.4	117.62
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	28.1	112.45
\$ 6 Toluene-d8 (Surr)	25.0	24.4	97.66
\$ 7 4-Bromofluorobenzene (Surr)	25.0	26.3	105.09

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989097.D

Injection Date: 04-Aug-2020 18:52:30

Instrument ID: A3UX9

Lims ID: 240-134119-A-9-A

Lab Sample ID: 240-134119-9

Client ID: SB-138 (1-2)_072720

Operator ID: 001765

ALS Bottle#: 26

Worklist Smp#: 26

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

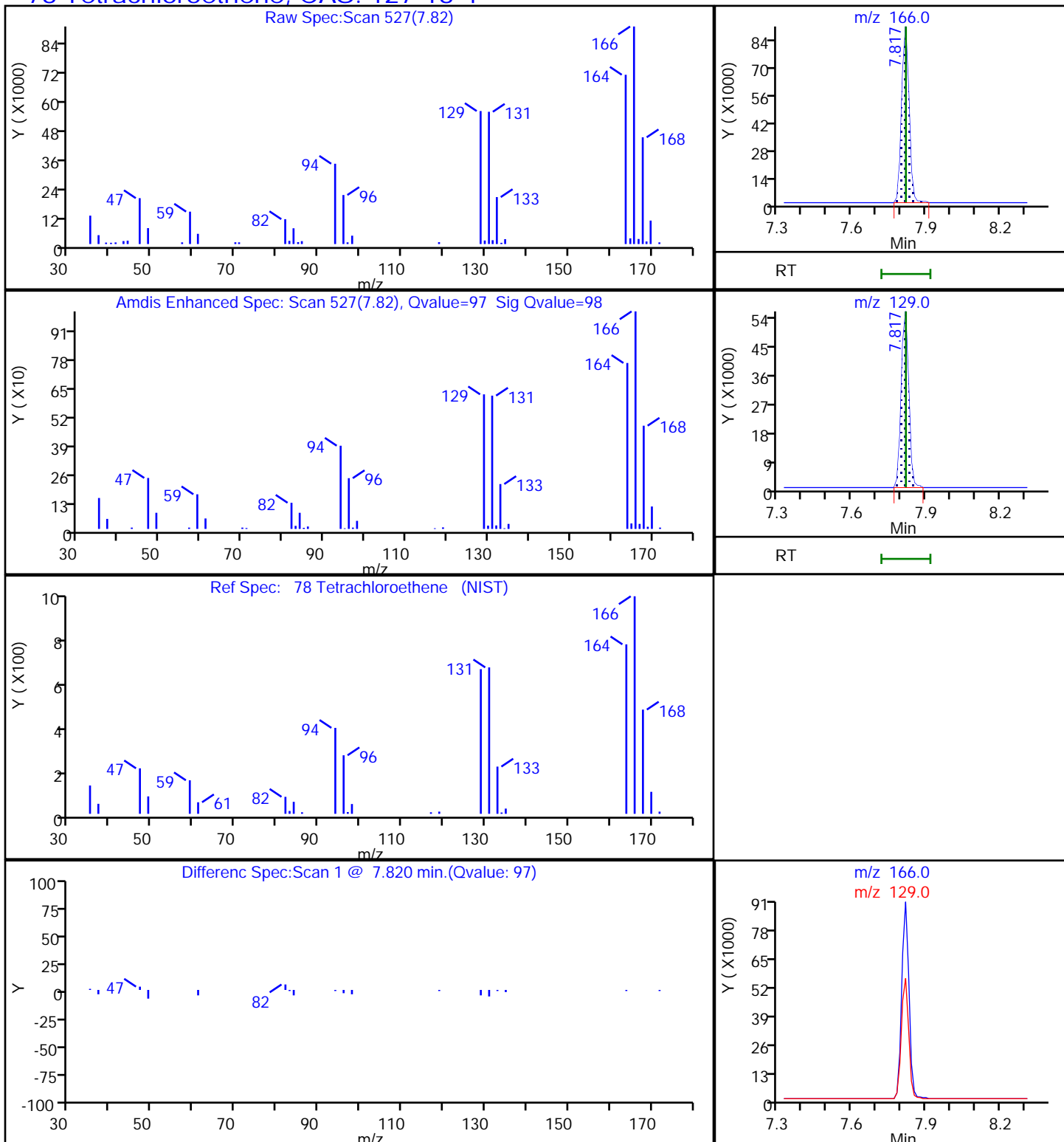
Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

78 Tetrachloroethene, CAS: 127-18-4



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: SB-138 (2-3)_072720 Lab Sample ID: 240-134119-10
 Matrix: Solid Lab File ID: UX989098.D
 Analysis Method: 8260B MI Date Collected: 07/27/2020 12:39
 Sample wt/vol: 9.212(g) Date Analyzed: 08/04/2020 19:15
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 15.5 Level: (low/med) Medium
 Analysis Batch No.: 445537 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	59	U	59	23
123-91-1	1,4-Dioxane	18000	U	18000	1600
156-59-2	cis-1,2-Dichloroethene	59	U	59	13
127-18-4	Tetrachloroethene	270		59	26
156-60-5	trans-1,2-Dichloroethene	59	U	59	15
79-01-6	Trichloroethene	59	U *	59	16
75-01-4	Vinyl chloride	47	U	47	18

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	110		47-136
460-00-4	4-Bromofluorobenzene (Surr)	102		51-124
1868-53-7	Dibromofluoromethane (Surr)	114		49-122
2037-26-5	Toluene-d8 (Surr)	100		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989098.D
 Lims ID: 240-134119-A-10-A
 Client ID: SB-138 (2-3)_072720
 Sample Type: Client
 Inject. Date: 04-Aug-2020 19:15:30 ALS Bottle#: 27 Worklist Smp#: 27
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100652-027
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 08:31:28 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1061

First Level Reviewer: bosworth Date: 05-Aug-2020 08:33:55

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.867	5.876	-0.009	99	1361153	20.0	
* 2 Chlorobenzene-d5	117	8.577	8.574	0.003	85	1292401	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.813	10.823	-0.010	95	759259	20.0	
\$ 4 Dibromofluoromethane (Surr)	113	5.276	5.274	0.002	94	470484	25.0	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.572	5.570	0.002	100	614228	24.1	
\$ 6 Toluene-d8 (Surr)	98	7.252	7.250	0.002	93	1923538	22.0	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.677	9.688	-0.011	96	694798	22.2	
11 Vinyl chloride	62		2.115				ND	
24 1,1-Dichloroethene	61		3.298				ND	
34 trans-1,2-Dichloroethene	61		3.996				ND	
43 cis-1,2-Dichloroethene	96		4.872				ND	
60 Trichloroethene	130		6.185				ND	
65 1,4-Dioxane	88		6.481				ND	
78 Tetrachloroethene	166	7.820	7.818	0.002	95	91095	3.70	

Reagents:

vm100is_stk_A_00005 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989098.D

Injection Date: 04-Aug-2020 19:15:30

Instrument ID: A3UX9

Operator ID: 001765

Lims ID: 240-134119-A-10-A

Lab Sample ID: 240-134119-10

Worklist Smp#: 27

Client ID: SB-138 (2-3)_072720

Purge Vol: 5.000 mL

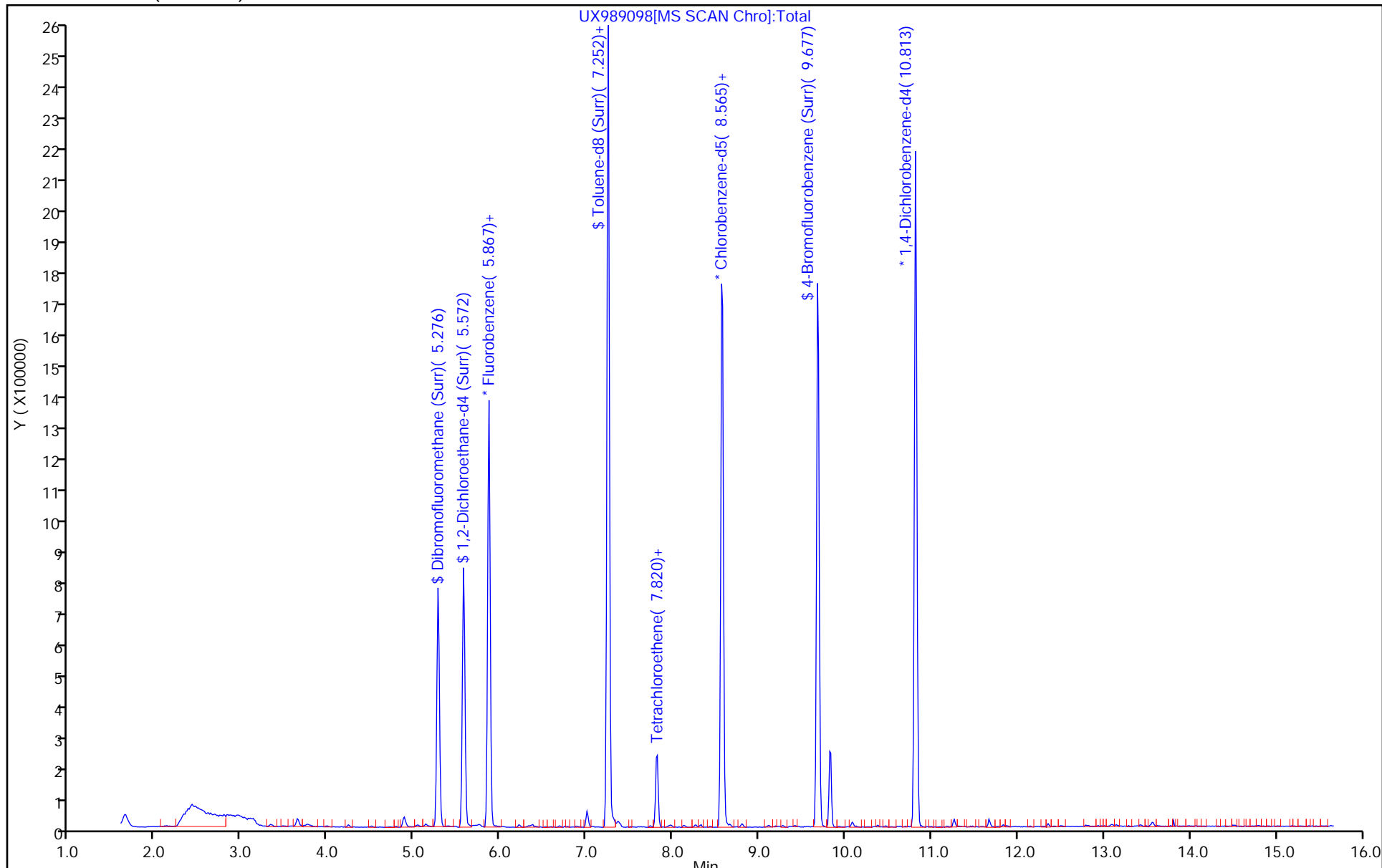
Dil. Factor: 1.0000

ALS Bottle#: 27

Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989098.D
 Lims ID: 240-134119-A-10-A
 Client ID: SB-138 (2-3)_072720
 Sample Type: Client
 Inject. Date: 04-Aug-2020 19:15:30 ALS Bottle#: 27 Worklist Smp#: 27
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100652-027
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 08:31:28 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1061

First Level Reviewer: bosworthh

Date: 05-Aug-2020 08:33:55

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	25.0	99.98
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	24.1	96.57
\$ 6 Toluene-d8 (Surr)	25.0	22.0	87.85
\$ 7 4-Bromofluorobenzene (Surr)	25.0	22.2	88.94

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989098.D

Injection Date: 04-Aug-2020 19:15:30

Instrument ID: A3UX9

Lims ID: 240-134119-A-10-A

Lab Sample ID: 240-134119-10

Client ID: SB-138 (2-3)_072720

Operator ID: 001765

ALS Bottle#: 27 Worklist Smp#: 27

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

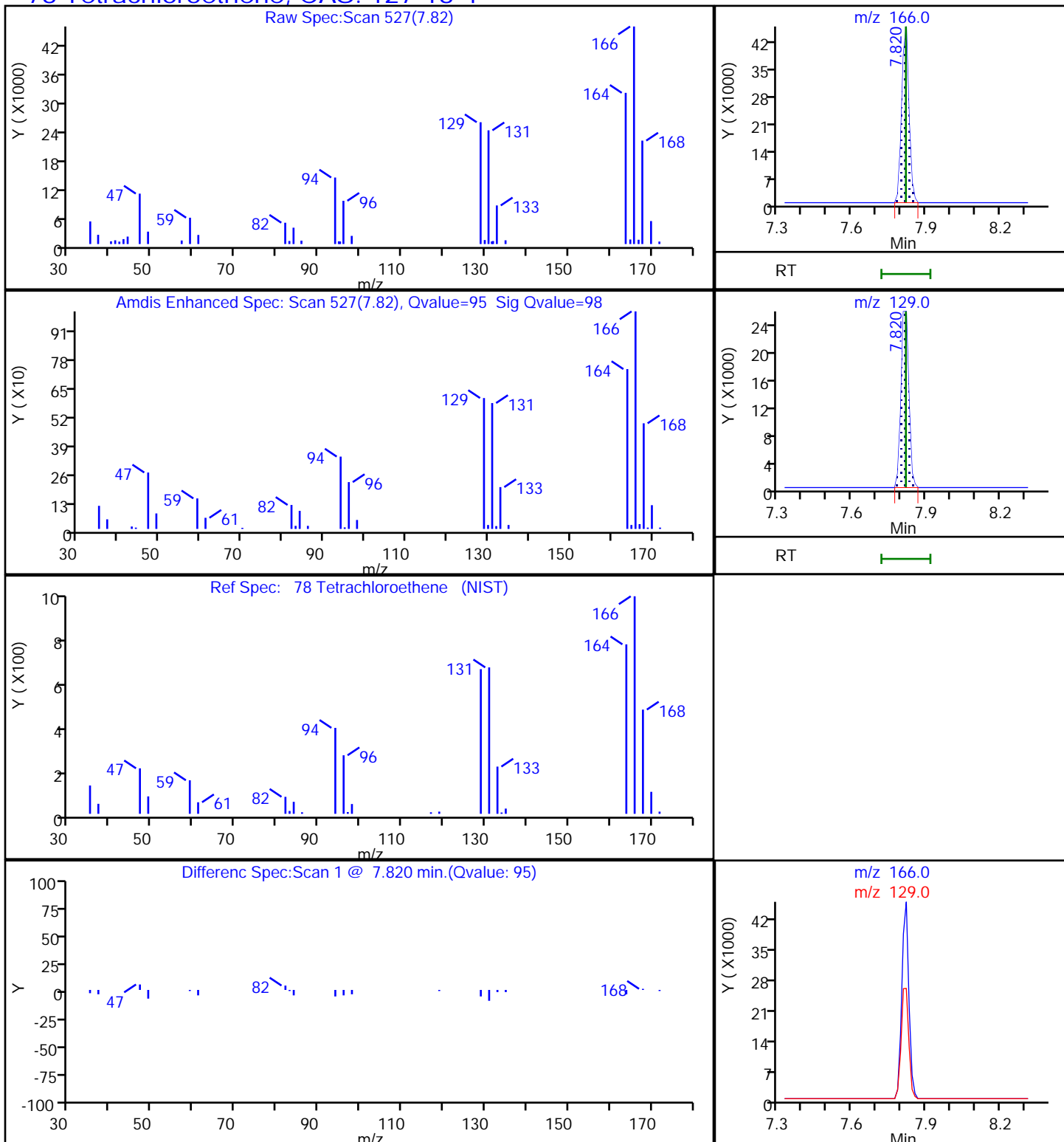
Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

78 Tetrachloroethene, CAS: 127-18-4



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: SB-138 (3-4)_072720 Lab Sample ID: 240-134119-11
 Matrix: Solid Lab File ID: UX989099.D
 Analysis Method: 8260B MI Date Collected: 07/27/2020 12:49
 Sample wt/vol: 8.549(g) Date Analyzed: 08/04/2020 19:37
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 9.9 Level: (low/med) Medium
 Analysis Batch No.: 445537 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	56	U	56	23
123-91-1	1,4-Dioxane	18000	U	18000	1500
156-59-2	cis-1,2-Dichloroethene	56	U	56	13
127-18-4	Tetrachloroethene	56	U	56	25
156-60-5	trans-1,2-Dichloroethene	56	U	56	14
79-01-6	Trichloroethene	56	U *	56	15
75-01-4	Vinyl chloride	45	U	45	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	126		47-136
460-00-4	4-Bromofluorobenzene (Surr)	114		51-124
1868-53-7	Dibromofluoromethane (Surr)	135	X	49-122
2037-26-5	Toluene-d8 (Surr)	112		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989099.D
 Lims ID: 240-134119-A-11-A
 Client ID: SB-138 (3-4)_072720
 Sample Type: Client
 Inject. Date: 04-Aug-2020 19:37:30 ALS Bottle#: 28 Worklist Smp#: 28
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100652-028
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 08:31:28 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1061

First Level Reviewer: bosworth Date: 05-Aug-2020 08:34:02

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.868	5.876	-0.008	99	1368681	20.0	
* 2 Chlorobenzene-d5	117	8.566	8.574	-0.008	86	1289709	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.814	10.823	-0.009	95	761875	20.0	
\$ 4 Dibromofluoromethane (Surr)	113	5.276	5.274	0.002	95	588623	31.1	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.572	5.570	0.002	99	741503	29.0	
\$ 6 Toluene-d8 (Surr)	98	7.252	7.250	0.002	93	2255140	25.8	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.678	9.688	-0.010	96	820888	26.3	
11 Vinyl chloride	62		2.115				ND	
24 1,1-Dichloroethene	61		3.298				ND	
34 trans-1,2-Dichloroethene	61		3.996				ND	
43 cis-1,2-Dichloroethene	96		4.872				ND	
60 Trichloroethene	130		6.185				ND	
65 1,4-Dioxane	88		6.481				ND	
78 Tetrachloroethene	166	7.820	7.818	0.002	93	6531	0.2657	

Reagents:

vm100is_stk_A_00005 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989099.D

Injection Date: 04-Aug-2020 19:37:30

Instrument ID: A3UX9

Operator ID: 001765

Lims ID: 240-134119-A-11-A

Lab Sample ID: 240-134119-11

Worklist Smp#: 28

Client ID: SB-138 (3-4)_072720

Purge Vol: 5.000 mL

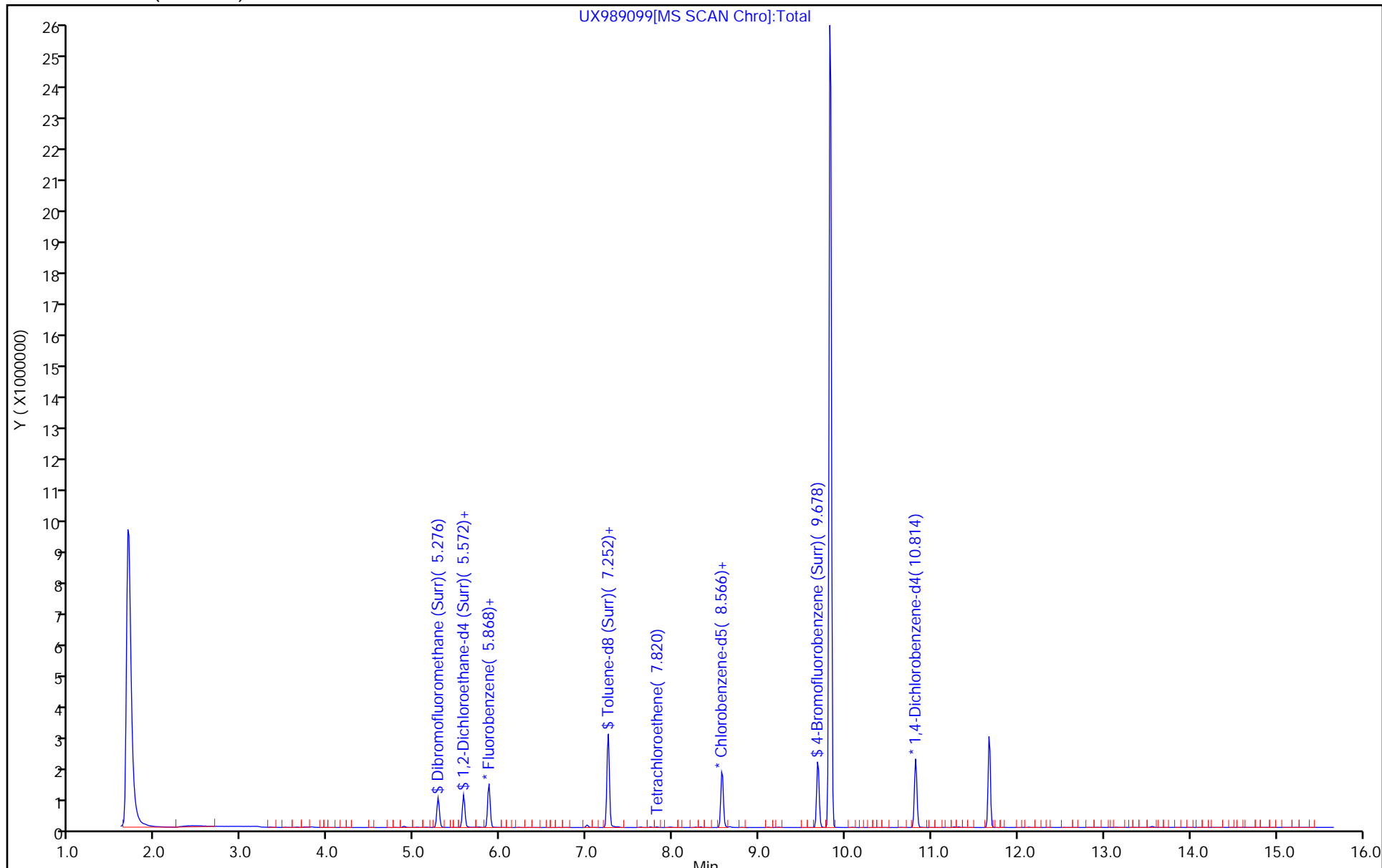
Dil. Factor: 1.0000

ALS Bottle#: 28

Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989099.D
 Lims ID: 240-134119-A-11-A
 Client ID: SB-138 (3-4)_072720
 Sample Type: Client
 Inject. Date: 04-Aug-2020 19:37:30 ALS Bottle#: 28 Worklist Smp#: 28
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100652-028
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 08:31:28 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1061

First Level Reviewer: bosworthh Date: 05-Aug-2020 08:34:02

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	31.1	124.39
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	29.0	115.94
\$ 6 Toluene-d8 (Surr)	25.0	25.8	103.21
\$ 7 4-Bromofluorobenzene (Surr)	25.0	26.3	105.30

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: SB-138 (4-5)_072720 Lab Sample ID: 240-134119-12
 Matrix: Solid Lab File ID: UX989100.D
 Analysis Method: 8260B MI Date Collected: 07/27/2020 12:51
 Sample wt/vol: 9.555(g) Date Analyzed: 08/04/2020 20:00
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 17.4 Level: (low/med) Medium
 Analysis Batch No.: 445537 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	59	U	59	24
123-91-1	1,4-Dioxane	18000	U	18000	1600
156-59-2	cis-1,2-Dichloroethene	59	U	59	13
127-18-4	Tetrachloroethene	140		59	27
156-60-5	trans-1,2-Dichloroethene	59	U	59	15
79-01-6	Trichloroethene	59	U *	59	16
75-01-4	Vinyl chloride	47	U	47	18

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	115		47-136
460-00-4	4-Bromofluorobenzene (Surr)	103		51-124
1868-53-7	Dibromofluoromethane (Surr)	121		49-122
2037-26-5	Toluene-d8 (Surr)	103		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989100.D
 Lims ID: 240-134119-A-12-A
 Client ID: SB-138 (4-5)_072720
 Sample Type: Client
 Inject. Date: 04-Aug-2020 20:00:30 ALS Bottle#: 29 Worklist Smp#: 29
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100652-029
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 08:31:28 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1061

First Level Reviewer: bosworth Date: 05-Aug-2020 08:34:11

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.867	5.876	-0.009	99	1300461	20.0	
* 2 Chlorobenzene-d5	117	8.577	8.574	0.003	85	1218984	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.813	10.823	-0.010	95	721029	20.0	
\$ 4 Dibromofluoromethane (Surr)	113	5.275	5.274	0.001	94	468204	26.0	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.571	5.570	0.001	100	601011	24.7	
\$ 6 Toluene-d8 (Surr)	98	7.251	7.250	0.001	93	1822888	22.1	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.677	9.688	-0.011	96	648778	22.0	
11 Vinyl chloride	62		2.115				ND	
24 1,1-Dichloroethene	61		3.298				ND	
34 trans-1,2-Dichloroethene	61		3.996				ND	
43 cis-1,2-Dichloroethene	96		4.872				ND	
60 Trichloroethene	130		6.185				ND	
65 1,4-Dioxane	88		6.481				ND	
78 Tetrachloroethene	166	7.819	7.818	0.001	96	42613	1.83	

Reagents:

vm100is_stk_A_00005 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989100.D

Injection Date: 04-Aug-2020 20:00:30

Instrument ID: A3UX9

Operator ID: 001765

Lims ID: 240-134119-A-12-A

Lab Sample ID: 240-134119-12

Worklist Smp#: 29

Client ID: SB-138 (4-5)_072720

Purge Vol: 5.000 mL

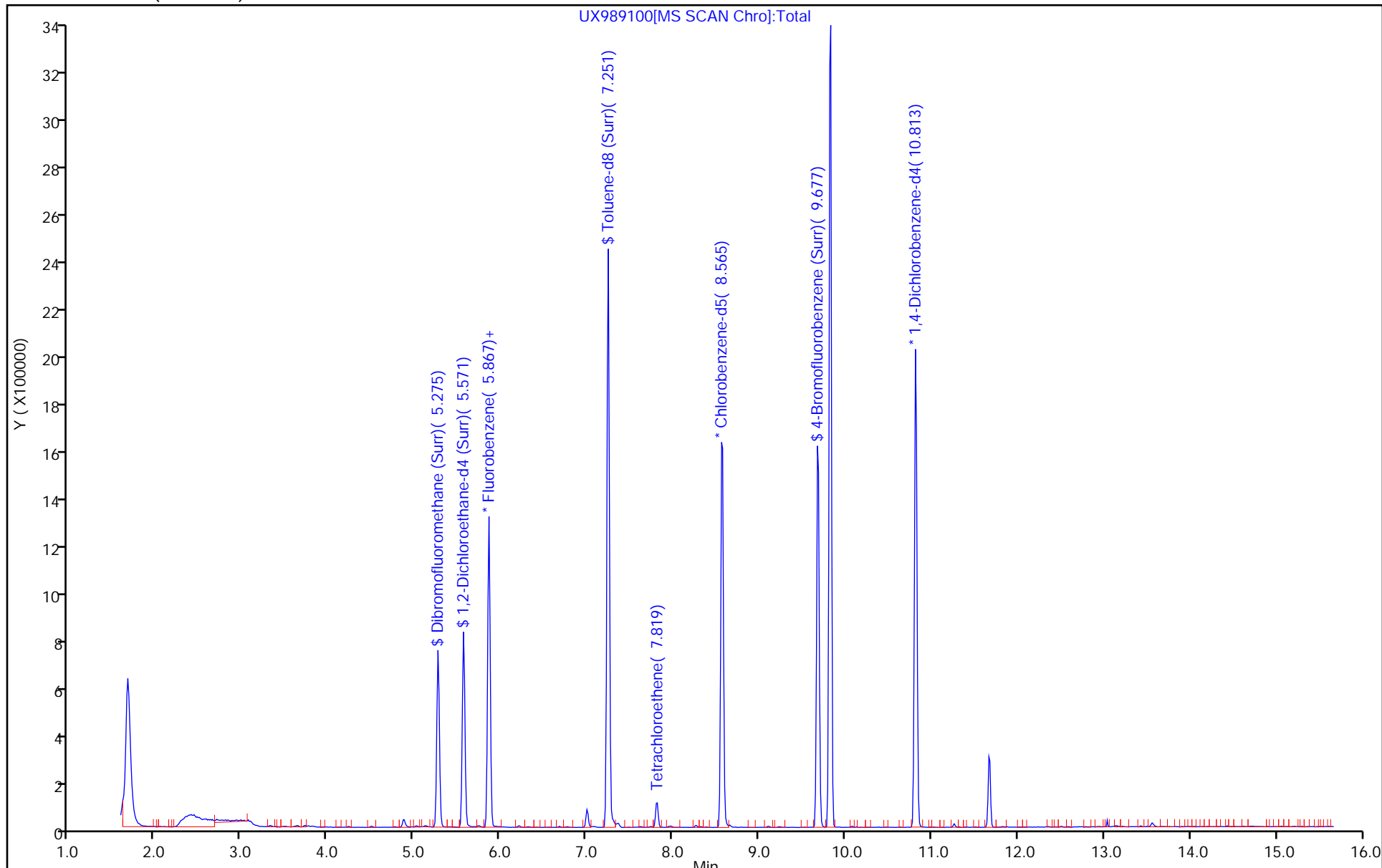
Dil. Factor: 1.0000

ALS Bottle#: 29

Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989100.D
 Lims ID: 240-134119-A-12-A
 Client ID: SB-138 (4-5)_072720
 Sample Type: Client
 Inject. Date: 04-Aug-2020 20:00:30 ALS Bottle#: 29 Worklist Smp#: 29
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100652-029
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 08:31:28 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1061

First Level Reviewer: bosworthh

Date: 05-Aug-2020 08:34:11

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	26.0	104.14
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	24.7	98.90
\$ 6 Toluene-d8 (Surr)	25.0	22.1	88.27
\$ 7 4-Bromofluorobenzene (Surr)	25.0	22.0	88.05

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989100.D

Injection Date: 04-Aug-2020 20:00:30

Instrument ID: A3UX9

Lims ID: 240-134119-A-12-A

Lab Sample ID: 240-134119-12

Client ID: SB-138 (4-5)_072720

Operator ID: 001765

ALS Bottle#: 29 Worklist Smp#: 29

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

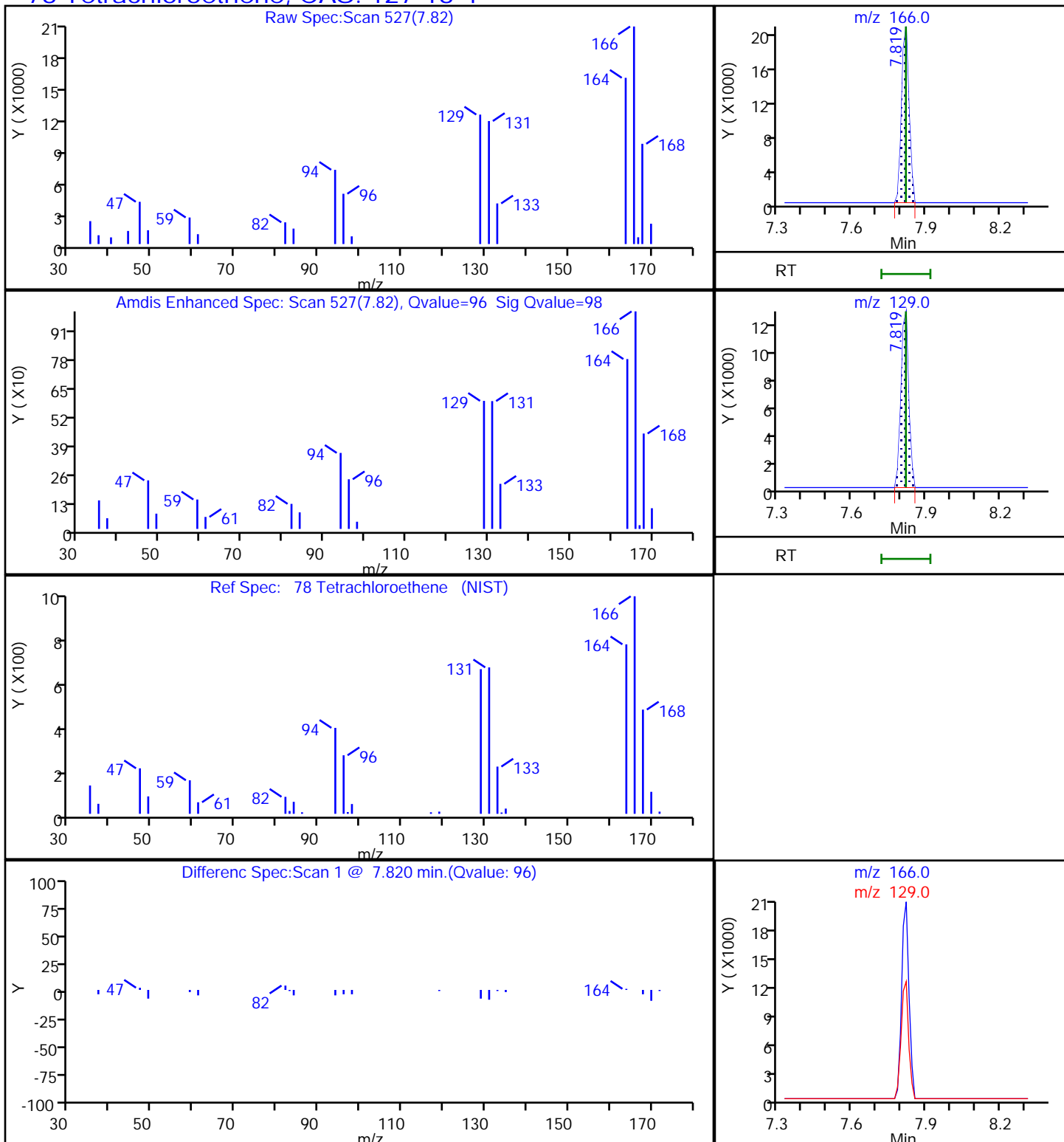
Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

78 Tetrachloroethene, CAS: 127-18-4



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: SB-139 (0.5-1)_072720 Lab Sample ID: 240-134119-13
 Matrix: Solid Lab File ID: UX989101.D
 Analysis Method: 8260B MI Date Collected: 07/27/2020 13:10
 Sample wt/vol: 9.79(g) Date Analyzed: 08/04/2020 20:22
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0 (mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 14.1 Level: (low/med) Medium
 Analysis Batch No.: 445537 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	54	U	54	22
123-91-1	1,4-Dioxane	17000	U	17000	1500
156-59-2	cis-1,2-Dichloroethene	54	U	54	12
127-18-4	Tetrachloroethene	740		54	24
156-60-5	trans-1,2-Dichloroethene	54	U	54	14
79-01-6	Trichloroethene	54	U *	54	15
75-01-4	Vinyl chloride	43	U	43	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	122		47-136
460-00-4	4-Bromofluorobenzene (Surr)	110		51-124
1868-53-7	Dibromofluoromethane (Surr)	130	X	49-122
2037-26-5	Toluene-d8 (Surr)	109		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989101.D
 Lims ID: 240-134119-A-13-A
 Client ID: SB-139 (0.5-1)_072720
 Sample Type: Client
 Inject. Date: 04-Aug-2020 20:22:30 ALS Bottle#: 30 Worklist Smp#: 30
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100652-030
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 08:31:28 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1061

First Level Reviewer: bosworth Date: 05-Aug-2020 08:34:23

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.865	5.876	-0.011	99	1245157	20.0	
* 2 Chlorobenzene-d5	117	8.575	8.574	0.001	86	1192547	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.823	10.823	0.000	94	694798	20.0	
\$ 4 Dibromofluoromethane (Surr)	113	5.273	5.274	-0.001	95	492766	28.6	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.569	5.570	-0.001	100	622446	26.7	
\$ 6 Toluene-d8 (Surr)	98	7.249	7.250	-0.001	93	1932564	23.9	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.675	9.688	-0.013	96	698279	24.2	
11 Vinyl chloride	62		2.115				ND	
24 1,1-Dichloroethene	61		3.298				ND	
34 trans-1,2-Dichloroethene	61		3.996				ND	
43 cis-1,2-Dichloroethene	96		4.872				ND	
60 Trichloroethene	130		6.185				ND	
65 1,4-Dioxane	88		6.481				ND	
78 Tetrachloroethene	166	7.817	7.818	-0.001	97	248277	10.9	

Reagents:

vm100is_stk_A_00005 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989101.D

Injection Date: 04-Aug-2020 20:22:30

Instrument ID: A3UX9

Operator ID: 001765

Lims ID: 240-134119-A-13-A

Lab Sample ID: 240-134119-13

Worklist Smp#: 30

Client ID: SB-139 (0.5-1)_072720

Purge Vol: 5.000 mL

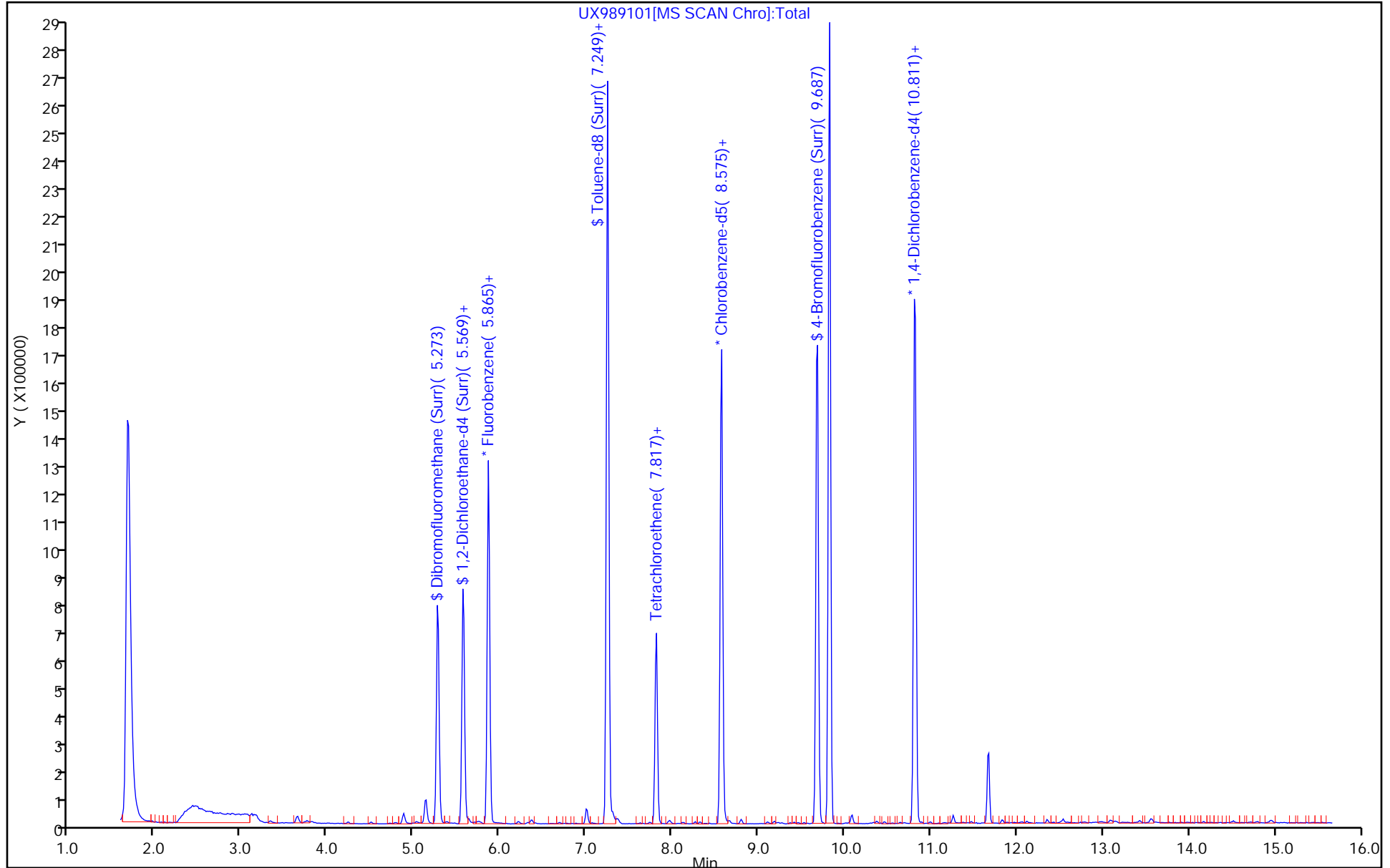
Dil. Factor: 1.0000

ALS Bottle#: 30

Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989101.D
 Lims ID: 240-134119-A-13-A
 Client ID: SB-139 (0.5-1)_072720
 Sample Type: Client
 Inject. Date: 04-Aug-2020 20:22:30 ALS Bottle#: 30 Worklist Smp#: 30
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100652-030
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 08:31:28 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1061

First Level Reviewer: bosworthh

Date: 05-Aug-2020 08:34:23

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	28.6	114.47
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	26.7	106.98
\$ 6 Toluene-d8 (Surr)	25.0	23.9	95.65
\$ 7 4-Bromofluorobenzene (Surr)	25.0	24.2	96.87

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989101.D

Injection Date: 04-Aug-2020 20:22:30

Instrument ID: A3UX9

Lims ID: 240-134119-A-13-A

Lab Sample ID: 240-134119-13

Client ID: SB-139 (0.5-1)_072720

Operator ID: 001765

ALS Bottle#: 30 Worklist Smp#: 30

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

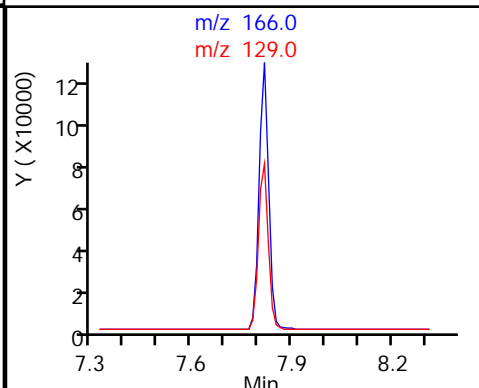
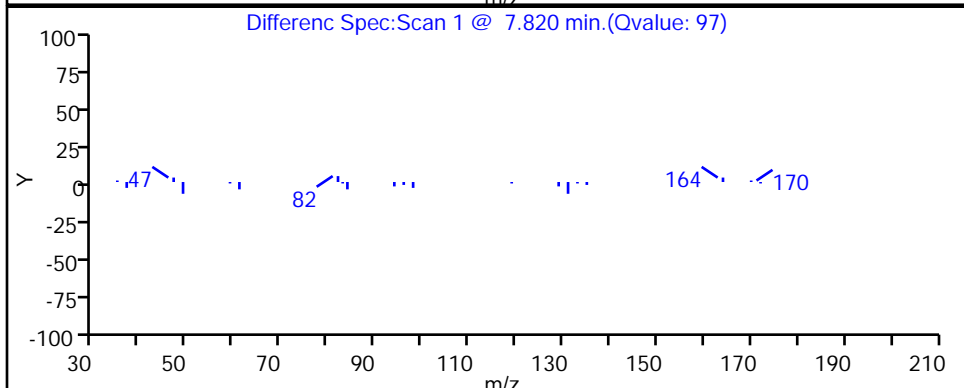
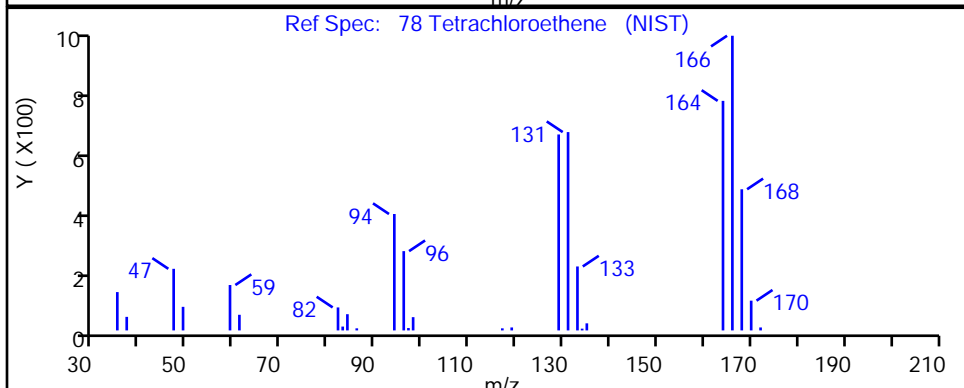
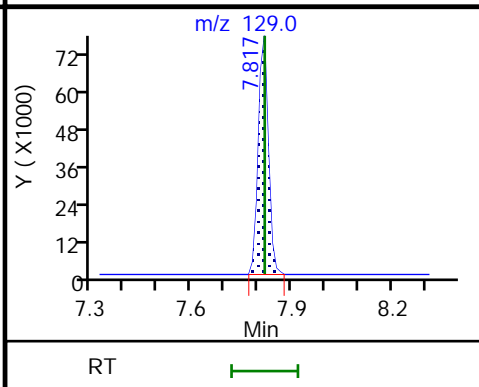
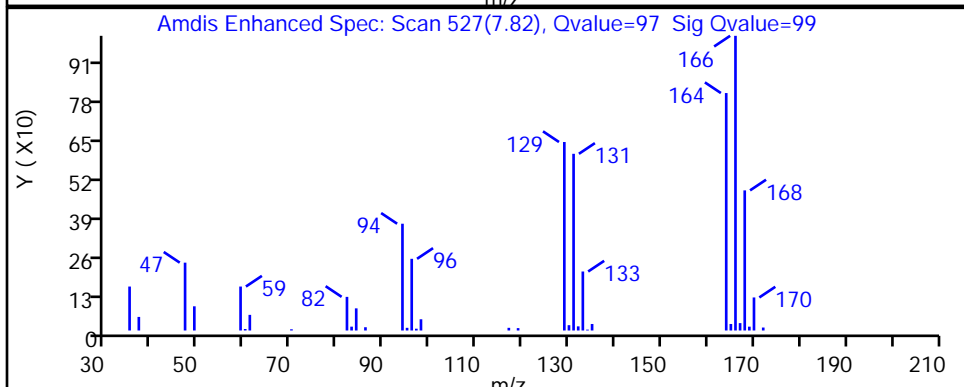
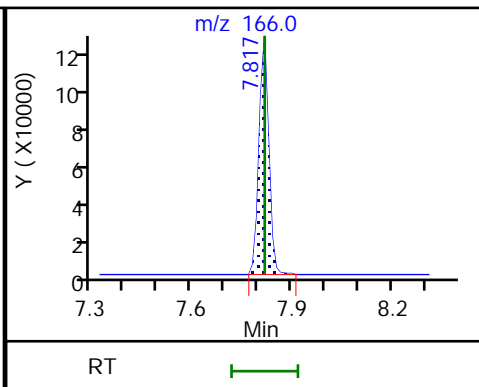
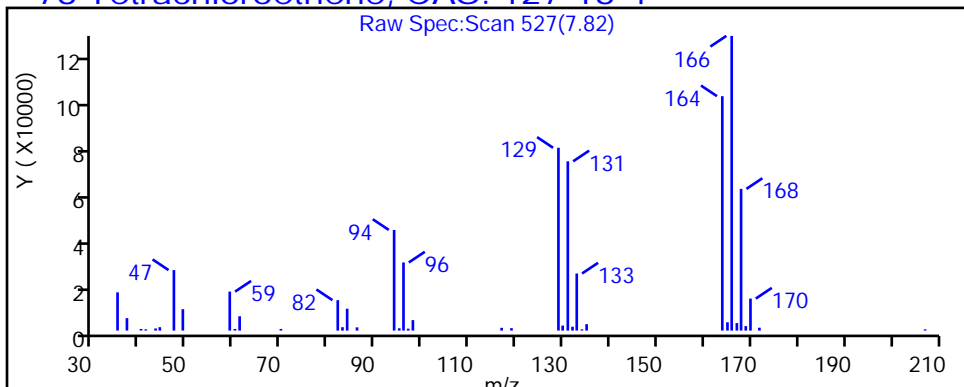
Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

78 Tetrachloroethene, CAS: 127-18-4



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: SB-139 (1-2)_072720 Lab Sample ID: 240-134119-14
 Matrix: Solid Lab File ID: UX989102.D
 Analysis Method: 8260B MI Date Collected: 07/27/2020 13:13
 Sample wt/vol: 9.768(g) Date Analyzed: 08/04/2020 20:45
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 12.2 Level: (low/med) Medium
 Analysis Batch No.: 445537 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	52	U	52	21
123-91-1	1,4-Dioxane	16000	U	16000	1400
156-59-2	cis-1,2-Dichloroethene	52	U	52	12
127-18-4	Tetrachloroethene	3100		52	24
156-60-5	trans-1,2-Dichloroethene	52	U	52	13
79-01-6	Trichloroethene	37	J *	52	14
75-01-4	Vinyl chloride	42	U	42	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	105		47-136
460-00-4	4-Bromofluorobenzene (Surr)	91		51-124
1868-53-7	Dibromofluoromethane (Surr)	110		49-122
2037-26-5	Toluene-d8 (Surr)	92		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989102.D
 Lims ID: 240-134119-A-14-A
 Client ID: SB-139 (1-2)_072720
 Sample Type: Client
 Inject. Date: 04-Aug-2020 20:45:30 ALS Bottle#: 31 Worklist Smp#: 31
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100652-031
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 08:31:28 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1061

First Level Reviewer: bosworthh Date: 05-Aug-2020 08:34:42

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.866	5.876	-0.010	99	1338459	20.0	
* 2 Chlorobenzene-d5	117	8.576	8.574	0.002	86	1272325	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.812	10.823	-0.011	95	746875	20.0	
\$ 4 Dibromofluoromethane (Surr)	113	5.274	5.274	0.000	94	455247	24.6	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.570	5.570	0.000	100	585061	23.4	
\$ 6 Toluene-d8 (Surr)	98	7.250	7.250	0.000	93	1764436	20.5	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.676	9.688	-0.012	96	627556	20.4	
11 Vinyl chloride	62		2.115				ND	
24 1,1-Dichloroethene	61		3.298				ND	
34 trans-1,2-Dichloroethene	61		3.996				ND	
43 cis-1,2-Dichloroethene	96		4.872				ND	
60 Trichloroethene	130	6.185	6.185	0.000	94	11949	0.5624	
65 1,4-Dioxane	88		6.481				ND	
78 Tetrachloroethene	166	7.818	7.818	0.000	97	1162593	47.9	

Reagents:

vm100is_stk_A_00005 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989102.D

Injection Date: 04-Aug-2020 20:45:30

Instrument ID: A3UX9

Operator ID: 001765

Lims ID: 240-134119-A-14-A

Lab Sample ID: 240-134119-14

Worklist Smp#: 31

Client ID: SB-139 (1-2)_072720

Purge Vol: 5.000 mL

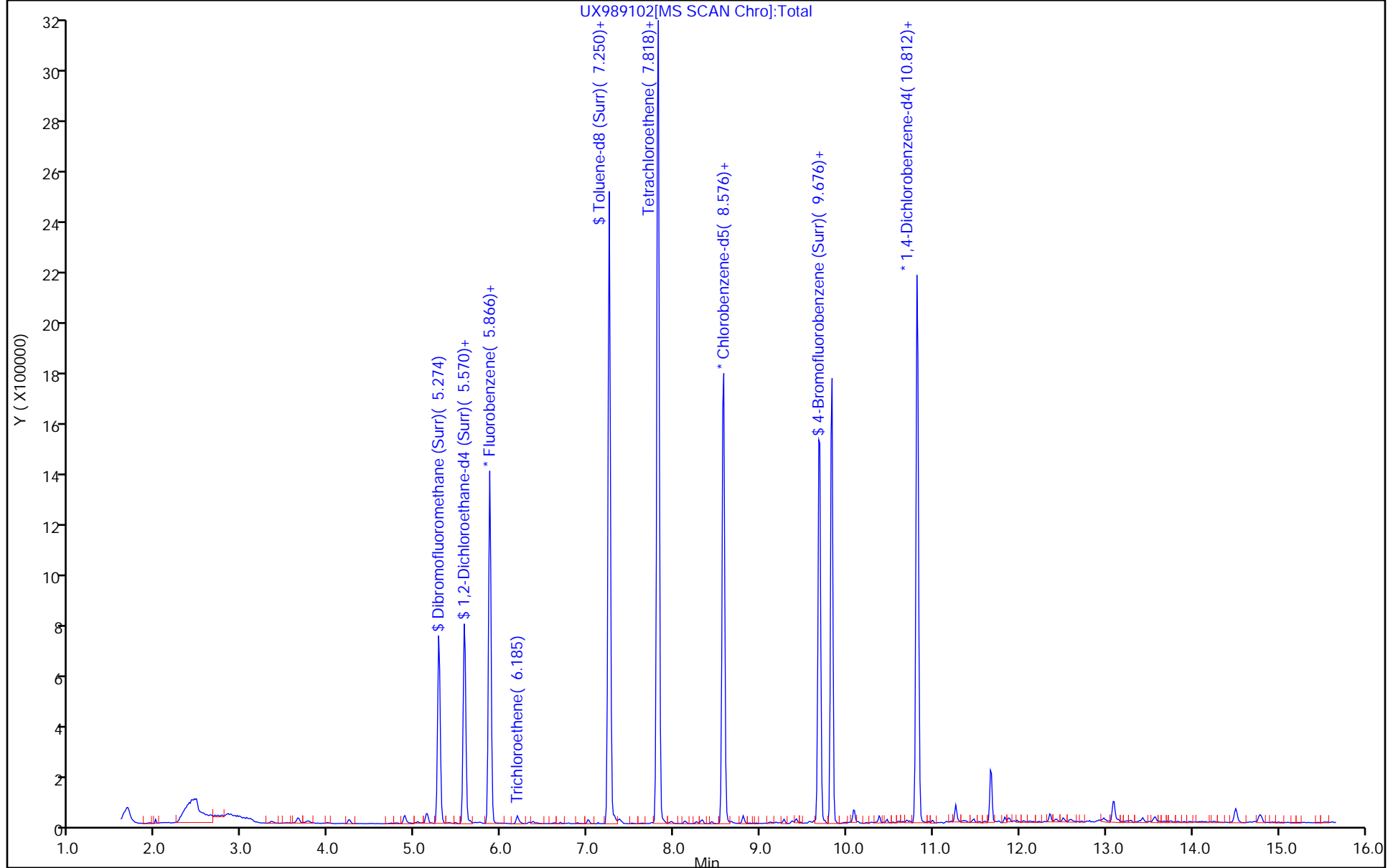
Dil. Factor: 1.0000

ALS Bottle#: 31

Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989102.D
 Lims ID: 240-134119-A-14-A
 Client ID: SB-139 (1-2)_072720
 Sample Type: Client
 Inject. Date: 04-Aug-2020 20:45:30 ALS Bottle#: 31 Worklist Smp#: 31
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100652-031
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 08:31:28 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1061

First Level Reviewer: bosworthh

Date: 05-Aug-2020 08:34:42

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	24.6	98.38
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	23.4	93.54
\$ 6 Toluene-d8 (Surr)	25.0	20.5	81.86
\$ 7 4-Bromofluorobenzene (Surr)	25.0	20.4	81.60

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989102.D

Injection Date: 04-Aug-2020 20:45:30

Instrument ID: A3UX9

Lims ID: 240-134119-A-14-A

Lab Sample ID: 240-134119-14

Client ID: SB-139 (1-2)_072720

Operator ID: 001765

ALS Bottle#: 31 Worklist Smp#: 31

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

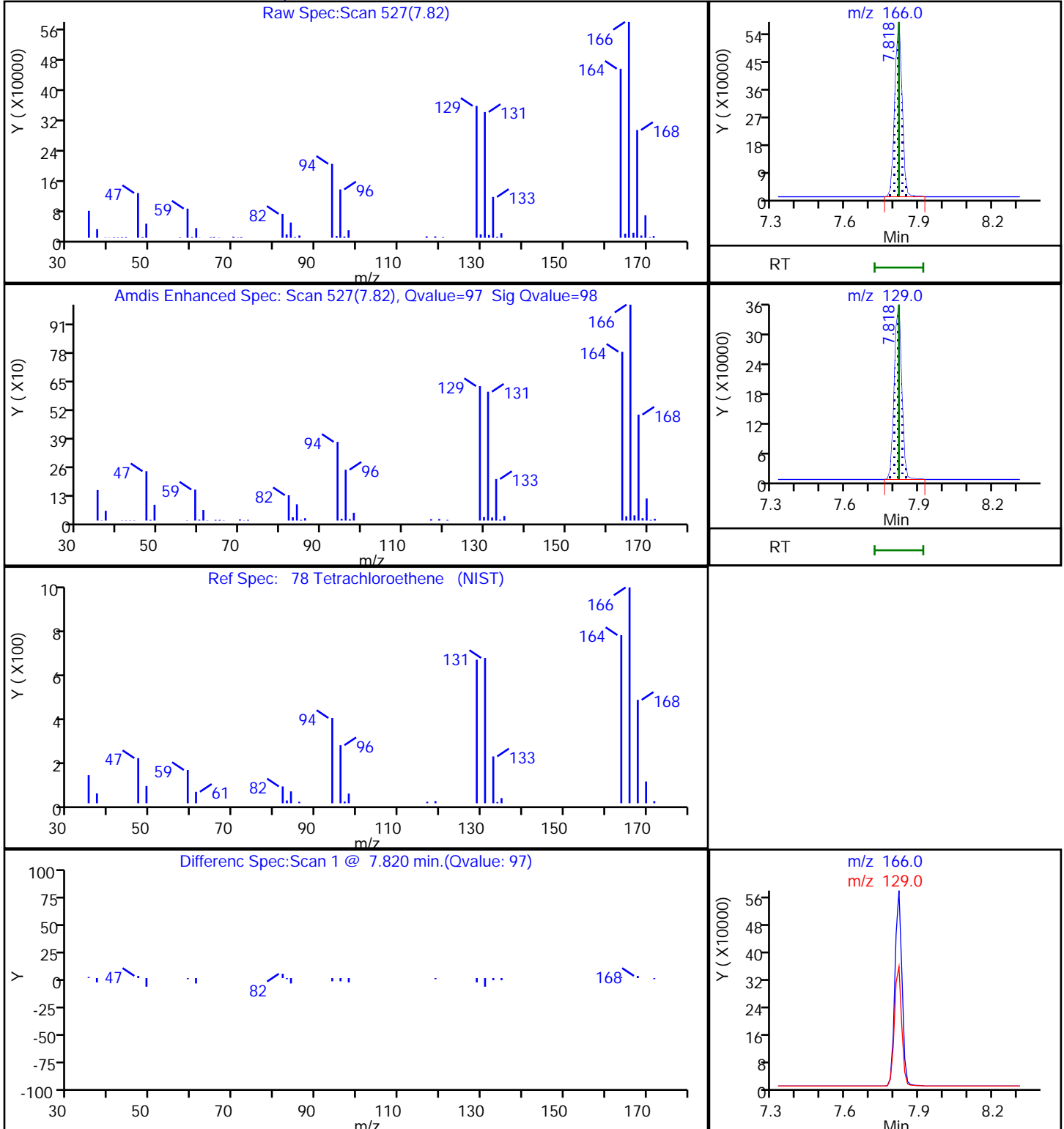
Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

78 Tetrachloroethene, CAS: 127-18-4



Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989102.D

Injection Date: 04-Aug-2020 20:45:30

Instrument ID: A3UX9

Lims ID: 240-134119-A-14-A

Lab Sample ID: 240-134119-14

Client ID: SB-139 (1-2)_072720

Operator ID: 001765

ALS Bottle#: 31 Worklist Smp#: 31

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

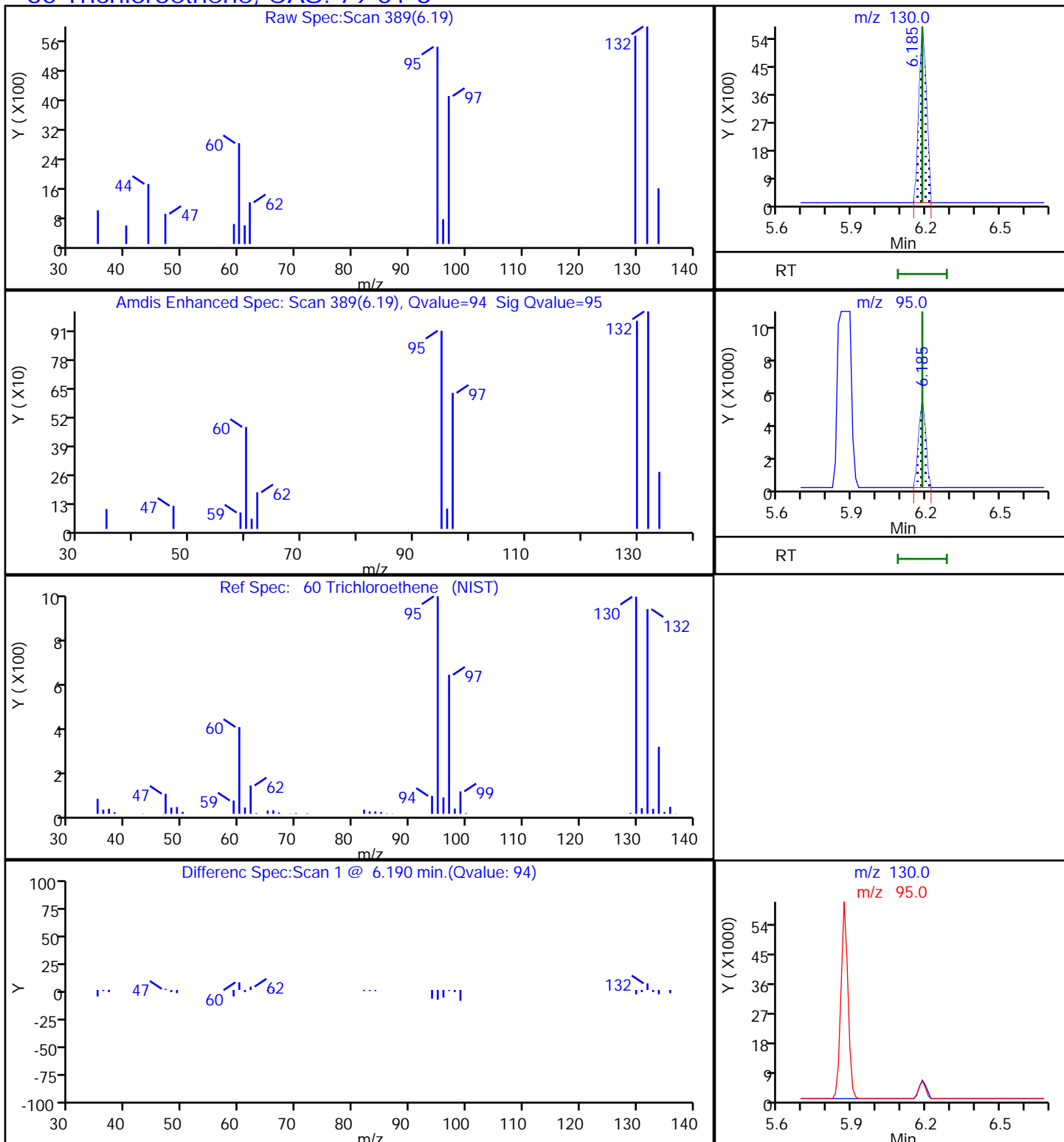
Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

60 Trichloroethene, CAS: 79-01-6



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: SB-139 (2-3)_072720 Lab Sample ID: 240-134119-15
 Matrix: Solid Lab File ID: UX989103.D
 Analysis Method: 8260B MI Date Collected: 07/27/2020 13:16
 Sample wt/vol: 9.623(g) Date Analyzed: 08/04/2020 21:07
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 18.7 Level: (low/med) Medium
 Analysis Batch No.: 445537 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	60	U	60	24
123-91-1	1,4-Dioxane	19000	U	19000	1600
156-59-2	cis-1,2-Dichloroethene	60	U	60	14
127-18-4	Tetrachloroethene	350		60	27
156-60-5	trans-1,2-Dichloroethene	60	U	60	15
79-01-6	Trichloroethene	60	U *	60	17
75-01-4	Vinyl chloride	48	U	48	18

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	119		47-136
460-00-4	4-Bromofluorobenzene (Surr)	106		51-124
1868-53-7	Dibromofluoromethane (Surr)	123	X	49-122
2037-26-5	Toluene-d8 (Surr)	104		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989103.D
 Lims ID: 240-134119-A-15-A
 Client ID: SB-139 (2-3)_072720
 Sample Type: Client
 Inject. Date: 04-Aug-2020 21:07:30 ALS Bottle#: 32 Worklist Smp#: 32
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100652-032
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 08:31:28 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1061

First Level Reviewer: bosworthh Date: 05-Aug-2020 08:34:52

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.866	5.876	-0.010	99	1360641	20.0	
* 2 Chlorobenzene-d5	117	8.575	8.574	0.001	85	1274214	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.824	10.823	0.001	94	747100	20.0	
\$ 4 Dibromofluoromethane (Surr)	113	5.274	5.274	0.000	95	489762	26.0	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.570	5.570	0.000	99	640758	25.2	
\$ 6 Toluene-d8 (Surr)	98	7.250	7.250	0.000	93	1894773	21.9	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.676	9.688	-0.012	96	691775	22.5	
11 Vinyl chloride	62		2.115				ND	
24 1,1-Dichloroethene	61		3.298				ND	
34 trans-1,2-Dichloroethene	61		3.996				ND	
43 cis-1,2-Dichloroethene	96		4.872				ND	
60 Trichloroethene	130		6.185				ND	
65 1,4-Dioxane	88		6.481				ND	
78 Tetrachloroethene	166	7.818	7.818	0.000	97	113515	4.67	

Reagents:

vm100is_stk_A_00005 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989103.D

Injection Date: 04-Aug-2020 21:07:30

Instrument ID: A3UX9

Operator ID: 001765

Lims ID: 240-134119-A-15-A

Lab Sample ID: 240-134119-15

Worklist Smp#: 32

Client ID: SB-139 (2-3)_072720

Purge Vol: 5.000 mL

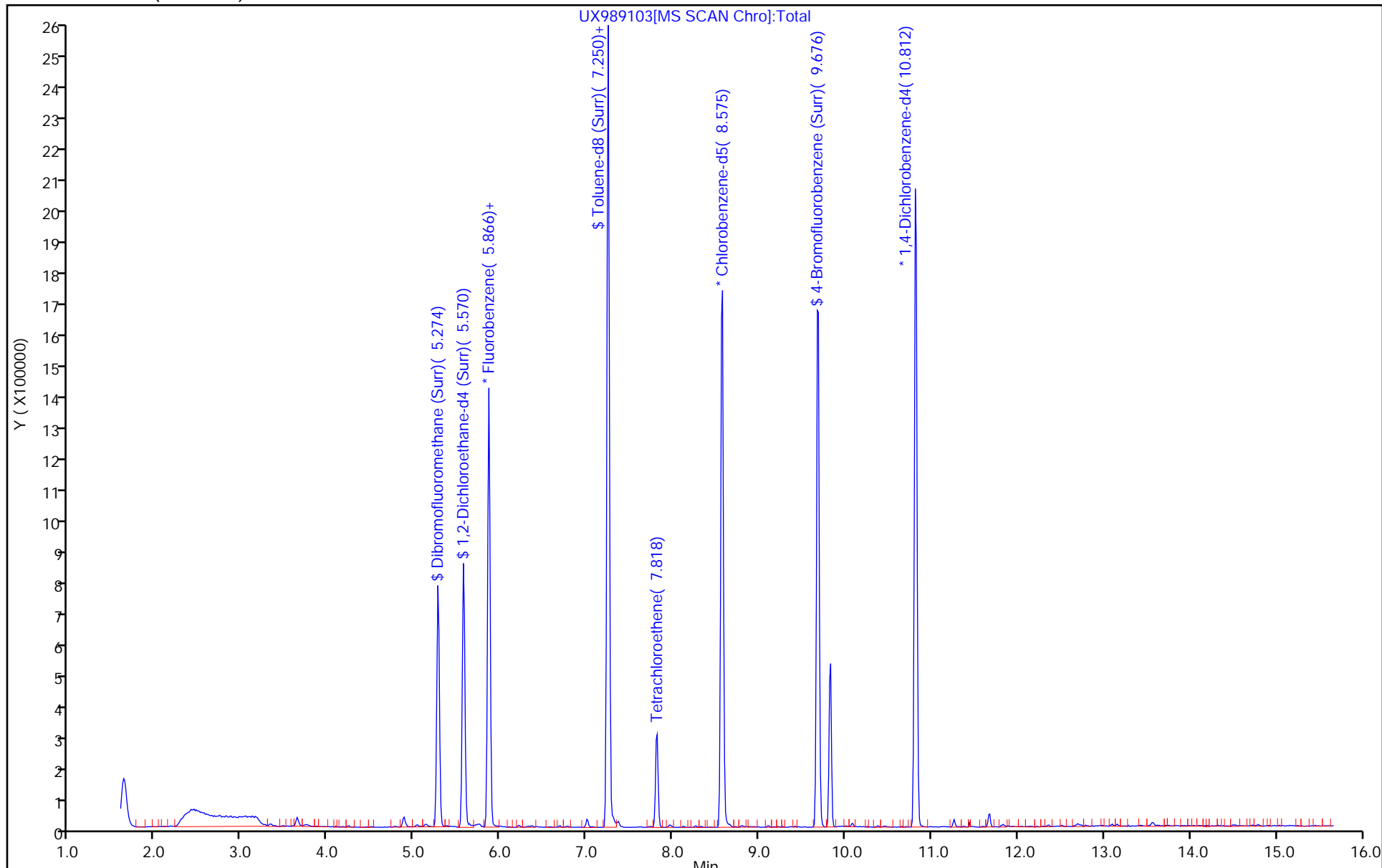
Dil. Factor: 1.0000

ALS Bottle#: 32

Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989103.D
 Lims ID: 240-134119-A-15-A
 Client ID: SB-139 (2-3)_072720
 Sample Type: Client
 Inject. Date: 04-Aug-2020 21:07:30 ALS Bottle#: 32 Worklist Smp#: 32
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100652-032
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 08:31:28 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1061

First Level Reviewer: bosworthh Date: 05-Aug-2020 08:34:52

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	26.0	104.11
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	25.2	100.78
\$ 6 Toluene-d8 (Surr)	25.0	21.9	87.77
\$ 7 4-Bromofluorobenzene (Surr)	25.0	22.5	89.81

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989103.D

Injection Date: 04-Aug-2020 21:07:30

Instrument ID: A3UX9

Lims ID: 240-134119-A-15-A

Lab Sample ID: 240-134119-15

Client ID: SB-139 (2-3)_072720

Operator ID: 001765

ALS Bottle#: 32

Worklist Smp#: 32

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

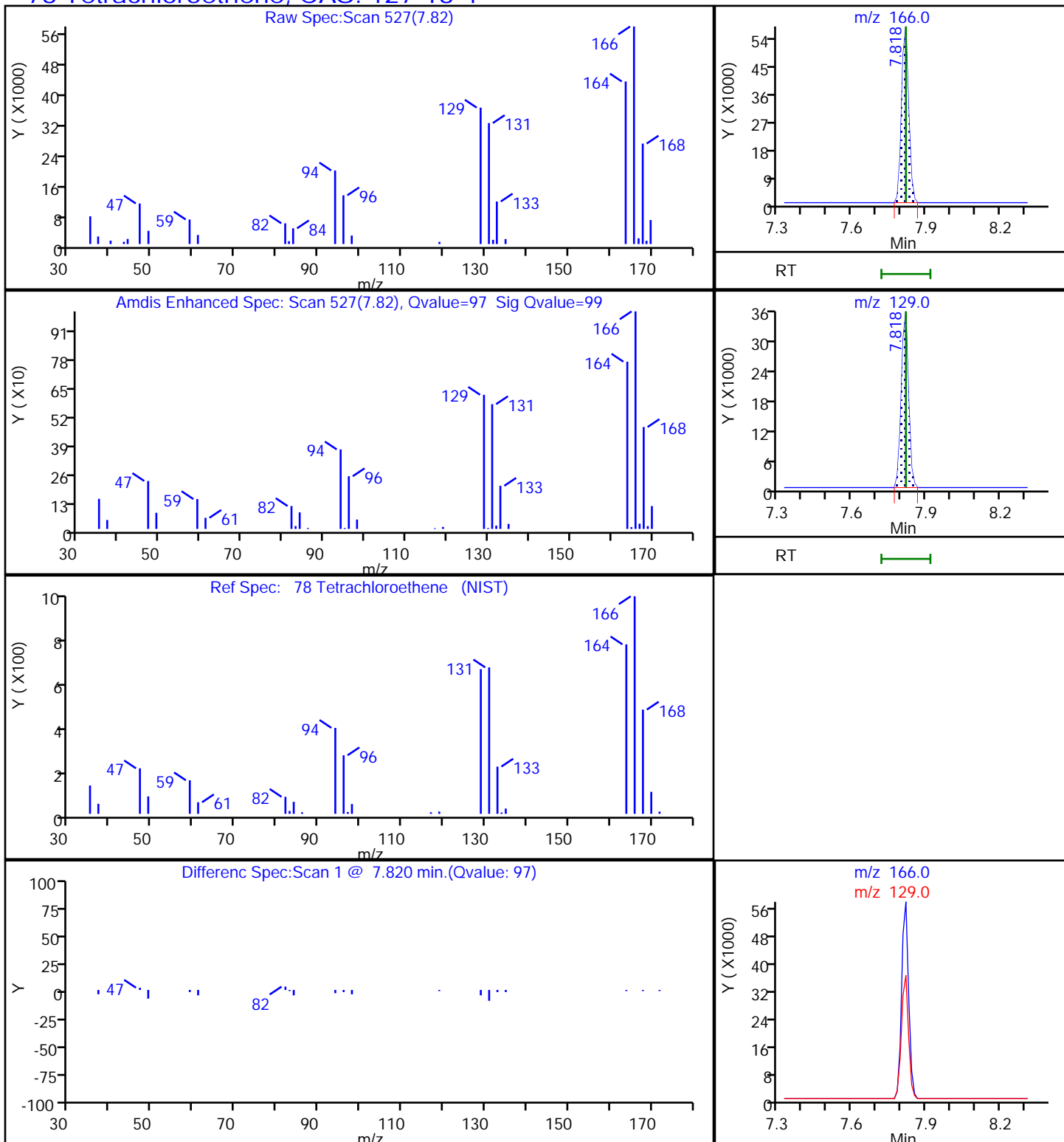
Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

78 Tetrachloroethene, CAS: 127-18-4



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: SB-139 (3-4)_072720 Lab Sample ID: 240-134119-16
 Matrix: Solid Lab File ID: UX989104.D
 Analysis Method: 8260B MI Date Collected: 07/27/2020 13:20
 Sample wt/vol: 8.989(g) Date Analyzed: 08/04/2020 21:29
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0 (mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 11.0 Level: (low/med) Medium
 Analysis Batch No.: 445537 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	55	U	55	22
123-91-1	1,4-Dioxane	17000	U	17000	1500
156-59-2	cis-1,2-Dichloroethene	55	U	55	12
127-18-4	Tetrachloroethene	55	U	55	25
156-60-5	trans-1,2-Dichloroethene	55	U	55	14
79-01-6	Trichloroethene	55	U *	55	15
75-01-4	Vinyl chloride	44	U	44	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	116		47-136
460-00-4	4-Bromofluorobenzene (Surr)	102		51-124
1868-53-7	Dibromofluoromethane (Surr)	120		49-122
2037-26-5	Toluene-d8 (Surr)	101		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989104.D
 Lims ID: 240-134119-A-16-A
 Client ID: SB-139 (3-4)_072720
 Sample Type: Client
 Inject. Date: 04-Aug-2020 21:29:30 ALS Bottle#: 33 Worklist Smp#: 33
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100652-033
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 08:31:28 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1061

First Level Reviewer: bosworth Date: 05-Aug-2020 08:35:06

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.865	5.876	-0.011	99	1354530	20.0	
* 2 Chlorobenzene-d5	117	8.574	8.574	0.000	86	1250759	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.823	10.823	0.000	94	744204	20.0	
\$ 4 Dibromofluoromethane (Surr)	113	5.273	5.274	-0.001	95	509694	27.2	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.569	5.570	-0.001	100	667228	26.4	
\$ 6 Toluene-d8 (Surr)	98	7.249	7.250	-0.001	93	1947361	23.0	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.675	9.688	-0.013	96	698553	23.1	
11 Vinyl chloride	62		2.115				ND	
24 1,1-Dichloroethene	61		3.298				ND	
34 trans-1,2-Dichloroethene	61		3.996				ND	
43 cis-1,2-Dichloroethene	96		4.872				ND	
60 Trichloroethene	130		6.185				ND	
65 1,4-Dioxane	88		6.481				ND	
78 Tetrachloroethene	166	7.817	7.818	-0.001	91	4301	0.1804	

Reagents:

vm100is_stk_A_00005 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989104.D

Injection Date: 04-Aug-2020 21:29:30

Instrument ID: A3UX9

Operator ID: 001765

Lims ID: 240-134119-A-16-A

Lab Sample ID: 240-134119-16

Worklist Smp#: 33

Client ID: SB-139 (3-4)_072720

Purge Vol: 5.000 mL

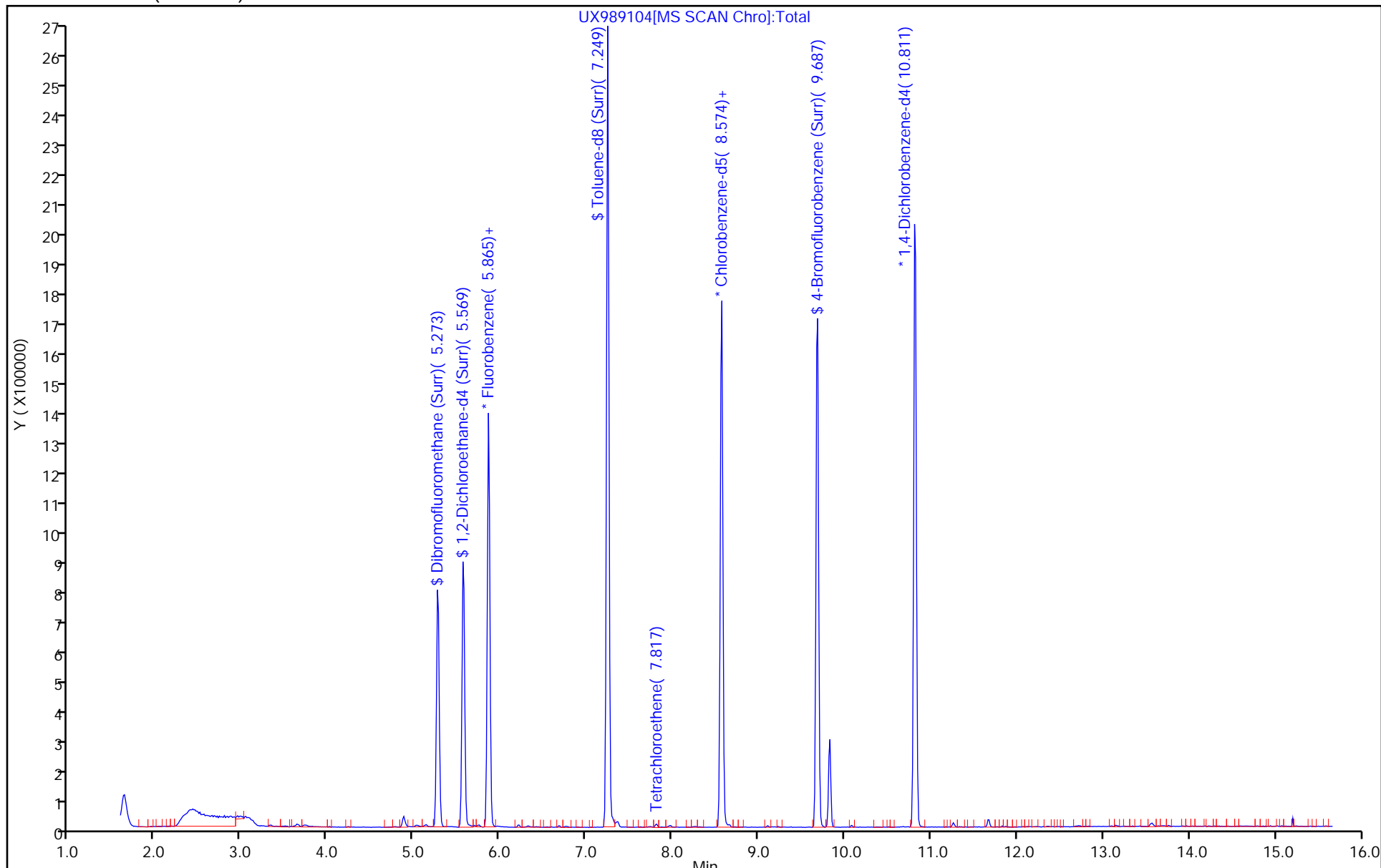
Dil. Factor: 1.0000

ALS Bottle#: 33

Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989104.D
 Lims ID: 240-134119-A-16-A
 Client ID: SB-139 (3-4)_072720
 Sample Type: Client
 Inject. Date: 04-Aug-2020 21:29:30 ALS Bottle#: 33 Worklist Smp#: 33
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100652-033
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 08:31:28 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1061

First Level Reviewer: bosworthh

Date: 05-Aug-2020 08:35:06

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	27.2	108.84
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	26.4	105.42
\$ 6 Toluene-d8 (Surr)	25.0	23.0	91.90
\$ 7 4-Bromofluorobenzene (Surr)	25.0	23.1	92.39

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: SB-140 (0.5-1)_072720 Lab Sample ID: 240-134119-18
 Matrix: Solid Lab File ID: UX989116.D
 Analysis Method: 8260B MI Date Collected: 07/27/2020 13:33
 Sample wt/vol: 9.65(g) Date Analyzed: 08/05/2020 12:48
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 16.9 Level: (low/med) Medium
 Analysis Batch No.: 445702 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	58	U	58	23
123-91-1	1,4-Dioxane	18000	U	18000	1600
156-59-2	cis-1,2-Dichloroethene	58	U	58	13
127-18-4	Tetrachloroethene	1000		58	26
156-60-5	trans-1,2-Dichloroethene	58	U	58	14
79-01-6	Trichloroethene	58	U *	58	16
75-01-4	Vinyl chloride	46	U	46	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	109		47-136
460-00-4	4-Bromofluorobenzene (Surr)	97		51-124
1868-53-7	Dibromofluoromethane (Surr)	115		49-122
2037-26-5	Toluene-d8 (Surr)	97		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989116.D
 Lims ID: 240-134119-A-18-A
 Client ID: SB-140 (0.5-1)_072720
 Sample Type: Client
 Inject. Date: 05-Aug-2020 12:48:30 ALS Bottle#: 11 Worklist Smp#: 11
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100687-011
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 12:58:43 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1061

First Level Reviewer: bosworth Date: 05-Aug-2020 15:06:15

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.865	5.864	0.001	99	1317592	20.0	
* 2 Chlorobenzene-d5	117	8.575	8.574	0.001	86	1264756	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.811	10.822	-0.011	95	754910	20.0	
\$ 4 Dibromofluoromethane (Surr)	113	5.273	5.273	0.000	94	451569	24.8	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.569	5.569	0.000	99	574549	23.3	
\$ 6 Toluene-d8 (Surr)	98	7.249	7.249	0.000	93	1792924	20.9	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.675	9.675	0.000	96	638583	20.9	
11 Vinyl chloride	62		2.114				ND	
24 1,1-Dichloroethene	61		3.297				ND	
34 trans-1,2-Dichloroethene	61		3.995				ND	
43 cis-1,2-Dichloroethene	96		4.871				ND	
60 Trichloroethene	130		6.184				ND	
65 1,4-Dioxane	88		6.492				ND	
78 Tetrachloroethene	166	7.817	7.817	0.000	98	347224	14.4	

Reagents:

vm100is_stk_A_00005 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989116.D

Injection Date: 05-Aug-2020 12:48:30

Instrument ID: A3UX9

Operator ID: 001765

Lims ID: 240-134119-A-18-A

Lab Sample ID: 240-134119-18

Worklist Smp#: 11

Client ID: SB-140 (0.5-1)_072720

Purge Vol: 5.000 mL

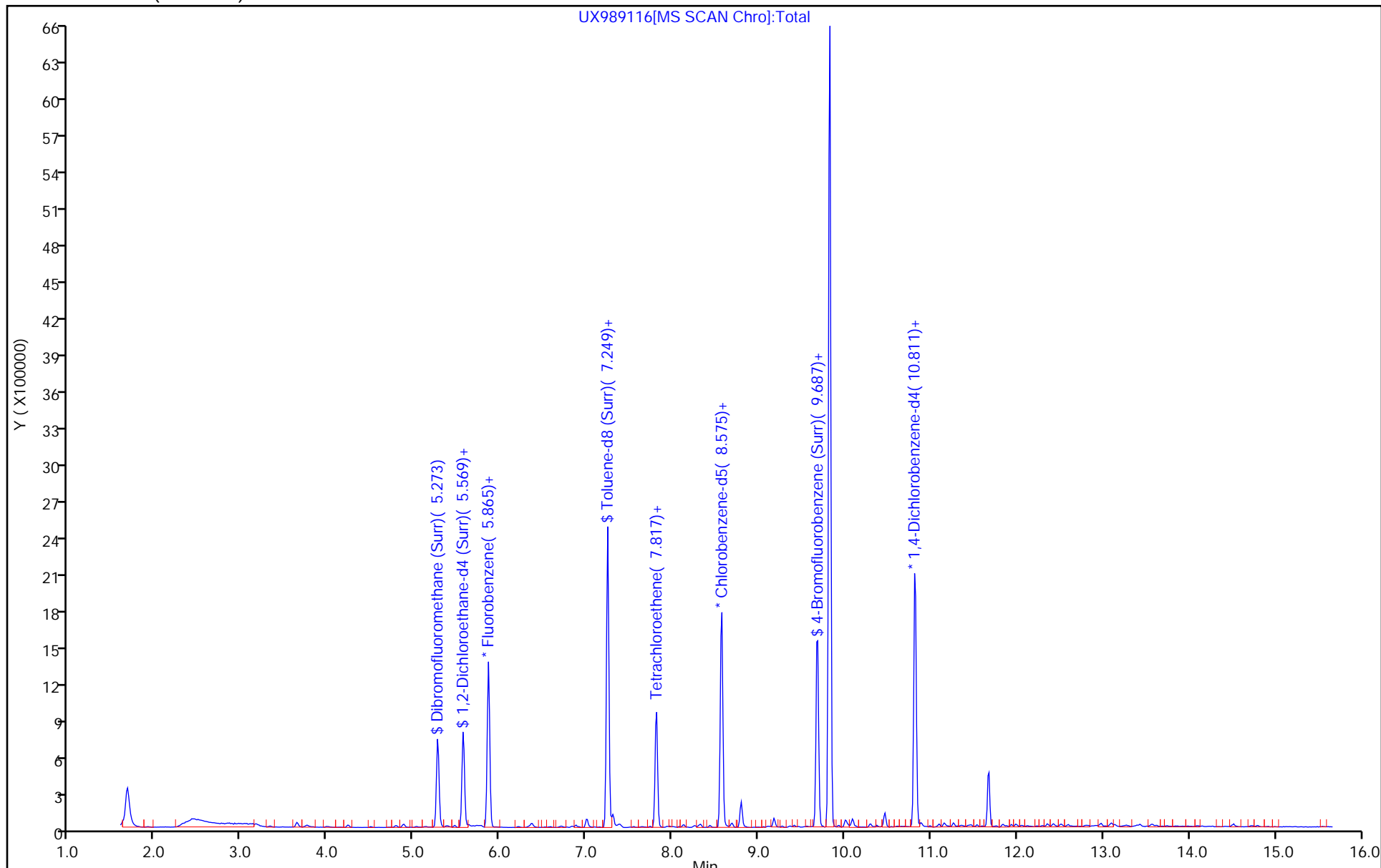
Dil. Factor: 1.0000

ALS Bottle#: 11

Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989116.D
 Lims ID: 240-134119-A-18-A
 Client ID: SB-140 (0.5-1)_072720
 Sample Type: Client
 Inject. Date: 05-Aug-2020 12:48:30 ALS Bottle#: 11 Worklist Smp#: 11
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100687-011
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 12:58:43 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1061

First Level Reviewer: bosworthh Date: 05-Aug-2020 15:06:15

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	24.8	99.13
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	23.3	93.32
\$ 6 Toluene-d8 (Surr)	25.0	20.9	83.67
\$ 7 4-Bromofluorobenzene (Surr)	25.0	20.9	83.53

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989116.D

Injection Date: 05-Aug-2020 12:48:30

Instrument ID: A3UX9

Lims ID: 240-134119-A-18-A

Lab Sample ID: 240-134119-18

Client ID: SB-140 (0.5-1)_072720

Operator ID: 001765

ALS Bottle#: 11 Worklist Smp#: 11

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

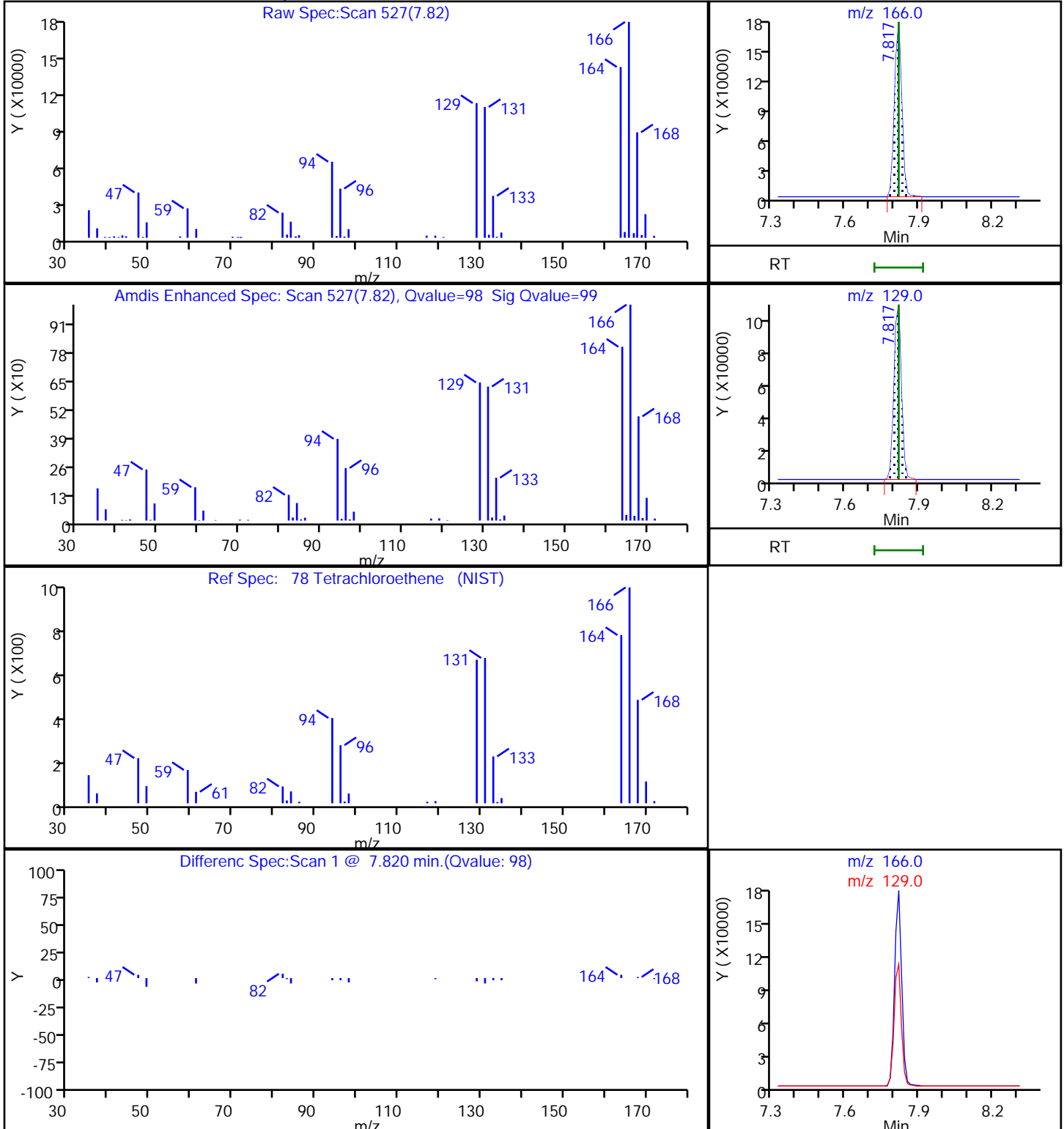
Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

78 Tetrachloroethene, CAS: 127-18-4



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: SB-140 (1-2)_072720 Lab Sample ID: 240-134119-19
 Matrix: Solid Lab File ID: UX989117.D
 Analysis Method: 8260B MI Date Collected: 07/27/2020 13:37
 Sample wt/vol: 10.105(g) Date Analyzed: 08/05/2020 13:10
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 6.4 Level: (low/med) Medium
 Analysis Batch No.: 445702 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	45	U	45	18
123-91-1	1,4-Dioxane	14000	U	14000	1200
156-59-2	cis-1,2-Dichloroethene	45	U	45	10
127-18-4	Tetrachloroethene	1500		45	20
156-60-5	trans-1,2-Dichloroethene	45	U	45	11
79-01-6	Trichloroethene	45	U *	45	12
75-01-4	Vinyl chloride	36	U	36	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	103		47-136
460-00-4	4-Bromofluorobenzene (Surr)	91		51-124
1868-53-7	Dibromofluoromethane (Surr)	107		49-122
2037-26-5	Toluene-d8 (Surr)	90		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989117.D
 Lims ID: 240-134119-A-19-A
 Client ID: SB-140 (1-2)_072720
 Sample Type: Client
 Inject. Date: 05-Aug-2020 13:10:30 ALS Bottle#: 12 Worklist Smp#: 12
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100687-012
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 12:58:43 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1061

First Level Reviewer: bosworth Date: 05-Aug-2020 15:06:46

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.868	5.864	0.004	99	1314946	20.0	
* 2 Chlorobenzene-d5	117	8.566	8.574	-0.008	87	1249912	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.815	10.822	-0.007	94	736986	20.0	
\$ 4 Dibromofluoromethane (Surr)	113	5.277	5.273	0.004	95	458332	25.2	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.573	5.569	0.004	99	595058	24.2	
\$ 6 Toluene-d8 (Surr)	98	7.253	7.249	0.004	93	1782429	21.0	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.679	9.675	0.004	95	647082	21.4	
11 Vinyl chloride	62		2.114				ND	
24 1,1-Dichloroethene	61		3.297				ND	
34 trans-1,2-Dichloroethene	61		3.995				ND	
43 cis-1,2-Dichloroethene	96		4.871				ND	
60 Trichloroethene	130		6.184				ND	
65 1,4-Dioxane	88		6.492				ND	
78 Tetrachloroethene	166	7.821	7.817	0.004	96	643561	27.0	

Reagents:

vm100is_stk_A_00005 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989117.D

Injection Date: 05-Aug-2020 13:10:30

Instrument ID: A3UX9

Operator ID: 001765

Lims ID: 240-134119-A-19-A

Lab Sample ID: 240-134119-19

Worklist Smp#: 12

Client ID: SB-140 (1-2)_072720

Purge Vol: 5.000 mL

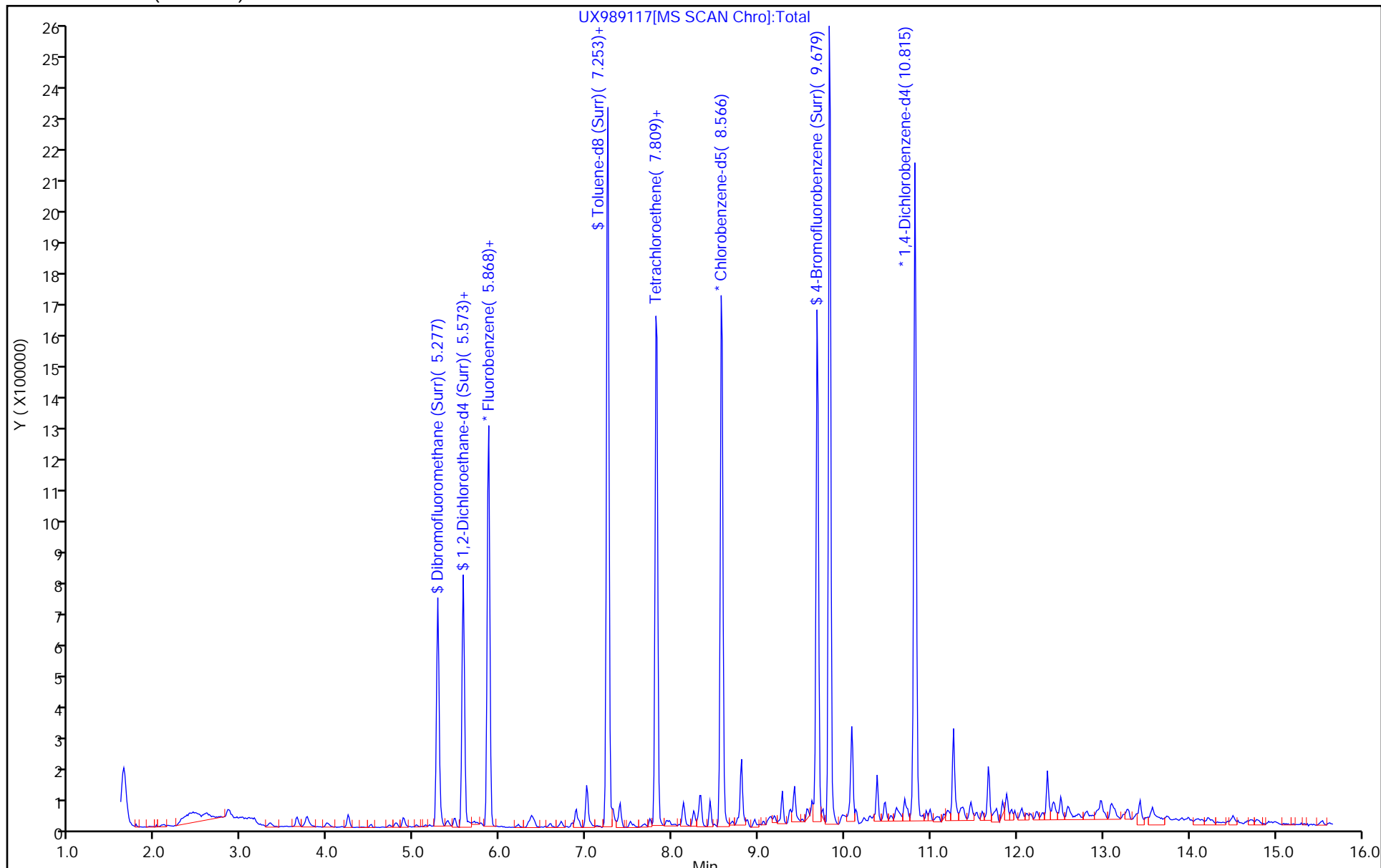
Dil. Factor: 1.0000

ALS Bottle#: 12

Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989117.D
 Lims ID: 240-134119-A-19-A
 Client ID: SB-140 (1-2)_072720
 Sample Type: Client
 Inject. Date: 05-Aug-2020 13:10:30 ALS Bottle#: 12 Worklist Smp#: 12
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100687-012
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 12:58:43 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1061

First Level Reviewer: bosworthh Date: 05-Aug-2020 15:06:46

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	25.2	100.82
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	24.2	96.84
\$ 6 Toluene-d8 (Surr)	25.0	21.0	84.17
\$ 7 4-Bromofluorobenzene (Surr)	25.0	21.4	85.65

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989117.D

Injection Date: 05-Aug-2020 13:10:30

Instrument ID: A3UX9

Lims ID: 240-134119-A-19-A

Lab Sample ID: 240-134119-19

Client ID: SB-140 (1-2)_072720

Operator ID: 001765

ALS Bottle#: 12 Worklist Smp#: 12

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

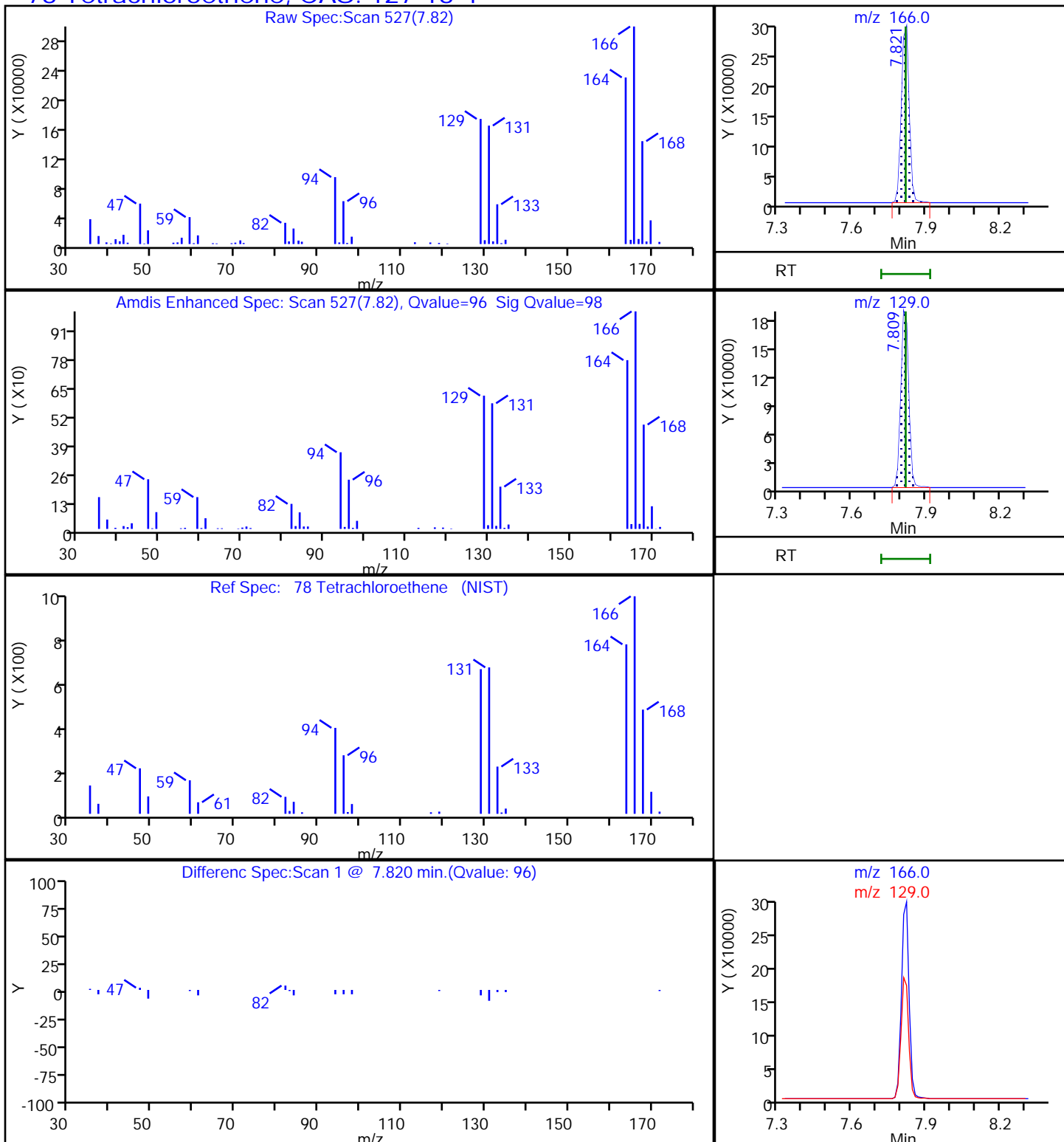
Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

78 Tetrachloroethene, CAS: 127-18-4



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: SB-140 (2-3)_072720 Lab Sample ID: 240-134119-20
 Matrix: Solid Lab File ID: UX989118.D
 Analysis Method: 8260B MI Date Collected: 07/27/2020 14:50
 Sample wt/vol: 10.074(g) Date Analyzed: 08/05/2020 13:33
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 13.0 Level: (low/med) Medium
 Analysis Batch No.: 445702 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	52	U	52	21
123-91-1	1,4-Dioxane	16000	U	16000	1400
156-59-2	cis-1,2-Dichloroethene	52	U	52	12
127-18-4	Tetrachloroethene	1300		52	23
156-60-5	trans-1,2-Dichloroethene	52	U	52	13
79-01-6	Trichloroethene	52	U *	52	14
75-01-4	Vinyl chloride	41	U	41	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	105		47-136
460-00-4	4-Bromofluorobenzene (Surr)	96		51-124
1868-53-7	Dibromofluoromethane (Surr)	114		49-122
2037-26-5	Toluene-d8 (Surr)	96		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989118.D
 Lims ID: 240-134119-A-20-A
 Client ID: SB-140 (2-3)_072720
 Sample Type: Client
 Inject. Date: 05-Aug-2020 13:33:30 ALS Bottle#: 13 Worklist Smp#: 13
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100687-013
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 12:58:43 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1061

First Level Reviewer: bosworth Date: 05-Aug-2020 15:06:59

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.865	5.864	0.001	99	1322474	20.0	
* 2 Chlorobenzene-d5	117	8.574	8.574	0.000	85	1255224	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.823	10.822	0.001	94	732337	20.0	
\$ 4 Dibromofluoromethane (Surr)	113	5.273	5.273	0.000	94	461112	25.2	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.569	5.569	0.000	100	573276	23.2	
\$ 6 Toluene-d8 (Surr)	98	7.249	7.249	0.000	93	1813361	21.3	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.687	9.675	0.012	96	641474	21.1	
11 Vinyl chloride	62		2.114				ND	
24 1,1-Dichloroethene	61		3.297				ND	
34 trans-1,2-Dichloroethene	61		3.995				ND	
43 cis-1,2-Dichloroethene	96		4.871				ND	
60 Trichloroethene	130		6.184				ND	
65 1,4-Dioxane	88		6.492				ND	
78 Tetrachloroethene	166	7.817	7.817	0.000	97	483309	20.2	

Reagents:

vm100is_stk_A_00005 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989118.D

Injection Date: 05-Aug-2020 13:33:30

Instrument ID: A3UX9

Operator ID: 001765

Lims ID: 240-134119-A-20-A

Lab Sample ID: 240-134119-20

Worklist Smp#: 13

Client ID: SB-140 (2-3)_072720

Purge Vol: 5.000 mL

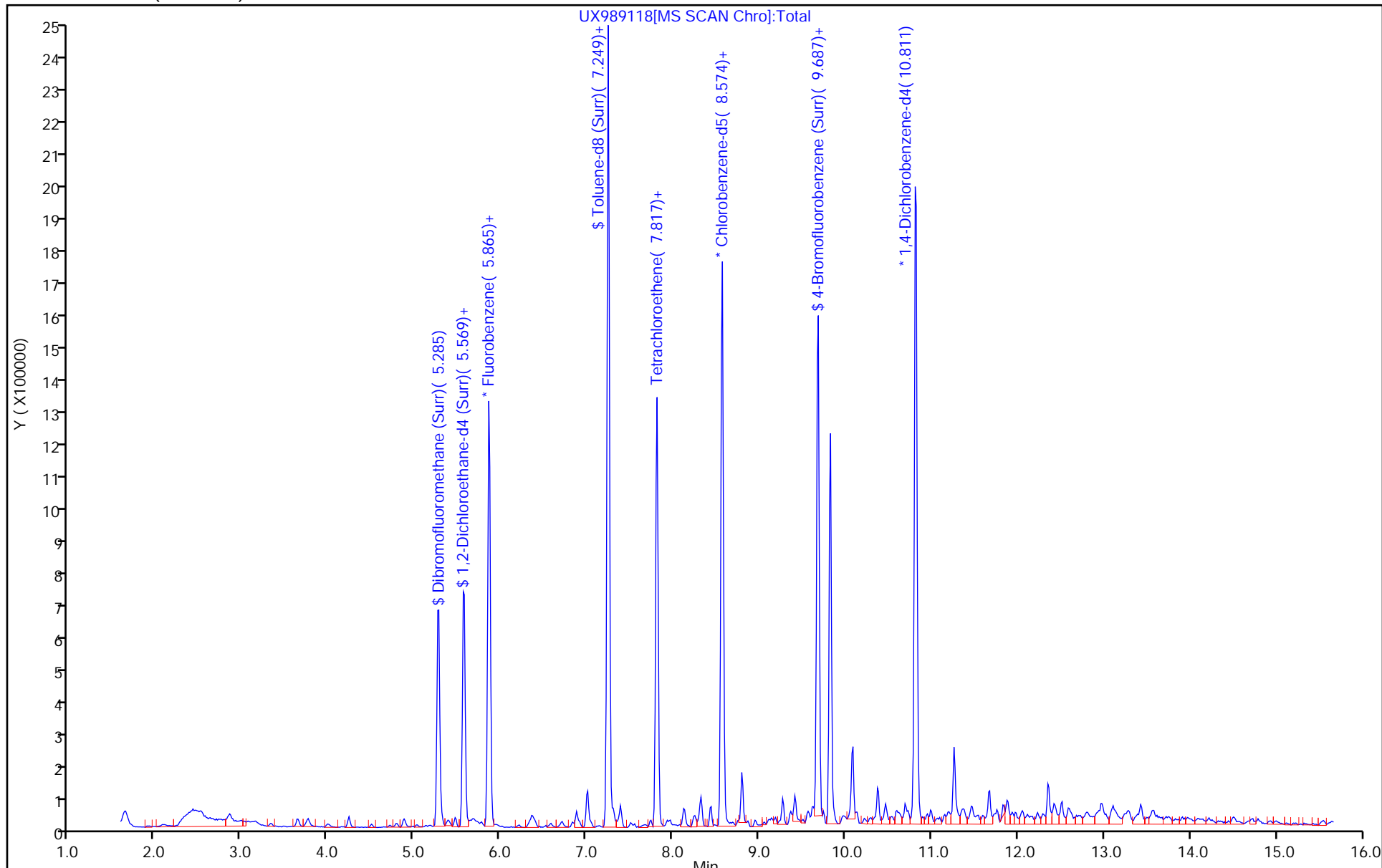
Dil. Factor: 1.0000

ALS Bottle#: 13

Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989118.D
 Lims ID: 240-134119-A-20-A
 Client ID: SB-140 (2-3)_072720
 Sample Type: Client
 Inject. Date: 05-Aug-2020 13:33:30 ALS Bottle#: 13 Worklist Smp#: 13
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100687-013
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 12:58:43 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1061

First Level Reviewer: bosworthh Date: 05-Aug-2020 15:06:59

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	25.2	100.85
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	23.2	92.77
\$ 6 Toluene-d8 (Surr)	25.0	21.3	85.27
\$ 7 4-Bromofluorobenzene (Surr)	25.0	21.1	84.54

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989118.D

Injection Date: 05-Aug-2020 13:33:30

Instrument ID: A3UX9

Lims ID: 240-134119-A-20-A

Lab Sample ID: 240-134119-20

Client ID: SB-140 (2-3)_072720

Operator ID: 001765

ALS Bottle#: 13 Worklist Smp#: 13

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

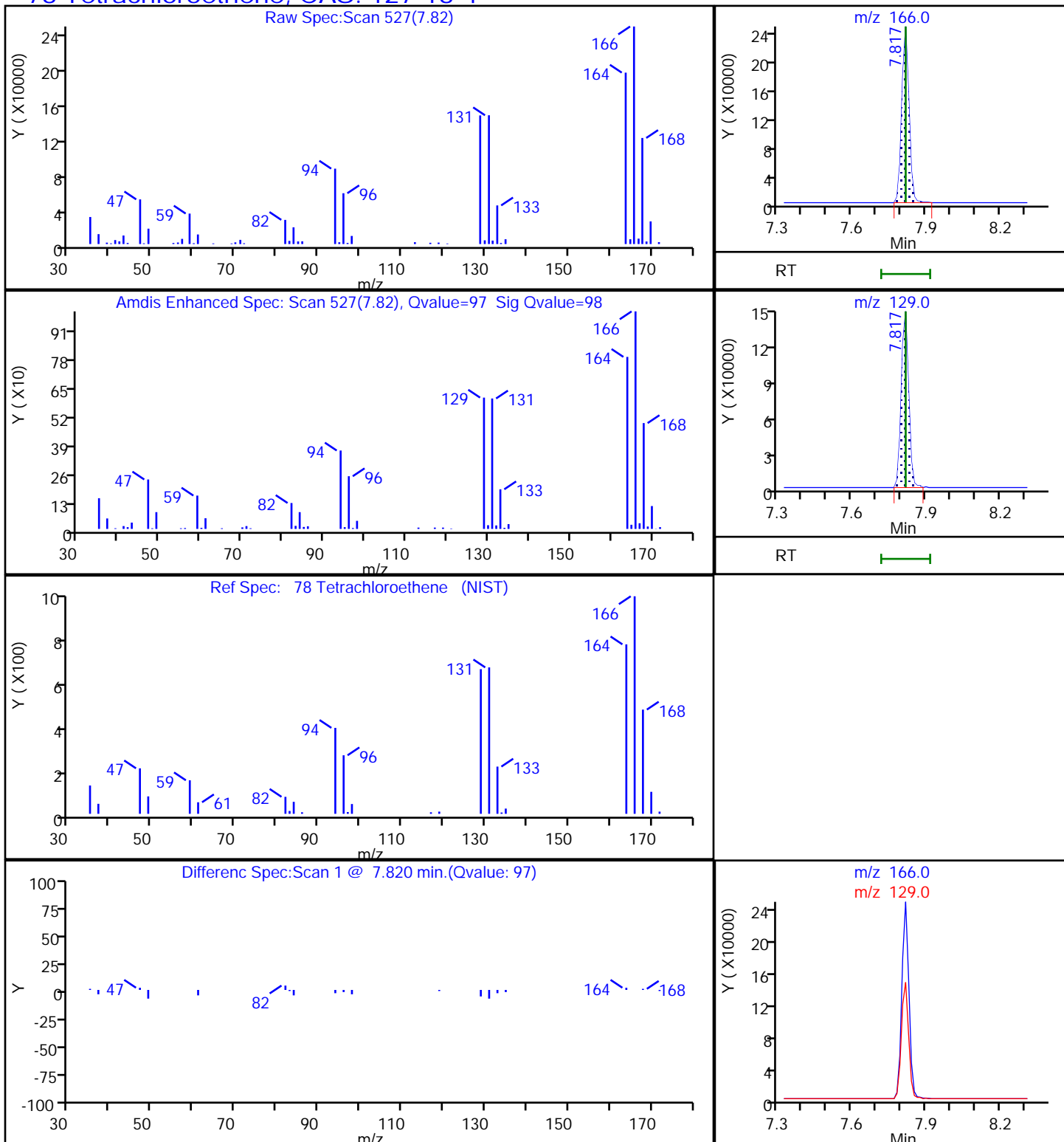
Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

78 Tetrachloroethene, CAS: 127-18-4



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: SB-140 (3-4)_072720 Lab Sample ID: 240-134119-21
 Matrix: Solid Lab File ID: UX989119.D
 Analysis Method: 8260B MI Date Collected: 07/27/2020 14:55
 Sample wt/vol: 9.591(g) Date Analyzed: 08/05/2020 13:55
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 5.3 Level: (low/med) Medium
 Analysis Batch No.: 445702 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	46	U	46	19
123-91-1	1,4-Dioxane	14000	U	14000	1300
156-59-2	cis-1,2-Dichloroethene	46	U	46	10
127-18-4	Tetrachloroethene	300		46	21
156-60-5	trans-1,2-Dichloroethene	46	U	46	12
79-01-6	Trichloroethene	35	J *	46	13
75-01-4	Vinyl chloride	37	U	37	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	102		47-136
460-00-4	4-Bromofluorobenzene (Surr)	89		51-124
1868-53-7	Dibromofluoromethane (Surr)	106		49-122
2037-26-5	Toluene-d8 (Surr)	88		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989119.D
 Lims ID: 240-134119-A-21-A
 Client ID: SB-140 (3-4)_072720
 Sample Type: Client
 Inject. Date: 05-Aug-2020 13:55:30 ALS Bottle#: 14 Worklist Smp#: 14
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100687-014
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 12:58:43 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1061

First Level Reviewer: bosworth Date: 05-Aug-2020 15:07:27

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.864	5.864	0.000	99	1344079	20.0	
* 2 Chlorobenzene-d5	117	8.574	8.574	0.000	86	1276740	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.822	10.822	0.000	94	755086	20.0	
\$ 4 Dibromofluoromethane (Surr)	113	5.273	5.273	0.000	95	466981	25.1	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.568	5.569	-0.001	100	612296	24.4	
\$ 6 Toluene-d8 (Surr)	98	7.249	7.249	0.000	93	1819396	21.0	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.686	9.675	0.011	97	656202	21.3	
11 Vinyl chloride	62		2.114				ND	
24 1,1-Dichloroethene	61		3.297				ND	
34 trans-1,2-Dichloroethene	61		3.995				ND	
43 cis-1,2-Dichloroethene	96	4.870	4.871	-0.001	41	2728	0.1198	
60 Trichloroethene	130	6.184	6.184	0.000	92	12992	0.6089	
65 1,4-Dioxane	88		6.492				ND	
78 Tetrachloroethene	166	7.817	7.817	0.000	96	124729	5.13	

Reagents:

vm100is_stk_A_00005 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989119.D

Injection Date: 05-Aug-2020 13:55:30

Instrument ID: A3UX9

Operator ID: 001765

Lims ID: 240-134119-A-21-A

Lab Sample ID: 240-134119-21

Worklist Smp#: 14

Client ID: SB-140 (3-4)_072720

Purge Vol: 5.000 mL

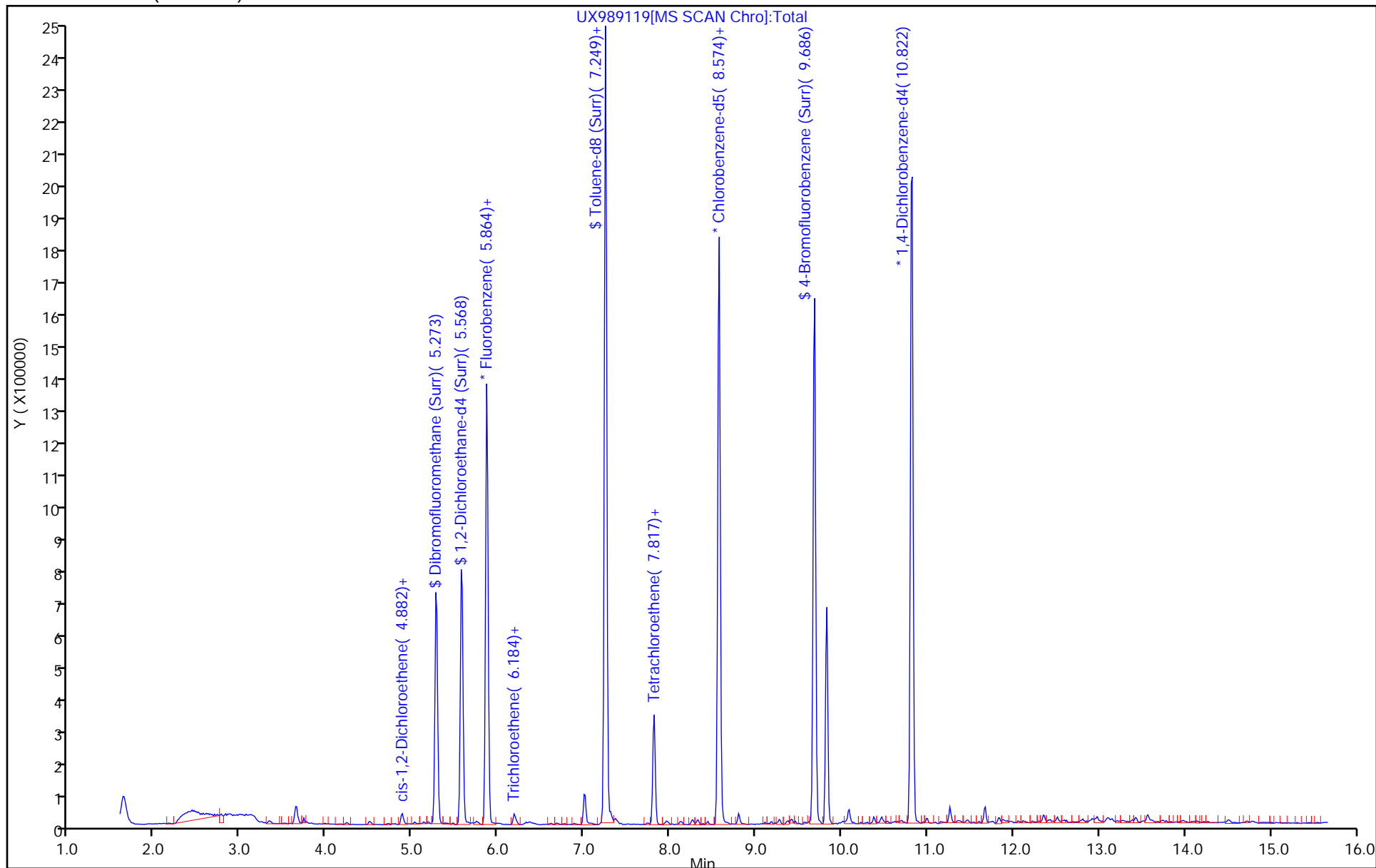
Dil. Factor: 1.0000

ALS Bottle#: 14

Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989119.D
 Lims ID: 240-134119-A-21-A
 Client ID: SB-140 (3-4)_072720
 Sample Type: Client
 Inject. Date: 05-Aug-2020 13:55:30 ALS Bottle#: 14 Worklist Smp#: 14
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100687-014
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 12:58:43 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1061

First Level Reviewer: bosworthh

Date: 05-Aug-2020 15:07:27

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	25.1	100.49
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	24.4	97.49
\$ 6 Toluene-d8 (Surr)	25.0	21.0	84.11
\$ 7 4-Bromofluorobenzene (Surr)	25.0	21.3	85.03

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989119.D

Injection Date: 05-Aug-2020 13:55:30

Instrument ID: A3UX9

Lims ID: 240-134119-A-21-A

Lab Sample ID: 240-134119-21

Client ID: SB-140 (3-4)_072720

Operator ID: 001765

ALS Bottle#: 14 Worklist Smp#: 14

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

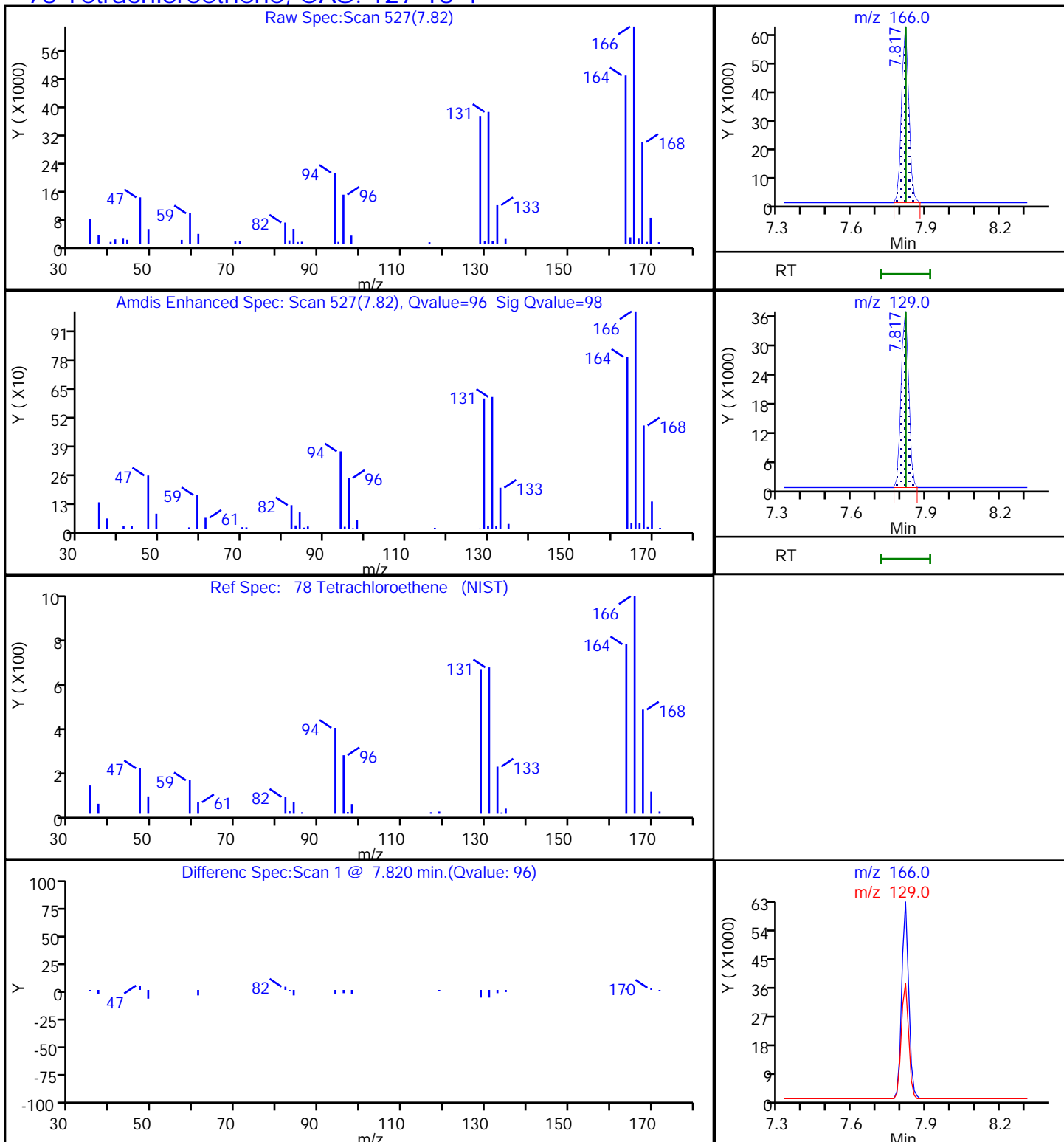
Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

78 Tetrachloroethene, CAS: 127-18-4



Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989119.D

Injection Date: 05-Aug-2020 13:55:30

Instrument ID: A3UX9

Lims ID: 240-134119-A-21-A

Lab Sample ID: 240-134119-21

Client ID: SB-140 (3-4)_072720

Operator ID: 001765

ALS Bottle#: 14

Worklist Smp#: 14

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

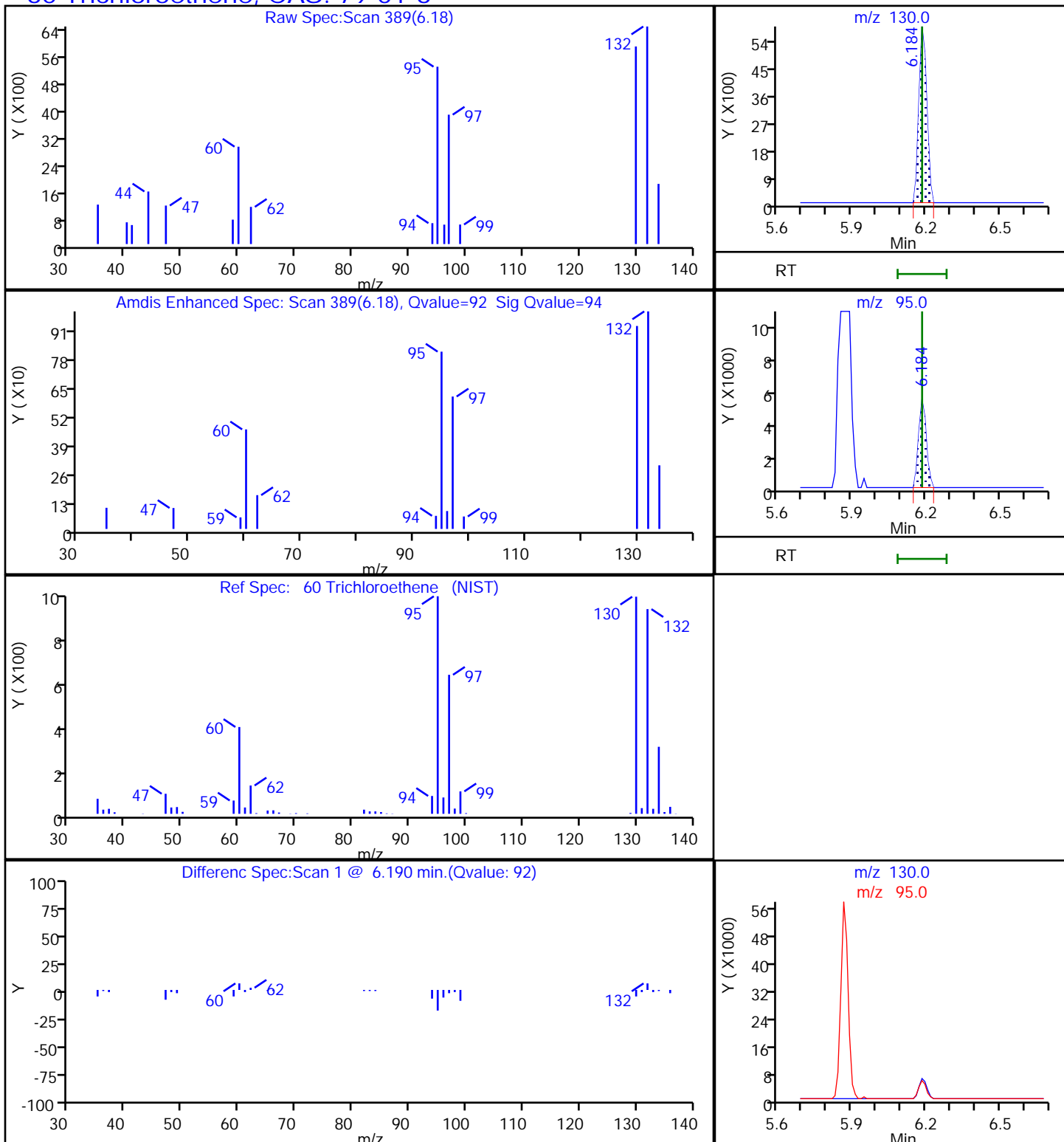
Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

60 Trichloroethene, CAS: 79-01-6



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: SB-140 (5-6)_072720 Lab Sample ID: 240-134119-22
 Matrix: Solid Lab File ID: UX989120.D
 Analysis Method: 8260B MI Date Collected: 07/27/2020 15:06
 Sample wt/vol: 9.482(g) Date Analyzed: 08/05/2020 14:18
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 7.6 Level: (low/med) Medium
 Analysis Batch No.: 445702 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	49	U	49	20
123-91-1	1,4-Dioxane	15000	U	15000	1300
156-59-2	cis-1,2-Dichloroethene	49	U	49	11
127-18-4	Tetrachloroethene	49	U	49	22
156-60-5	trans-1,2-Dichloroethene	49	U	49	12
79-01-6	Trichloroethene	49	U *	49	13
75-01-4	Vinyl chloride	39	U	39	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	106		47-136
460-00-4	4-Bromofluorobenzene (Surr)	91		51-124
1868-53-7	Dibromofluoromethane (Surr)	110		49-122
2037-26-5	Toluene-d8 (Surr)	91		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989120.D
 Lims ID: 240-134119-A-22-A
 Client ID: SB-140 (5-6)_072720
 Sample Type: Client
 Inject. Date: 05-Aug-2020 14:18:30 ALS Bottle#: 15 Worklist Smp#: 15
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100687-015
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 06-Aug-2020 05:47:14 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1028

First Level Reviewer: bosworth Date: 06-Aug-2020 07:48:25

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.865	5.864	0.001	99	1355190	20.0	
* 2 Chlorobenzene-d5	117	8.575	8.574	0.001	85	1297886	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.823	10.822	0.001	94	764574	20.0	
\$ 4 Dibromofluoromethane (Surr)	113	5.274	5.273	0.001	94	480494	25.6	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.570	5.569	0.001	100	624493	24.7	
\$ 6 Toluene-d8 (Surr)	98	7.250	7.249	0.001	93	1858868	21.1	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.676	9.675	0.001	96	666446	21.2	
11 Vinyl chloride	62		2.114				ND	
24 1,1-Dichloroethene	61		3.297				ND	
34 trans-1,2-Dichloroethene	61		3.995				ND	
43 cis-1,2-Dichloroethene	96		4.871				ND	
60 Trichloroethene	130		6.184				ND	
65 1,4-Dioxane	88		6.492				ND	
78 Tetrachloroethene	166	7.818	7.817	0.001	87	2582	0.1044	

Reagents:

vm100is_stk_A_00005 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989120.D

Injection Date: 05-Aug-2020 14:18:30

Instrument ID: A3UX9

Operator ID: 001765

Lims ID: 240-134119-A-22-A

Lab Sample ID: 240-134119-22

Worklist Smp#: 15

Client ID: SB-140 (5-6)_072720

Purge Vol: 5.000 mL

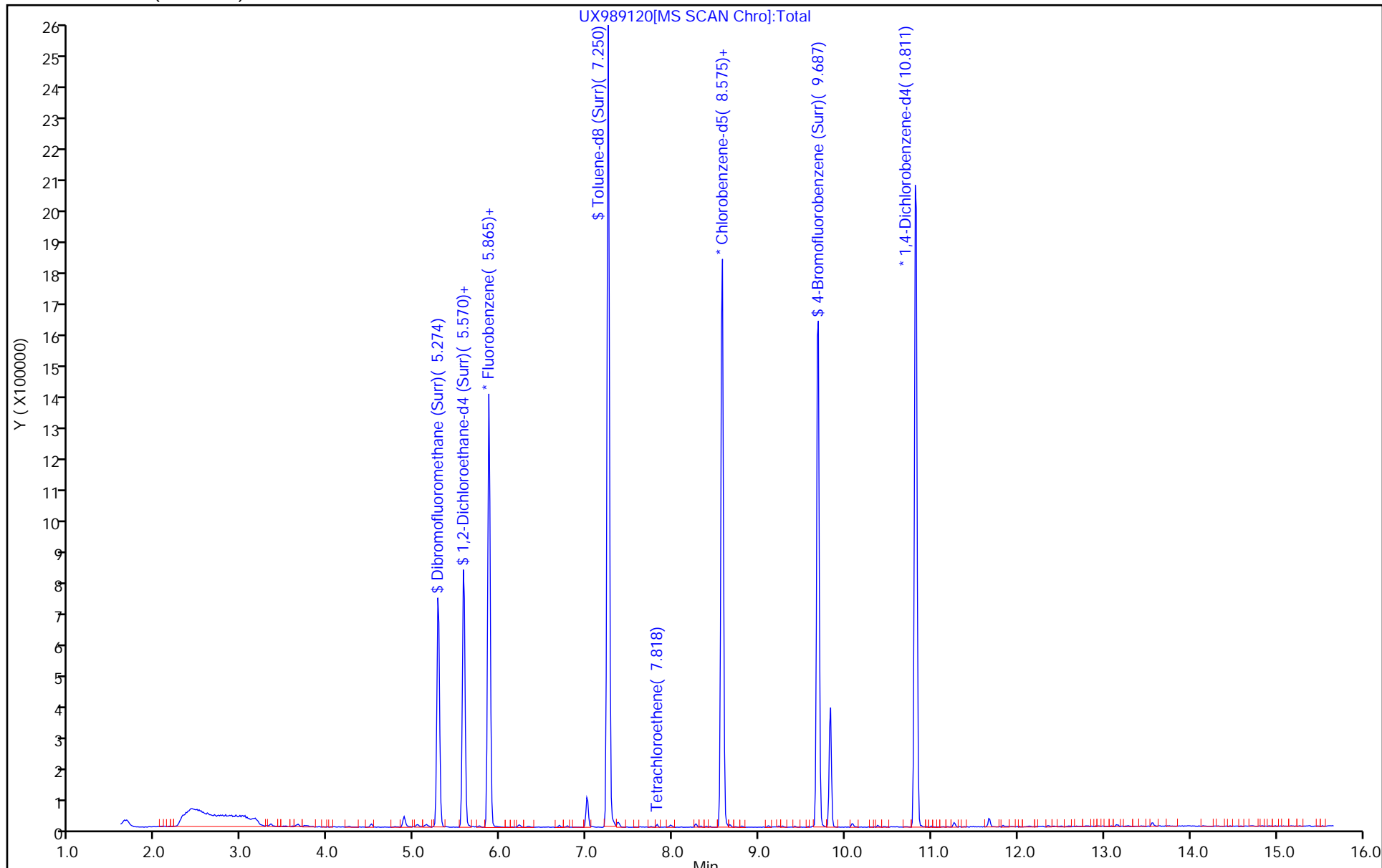
Dil. Factor: 1.0000

ALS Bottle#: 15

Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989120.D
 Lims ID: 240-134119-A-22-A
 Client ID: SB-140 (5-6)_072720
 Sample Type: Client
 Inject. Date: 05-Aug-2020 14:18:30 ALS Bottle#: 15 Worklist Smp#: 15
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100687-015
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 06-Aug-2020 05:47:14 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1028

First Level Reviewer: bosworthh

Date: 06-Aug-2020 07:48:25

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	25.6	102.55
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	24.7	98.62
\$ 6 Toluene-d8 (Surr)	25.0	21.1	84.54
\$ 7 4-Bromofluorobenzene (Surr)	25.0	21.2	84.95

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: SB-140 (6-7)_072720 Lab Sample ID: 240-134119-23
 Matrix: Solid Lab File ID: UX989121.D
 Analysis Method: 8260B MI Date Collected: 07/27/2020 15:09
 Sample wt/vol: 9.348(g) Date Analyzed: 08/05/2020 14:40
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 13.1 Level: (low/med) Medium
 Analysis Batch No.: 445702 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	55	U	55	22
123-91-1	1,4-Dioxane	17000	U	17000	1500
156-59-2	cis-1,2-Dichloroethene	55	U	55	12
127-18-4	Tetrachloroethene	98		55	25
156-60-5	trans-1,2-Dichloroethene	55	U	55	14
79-01-6	Trichloroethene	55	U *	55	15
75-01-4	Vinyl chloride	44	U	44	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	108		47-136
460-00-4	4-Bromofluorobenzene (Surr)	94		51-124
1868-53-7	Dibromofluoromethane (Surr)	112		49-122
2037-26-5	Toluene-d8 (Surr)	94		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989121.D
 Lims ID: 240-134119-A-23-A
 Client ID: SB-140 (6-7)_072720
 Sample Type: Client
 Inject. Date: 05-Aug-2020 14:40:30 ALS Bottle#: 16 Worklist Smp#: 16
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100687-016
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 06-Aug-2020 05:47:14 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1028

First Level Reviewer: bosworthh Date: 06-Aug-2020 07:49:02

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.868	5.864	0.004	99	1363981	20.0	
* 2 Chlorobenzene-d5	117	8.566	8.574	-0.008	86	1287935	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.814	10.822	-0.008	95	747186	20.0	
\$ 4 Dibromofluoromethane (Surr)	113	5.276	5.273	0.003	95	470374	24.9	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.572	5.569	0.003	99	614939	24.1	
\$ 6 Toluene-d8 (Surr)	98	7.252	7.249	0.003	93	1828950	21.0	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.678	9.675	0.003	96	654390	21.0	
11 Vinyl chloride	62		2.114				ND	
24 1,1-Dichloroethene	61		3.297				ND	
34 trans-1,2-Dichloroethene	61		3.995				ND	
43 cis-1,2-Dichloroethene	96		4.871				ND	
60 Trichloroethene	130		6.184				ND	
65 1,4-Dioxane	88		6.492				ND	
78 Tetrachloroethene	166	7.808	7.817	-0.009	95	34786	1.42	

Reagents:

vm100is_stk_A_00005 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989121.D

Injection Date: 05-Aug-2020 14:40:30

Instrument ID: A3UX9

Operator ID: 001765

Lims ID: 240-134119-A-23-A

Lab Sample ID: 240-134119-23

Worklist Smp#: 16

Client ID: SB-140 (6-7)_072720

Purge Vol: 5.000 mL

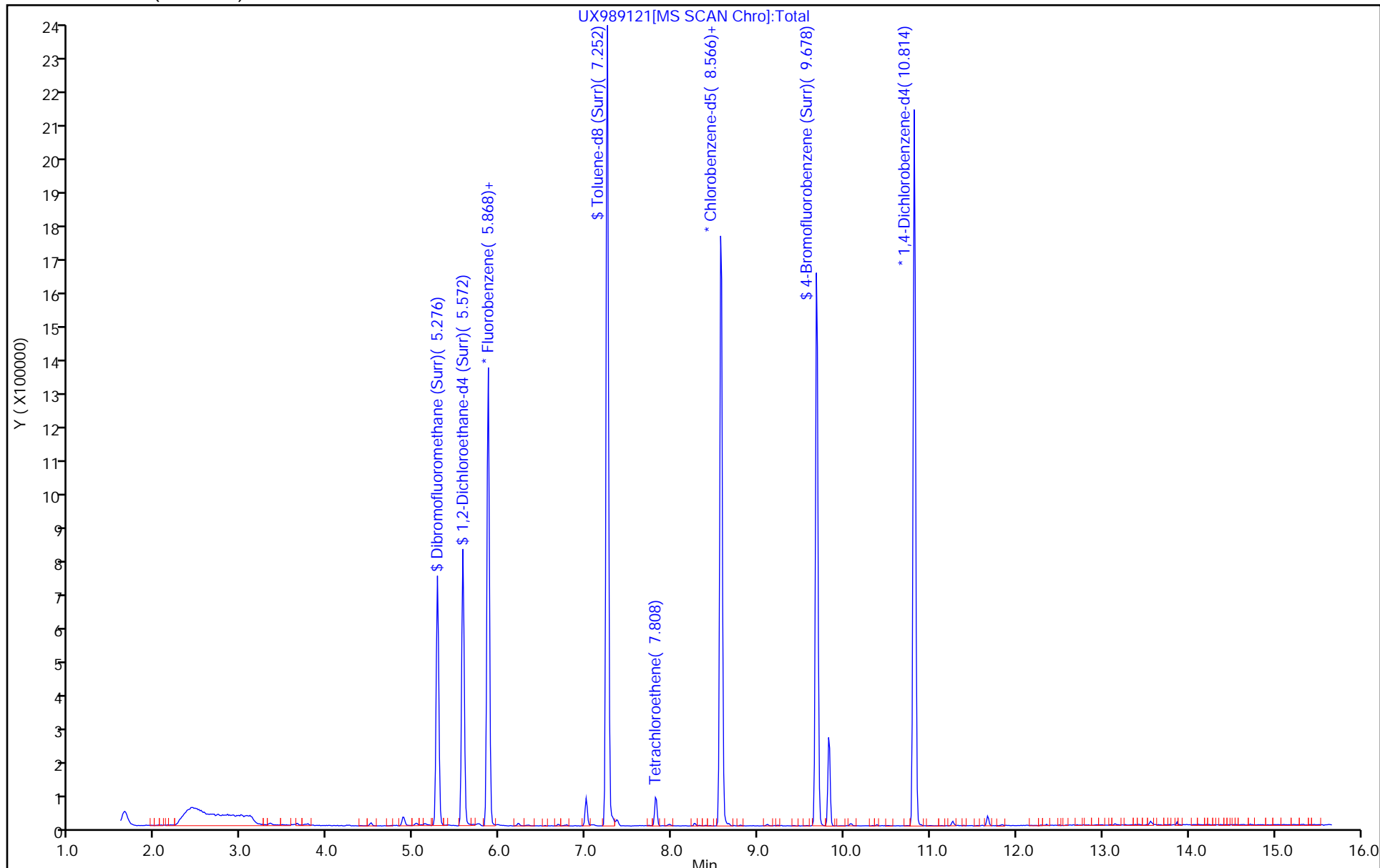
Dil. Factor: 1.0000

ALS Bottle#: 16

Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989121.D
 Lims ID: 240-134119-A-23-A
 Client ID: SB-140 (6-7)_072720
 Sample Type: Client
 Inject. Date: 05-Aug-2020 14:40:30 ALS Bottle#: 16 Worklist Smp#: 16
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100687-016
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 06-Aug-2020 05:47:14 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1028

First Level Reviewer: bosworthh

Date: 06-Aug-2020 07:49:02

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	24.9	99.75
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	24.1	96.48
\$ 6 Toluene-d8 (Surr)	25.0	21.0	83.82
\$ 7 4-Bromofluorobenzene (Surr)	25.0	21.0	84.06

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989121.D

Injection Date: 05-Aug-2020 14:40:30

Instrument ID: A3UX9

Lims ID: 240-134119-A-23-A

Lab Sample ID: 240-134119-23

Client ID: SB-140 (6-7)_072720

Operator ID: 001765

ALS Bottle#: 16

Worklist Smp#: 16

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

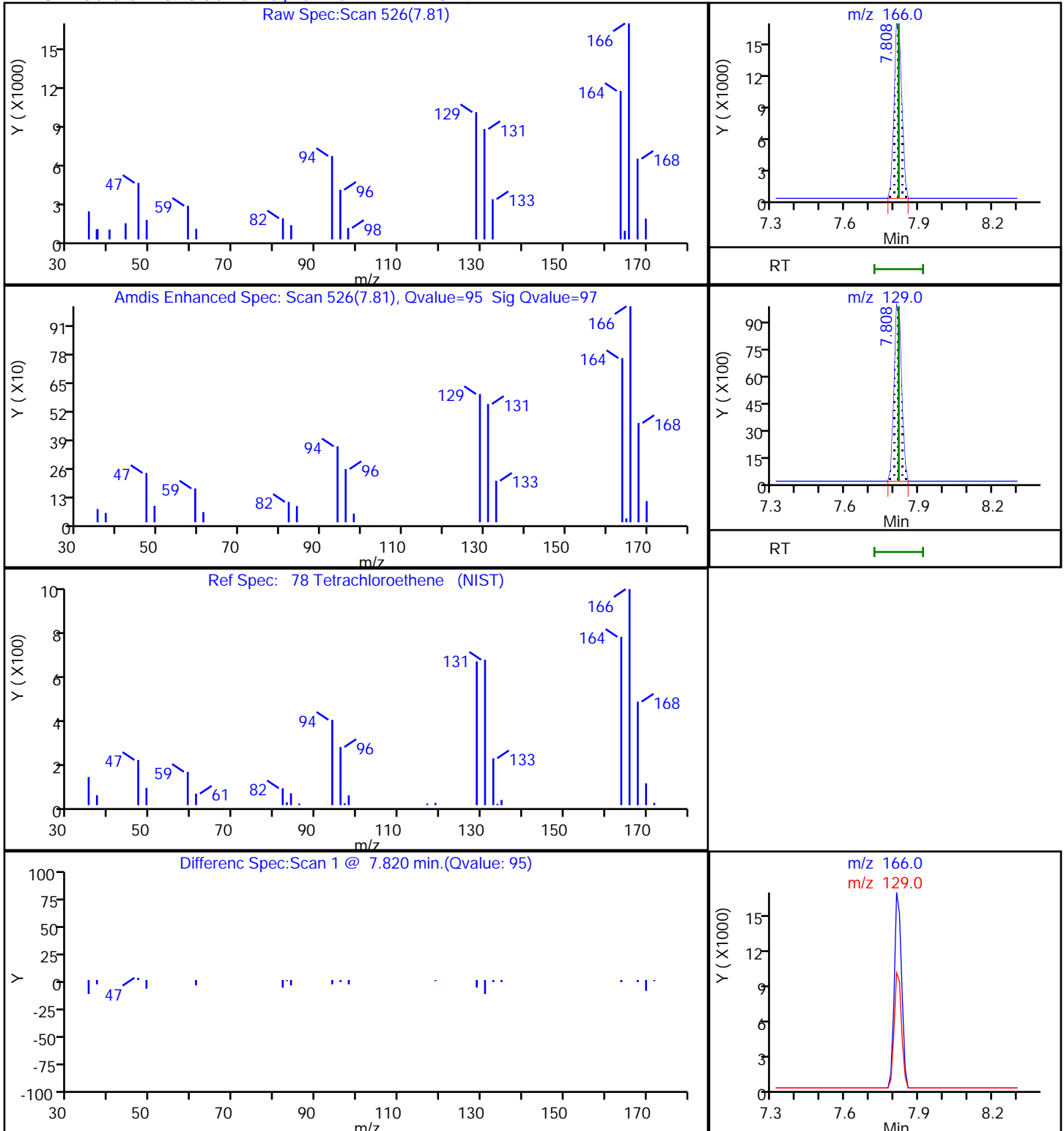
Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

78 Tetrachloroethene, CAS: 127-18-4



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: SB-139 (5-6)_072720 Lab Sample ID: 240-134119-24
 Matrix: Solid Lab File ID: UX989122.D
 Analysis Method: 8260B MI Date Collected: 07/27/2020 15:17
 Sample wt/vol: 10.006(g) Date Analyzed: 08/05/2020 15:03
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 12.3 Level: (low/med) Medium
 Analysis Batch No.: 445702 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	51	U	51	20
123-91-1	1,4-Dioxane	16000	U	16000	1400
156-59-2	cis-1,2-Dichloroethene	51	U	51	12
127-18-4	Tetrachloroethene	86		51	23
156-60-5	trans-1,2-Dichloroethene	51	U	51	13
79-01-6	Trichloroethene	51	U *	51	14
75-01-4	Vinyl chloride	41	U	41	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	109		47-136
460-00-4	4-Bromofluorobenzene (Surr)	94		51-124
1868-53-7	Dibromofluoromethane (Surr)	114		49-122
2037-26-5	Toluene-d8 (Surr)	96		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989122.D
 Lims ID: 240-134119-A-24-A
 Client ID: SB-139 (5-6)_072720
 Sample Type: Client
 Inject. Date: 05-Aug-2020 15:03:30 ALS Bottle#: 17 Worklist Smp#: 17
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100687-017
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 06-Aug-2020 05:47:14 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1028

First Level Reviewer: bosworth Date: 06-Aug-2020 07:49:11

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.865	5.864	0.001	99	1365649	20.0	
* 2 Chlorobenzene-d5	117	8.575	8.574	0.001	86	1274472	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.823	10.822	0.001	94	757726	20.0	
\$ 4 Dibromofluoromethane (Surr)	113	5.273	5.273	0.000	94	477223	25.3	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.569	5.569	0.000	100	621845	24.4	
\$ 6 Toluene-d8 (Surr)	98	7.250	7.249	0.001	93	1849940	21.4	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.675	9.675	0.000	96	647974	21.0	
11 Vinyl chloride	62		2.114				ND	
24 1,1-Dichloroethene	61		3.297				ND	
34 trans-1,2-Dichloroethene	61		3.995				ND	
43 cis-1,2-Dichloroethene	96		4.871				ND	
60 Trichloroethene	130		6.184				ND	
65 1,4-Dioxane	88		6.492				ND	
78 Tetrachloroethene	166	7.818	7.817	0.001	94	32511	1.34	

Reagents:

vm100is_stk_A_00005 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989122.D

Injection Date: 05-Aug-2020 15:03:30

Instrument ID: A3UX9

Operator ID: 001765

Lims ID: 240-134119-A-24-A

Lab Sample ID: 240-134119-24

Worklist Smp#: 17

Client ID: SB-139 (5-6)_072720

Purge Vol: 5.000 mL

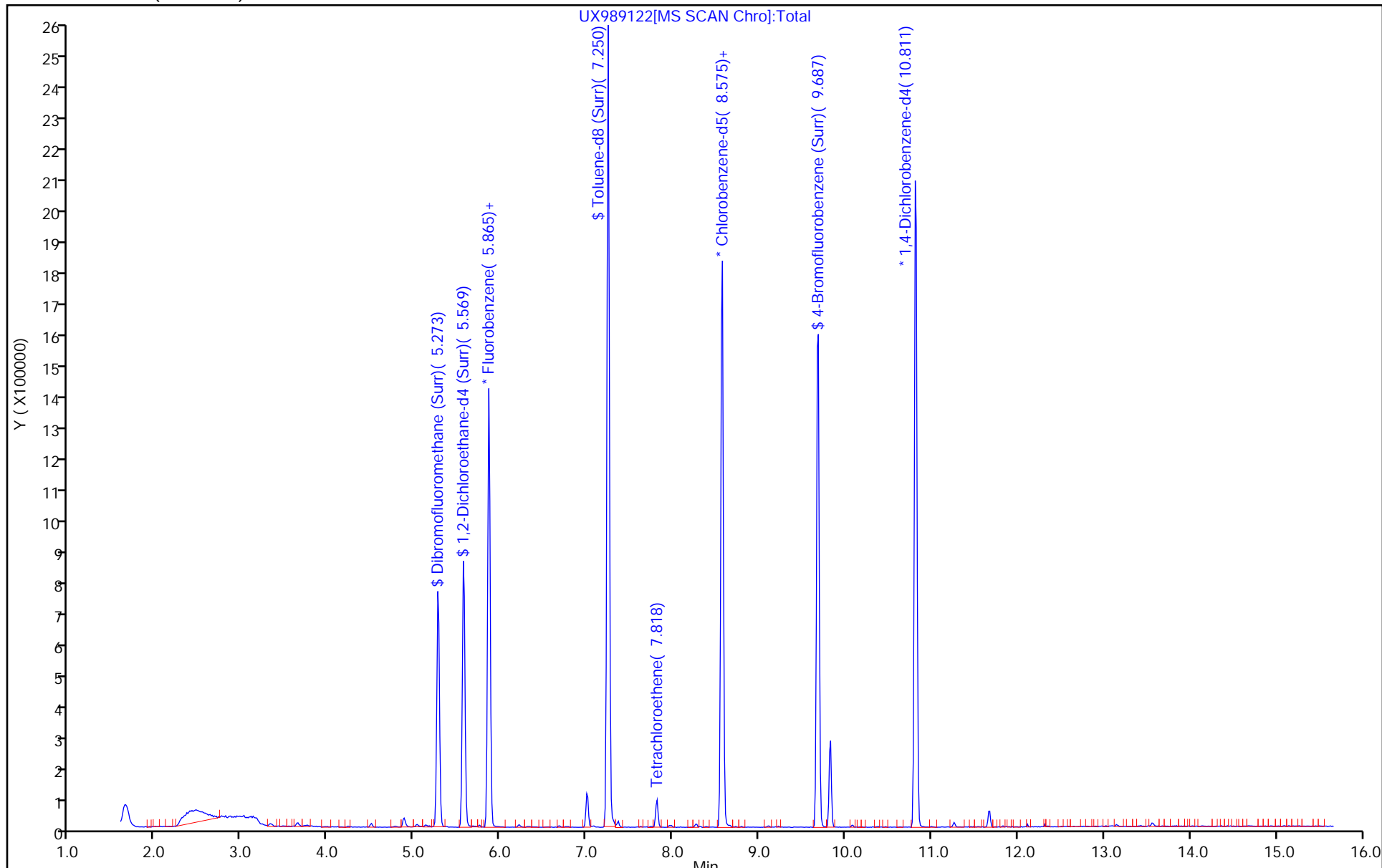
Dil. Factor: 1.0000

ALS Bottle#: 17

Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989122.D
 Lims ID: 240-134119-A-24-A
 Client ID: SB-139 (5-6)_072720
 Sample Type: Client
 Inject. Date: 05-Aug-2020 15:03:30 ALS Bottle#: 17 Worklist Smp#: 17
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100687-017
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 06-Aug-2020 05:47:14 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1028

First Level Reviewer: bosworthh

Date: 06-Aug-2020 07:49:11

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	25.3	101.07
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	24.4	97.45
\$ 6 Toluene-d8 (Surr)	25.0	21.4	85.68
\$ 7 4-Bromofluorobenzene (Surr)	25.0	21.0	84.11

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989122.D

Injection Date: 05-Aug-2020 15:03:30

Instrument ID: A3UX9

Lims ID: 240-134119-A-24-A

Lab Sample ID: 240-134119-24

Client ID: SB-139 (5-6)_072720

Operator ID: 001765

ALS Bottle#: 17 Worklist Smp#: 17

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

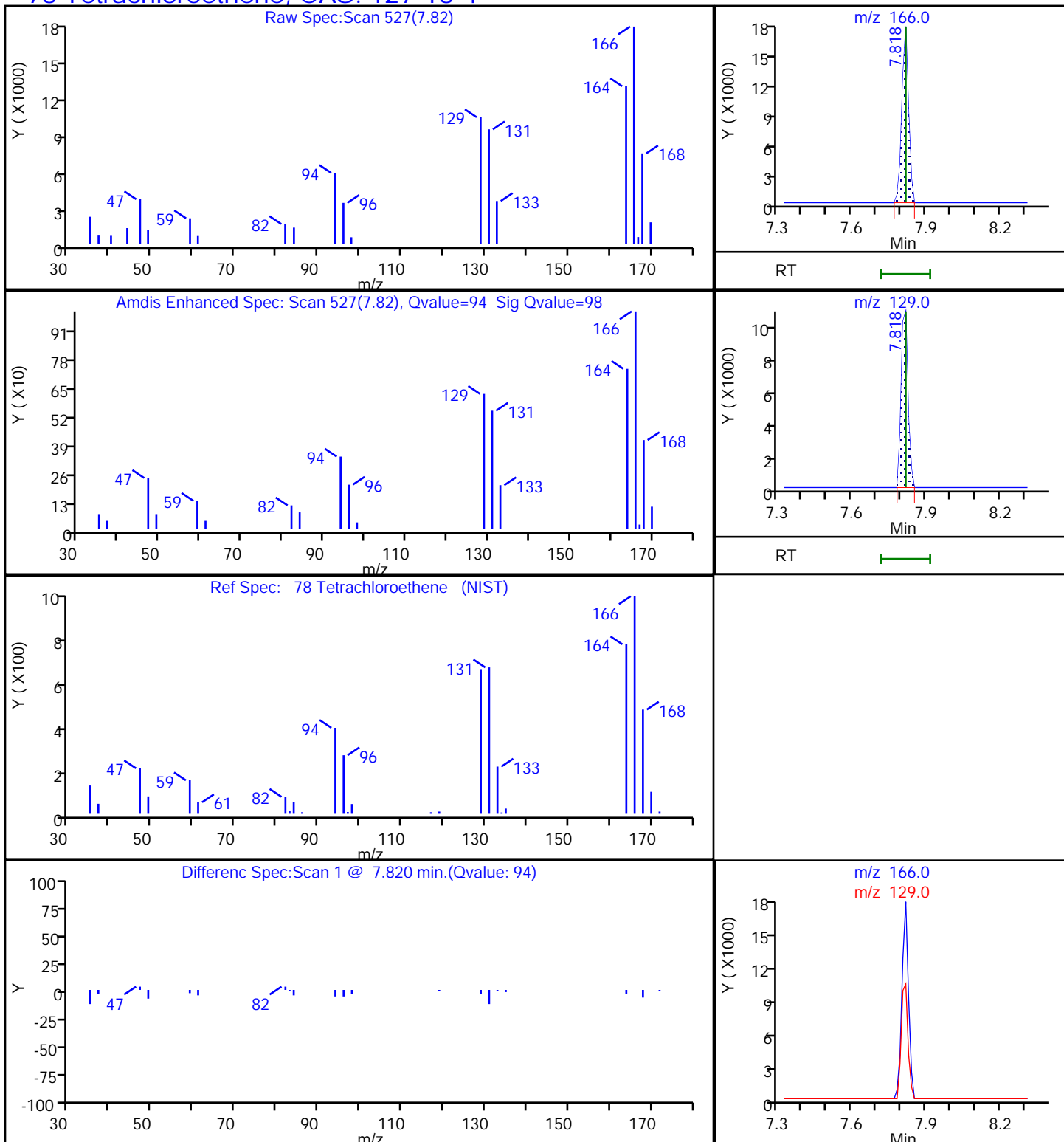
Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

78 Tetrachloroethene, CAS: 127-18-4



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: SB-139 (6-7)_072720 Lab Sample ID: 240-134119-25
 Matrix: Solid Lab File ID: UX989123.D
 Analysis Method: 8260B MI Date Collected: 07/27/2020 15:19
 Sample wt/vol: 9.562(g) Date Analyzed: 08/05/2020 15:25
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 16.3 Level: (low/med) Medium
 Analysis Batch No.: 445702 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	58	U	58	23
123-91-1	1,4-Dioxane	18000	U	18000	1600
156-59-2	cis-1,2-Dichloroethene	58	U	58	13
127-18-4	Tetrachloroethene	140		58	26
156-60-5	trans-1,2-Dichloroethene	58	U	58	14
79-01-6	Trichloroethene	58	U *	58	16
75-01-4	Vinyl chloride	46	U	46	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	105		47-136
460-00-4	4-Bromofluorobenzene (Surr)	93		51-124
1868-53-7	Dibromofluoromethane (Surr)	108		49-122
2037-26-5	Toluene-d8 (Surr)	95		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989123.D
 Lims ID: 240-134119-A-25-A
 Client ID: SB-139 (6-7)_072720
 Sample Type: Client
 Inject. Date: 05-Aug-2020 15:25:30 ALS Bottle#: 18 Worklist Smp#: 18
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100687-018
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 06-Aug-2020 05:47:14 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1028

First Level Reviewer: bosworthh

Date: 06-Aug-2020 07:49:23

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.868	5.864	0.004	99	1373362	20.0	
* 2 Chlorobenzene-d5	117	8.578	8.574	0.004	86	1276271	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.814	10.822	-0.008	95	758610	20.0	
\$ 4 Dibromofluoromethane (Surr)	113	5.276	5.273	0.003	94	445050	23.4	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.572	5.569	0.003	100	585393	22.8	
\$ 6 Toluene-d8 (Surr)	98	7.252	7.249	0.003	93	1774043	20.5	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.678	9.675	0.003	96	624206	20.2	
11 Vinyl chloride	62		2.114				ND	
24 1,1-Dichloroethene	61		3.297				ND	
34 trans-1,2-Dichloroethene	61		3.995				ND	
43 cis-1,2-Dichloroethene	96		4.871				ND	
60 Trichloroethene	130		6.184				ND	
65 1,4-Dioxane	88		6.492				ND	
78 Tetrachloroethene	166	7.820	7.817	0.003	97	47353	1.95	

Reagents:

vm100is_stk_A_00005

Amount Added: 1.00

Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989123.D

Injection Date: 05-Aug-2020 15:25:30

Instrument ID: A3UX9

Operator ID: 001765

Lims ID: 240-134119-A-25-A

Lab Sample ID: 240-134119-25

Worklist Smp#: 18

Client ID: SB-139 (6-7)_072720

Purge Vol: 5.000 mL

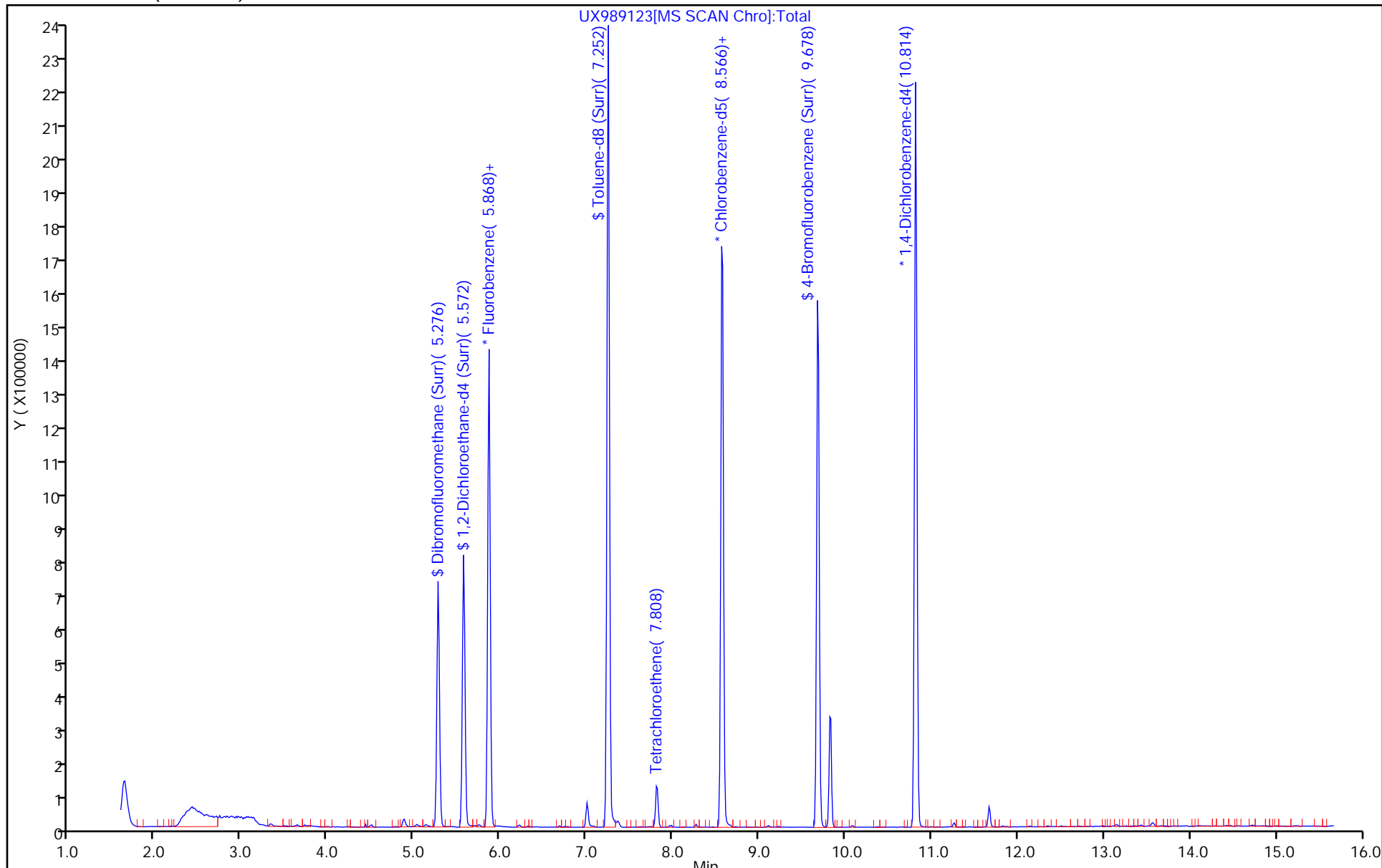
Dil. Factor: 1.0000

ALS Bottle#: 18

Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989123.D
 Lims ID: 240-134119-A-25-A
 Client ID: SB-139 (6-7)_072720
 Sample Type: Client
 Inject. Date: 05-Aug-2020 15:25:30 ALS Bottle#: 18 Worklist Smp#: 18
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100687-018
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 06-Aug-2020 05:47:14 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1028

First Level Reviewer: bosworthh

Date: 06-Aug-2020 07:49:23

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	23.4	93.73
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	22.8	91.22
\$ 6 Toluene-d8 (Surr)	25.0	20.5	82.05
\$ 7 4-Bromofluorobenzene (Surr)	25.0	20.2	80.91

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989123.D

Injection Date: 05-Aug-2020 15:25:30

Instrument ID: A3UX9

Lims ID: 240-134119-A-25-A

Lab Sample ID: 240-134119-25

Client ID: SB-139 (6-7)_072720

Operator ID: 001765

ALS Bottle#: 18 Worklist Smp#: 18

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

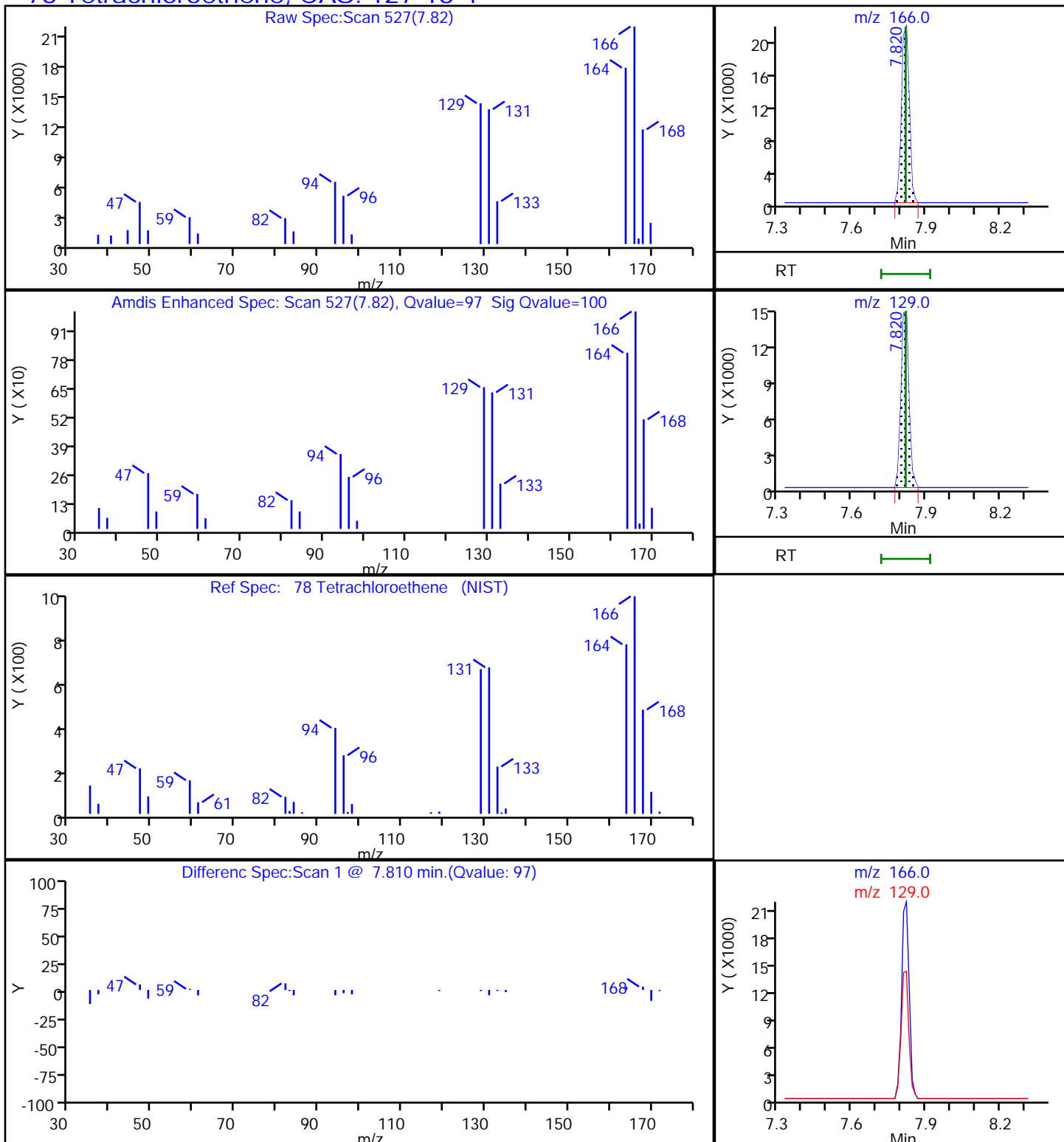
Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

78 Tetrachloroethene, CAS: 127-18-4



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: SB-138 (6-7)_072720 Lab Sample ID: 240-134119-27
 Matrix: Solid Lab File ID: UX989124.D
 Analysis Method: 8260B MI Date Collected: 07/27/2020 15:30
 Sample wt/vol: 10.098(g) Date Analyzed: 08/05/2020 15:48
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 11.1 Level: (low/med) Medium
 Analysis Batch No.: 445702 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	50	U	50	20
123-91-1	1,4-Dioxane	15000	U	15000	1400
156-59-2	cis-1,2-Dichloroethene	50	U	50	11
127-18-4	Tetrachloroethene	50	U	50	22
156-60-5	trans-1,2-Dichloroethene	50	U	50	12
79-01-6	Trichloroethene	50	U *	50	14
75-01-4	Vinyl chloride	40	U	40	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	111		47-136
460-00-4	4-Bromofluorobenzene (Surr)	93		51-124
1868-53-7	Dibromofluoromethane (Surr)	113		49-122
2037-26-5	Toluene-d8 (Surr)	94		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989124.D
 Lims ID: 240-134119-A-27-A
 Client ID: SB-138 (6-7)_072720
 Sample Type: Client
 Inject. Date: 05-Aug-2020 15:48:30 ALS Bottle#: 19 Worklist Smp#: 19
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100687-019
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 06-Aug-2020 05:47:14 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1028

First Level Reviewer: bosworthh Date: 06-Aug-2020 07:49:35

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.866	5.864	0.002	99	1326064	20.0	
* 2 Chlorobenzene-d5	117	8.576	8.574	0.002	85	1246804	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.812	10.822	-0.010	96	734315	20.0	
\$ 4 Dibromofluoromethane (Surr)	113	5.275	5.273	0.002	94	467215	25.5	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.570	5.569	0.001	100	616648	24.9	
\$ 6 Toluene-d8 (Surr)	98	7.251	7.249	0.002	93	1789354	21.2	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.676	9.675	0.001	97	627312	20.8	
11 Vinyl chloride	62		2.114				ND	
24 1,1-Dichloroethene	61		3.297				ND	
34 trans-1,2-Dichloroethene	61		3.995				ND	
43 cis-1,2-Dichloroethene	96		4.871				ND	
60 Trichloroethene	130		6.184				ND	
65 1,4-Dioxane	88		6.492				ND	
78 Tetrachloroethene	166	7.819	7.817	0.002	88	5310	0.2235	

Reagents:

vm100is_stk_A_00005 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989124.D

Injection Date: 05-Aug-2020 15:48:30

Instrument ID: A3UX9

Operator ID: 001765

Lims ID: 240-134119-A-27-A

Lab Sample ID: 240-134119-27

Worklist Smp#: 19

Client ID: SB-138 (6-7)_072720

Purge Vol: 5.000 mL

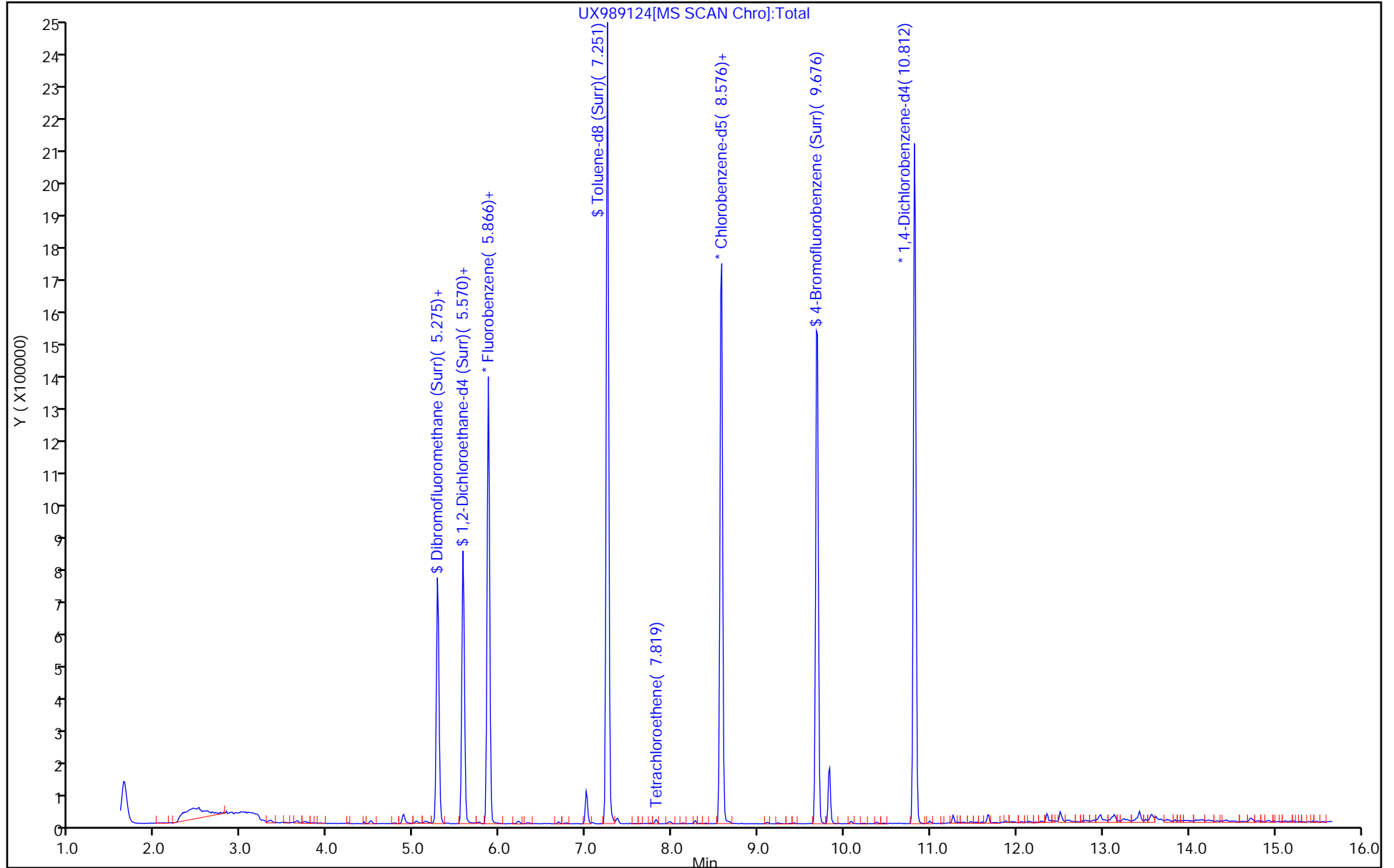
Dil. Factor: 1.0000

ALS Bottle#: 19

Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989124.D
 Lims ID: 240-134119-A-27-A
 Client ID: SB-138 (6-7)_072720
 Sample Type: Client
 Inject. Date: 05-Aug-2020 15:48:30 ALS Bottle#: 19 Worklist Smp#: 19
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100687-019
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 06-Aug-2020 05:47:14 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1028

First Level Reviewer: bosworthh

Date: 06-Aug-2020 07:49:35

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	25.5	101.91
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	24.9	99.52
\$ 6 Toluene-d8 (Surr)	25.0	21.2	84.71
\$ 7 4-Bromofluorobenzene (Surr)	25.0	20.8	83.24

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: DUP-01 Lab Sample ID: 240-134119-30
 Matrix: Solid Lab File ID: U1916166.d
 Analysis Method: 8260B MI Date Collected: 07/27/2020 00:00
 Sample wt/vol: 9.732(g) Date Analyzed: 08/06/2020 20:22
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 9.1 Level: (low/med) Medium
 Analysis Batch No.: 446008 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	49	U	49	20
123-91-1	1,4-Dioxane	15000	U	15000	1300
156-59-2	cis-1,2-Dichloroethene	49	U	49	11
127-18-4	Tetrachloroethene	65		49	22
156-60-5	trans-1,2-Dichloroethene	49	U	49	12
79-01-6	Trichloroethene	49	U	49	14
75-01-4	Vinyl chloride	39	U	39	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	82		47-136
460-00-4	4-Bromofluorobenzene (Surr)	83		51-124
1868-53-7	Dibromofluoromethane (Surr)	83		49-122
2037-26-5	Toluene-d8 (Surr)	95		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX19\20200806-100740.b\U1916166.d
 Lims ID: 240-134119-A-30-A
 Client ID: DUP-01
 Sample Type: Client
 Inject. Date: 06-Aug-2020 20:22:59 ALS Bottle#: 0 Worklist Smp#: 12
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100740-012
 Operator ID: 001904 Instrument ID: A3UX19
 Method: \\chromfs\Canton\ChromData\A3UX19\20200806-100740.b\8260_19.m
 Limit Group: MSV 8260B ICAL
 Last Update: 06-Aug-2020 18:40:21 Calib Date: 09-Jun-2020 21:22:13
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX19\20200609-98977.b\U1914735.d
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1070

First Level Reviewer: laveyt

Date: 06-Aug-2020 20:48:53

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.653	5.666	-0.013	99	977391	20.0	
* 2 Chlorobenzene-d5	117	8.499	8.500	-0.001	86	705424	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.895	10.883	0.012	95	353116	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	5.049	5.061	-0.013	94	249435	19.0	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.357	5.357	0.000	96	285622	18.9	
\$ 6 Toluene-d8 (Surr)	98	7.112	7.112	0.000	93	925875	21.9	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.685	9.686	-0.001	91	304571	19.1	
12 Vinyl chloride	62		1.918				ND	
20 1,1-Dichloroethene	61		3.033				ND	
32 trans-1,2-Dichloroethene	61	3.720	3.744	-0.024	81	1841	0.1112	
41 cis-1,2-Dichloroethene	96		4.634				ND	
59 Trichloroethene	130		5.998				ND	
65 1,4-Dioxane	88		6.306				ND	
75 Tetrachloroethene	166	7.705	7.705	0.000	98	16201	1.07	

Reagents:

vm50is_stk_A_00006

Amount Added: 2.00

Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX19\20200806-100740.b\U1916166.d

Injection Date: 06-Aug-2020 20:22:59

Instrument ID: A3UX19

Operator ID: 001904

Lims ID: 240-134119-A-30-A

Lab Sample ID: 240-134119-30

Worklist Smp#: 12

Client ID: DUP-01

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

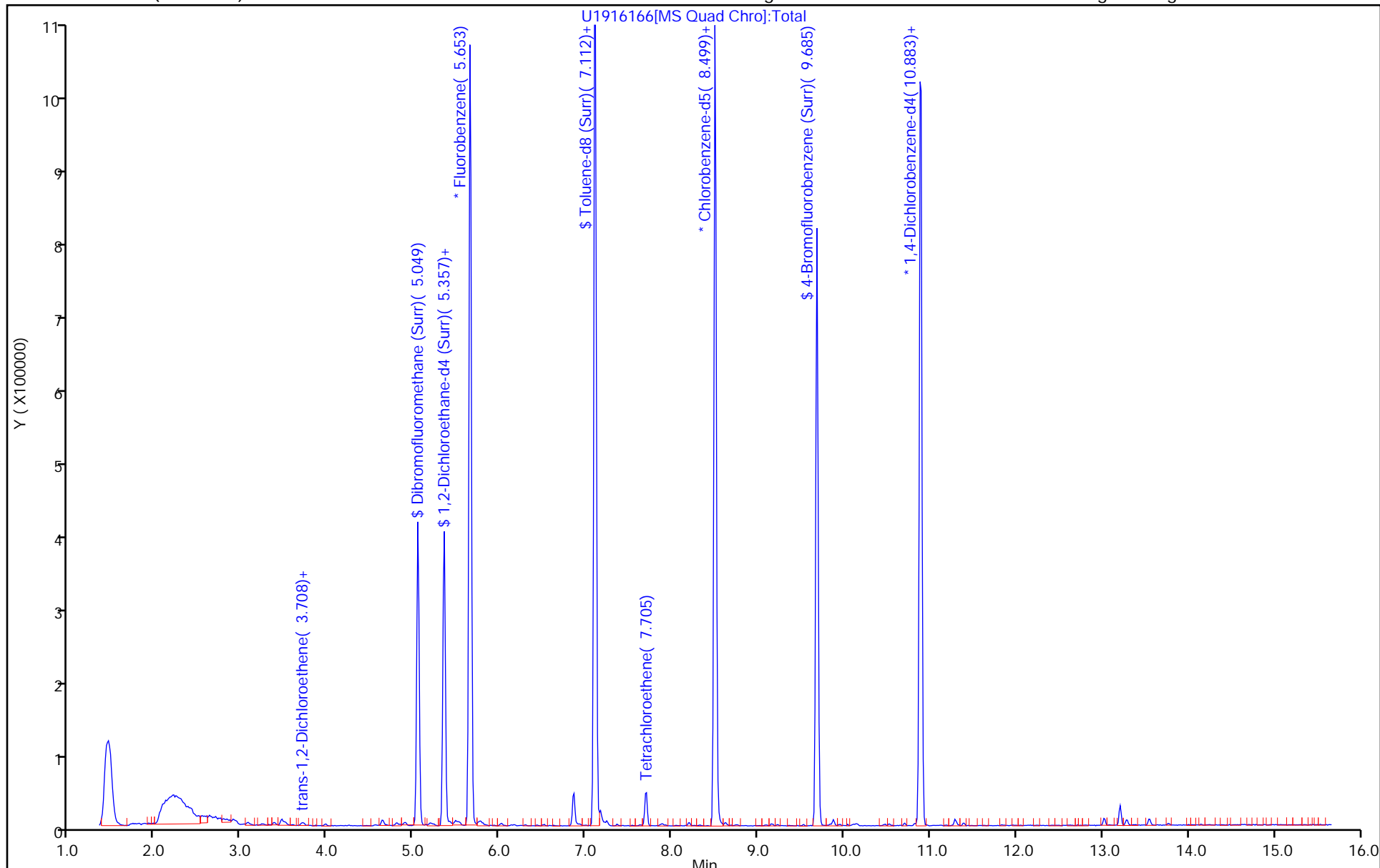
ALS Bottle#: 0

Method: 8260_19

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX19\20200806-100740.b\U1916166.d
 Lims ID: 240-134119-A-30-A
 Client ID: DUP-01
 Sample Type: Client
 Inject. Date: 06-Aug-2020 20:22:59 ALS Bottle#: 0 Worklist Smp#: 12
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100740-012
 Operator ID: 001904 Instrument ID: A3UX19
 Method: \\chromfs\Canton\ChromData\A3UX19\20200806-100740.b\8260_19.m
 Limit Group: MSV 8260B ICAL
 Last Update: 06-Aug-2020 18:40:21 Calib Date: 09-Jun-2020 21:22:13
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX19\20200609-98977.b\U1914735.d
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1070

First Level Reviewer: laveyt Date: 06-Aug-2020 20:48:53

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	19.0	75.84
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	18.9	75.61
\$ 6 Toluene-d8 (Surr)	25.0	21.9	87.55
\$ 7 4-Bromofluorobenzene (Surr)	25.0	19.1	76.54

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX19\20200806-100740.b\U1916166.d

Injection Date: 06-Aug-2020 20:22:59

Instrument ID: A3UX19

Lims ID: 240-134119-A-30-A

Lab Sample ID: 240-134119-30

Client ID: DUP-01

Operator ID: 001904

ALS Bottle#: 0 Worklist Smp#: 12

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

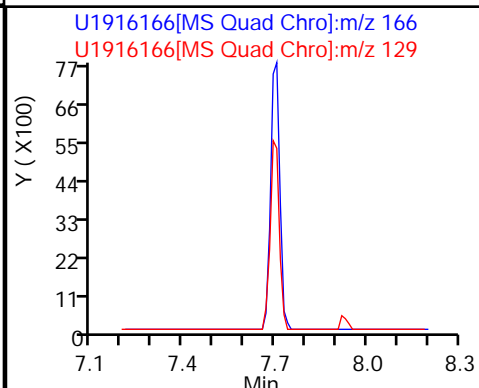
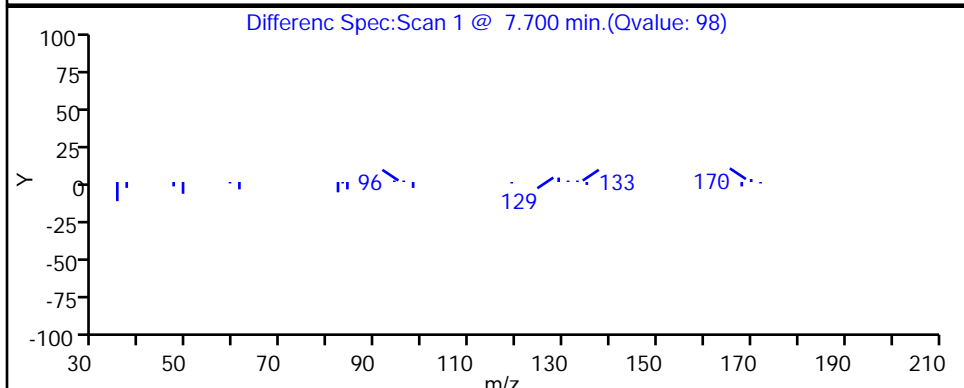
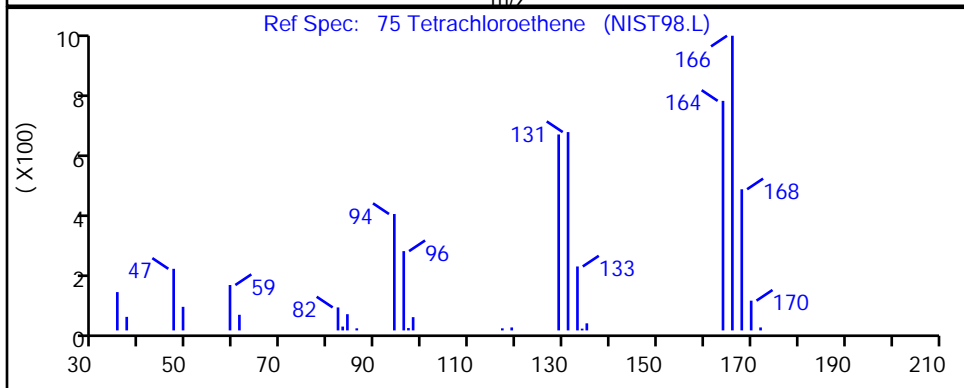
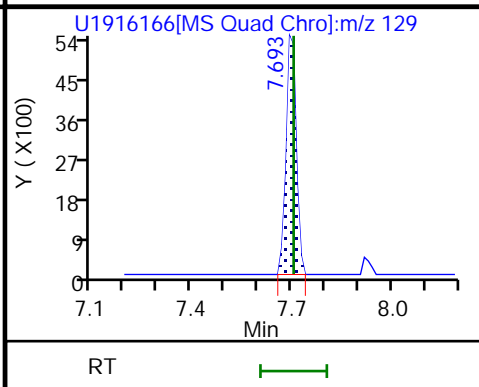
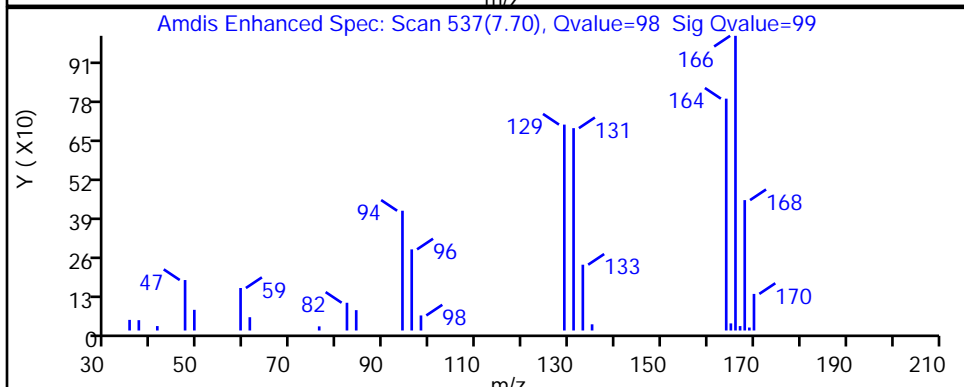
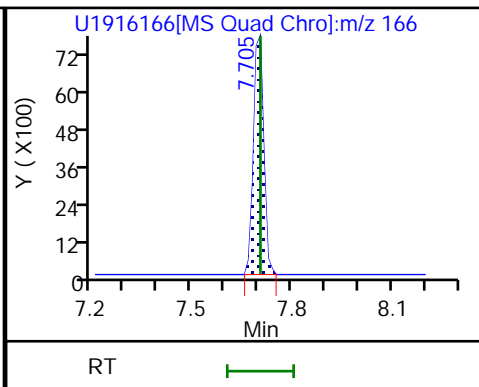
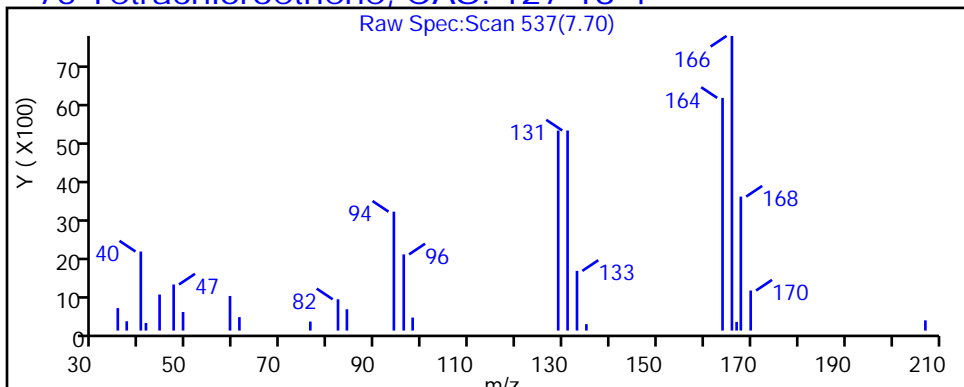
Method: 8260_19

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

75 Tetrachloroethene, CAS: 127-18-4



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: DUP-02 Lab Sample ID: 240-134119-31
 Matrix: Solid Lab File ID: U1916167.d
 Analysis Method: 8260B MI Date Collected: 07/27/2020 00:00
 Sample wt/vol: 10.076(g) Date Analyzed: 08/06/2020 20:45
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0 (mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 16.1 Level: (low/med) Medium
 Analysis Batch No.: 446008 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	55	U	55	22
123-91-1	1,4-Dioxane	17000	U	17000	1500
156-59-2	cis-1,2-Dichloroethene	55	U	55	12
127-18-4	Tetrachloroethene	55	U	55	25
156-60-5	trans-1,2-Dichloroethene	55	U	55	14
79-01-6	Trichloroethene	55	U	55	15
75-01-4	Vinyl chloride	44	U	44	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	86		47-136
460-00-4	4-Bromofluorobenzene (Surr)	81		51-124
1868-53-7	Dibromofluoromethane (Surr)	86		49-122
2037-26-5	Toluene-d8 (Surr)	95		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX19\20200806-100740.b\U1916167.d
 Lims ID: 240-134119-A-31-A
 Client ID: DUP-02
 Sample Type: Client
 Inject. Date: 06-Aug-2020 20:45:17 ALS Bottle#: 0 Worklist Smp#: 13
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100740-013
 Operator ID: 001904 Instrument ID: A3UX19
 Method: \\chromfs\Canton\ChromData\A3UX19\20200806-100740.b\8260_19.m
 Limit Group: MSV 8260B ICAL
 Last Update: 07-Aug-2020 02:08:08 Calib Date: 09-Jun-2020 21:22:13
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX19\20200609-98977.b\U1914735.d
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1003

First Level Reviewer: laveyt Date: 07-Aug-2020 13:43:32

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.654	5.666	-0.012	99	988828	20.0	
* 2 Chlorobenzene-d5	117	8.500	8.500	0.000	85	708199	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.895	10.883	0.012	95	357512	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	5.049	5.061	-0.012	94	245769	18.5	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.357	5.357	0.000	96	281912	18.4	
\$ 6 Toluene-d8 (Surr)	98	7.112	7.112	0.000	93	867213	20.4	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.686	9.686	0.000	91	278319	17.4	
12 Vinyl chloride	62		1.918				ND	
20 1,1-Dichloroethene	61		3.033				ND	
32 trans-1,2-Dichloroethene	61		3.744				ND	
41 cis-1,2-Dichloroethene	96		4.634				ND	
59 Trichloroethene	130		5.998				ND	
65 1,4-Dioxane	88		6.306				ND	
75 Tetrachloroethene	166		7.705				ND	

Reagents:

vm50is_stk_A_00006 Amount Added: 2.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX19\20200806-100740.b\U1916167.d

Injection Date: 06-Aug-2020 20:45:17

Instrument ID: A3UX19

Operator ID: 001904

Lims ID: 240-134119-A-31-A

Lab Sample ID: 240-134119-31

Worklist Smp#: 13

Client ID: DUP-02

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

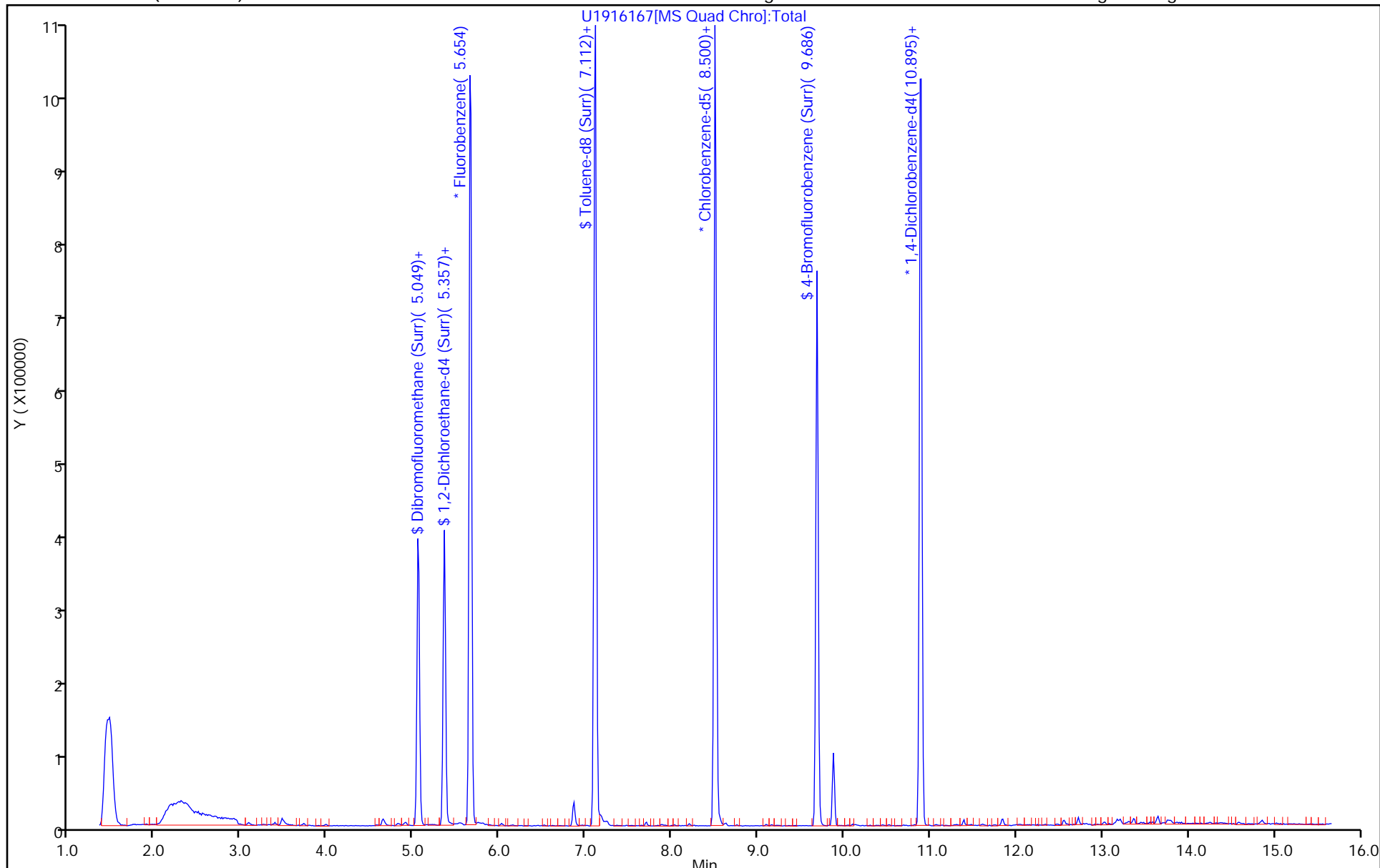
ALS Bottle#: 0

Method: 8260_19

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX19\20200806-100740.b\U1916167.d
 Lims ID: 240-134119-A-31-A
 Client ID: DUP-02
 Sample Type: Client
 Inject. Date: 06-Aug-2020 20:45:17 ALS Bottle#: 0 Worklist Smp#: 13
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100740-013
 Operator ID: 001904 Instrument ID: A3UX19
 Method: \\chromfs\Canton\ChromData\A3UX19\20200806-100740.b\8260_19.m
 Limit Group: MSV 8260B ICAL
 Last Update: 07-Aug-2020 02:08:08 Calib Date: 09-Jun-2020 21:22:13
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX19\20200609-98977.b\U1914735.d
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1003

First Level Reviewer: laveyt

Date: 07-Aug-2020 13:43:32

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	18.5	73.86
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	18.4	73.76
\$ 6 Toluene-d8 (Surr)	25.0	20.4	81.68
\$ 7 4-Bromofluorobenzene (Surr)	25.0	17.4	69.67

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 442964

SDG No.: _____

Instrument ID: A3UX12 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/16/2020 17:43 Calibration End Date: 07/16/2020 20:20 Calibration ID: 57832

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD8260 240-442964/9	U1279113.D
Level 2	STD8260 240-442964/10	U1279114.D
Level 3	STD8260 240-442964/11	U1279115.D
Level 4	STD8260 240-442964/12	U1279116.D
Level 5	ICIS 240-442964/13	U1279117.D
Level 6	STD8260 240-442964/14	U1279118.D
Level 7	STD8260 240-442964/15	U1279119.D
Level 8	STD8260 240-442964/16	U1279120.D

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7	LVL 8														
Dichlorodifluoromethane	0.2390 0.3129	0.2536 0.3252	0.3597 0.3162	0.3422	0.3504	Ave		0.3124			14.1		15.0				
Chloromethane	++++ 0.4740	0.4519 0.4911	0.6754 0.4935	0.5272	0.6043	Lin1	0.1545	0.5001		0.1000				0.9920		0.9900	
Butadiene	0.3380 0.3348	0.3323 0.3375	0.4655 0.3574	0.3596	0.4197	Ave		0.3681			13.2		15.0				
Vinyl chloride	0.3197 0.3450	0.3366 0.3583	0.4557 0.3547	0.3872	0.4368	Ave		0.3743			13.0		15.0				
Bromomethane	0.2009 0.2274	0.2172 0.2663	0.2724 0.2283	0.2866	0.2859	Ave		0.2481			13.5		15.0				
Chloroethane	0.2176 0.2511	0.2297 0.3069	0.3005 0.2594	0.3072	0.3070	Ave		0.2724			13.8		15.0				
Dichlorofluoromethane	0.4674 0.5232	0.5247 0.6044	0.5900 0.5160	0.6512	0.6735	Ave		0.5688			12.7		15.0				
Trichlorofluoromethane	0.3890 0.4108	0.4376 0.4705	0.4170 0.4108	0.4760	0.4898	Ave		0.4377			8.4		15.0				
Ethyl ether	0.2445 0.3001	0.2923 0.3103	0.3107 0.2846	0.3545	0.3327	Ave		0.3037			10.8		15.0				
Acrolein	0.0233 0.0240	0.0267 0.0272	0.0311 0.0258	0.0257	0.0255	Ave		0.0262			9.1		15.0				
1,1-Dichloroethene	0.3290 0.3749	0.4147 0.4370	0.4520 0.3754	0.4141	0.4198	Ave		0.4021			9.9		15.0				
1,1,2-Trichloro-1,2,2-trifluoroethane	0.1703 0.2344	0.2346 0.2758	0.2511 0.2342	0.2376	0.2515	Ave		0.2362			12.8		15.0				
Acetone	++++ 0.1137	0.1589 0.1130	0.1529 0.0979	0.1343	0.1206	Lin1	0.2017	0.1071						0.9900		0.9900	
Iodomethane	0.3169 0.3908	0.3792 0.4477	0.4301 0.3858	0.4683	0.4537	Ave		0.4091			12.3		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 442964

SDG No.: _____

Instrument ID: A3UX12 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/16/2020 17:43 Calibration End Date: 07/16/2020 20:20 Calibration ID: 57832

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7	LVL 8														
Carbon disulfide	0.7494 0.7482	0.7327 0.8730	0.9202 0.7498	0.8549	0.8490	Ave		0.8097			8.9		15.0				
3-Chloro-1-propene	0.3972 0.4081	0.4111 0.4745	0.5803 0.4084	0.4638	0.4643	Ave		0.4509			13.4		15.0				
Methyl acetate	0.2712 0.2890	0.2800 0.3141	0.3954 0.2690	0.3231	0.3105	Ave		0.3065			13.5		15.0				
Methylene Chloride	0.3304 0.3332	0.3430 0.3813	0.4456 0.3268	0.3981	0.3811	Ave		0.3674			11.4		15.0				
2-Methyl-2-propanol	++++ 0.0382	0.0346 0.0353	0.0469 0.0302	0.0431	0.0376	Ave		0.0380			14.7		15.0				
Acrylonitrile	0.1414 0.1448	0.1331 0.1843	0.5893 ++++	0.1631	0.1559	Ave		0.1589			13.5		15.0				
trans-1,2-Dichloroethene	0.3330 0.3645	0.3284 ++++	0.4594 ++++	0.4201	0.4101	Ave		0.3859			13.6		15.0				
Methyl tert-butyl ether	0.7426 0.8255	0.7777 1.0920	0.9611 0.8329	0.9443	0.9124	Ave		0.8861			12.9		15.0				
Hexane	++++ 0.3965	0.3424 0.5392	0.4821 0.4558	0.3818	0.3948	Ave		0.4275			15.9	*	15.0				
1,1-Dichloroethane	0.3935 0.4613	0.4643 0.6142	0.5845 0.5312	0.5344	0.5314	Ave		0.5143		0.1000	13.9		15.0				
Vinyl acetate	++++ 0.6655	0.5617 0.8869	0.7971 0.8155	0.6834	0.6620	Ave		0.7246			15.5	*	15.0				
2,2-Dichloropropane	0.3080 0.3323	0.3239 0.3895	0.3371 ++++	0.3874	0.3904	Ave		0.3526			10.0		15.0				
cis-1,2-Dichloroethene	0.3372 0.3363	0.3440 0.3862	0.3406 ++++	0.3894	0.3856	Ave		0.3599			7.1		15.0				
2-Butanone (MEK)	0.0606 0.0641	0.0495 0.0720	0.0609 ++++	0.0687	0.0660	Ave		0.0631			11.5		15.0				
Chlorobromomethane	0.2767 0.2940	0.2765 0.2741	0.3072 0.2262	0.3458	0.3405	Ave		0.2926			13.3		15.0				
Tetrahydrofuran	0.1824 0.1651	0.1442 0.1424	0.1797 0.1198	0.1690	0.1865	Ave		0.1611			14.6		15.0				
Chloroform	0.4849 0.5027	0.4932 0.4996	0.5081 0.4275	0.5601	0.5977	Ave		0.5092			10.0		15.0				
1,1,1-Trichloroethane	0.3875 0.4270	0.3654 0.4205	0.3958 0.3615	0.3990	0.4730	Ave		0.4037			9.0		15.0				
Cyclohexane	0.4846 0.5068	0.4997 0.4888	0.4787 0.4071	0.4338	0.5234	Ave		0.4779			8.1		15.0				
1,1-Dichloropropene	0.4001 0.4499	0.3812 0.4152	0.4161 0.3569	0.3796	0.4876	Ave		0.4108			10.2		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 442964

SDG No.: _____

Instrument ID: A3UX12 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/16/2020 17:43 Calibration End Date: 07/16/2020 20:20 Calibration ID: 57832

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7	LVL 8														
Carbon tetrachloride	0.2846 0.3536	0.3119 0.3516	0.3143 0.3065	0.3201	0.3879	Ave		0.3288			10.1		15.0				
Isobutyl alcohol	0.0172 0.0179	0.0155 0.0146	0.0187 0.0123	0.0155	0.0174	Ave		0.0161			12.9		15.0				
Benzene	1.2306 1.2707	1.2406 1.1849	1.2643 1.0246	1.1853	1.4211	Ave		1.2278			9.0		15.0				
1,2-Dichloroethane	0.4123 0.4133	0.3884 0.3951	0.3965 0.3400	0.3960	0.4497	Ave		0.3989			7.7		15.0				
n-Heptane	++++ 0.2125	0.8760 0.1889	0.3267 0.2082	0.2164	0.1882	Lin1	0.6463	0.1871						0.9910		0.9900	
Trichloroethene	0.2499 0.2624	0.2675 0.2982	0.2855 0.2836	0.2842	0.2896	Ave		0.2776			5.8		15.0				
Methylcyclohexane	0.4902 0.4469	0.5070 0.5110	0.5094 0.5191	0.4459	0.4587	Ave		0.4860			6.3		15.0				
1,2-Dichloropropane	0.2744 0.2396	0.2459 0.2704	0.2867 0.2874	0.2595	0.2573	Ave		0.2651			6.7		15.0				
Dibromomethane	0.1895 0.1728	0.1568 0.2250	0.1821 0.1794	0.2106	0.1896	Ave		0.1882			11.4		15.0				
1,4-Dioxane	++++ 0.0031	++++ 0.0038	0.0030 0.0033	0.0043	0.0032	Ave		0.0035			14.7		15.0				
Dichlorobromomethane	0.3228 0.3084	0.2546 0.3976	0.3199 0.3440	0.3789	0.3236	Ave		0.3312			13.3		15.0				
2-Chloroethyl vinyl ether	0.1829 0.1783	0.1421 0.2594	0.2002 0.2185	0.2316	0.1844	Ave		0.1997			18.2	*	15.0				
cis-1,3-Dichloropropene	0.3945 0.3870	0.3031 0.5372	0.4096 0.4609	0.4701	0.3950	Ave		0.4197			16.6	*	15.0				
4-Methyl-2-pentanone (MIBK)	0.4354 0.3706	0.3274 0.4917	0.4703 0.4482	0.5361	0.3932	Ave		0.4341			15.7	*	15.0				
Toluene	1.8532 1.3460	1.5321 1.8337	1.6256 1.8105	1.9267	1.3466	Ave		1.6593			14.0		15.0				
trans-1,3-Dichloropropene	0.5866 0.4654	0.4692 0.6407	0.5203 0.6635	0.5106	0.4452	Ave		0.5377			15.5	*	15.0				
Ethyl methacrylate	0.5372 0.4804	0.4744 0.6569	0.5628 0.6526	0.5119	0.4617	Ave		0.5422			14.2		15.0				
1,1,2-Trichloroethane	0.3488 0.2740	0.2971 0.3762	0.3194 0.3628	0.3084	0.3128	Ave		0.3249			10.7		15.0				
Tetrachloroethene	0.4672 0.3443	0.3797 0.4470	0.3653 0.4319	0.3757	0.3653	Ave		0.3971			11.3		15.0				
1,3-Dichloropropane	0.6006 0.5055	0.6082 0.6659	0.6094 0.7069	0.5690	0.6114	Ave		0.6096			9.8		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 442964

SDG No.: _____

Instrument ID: A3UX12 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/16/2020 17:43 Calibration End Date: 07/16/2020 20:20 Calibration ID: 57832

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7	LVL 8														
2-Hexanone	++++ 0.3462	0.3677 0.5188	0.4753 0.4590	0.4043	0.4737	Ave		0.4350			14.6		15.0				
Chlorodibromomethane	0.2607 0.3295	0.3070 0.3727	0.2990 0.3686	0.3108	0.3066	Ave		0.3194			11.6		15.0				
Ethylene Dibromide	0.2959 0.3490	0.3468 0.3446	0.3234 0.3756	0.3251	0.3269	Ave		0.3359			7.0		15.0				
Chlorobenzene	0.9601 0.9982	0.9577 0.9856	0.9970 0.9625	0.9439	0.9561	Ave		0.9701		0.3000	2.1		15.0				
1,1,1,2-Tetrachloroethane	0.2861 0.3451	0.3082 0.3607	0.3246 0.3482	0.3416	0.3313	Ave		0.3307			7.3		15.0				
Ethylbenzene	0.4726 0.5416	0.5415 0.5535	0.5513 0.5455	0.5158	0.5401	Ave		0.5327			5.0		15.0				
m-Xylene & p-Xylene	0.5474 0.7020	0.6317 0.6953	0.6913 0.6808	0.6540	0.6759	Ave		0.6598			7.7		15.0				
o-Xylene	0.6144 0.6625	0.7873 0.6809	0.6754 0.6788	0.6652	0.6714	Ave		0.6795			7.1		15.0				
Styrene	0.8975 1.1025	1.2328 1.1300	1.0808 1.1354	1.0526	1.0955	Ave		1.0909			8.7		15.0				
Bromoform	0.1816 0.2215	0.2061 0.2498	0.2056 0.2524	0.2241	0.2201	Ave		0.2201		0.1000	10.6		15.0				
Isopropylbenzene	1.6277 1.6644	1.8462 1.7216	1.7216 1.6924	1.6505	1.6999	Ave		1.7030			3.9		15.0				
1,1,2,2-Tetrachloroethane	0.9256 1.0911	1.0665 0.8972	1.0273 1.1690	0.8375	0.9849	Ave		0.9999		0.3000	11.0		15.0				
Bromobenzene	0.7288 0.8081	0.8447 0.7401	0.7929 0.9282	0.6798	0.7304	Ave		0.7816			10.1		15.0				
1,2,3-Trichloropropane	0.3410 0.3591	0.3863 0.3119	0.3528 0.3774	0.2961	0.3349	Ave		0.3449			8.9		15.0				
trans-1,4-Dichloro-2-butene	0.2625 0.3469	0.2454 0.2884	0.3133 0.3529	0.2288	0.3033	Ave		0.2927			15.5	*	15.0				
N-Propylbenzene	0.7726 0.9340	0.8088 0.8290	0.8978 1.0055	0.7202	0.8369	Ave		0.8506			10.8		15.0				
2-Chlorotoluene	0.7922 0.7897	0.7423 0.6969	0.7641 0.8746	0.6279	0.7208	Ave		0.7510			9.8		15.0				
1,3,5-Trimethylbenzene	2.0962 2.7331	2.3810 2.3653	2.6027 2.9725	2.4185	2.4938	Ave		2.5079			10.5		15.0				
4-Chlorotoluene	0.7751 0.7961	0.7602 0.7135	0.7756 0.8974	0.7258	0.7198	Ave		0.7704			7.7		15.0				
tert-Butylbenzene	2.0911 2.3706	2.1569 2.0531	2.1523 2.5782	2.0837	2.0767	Ave		2.1953			8.4		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 442964

SDG No.: _____

Instrument ID: A3UX12 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/16/2020 17:43 Calibration End Date: 07/16/2020 20:20 Calibration ID: 57832

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7	LVL 8														
1,2,4-Trimethylbenzene	2.6633 2.7829	2.4414 2.3659	2.6580 3.0077	2.6472	2.5064	Ave		2.6341			7.7		15.0				
sec-Butylbenzene	3.2857 3.3989	3.1011 3.2856	3.1609 3.2757	2.9618	3.0028	Ave		3.1841			4.8		15.0				
1,3-Dichlorobenzene	1.5139 1.5056	1.5517 1.4537	1.4912 1.4993	1.4677	1.3852	Ave		1.4835			3.3		15.0				
4-Isopropyltoluene	2.3317 2.8989	2.5270 2.8114	2.7243 2.8068	2.5023	2.5803	Ave		2.6478			7.3		15.0				
1,4-Dichlorobenzene	1.7142 1.5352	1.6156 1.5115	1.5056 1.5195	1.4720	1.4203	Ave		1.5367			5.9		15.0				
n-Butylbenzene	1.8951 2.4602	2.1133 2.4171	2.2733 2.3109	2.0729	2.2184	Ave		2.2202			8.4		15.0				
1,2-Dichlorobenzene	1.5372 1.4905	1.4933 1.4585	1.4947 1.4453	1.4331	1.4279	Ave		1.4726			2.6		15.0				
1,2-Dibromo-3-Chloropropane	0.2010 0.2669	0.2345 0.2367	0.2385 0.2646	0.2131	0.2135	Ave		0.2336			10.2		15.0				
1,2,4-Trichlorobenzene	0.9887 0.8713	0.8099 0.7417	0.8058 0.8636	0.7082	0.6997	Ave		0.8111			12.0		15.0				
Hexachlorobutadiene	0.4276 0.3159	0.3357 0.2828	0.2887 0.3236	0.2492	0.2598	Lin1	0.0241	0.3001						0.9920		0.9900	
Naphthalene	2.7351 3.0748	2.6527 2.5138	2.8063 2.9241	2.3872	2.3949	Ave		2.6861			9.2		15.0				
1,2,3-Trichlorobenzene	0.8366 0.8012	0.7261 0.6950	0.7707 0.8318	0.6662	0.6501	Ave		0.7472			9.8		15.0				
Dibromofluoromethane (Surr)	++++ 0.2687	++++ 0.2632	0.2565 0.2279	0.2654	0.3110	Ave		0.2655			10.1		15.0				
1,2-Dichloroethane-d4 (Surr)	++++ 0.3299	++++ 0.3169	0.3337 0.2741	0.3228	0.3720	Ave		0.3249			9.7		15.0				
Toluene-d8 (Surr)	++++ 1.1036	++++ 1.5400	1.3670 1.5066	1.4506	1.1486	Ave		1.3527			13.7		15.0				
4-Bromofluorobenzene (Surr)	++++ 0.4348	++++ 0.4579	0.4861 0.5021	0.4378	0.4603	Ave		0.4632			5.7		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 442964

SDG No.: _____

Instrument ID: A3UX12 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/16/2020 17:43 Calibration End Date: 07/16/2020 20:20 Calibration ID: 57832

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD8260 240-442964/9	U1279113.D
Level 2	STD8260 240-442964/10	U1279114.D
Level 3	STD8260 240-442964/11	U1279115.D
Level 4	STD8260 240-442964/12	U1279116.D
Level 5	ICIS 240-442964/13	U1279117.D
Level 6	STD8260 240-442964/14	U1279118.D
Level 7	STD8260 240-442964/15	U1279119.D
Level 8	STD8260 240-442964/16	U1279120.D

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5
			LVL 6	LVL 7	LVL 8			LVL 6	LVL 7	LVL 8		
Dichlorodifluoromethane	FB	Ave	6491 692065	12858 952192	95890 1447911	151666	325891	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Chloromethane	FB	Lin1	++++ 1048531	22907 1437896	180045 2259568	233672	562073	++++ 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Butadiene	FB	Ave	9181 740602	16845 988134	124092 1636623	159384	390394	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Vinyl chloride	FB	Ave	8683 763156	17064 1049031	121481 1624267	171618	406302	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Bromomethane	FB	Ave	5457 502951	11010 779653	72628 1045526	127041	265909	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Chloroethane	FB	Ave	5911 555402	11645 898507	80121 1187806	136173	285493	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Dichlorofluoromethane	FB	Ave	12695 1157160	26597 1769403	157289 2362624	288627	626381	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Trichlorofluoromethane	FB	Ave	10566 908548	22183 1377516	111171 1880748	210999	455578	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Ethyl ether	FB	Ave	6641 663810	14820 908584	82827 1303305	157156	309400	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Acrolein	FB	Ave	3163 265086	6778 397800	41496 590629	56998	118799	2.50 200	5.00 300	25.0 400	50.0	100
1,1-Dichloroethene	FB	Ave	8937 829316	21022 1279374	120487 1718675	183544	390469	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,1,2-Trichloro-1,2,2-trifluoroethane	FB	Ave	4626 518516	11895 807578	66947 1072209	105296	233909	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Acetone	FB	Lin1	++++ 503096	16108 661546	81521 896587	119029	224375	++++ 80.0	2.00 120	10.0 160	20.0	40.0
Iodomethane	FB	Ave	8607 864362	19223 1310816	114665 1766617	207558	421954	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Carbon disulfide	FB	Ave	20354 1654881	37146 2555816	245305 3433316	378954	789675	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 442964

SDG No.: _____

Instrument ID: A3UX12 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/16/2020 17:43 Calibration End Date: 07/16/2020 20:20 Calibration ID: 57832

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5
3-Chloro-1-propene	FB	Ave	10788 902635	20839 1389182	154691 1869760	205590	431804	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Methyl acetate	FB	Ave	14733 1278569	28394 1839288	210795 2463274	286458	577598	1.00 80.0	2.00 120	10.0 160	20.0	40.0
Methylene Chloride	FB	Ave	8975 737052	17390 1116320	118801 1496408	176439	354472	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
2-Methyl-2-propanol	FB	Ave	++++ 844343	17528 1032059	125121 1383065	191199	349742	++++ 400	10.0 600	50.0 800	100	200
Acrylonitrile	FB	Ave	38417 3202437	67455 5396310	504697 ++++	723158	1450393	5.00 400	10.0 600	50.0 ++++	100	200
trans-1,2-Dichloroethene	FB	Ave	9045 806228	16647 ++++	122478 ++++	186220	381398	0.500 40.0	1.00 ++++	5.00 ++++	10.0	20.0
Methyl tert-butyl ether	FB	Ave	20171 1825802	39426 3196991	256224 3813820	418565	848635	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Hexane	FB	Ave	++++ 877095	17358 1578677	128512 2087141	169215	367216	++++ 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,1-Dichloroethane	FB	Ave	10688 1020403	23537 1798158	155829 2432150	236866	494235	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Vinyl acetate	FB	Ave	++++ 1471981	28476 2596721	212513 3734074	302914	615701	++++ 40.0	1.00 60.0	5.00 80.0	10.0	20.0
2,2-Dichloropropane	FB	Ave	8366 734903	16418 1140347	89862 ++++	171711	363126	0.500 40.0	1.00 60.0	5.00 ++++	10.0	20.0
cis-1,2-Dichloroethene	FB	Ave	9160 743747	17440 1130637	90791 ++++	172589	358669	0.500 40.0	1.00 60.0	5.00 ++++	10.0	20.0
2-Butanone (MEK)	FB	Ave	3292 283584	5020 421345	32487 ++++	60927	122791	1.00 80.0	2.00 120	10.0 ++++	20.0	40.0
Chlorobromomethane	FB	Ave	7517 650336	14016 802370	81886 1035588	153287	316652	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Tetrahydrofuran	FB	Ave	9909 730197	14616 833693	95835 1096878	149777	347004	1.00 80.0	2.00 120	10.0 160	20.0	40.0
Chloroform	FB	Ave	13172 1111892	25004 1462582	135443 1957485	248247	555952	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,1,1-Trichloroethane	FB	Ave	10524 944576	18522 1231118	105527 1655131	176862	439960	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Cyclohexane	FB	Ave	13162 1121049	25331 1431075	127620 1863865	192287	486792	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,1-Dichloropropene	FB	Ave	10867 995105	19325 1215722	110916 1634304	168265	453544	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Carbon tetrachloride	FB	Ave	7731 782108	15810 1029542	83787 1403246	141890	360797	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Isobutyl alcohol	FB	Ave	11663 989777	19594 1065136	124596 1406970	172245	405480	12.5 1000	25.0 1500	125 2000	250	500

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

Analy Batch No.: 442964

SDG No.: _____

Instrument ID: A3UX12

GC Column: DB-624

ID: 0.18 (mm)

Heated Purge: (Y/N) N

Calibration Start Date: 07/16/2020 17:43

Calibration End Date: 07/16/2020 20:20

Calibration ID: 57832

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5
Benzene	FB	Ave	33425 2810699	62890 3469151	337044 4691183	525396	1321740	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,2-Dichloroethane	FB	Ave	11198 914197	19689 1156634	105694 1556959	175519	418240	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
n-Heptane	FB	Lin1	++++ 470133	44411 552977	87098 953448	95900	175083	++++ 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Trichloroethene	FB	Ave	6788 580360	13562 873131	76118 1298374	125955	269336	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Methylcyclohexane	FB	Ave	13314 988563	25703 1496196	135793 2376794	197666	426646	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,2-Dichloropropane	FB	Ave	7452 529883	12467 791730	76423 1315984	115005	239320	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Dibromomethane	FB	Ave	5148 382258	7950 658845	48536 821478	93337	176342	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,4-Dioxane	FB	Ave	++++ 136471	++++ 224221	15971 304656	38163	59715	++++ 800	++++ 1200	100 1600	200	400
Dichlorobromomethane	FB	Ave	8768 682191	12908 1164000	85277 1575297	167964	300932	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
2-Chloroethyl vinyl ether	FB	Ave	9938 788544	14412 1519041	106727 2001081	205324	343008	1.00 80.0	2.00 120	10.0 160	20.0	40.0
cis-1,3-Dichloropropene	FB	Ave	10714 856087	15367 1572803	109191 2110296	208362	367344	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
4-Methyl-2-pentanone (MIBK)	FB	Ave	23654 1639242	33198 2878867	250773 4104472	475232	731356	1.00 80.0	2.00 120	10.0 160	20.0	40.0
Toluene	CBNZ d5	Ave	29652 2206110	46282 3857470	302953 5188385	609655	1007024	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
trans-1,3-Dichloropropene	CBNZ d5	Ave	9385 762783	14175 1347764	96966 1901312	161548	332918	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Ethyl methacrylate	CBNZ d5	Ave	8596 787358	14331 1381887	104880 1870176	161989	345274	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,1,2-Trichloroethane	CBNZ d5	Ave	5581 449059	8974 791429	59524 1039659	97580	233957	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Tetrachloroethene	CBNZ d5	Ave	7475 564371	11469 940315	68082 1237632	118877	273224	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,3-Dichloropropane	CBNZ d5	Ave	9610 828517	18373 1400884	113574 2025809	180029	457272	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
2-Hexanone	CBNZ d5	Ave	++++ 1134947	22216 2182766	177166 2630745	255826	708445	++++ 80.0	2.00 120	10.0 160	20.0	40.0
Chlorodibromomethane	CBNZ d5	Ave	4171 540110	9274 784117	55714 1056327	98356	229325	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Ethylene Dibromide	CBNZ d5	Ave	4735 572080	10477 724976	60273 1076276	102871	244506	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

Analy Batch No.: 442964

SDG No.:

Instrument ID: A3UX12

GC Column: DB-624

ID: 0.18 (mm)

Heated Purge: (Y/N) N

Calibration Start Date: 07/16/2020 17:43

Calibration End Date: 07/16/2020 20:20

Calibration ID: 57832

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5
Chlorobenzene	CBNZ d5	Ave	15362 1635971	28930 2073291	185806 2758216	298670	715039	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,1,1,2-Tetrachloroethane	CBNZ d5	Ave	4578 565680	9310 758714	60497 997800	108087	247781	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Ethylbenzene	CBNZ d5	Ave	7562 887653	16358 1164276	102746 1563228	163196	403913	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
m-Xylene & p-Xylene	CBNZ d5	Ave	8759 1150536	19083 1462696	128823 1951120	206929	505494	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
o-Xylene	CBNZ d5	Ave	9831 1085881	23782 1432342	125874 1945281	210472	502115	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Styrene	CBNZ d5	Ave	14361 1807037	37239 2377113	201429 3253865	333048	819248	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Bromoform	CBNZ d5	Ave	2906 363030	6225 525428	38309 723239	70911	164608	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Isopropylbenzene	CBNZ d5	Ave	26044 2727885	55771 3621536	320834 4849848	522254	1271237	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,1,2,2-Tetrachloroethane	DCBd 4	Ave	7751 843951	19529 1087689	98841 1682800	164980	394582	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Bromobenzene	DCBd 4	Ave	6103 625073	15468 897214	76292 1336195	133920	292641	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,2,3-Trichloropropane	DCBd 4	Ave	2856 277742	7073 378143	33941 543257	58331	134177	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
trans-1,4-Dichloro-2-butene	DCBd 4	Ave	2198 268293	4494 349603	30147 508069	45074	121536	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
N-Propylbenzene	DCBd 4	Ave	6470 722462	14811 1004987	86386 1447539	141874	335308	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
2-Chlorotoluene	DCBd 4	Ave	6634 610825	13592 844827	73516 1259021	123687	288795	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,3,5-Trimethylbenzene	DCBd 4	Ave	17554 2114062	43601 2867428	250416 4279171	476426	999122	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
4-Chlorotoluene	DCBd 4	Ave	6491 615770	13920 864927	74622 1291849	142976	288403	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
tert-Butylbenzene	DCBd 4	Ave	17511 1833625	39497 2488936	207081 3711556	410479	832037	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,2,4-Trimethylbenzene	DCBd 4	Ave	22303 2152543	44707 2868200	255743 4329767	521486	1004174	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
sec-Butylbenzene	DCBd 4	Ave	27515 2628984	56787 3983089	304124 4715586	583446	1203086	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,3-Dichlorobenzene	DCBd 4	Ave	12678 1164577	28415 1762350	143474 2158288	289123	554995	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
4-Isopropyltoluene	DCBd 4	Ave	19526 2242296	46274 3408231	262116 4040650	492942	1033800	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 442964

SDG No.: _____

Instrument ID: A3UX12 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/16/2020 17:43 Calibration End Date: 07/16/2020 20:20 Calibration ID: 57832

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5
1,4-Dichlorobenzene	DCBd 4	Ave	14355 1187495	29584 1832355	144861 2187419	289977	569022	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
n-Butylbenzene	DCBd 4	Ave	15870 1902978	38698 2930188	218725 3326661	408355	888801	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,2-Dichlorobenzene	DCBd 4	Ave	12873 1152915	27344 1768141	143813 2080580	282319	572071	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,2-Dibromo-3-Chloropropane	DCBd 4	Ave	1683 206406	4295 286949	22950 380957	41982	85539	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,2,4-Trichlorobenzene	DCBd 4	Ave	8280 673976	14830 899204	77534 1243231	139512	280319	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Hexachlorobutadiene	DCBd 4	Lin1	3581 244373	6148 342826	27773 465852	49088	104077	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Naphthalene	DCBd 4	Ave	22904 2378356	48575 3047517	270015 4209448	470264	959515	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,2,3-Trichlorobenzene	DCBd 4	Ave	7006 619750	13296 842599	74152 1197429	131236	260445	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Dibromofluoromethane (Surr)	FB	Ave	++++ 594419	++++ 770621	68389 1043625	117634	289228	++++ 40.0	++++ 60.0	5.00 80.0	10.0	20.0
1,2-Dichloroethane-d4 (Surr)	FB	Ave	++++ 729798	++++ 927672	88950 1255009	143083	345986	++++ 40.0	++++ 60.0	5.00 80.0	10.0	20.0
Toluene-d8 (Surr)	CBNZ d5	Ave	++++ 1808749	++++ 3239682	254761 4317396	458994	858996	++++ 40.0	++++ 60.0	5.00 80.0	10.0	20.0
4-Bromofluorobenzene (Surr)	CBNZ d5	Ave	++++ 712692	++++ 963194	90585 1438809	138527	344224	++++ 40.0	++++ 60.0	5.00 80.0	10.0	20.0

Curve Type Legend:

Ave = Average ISTD
Lin1 = Linear 1/conc ISTD

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279113.D
 Lims ID: std8260 L1
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 16-Jul-2020 17:43:30 ALS Bottle#: 5 Worklist Smp#: 9
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100113-009
 Operator ID: 001904 Instrument ID: A3UX12
 Sublist: chrom-8260_12_h2o*sub2
 Method: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 16-Jul-2020 21:23:41 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1057

First Level Reviewer: laveyt Date: 16-Jul-2020 18:10:46

Compound	Sig	RT (min.)	Exp RT (min.)	Diff RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	98	1086472	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	86	640010	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.970	0.000	95	334969	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111		4.539				ND	ND	U
\$ 5 1,2-Dichloroethane-d4 (Surr)	65		4.823				ND	ND	U
\$ 6 Toluene-d8 (Surr)	98		6.456				ND	ND	U
\$ 7 4-Bromofluorobenzene (Surr)	95		8.858				ND	ND	U
9 Dichlorodifluoromethane	85	1.392	1.403	-0.011	95	6491	0.5000	0.3825	
10 Chloromethane	50		1.605				ND	ND	U
11 Butadiene	54	1.640	1.652	-0.012	86	9181	0.5000	0.4591	
12 Vinyl chloride	62	1.687	1.687	0.000	94	8683	0.5000	0.4271	
14 Bromomethane	94	1.948	1.936	0.012	78	5457	0.5000	0.4048	
15 Chloroethane	64	1.983	1.995	-0.012	93	5911	0.5000	0.3994	
16 Dichlorofluoromethane	67	2.173	2.184	-0.011	94	12695	0.5000	0.4109	
17 Trichlorofluoromethane	101	2.173	2.184	-0.011	87	10566	0.5000	0.4444	
19 Ethyl ether	59	2.433	2.445	-0.012	91	6641	0.5000	0.4025	
20 Acrolein	56	2.551	2.563	-0.012	96	3163	2.50	2.22	
21 1,1-Dichloroethene	61	2.622	2.634	-0.012	94	8937	0.5000	0.4091	
22 112TCTFE	101	2.670	2.670	0.000	85	4626	0.5000	0.3605	
23 Acetone	43		2.693				ND	ND	U
24 Iodomethane	142	2.764	2.776	-0.012	95	8607	0.5000	0.3873	
25 Carbon disulfide	76	2.812	2.823	-0.011	99	20354	0.5000	0.4628	
27 3-Chloro-1-propene	41	2.942	2.954	-0.012	89	10788	0.5000	0.4404	
28 Methyl acetate	43	2.965	2.977	-0.012	96	14733	1.00	0.8847	
29 Methylene Chloride	49	3.048	3.060	-0.012	86	8975	0.5000	0.4496	
30 2-Methyl-2-propanol	59		3.167				ND	ND	U
31 Acrylonitrile	53	3.273	3.285	-0.012	99	38417	5.00	4.45	
32 trans-1,2-Dichloroethene	61	3.285	3.297	-0.012	67	9045	0.5000	0.4314	
33 Methyl tert-butyl ether	73	3.285	3.297	-0.012	95	20171	0.5000	0.4191	
34 Hexane	57		3.522				ND	ND	U
35 1,1-Dichloroethane	63	3.640	3.652	-0.012	92	10688	0.5000	0.3825	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
36 Vinyl acetate	43		3.699				ND	ND	U
41 cis-1,2-Dichloroethene	96	4.137	4.137	0.000	80	9160	0.5000	0.4685	
40 2,2-Dichloropropane	77	4.137	4.137	0.000	58	8366	0.5000	0.4367	
42 2-Butanone (MEK)	72	4.149	4.149	0.000	99	3292	1.00	0.9601	
46 Chlorobromomethane	49	4.326	4.338	-0.012	96	7517	0.5000	0.4729	
47 Tetrahydrofuran	42	4.373	4.374	-0.001	91	9909	1.00	1.13	
48 Chloroform	83	4.397	4.409	-0.012	94	13172	0.5000	0.4762	
49 1,1,1-Trichloroethane	97	4.551	4.551	0.000	95	10524	0.5000	0.4799	
50 Cyclohexane	84	4.598	4.598	0.000	89	13162	0.5000	0.5070	
51 1,1-Dichloropropene	75	4.681	4.693	-0.012	92	10867	0.5000	0.4869	
52 Carbon tetrachloride	117	4.693	4.693	0.000	74	7731	0.5000	0.4328	
53 Isobutyl alcohol	41	4.788	4.788	0.000	93	11663	12.5	13.3	
54 Benzene	78	4.859	4.870	-0.011	96	33425	0.5000	0.5012	
55 1,2-Dichloroethane	62	4.882	4.882	0.000	95	11198	0.5000	0.5168	
57 n-Heptane	57		5.083				ND	ND	U
59 Trichloroethene	130	5.403	5.403	0.000	94	6788	0.5000	0.4501	
61 Methylcyclohexane	83	5.569	5.569	0.000	86	13314	0.5000	0.5043	
62 1,2-Dichloropropane	63	5.592	5.604	-0.012	93	7452	0.5000	0.5174	
65 1,4-Dioxane	88		5.711				ND	ND	U
64 Dibromomethane	174	5.699	5.711	-0.012	96	5148	0.5000	0.5035	
66 Dichlorobromomethane	83	5.829	5.829	0.000	95	8768	0.5000	0.4873	
68 2-Chloroethyl vinyl ether	63	6.089	6.089	0.000	92	9938	1.00	0.9162	
69 cis-1,3-Dichloropropene	75	6.219	6.219	0.000	95	10714	0.5000	0.4700	
70 4-Methyl-2-pentanone (MIBK)	43	6.350	6.350	0.000	95	23654	1.00	1.00	
71 Toluene	91	6.503	6.515	-0.012	99	29652	0.5000	0.5584	
72 trans-1,3-Dichloropropene	75	6.705	6.705	0.000	92	9385	0.5000	0.5455	
74 Ethyl methacrylate	69	6.776	6.776	0.000	86	8596	0.5000	0.4954	
75 1,1,2-Trichloroethane	97	6.870	6.870	0.000	86	5581	0.5000	0.5367	
76 Tetrachloroethene	166	7.000	7.000	0.000	91	7475	0.5000	0.5883	
77 1,3-Dichloropropane	76	7.024	7.024	0.000	92	9610	0.5000	0.4926	
78 2-Hexanone	43		7.095				ND	ND	U
80 Chlorodibromomethane	129	7.225	7.225	0.000	85	4171	0.5000	0.4081	
81 Ethylene Dibromide	107	7.332	7.332	0.000	98	4735	0.5000	0.4405	
83 Chlorobenzene	112	7.781	7.781	0.000	96	15362	0.5000	0.4948	
84 1,1,1,2-Tetrachloroethane	131	7.852	7.852	0.000	86	4578	0.5000	0.4326	
85 Ethylbenzene	106	7.876	7.876	0.000	98	7562	0.5000	0.4436	
86 m-Xylene & p-Xylene	106	7.982	7.983	-0.001	98	8759	0.5000	0.4148	
87 o-Xylene	106	8.361	8.361	0.000	95	9831	0.5000	0.4521	
88 Styrene	104	8.373	8.373	0.000	94	14361	0.5000	0.4114	
89 Bromoform	173	8.550	8.551	-0.001	90	2906	0.5000	0.4125	
90 Isopropylbenzene	105	8.704	8.704	0.000	94	26044	0.5000	0.4779	
92 Bromobenzene	156	9.000	9.000	0.000	88	6103	0.5000	0.4662	
93 1,1,2,2-Tetrachloroethane	83	8.988	9.000	-0.012	85	7751	0.5000	0.4628	
94 1,2,3-Trichloropropane	110	9.036	9.036	0.000	81	2856	0.5000	0.4944	
95 trans-1,4-Dichloro-2-butene	53	9.047	9.048	-0.001	70	2198	0.5000	0.4484	
96 N-Propylbenzene	120	9.095	9.095	0.000	99	6470	0.5000	0.4541	
97 2-Chlorotoluene	126	9.178	9.178	0.000	96	6634	0.5000	0.5274	
98 1,3,5-Trimethylbenzene	105	9.272	9.272	0.000	96	17554	0.5000	0.4179	
99 4-Chlorotoluene	126	9.284	9.284	0.000	97	6491	0.5000	0.5030	
102 tert-Butylbenzene	119	9.580	9.580	0.000	92	17511	0.5000	0.4763	
104 1,2,4-Trimethylbenzene	105	9.627	9.627	0.000	97	22303	0.5000	0.5055	
105 sec-Butylbenzene	105	9.793	9.793	0.000	93	27515	0.5000	0.5160	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
106 1,3-Dichlorobenzene	146	9.911	9.911	0.000	96	12678	0.5000	0.5102	
107 4-Isopropyltoluene	119	9.935	9.947	-0.012	95	19526	0.5000	0.4403	
108 1,4-Dichlorobenzene	146	9.994	9.994	0.000	95	14355	0.5000	0.5577	
111 n-Butylbenzene	91	10.337	10.337	0.000	96	15870	0.5000	0.4268	
112 1,2-Dichlorobenzene	146	10.361	10.361	0.000	95	12873	0.5000	0.5220	
113 1,2-Dibromo-3-Chloropropane	157	11.130	11.130	0.000	78	1683	0.5000	0.4302	
115 1,2,4-Trichlorobenzene	180	11.947	11.947	-0.001	87	8280	0.5000	0.6095	
116 Hexachlorobutadiene	225	12.124	12.124	0.000	83	3581	0.5000	0.6319	
117 Naphthalene	128	12.195	12.195	0.000	95	22904	0.5000	0.5091	
118 1,2,3-Trichlorobenzene	180	12.432	12.432	0.000	92	7006	0.5000	0.5598	
S 124 Trihalomethanes, Total	1				0		2.00	1.78	
S 125 Total BTEX	1				0		2.50	2.37	
S 126 1,2-Dichloroethene, Total	96				0			0.9000	
S 127 1,3-Dichloropropene, Total	75				0			1.02	
S 128 Xylenes, Total	106				0		1.00	0.8670	

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

Review Flags

U - Marked Undetected

Reagents:

vm50is_stk_a_00006	Amount Added: 2.00	Units: uL
VMRGAS_00347	Amount Added: 0.40	Units: uL
vmarolistdw_00352	Amount Added: 0.40	Units: uL
vmrprimw_00394	Amount Added: 0.40	Units: uL
vm50ss_00410	Amount Added: 0.40	Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279113.D

Injection Date: 16-Jul-2020 17:43:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: std8260 L1

Worklist Smp#: 9

Client ID:

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

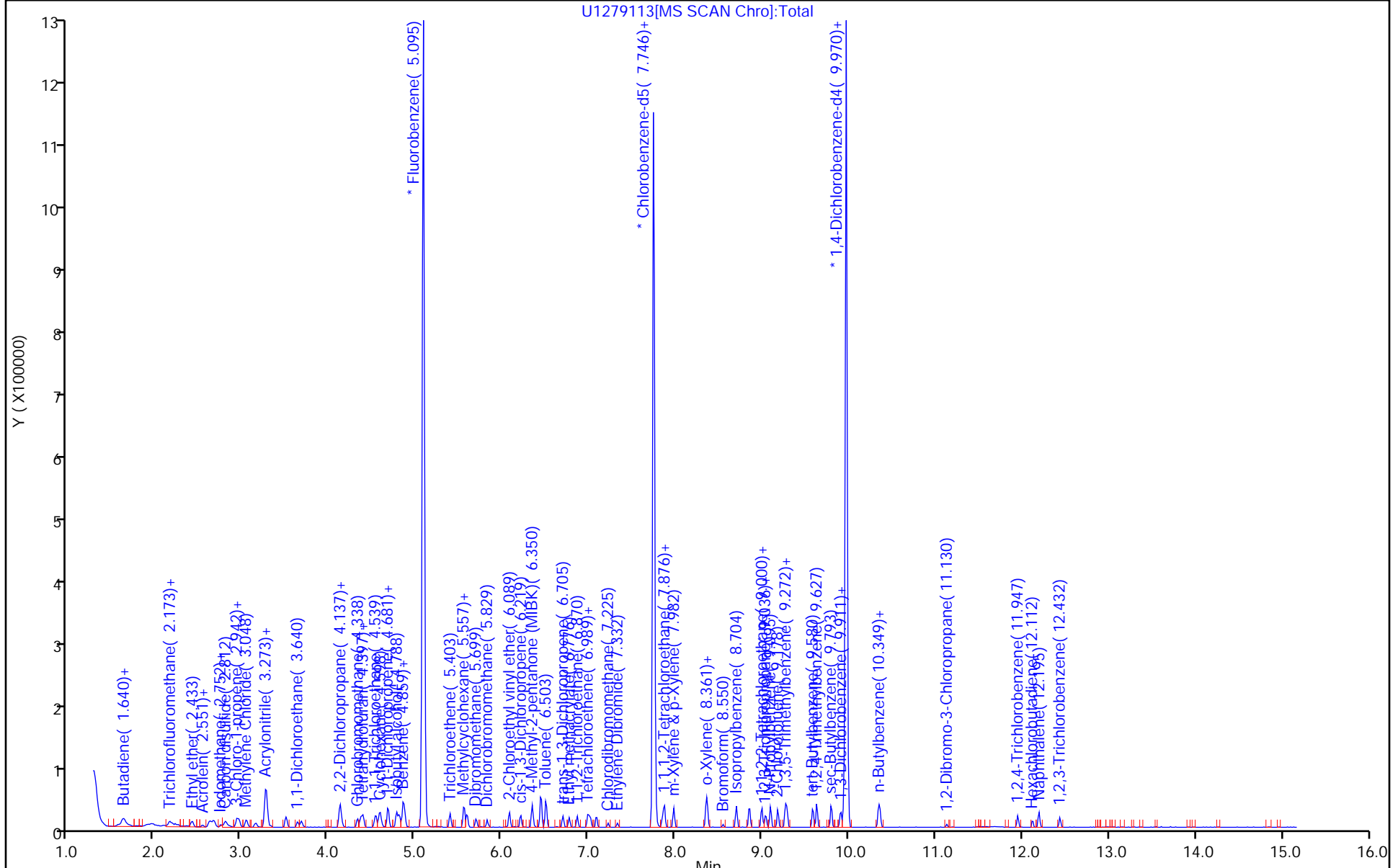
ALS Bottle#: 5

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton

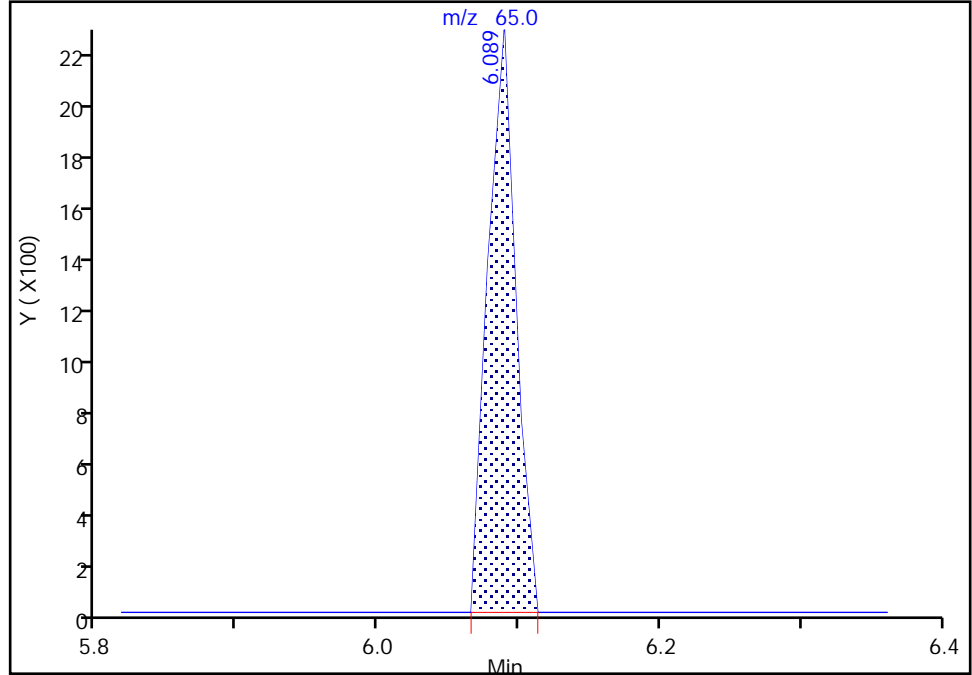
Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279113.D
Injection Date: 16-Jul-2020 17:43:30 Instrument ID: A3UX12
Lims ID: std8260 L1
Client ID:
Operator ID: 001904 ALS Bottle#: 5 Worklist Smp#: 9
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

68 2-Chloroethyl vinyl ether, CAS: 110-75-8

Signal: 2

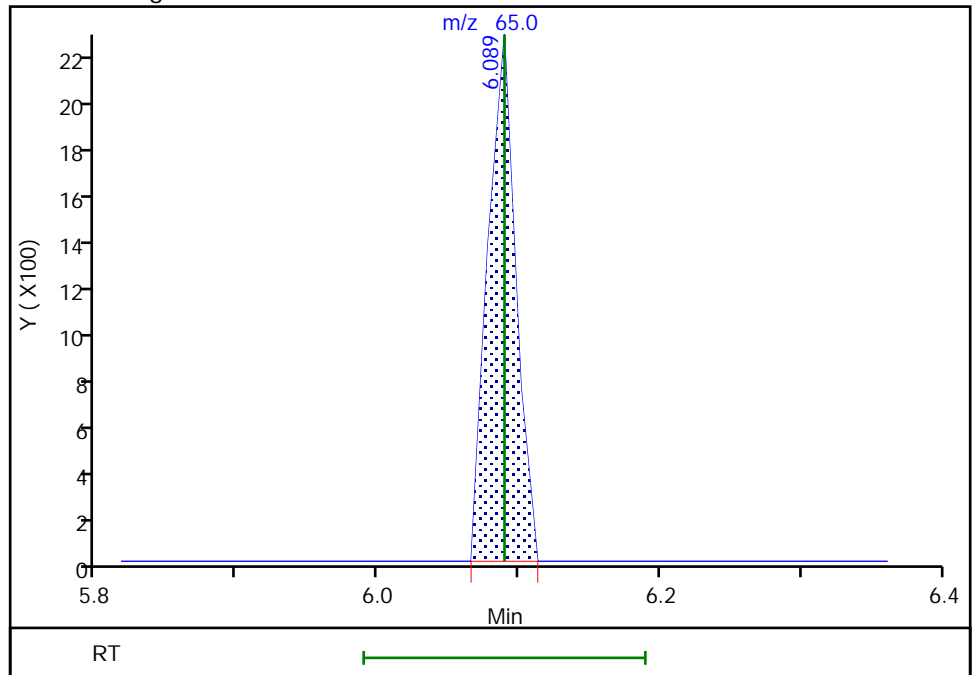
RT: 6.09
Area: 3022
Amount: 0.928679
Amount Units: ug/l

Processing Integration Results



RT: 6.09
Area: 3022
Amount: 0.916162
Amount Units: ug/l

Manual Integration Results



Reviewer: laveyt, 16-Jul-2020 20:34:42

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

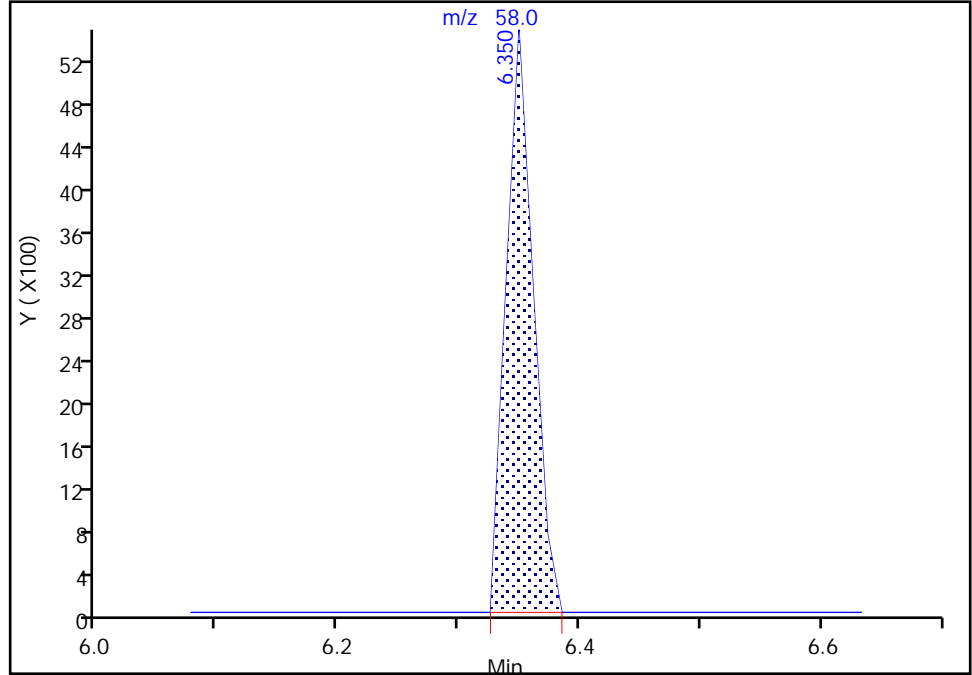
Euofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279113.D
Injection Date: 16-Jul-2020 17:43:30 Instrument ID: A3UX12
Lims ID: std8260 L1
Client ID:
Operator ID: 001904 ALS Bottle#: 5 Worklist Smp#: 9
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

70 4-Methyl-2-pentanone (MIBK), CAS: 108-10-1
Signal: 2

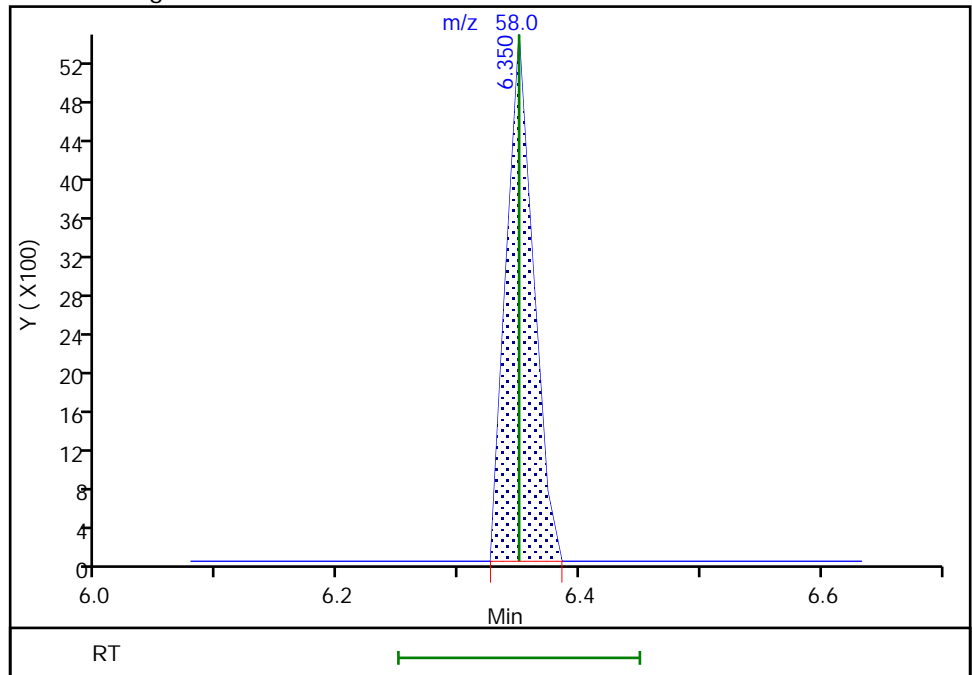
RT: 6.35
Area: 8536
Amount: 1.007725
Amount Units: ug/l

Processing Integration Results



RT: 6.35
Area: 8536
Amount: 1.003046
Amount Units: ug/l

Manual Integration Results



Reviewer: laveyt, 16-Jul-2020 20:54:56

Audit Action: Marked Compound Undetected

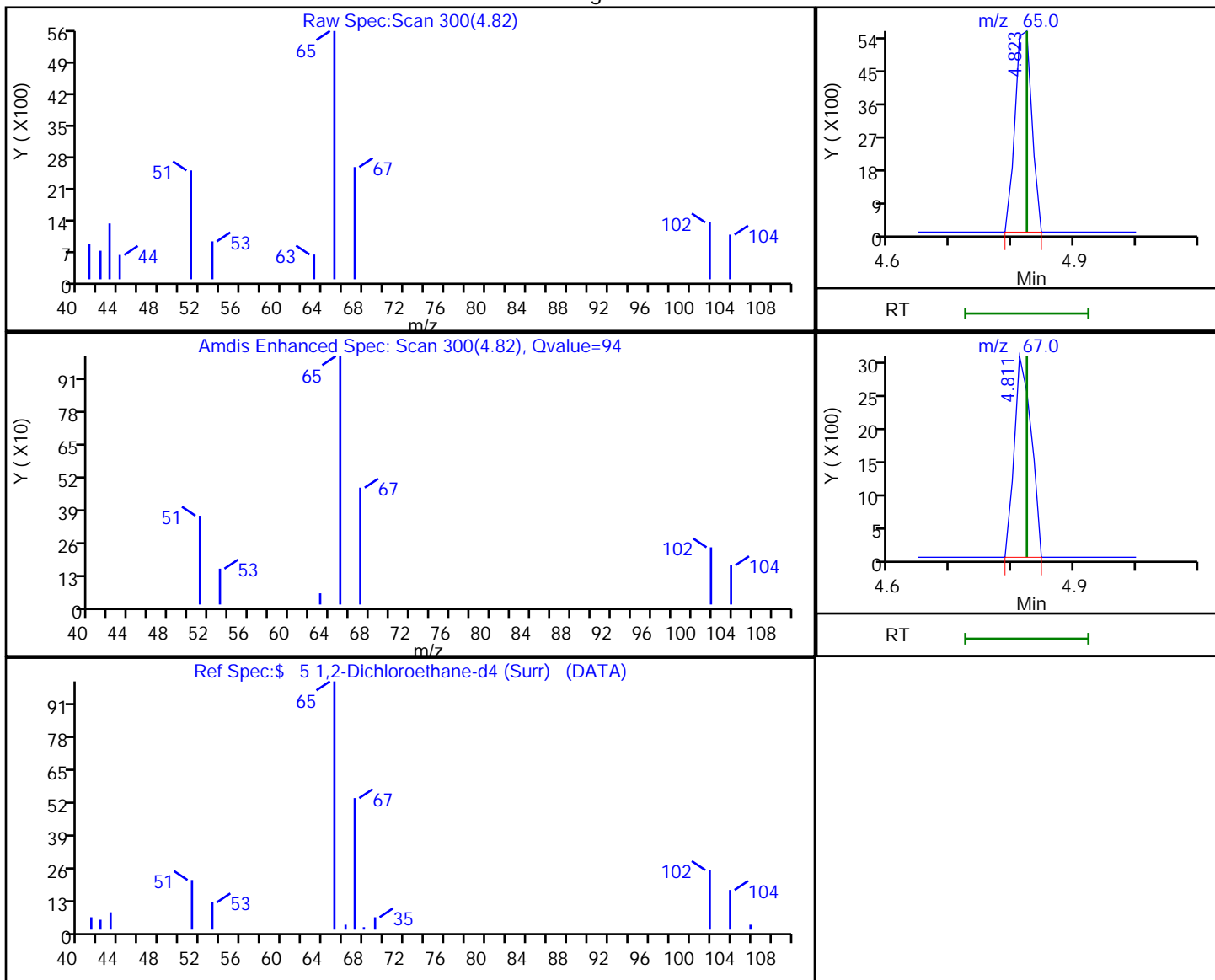
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279113.D
 Injection Date: 16-Jul-2020 17:43:30 Instrument ID: A3UX12
 Lims ID: std8260 L1
 Client ID:
 Operator ID: 001904 ALS Bottle#: 5 Worklist Smp#: 9
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
 Column: DB-624 (0.18 mm) Detector: MS SCAN

\$ 5 1,2-Dichloroethane-d4 (Surr), CAS: 17060-07-0

Processing Results



RT	Mass	Response	Amount
4.82	65.00	10451	0.548781
4.81	67.00	5764	

Reviewer: laveyt, 16-Jul-2020 20:28:34

Audit Action: Marked Compound Undetected

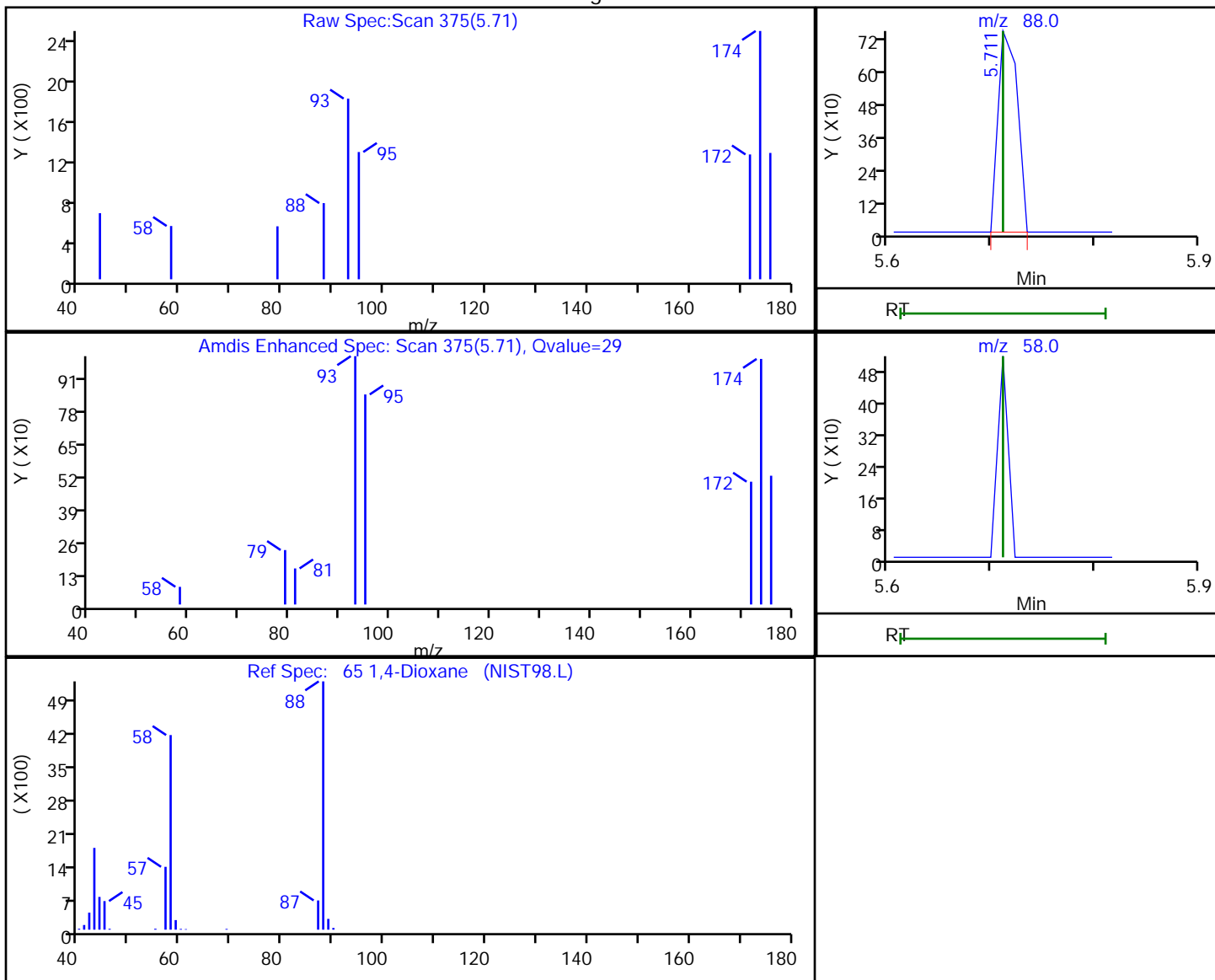
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279113.D
 Injection Date: 16-Jul-2020 17:43:30 Instrument ID: A3UX12
 Lims ID: std8260 L1
 Client ID:
 Operator ID: 001904 ALS Bottle#: 5 Worklist Smp#: 9
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
 Column: DB-624 (0.18 mm) Detector: MS SCAN

65 1,4-Dioxane, CAS: 123-91-1

Processing Results



RT	Mass	Response	Amount
5.71	88.00	968	6.093216
5.71	58.00	0	

Reviewer: laveyt, 16-Jul-2020 20:33:36

Audit Action: Marked Compound Undetected

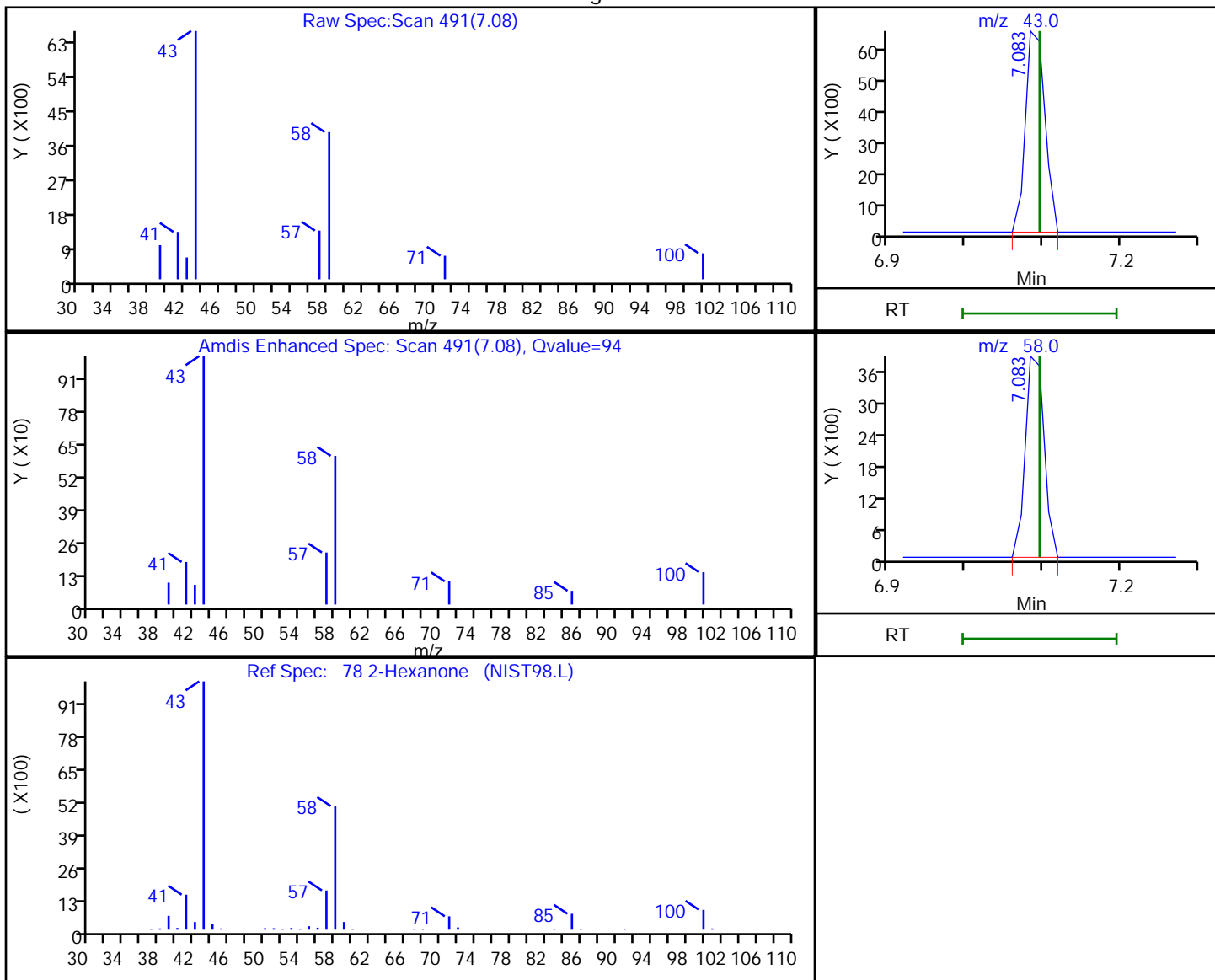
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279113.D
Injection Date: 16-Jul-2020 17:43:30 Instrument ID: A3UX12
Lims ID: std8260 L1
Client ID:
Operator ID: 001904 ALS Bottle#: 5 Worklist Smp#: 9
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

78 2-Hexanone, CAS: 591-78-6

Processing Results



RT	Mass	Response	Amount
7.08	43.00	11432	0.849644
7.08	58.00	6539	

Reviewer: laveyt, 16-Jul-2020 20:55:03

Audit Action: Marked Compound Undetected

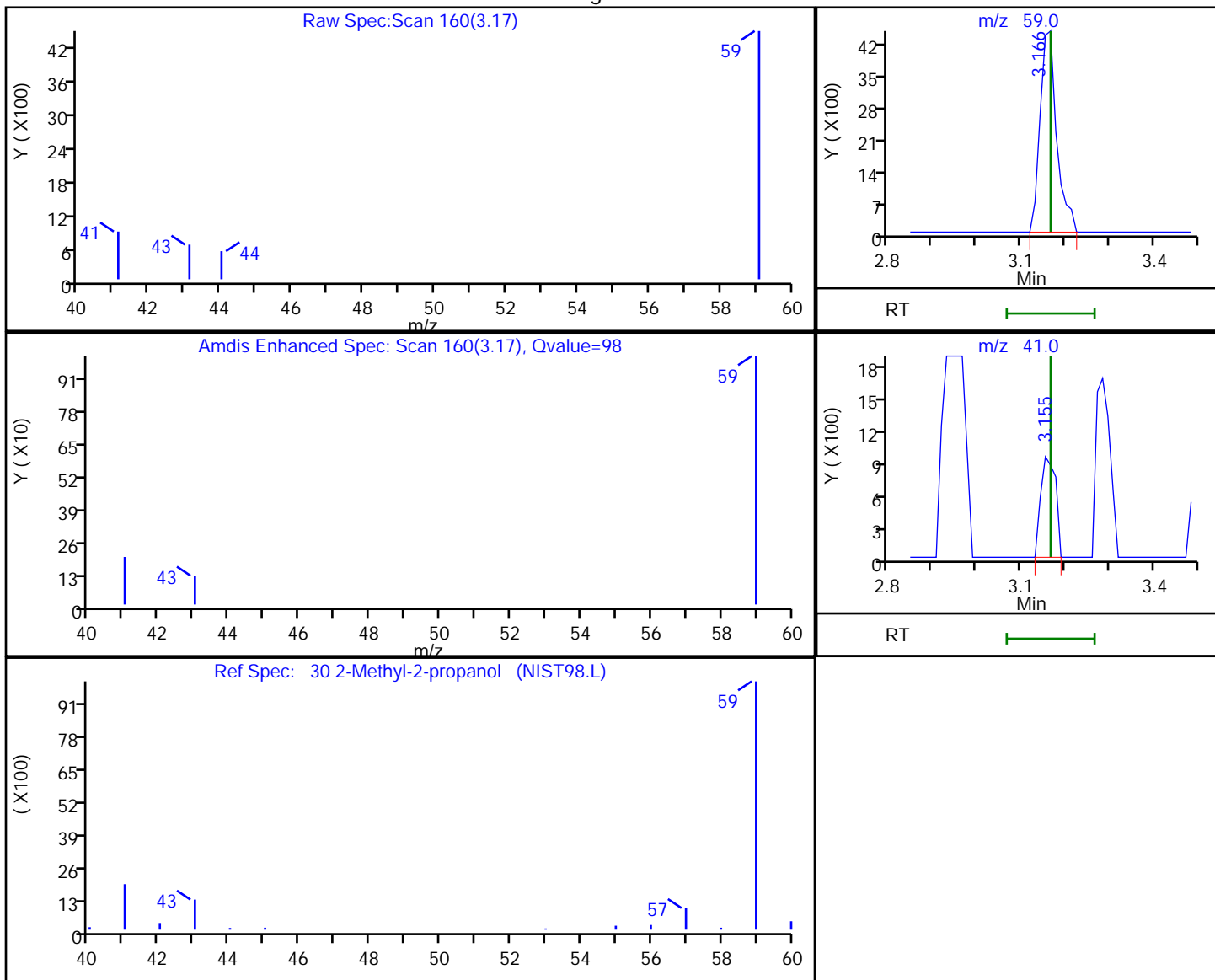
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279113.D
Injection Date: 16-Jul-2020 17:43:30 Instrument ID: A3UX12
Lims ID: std8260 L1
Client ID:
Operator ID: 001904 ALS Bottle#: 5 Worklist Smp#: 9
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

30 2-Methyl-2-propanol, CAS: 75-65-0

Processing Results



RT	Mass	Response	Amount
3.17	59.00	11702	5.577747
3.15	41.00	2196	

Reviewer: laveyt, 16-Jul-2020 21:11:20

Audit Action: Marked Compound Undetected

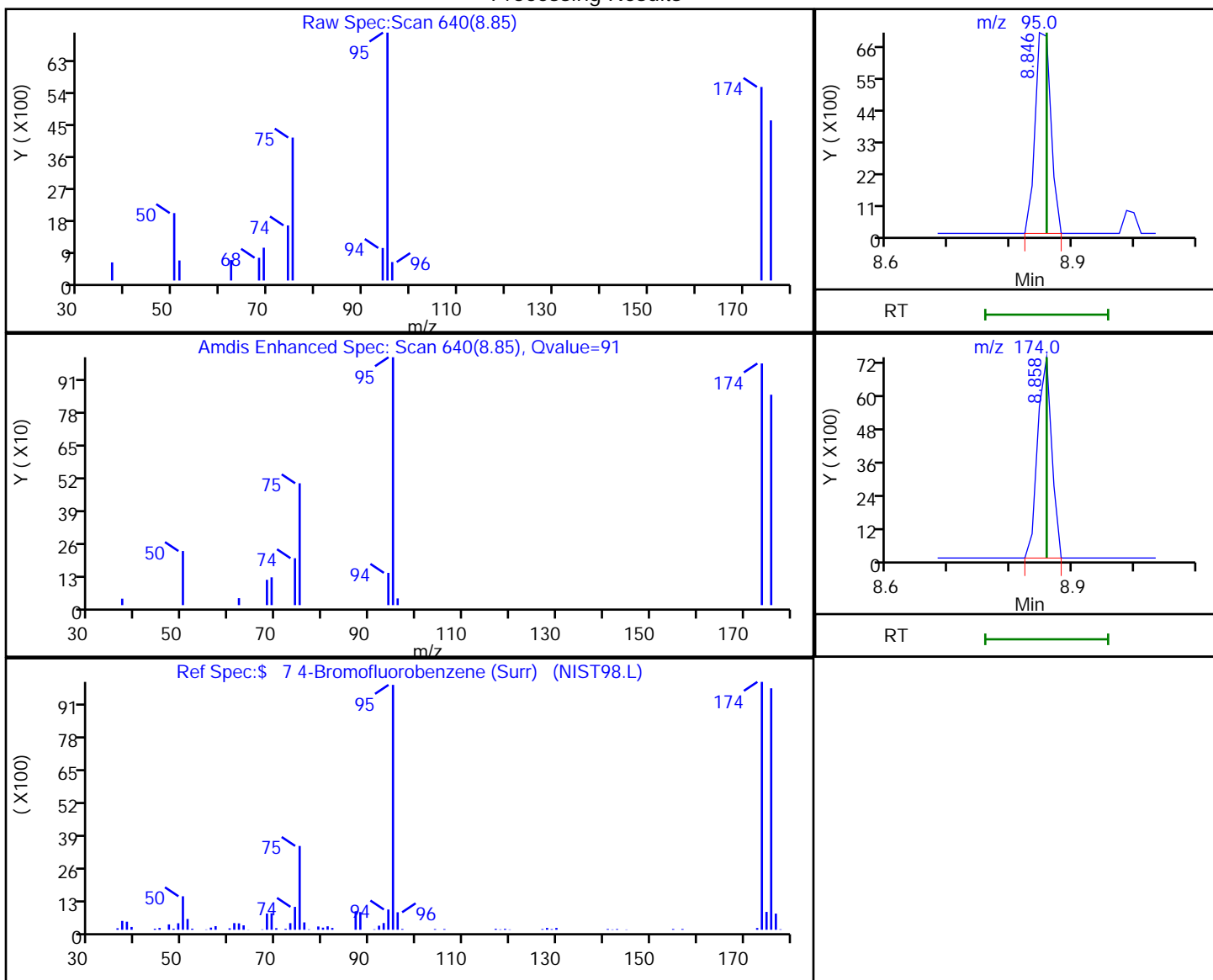
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279113.D
Injection Date: 16-Jul-2020 17:43:30 Instrument ID: A3UX12
Lims ID: std8260 L1
Client ID:
Operator ID: 001904 ALS Bottle#: 5 Worklist Smp#: 9
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

\$ 7 4-Bromofluorobenzene (Surr), CAS: 460-00-4

Processing Results



RT	Mass	Response	Amount
8.85	95.00	12505	0.601023
8.86	174.00	11586	

Reviewer: laveyt, 16-Jul-2020 20:28:37

Audit Action: Marked Compound Undetected

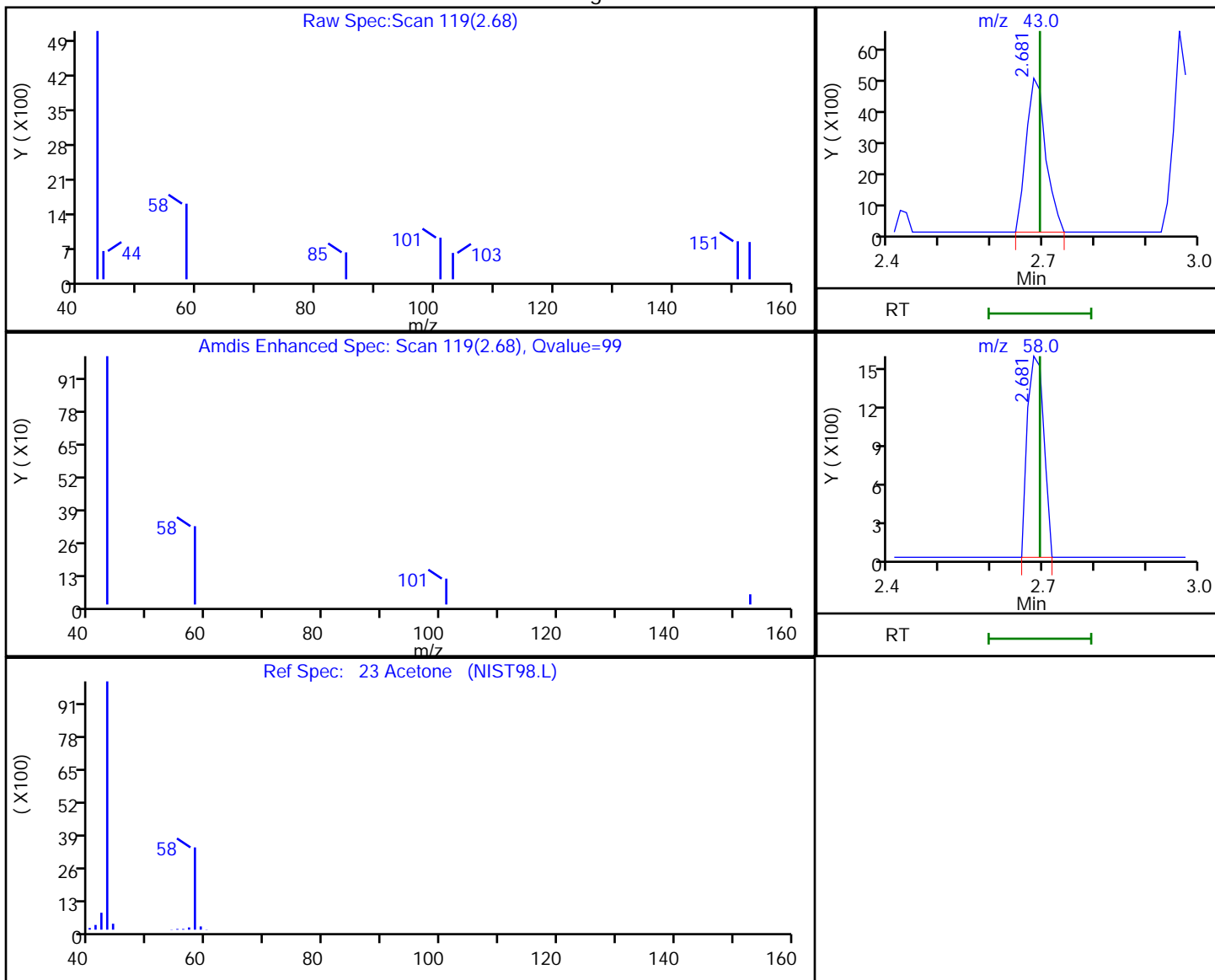
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279113.D
 Injection Date: 16-Jul-2020 17:43:30 Instrument ID: A3UX12
 Lims ID: std8260 L1
 Client ID:
 Operator ID: 001904 ALS Bottle#: 5 Worklist Smp#: 9
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
 Column: DB-624 (0.18 mm) Detector: MS SCAN

23 Acetone, CAS: 67-64-1

Processing Results



RT	Mass	Response	Amount
2.68	43.00	13251	1.316877
2.68	58.00	3390	

Reviewer: laveyt, 16-Jul-2020 18:54:41

Audit Action: Marked Compound Undetected

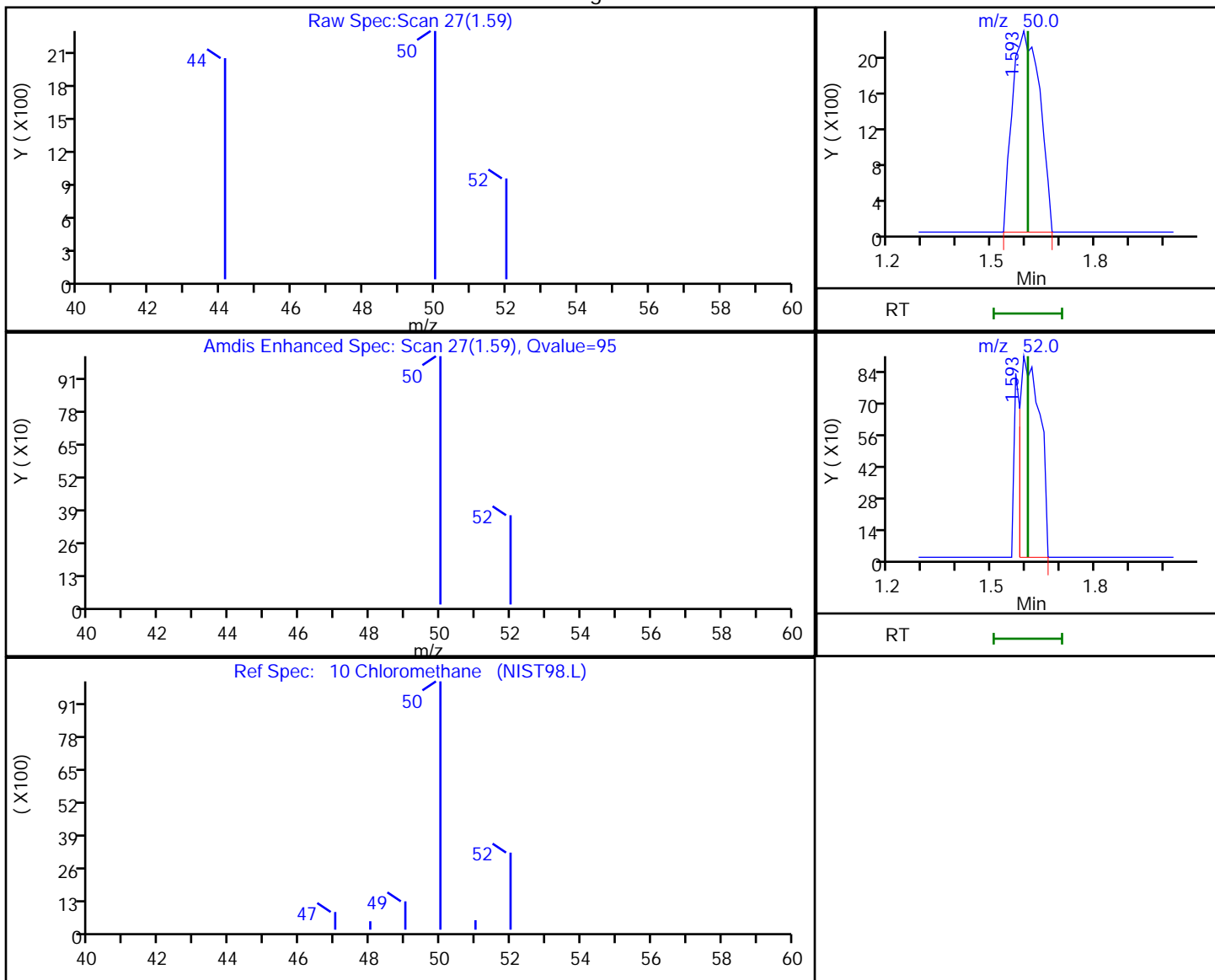
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279113.D
Injection Date: 16-Jul-2020 17:43:30 Instrument ID: A3UX12
Lims ID: std8260 L1
Client ID:
Operator ID: 001904 ALS Bottle#: 5 Worklist Smp#: 9
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

10 Chloromethane, CAS: 74-87-3

Processing Results



RT	Mass	Response	Amount
1.59	50.00	12359	0.432887
1.59	52.00	3652	

Reviewer: laveyt, 16-Jul-2020 20:36:38

Audit Action: Marked Compound Undetected

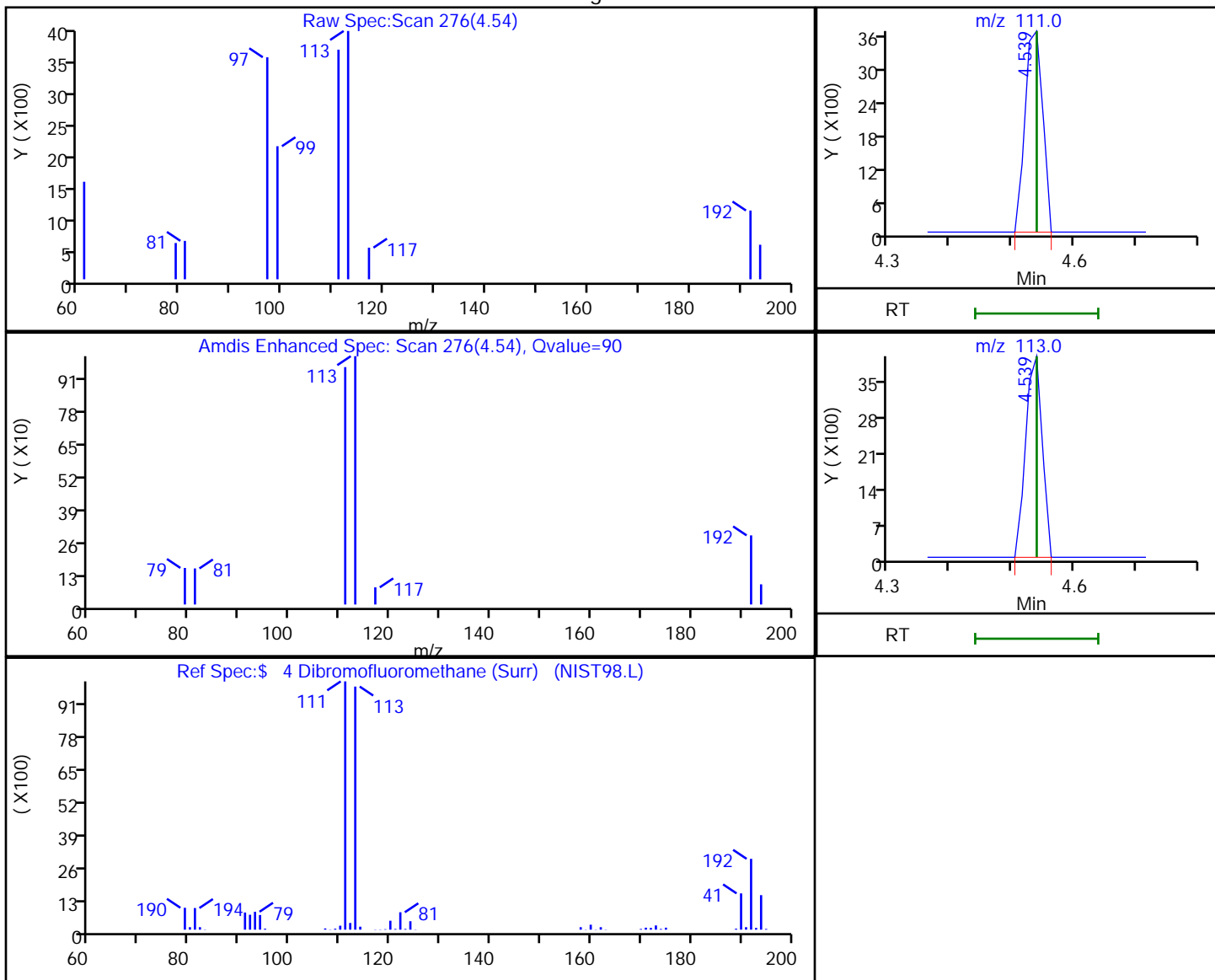
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279113.D
Injection Date: 16-Jul-2020 17:43:30 Instrument ID: A3UX12
Lims ID: std8260 L1
Client ID:
Operator ID: 001904 ALS Bottle#: 5 Worklist Smp#: 9
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

\$ 4 Dibromofluoromethane (Surr), CAS: 1868-53-7

Processing Results



RT	Mass	Response	Amount
4.54	111.00	7389	0.502294
4.54	113.00	7459	

Reviewer: laveyt, 16-Jul-2020 20:28:31

Audit Action: Marked Compound Undetected

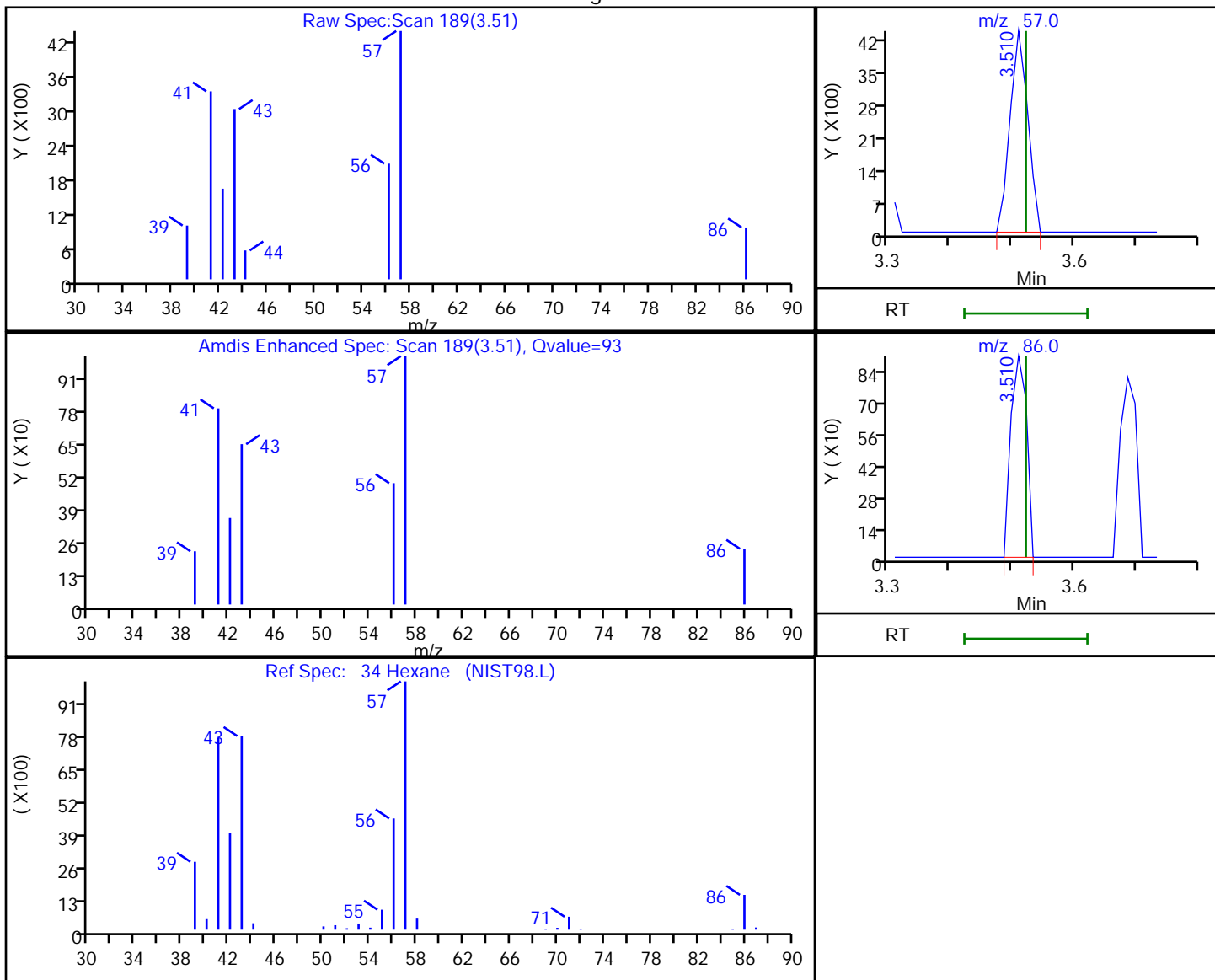
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279113.D
Injection Date: 16-Jul-2020 17:43:30 Instrument ID: A3UX12
Lims ID: std8260 L1
Client ID:
Operator ID: 001904 ALS Bottle#: 5 Worklist Smp#: 9
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

34 Hexane, CAS: 110-54-3

Processing Results



RT	Mass	Response	Amount
3.51	57.00	8658	0.390696
3.51	86.00	1601	

Reviewer: laveyt, 16-Jul-2020 20:37:09

Audit Action: Marked Compound Undetected

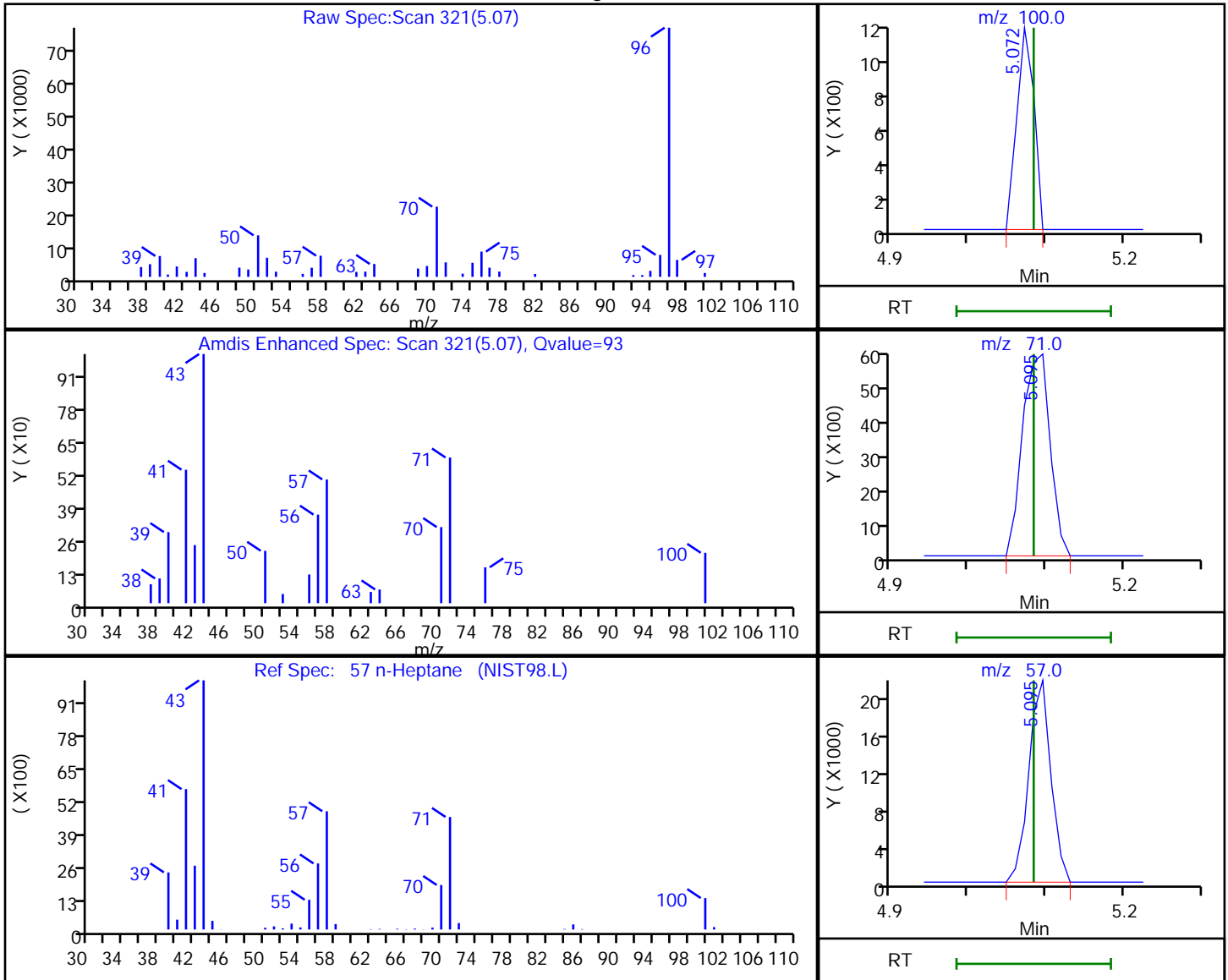
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279113.D
 Injection Date: 16-Jul-2020 17:43:30 Instrument ID: A3UX12
 Lims ID: std8260 L1
 Client ID:
 Operator ID: 001904 ALS Bottle#: 5 Worklist Smp#: 9
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
 Column: DB-624 (0.18 mm) Detector: MS SCAN

57 n-Heptane, CAS: 142-82-5

Processing Results



RT	Mass	Response	Amount
5.07	100.00	1822	
5.10	71.00	14789	
5.10	57.00	43282	0.854800

Reviewer: laveyt, 16-Jul-2020 18:56:12

Audit Action: Marked Compound Undetected

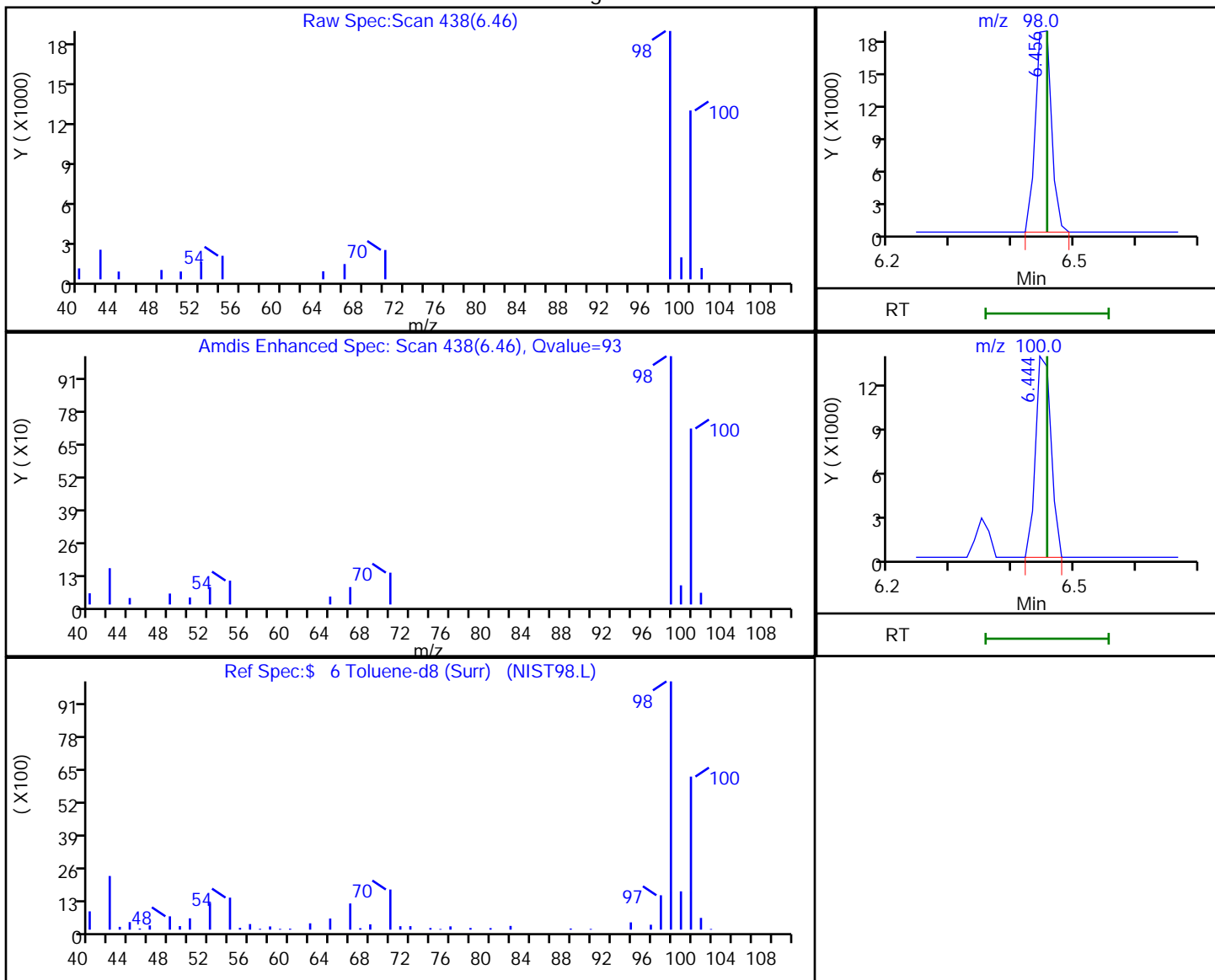
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279113.D
Injection Date: 16-Jul-2020 17:43:30 Instrument ID: A3UX12
Lims ID: std8260 L1
Client ID:
Operator ID: 001904 ALS Bottle#: 5 Worklist Smp#: 9
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

\$ 6 Toluene-d8 (Surr), CAS: 2037-26-5

Processing Results



RT	Mass	Response	Amount
6.46	98.00	32928	0.639609
6.44	100.00	22734	

Reviewer: laveyt, 16-Jul-2020 18:52:03

Audit Action: Marked Compound Undetected

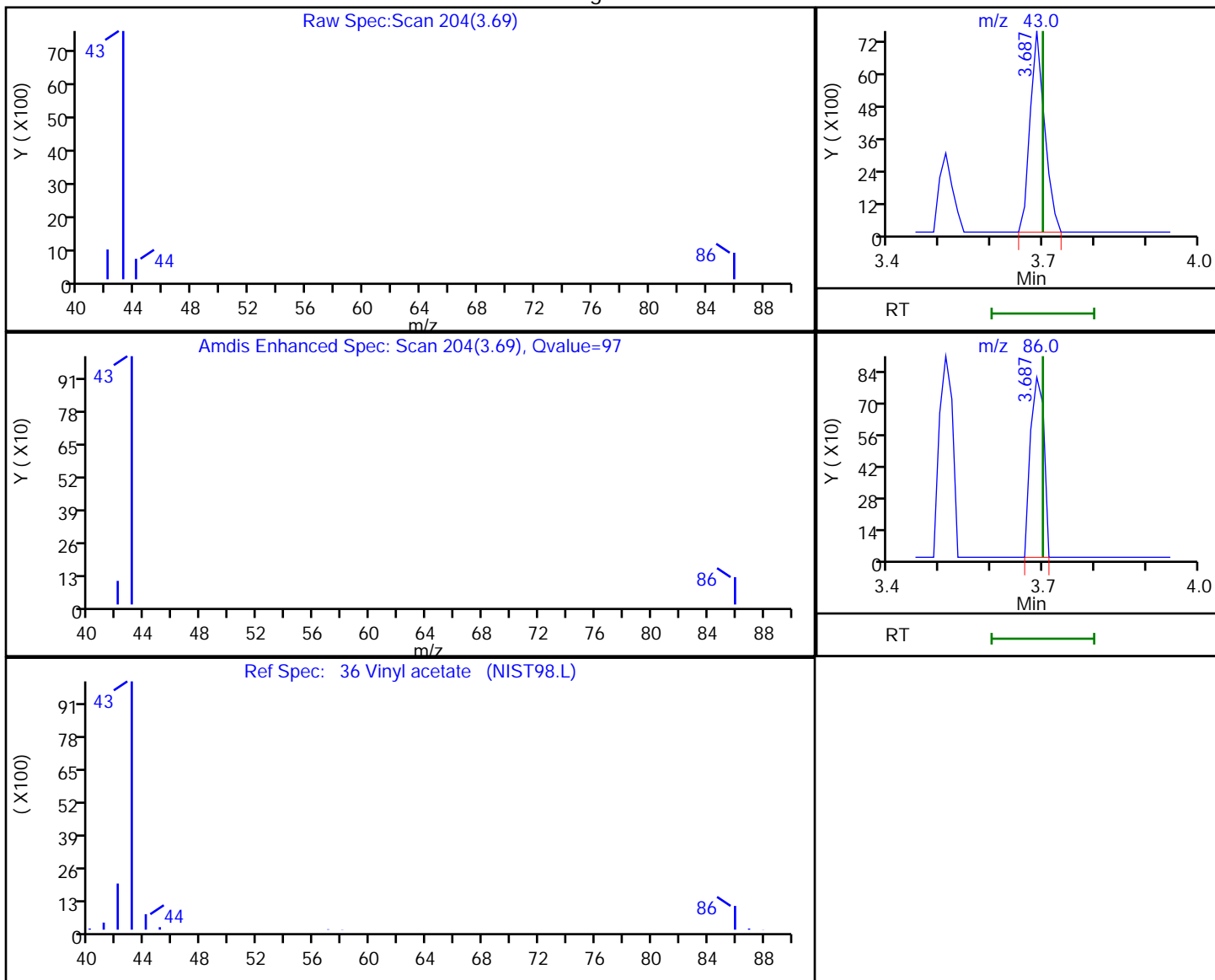
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279113.D
Injection Date: 16-Jul-2020 17:43:30 Instrument ID: A3UX12
Lims ID: std8260 L1
Client ID:
Operator ID: 001904 ALS Bottle#: 5 Worklist Smp#: 9
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

36 Vinyl acetate, CAS: 108-05-4

Processing Results



RT	Mass	Response	Amount
3.69	43.00	14773	0.396541
3.69	86.00	1467	

Reviewer: laveyt, 16-Jul-2020 20:37:02

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279114.D
 Lims ID: std8260 L2
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 16-Jul-2020 18:05:30 ALS Bottle#: 6 Worklist Smp#: 10
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100113-010
 Operator ID: 001904 Instrument ID: A3UX12
 Sublist: chrom-8260_12_h2o*sub2
 Method: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 16-Jul-2020 21:23:48 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1057

First Level Reviewer: laveyt

Date: 16-Jul-2020 18:44:20

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1013893	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	604161	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.970	0.000	95	366234	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111		4.539				ND	ND	U
\$ 5 1,2-Dichloroethane-d4 (Surr)	65		4.823				ND	ND	U
\$ 6 Toluene-d8 (Surr)	98		6.456				ND	ND	U
\$ 7 4-Bromofluorobenzene (Surr)	95		8.858				ND	ND	U
9 Dichlorodifluoromethane	85	1.415	1.403	0.012	96	12858	1.00	0.8119	
10 Chloromethane	50	1.605	1.605	0.000	93	22907	1.00	0.5947	
11 Butadiene	54	1.652	1.652	0.000	86	16845	1.00	0.9027	
12 Vinyl chloride	62	1.687	1.687	0.000	95	17064	1.00	0.8994	
14 Bromomethane	94	1.936	1.936	0.000	86	11010	1.00	0.8753	
15 Chloroethane	64	1.995	1.995	0.000	98	11645	1.00	0.8432	
16 Dichlorofluoromethane	67	2.184	2.184	0.000	96	26597	1.00	0.9224	
17 Trichlorofluoromethane	101	2.208	2.184	0.024	88	22183	1.00	1.00	
19 Ethyl ether	59	2.445	2.445	0.000	92	14820	1.00	0.9625	
20 Acrolein	56	2.563	2.563	0.000	94	6778	5.00	5.11	
21 1,1-Dichloroethene	61	2.634	2.634	0.000	96	21022	1.00	1.03	
22 112TCTFE	101	2.670	2.670	0.000	88	11895	1.00	0.99	
23 Acetone	43	2.693	2.693	0.000	99	16108	2.00	1.08	
24 Iodomethane	142	2.776	2.776	0.000	97	19223	1.00	0.9270	
25 Carbon disulfide	76	2.823	2.823	0.000	99	37146	1.00	0.9050	
27 3-Chloro-1-propene	41	2.954	2.954	0.000	91	20839	1.00	0.9116	
28 Methyl acetate	43	2.977	2.977	0.000	98	28394	2.00	1.83	
29 Methylene Chloride	49	3.060	3.060	0.000	91	17390	1.00	0.9336	
30 2-Methyl-2-propanol	59	3.167	3.167	0.000	99	17528	10.0	9.10	
31 Acrylonitrile	53	3.285	3.285	0.000	98	67455	10.0	8.38	
32 trans-1,2-Dichloroethene	61	3.297	3.297	0.000	65	16647	1.00	0.8509	
33 Methyl tert-butyl ether	73	3.297	3.297	0.000	96	39426	1.00	0.8777	
34 Hexane	57	3.522	3.522	0.000	92	17358	1.00	0.8009	
35 1,1-Dichloroethane	63	3.652	3.652	0.000	96	23537	1.00	0.9027	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
36 Vinyl acetate	43	3.699	3.699	0.000	97	28476	1.00	0.7752	
41 cis-1,2-Dichloroethene	96	4.137	4.137	0.000	83	17440	1.00	0.9559	
40 2,2-Dichloropropane	77	4.137	4.137	0.000	60	16418	1.00	0.9184	
42 2-Butanone (MEK)	72	4.160	4.149	0.011	99	5020	2.00	1.57	
46 Chlorobromomethane	49	4.338	4.338	0.000	96	14016	1.00	0.9449	
47 Tetrahydrofuran	42	4.373	4.374	-0.001	86	14616	2.00	1.79	
48 Chloroform	83	4.409	4.409	0.000	93	25004	1.00	0.9686	
49 1,1,1-Trichloroethane	97	4.551	4.551	0.000	98	18522	1.00	0.9050	
50 Cyclohexane	84	4.598	4.598	0.000	91	25331	1.00	1.05	
52 Carbon tetrachloride	117	4.693	4.693	0.000	79	15810	1.00	0.9485	
51 1,1-Dichloropropene	75	4.693	4.693	0.000	92	19325	1.00	0.9279	
53 Isobutyl alcohol	41	4.788	4.788	0.000	94	19594	25.0	24.0	
54 Benzene	78	4.870	4.870	0.000	96	62890	1.00	1.01	
55 1,2-Dichloroethane	62	4.882	4.882	0.000	97	19689	1.00	0.9736	
57 n-Heptane	57	5.095	5.083	0.012	84	44411	1.00	1.23	
59 Trichloroethene	130	5.403	5.403	0.000	97	13562	1.00	0.9637	
61 Methylcyclohexane	83	5.569	5.569	0.000	87	25703	1.00	1.04	
62 1,2-Dichloropropane	63	5.604	5.604	0.000	91	12467	1.00	0.9275	
64 Dibromomethane	174	5.711	5.711	0.000	92	7950	1.00	0.8331	
65 1,4-Dioxane	88	5.711	5.711	0.000	32	1282	20.0	7.31	
66 Dichlorobromomethane	83	5.829	5.829	0.000	96	12908	1.00	0.7687	
68 2-Chloroethyl vinyl ether	63	6.089	6.089	0.000	90	14412	2.00	1.42	
69 cis-1,3-Dichloropropene	75	6.219	6.219	0.000	93	15367	1.00	0.7223	
70 4-Methyl-2-pentanone (MIBK)	43	6.350	6.350	0.000	96	33198	2.00	1.51	
71 Toluene	91	6.515	6.515	0.000	97	46282	1.00	0.9233	
72 trans-1,3-Dichloropropene	75	6.705	6.705	0.000	94	14175	1.00	0.8727	
74 Ethyl methacrylate	69	6.776	6.776	0.000	86	14331	1.00	0.8749	
75 1,1,2-Trichloroethane	97	6.870	6.870	0.000	90	8974	1.00	0.9142	
76 Tetrachloroethene	166	7.000	7.000	0.000	95	11469	1.00	0.9562	
77 1,3-Dichloropropane	76	7.024	7.024	0.000	91	18373	1.00	1.00	
78 2-Hexanone	43	7.095	7.095	0.000	95	22216	2.00	1.69	
80 Chlorodibromomethane	129	7.225	7.225	0.000	83	9274	1.00	0.9613	
81 Ethylene Dibromide	107	7.332	7.332	0.000	90	10477	1.00	1.03	
83 Chlorobenzene	112	7.781	7.781	0.000	92	28930	1.00	0.9872	
84 1,1,1,2-Tetrachloroethane	131	7.852	7.852	0.000	92	9310	1.00	0.9319	
85 Ethylbenzene	106	7.876	7.876	0.000	98	16358	1.00	1.02	
86 m-Xylene & p-Xylene	106	7.983	7.983	0.000	98	19083	1.00	0.9574	
87 o-Xylene	106	8.361	8.361	0.000	97	23782	1.00	1.16	
88 Styrene	104	8.373	8.373	0.000	95	37239	1.00	1.13	
89 Bromoform	173	8.550	8.551	-0.001	96	6225	1.00	0.9361	
90 Isopropylbenzene	105	8.704	8.704	0.000	95	55771	1.00	1.08	
93 1,1,2,2-Tetrachloroethane	83	9.000	9.000	0.000	90	19529	1.00	1.07	
92 Bromobenzene	156	9.000	9.000	0.000	92	15468	1.00	1.08	
94 1,2,3-Trichloropropane	110	9.036	9.036	0.000	85	7073	1.00	1.12	
95 trans-1,4-Dichloro-2-butene	53	9.047	9.048	-0.001	70	4494	1.00	0.8385	
96 N-Propylbenzene	120	9.095	9.095	0.000	99	14811	1.00	0.9509	
97 2-Chlorotoluene	126	9.189	9.178	0.011	96	13592	1.00	0.9883	
98 1,3,5-Trimethylbenzene	105	9.272	9.272	0.000	96	43601	1.00	0.9494	
99 4-Chlorotoluene	126	9.284	9.284	0.000	98	13920	1.00	0.9867	
102 tert-Butylbenzene	119	9.580	9.580	0.000	92	39497	1.00	0.9825	
104 1,2,4-Trimethylbenzene	105	9.627	9.627	0.000	96	44707	1.00	0.9269	
105 sec-Butylbenzene	105	9.793	9.793	0.000	94	56787	1.00	0.9740	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
106 1,3-Dichlorobenzene	146	9.911	9.911	0.000	97	28415	1.00	1.05	
107 4-Isopropyltoluene	119	9.935	9.947	-0.012	97	46274	1.00	0.9544	
108 1,4-Dichlorobenzene	146	9.994	9.994	0.000	96	29584	1.00	1.05	
111 n-Butylbenzene	91	10.337	10.337	0.000	98	38698	1.00	0.9519	
112 1,2-Dichlorobenzene	146	10.361	10.361	0.000	97	27344	1.00	1.01	
113 1,2-Dibromo-3-Chloropropane	157	11.130	11.130	0.000	81	4295	1.00	1.00	
115 1,2,4-Trichlorobenzene	180	11.947	11.947	0.000	92	14830	1.00	1.00	
116 Hexachlorobutadiene	225	12.124	12.124	0.000	91	6148	1.00	1.04	
117 Naphthalene	128	12.195	12.195	0.000	97	48575	1.00	0.9875	
118 1,2,3-Trichlorobenzene	180	12.432	12.432	0.000	94	13296	1.00	0.9717	
S 124 Trihalomethanes, Total	1				0		4.00	3.63	
S 125 Total BTEX	1				0		5.00	5.07	
S 126 1,2-Dichloroethene, Total	96				0			1.81	
S 127 1,3-Dichloropropene, Total	75				0			1.60	
S 128 Xylenes, Total	106				0		2.00	2.12	

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

Review Flags

U - Marked Undetected

Reagents:

vm50is_stk_a_00006	Amount Added: 2.00	Units: uL
VMRGAS_00347	Amount Added: 0.80	Units: uL
vmarolistdw_00352	Amount Added: 0.80	Units: uL
vmrprimw_00394	Amount Added: 0.80	Units: uL
vm50ss_00410	Amount Added: 0.80	Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279114.D

Injection Date: 16-Jul-2020 18:05:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: std8260 L2

Worklist Smp#: 10

Client ID:

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

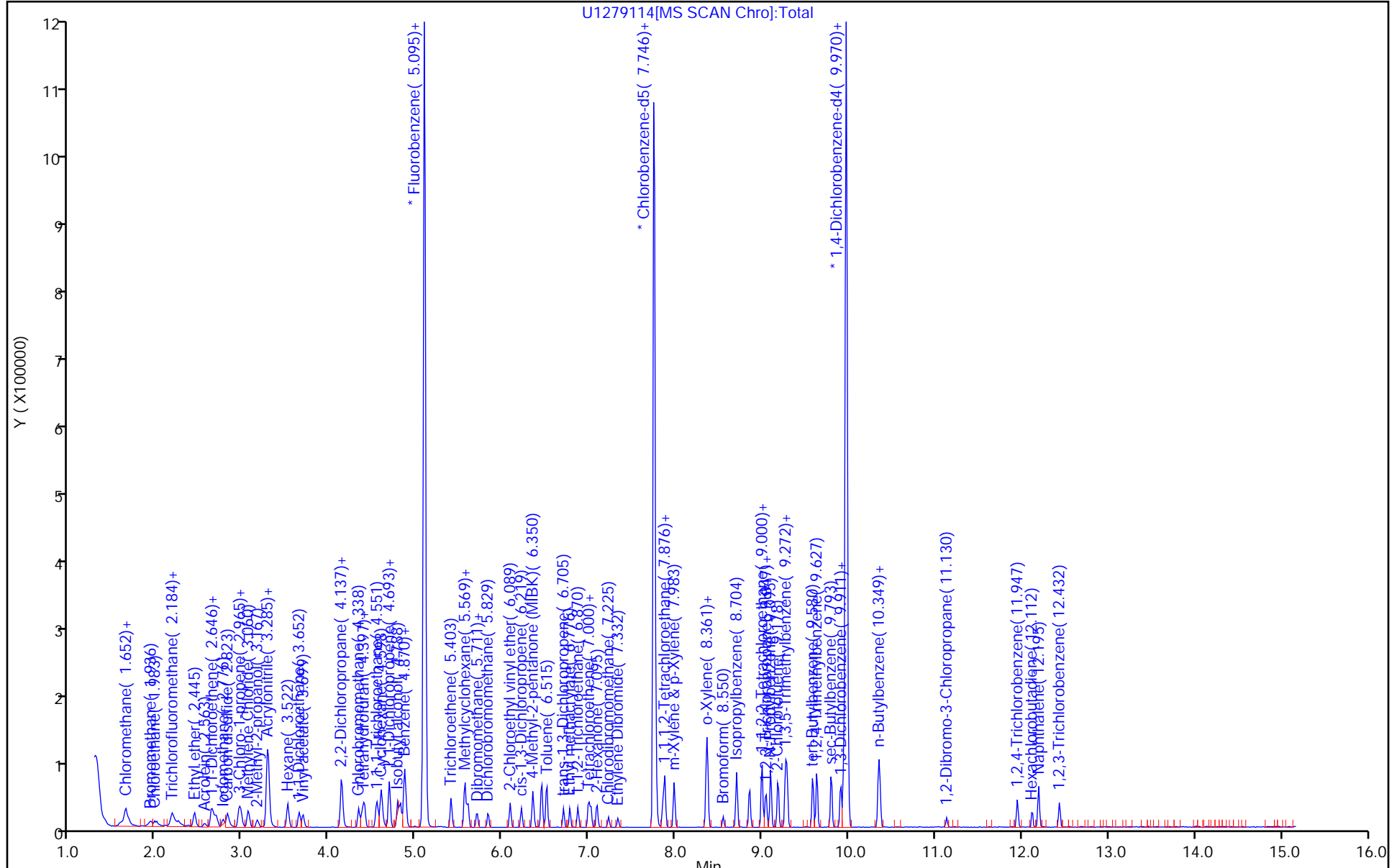
ALS Bottle#: 6

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2

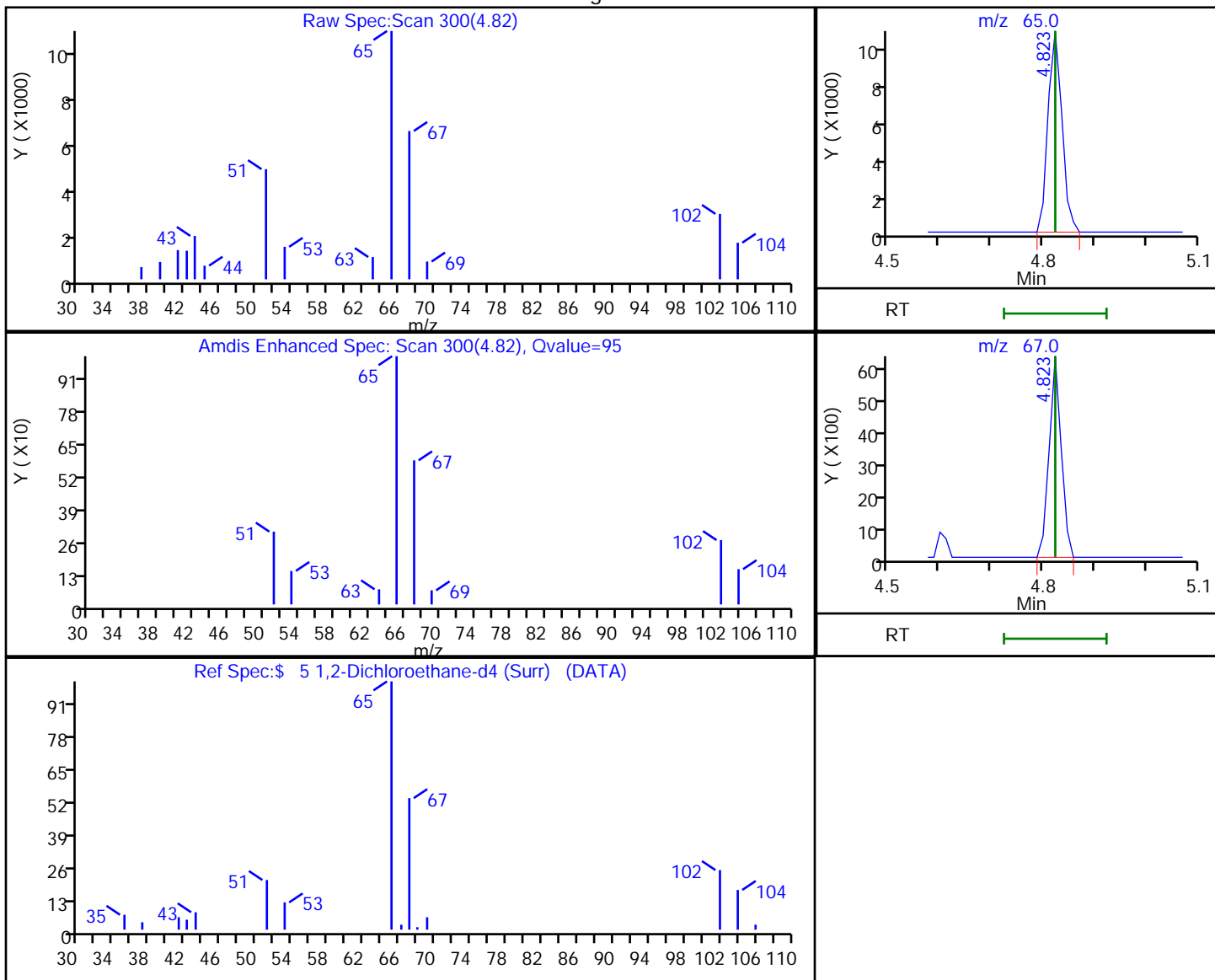


Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279114.D
 Injection Date: 16-Jul-2020 18:05:30 Instrument ID: A3UX12
 Lims ID: std8260 L2
 Client ID:
 Operator ID: 001904 ALS Bottle#: 6 Worklist Smp#: 10
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
 Column: DB-624 (0.18 mm) Detector: MS SCAN

\$ 5 1,2-Dichloroethane-d4 (Surr), CAS: 17060-07-0

Processing Results



RT	Mass	Response	Amount
4.82	65.00	19971	1.142320
4.82	67.00	10329	

Reviewer: laveyt, 16-Jul-2020 20:29:27

Audit Action: Marked Compound Undetected

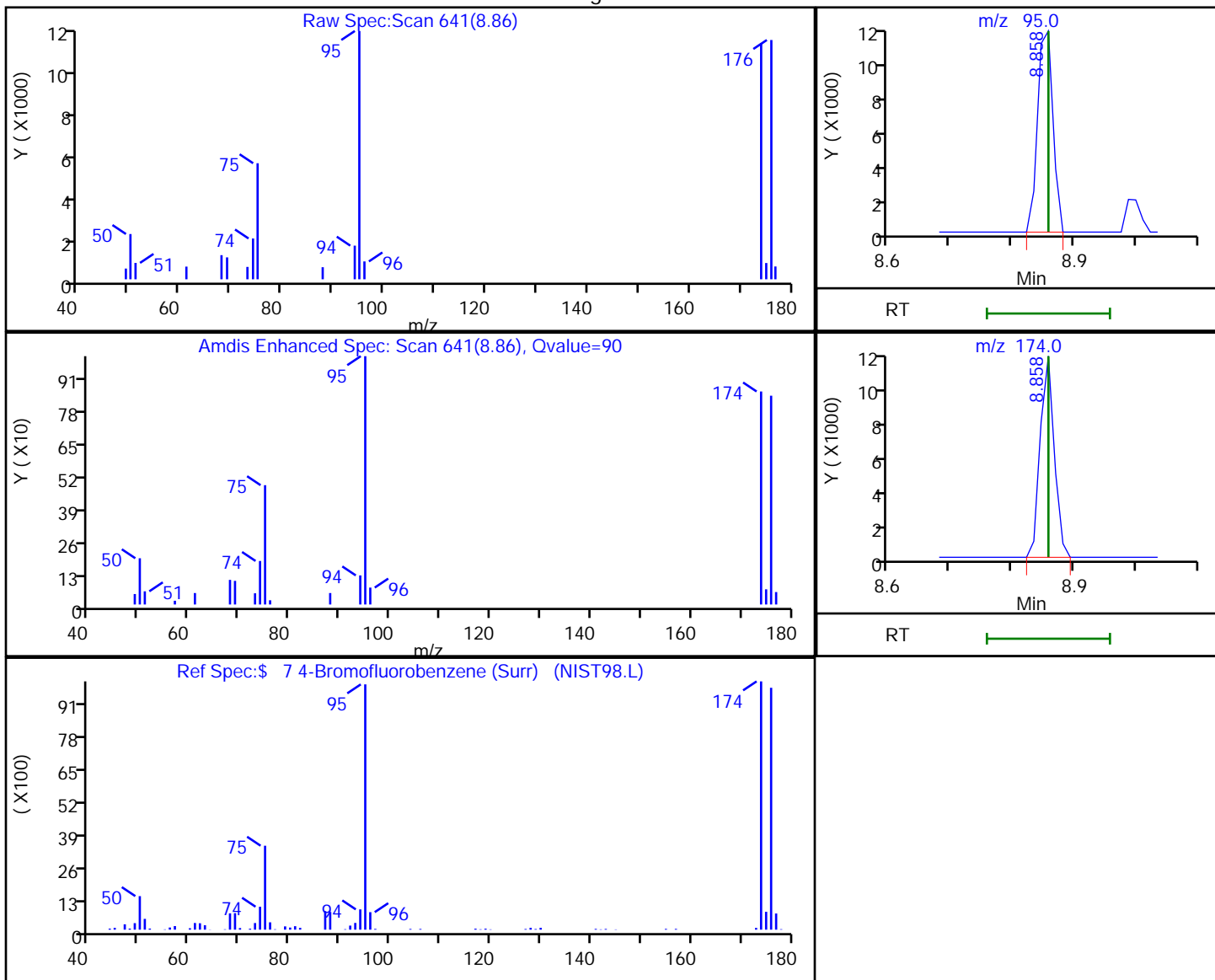
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279114.D
Injection Date: 16-Jul-2020 18:05:30 Instrument ID: A3UX12
Lims ID: std8260 L2
Client ID:
Operator ID: 001904 ALS Bottle#: 6 Worklist Smp#: 10
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

\$ 7 4-Bromofluorobenzene (Surr), CAS: 460-00-4

Processing Results



RT	Mass	Response	Amount
8.86	95.00	20630	1.384413
8.86	174.00	17905	

Reviewer: laveyt, 16-Jul-2020 20:29:33

Audit Action: Marked Compound Undetected

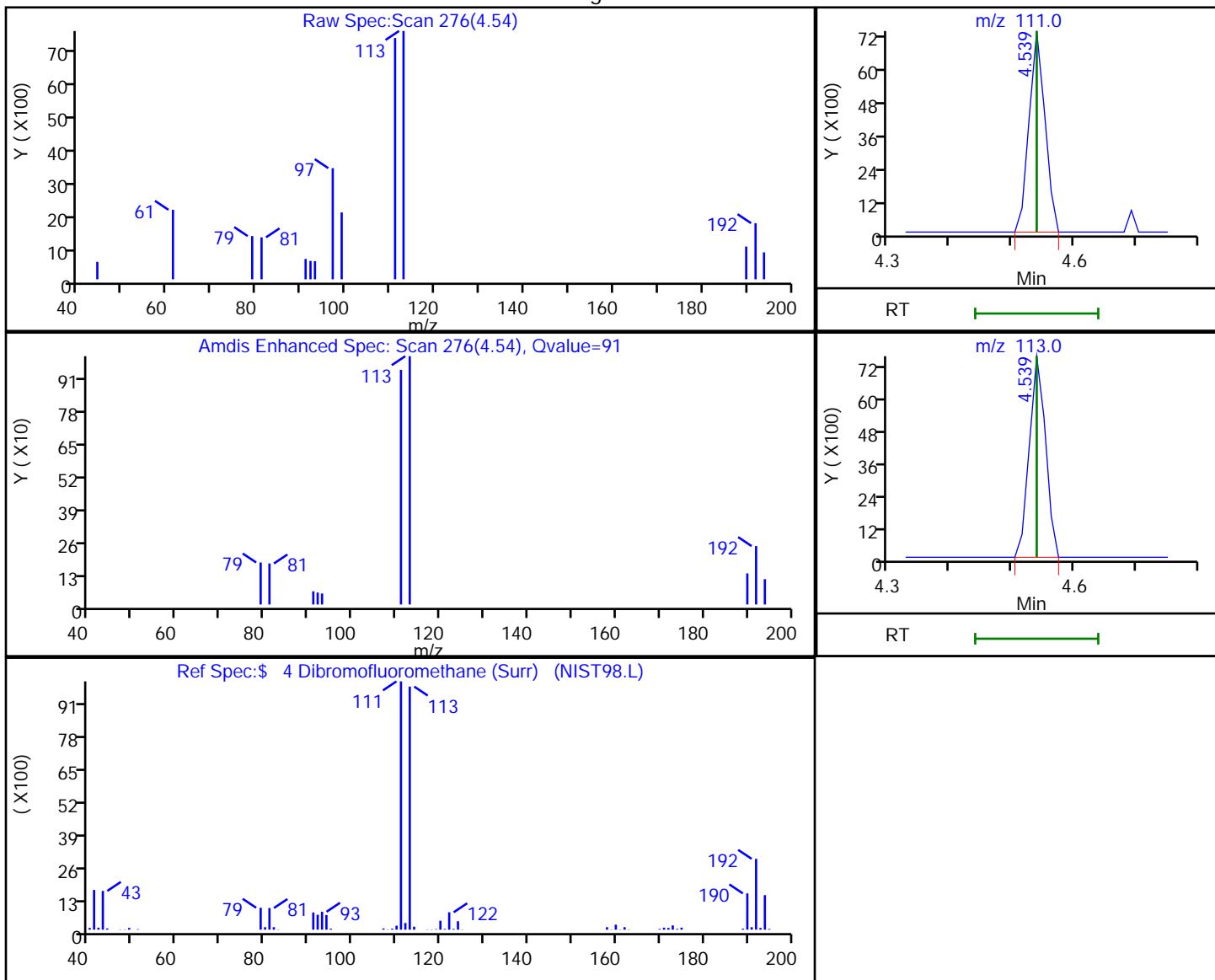
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279114.D
Injection Date: 16-Jul-2020 18:05:30 Instrument ID: A3UX12
Lims ID: std8260 L2
Client ID:
Operator ID: 001904 ALS Bottle#: 6 Worklist Smp#: 10
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

\$ 4 Dibromofluoromethane (Surr), CAS: 1868-53-7

Processing Results



RT	Mass	Response	Amount
4.54	111.00	13114	0.956018
4.54	113.00	13746	

Reviewer: laveyt, 16-Jul-2020 20:29:24

Audit Action: Marked Compound Undetected

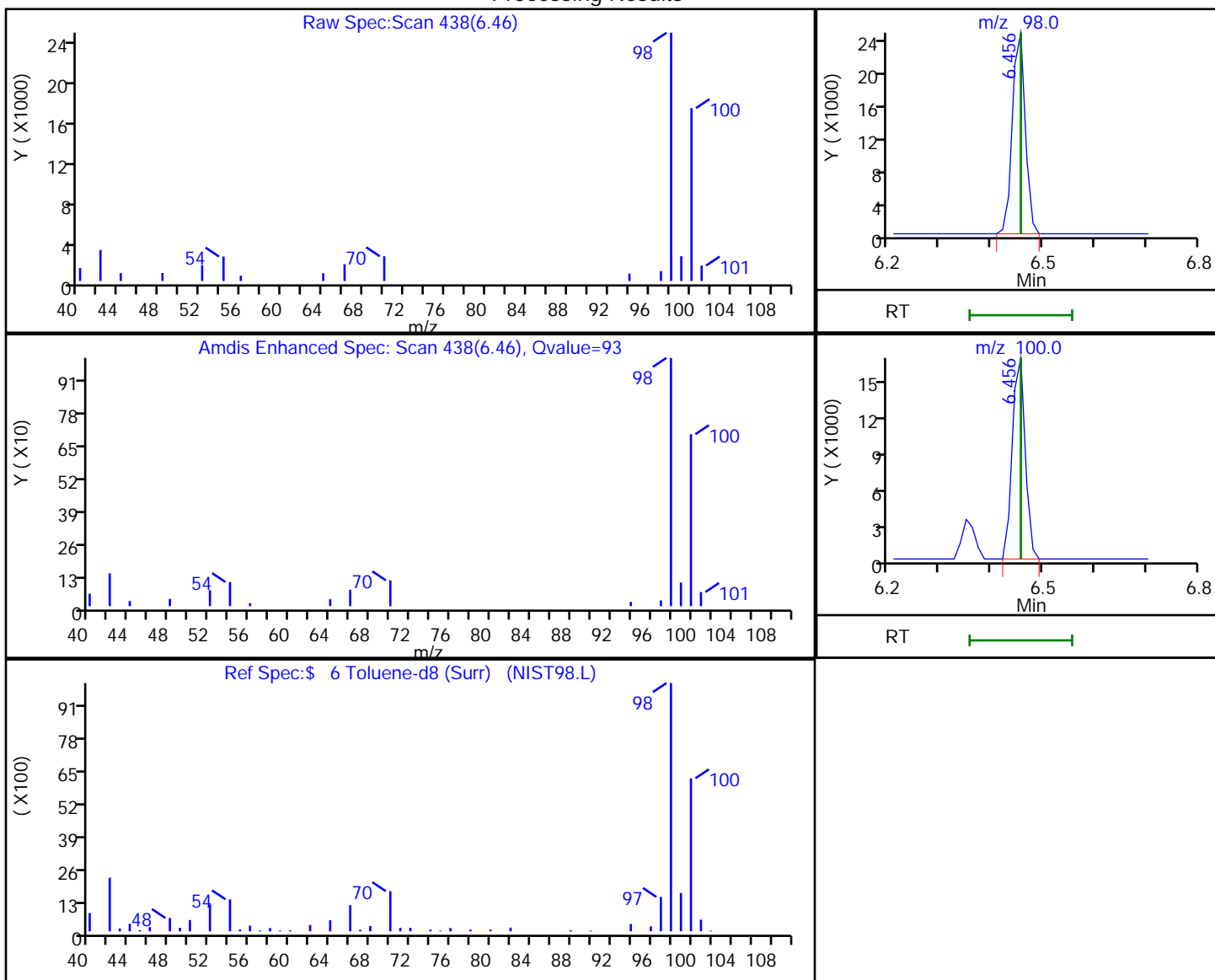
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279114.D
Injection Date: 16-Jul-2020 18:05:30 Instrument ID: A3UX12
Lims ID: std8260 L2
Client ID:
Operator ID: 001904 ALS Bottle#: 6 Worklist Smp#: 10
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

\$ 6 Toluene-d8 (Surr), CAS: 2037-26-5

Processing Results



RT	Mass	Response	Amount
6.46	98.00	42331	1.049519
6.46	100.00	29407	

Reviewer: laveyt, 16-Jul-2020 20:29:30

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279115.D
 Lims ID: std8260 L3
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 16-Jul-2020 18:27:30 ALS Bottle#: 7 Worklist Smp#: 11
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100113-011
 Operator ID: 001904 Instrument ID: A3UX12
 Sublist: chrom-8260_12_h2o*sub2
 Method: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 16-Jul-2020 21:23:54 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1057

First Level Reviewer: laveyt

Date: 16-Jul-2020 18:51:12

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1066368	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.745	7.746	-0.001	87	745447	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.970	0.000	95	384863	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	68389	5.00	4.83	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.823	4.823	0.000	96	88950	5.00	5.13	
\$ 6 Toluene-d8 (Surr)	98	6.456	6.456	0.000	92	254761	5.00	5.05	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	92	90585	5.00	5.25	
9 Dichlorodifluoromethane	85	1.403	1.403	0.000	99	95890	5.00	5.76	
10 Chloromethane	50	1.592	1.605	-0.013	98	180045	5.00	6.44	
11 Butadiene	54	1.652	1.652	0.000	89	124092	5.00	6.32	
12 Vinyl chloride	62	1.687	1.687	0.000	97	121481	5.00	6.09	
14 Bromomethane	94	1.936	1.936	0.000	91	72628	5.00	5.49	
15 Chloroethane	64	1.995	1.995	0.000	99	80121	5.00	5.52	
16 Dichlorofluoromethane	67	2.184	2.184	0.000	97	157289	5.00	5.19	
17 Trichlorofluoromethane	101	2.184	2.184	0.000	85	111171	5.00	4.76	
19 Ethyl ether	59	2.444	2.445	-0.001	93	82827	5.00	5.11	
20 Acrolein	56	2.563	2.563	0.000	97	41496	25.0	29.7	
21 1,1-Dichloroethene	61	2.634	2.634	0.000	96	120487	5.00	5.62	
22 112TCTFE	101	2.669	2.670	-0.001	96	66947	5.00	5.32	
23 Acetone	43	2.693	2.693	0.000	100	81521	10.0	12.4	
24 Iodomethane	142	2.776	2.776	0.000	98	114665	5.00	5.26	
25 Carbon disulfide	76	2.823	2.823	0.000	99	245305	5.00	5.68	
27 3-Chloro-1-propene	41	2.953	2.954	-0.001	92	154691	5.00	6.43	
28 Methyl acetate	43	2.977	2.977	0.000	99	210795	10.0	12.9	
29 Methylene Chloride	49	3.060	3.060	0.000	97	118801	5.00	6.06	
30 2-Methyl-2-propanol	59	3.166	3.167	-0.001	99	125121	50.0	61.8	
31 Acrylonitrile	53	3.284	3.285	-0.001	100	504697	50.0	59.6	
32 trans-1,2-Dichloroethene	61	3.296	3.297	-0.001	66	122478	5.00	5.95	
33 Methyl tert-butyl ether	73	3.296	3.297	-0.001	96	256224	5.00	5.42	
34 Hexane	57	3.521	3.522	-0.001	91	128512	5.00	5.64	
35 1,1-Dichloroethane	63	3.651	3.652	-0.001	96	155829	5.00	5.68	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
36 Vinyl acetate	43	3.699	3.699	0.000	97	212513	5.00	5.50	
41 cis-1,2-Dichloroethene	96	4.136	4.137	-0.001	83	90791	5.00	4.73	
40 2,2-Dichloropropane	77	4.136	4.137	-0.001	61	89862	5.00	4.78	
42 2-Butanone (MEK)	72	4.148	4.149	-0.001	100	32487	10.0	9.65	
46 Chlorobromomethane	49	4.338	4.338	0.000	95	81886	5.00	5.25	
47 Tetrahydrofuran	42	4.373	4.374	-0.001	90	95835	10.0	11.2	
48 Chloroform	83	4.409	4.409	0.000	94	135443	5.00	4.99	
49 1,1,1-Trichloroethane	97	4.562	4.551	0.011	98	105527	5.00	4.90	
50 Cyclohexane	84	4.598	4.598	0.000	92	127620	5.00	5.01	
51 1,1-Dichloropropene	75	4.693	4.693	0.000	94	110916	5.00	5.06	
52 Carbon tetrachloride	117	4.693	4.693	0.000	77	83787	5.00	4.78	
53 Isobutyl alcohol	41	4.787	4.788	-0.001	95	124596	125.0	144.9	
54 Benzene	78	4.870	4.870	0.000	96	337044	5.00	5.15	
55 1,2-Dichloroethane	62	4.882	4.882	0.000	96	105694	5.00	4.97	
57 n-Heptane	57	5.083	5.083	0.000	93	87098	5.00	5.28	
59 Trichloroethene	130	5.403	5.403	0.000	97	76118	5.00	5.14	
61 Methylcyclohexane	83	5.568	5.569	-0.001	89	135793	5.00	5.24	
62 1,2-Dichloropropane	63	5.604	5.604	0.000	94	76423	5.00	5.41	
65 1,4-Dioxane	88	5.710	5.711	-0.001	27	15971	100.0	86.6	
64 Dibromomethane	174	5.710	5.711	-0.001	94	48536	5.00	4.84	
66 Dichlorobromomethane	83	5.829	5.829	0.000	98	85277	5.00	4.83	
68 2-Chloroethyl vinyl ether	63	6.089	6.089	0.000	92	106727	10.0	10.0	
69 cis-1,3-Dichloropropene	75	6.219	6.219	0.000	95	109191	5.00	4.88	
70 4-Methyl-2-pentanone (MIBK)	43	6.349	6.350	-0.001	97	250773	10.0	10.8	
71 Toluene	91	6.515	6.515	0.000	98	302953	5.00	4.90	
72 trans-1,3-Dichloropropene	75	6.704	6.705	-0.001	94	96966	5.00	4.84	
74 Ethyl methacrylate	69	6.775	6.776	-0.001	90	104880	5.00	5.19	
75 1,1,2-Trichloroethane	97	6.870	6.870	0.000	92	59524	5.00	4.91	
76 Tetrachloroethene	166	7.000	7.000	0.000	97	68082	5.00	4.60	
77 1,3-Dichloropropane	76	7.024	7.024	0.000	92	113574	5.00	5.00	
78 2-Hexanone	43	7.095	7.095	0.000	95	177166	10.0	10.9	
80 Chlorodibromomethane	129	7.225	7.225	0.000	91	55714	5.00	4.68	
81 Ethylene Dibromide	107	7.331	7.332	-0.001	99	60273	5.00	4.81	
83 Chlorobenzene	112	7.781	7.781	0.000	94	185806	5.00	5.14	
84 1,1,1,2-Tetrachloroethane	131	7.852	7.852	0.000	95	60497	5.00	4.91	
85 Ethylbenzene	106	7.876	7.876	0.000	99	102746	5.00	5.17	
86 m-Xylene & p-Xylene	106	7.982	7.983	-0.001	98	128823	5.00	5.24	
87 o-Xylene	106	8.361	8.361	0.000	95	125874	5.00	4.97	
88 Styrene	104	8.373	8.373	0.000	95	201429	5.00	4.95	
89 Bromoform	173	8.550	8.551	-0.001	95	38309	5.00	4.67	
90 Isopropylbenzene	105	8.704	8.704	0.000	95	320834	5.00	5.05	
92 Bromobenzene	156	9.000	9.000	0.000	94	76292	5.00	5.07	
93 1,1,2,2-Tetrachloroethane	83	9.000	9.000	0.000	83	98841	5.00	5.14	
94 1,2,3-Trichloropropane	110	9.035	9.036	-0.001	86	33941	5.00	5.11	
95 trans-1,4-Dichloro-2-butene	53	9.047	9.048	-0.001	87	30147	5.00	5.35	
96 N-Propylbenzene	120	9.094	9.095	-0.001	99	86386	5.00	5.28	
97 2-Chlorotoluene	126	9.189	9.178	0.011	96	73516	5.00	5.09	
98 1,3,5-Trimethylbenzene	105	9.272	9.272	0.000	95	250416	5.00	5.19	
99 4-Chlorotoluene	126	9.284	9.284	0.000	99	74622	5.00	5.03	
102 tert-Butylbenzene	119	9.580	9.580	0.000	93	207081	5.00	4.90	
104 1,2,4-Trimethylbenzene	105	9.627	9.627	0.000	97	255743	5.00	5.05	
105 sec-Butylbenzene	105	9.793	9.793	0.000	94	304124	5.00	4.96	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
106 1,3-Dichlorobenzene	146	9.911	9.911	0.000	99	143474	5.00	5.03	
107 4-Isopropyltoluene	119	9.935	9.947	-0.012	97	262116	5.00	5.14	
108 1,4-Dichlorobenzene	146	9.994	9.994	0.000	95	144861	5.00	4.90	
111 n-Butylbenzene	91	10.337	10.337	0.000	97	218725	5.00	5.12	
112 1,2-Dichlorobenzene	146	10.361	10.361	0.000	97	143813	5.00	5.08	
113 1,2-Dibromo-3-Chloropropane	157	11.130	11.130	0.000	82	22950	5.00	5.11	
115 1,2,4-Trichlorobenzene	180	11.946	11.947	-0.001	94	77534	5.00	4.97	
116 Hexachlorobutadiene	225	12.124	12.124	0.000	95	27773	5.00	4.73	
117 Naphthalene	128	12.195	12.195	0.000	97	270015	5.00	5.22	
118 1,2,3-Trichlorobenzene	180	12.431	12.432	-0.001	94	74152	5.00	5.16	
S 124 Trihalomethanes, Total	1				0		20.0	19.2	
S 125 Total BTEX	1				0		25.0	25.4	
S 126 1,2-Dichloroethene, Total	96				0			10.7	
S 127 1,3-Dichloropropene, Total	75				0			9.72	
S 128 Xylenes, Total	106				0		10.0	10.2	

Reagents:

vm50is_stk_a_00006	Amount Added: 2.00	Units: uL
VMRGAS_00347	Amount Added: 4.00	Units: uL
vmarolistdw_00352	Amount Added: 4.00	Units: uL
vmrprimw_00394	Amount Added: 4.00	Units: uL
vm50ss_00410	Amount Added: 4.00	Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279115.D

Injection Date: 16-Jul-2020 18:27:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: std8260 L3

Worklist Smp#: 11

Client ID:

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

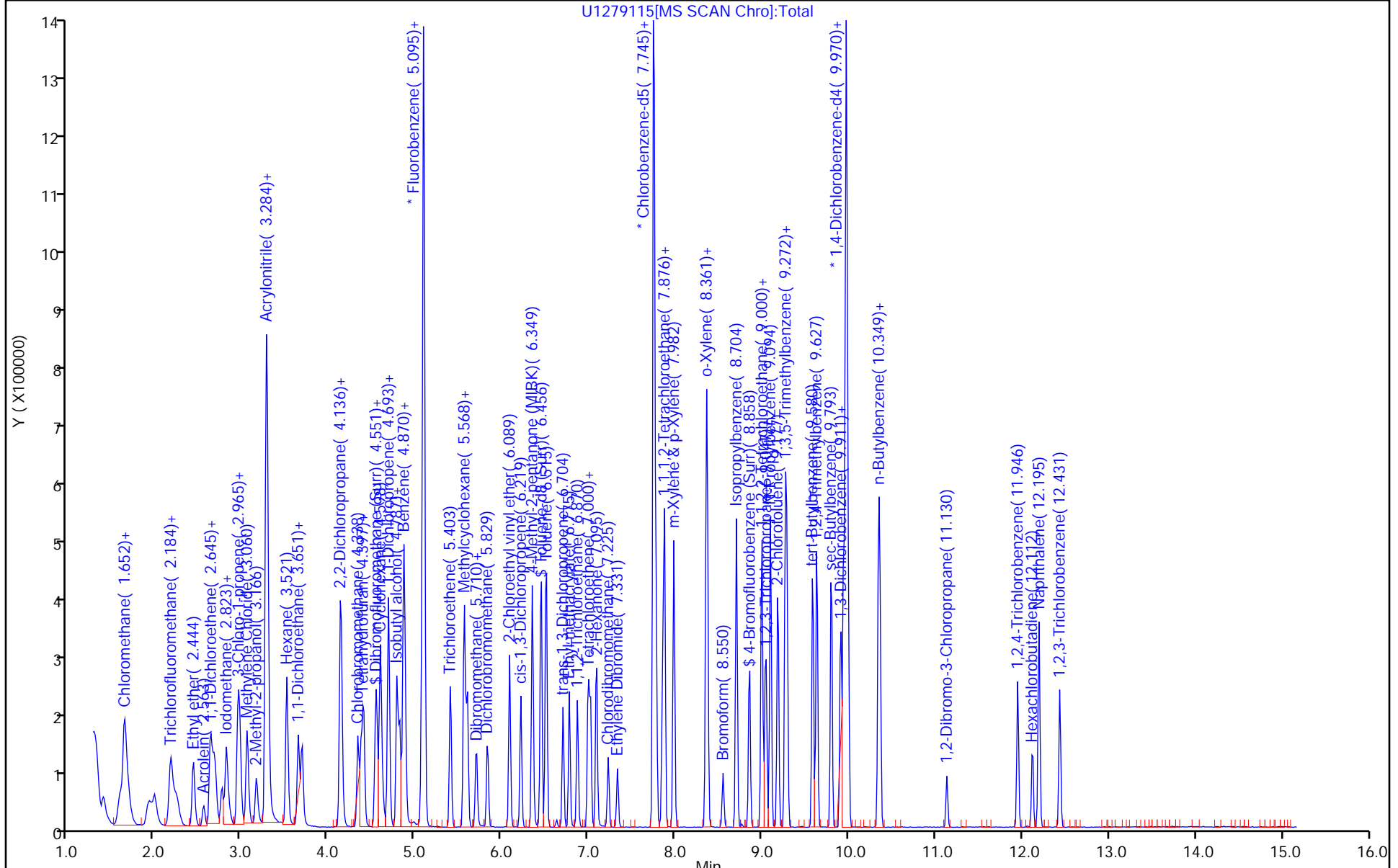
ALS Bottle#: 7

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279116.D
 Lims ID: std8260 L4
 Client ID:
 Sample Type: IC Calib Level: 4
 Inject. Date: 16-Jul-2020 18:50:30 ALS Bottle#: 8 Worklist Smp#: 12
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100113-012
 Operator ID: 001904 Instrument ID: A3UX12
 Sublist: chrom-8260_12_h2o*sub2
 Method: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 16-Jul-2020 21:24:04 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1057

First Level Reviewer: laveyt Date: 16-Jul-2020 19:13:35

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	98	886512	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	86	632834	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.970	0.000	95	393985	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	117634	10.0	10.0	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.811	0.000	97	143083	10.0	9.94	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.444	0.000	93	458994	10.0	10.7	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.846	8.846	0.000	94	138527	10.0	9.45	
9 Dichlorodifluoromethane	85	1.392	1.392	0.000	99	151666	10.0	11.0	
10 Chloromethane	50	1.581	1.581	0.000	98	233672	10.0	10.2	M
11 Butadiene	54	1.628	1.628	0.000	91	159384	10.0	9.77	
12 Vinyl chloride	62	1.664	1.664	0.000	97	171618	10.0	10.3	
14 Bromomethane	94	1.912	1.912	0.000	91	127041	10.0	11.6	
15 Chloroethane	64	1.983	1.983	0.000	100	136173	10.0	11.3	
16 Dichlorofluoromethane	67	2.161	2.161	0.000	97	288627	10.0	11.4	
17 Trichlorofluoromethane	101	2.173	2.173	0.000	84	210999	10.0	10.9	
19 Ethyl ether	59	2.433	2.433	0.000	92	157156	10.0	11.7	
20 Acrolein	56	2.551	2.551	0.000	99	56998	50.0	49.1	
21 1,1-Dichloroethene	61	2.622	2.622	0.000	98	183544	10.0	10.3	
22 112TCTFE	101	2.658	2.658	0.000	94	105296	10.0	10.1	
23 Acetone	43	2.681	2.681	0.000	100	119029	20.0	23.2	
24 Iodomethane	142	2.764	2.764	0.000	98	207558	10.0	11.4	
25 Carbon disulfide	76	2.812	2.812	0.000	100	378954	10.0	10.6	
27 3-Chloro-1-propene	41	2.942	2.942	0.000	89	205590	10.0	10.3	
28 Methyl acetate	43	2.965	2.965	0.000	97	286458	20.0	21.1	
29 Methylene Chloride	49	3.048	3.048	0.000	94	176439	10.0	10.8	
30 2-Methyl-2-propanol	59	3.166	3.166	0.000	99	191199	100.0	113.6	
31 Acrylonitrile	53	3.273	3.273	0.000	99	723158	100.0	102.7	
32 trans-1,2-Dichloroethene	61	3.285	3.285	0.000	66	186220	10.0	10.9	
33 Methyl tert-butyl ether	73	3.285	3.285	0.000	96	418565	10.0	10.7	
34 Hexane	57	3.510	3.510	0.000	91	169215	10.0	8.93	
35 1,1-Dichloroethane	63	3.640	3.640	0.000	96	236866	10.0	10.4	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
36 Vinyl acetate	43	3.687	3.687	0.000	97	302914	10.0	9.43	
41 cis-1,2-Dichloroethene	96	4.137	4.137	0.000	82	172589	10.0	10.8	
40 2,2-Dichloropropane	77	4.137	4.125	0.012	63	171711	10.0	11.0	
42 2-Butanone (MEK)	72	4.149	4.149	0.000	99	60927	20.0	21.8	
46 Chlorobromomethane	49	4.338	4.338	0.000	97	153287	10.0	11.8	
47 Tetrahydrofuran	42	4.373	4.373	0.000	86	149777	20.0	21.0	
48 Chloroform	83	4.397	4.397	0.000	94	248247	10.0	11.0	
49 1,1,1-Trichloroethane	97	4.551	4.551	0.000	99	176862	10.0	9.88	
50 Cyclohexane	84	4.598	4.598	0.000	90	192287	10.0	9.08	
52 Carbon tetrachloride	117	4.693	4.693	0.000	82	141890	10.0	9.74	
51 1,1-Dichloropropene	75	4.681	4.681	0.000	93	168265	10.0	9.24	
53 Isobutyl alcohol	41	4.788	4.788	0.000	94	172245	250.0	240.9	
54 Benzene	78	4.859	4.859	0.000	96	525396	10.0	9.65	
55 1,2-Dichloroethane	62	4.882	4.882	0.000	97	175519	10.0	9.93	
57 n-Heptane	57	5.072	5.072	0.000	89	95900	10.0	8.11	
59 Trichloroethene	130	5.403	5.403	0.000	98	125955	10.0	10.2	
61 Methylcyclohexane	83	5.557	5.557	0.000	90	197666	10.0	9.18	
62 1,2-Dichloropropane	63	5.592	5.592	0.000	93	115005	10.0	9.79	
64 Dibromomethane	174	5.711	5.711	0.000	91	93337	10.0	11.2	
65 1,4-Dioxane	88	5.711	5.711	0.000	92	38163	200.0	248.9	
66 Dichlorobromomethane	83	5.829	5.829	0.000	99	167964	10.0	11.4	
68 2-Chloroethyl vinyl ether	63	6.089	6.089	0.000	92	205324	20.0	23.2	
69 cis-1,3-Dichloropropene	75	6.219	6.219	0.000	95	208362	10.0	11.2	
70 4-Methyl-2-pentanone (MIBK)	43	6.350	6.350	0.000	96	475232	20.0	24.7	
71 Toluene	91	6.503	6.503	0.000	99	609655	10.0	11.6	
72 trans-1,3-Dichloropropene	75	6.705	6.705	0.000	95	161548	10.0	9.50	
74 Ethyl methacrylate	69	6.776	6.776	0.000	88	161989	10.0	9.44	
75 1,1,2-Trichloroethane	97	6.870	6.870	0.000	92	97580	10.0	9.49	
76 Tetrachloroethene	166	6.989	6.989	0.000	96	118877	10.0	9.46	
77 1,3-Dichloropropane	76	7.024	7.024	0.000	91	180029	10.0	9.33	
78 2-Hexanone	43	7.083	7.083	0.000	97	255826	20.0	18.6	
80 Chlorodibromomethane	129	7.225	7.225	0.000	90	98356	10.0	9.73	
81 Ethylene Dibromide	107	7.332	7.332	0.000	98	102871	10.0	9.68	
83 Chlorobenzene	112	7.781	7.781	0.000	95	298670	10.0	9.73	
84 1,1,1,2-Tetrachloroethane	131	7.852	7.852	0.000	94	108087	10.0	10.3	
85 Ethylbenzene	106	7.876	7.876	0.000	99	163196	10.0	9.68	
86 m-Xylene & p-Xylene	106	7.982	7.982	0.000	99	206929	10.0	9.91	
87 o-Xylene	106	8.361	8.361	0.000	96	210472	10.0	9.79	
88 Styrene	104	8.373	8.373	0.000	95	333048	10.0	9.65	
89 Bromoform	173	8.550	8.550	0.000	96	70911	10.0	10.2	
90 Isopropylbenzene	105	8.704	8.704	0.000	96	522254	10.0	9.69	
93 1,1,2,2-Tetrachloroethane	83	9.000	9.000	0.000	86	164980	10.0	8.38	
92 Bromobenzene	156	9.000	9.000	0.000	91	133920	10.0	8.70	
94 1,2,3-Trichloropropane	110	9.036	9.036	0.000	88	58331	10.0	8.58	
95 trans-1,4-Dichloro-2-butene	53	9.047	9.047	0.000	90	45074	10.0	7.82	
96 N-Propylbenzene	120	9.095	9.095	0.000	99	141874	10.0	8.47	
97 2-Chlorotoluene	126	9.178	9.178	0.000	96	123687	10.0	8.36	
98 1,3,5-Trimethylbenzene	105	9.272	9.272	0.000	96	476426	10.0	9.64	
99 4-Chlorotoluene	126	9.284	9.284	0.000	99	142976	10.0	9.42	
102 tert-Butylbenzene	119	9.580	9.580	0.000	93	410479	10.0	9.49	
104 1,2,4-Trimethylbenzene	105	9.627	9.627	0.000	95	521486	10.0	10.0	
105 sec-Butylbenzene	105	9.793	9.793	0.000	94	583446	10.0	9.30	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
106 1,3-Dichlorobenzene	146	9.911	9.911	0.000	98	289123	10.0	9.89	
107 4-Isopropyltoluene	119	9.935	9.935	0.000	97	492942	10.0	9.45	
108 1,4-Dichlorobenzene	146	9.994	9.994	0.000	95	289977	10.0	9.58	
111 n-Butylbenzene	91	10.337	10.337	0.000	97	408355	10.0	9.34	
112 1,2-Dichlorobenzene	146	10.361	10.361	0.000	98	282319	10.0	9.73	
113 1,2-Dibromo-3-Chloropropane	157	11.130	11.130	0.000	85	41982	10.0	9.12	
115 1,2,4-Trichlorobenzene	180	11.947	11.947	0.000	94	139512	10.0	8.73	
116 Hexachlorobutadiene	225	12.124	12.124	0.000	95	49088	10.0	8.22	
117 Naphthalene	128	12.195	12.195	0.000	97	470264	10.0	8.89	
118 1,2,3-Trichlorobenzene	180	12.432	12.432	0.000	96	131236	10.0	8.92	
S 124 Trihalomethanes, Total	1				0		40.0	42.4	
S 125 Total BTEX	1				0		50.0	50.6	
S 126 1,2-Dichloroethene, Total	96				0			21.7	
S 127 1,3-Dichloropropene, Total	75				0			20.7	
S 128 Xylenes, Total	106				0		20.0	19.7	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

vm50is_stk_a_00006	Amount Added: 2.00	Units: uL
VMRGAS_00347	Amount Added: 8.00	Units: uL
vmarolistdw_00352	Amount Added: 8.00	Units: uL
vmrprimw_00394	Amount Added: 8.00	Units: uL
vm50ss_00410	Amount Added: 8.00	Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279116.D

Injection Date: 16-Jul-2020 18:50:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: std8260 L4

Worklist Smp#: 12

Client ID:

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

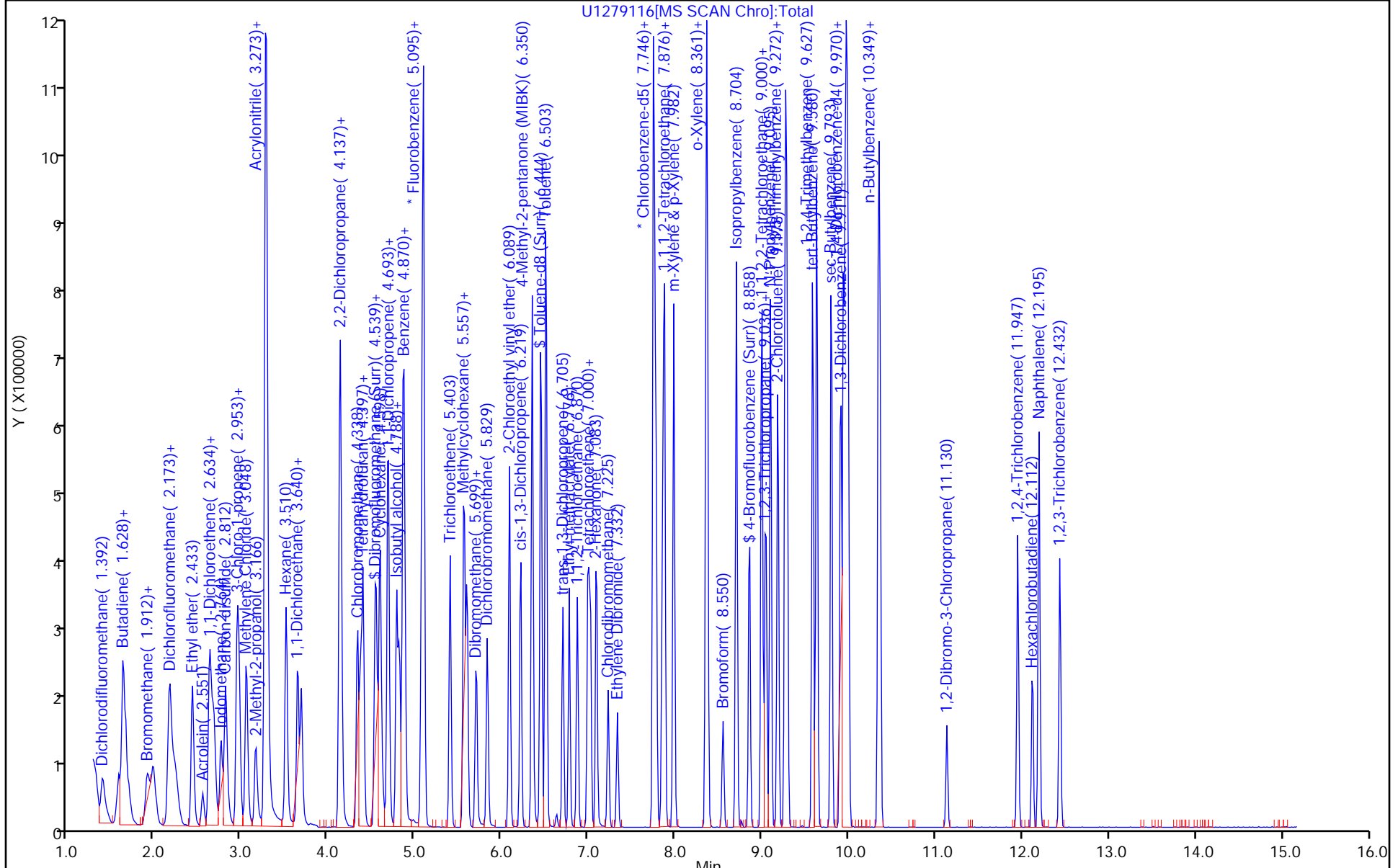
ALS Bottle#: 8

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton

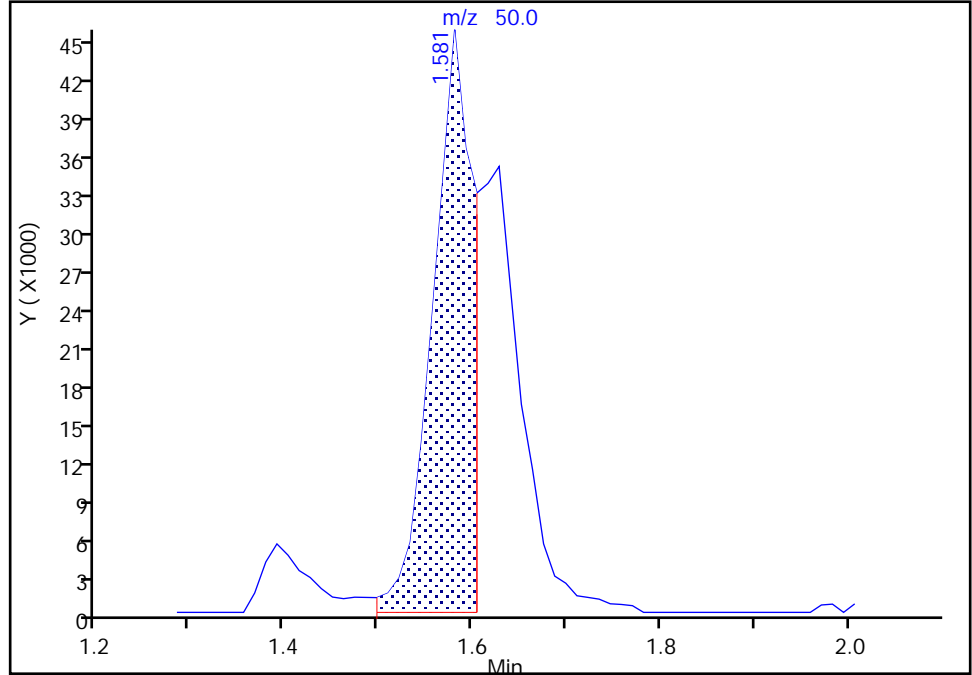
Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279116.D
Injection Date: 16-Jul-2020 18:50:30 Instrument ID: A3UX12
Lims ID: std8260 L4
Client ID:
Operator ID: 001904 ALS Bottle#: 8 Worklist Smp#: 12
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

10 Chloromethane, CAS: 74-87-3

Signal: 1

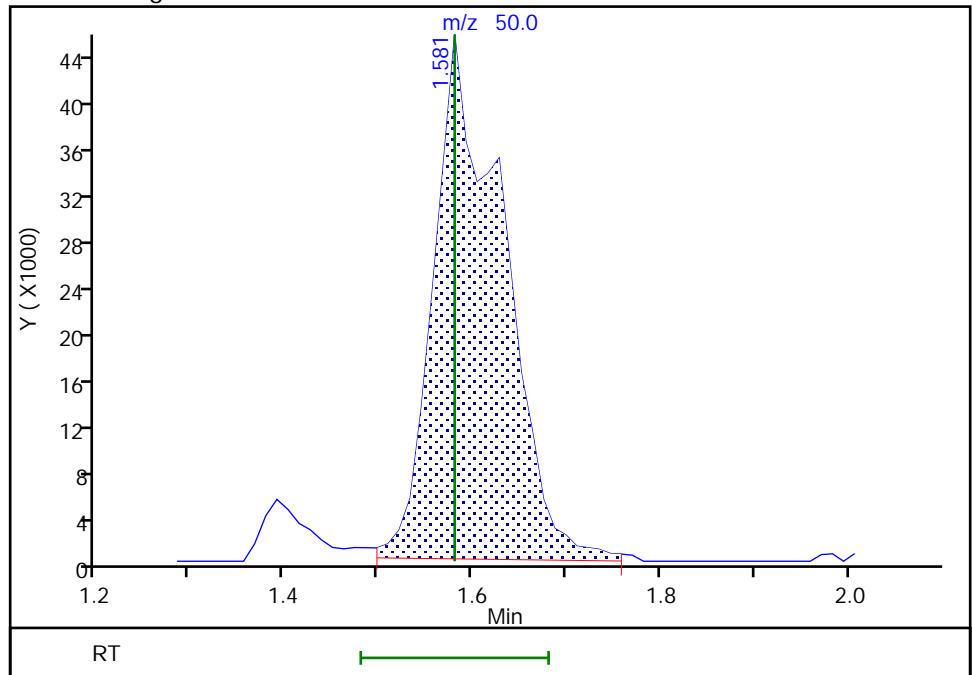
RT: 1.58
Area: 139411
Amount: 6.632730
Amount Units: ug/l

Processing Integration Results



RT: 1.58
Area: 233672
Amount: 10.233113
Amount Units: ug/l

Manual Integration Results



Reviewer: laveyt, 16-Jul-2020 19:12:04
Audit Action: Manually Integrated

Audit Reason: Split Peak

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279117.D
 Lims ID: ICIS L5
 Client ID:
 Sample Type: ICIS Calib Level: 5
 Inject. Date: 16-Jul-2020 19:12:30 ALS Bottle#: 9 Worklist Smp#: 13
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100113-013
 Operator ID: 001904 Instrument ID: A3UX12
 Sublist: chrom-8260_12_h2o*sub2
 Method: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 16-Jul-2020 21:24:13 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1057

First Level Reviewer: laveyt

Date: 16-Jul-2020 19:32:15

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	930091	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	747849	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.970	0.000	92	400649	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	289228	20.0	23.4	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.823	4.823	0.000	96	345986	20.0	22.9	
\$ 6 Toluene-d8 (Surr)	98	6.456	6.456	0.000	93	858996	20.0	17.0	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	95	344224	20.0	19.9	
9 Dichlorodifluoromethane	85	1.403	1.403	0.000	99	325891	20.0	22.4	
10 Chloromethane	50	1.605	1.605	0.000	99	562073	20.0	23.9	
11 Butadiene	54	1.652	1.652	0.000	90	390394	20.0	22.8	
12 Vinyl chloride	62	1.687	1.687	0.000	98	406302	20.0	23.3	
14 Bromomethane	94	1.936	1.936	0.000	91	265909	20.0	23.0	
15 Chloroethane	64	1.995	1.995	0.000	100	285493	20.0	22.5	
16 Dichlorofluoromethane	67	2.184	2.184	0.000	97	626381	20.0	23.7	
17 Trichlorofluoromethane	101	2.184	2.184	0.000	98	455578	20.0	22.4	
19 Ethyl ether	59	2.445	2.445	0.000	92	309400	20.0	21.9	
20 Acrolein	56	2.563	2.563	0.000	98	118799	100.0	97.6	
21 1,1-Dichloroethene	61	2.634	2.634	0.000	97	390469	20.0	20.9	
22 112TCTFE	101	2.670	2.670	0.000	94	233909	20.0	21.3	
23 Acetone	43	2.693	2.693	0.000	100	224375	40.0	43.2	
24 Iodomethane	142	2.776	2.776	0.000	98	421954	20.0	22.2	
25 Carbon disulfide	76	2.823	2.823	0.000	100	789675	20.0	21.0	
27 3-Chloro-1-propene	41	2.954	2.954	0.000	90	431804	20.0	20.6	
28 Methyl acetate	43	2.977	2.977	0.000	97	577598	40.0	40.5	
29 Methylene Chloride	49	3.060	3.060	0.000	94	354472	20.0	20.7	
30 2-Methyl-2-propanol	59	3.167	3.167	0.000	99	349742	200.0	198.0	
31 Acrylonitrile	53	3.285	3.285	0.000	99	1450393	200.0	196.3	
32 trans-1,2-Dichloroethene	61	3.297	3.297	0.000	66	381398	20.0	21.3	
33 Methyl tert-butyl ether	73	3.297	3.297	0.000	95	848635	20.0	20.6	
34 Hexane	57	3.522	3.522	0.000	92	367216	20.0	18.5	
35 1,1-Dichloroethane	63	3.652	3.652	0.000	96	494235	20.0	20.7	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
36 Vinyl acetate	43	3.699	3.699	0.000	97	615701	20.0	18.3	
40 2,2-Dichloropropane	77	4.137	4.137	0.000	62	363126	20.0	22.1	
41 cis-1,2-Dichloroethene	96	4.137	4.137	0.000	83	358669	20.0	21.4	
42 2-Butanone (MEK)	72	4.149	4.149	0.000	100	122791	40.0	41.8	
46 Chlorobromomethane	49	4.338	4.338	0.000	97	316652	20.0	23.3	
47 Tetrahydrofuran	42	4.374	4.374	0.000	88	347004	40.0	46.3	
48 Chloroform	83	4.409	4.409	0.000	94	555952	20.0	23.5	
49 1,1,1-Trichloroethane	97	4.551	4.551	0.000	98	439960	20.0	23.4	
50 Cyclohexane	84	4.598	4.598	0.000	91	486792	20.0	21.9	
51 1,1-Dichloropropene	75	4.693	4.693	0.000	94	453544	20.0	23.7	
52 Carbon tetrachloride	117	4.693	4.693	0.000	79	360797	20.0	23.6	
53 Isobutyl alcohol	41	4.788	4.788	0.000	97	405480	500.0	540.5	
54 Benzene	78	4.870	4.870	0.000	96	1321740	20.0	23.1	
55 1,2-Dichloroethane	62	4.882	4.882	0.000	97	418240	20.0	22.5	
57 n-Heptane	57	5.072	5.083	-0.011	90	175083	20.0	16.7	
59 Trichloroethene	130	5.403	5.403	0.000	96	269336	20.0	20.9	
61 Methylcyclohexane	83	5.569	5.569	0.000	89	426646	20.0	18.9	
62 1,2-Dichloropropane	63	5.604	5.604	0.000	92	239320	20.0	19.4	
65 1,4-Dioxane	88	5.711	5.711	0.000	93	59715	400.0	371.3	
64 Dibromomethane	174	5.711	5.711	0.000	93	176342	20.0	20.1	
66 Dichlorobromomethane	83	5.829	5.829	0.000	99	300932	20.0	19.5	
68 2-Chloroethyl vinyl ether	63	6.089	6.089	0.000	92	343008	40.0	36.9	
69 cis-1,3-Dichloropropene	75	6.219	6.219	0.000	95	367344	20.0	18.8	
70 4-Methyl-2-pentanone (MIBK)	43	6.350	6.350	0.000	96	731356	40.0	36.2	
71 Toluene	91	6.515	6.515	0.000	99	1007024	20.0	16.2	
72 trans-1,3-Dichloropropene	75	6.705	6.705	0.000	95	332918	20.0	16.6	
74 Ethyl methacrylate	69	6.776	6.776	0.000	89	345274	20.0	17.0	
75 1,1,2-Trichloroethane	97	6.870	6.870	0.000	92	233957	20.0	19.3	
76 Tetrachloroethene	166	7.000	7.000	0.000	97	273224	20.0	18.4	
77 1,3-Dichloropropane	76	7.024	7.024	0.000	91	457272	20.0	20.1	
78 2-Hexanone	43	7.095	7.095	0.000	96	708445	40.0	43.6	
80 Chlorodibromomethane	129	7.225	7.225	0.000	91	229325	20.0	19.2	
81 Ethylene Dibromide	107	7.332	7.332	0.000	98	244506	20.0	19.5	
83 Chlorobenzene	112	7.781	7.781	0.000	94	715039	20.0	19.7	
84 1,1,1,2-Tetrachloroethane	131	7.852	7.852	0.000	94	247781	20.0	20.0	
85 Ethylbenzene	106	7.876	7.876	0.000	99	403913	20.0	20.3	
86 m-Xylene & p-Xylene	106	7.983	7.983	0.000	99	505494	20.0	20.5	
87 o-Xylene	106	8.361	8.361	0.000	97	502115	20.0	19.8	
88 Styrene	104	8.373	8.373	0.000	96	819248	20.0	20.1	
89 Bromoform	173	8.551	8.551	0.000	97	164608	20.0	20.0	
90 Isopropylbenzene	105	8.704	8.704	0.000	96	1271237	20.0	20.0	
92 Bromobenzene	156	9.000	9.000	0.000	94	292641	20.0	18.7	
93 1,1,2,2-Tetrachloroethane	83	9.000	9.000	0.000	85	394582	20.0	19.7	
94 1,2,3-Trichloropropane	110	9.036	9.036	0.000	86	134177	20.0	19.4	
95 trans-1,4-Dichloro-2-butene	53	9.048	9.048	0.000	91	121536	20.0	20.7	
96 N-Propylbenzene	120	9.095	9.095	0.000	99	335308	20.0	19.7	
97 2-Chlorotoluene	126	9.178	9.178	0.000	96	288795	20.0	19.2	
98 1,3,5-Trimethylbenzene	105	9.272	9.272	0.000	96	999122	20.0	19.9	
99 4-Chlorotoluene	126	9.284	9.284	0.000	99	288403	20.0	18.7	
102 tert-Butylbenzene	119	9.580	9.580	0.000	92	832037	20.0	18.9	
104 1,2,4-Trimethylbenzene	105	9.627	9.627	0.000	97	1004174	20.0	19.0	
105 sec-Butylbenzene	105	9.793	9.793	0.000	95	1203086	20.0	18.9	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
106 1,3-Dichlorobenzene	146	9.911	9.911	0.000	98	554995	20.0	18.7	
107 4-Isopropyltoluene	119	9.947	9.947	0.000	97	1033800	20.0	19.5	
108 1,4-Dichlorobenzene	146	9.994	9.994	0.000	94	569022	20.0	18.5	
111 n-Butylbenzene	91	10.337	10.337	0.000	97	888801	20.0	20.0	
112 1,2-Dichlorobenzene	146	10.361	10.361	0.000	98	572071	20.0	19.4	
113 1,2-Dibromo-3-Chloropropane	157	11.130	11.130	0.000	86	85539	20.0	18.3	
115 1,2,4-Trichlorobenzene	180	11.947	11.947	0.000	94	280319	20.0	17.3	
116 Hexachlorobutadiene	225	12.124	12.124	0.000	95	104077	20.0	17.2	
117 Naphthalene	128	12.195	12.195	0.000	97	959515	20.0	17.8	
118 1,2,3-Trichlorobenzene	180	12.432	12.432	0.000	94	260445	20.0	17.4	
S 124 Trihalomethanes, Total	1				0		80.0	82.2	
S 125 Total BTEX	1				0		100.0	99.9	
S 128 Xylenes, Total	106				0		40.0	40.3	

Reagents:

vm50is_stk_a_00006	Amount Added: 2.00	Units: uL
VMRGAS_00347	Amount Added: 16.00	Units: uL
vmarolistdw_00352	Amount Added: 16.00	Units: uL
vmrprimw_00394	Amount Added: 16.00	Units: uL
vm50ss_00410	Amount Added: 16.00	Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279117.D

Injection Date: 16-Jul-2020 19:12:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: ICIS L5

Worklist Smp#: 13

Client ID:

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

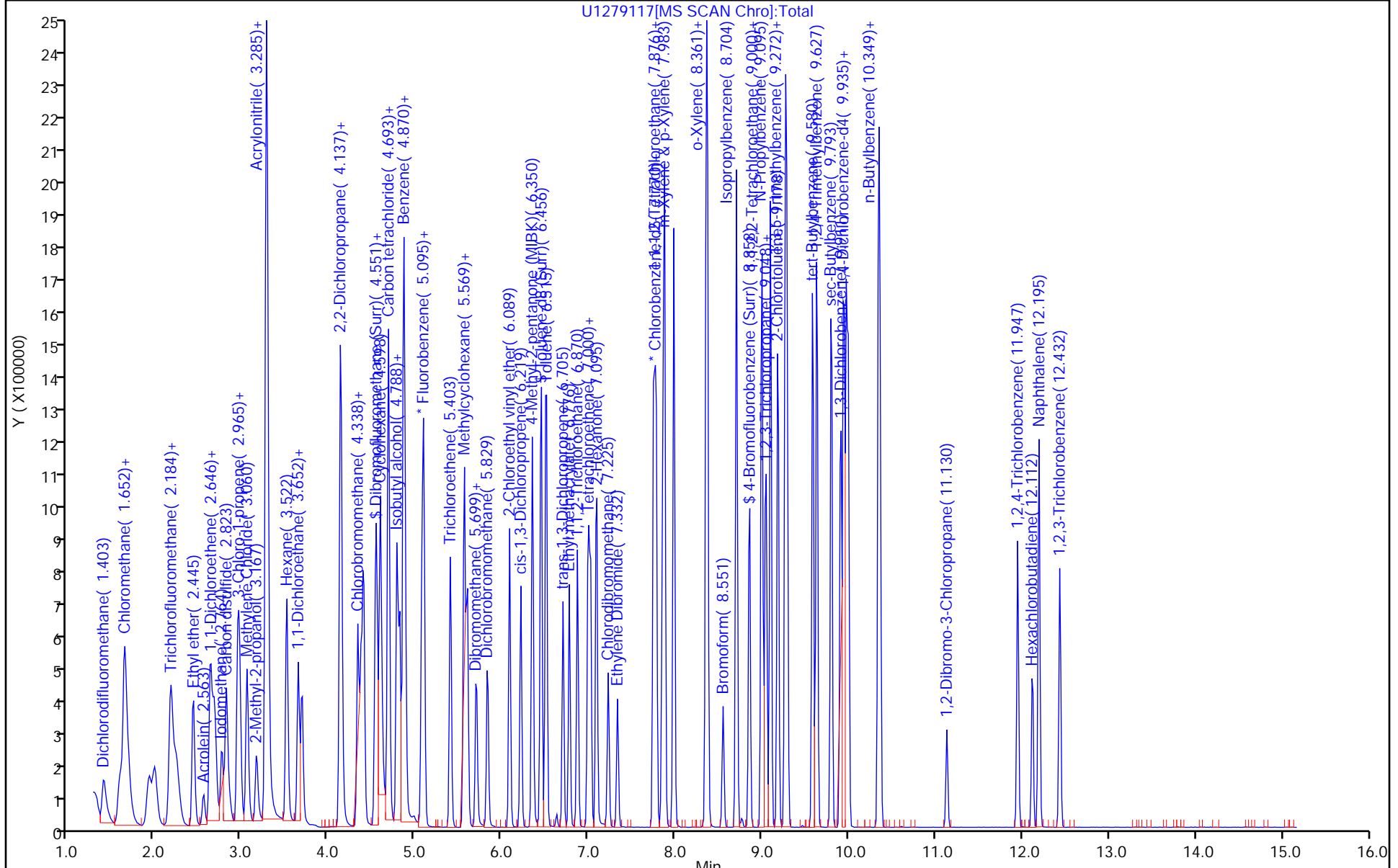
ALS Bottle#: 9

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279118.D
 Lims ID: std8260 L6
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 16-Jul-2020 19:35:30 ALS Bottle#: 10 Worklist Smp#: 14
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100113-014
 Operator ID: 001904 Instrument ID: A3UX12
 Sublist: chrom-8260_12_h2o*sub2
 Method: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 16-Jul-2020 21:24:23 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1057

First Level Reviewer: laveyt

Date: 16-Jul-2020 20:24:01

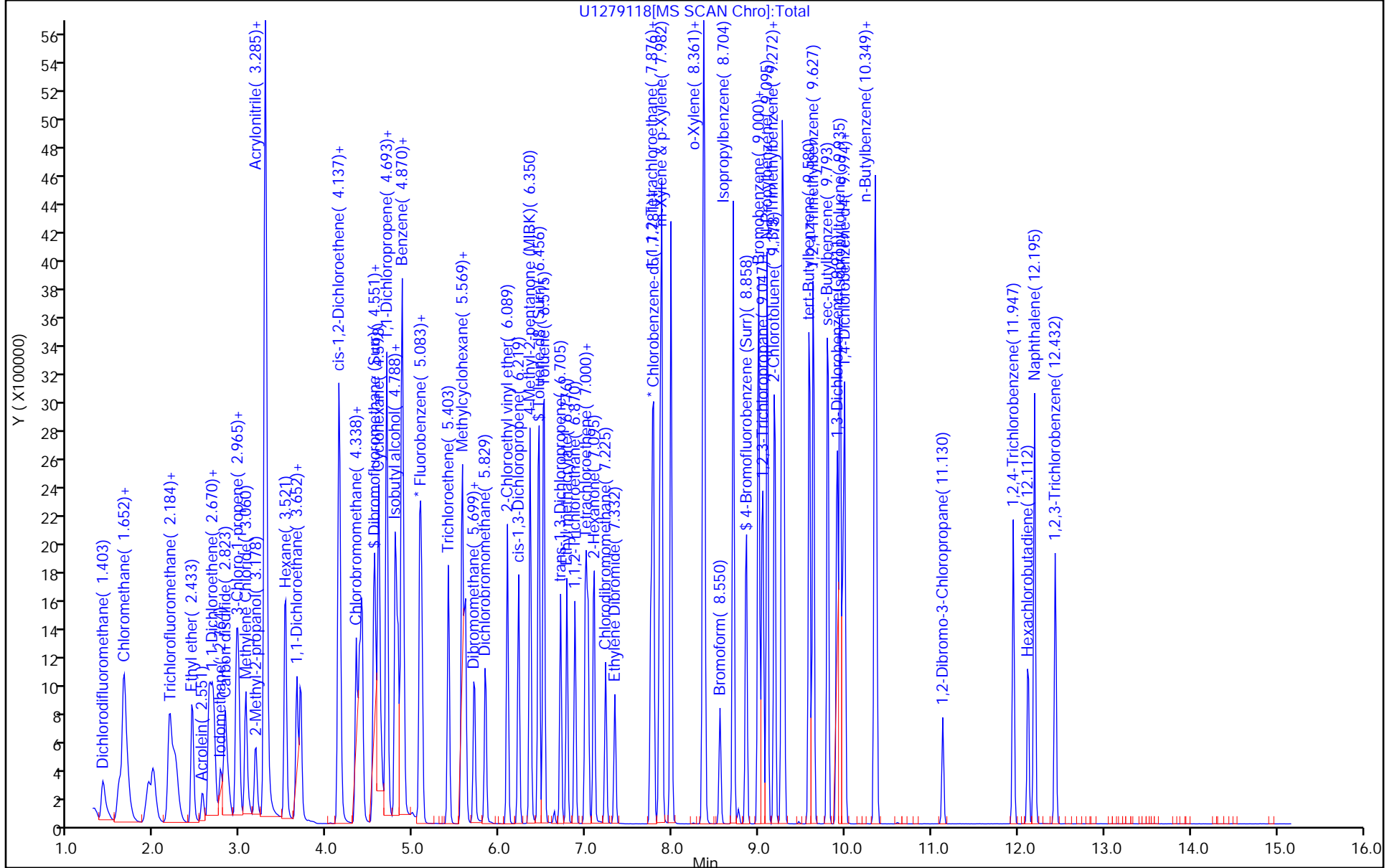
Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1105939	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	86	819483	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.970	0.000	94	386745	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	594419	40.0	40.5	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.823	4.823	0.000	96	729798	40.0	40.6	
\$ 6 Toluene-d8 (Surr)	98	6.456	6.456	0.000	93	1808749	40.0	32.6	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	94	712692	40.0	37.6	
9 Dichlorodifluoromethane	85	1.403	1.403	0.000	99	692065	40.0	40.1	
10 Chloromethane	50	1.593	1.605	-0.012	99	1048531	40.0	37.6	
11 Butadiene	54	1.652	1.652	0.000	89	740602	40.0	36.4	
12 Vinyl chloride	62	1.687	1.687	0.000	98	763156	40.0	36.9	
14 Bromomethane	94	1.936	1.936	0.000	91	502951	40.0	36.7	
15 Chloroethane	64	1.995	1.995	0.000	99	555402	40.0	36.9	
16 Dichlorofluoromethane	67	2.173	2.184	-0.011	97	1157160	40.0	36.8	
17 Trichlorofluoromethane	101	2.184	2.184	0.000	98	908548	40.0	37.5	
19 Ethyl ether	59	2.433	2.445	-0.012	92	663810	40.0	39.5	
20 Acrolein	56	2.551	2.563	-0.012	99	265086	200.0	183.2	
21 1,1-Dichloroethene	61	2.634	2.634	0.000	97	829316	40.0	37.3	
22 112TCTFE	101	2.670	2.670	0.000	94	518516	40.0	39.7	
23 Acetone	43	2.693	2.693	0.000	100	503096	80.0	83.1	
24 Iodomethane	142	2.764	2.776	-0.012	98	864362	40.0	38.2	
25 Carbon disulfide	76	2.823	2.823	0.000	99	1654881	40.0	37.0	
27 3-Chloro-1-propene	41	2.954	2.954	0.000	89	902635	40.0	36.2	
28 Methyl acetate	43	2.977	2.977	0.000	97	1278569	80.0	75.4	
29 Methylene Chloride	49	3.060	3.060	0.000	92	737052	40.0	36.3	
30 2-Methyl-2-propanol	59	3.178	3.167	0.011	99	844343	400.0	402.0	
31 Acrylonitrile	53	3.285	3.285	0.000	98	3202437	400.0	364.6	
32 trans-1,2-Dichloroethene	61	3.285	3.297	-0.012	99	806228	40.0	37.8	
33 Methyl tert-butyl ether	73	3.297	3.297	0.000	96	1825802	40.0	37.3	
34 Hexane	57	3.521	3.522	-0.001	91	877095	40.0	37.1	
35 1,1-Dichloroethane	63	3.652	3.652	0.000	96	1020403	40.0	35.9	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
36 Vinyl acetate	43	3.687	3.699	-0.012	97	1471981	40.0	36.7	
41 cis-1,2-Dichloroethene	96	4.137	4.137	0.000	83	743747	40.0	37.4	
40 2,2-Dichloropropane	77	4.137	4.137	0.000	60	734903	40.0	37.7	
42 2-Butanone (MEK)	72	4.149	4.149	0.000	100	283584	80.0	81.2	
46 Chlorobromomethane	49	4.338	4.338	0.000	97	650336	40.0	40.2	
47 Tetrahydrofuran	42	4.373	4.374	-0.001	87	730197	80.0	82.0	
48 Chloroform	83	4.409	4.409	0.000	94	1111892	40.0	39.5	
49 1,1,1-Trichloroethane	97	4.551	4.551	0.000	99	944576	40.0	42.3	
50 Cyclohexane	84	4.598	4.598	0.000	91	1121049	40.0	42.4	
52 Carbon tetrachloride	117	4.693	4.693	0.000	77	782108	40.0	43.0	
51 1,1-Dichloropropene	75	4.693	4.693	0.000	95	995105	40.0	43.8	
53 Isobutyl alcohol	41	4.788	4.788	0.000	95	989777	1000.0	1109.6	
54 Benzene	78	4.870	4.870	0.000	96	2810699	40.0	41.4	
55 1,2-Dichloroethane	62	4.882	4.882	0.000	97	914197	40.0	41.4	
57 n-Heptane	57	5.072	5.083	-0.011	93	470133	40.0	42.0	
59 Trichloroethene	130	5.403	5.403	0.000	97	580360	40.0	37.8	
61 Methylcyclohexane	83	5.569	5.569	0.000	87	988563	40.0	36.8	
62 1,2-Dichloropropane	63	5.604	5.604	0.000	92	529883	40.0	36.1	
64 Dibromomethane	174	5.711	5.711	0.000	94	382258	40.0	36.7	
65 1,4-Dioxane	88	5.711	5.711	0.000	96	136471	800.0	713.6	
66 Dichlorobromomethane	83	5.829	5.829	0.000	99	682191	40.0	37.2	
68 2-Chloroethyl vinyl ether	63	6.089	6.089	0.000	92	788544	80.0	71.4	
69 cis-1,3-Dichloropropene	75	6.219	6.219	0.000	95	856087	40.0	36.9	
70 4-Methyl-2-pentanone (MIBK)	43	6.350	6.350	0.000	96	1639242	80.0	68.3	
71 Toluene	91	6.515	6.515	0.000	99	2206110	40.0	32.4	
72 trans-1,3-Dichloropropene	75	6.705	6.705	0.000	95	762783	40.0	34.6	
74 Ethyl methacrylate	69	6.776	6.776	0.000	89	787358	40.0	35.4	
75 1,1,2-Trichloroethane	97	6.870	6.870	0.000	92	449059	40.0	33.7	
76 Tetrachloroethene	166	7.000	7.000	0.000	97	564371	40.0	34.7	
77 1,3-Dichloropropane	76	7.024	7.024	0.000	91	828517	40.0	33.2	
78 2-Hexanone	43	7.095	7.095	0.000	94	1134947	80.0	63.7	
80 Chlorodibromomethane	129	7.225	7.225	0.000	91	540110	40.0	41.3	
81 Ethylene Dibromide	107	7.332	7.332	0.000	98	572080	40.0	41.6	
83 Chlorobenzene	112	7.781	7.781	0.000	95	1635971	40.0	41.2	
84 1,1,1,2-Tetrachloroethane	131	7.852	7.852	0.000	94	565680	40.0	41.7	
85 Ethylbenzene	106	7.876	7.876	0.000	99	887653	40.0	40.7	
86 m-Xylene & p-Xylene	106	7.982	7.983	-0.001	99	1150536	40.0	42.6	
87 o-Xylene	106	8.361	8.361	0.000	97	1085881	40.0	39.0	
88 Styrene	104	8.373	8.373	0.000	96	1807037	40.0	40.4	
89 Bromoform	173	8.550	8.551	-0.001	97	363030	40.0	40.2	
90 Isopropylbenzene	105	8.704	8.704	0.000	96	2727885	40.0	39.1	
93 1,1,2,2-Tetrachloroethane	83	9.000	9.000	0.000	84	843951	40.0	43.6	
92 Bromobenzene	156	9.000	9.000	0.000	94	625073	40.0	41.4	
94 1,2,3-Trichloropropane	110	9.036	9.036	0.000	85	277742	40.0	41.6	
95 trans-1,4-Dichloro-2-butene	53	9.047	9.048	-0.001	94	268293	40.0	47.4	
96 N-Propylbenzene	120	9.095	9.095	0.000	99	722462	40.0	43.9	
97 2-Chlorotoluene	126	9.189	9.178	0.011	97	610825	40.0	42.1	
98 1,3,5-Trimethylbenzene	105	9.272	9.272	0.000	96	2114062	40.0	43.6	
99 4-Chlorotoluene	126	9.284	9.284	0.000	99	615770	40.0	41.3	
102 tert-Butylbenzene	119	9.580	9.580	0.000	92	1833625	40.0	43.2	
104 1,2,4-Trimethylbenzene	105	9.627	9.627	0.000	97	2152543	40.0	42.3	
105 sec-Butylbenzene	105	9.793	9.793	0.000	95	2628984	40.0	42.7	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
106 1,3-Dichlorobenzene	146	9.911	9.911	0.000	98	1164577	40.0	40.6	
107 4-Isopropyltoluene	119	9.947	9.947	0.000	97	2242296	40.0	43.8	
108 1,4-Dichlorobenzene	146	9.994	9.994	0.000	95	1187495	40.0	40.0	
111 n-Butylbenzene	91	10.337	10.337	0.000	97	1902978	40.0	44.3	
112 1,2-Dichlorobenzene	146	10.361	10.361	0.000	97	1152915	40.0	40.5	
113 1,2-Dibromo-3-Chloropropane	157	11.130	11.130	0.000	85	206406	40.0	45.7	
115 1,2,4-Trichlorobenzene	180	11.947	11.947	0.000	94	673976	40.0	43.0	
116 Hexachlorobutadiene	225	12.124	12.124	0.000	95	244373	40.0	42.0	
117 Naphthalene	128	12.195	12.195	0.000	97	2378356	40.0	45.8	
118 1,2,3-Trichlorobenzene	180	12.432	12.432	0.000	95	619750	40.0	42.9	
S 124 Trihalomethanes, Total	1				0		160.0	158.3	
S 125 Total BTEX	1				0		200.0	196.1	
S 126 1,2-Dichloroethene, Total	96				0			75.2	
S 127 1,3-Dichloropropene, Total	75				0			71.5	
S 128 Xylenes, Total	106				0		80.0	81.6	

Reagents:

vm50is_stk_a_00006	Amount Added: 2.00	Units: uL
VMRGAS_00347	Amount Added: 32.00	Units: uL
vmarolistdw_00352	Amount Added: 32.00	Units: uL
vmrprimw_00394	Amount Added: 32.00	Units: uL
vm50ss_00410	Amount Added: 32.00	Units: uL



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279119.D
 Lims ID: std8260 L7
 Client ID:
 Sample Type: IC Calib Level: 7
 Inject. Date: 16-Jul-2020 19:57:30 ALS Bottle#: 11 Worklist Smp#: 15
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100113-015
 Operator ID: 001904 Instrument ID: A3UX12
 Sublist: chrom-8260_12_h2o*sub2
 Method: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 16-Jul-2020 21:24:33 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1057

First Level Reviewer: laveyt

Date: 16-Jul-2020 20:26:10

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	975916	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	86	701214	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.970	0.000	94	404097	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	770621	60.0	59.5	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.823	4.823	0.000	96	927672	60.0	58.5	
\$ 6 Toluene-d8 (Surr)	98	6.456	6.456	0.000	93	3239682	60.0	68.3	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	96	963194	60.0	59.3	
9 Dichlorodifluoromethane	85	1.403	1.403	0.000	99	952192	60.0	62.5	
10 Chloromethane	50	1.605	1.605	0.000	98	1437896	60.0	58.6	
11 Butadiene	54	1.640	1.652	-0.012	87	988134	60.0	55.0	
12 Vinyl chloride	62	1.687	1.687	0.000	98	1049031	60.0	57.4	
14 Bromomethane	94	1.936	1.936	0.000	91	779653	60.0	64.4	
15 Chloroethane	64	1.995	1.995	0.000	100	898507	60.0	67.6	
16 Dichlorofluoromethane	67	2.173	2.184	-0.011	97	1769403	60.0	63.8	
17 Trichlorofluoromethane	101	2.184	2.184	0.000	98	1377516	60.0	64.5	
19 Ethyl ether	59	2.445	2.445	0.000	91	908584	60.0	61.3	
20 Acrolein	56	2.551	2.563	-0.012	99	397800	300.0	311.5	
21 1,1-Dichloroethene	61	2.634	2.634	0.000	96	1279374	60.0	65.2	
22 112TCTFE	101	2.670	2.670	0.000	95	807578	60.0	70.1	
23 Acetone	43	2.693	2.693	0.000	100	661546	120.0	124.7	
24 Iodomethane	142	2.764	2.776	-0.012	98	1310816	60.0	65.7	
25 Carbon disulfide	76	2.823	2.823	0.000	99	2555816	60.0	64.7	
27 3-Chloro-1-propene	41	2.954	2.954	0.000	89	1389182	60.0	63.1	
28 Methyl acetate	43	2.977	2.977	0.000	97	1839288	120.0	123.0	
29 Methylene Chloride	49	3.060	3.060	0.000	93	1116320	60.0	62.3	
30 2-Methyl-2-propanol	59	3.178	3.167	0.011	99	1032059	600.0	556.8	
31 Acrylonitrile	53	3.273	3.285	-0.012	99	5396310	600.0	696.2	
32 trans-1,2-Dichloroethene	61	3.285	3.297	-0.012	99	1472482	60.0	78.2	
33 Methyl tert-butyl ether	73	3.297	3.297	0.000	96	3196991	60.0	73.9	
34 Hexane	57	3.510	3.522	-0.012	92	1578677	60.0	75.7	
35 1,1-Dichloroethane	63	3.652	3.652	0.000	96	1798158	60.0	71.6	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
36 Vinyl acetate	43	3.699	3.699	0.000	97	2596721	60.0	73.4	
41 cis-1,2-Dichloroethene	96	4.137	4.137	0.000	83	1130637	60.0	64.4	
40 2,2-Dichloropropane	77	4.137	4.137	0.000	60	1140347	60.0	66.3	
42 2-Butanone (MEK)	72	4.149	4.149	0.000	100	421345	120.0	136.8	
46 Chlorobromomethane	49	4.338	4.338	0.000	97	802370	60.0	56.2	
47 Tetrahydrofuran	42	4.373	4.374	-0.001	86	833693	120.0	106.0	
48 Chloroform	83	4.409	4.409	0.000	94	1462582	60.0	58.9	
49 1,1,1-Trichloroethane	97	4.551	4.551	0.000	99	1231118	60.0	62.5	
50 Cyclohexane	84	4.598	4.598	0.000	90	1431075	60.0	61.4	
51 1,1-Dichloropropene	75	4.693	4.693	0.000	94	1215722	60.0	60.6	
52 Carbon tetrachloride	117	4.693	4.693	0.000	80	1029542	60.0	64.2	
53 Isobutyl alcohol	41	4.788	4.788	0.000	94	1065136	1500.0	1353.1	
54 Benzene	78	4.870	4.870	0.000	96	3469151	60.0	57.9	
55 1,2-Dichloroethane	62	4.882	4.882	0.000	97	1156634	60.0	59.4	
57 n-Heptane	57	5.072	5.083	-0.011	92	552977	60.0	57.1	
59 Trichloroethene	130	5.403	5.403	0.000	97	873131	60.0	64.5	
61 Methylcyclohexane	83	5.569	5.569	0.000	88	1496196	60.0	63.1	
62 1,2-Dichloropropane	63	5.604	5.604	0.000	92	791730	60.0	61.2	
65 1,4-Dioxane	88	5.711	5.711	0.000	94	224221	1200.0	1328.6	
64 Dibromomethane	174	5.711	5.711	0.000	94	658845	60.0	71.7	
66 Dichlorobromomethane	83	5.829	5.829	0.000	99	1164000	60.0	72.0	
68 2-Chloroethyl vinyl ether	63	6.089	6.089	0.000	92	1519041	120.0	155.9	
69 cis-1,3-Dichloropropene	75	6.219	6.219	0.000	95	1572803	60.0	76.8	
70 4-Methyl-2-pentanone (MIBK)	43	6.350	6.350	0.000	96	2878867	120.0	135.9	
71 Toluene	91	6.515	6.515	0.000	99	3857470	60.0	66.3	
72 trans-1,3-Dichloropropene	75	6.705	6.705	0.000	95	1347764	60.0	71.5	
74 Ethyl methacrylate	69	6.776	6.776	0.000	90	1381887	60.0	72.7	
75 1,1,2-Trichloroethane	97	6.870	6.870	0.000	92	791429	60.0	69.5	
76 Tetrachloroethene	166	7.000	7.000	0.000	97	940315	60.0	67.5	
77 1,3-Dichloropropane	76	7.024	7.024	0.000	91	1400884	60.0	65.5	
78 2-Hexanone	43	7.095	7.095	0.000	95	2182766	120.0	143.1	
80 Chlorodibromomethane	129	7.225	7.225	0.000	91	784117	60.0	70.0	
81 Ethylene Dibromide	107	7.332	7.332	0.000	99	724976	60.0	61.6	
83 Chlorobenzene	112	7.781	7.781	0.000	95	2073291	60.0	61.0	
84 1,1,1,2-Tetrachloroethane	131	7.852	7.852	0.000	94	758714	60.0	65.4	
85 Ethylbenzene	106	7.876	7.876	0.000	99	1164276	60.0	62.3	
86 m-Xylene & p-Xylene	106	7.983	7.983	0.000	99	1462696	60.0	63.2	
87 o-Xylene	106	8.361	8.361	0.000	97	1432342	60.0	60.1	
88 Styrene	104	8.373	8.373	0.000	95	2377113	60.0	62.2	
89 Bromoform	173	8.551	8.551	-0.001	97	525428	60.0	68.1	
90 Isopropylbenzene	105	8.704	8.704	0.000	96	3621536	60.0	60.7	
92 Bromobenzene	156	9.000	9.000	0.000	92	897214	60.0	56.8	
93 1,1,2,2-Tetrachloroethane	83	9.000	9.000	0.000	85	1087689	60.0	53.8	
94 1,2,3-Trichloropropane	110	9.036	9.036	0.000	86	378143	60.0	54.3	
95 trans-1,4-Dichloro-2-butene	53	9.047	9.048	-0.001	92	349603	60.0	59.1	
96 N-Propylbenzene	120	9.095	9.095	0.000	99	1004987	60.0	58.5	
97 2-Chlorotoluene	126	9.189	9.178	0.011	97	844827	60.0	55.7	
98 1,3,5-Trimethylbenzene	105	9.272	9.272	0.000	96	2867428	60.0	56.6	
99 4-Chlorotoluene	126	9.284	9.284	0.000	99	864927	60.0	55.6	
102 tert-Butylbenzene	119	9.580	9.580	0.000	92	2488936	60.0	56.1	
104 1,2,4-Trimethylbenzene	105	9.627	9.627	0.000	97	2868200	60.0	53.9	
105 sec-Butylbenzene	105	9.805	9.793	0.012	94	3983089	60.0	61.9	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
106 1,3-Dichlorobenzene	146	9.911	9.911	0.000	98	1762350	60.0	58.8	
107 4-Isopropyltoluene	119	9.947	9.947	0.000	97	3408231	60.0	63.7	
108 1,4-Dichlorobenzene	146	9.994	9.994	0.000	94	1832355	60.0	59.0	
111 n-Butylbenzene	91	10.337	10.337	0.000	97	2930188	60.0	65.3	
112 1,2-Dichlorobenzene	146	10.361	10.361	0.000	97	1768141	60.0	59.4	
113 1,2-Dibromo-3-Chloropropane	157	11.130	11.130	0.000	87	286949	60.0	60.8	
115 1,2,4-Trichlorobenzene	180	11.947	11.947	0.000	93	899204	60.0	54.9	
116 Hexachlorobutadiene	225	12.124	12.124	0.000	95	342826	60.0	56.5	
117 Naphthalene	128	12.195	12.195	0.000	97	3047517	60.0	56.2	
118 1,2,3-Trichlorobenzene	180	12.432	12.432	0.000	95	842599	60.0	55.8	
S 124 Trihalomethanes, Total	1				0		240.0	269.0	
S 125 Total BTEX	1				0		300.0	309.9	
S 126 1,2-Dichloroethene, Total	96				0			142.6	
S 127 1,3-Dichloropropene, Total	75				0			148.3	
S 128 Xylenes, Total	106				0		120.0	123.4	

Reagents:

vm50is_stk_a_00006	Amount Added: 2.00	Units: uL
VMRGAS_00347	Amount Added: 48.00	Units: uL
vmarolistdw_00352	Amount Added: 48.00	Units: uL
vmrprimw_00394	Amount Added: 48.00	Units: uL
vm50ss_00410	Amount Added: 48.00	Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279119.D

Injection Date: 16-Jul-2020 19:57:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: std8260 L7

Worklist Smp#: 15

Client ID:

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

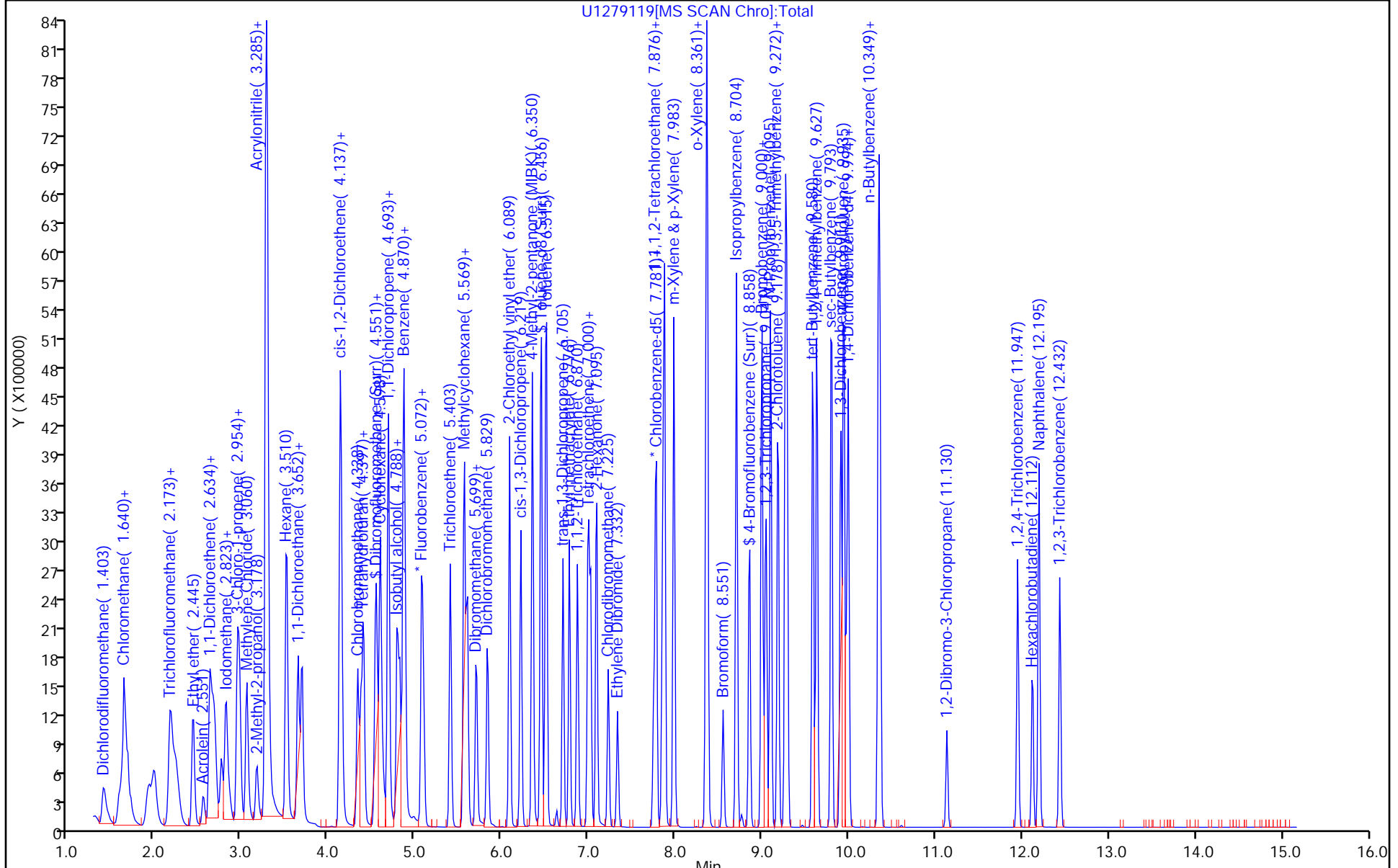
ALS Bottle#: 11

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Lims ID: std8260 L8
 Client ID:
 Sample Type: IC Calib Level: 8
 Inject. Date: 16-Jul-2020 20:20:30 ALS Bottle#: 12 Worklist Smp#: 16
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100113-016
 Operator ID: 001904 Instrument ID: A3UX12
 Sublist: chrom-8260_12_h2o*sub2
 Method: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 16-Jul-2020 21:24:44 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1057

First Level Reviewer: laveyt

Date: 16-Jul-2020 20:40:44

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1144678	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	716433	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.971	9.970	0.000	92	359893	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	1043625	80.0	68.7	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.823	4.823	0.000	98	1255009	80.0	67.5	
\$ 6 Toluene-d8 (Surr)	98	6.456	6.456	0.000	93	4317396	80.0	89.1	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	95	1438809	80.0	86.7	
9 Dichlorodifluoromethane	85	1.403	1.403	0.000	99	1447911	80.0	81.0	
10 Chloromethane	50	1.605	1.605	0.000	99	2259568	80.0	78.6	
11 Butadiene	54	1.640	1.652	-0.012	88	1636623	80.0	77.7	
12 Vinyl chloride	62	1.687	1.687	0.000	97	1624267	80.0	75.8	
14 Bromomethane	94	1.936	1.936	0.000	91	1045526	80.0	73.6	
15 Chloroethane	64	1.995	1.995	0.000	100	1187806	80.0	76.2	
16 Dichlorofluoromethane	67	2.173	2.184	-0.011	97	2362624	80.0	72.6	
17 Trichlorofluoromethane	101	2.244	2.184	0.060	98	1880748	80.0	75.1	
19 Ethyl ether	59	2.433	2.445	-0.012	93	1303305	80.0	75.0	
20 Acrolein	56	2.551	2.563	-0.012	99	590629	400.0	394.3	
21 1,1-Dichloroethene	61	2.634	2.634	0.000	97	1718675	80.0	74.7	
22 112TCTFE	101	2.670	2.670	0.000	94	1072209	80.0	79.3	
23 Acetone	43	2.693	2.693	0.000	100	896587	160.0	144.4	
24 Iodomethane	142	2.764	2.776	-0.012	98	1766617	80.0	75.5	
25 Carbon disulfide	76	2.812	2.823	-0.011	100	3433316	80.0	74.1	
27 3-Chloro-1-propene	41	2.942	2.954	-0.012	89	1869760	80.0	72.4	
28 Methyl acetate	43	2.977	2.977	0.000	97	2463274	160.0	140.4	
29 Methylene Chloride	49	3.060	3.060	0.000	94	1496408	80.0	71.2	
30 2-Methyl-2-propanol	59	3.178	3.167	0.011	99	1383065	800.0	636.2	
31 Acrylonitrile	53	3.285	3.285	0.000	98	6068696	800.0	667.5	
32 trans-1,2-Dichloroethene	61	3.285	3.297	-0.012	97	1666148	80.0	75.4	
33 Methyl tert-butyl ether	73	3.297	3.297	0.000	97	3813820	80.0	75.2	
34 Hexane	57	3.510	3.522	-0.012	92	2087141	80.0	85.3	
35 1,1-Dichloroethane	63	3.652	3.652	0.000	96	2432150	80.0	82.6	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
36 Vinyl acetate	43	3.687	3.699	-0.012	97	3734074	80.0	90.0	
41 cis-1,2-Dichloroethene	96	4.137	4.137	0.000	82	1294590	80.0	62.9	
40 2,2-Dichloropropane	77	4.137	4.137	0.000	61	1274490	80.0	63.1	
42 2-Butanone (MEK)	72	4.149	4.149	0.000	99	448875	160.0	124.3	
46 Chlorobromomethane	49	4.338	4.338	0.000	97	1035588	80.0	61.8	
47 Tetrahydrofuran	42	4.374	4.374	0.000	86	1096878	160.0	118.9	
48 Chloroform	83	4.409	4.409	0.000	94	1957485	80.0	67.2	
49 1,1,1-Trichloroethane	97	4.551	4.551	0.000	99	1655131	80.0	71.6	
50 Cyclohexane	84	4.598	4.598	0.000	90	1863865	80.0	68.1	
52 Carbon tetrachloride	117	4.693	4.693	0.000	79	1403246	80.0	74.6	
51 1,1-Dichloropropene	75	4.693	4.693	0.000	94	1634304	80.0	69.5	
53 Isobutyl alcohol	41	4.800	4.788	0.012	94	1406970	2000.0	1523.9	
54 Benzene	78	4.871	4.870	0.000	96	4691183	80.0	66.8	
55 1,2-Dichloroethane	62	4.882	4.882	0.000	97	1556959	80.0	68.2	
57 n-Heptane	57	5.072	5.083	-0.011	94	953448	80.0	85.6	
59 Trichloroethene	130	5.403	5.403	0.000	97	1298374	80.0	81.7	
61 Methylcyclohexane	83	5.569	5.569	0.000	91	2376794	80.0	85.4	
62 1,2-Dichloropropane	63	5.604	5.604	0.000	94	1315984	80.0	86.7	
64 Dibromomethane	174	5.711	5.711	0.000	95	821478	80.0	76.3	
65 1,4-Dioxane	88	5.711	5.711	0.000	95	304656	1600.0	1539.1	
66 Dichlorobromomethane	83	5.829	5.829	0.000	99	1575297	80.0	83.1	
68 2-Chloroethyl vinyl ether	63	6.089	6.089	0.000	92	2001081	160.0	175.1	
69 cis-1,3-Dichloropropene	75	6.219	6.219	0.000	95	2110296	80.0	87.9	
70 4-Methyl-2-pentanone (MIBK)	43	6.350	6.350	0.000	96	4104472	160.0	165.2	
71 Toluene	91	6.515	6.515	0.000	99	5188385	80.0	87.3	
72 trans-1,3-Dichloropropene	75	6.705	6.705	0.000	94	1901312	80.0	98.7	
74 Ethyl methacrylate	69	6.776	6.776	0.000	90	1870176	80.0	96.3	
75 1,1,2-Trichloroethane	97	6.870	6.870	0.000	92	1039659	80.0	89.3	
76 Tetrachloroethene	166	7.000	7.000	0.000	97	1237632	80.0	87.0	
77 1,3-Dichloropropane	76	7.024	7.024	0.000	91	2025809	80.0	92.8	
78 2-Hexanone	43	7.095	7.095	0.000	94	2630745	160.0	168.8	
80 Chlorodibromomethane	129	7.225	7.225	0.000	91	1056327	80.0	92.3	
81 Ethylene Dibromide	107	7.332	7.332	0.000	98	1076276	80.0	89.4	
83 Chlorobenzene	112	7.781	7.781	0.000	94	2758216	80.0	79.4	
84 1,1,1,2-Tetrachloroethane	131	7.852	7.852	0.000	94	997800	80.0	84.2	
85 Ethylbenzene	106	7.876	7.876	0.000	99	1563228	80.0	81.9	
86 m-Xylene & p-Xylene	106	7.983	7.983	0.000	99	1951120	80.0	82.6	
87 o-Xylene	106	8.361	8.361	0.000	96	1945281	80.0	79.9	
88 Styrene	104	8.373	8.373	0.000	95	3253865	80.0	83.3	
89 Bromoform	173	8.551	8.551	0.000	97	723239	80.0	91.7	
90 Isopropylbenzene	105	8.704	8.704	0.000	96	4849848	80.0	79.5	
93 1,1,2,2-Tetrachloroethane	83	9.000	9.000	0.000	84	1682800	80.0	93.5	
92 Bromobenzene	156	9.000	9.000	0.000	92	1336195	80.0	95.0	
94 1,2,3-Trichloropropane	110	9.036	9.036	0.000	85	543257	80.0	87.5	
95 trans-1,4-Dichloro-2-butene	53	9.048	9.048	0.000	94	508069	80.0	96.5	
96 N-Propylbenzene	120	9.095	9.095	0.000	99	1447539	80.0	94.6	
97 2-Chlorotoluene	126	9.190	9.178	0.012	97	1259021	80.0	93.2	
98 1,3,5-Trimethylbenzene	105	9.272	9.272	0.000	97	4279171	80.0	94.8	
99 4-Chlorotoluene	126	9.284	9.284	0.000	99	1291849	80.0	93.2	
102 tert-Butylbenzene	119	9.592	9.580	0.012	92	3711556	80.0	94.0	
104 1,2,4-Trimethylbenzene	105	9.627	9.627	0.000	97	4329767	80.0	91.3	
105 sec-Butylbenzene	105	9.805	9.793	0.012	94	4715586	80.0	82.3	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
106 1,3-Dichlorobenzene	146	9.911	9.911	0.000	98	2158288	80.0	80.8	
107 4-Isopropyltoluene	119	9.947	9.947	0.000	97	4040650	80.0	84.8	
108 1,4-Dichlorobenzene	146	9.994	9.994	0.000	95	2187419	80.0	79.1	
111 n-Butylbenzene	91	10.337	10.337	0.000	97	3326661	80.0	83.3	
112 1,2-Dichlorobenzene	146	10.361	10.361	0.000	98	2080580	80.0	78.5	
113 1,2-Dibromo-3-Chloropropane	157	11.130	11.130	0.000	87	380957	80.0	90.6	
115 1,2,4-Trichlorobenzene	180	11.947	11.947	0.000	94	1243231	80.0	85.2	
116 Hexachlorobutadiene	225	12.124	12.124	0.000	96	465852	80.0	86.2	
117 Naphthalene	128	12.195	12.195	0.000	97	4209448	80.0	87.1	
118 1,2,3-Trichlorobenzene	180	12.432	12.432	0.000	96	1197429	80.0	89.1	
S 124 Trihalomethanes, Total	1				0		320.0	334.3	
S 125 Total BTEX	1				0		400.0	398.4	
S 126 1,2-Dichloroethene, Total	96				0			138.3	
S 127 1,3-Dichloropropene, Total	75				0			186.6	
S 128 Xylenes, Total	106				0		160.0	162.5	

Reagents:

vm50is_stk_a_00006	Amount Added: 2.00	Units: uL
VMRGAS_00347	Amount Added: 64.00	Units: uL
vmarolistdw_00352	Amount Added: 64.00	Units: uL
vmrprimw_00394	Amount Added: 64.00	Units: uL
vm50ss_00410	Amount Added: 64.00	Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D

Injection Date: 16-Jul-2020 20:20:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: std8260 L8

Worklist Smp#: 16

Client ID:

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

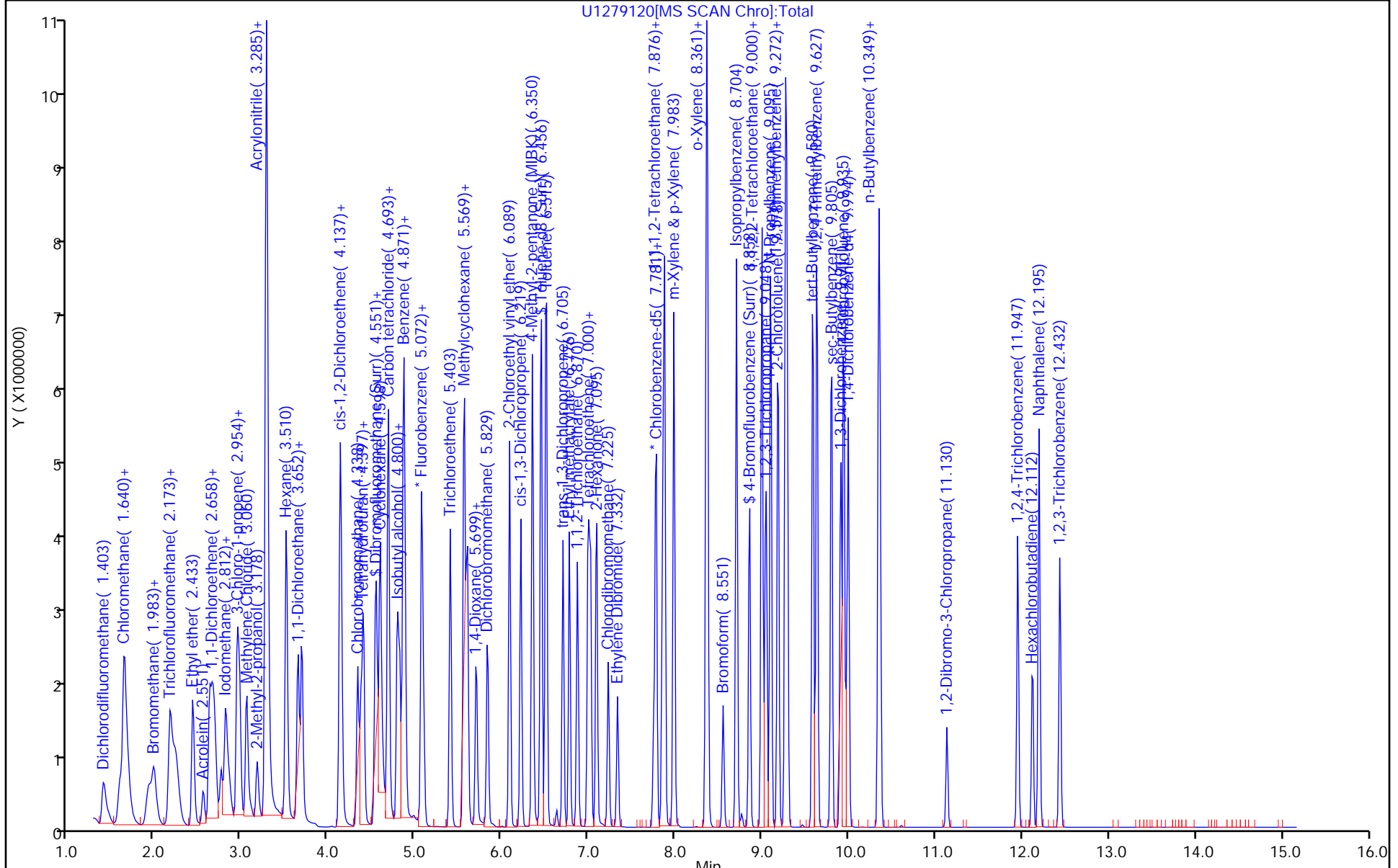
ALS Bottle#: 12

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 337765

SDG No.: _____

Instrument ID: A3UX19 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/24/2018 17:50 Calibration End Date: 07/24/2018 20:04 Calibration ID: 46234

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD8260 240-337765/13	U1900794.d
Level 2	STD8260 240-337765/12	U1900793.d
Level 3	STD8260 240-337765/11	U1900792.d
Level 4	ICIS 240-337765/10	U1900791.d
Level 5	STD8260 240-337765/9	U1900790.d
Level 6	STD8260 240-337765/3	U1900784.d
Level 7	STD8260 240-337765/2	U1900783.d

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
Dichlorodifluoromethane	0.2985 0.3869	0.3275 0.3899	0.3189	0.3531	0.3613	Ave		0.3480			10.0		15.0				
Chloromethane	0.3558 0.3258	0.3705 0.3191	0.3263	0.3392	0.3223	Ave		0.3370		0.1000	5.8		15.0				
Butadiene	0.3408 0.3374	0.3424 0.3377	0.2895	0.3248	0.3219	Ave		0.3278			5.7		15.0				
Vinyl chloride	0.2746 0.3390	0.3544 0.3374	0.3113	0.3366	0.3288	Ave		0.3260			8.0		15.0				
Bromomethane	0.2749 0.2254	0.2866 0.2173	0.2405	0.2466	0.2251	Ave		0.2452			10.8		15.0				
Chloroethane	0.2109 0.1921	0.2097 0.1854	0.1960	0.2032	0.1901	Ave		0.1982			5.0		15.0				
Dichlorofluoromethane	0.5221 0.4475	0.4917 0.4372	0.4526	0.4727	0.4486	Ave		0.4675			6.5		15.0				
Trichlorofluoromethane	0.4494 0.4561	0.4680 0.4427	0.3932	0.4472	0.4396	Ave		0.4423			5.3		15.0				
Ethyl ether	0.2193 0.1979	0.2111 0.1891	0.1902	0.1939	0.1890	Ave		0.1987			6.0		15.0				
Acrolein	0.0586 0.0546	0.0507 0.0535	0.0446	0.0490	0.0542	Ave		0.0522			8.7		15.0				
1,1-Dichloroethene	0.3808 0.3850	0.3828 0.3735	0.3902	0.3740	0.3655	Ave		0.3788			2.2		15.0				
1,1,2-Trichloro-1,2,2-trifluoroethane	0.2602 0.2706	0.2860 0.2683	0.2820	0.2661	0.2580	Ave		0.2702			3.9		15.0				
Acetone	++++ 0.0784	0.0790 0.0643	0.0549	0.0580	0.0606	Ave		0.0659			15.8	*	15.0				
Iodomethane	0.4645 0.4649	0.4824 0.4542	0.4796	0.4736	0.4610	Ave		0.4686			2.2		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

Analy Batch No.: 337765

SDG No.: _____

Instrument ID: A3UX19

GC Column: DB-624

ID: 0.18 (mm)

Heated Purge: (Y/N) N

Calibration Start Date: 07/24/2018 17:50

Calibration End Date: 07/24/2018 20:04

Calibration ID: 46234

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
Carbon disulfide	1.0264 0.7904	0.9769 0.7703	0.8143	0.7839	0.7630	Ave		0.8465			12.8		15.0				
3-Chloro-1-propene	0.4236 0.3955	0.4245 0.3845	0.3864	0.3828	0.3812	Ave		0.3969			4.8		15.0				
Methyl acetate	0.2893 0.2388	0.2199 0.2093	0.2069	0.2105	0.2113	Ave		0.2266			13.1		15.0				
Methylene Chloride	++++ 0.2977	0.3380 0.2854	0.3031	0.3009	0.2892	Ave		0.3024			6.2		15.0				
2-Methyl-2-propanol	++++ 0.0272	0.0286 ++++	0.0233	0.0231	0.0210	Ave		0.0246			12.8		15.0				
Acrylonitrile	0.1149 0.1149	0.0936 0.0991	0.0942	0.0985	0.1008	Ave		0.1023			8.8		15.0				
trans-1,2-Dichloroethene	0.4272 0.3621	0.3980 0.3508	0.3681	0.3544	0.3490	Ave		0.3728			7.8		15.0				
Methyl tert-butyl ether	0.6889 0.7038	0.7226 0.6502	0.7037	0.7046	0.6888	Ave		0.6946			3.3		15.0				
Hexane	0.4016 0.4127	0.4088 0.4136	0.4369	0.3839	0.3905	Ave		0.4069			4.3		15.0				
1,1-Dichloroethane	0.4297 0.4479	0.4309 0.4358	0.4483	0.4451	0.4391	Ave		0.4395		0.1000	1.8		15.0				
Vinyl acetate	0.4180 0.4211	0.3784 0.4083	0.3943	0.3850	0.3928	Ave		0.3997			4.1		15.0				
cis-1,2-Dichloroethene	0.3259 0.3058	0.3308 0.2928	0.3020	0.3030	0.2971	Ave		0.3082			4.7		15.0				
2-Butanone (MEK)	++++ 0.0411	0.0357 0.0381	0.0358	0.0358	0.0391	Ave		0.0376			6.0		15.0				
2,2-Dichloropropane	0.2667 0.2404	0.2856 0.2633	0.2822	0.2661	0.2457	Ave		0.2643			6.4		15.0				
Chlorobromomethane	0.2447 0.2004	0.2207 0.1830	0.1878	0.1937	0.1884	Ave		0.2027			11.0		15.0				
Tetrahydrofuran	0.0995 0.1054	0.1040 0.0940	0.0907	0.0913	0.0950	Ave		0.0971			6.1		15.0				
Chloroform	0.4629 0.4616	0.4798 0.4429	0.4485	0.4541	0.4433	Ave		0.4561			2.9		15.0				
1,1,1-Trichloroethane	0.3956 0.4177	0.3988 0.4154	0.4324	0.4070	0.4089	Ave		0.4108			3.0		15.0				
Cyclohexane	0.4246 0.4364	0.4382 0.4292	0.4507	0.4156	0.4161	Ave		0.4301			3.0		15.0				
1,1-Dichloropropene	0.3755 0.3758	0.3903 0.3692	0.3840	0.3595	0.3614	Ave		0.3737			3.0		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 337765

SDG No.: _____

Instrument ID: A3UX19 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/24/2018 17:50 Calibration End Date: 07/24/2018 20:04 Calibration ID: 46234

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
Carbon tetrachloride	0.3639 0.3981	0.3846 0.3917	0.3944	0.3722	0.3729	Ave		0.3825			3.4		15.0				
Isobutyl alcohol	0.0095 0.0104	0.0071 0.0087	0.0088	0.0079	0.0092	Ave		0.0088			12.2		15.0				
Benzene	0.9890 1.0452	1.0827 1.0051	1.0373	1.0007	1.0215	Ave		1.0259			3.1		15.0				
1,2-Dichloroethane	0.3674 0.3257	0.3549 0.3127	0.3205	0.3110	0.3150	Ave		0.3296			6.8		15.0				
n-Heptane	++++ 0.2252	0.7970 0.2266	0.2839	0.2324	0.2217	Lin1	0.5799	0.2147						0.9990		0.9900	
Trichloroethene	0.3122 0.3167	0.3258 0.3140	0.3258	0.3068	0.3105	Ave		0.3160			2.3		15.0				
Methylcyclohexane	0.4985 0.5342	0.5073 0.5200	0.5394	0.4970	0.4957	Ave		0.5132			3.6		15.0				
1,2-Dichloropropane	0.2050 0.2404	0.2394 0.2326	0.2309	0.2270	0.2376	Ave		0.2304			5.3		15.0				
Dibromomethane	0.2379 0.2151	0.2154 0.2010	0.2009	0.2115	0.2105	Ave		0.2132			5.8		15.0				
1,4-Dioxane	++++ 0.0024	0.0017 0.0024	0.0024	0.0024	0.0023	Ave		0.0023			13.5		15.0				
Dichlorobromomethane	0.3232 0.3408	0.3027 0.3295	0.3203	0.3127	0.3310	Ave		0.3229			3.9		15.0				
2-Chloroethyl vinyl ether	0.1601 0.1755	0.1580 0.1783	0.1797	0.1698	0.1774	Ave		0.1713			5.2		15.0				
cis-1,3-Dichloropropene	0.3599 0.3873	0.3811 0.3872	0.3686	0.3735	0.3865	Ave		0.3777			2.8		15.0				
4-Methyl-2-pentanone (MIBK)	0.2834 0.3221	0.2998 0.3046	0.3240	0.2983	0.3095	Ave		0.3059			4.6		15.0				
Toluene	1.5618 1.4027	1.4672 1.4180	1.4098	1.3276	1.3894	Ave		1.4252			5.1		15.0				
trans-1,3-Dichloropropene	0.4760 0.4702	0.4587 0.4631	0.4478	0.4252	0.4649	Ave		0.4580			3.7		15.0				
Ethyl methacrylate	0.4185 0.4604	0.4061 0.4531	0.4309	0.4112	0.4583	Ave		0.4341			5.3		15.0				
1,1,2-Trichloroethane	0.2547 0.2895	0.2773 0.2862	0.2834	0.2725	0.2908	Ave		0.2792			4.5		15.0				
Tetrachloroethene	0.4086 0.4320	0.4228 0.4317	0.4309	0.4048	0.4173	Ave		0.4212			2.7		15.0				
1,3-Dichloropropane	0.4853 0.4890	0.5028 0.4855	0.4893	0.4635	0.4865	Ave		0.4860			2.4		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 337765

SDG No.: _____

Instrument ID: A3UX19 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/24/2018 17:50 Calibration End Date: 07/24/2018 20:04 Calibration ID: 46234

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
2-Hexanone	0.2860 0.3061	0.2740 0.2989	0.3048	0.2770	0.2999	Ave		0.2924			4.5		15.0				
Chlorodibromomethane	0.3153 0.3531	0.3347 0.3456	0.3254	0.3197	0.3424	Ave		0.3337			4.2		15.0				
Ethylene Dibromide	0.3316 0.3186	0.3371 0.3125	0.3153	0.3013	0.3163	Ave		0.3190			3.8		15.0				
Chlorobenzene	0.9988 0.9439	1.0195 0.9268	0.9392	0.9052	0.9346	Ave		0.9526		0.3000	4.3		15.0				
1,1,1,2-Tetrachloroethane	0.2852 0.3466	0.3288 0.3341	0.3290	0.3310	0.3341	Ave		0.3270			5.9		15.0				
Ethylbenzene	0.4594 0.5246	0.5226 0.5211	0.5127	0.4996	0.5108	Ave		0.5073			4.5		15.0				
m-Xylene & p-Xylene	0.6169 0.6437	0.6148 0.6359	0.6355	0.6137	0.6232	Ave		0.6262			1.9		15.0				
o-Xylene	0.5941 0.6233	0.5896 0.6029	0.6245	0.6014	0.5968	Ave		0.6047			2.3		15.0				
Styrene	0.9580 1.0545	0.9583 1.0320	1.0135	0.9872	1.0201	Ave		1.0034			3.7		15.0				
Bromoform	++++ 0.2846	0.2440 0.2826	0.2606	0.2566	0.2726	Ave		0.2668		0.1000	6.0		15.0				
Isopropylbenzene	1.5546 1.6483	1.5581 1.6164	1.6482	1.5866	1.5868	Ave		1.5999			2.4		15.0				
1,1,2,2-Tetrachloroethane	0.7561 0.8073	0.8321 0.7913	0.8175	0.7659	0.8099	Ave		0.7972		0.3000	3.5		15.0				
Bromobenzene	0.8153 0.7490	0.7267 0.7427	0.7731	0.7237	0.7577	Ave		0.7555			4.2		15.0				
1,2,3-Trichloropropane	0.3160 0.2796	0.2566 0.2769	0.2966	0.2651	0.2852	Ave		0.2823			7.0		15.0				
trans-1,4-Dichloro-2-butene	0.2699 0.2473	0.2213 0.2516	0.2435	0.2261	0.2517	Ave		0.2445			6.7		15.0				
N-Propylbenzene	0.7798 0.8210	0.7523 0.8202	0.8514	0.7731	0.8029	Ave		0.8001			4.2		15.0				
2-Chlorotoluene	0.6509 0.6957	0.7125 0.6833	0.7132	0.6770	0.6858	Ave		0.6883			3.1		15.0				
1,3,5-Trimethylbenzene	2.0585 2.3418	2.1282 2.3386	2.4321	2.2627	2.2905	Ave		2.2646			5.7		15.0				
4-Chlorotoluene	0.7199 0.7173	0.7260 0.7141	0.7528	0.6936	0.7171	Ave		0.7201			2.4		15.0				
tert-Butylbenzene	2.0893 2.2086	2.2305 2.1805	2.3049	2.0958	2.1272	Ave		2.1767			3.6		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 337765

SDG No.: _____

Instrument ID: A3UX19 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/24/2018 17:50 Calibration End Date: 07/24/2018 20:04 Calibration ID: 46234

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
1,2,4-Trimethylbenzene	2.3016 2.3641	2.3139 2.3974	2.4350	2.3225	2.3165	Ave		2.3501			2.1		15.0				
sec-Butylbenzene	2.8312 3.0965	2.8639 3.1341	3.2011	2.9684	2.9595	Ave		3.0078			4.6		15.0				
1,3-Dichlorobenzene	1.6206 1.4203	1.5501 1.4165	1.4543	1.3821	1.4074	Ave		1.4645			6.0		15.0				
4-Isopropyltoluene	2.3868 2.6740	2.3755 2.7456	2.7383	2.5786	2.5586	Ave		2.5796			5.9		15.0				
1,4-Dichlorobenzene	1.7882 1.4335	1.6574 1.4328	1.4853	1.4002	1.4320	Ave		1.5185			9.7		15.0				
n-Butylbenzene	2.0220 2.3242	2.1252 2.3914	2.3447	2.2111	2.1782	Ave		2.2281			5.9		15.0				
1,2-Dichlorobenzene	1.3936 1.3079	1.4283 1.3217	1.3446	1.2913	1.2861	Ave		1.3391			4.0		15.0				
1,2-Dibromo-3-Chloropropane	0.2394 0.2501	0.2225 0.2556	0.2287	0.2293	0.2369	Ave		0.2375			5.0		15.0				
1,2,4-Trichlorobenzene	1.0063 0.8577	1.0084 0.9508	0.8893	0.8765	0.8484	Ave		0.9196			7.4		15.0				
Hexachlorobutadiene	0.4988 0.4431	0.5134 0.5128	0.4874	0.4604	0.4444	Ave		0.4800			6.4		15.0				
Naphthalene	2.5280 2.5374	2.6896 2.7560	2.5594	2.5256	2.5586	Ave		2.5935			3.5		15.0				
1,2,3-Trichlorobenzene	0.8270 0.7867	0.8451 0.9084	0.8355	0.8114	0.8072	Ave		0.8316			4.7		15.0				
Dibromofluoromethane (Surr)	0.2924 0.2586	0.2650 0.2453	0.2515	0.2531	0.2466	Ave		0.2589			6.3		15.0				
1,2-Dichloroethane-d4 (Surr)	0.3213 0.2669	0.3001 0.2485	0.2625	0.2659	0.2555	Ave		0.2744			9.6		15.0				
Toluene-d8 (Surr)	1.2522 1.2151	1.2033 1.2031	1.2111	1.1433	1.2004	Ave		1.2041			2.7		15.0				
4-Bromofluorobenzene (Surr)	0.5696 0.4390	0.4918 0.4279	0.4472	0.4315	0.4318	Ave		0.4627			11.2		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 337765

SDG No.: _____

Instrument ID: A3UX19 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/24/2018 17:50 Calibration End Date: 07/24/2018 20:04 Calibration ID: 46234

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD8260 240-337765/13	U1900794.d
Level 2	STD8260 240-337765/12	U1900793.d
Level 3	STD8260 240-337765/11	U1900792.d
Level 4	ICIS 240-337765/10	U1900791.d
Level 5	STD8260 240-337765/9	U1900790.d
Level 6	STD8260 240-337765/3	U1900784.d
Level 7	STD8260 240-337765/2	U1900783.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
Dichlorodifluoromethane	FB	Ave	6894 1134505	14647 1522047	151920	328230	708511	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Chloromethane	FB	Ave	8217 955231	16570 1245553	155433	315290	632033	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Butadiene	FB	Ave	7871 989374	15313 1318121	137925	301883	631099	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Vinyl chloride	FB	Ave	6342 993940	15847 1317064	148293	312915	644632	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Bromomethane	FB	Ave	6350 660888	12818 848050	114577	229239	441425	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Chloroethane	FB	Ave	4872 563348	9377 723733	93395	188891	372825	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Dichlorofluoromethane	FB	Ave	12059 1312016	21989 1706469	215631	439391	879608	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Trichlorofluoromethane	FB	Ave	10381 1337225	20928 1728039	187339	415720	861954	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Ethyl ether	FB	Ave	5066 580370	9442 738330	90620	180269	370565	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Acrolein	FB	Ave	6772 800130	11339 1043418	106196	227879	531628	2.50 300	5.00 400	50.0	100	200
1,1-Dichloroethene	FB	Ave	8796 1128785	17119 1458107	185910	347690	716665	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,1,2-Trichloro-1,2,2-trifluoroethane	FB	Ave	6009 793296	12789 1047375	134365	247358	505930	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Acetone	FB	Ave	++++ 459712	7064 501797	52355	107763	237768	++++ 120	2.00 160	20.0	40.0	80.0
Iodomethane	FB	Ave	10728 1363038	21574 1772860	228493	440198	903919	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Carbon disulfide	FB	Ave	23708 2317545	43688 3006958	387941	728690	1496184	0.500 60.0	1.00 80.0	10.0	20.0	40.0

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 337765

SDG No.: _____

Instrument ID: A3UX19 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/24/2018 17:50 Calibration End Date: 07/24/2018 20:04 Calibration ID: 46234

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
3-Chloro-1-propene	FB	Ave	9784 1159498	18985 1500878	184068	355801	747474	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Methyl acetate	FB	Ave	13362 1400331	19667 1633788	197122	391356	828794	1.00 120	2.00 160	20.0	40.0	80.0
Methylene Chloride	FB	Ave	++++ 872855	15117 1113978	144386	279726	566982	++++ 60.0	1.00 80.0	10.0	20.0	40.0
2-Methyl-2-propanol	FB	Ave	++++ 798354	12788 ++++	110777	215092	411966	++++ 600	10.0 ++++	100	200	400
Acrylonitrile	FB	Ave	26540 3368428	41875 3868018	448754	915892	1977138	5.00 600	10.0 800	100	200	400
trans-1,2-Dichloroethene	FB	Ave	9868 1061569	17800 1369327	175373	329454	684359	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Methyl tert-butyl ether	FB	Ave	15911 2063462	32315 2537900	335243	654948	1350698	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Hexane	FB	Ave	9277 1210166	18280 1614587	208123	356826	765779	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,1-Dichloroethane	FB	Ave	9924 1313347	19272 1701003	213583	413734	860929	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Vinyl acetate	FB	Ave	9654 1234805	16923 1593713	187841	357825	770166	0.500 60.0	1.00 80.0	10.0	20.0	40.0
cis-1,2-Dichloroethene	FB	Ave	7528 896669	14795 1142993	143871	281663	582599	0.500 60.0	1.00 80.0	10.0	20.0	40.0
2-Butanone (MEK)	FB	Ave	++++ 241145	3193 297238	34072	66486	153177	++++ 120	2.00 160	20.0	40.0	80.0
2,2-Dichloropropane	FB	Ave	6159 704769	12773 1027916	134434	247316	481767	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Chlorobromomethane	FB	Ave	5651 587580	9868 714392	89489	180080	369472	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Tetrahydrofuran	FB	Ave	4596 618274	9301 734202	86462	169823	372381	1.00 120	2.00 160	20.0	40.0	80.0
Chloroform	FB	Ave	10692 1353439	21458 1728769	213657	422069	869181	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,1,1-Trichloroethane	FB	Ave	9137 1224716	17835 1621508	206006	378348	801860	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Cyclohexane	FB	Ave	9806 1279473	19597 1675220	214696	386296	815868	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,1-Dichloropropene	FB	Ave	8674 1102013	17455 1441115	182947	334178	708682	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Carbon tetrachloride	FB	Ave	8406 1167256	17198 1528972	187898	345961	731238	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Isobutyl alcohol	FB	Ave	5482 758926	7910 849021	105355	183028	449380	12.5 1500	25.0 2000	250	500	1000

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 337765

SDG No.: _____

Instrument ID: A3UX19 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/24/2018 17:50 Calibration End Date: 07/24/2018 20:04 Calibration ID: 46234

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
Benzene	FB	Ave	22844 3064496	48419 3923346	494183	930203	2003056	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,2-Dichloroethane	FB	Ave	8485 954899	15873 1220640	152677	289097	617748	0.500 60.0	1.00 80.0	10.0	20.0	40.0
n-Heptane	FB	Lin1	++++ 660181	35642 884598	135257	216048	434651	++++ 60.0	1.00 80.0	10.0	20.0	40.0
Trichloroethene	FB	Ave	7211 928718	14571 1225880	155201	285190	608912	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Methylcyclohexane	FB	Ave	11515 1566351	22689 2029926	256970	461990	972024	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,2-Dichloropropane	FB	Ave	4734 704987	10704 908144	110015	210992	465852	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Dibromomethane	FB	Ave	5496 630606	9635 784539	95707	196594	412829	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,4-Dioxane	FB	Ave	++++ 142512	1478 187742	23290	43840	91591	++++ 1200	20.0 1600	200	400	800
Dichlorobromomethane	FB	Ave	7466 999127	13539 1286301	152581	290639	649042	0.500 60.0	1.00 80.0	10.0	20.0	40.0
2-Chloroethyl vinyl ether	FB	Ave	7395 1029389	14128 1392220	171233	315645	695808	1.00 120	2.00 160	20.0	40.0	80.0
cis-1,3-Dichloropropene	FB	Ave	8313 1135535	17042 1511629	175580	347181	757793	0.500 60.0	1.00 80.0	10.0	20.0	40.0
4-Methyl-2-pentanone (MIBK)	FB	Ave	13091 1889071	26811 2377711	308673	554613	1213622	1.00 120	2.00 160	20.0	40.0	80.0
Toluene	CBNZ d5	Ave	28549 3229981	51989 4260144	544060	985962	2123092	0.500 60.0	1.00 80.0	10.0	20.0	40.0
trans-1,3-Dichloropropene	CBNZ d5	Ave	8702 1082760	16254 1391341	172822	315763	710372	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Ethyl methacrylate	CBNZ d5	Ave	7650 1060082	14391 1361372	166277	305349	700245	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,1,2-Trichloroethane	CBNZ d5	Ave	4656 666583	9825 859718	109350	202390	444369	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Tetrachloroethene	CBNZ d5	Ave	7470 994717	14983 1297004	166266	300622	637692	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,3-Dichloropropane	CBNZ d5	Ave	8871 1126088	17817 1458618	188817	344194	743433	0.500 60.0	1.00 80.0	10.0	20.0	40.0
2-Hexanone	CBNZ d5	Ave	10457 1409861	19416 1795814	235229	411400	916606	1.00 120	2.00 160	20.0	40.0	80.0
Chlorodibromomethane	CBNZ d5	Ave	5763 813124	11860 1038431	125585	237418	523153	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Ethylene Dibromide	CBNZ d5	Ave	6061 733594	11944 938884	121691	223763	483377	0.500 60.0	1.00 80.0	10.0	20.0	40.0

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 337765

SDG No.: _____

Instrument ID: A3UX19 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/24/2018 17:50 Calibration End Date: 07/24/2018 20:04 Calibration ID: 46234

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
Chlorobenzene	CBNZ d5	Ave	18258 2173534	36126 2784427	362449	672294	1428038	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,1,1,2-Tetrachloroethane	CBNZ d5	Ave	5213 798193	11650 1003714	126948	245845	510579	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Ethylbenzene	CBNZ d5	Ave	8398 1207976	18517 1565528	197845	371072	780525	0.500 60.0	1.00 80.0	10.0	20.0	40.0
m-Xylene & p-Xylene	CBNZ d5	Ave	11276 1482266	21784 1910562	245222	455770	952249	0.500 60.0	1.00 80.0	10.0	20.0	40.0
o-Xylene	CBNZ d5	Ave	10860 1435324	20892 1811249	240986	446659	911893	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Styrene	CBNZ d5	Ave	17512 2428268	33956 3100442	391122	733164	1558780	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Bromoform	CBNZ d5	Ave	++++ 655265	8645 849153	100560	190577	416502	++++ 60.0	1.00 80.0	10.0	20.0	40.0
Isopropylbenzene	CBNZ d5	Ave	28418 3795594	55210 4856288	636049	1178300	2424662	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,1,2,2-Tetrachloroethane	DCBd 4	Ave	8105 1065677	17817 1352703	173948	331847	686661	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Bromobenzene	DCBd 4	Ave	8740 988831	15559 1269533	164497	313555	642419	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,2,3-Trichloropropane	DCBd 4	Ave	3387 369092	5494 473318	63108	114884	241838	0.500 60.0	1.00 80.0	10.0	20.0	40.0
trans-1,4-Dichloro-2-butene	DCBd 4	Ave	2893 326498	4738 430124	51819	97955	213375	0.500 60.0	1.00 80.0	10.0	20.0	40.0
N-Propylbenzene	DCBd 4	Ave	8359 1083875	16107 1402046	181166	334963	680756	0.500 60.0	1.00 80.0	10.0	20.0	40.0
2-Chlorotoluene	DCBd 4	Ave	6977 918378	15255 1168008	151745	293354	581507	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,3,5-Trimethylbenzene	DCBd 4	Ave	22067 3091430	45567 3997648	517511	980405	1942019	0.500 60.0	1.00 80.0	10.0	20.0	40.0
4-Chlorotoluene	DCBd 4	Ave	7717 946982	15545 1220622	160173	300515	607997	0.500 60.0	1.00 80.0	10.0	20.0	40.0
tert-Butylbenzene	DCBd 4	Ave	22397 2915643	47758 3727392	490442	908078	1803602	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,2,4-Trimethylbenzene	DCBd 4	Ave	24672 3120829	49545 4098181	518127	1006317	1964040	0.500 60.0	1.00 80.0	10.0	20.0	40.0
sec-Butylbenzene	DCBd 4	Ave	30350 4087764	61320 5357379	681132	1286147	2509293	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,3-Dichlorobenzene	DCBd 4	Ave	17372 1874897	33191 2421314	309437	598840	1193296	0.500 60.0	1.00 80.0	10.0	20.0	40.0
4-Isopropyltoluene	DCBd 4	Ave	25586 3530033	50862 4693383	582655	1117286	2169356	0.500 60.0	1.00 80.0	10.0	20.0	40.0

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 337765

SDG No.: _____

Instrument ID: A3UX19 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/24/2018 17:50 Calibration End Date: 07/24/2018 20:04 Calibration ID: 46234

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
1,4-Dichlorobenzene	DCBd 4	Ave	19169 1892443	35488 2449293	316046	606688	1214157	0.500 60.0	1.00 80.0	10.0	20.0	40.0
n-Butylbenzene	DCBd 4	Ave	21675 3068191	45503 4087812	498908	958018	1846843	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,2-Dichlorobenzene	DCBd 4	Ave	14939 1726550	30581 2259323	286113	559506	1090448	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,2-Dibromo-3-Chloropropane	DCBd 4	Ave	2566 330105	4764 436864	48670	99335	200822	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,2,4-Trichlorobenzene	DCBd 4	Ave	10787 1132196	21592 1625332	189226	379757	719342	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Hexachlorobutadiene	DCBd 4	Ave	5347 584967	10992 876579	103707	199490	376786	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Naphthalene	DCBd 4	Ave	27099 3349616	57589 4711177	544587	1094286	2169342	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,2,3-Trichlorobenzene	DCBd 4	Ave	8865 1038523	18094 1552764	177768	351575	684438	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Dibromofluoromethane (Surr)	FB	Ave	6754 758227	11849 957680	119809	235239	483501	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,2-Dichloroethane-d4 (Surr)	FB	Ave	7422 782592	13421 970142	125069	247201	501017	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Toluene-d8 (Surr)	CBNZ d5	Ave	22890 2798059	42636 3614422	467380	849081	1834190	0.500 60.0	1.00 80.0	10.0	20.0	40.0
4-Bromofluorobenzene (Surr)	CBNZ d5	Ave	10413 1010844	17427 1285631	172585	320453	659738	0.500 60.0	1.00 80.0	10.0	20.0	40.0

Curve Type Legend:

Ave = Average ISTD
Lin1 = Linear 1/conc ISTD

TestAmerica Canton
Target Compound Quantitation Report

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\U1900783.d
 Lims ID: std8260 L7
 Client ID:
 Sample Type: IC Calib Level: 7
 Inject. Date: 24-Jul-2018 17:50:49 ALS Bottle#: 0 Worklist Smp#: 2
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: 240-0078277-002
 Operator ID: 001904 Instrument ID: A3UX19
 Sublist: chrom-8260_19*sub1
 Method: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\8260_19.m
 Limit Group: MSV 8260B ICAL
 Last Update: 25-Jul-2018 10:13:29 Calib Date: 24-Jul-2018 20:04:28
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\U1900794.d
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: XAWRK026

First Level Reviewer: laveyt

Date:

25-Jul-2018 09:42:29

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.654	5.654	0.000	94	975875	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.500	8.500	0.000	80	751089	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.883	10.883	0.000	65	427349	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr	111	5.037	5.049	-0.012	62	957680	80.0	75.8	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	5.345	5.357	-0.012	90	970142	80.0	72.5	
\$ 6 Toluene-d8 (Surr)	98	7.100	7.101	-0.001	92	3614422	80.0	79.9	
\$ 7 4-Bromofluorobenzene (Surr	95	9.674	9.674	0.000	92	1285631	80.0	74.0	
9 Dichlorodifluoromethane	85	1.610	1.622	-0.012	88	1522047	80.0	89.6	
10 Chloromethane	50	1.811	1.823	-0.012	81	1245553	80.0	75.7	
12 Butadiene	54	1.894	1.906	-0.012	88	1318121	80.0	82.4	
11 Vinyl chloride	62	1.918	1.930	-0.012	82	1317064	80.0	82.8	
13 Bromomethane	94	2.203	2.227	-0.024	90	848050	80.0	70.9	
14 Chloroethane	64	2.286	2.310	-0.024	86	723733	80.0	74.8	
15 Dichlorofluoromethane	67	2.487	2.511	-0.024	83	1706469	80.0	74.8	
16 Trichlorofluoromethane	101	2.559	2.582	-0.023	88	1728039	80.0	80.1	
17 Ethyl ether	59	2.796	2.820	-0.024	91	738330	80.0	76.2	
18 Acrolein	56	2.914	2.938	-0.024	93	1043418	400.0	409.9	
21 1,1-Dichloroethene	61	3.021	3.033	-0.012	90	1458107	80.0	78.9	
20 1,1,2-Trichloro-1,2,2-trif	101	3.045	3.057	-0.012	83	1047375	80.0	79.5	
22 Acetone	43	3.068	3.080	-0.012	74	501797	160.0	156.1	
23 Iodomethane	142	3.175	3.199	-0.024	98	1772860	80.0	77.5	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
24 Carbon disulfide	76	3.246	3.258	-0.012	98	3006958	80.0	72.8	
26 3-Chloro-1-propene	41	3.353	3.365	-0.012	83	1500878	80.0	77.5	
27 Methyl acetate	43	3.377	3.389	-0.012	97	1633788	160.0	147.8	
28 Methylene Chloride	49	3.472	3.484	-0.012	54	1113978	80.0	75.5	
29 2-Methyl-2-propanol	59	3.578	3.579	0.000	76	741744	800.0	616.8	
30 Acrylonitrile	53	3.685	3.697	-0.012	97	3868018	800.0	774.9	
32 trans-1,2-Dichloroethene	61	3.721	3.733	-0.012	80	1369327	80.0	75.3	
31 Methyl tert-butyl ether	73	3.733	3.733	0.000	69	2537900	80.0	74.9	
33 Hexane	57	3.970	3.982	-0.012	91	1614587	80.0	81.3	
34 1,1-Dichloroethane	63	4.100	4.112	-0.012	85	1701003	80.0	79.3	
35 Vinyl acetate	43	4.136	4.148	-0.012	97	1593713	80.0	81.7	
41 2-Butanone (MEK)	72	4.622	4.634	-0.012	64	297238	160.0	162.1	
39 2,2-Dichloropropane	77	4.622	4.634	-0.012	58	1027916	80.0	79.7	
40 cis-1,2-Dichloroethene	96	4.622	4.634	-0.012	68	1142993	80.0	76.0	
45 Chlorobromomethane	49	4.835	4.836	-0.001	71	714392	80.0	72.2	
46 Tetrahydrofuran	42	4.883	4.883	0.000	83	734202	160.0	154.9	
47 Chloroform	83	4.895	4.907	-0.012	68	1728769	80.0	77.7	
48 1,1,1-Trichloroethane	97	5.084	5.085	-0.001	89	1621508	80.0	80.9	
49 Cyclohexane	84	5.132	5.144	-0.012	87	1675220	80.0	79.8	
50 1,1-Dichloropropene	75	5.215	5.227	-0.012	92	1441115	80.0	79.0	
51 Carbon tetrachloride	117	5.227	5.239	-0.012	69	1528972	80.0	81.9	
52 Isobutyl alcohol	41	5.298	5.298	0.000	84	849021	2000.0	1980.1	
53 Benzene	78	5.405	5.417	-0.012	94	3923346	80.0	78.4	
54 1,2-Dichloroethane	62	5.416	5.417	-0.001	43	1220640	80.0	75.9	
56 n-Heptane	57	5.630	5.642	-0.012	91	884598	80.0	81.7	
58 Trichloroethene	130	5.986	5.986	0.000	90	1225880	80.0	79.5	
60 Methylcyclohexane	83	6.164	6.176	-0.012	90	2029926	80.0	81.1	
61 1,2-Dichloropropane	63	6.187	6.187	0.000	88	908144	80.0	80.8	
63 Dibromomethane	174	6.294	6.294	0.000	85	784539	80.0	75.4	
64 1,4-Dioxane	88	6.294	6.306	-0.012	33	187742	1600.0	1694.3	
65 Dichlorobromomethane	83	6.424	6.436	-0.012	94	1286301	80.0	81.6	
67 2-Chloroethyl vinyl ether	63	6.697	6.697	0.000	91	1392220	160.0	166.6	
68 cis-1,3-Dichloropropene	75	6.840	6.840	0.000	93	1511629	80.0	82.0	
69 4-Methyl-2-pentanone (MIBK)	43	6.982	6.982	0.000	89	2377711	160.0	159.3	
70 Toluene	91	7.160	7.172	-0.012	94	4260144	80.0	79.6	
71 trans-1,3-Dichloropropene	75	7.349	7.361	-0.012	82	1391341	80.0	80.9	
72 Ethyl methacrylate	69	7.432	7.433	-0.001	88	1361372	80.0	83.5	
74 1,1,2-Trichloroethane	97	7.539	7.539	0.000	67	859718	80.0	82.0	
75 Tetrachloroethene	166	7.693	7.693	0.000	91	1297004	80.0	82.0	
76 1,3-Dichloropropane	76	7.705	7.705	0.000	87	1458618	80.0	79.9	
77 2-Hexanone	43	7.764	7.765	-0.001	79	1795814	160.0	163.5	
79 Chlorodibromomethane	129	7.919	7.931	-0.012	88	1038431	80.0	82.9	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
80 Ethylene Dibromide	107	8.037	8.049	-0.012	97	938884	80.0	78.4	
82 Chlorobenzene	112	8.523	8.524	-0.001	96	2784427	80.0	77.8	
83 1,1,1,2-Tetrachloroethane	131	8.606	8.607	-0.001	79	1003714	80.0	81.7	
84 Ethylbenzene	106	8.630	8.630	0.000	97	1565528	80.0	82.2	
85 m-Xylene & p-Xylene	106	8.749	8.749	0.000	99	1910562	80.0	81.2	
87 Styrene	104	9.152	9.152	0.000	90	3100442	80.0	82.3	
86 o-Xylene	106	9.140	9.152	-0.012	93	1811249	80.0	79.8	
88 Bromoform	173	9.354	9.354	0.000	99	849153	80.0	84.7	
89 Isopropylbenzene	105	9.520	9.520	0.000	95	4856288	80.0	80.8	
91 1,1,2,2-Tetrachloroethane	83	9.816	9.816	0.000	83	1352703	80.0	79.4	
92 Bromobenzene	156	9.840	9.840	0.000	80	1269533	80.0	78.6	
93 1,2,3-Trichloropropane	110	9.863	9.864	-0.001	68	473318	80.0	78.5	
94 trans-1,4-Dichloro-2-buten	53	9.875	9.875	0.000	52	430124	80.0	82.3	
95 N-Propylbenzene	120	9.946	9.947	-0.001	91	1402046	80.0	82.0	
96 2-Chlorotoluene	126	10.041	10.041	0.000	96	1168008	80.0	79.4	
97 1,3,5-Trimethylbenzene	105	10.124	10.124	0.000	93	3997648	80.0	82.6	
98 4-Chlorotoluene	126	10.148	10.148	0.000	97	1220622	80.0	79.3	
99 tert-Butylbenzene	119	10.468	10.468	0.000	77	3727392	80.0	80.1	
101 1,2,4-Trimethylbenzene	105	10.516	10.516	0.000	70	4098181	80.0	81.6	
102 sec-Butylbenzene	105	10.694	10.694	0.000	94	5357379	80.0	83.4	
103 1,3-Dichlorobenzene	146	10.812	10.812	0.000	96	2421314	80.0	77.4	
104 4-Isopropyltoluene	119	10.848	10.848	0.000	90	4693383	80.0	85.1	
105 1,4-Dichlorobenzene	146	10.907	10.907	0.000	95	2449293	80.0	75.5	
108 n-Butylbenzene	91	11.275	11.275	0.000	97	4087812	80.0	85.9	
109 1,2-Dichlorobenzene	146	11.298	11.298	0.000	98	2259323	80.0	79.0	
110 1,2-Dibromo-3-Chloropropan	157	12.128	12.129	-0.001	94	436864	80.0	86.1	
112 1,2,4-Trichlorobenzene	180	13.018	13.018	0.000	92	1625332	80.0	82.7	
113 Hexachlorobutadiene	225	13.208	13.196	0.012	86	876579	80.0	85.5	
114 Naphthalene	128	13.279	13.279	0.000	96	4711177	80.0	85.0	
115 1,2,3-Trichlorobenzene	180	13.540	13.540	0.000	94	1552764	80.0	87.4	
S 164 Total BTEX	1				0		400.0	401.2	
S 127 Trihalomethanes, Total	1				0		320.0	326.9	
S 124 1,2-Dichloroethene, Total	96				0			151.3	
S 125 1,3-Dichloropropene, Total	75				0			162.9	
S 126 Xylenes, Total	106				0		160.0	161.0	

Reagents:

vm50is_stk_A_00001	Amount Added: 2.00	Units: uL
vmrgas_00255	Amount Added: 64.00	Units: uL
vmarolistdw_00256	Amount Added: 64.00	Units: uL
vmrprimw_00292	Amount Added: 64.00	Units: uL
vm50ss_00329	Amount Added: 64.00	Units: uL

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\U1900783.d

Injection Date: 24-Jul-2018 17:50:49

Instrument ID: A3UX19

Operator ID: 001904

Lims ID: std8260 L7

Worklist Smp#: 2

Client ID:

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

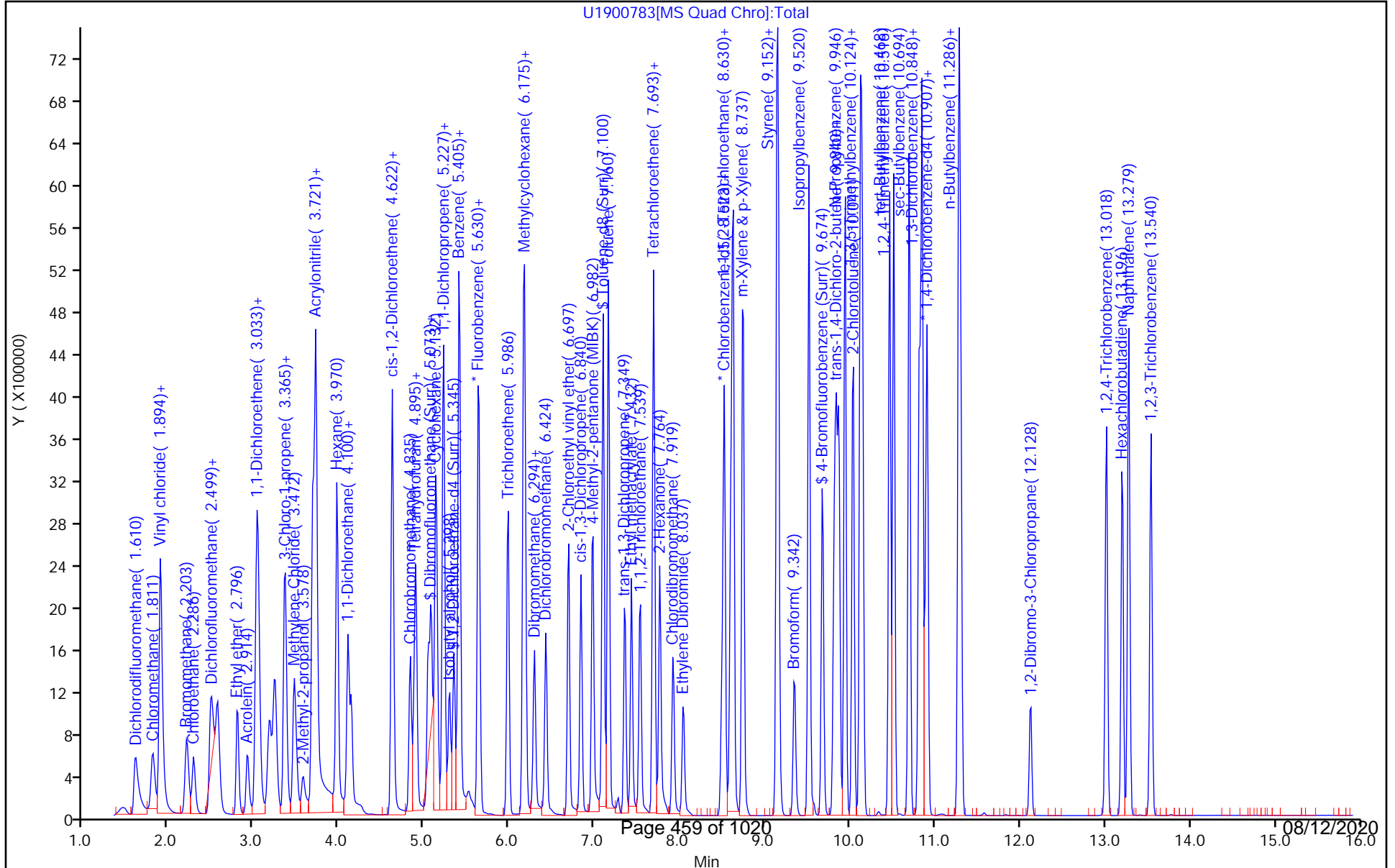
ALS Bottle#: 0

Method: 8260_19

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



TestAmerica Canton
Target Compound Quantitation Report

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\U1900784.d
 Lims ID: std8260 L6
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 24-Jul-2018 18:13:04 ALS Bottle#: 0 Worklist Smp#: 3
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: 240-0078277-003
 Operator ID: 001904 Instrument ID: A3UX19
 Sublist: chrom-8260_19*sub1
 Method: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\8260_19.m
 Limit Group: MSV 8260B ICAL
 Last Update: 25-Jul-2018 10:13:35 Calib Date: 24-Jul-2018 20:04:28
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\U1900794.d
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: XAWRK026

First Level Reviewer: laveyt

Date:

25-Jul-2018 09:44:24

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.654	5.654	0.000	92	977352	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.500	8.500	0.000	82	767566	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.884	10.883	0.001	73	440038	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr	111	5.049	5.049	0.000	63	758227	60.0	59.9	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	5.357	5.357	0.000	98	782592	60.0	58.4	
\$ 6 Toluene-d8 (Surr)	98	7.101	7.101	0.000	89	2798059	60.0	60.6	
\$ 7 4-Bromofluorobenzene (Surr	95	9.674	9.674	0.000	92	1010844	60.0	56.9	
9 Dichlorodifluoromethane	85	1.622	1.622	0.000	87	1134505	60.0	66.7	
10 Chloromethane	50	1.824	1.823	0.001	78	955231	60.0	58.0	
12 Butadiene	54	1.907	1.906	0.000	88	989374	60.0	61.8	
11 Vinyl chloride	62	1.930	1.930	0.000	82	993940	60.0	62.4	
13 Bromomethane	94	2.227	2.227	0.000	91	660888	60.0	55.2	
14 Chloroethane	64	2.310	2.310	0.000	87	563348	60.0	58.2	
15 Dichlorofluoromethane	67	2.511	2.511	0.000	83	1312016	60.0	57.4	
16 Trichlorofluoromethane	101	2.582	2.582	0.000	87	1337225	60.0	61.9	
17 Ethyl ether	59	2.808	2.820	-0.012	90	580370	60.0	59.8	
18 Acrolein	56	2.926	2.938	-0.012	96	800130	300.0	313.8	
21 1,1-Dichloroethene	61	3.045	3.033	0.012	89	1128785	60.0	61.0	
20 1,1,2-Trichloro-1,2,2-trif	101	3.057	3.057	0.000	74	793296	60.0	60.1	
22 Acetone	43	3.081	3.080	0.001	88	459712	120.0	142.8	
23 Iodomethane	142	3.199	3.199	0.000	97	1363038	60.0	59.5	

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\U1900784.d

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
24 Carbon disulfide	76	3.258	3.258	0.000	98	2317545	60.0	56.0	
26 3-Chloro-1-propene	41	3.365	3.365	0.000	79	1159498	60.0	59.8	
27 Methyl acetate	43	3.389	3.389	0.000	96	1400331	120.0	126.5	
28 Methylene Chloride	49	3.484	3.484	0.000	51	872855	60.0	59.1	
29 2-Methyl-2-propanol	59	3.579	3.579	0.001	88	798354	600.0	662.9	
30 Acrylonitrile	53	3.697	3.697	0.000	99	3368428	600.0	673.8	
31 Methyl tert-butyl ether	73	3.733	3.733	0.000	47	2063462	60.0	60.8	
32 trans-1,2-Dichloroethene	61	3.733	3.733	0.000	71	1061569	60.0	58.3	
33 Hexane	57	3.982	3.982	0.000	89	1210166	60.0	60.9	
34 1,1-Dichloroethane	63	4.112	4.112	0.000	84	1313347	60.0	61.1	
35 Vinyl acetate	43	4.148	4.148	0.000	97	1234805	60.0	63.2	
40 cis-1,2-Dichloroethene	96	4.634	4.634	0.000	67	896669	60.0	59.5	
39 2,2-Dichloropropane	77	4.634	4.634	0.000	59	704769	60.0	54.6	
41 2-Butanone (MEK)	72	4.634	4.634	0.000	79	241145	120.0	131.3	
45 Chlorobromomethane	49	4.836	4.836	0.000	75	587580	60.0	59.3	
46 Tetrahydrofuran	42	4.883	4.883	0.000	87	618274	120.0	130.2	
47 Chloroform	83	4.907	4.907	0.000	70	1353439	60.0	60.7	
48 1,1,1-Trichloroethane	97	5.085	5.085	0.000	81	1224716	60.0	61.0	
49 Cyclohexane	84	5.144	5.144	0.000	85	1279473	60.0	60.9	
50 1,1-Dichloropropene	75	5.227	5.227	0.000	91	1102013	60.0	60.3	
51 Carbon tetrachloride	117	5.239	5.239	0.000	70	1167256	60.0	62.4	
52 Isobutyl alcohol	41	5.298	5.298	0.000	83	758926	1500.0	1767.3	
54 1,2-Dichloroethane	62	5.417	5.417	0.000	46	954899	60.0	59.3	
53 Benzene	78	5.417	5.417	0.000	94	3064496	60.0	61.1	
56 n-Heptane	57	5.642	5.642	0.000	89	660181	60.0	60.2	
58 Trichloroethene	130	5.986	5.986	0.000	92	928718	60.0	60.1	
60 Methylcyclohexane	83	6.176	6.176	0.000	89	1566351	60.0	62.5	
61 1,2-Dichloropropane	63	6.187	6.187	0.000	86	704987	60.0	62.6	
63 Dibromomethane	174	6.294	6.294	0.000	88	630606	60.0	60.5	
64 1,4-Dioxane	88	6.306	6.306	0.000	34	142512	1200.0	1284.2	
65 Dichlorobromomethane	83	6.437	6.436	0.000	93	999127	60.0	63.3	
67 2-Chloroethyl vinyl ether	63	6.697	6.697	0.000	86	1029389	120.0	123.0	
68 cis-1,3-Dichloropropene	75	6.840	6.840	0.000	95	1135535	60.0	61.5	
69 4-Methyl-2-pentanone (MIBK)	43	6.982	6.982	0.000	93	1889071	120.0	126.4	
70 Toluene	91	7.172	7.172	0.000	94	3229981	60.0	59.1	
71 trans-1,3-Dichloropropene	75	7.361	7.361	0.000	80	1082760	60.0	61.6	
72 Ethyl methacrylate	69	7.433	7.433	0.000	87	1060082	60.0	63.6	
74 1,1,2-Trichloroethane	97	7.539	7.539	0.000	73	666583	60.0	62.2	
75 Tetrachloroethene	166	7.694	7.693	0.001	92	994717	60.0	61.5	
76 1,3-Dichloropropane	76	7.705	7.705	0.000	87	1126088	60.0	60.4	
77 2-Hexanone	43	7.765	7.765	0.000	79	1409861	120.0	125.6	
79 Chlorodibromomethane	129	7.919	7.931	-0.012	88	813124	60.0	63.5	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
80 Ethylene Dibromide	107	8.049	8.049	0.000	99	733594	60.0	59.9	
82 Chlorobenzene	112	8.524	8.524	0.000	96	2173534	60.0	59.5	
83 1,1,1,2-Tetrachloroethane	131	8.607	8.607	0.000	85	798193	60.0	63.6	
84 Ethylbenzene	106	8.630	8.630	0.000	97	1207976	60.0	62.1	
85 m-Xylene & p-Xylene	106	8.749	8.749	0.000	99	1482266	60.0	61.7	
86 o-Xylene	106	9.140	9.152	-0.012	93	1435324	60.0	61.9	
87 Styrene	104	9.152	9.152	0.000	90	2428268	60.0	63.1	
88 Bromoform	173	9.354	9.354	0.000	99	655265	60.0	64.0	
89 Isopropylbenzene	105	9.520	9.520	0.000	95	3795594	60.0	61.8	
91 1,1,2,2-Tetrachloroethane	83	9.816	9.816	0.000	83	1065677	60.0	60.8	
92 Bromobenzene	156	9.840	9.840	0.000	80	988831	60.0	59.5	
93 1,2,3-Trichloropropane	110	9.864	9.864	0.000	67	369092	60.0	59.4	
94 trans-1,4-Dichloro-2-buten	53	9.876	9.875	0.001	52	326498	60.0	60.7	
95 N-Propylbenzene	120	9.947	9.947	0.000	95	1083875	60.0	61.6	
96 2-Chlorotoluene	126	10.042	10.041	0.001	96	918378	60.0	60.6	
97 1,3,5-Trimethylbenzene	105	10.125	10.124	0.001	93	3091430	60.0	62.0	
98 4-Chlorotoluene	126	10.148	10.148	0.000	97	946982	60.0	59.8	
99 tert-Butylbenzene	119	10.468	10.468	0.000	76	2915643	60.0	60.9	
101 1,2,4-Trimethylbenzene	105	10.516	10.516	0.000	70	3120829	60.0	60.4	
102 sec-Butylbenzene	105	10.694	10.694	0.000	93	4087764	60.0	61.8	
103 1,3-Dichlorobenzene	146	10.812	10.812	0.000	90	1874897	60.0	58.2	
104 4-Isopropyltoluene	119	10.848	10.848	0.000	90	3530033	60.0	62.2	
105 1,4-Dichlorobenzene	146	10.907	10.907	0.000	94	1892443	60.0	56.6	
108 n-Butylbenzene	91	11.275	11.275	0.000	97	3068191	60.0	62.6	
109 1,2-Dichlorobenzene	146	11.299	11.298	0.001	98	1726550	60.0	58.6	
110 1,2-Dibromo-3-Chloropropan	157	12.129	12.129	0.000	94	330105	60.0	63.2	
112 1,2,4-Trichlorobenzene	180	13.018	13.018	0.000	92	1132196	60.0	56.0	
113 Hexachlorobutadiene	225	13.196	13.196	0.000	92	584967	60.0	55.4	
114 Naphthalene	128	13.279	13.279	0.000	96	3349616	60.0	58.7	
115 1,2,3-Trichlorobenzene	180	13.540	13.540	0.000	94	1038523	60.0	56.8	
S 127 Trihalomethanes, Total	1				0		240.0	251.5	
S 164 Total BTEX	1				0		300.0	305.8	
S 124 1,2-Dichloroethene, Total	96				0			117.8	
S 125 1,3-Dichloropropene, Total	75				0			123.1	
S 126 Xylenes, Total	106				0		120.0	123.5	

Reagents:

vmarolistdw_00256	Amount Added: 48.00	Units: uL
vmrgas_00255	Amount Added: 48.00	Units: uL
vmrprimw_00292	Amount Added: 48.00	Units: uL
vm50ss_00329	Amount Added: 48.00	Units: uL
vm50is_stk_A_00001	Amount Added: 2.00	Units: uL

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\U1900784.d

Injection Date: 24-Jul-2018 18:13:04

Instrument ID: A3UX19

Operator ID: 001904

Lims ID: std8260 L6

Worklist Smp#: 3

Client ID:

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

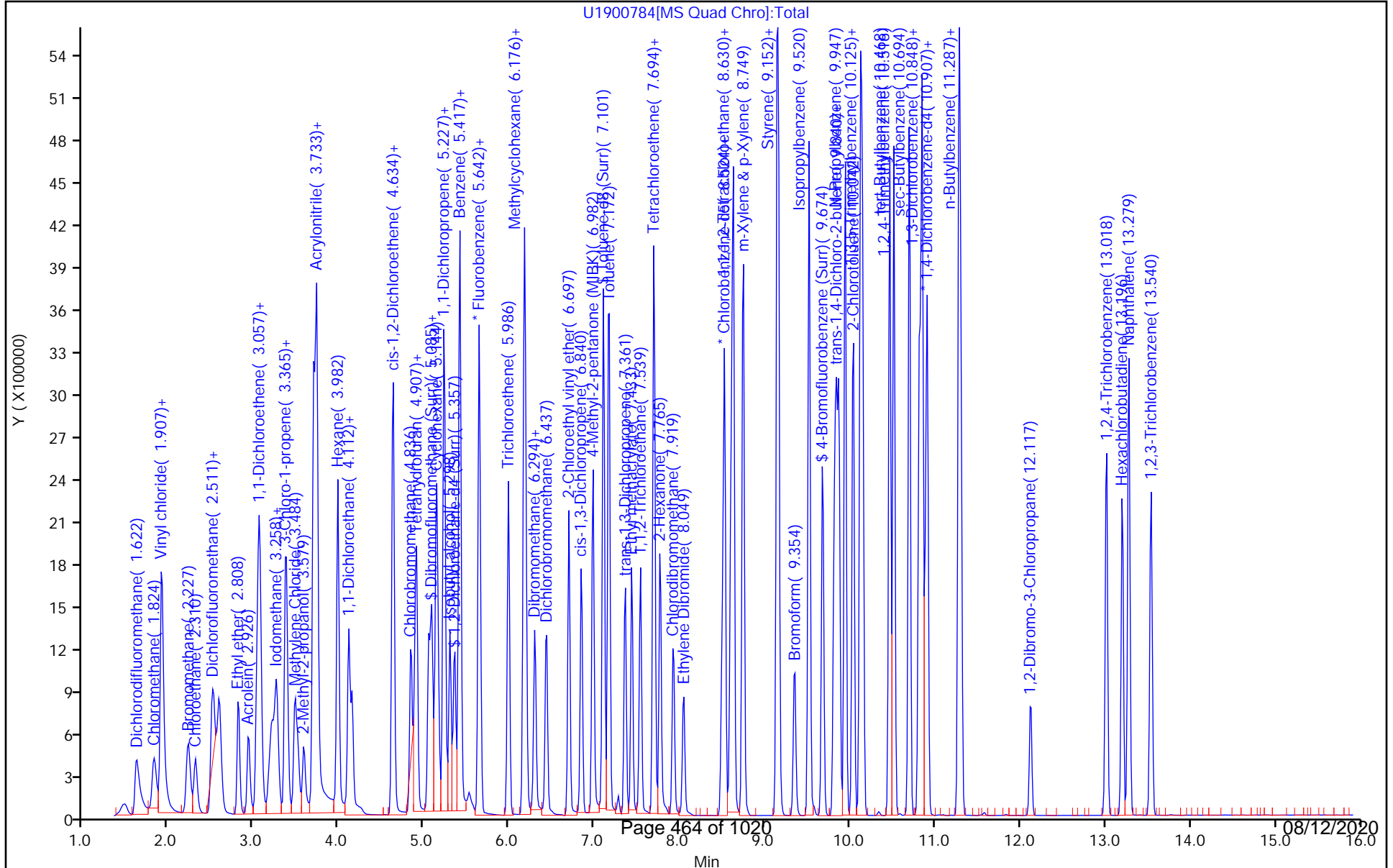
ALS Bottle#: 0

Method: 8260_19

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



TestAmerica Canton
Target Compound Quantitation Report

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\U1900790.d
 Lims ID: std8260 L5
 Client ID:
 Sample Type: IC Calib Level: 5
 Inject. Date: 24-Jul-2018 18:35:32 ALS Bottle#: 0 Worklist Smp#: 9
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: 240-0078277-009
 Operator ID: 001904 Instrument ID: A3UX19
 Sublist: chrom-8260_19*sub1
 Method: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\8260_19.m
 Limit Group: MSV 8260B ICAL
 Last Update: 25-Jul-2018 10:13:42 Calib Date: 24-Jul-2018 20:04:28
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\U1900794.d
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: XAWRK026

First Level Reviewer: laveyt

Date:

25-Jul-2018 09:45:53

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.654	5.654	0.000	95	980424	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.500	8.500	0.000	82	764018	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.883	10.883	0.000	76	423933	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr	111	5.049	5.049	0.000	60	483501	40.0	38.1	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	5.345	5.357	-0.012	99	501017	40.0	37.2	
\$ 6 Toluene-d8 (Surr)	98	7.100	7.101	-0.001	92	1834190	40.0	39.9	
\$ 7 4-Bromofluorobenzene (Surr	95	9.674	9.674	0.000	91	659738	40.0	37.3	
9 Dichlorodifluoromethane	85	1.610	1.622	-0.012	88	708511	40.0	41.5	
10 Chloromethane	50	1.811	1.823	-0.012	78	632033	40.0	38.3	
12 Butadiene	54	1.894	1.906	-0.012	87	631099	40.0	39.3	
11 Vinyl chloride	62	1.918	1.930	-0.012	83	644632	40.0	40.3	
13 Bromomethane	94	2.215	2.227	-0.012	90	441425	40.0	36.7	
14 Chloroethane	64	2.298	2.310	-0.012	86	372825	40.0	38.4	
15 Dichlorofluoromethane	67	2.499	2.511	-0.012	83	879608	40.0	38.4	
16 Trichlorofluoromethane	101	2.570	2.582	-0.012	87	861954	40.0	39.8	
17 Ethyl ether	59	2.808	2.820	-0.012	88	370565	40.0	38.0	
18 Acrolein	56	2.926	2.938	-0.012	92	531628	200.0	207.9	
21 1,1-Dichloroethene	61	3.033	3.033	0.000	89	716665	40.0	38.6	
20 1,1,2-Trichloro-1,2,2-trif	101	3.045	3.057	-0.012	76	505930	40.0	38.2	
22 Acetone	43	3.068	3.080	-0.012	63	237768	80.0	73.6	
23 Iodomethane	142	3.187	3.199	-0.012	96	903919	40.0	39.4	

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\U1900790.d

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
24 Carbon disulfide	76	3.246	3.258	-0.012	98	1496184	40.0	36.1	
26 3-Chloro-1-propene	41	3.353	3.365	-0.012	81	747474	40.0	38.4	
27 Methyl acetate	43	3.377	3.389	-0.012	96	828794	80.0	74.6	
28 Methylene Chloride	49	3.472	3.484	-0.012	53	566982	40.0	38.3	
29 2-Methyl-2-propanol	59	3.578	3.579	0.000	9	411966	400.0	341.0	
30 Acrylonitrile	53	3.697	3.697	0.000	99	1977138	400.0	394.3	
32 trans-1,2-Dichloroethene	61	3.721	3.733	-0.012	78	684359	40.0	37.4	
31 Methyl tert-butyl ether	73	3.733	3.733	0.000	88	1350698	40.0	39.7	
33 Hexane	57	3.982	3.982	0.000	90	765779	40.0	38.4	
34 1,1-Dichloroethane	63	4.100	4.112	-0.012	85	860929	40.0	40.0	
35 Vinyl acetate	43	4.148	4.148	0.000	96	770166	40.0	39.3	
41 2-Butanone (MEK)	72	4.634	4.634	0.000	74	153177	80.0	83.1	
39 2,2-Dichloropropane	77	4.634	4.634	0.000	64	481767	40.0	37.2	
40 cis-1,2-Dichloroethene	96	4.622	4.634	-0.012	62	582599	40.0	38.6	
45 Chlorobromomethane	49	4.835	4.836	-0.001	89	369472	40.0	37.2	
46 Tetrahydrofuran	42	4.883	4.883	0.000	87	372381	80.0	78.2	
47 Chloroform	83	4.907	4.907	0.000	70	869181	40.0	38.9	
48 1,1,1-Trichloroethane	97	5.084	5.085	-0.001	89	801860	40.0	39.8	
49 Cyclohexane	84	5.144	5.144	0.000	75	815868	40.0	38.7	
50 1,1-Dichloropropene	75	5.227	5.227	0.000	90	708682	40.0	38.7	
51 Carbon tetrachloride	117	5.239	5.239	0.000	70	731238	40.0	39.0	
52 Isobutyl alcohol	41	5.298	5.298	0.000	70	449380	1000.0	1043.2	
53 Benzene	78	5.405	5.417	-0.012	93	2003056	40.0	39.8	
54 1,2-Dichloroethane	62	5.416	5.417	-0.001	47	617748	40.0	38.2	
56 n-Heptane	57	5.642	5.642	0.000	86	434651	40.0	38.6	
58 Trichloroethene	130	5.986	5.986	0.000	92	608912	40.0	39.3	
60 Methylcyclohexane	83	6.175	6.176	-0.001	90	972024	40.0	38.6	
61 1,2-Dichloropropane	63	6.187	6.187	0.000	86	465852	40.0	41.2	
63 Dibromomethane	174	6.294	6.294	0.000	90	412829	40.0	39.5	
64 1,4-Dioxane	88	6.306	6.306	0.000	32	91591	800.0	822.7	
65 Dichlorobromomethane	83	6.424	6.436	-0.012	94	649042	40.0	41.0	
67 2-Chloroethyl vinyl ether	63	6.697	6.697	0.000	86	695808	80.0	82.9	
68 cis-1,3-Dichloropropene	75	6.840	6.840	0.000	93	757793	40.0	40.9	
69 4-Methyl-2-pentanone (MIBK)	43	6.982	6.982	0.000	92	1213622	80.0	80.9	
70 Toluene	91	7.160	7.172	-0.012	94	2123092	40.0	39.0	
71 trans-1,3-Dichloropropene	75	7.361	7.361	0.000	80	710372	40.0	40.6	
72 Ethyl methacrylate	69	7.432	7.433	-0.001	87	700245	40.0	42.2	
74 1,1,2-Trichloroethane	97	7.539	7.539	0.000	73	444369	40.0	41.7	
75 Tetrachloroethene	166	7.693	7.693	0.000	91	637692	40.0	39.6	
76 1,3-Dichloropropane	76	7.705	7.705	0.000	87	743433	40.0	40.0	
77 2-Hexanone	43	7.764	7.765	-0.001	79	916606	80.0	82.1	
79 Chlorodibromomethane	129	7.919	7.931	-0.012	88	523153	40.0	41.0	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
80 Ethylene Dibromide	107	8.049	8.049	0.000	99	483377	40.0	39.7	
82 Chlorobenzene	112	8.523	8.524	-0.001	96	1428038	40.0	39.2	
83 1,1,1,2-Tetrachloroethane	131	8.606	8.607	-0.001	85	510579	40.0	40.9	
84 Ethylbenzene	106	8.630	8.630	0.000	98	780525	40.0	40.3	
85 m-Xylene & p-Xylene	106	8.749	8.749	0.000	99	952249	40.0	39.8	
87 Styrene	104	9.152	9.152	0.000	89	1558780	40.0	40.7	
86 o-Xylene	106	9.152	9.152	0.000	86	911893	40.0	39.5	
88 Bromoform	173	9.354	9.354	0.000	99	416502	40.0	40.9	
89 Isopropylbenzene	105	9.520	9.520	0.000	95	2424662	40.0	39.7	
91 1,1,2,2-Tetrachloroethane	83	9.816	9.816	0.000	87	686661	40.0	40.6	
92 Bromobenzene	156	9.840	9.840	0.000	87	642419	40.0	40.1	
93 1,2,3-Trichloropropane	110	9.863	9.864	-0.001	68	241838	40.0	40.4	
94 trans-1,4-Dichloro-2-buten	53	9.875	9.875	0.000	59	213375	40.0	41.2	
95 N-Propylbenzene	120	9.946	9.947	-0.001	95	680756	40.0	40.1	
96 2-Chlorotoluene	126	10.041	10.041	0.000	96	581507	40.0	39.9	
97 1,3,5-Trimethylbenzene	105	10.124	10.124	0.000	93	1942019	40.0	40.5	
98 4-Chlorotoluene	126	10.148	10.148	0.000	97	607997	40.0	39.8	
99 tert-Butylbenzene	119	10.468	10.468	0.000	77	1803602	40.0	39.1	
101 1,2,4-Trimethylbenzene	105	10.516	10.516	0.000	70	1964040	40.0	39.4	
102 sec-Butylbenzene	105	10.694	10.694	0.000	94	2509293	40.0	39.4	
103 1,3-Dichlorobenzene	146	10.812	10.812	0.000	89	1193296	40.0	38.4	
104 4-Isopropyltoluene	119	10.848	10.848	0.000	90	2169356	40.0	39.7	
105 1,4-Dichlorobenzene	146	10.907	10.907	0.000	94	1214157	40.0	37.7	
108 n-Butylbenzene	91	11.275	11.275	0.000	97	1846843	40.0	39.1	
109 1,2-Dichlorobenzene	146	11.298	11.298	0.000	98	1090448	40.0	38.4	
110 1,2-Dibromo-3-Chloropropan	157	12.128	12.129	-0.001	93	200822	40.0	39.9	
112 1,2,4-Trichlorobenzene	180	13.018	13.018	0.000	92	719342	40.0	36.9	
113 Hexachlorobutadiene	225	13.208	13.196	0.012	86	376786	40.0	37.0	
114 Naphthalene	128	13.279	13.279	0.000	96	2169342	40.0	39.5	
115 1,2,3-Trichlorobenzene	180	13.540	13.540	0.000	94	684438	40.0	38.8	
S 164 Total BTEX	1				0		200.0	198.4	
S 127 Trihalomethanes, Total	1				0		160.0	161.8	
S 124 1,2-Dichloroethene, Total	96				0			76.0	
S 125 1,3-Dichloropropene, Total	75				0			81.5	
S 126 Xylenes, Total	106				0		80.0	79.3	

Reagents:

vm50is_stk_A_00001	Amount Added: 2.00	Units: uL
vmrgas_00255	Amount Added: 32.00	Units: uL
vmarolistdw_00256	Amount Added: 32.00	Units: uL
vmrprimw_00292	Amount Added: 32.00	Units: uL
vm50ss_00329	Amount Added: 32.00	Units: uL

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\U1900790.d

Injection Date: 24-Jul-2018 18:35:32

Instrument ID: A3UX19

Operator ID: 001904

Lims ID: std8260 L5

Worklist Smp#: 9

Client ID:

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

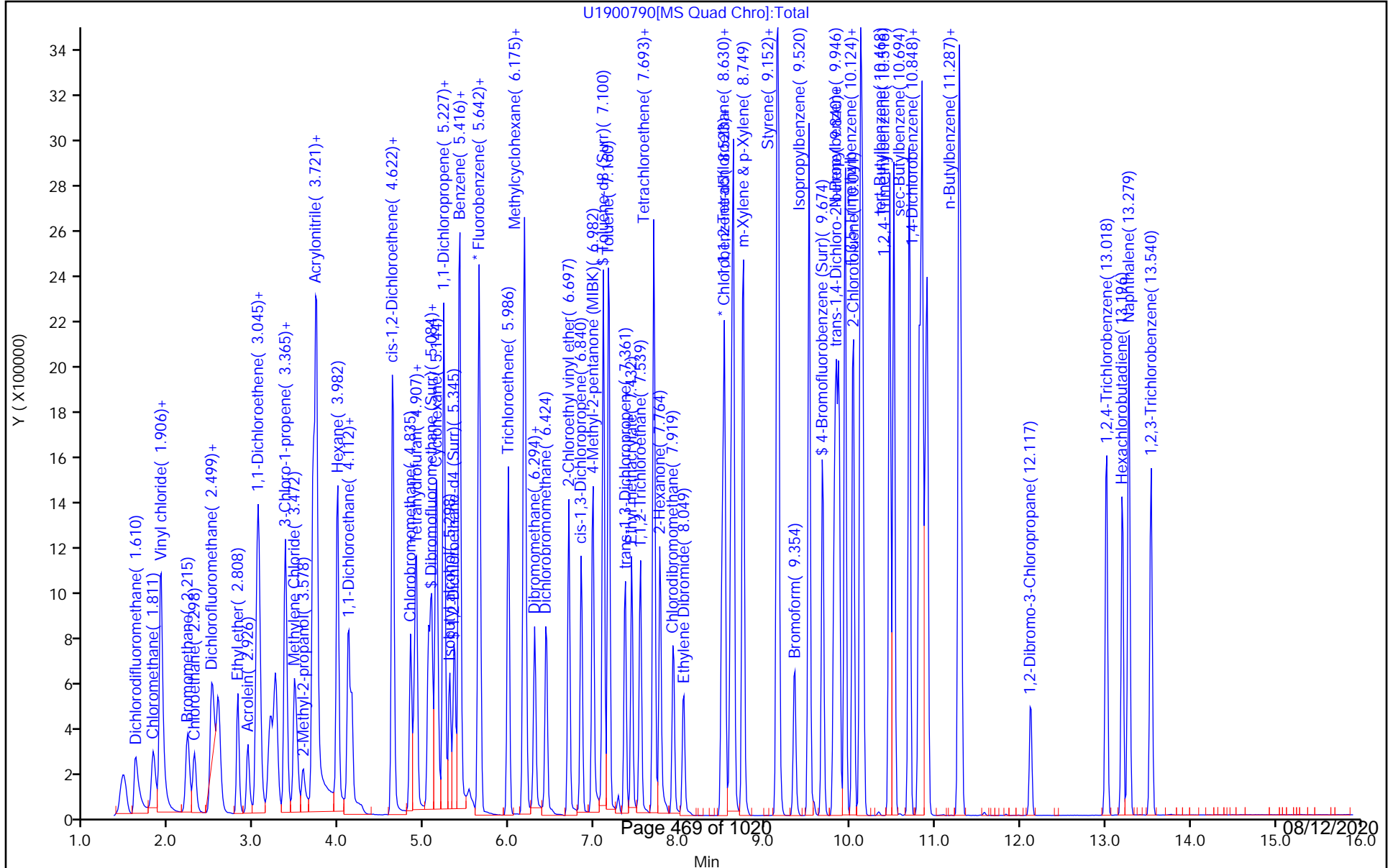
ALS Bottle#: 0

Method: 8260_19

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



TestAmerica Canton
Target Compound Quantitation Report

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\U1900791.d
 Lims ID: ICIS L4
 Client ID:
 Sample Type: ICIS Calib Level: 4
 Inject. Date: 24-Jul-2018 18:57:47 ALS Bottle#: 0 Worklist Smp#: 10
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: 240-0078277-010
 Operator ID: 001904 Instrument ID: A3UX19
 Sublist: chrom-8260_19*sub1
 Method: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\8260_19.m
 Limit Group: MSV 8260B ICAL
 Last Update: 25-Jul-2018 10:13:48 Calib Date: 24-Jul-2018 20:04:28
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\U1900794.d
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: XAWRK026

First Level Reviewer: laveyt

Date: 25-Jul-2018 09:47:40

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.654	5.654	0.000	96	929533	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.500	8.500	0.000	84	742668	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.883	10.883	0.000	89	433286	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr	111	5.049	5.049	0.000	59	235239	20.0	19.5	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	5.357	5.357	0.000	98	247201	20.0	19.4	
\$ 6 Toluene-d8 (Surr)	98	7.101	7.101	0.000	84	849081	20.0	19.0	
\$ 7 4-Bromofluorobenzene (Surr	95	9.674	9.674	0.000	91	320453	20.0	18.7	
9 Dichlorodifluoromethane	85	1.622	1.622	0.000	87	328230	20.0	20.3	
10 Chloromethane	50	1.823	1.823	0.000	89	315290	20.0	20.1	
12 Butadiene	54	1.906	1.906	0.000	86	301883	20.0	19.8	
11 Vinyl chloride	62	1.930	1.930	0.000	74	312915	20.0	20.7	
13 Bromomethane	94	2.227	2.227	0.000	90	229239	20.0	20.1	
14 Chloroethane	64	2.310	2.310	0.000	94	188891	20.0	20.5	
15 Dichlorofluoromethane	67	2.511	2.511	0.000	83	439391	20.0	20.2	
16 Trichlorofluoromethane	101	2.582	2.582	0.000	86	415720	20.0	20.2	
17 Ethyl ether	59	2.820	2.820	0.000	89	180269	20.0	19.5	
18 Acrolein	56	2.938	2.938	0.000	95	227879	100.0	94.0	
21 1,1-Dichloroethene	61	3.033	3.033	0.000	90	347690	20.0	19.7	
20 1,1,2-Trichloro-1,2,2-trif	101	3.057	3.057	0.000	83	247358	20.0	19.7	
22 Acetone	43	3.080	3.080	0.000	74	107763	40.0	35.2	
23 Iodomethane	142	3.199	3.199	0.000	98	440198	20.0	20.2	

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\U1900791.d

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
24 Carbon disulfide	76	3.258	3.258	0.000	98	728690	20.0	18.5	
26 3-Chloro-1-propene	41	3.365	3.365	0.000	82	355801	20.0	19.3	
27 Methyl acetate	43	3.389	3.389	0.000	96	391356	40.0	37.2	
28 Methylene Chloride	49	3.484	3.484	0.000	51	279726	20.0	19.9	
29 2-Methyl-2-propanol	59	3.579	3.579	0.000	7	215092	200.0	187.8	
30 Acrylonitrile	53	3.697	3.697	0.000	99	915892	200.0	192.6	
31 Methyl tert-butyl ether	73	3.733	3.733	0.000	88	654948	20.0	20.3	
32 trans-1,2-Dichloroethene	61	3.733	3.733	0.000	72	329454	20.0	19.0	
33 Hexane	57	3.982	3.982	0.000	91	356826	20.0	18.9	
34 1,1-Dichloroethane	63	4.112	4.112	0.000	85	413734	20.0	20.3	
35 Vinyl acetate	43	4.148	4.148	0.000	97	357825	20.0	19.3	
40 cis-1,2-Dichloroethene	96	4.634	4.634	0.000	67	281663	20.0	19.7	
39 2,2-Dichloropropane	77	4.634	4.634	0.000	61	247316	20.0	20.1	
41 2-Butanone (MEK)	72	4.634	4.634	0.000	69	66486	40.0	38.1	
45 Chlorobromomethane	49	4.836	4.836	0.000	72	180080	20.0	19.1	
46 Tetrahydrofuran	42	4.883	4.883	0.000	87	169823	40.0	37.6	
47 Chloroform	83	4.907	4.907	0.000	70	422069	20.0	19.9	
48 1,1,1-Trichloroethane	97	5.085	5.085	0.000	56	378348	20.0	19.8	
49 Cyclohexane	84	5.144	5.144	0.000	85	386296	20.0	19.3	
50 1,1-Dichloropropene	75	5.227	5.227	0.000	92	334178	20.0	19.2	
51 Carbon tetrachloride	117	5.239	5.239	0.000	70	345961	20.0	19.5	
52 Isobutyl alcohol	41	5.298	5.298	0.000	69	183028	500.0	448.2	
54 1,2-Dichloroethane	62	5.417	5.417	0.000	45	289097	20.0	18.9	
53 Benzene	78	5.417	5.417	0.000	94	930203	20.0	19.5	
56 n-Heptane	57	5.642	5.642	0.000	84	216048	20.0	18.9	
58 Trichloroethene	130	5.986	5.986	0.000	92	285190	20.0	19.4	
60 Methylcyclohexane	83	6.176	6.176	0.000	89	461990	20.0	19.4	
61 1,2-Dichloropropane	63	6.187	6.187	0.000	84	210992	20.0	19.7	
63 Dibromomethane	174	6.294	6.294	0.000	93	196594	20.0	19.8	
64 1,4-Dioxane	88	6.306	6.306	0.000	33	43840	400.0	415.4	
65 Dichlorobromomethane	83	6.436	6.436	0.000	93	290639	20.0	19.4	
67 2-Chloroethyl vinyl ether	63	6.697	6.697	0.000	91	315645	40.0	39.7	
68 cis-1,3-Dichloropropene	75	6.840	6.840	0.000	91	347181	20.0	19.8	
69 4-Methyl-2-pentanone (MIBK)	43	6.982	6.982	0.000	93	554613	40.0	39.0	
70 Toluene	91	7.172	7.172	0.000	94	985962	20.0	18.6	
71 trans-1,3-Dichloropropene	75	7.361	7.361	0.000	82	315763	20.0	18.6	
72 Ethyl methacrylate	69	7.433	7.433	0.000	87	305349	20.0	18.9	
74 1,1,2-Trichloroethane	97	7.539	7.539	0.000	74	202390	20.0	19.5	
75 Tetrachloroethene	166	7.693	7.693	0.000	97	300622	20.0	19.2	
76 1,3-Dichloropropane	76	7.705	7.705	0.000	87	344194	20.0	19.1	
77 2-Hexanone	43	7.765	7.765	0.000	79	411400	40.0	37.9	
79 Chlorodibromomethane	129	7.931	7.931	0.000	87	237418	20.0	19.2	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
80 Ethylene Dibromide	107	8.049	8.049	0.000	99	223763	20.0	18.9	
82 Chlorobenzene	112	8.524	8.524	0.000	96	672294	20.0	19.0	
83 1,1,1,2-Tetrachloroethane	131	8.607	8.607	0.000	86	245845	20.0	20.2	
84 Ethylbenzene	106	8.630	8.630	0.000	97	371072	20.0	19.7	
85 m-Xylene & p-Xylene	106	8.749	8.749	0.000	99	455770	20.0	19.6	
86 o-Xylene	106	9.152	9.152	0.000	87	446659	20.0	19.9	
87 Styrene	104	9.152	9.152	0.000	88	733164	20.0	19.7	
88 Bromoform	173	9.354	9.354	0.000	98	190577	20.0	19.2	
89 Isopropylbenzene	105	9.520	9.520	0.000	95	1178300	20.0	19.8	
91 1,1,2,2-Tetrachloroethane	83	9.816	9.816	0.000	87	331847	20.0	19.2	
92 Bromobenzene	156	9.840	9.840	0.000	80	313555	20.0	19.2	
93 1,2,3-Trichloropropane	110	9.864	9.864	0.000	68	114884	20.0	18.8	
94 trans-1,4-Dichloro-2-buten	53	9.875	9.875	0.000	52	97955	20.0	18.5	
95 N-Propylbenzene	120	9.947	9.947	0.000	91	334963	20.0	19.3	
96 2-Chlorotoluene	126	10.041	10.041	0.000	94	293354	20.0	19.7	
97 1,3,5-Trimethylbenzene	105	10.124	10.124	0.000	93	980405	20.0	20.0	
98 4-Chlorotoluene	126	10.148	10.148	0.000	97	300515	20.0	19.3	
99 tert-Butylbenzene	119	10.468	10.468	0.000	76	908078	20.0	19.3	
101 1,2,4-Trimethylbenzene	105	10.516	10.516	0.000	70	1006317	20.0	19.8	
102 sec-Butylbenzene	105	10.694	10.694	0.000	94	1286147	20.0	19.7	
103 1,3-Dichlorobenzene	146	10.812	10.812	0.000	84	598840	20.0	18.9	
104 4-Isopropyltoluene	119	10.848	10.848	0.000	90	1117286	20.0	20.0	
105 1,4-Dichlorobenzene	146	10.907	10.907	0.000	93	606688	20.0	18.4	
108 n-Butylbenzene	91	11.275	11.275	0.000	98	958018	20.0	19.8	
109 1,2-Dichlorobenzene	146	11.298	11.298	0.000	97	559506	20.0	19.3	
110 1,2-Dibromo-3-Chloropropan	157	12.129	12.129	0.000	92	99335	20.0	19.3	
112 1,2,4-Trichlorobenzene	180	13.018	13.018	0.000	90	379757	20.0	19.1	
113 Hexachlorobutadiene	225	13.196	13.196	0.000	92	199490	20.0	19.2	
114 Naphthalene	128	13.279	13.279	0.000	96	1094286	20.0	19.5	
115 1,2,3-Trichlorobenzene	180	13.540	13.540	0.000	94	351575	20.0	19.5	
S 127 Trihalomethanes, Total	1				0		80.0	77.7	
S 164 Total BTEX	1				0		100.0	97.3	
S 126 Xylenes, Total	106				0		40.0	39.5	

Reagents:

vm50is_stk_A_00001	Amount Added: 2.00	Units: uL
vmrgas_00255	Amount Added: 16.00	Units: uL
vmarolistdw_00256	Amount Added: 16.00	Units: uL
vmrprimw_00292	Amount Added: 16.00	Units: uL
vm50ss_00329	Amount Added: 16.00	Units: uL

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\U1900791.d

Injection Date: 24-Jul-2018 18:57:47

Instrument ID: A3UX19

Operator ID: 001904

Lims ID: ICIS L4

Worklist Smp#: 10

Client ID:

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

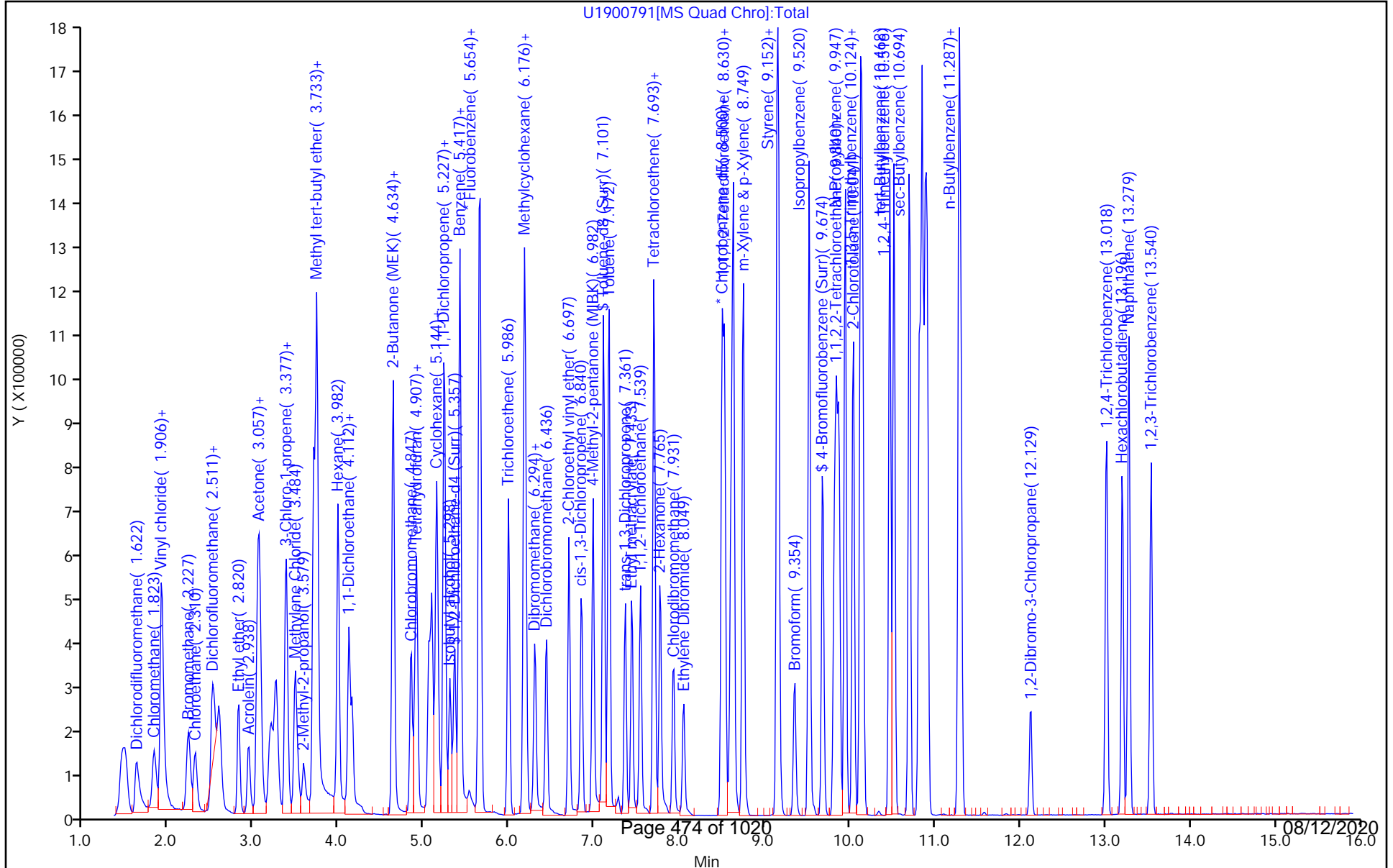
ALS Bottle#: 0

Method: 8260_19

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



TestAmerica Canton
Target Compound Quantitation Report

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\U1900792.d
 Lims ID: std8260 L3
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 24-Jul-2018 19:20:02 ALS Bottle#: 0 Worklist Smp#: 11
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: 240-0078277-011
 Operator ID: 001904 Instrument ID: A3UX19
 Sublist: chrom-8260_19*sub1
 Method: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\8260_19.m
 Limit Group: MSV 8260B ICAL
 Last Update: 25-Jul-2018 10:13:54 Calib Date: 24-Jul-2018 20:04:28
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\U1900794.d
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: XAWRK026

First Level Reviewer: laveyt Date: 25-Jul-2018 09:49:18

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.653	5.654	-0.001	98	952790	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.500	8.500	0.000	83	771801	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.883	10.883	0.000	92	425561	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr	111	5.049	5.049	0.000	60	119809	10.0	9.71	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	5.357	5.357	0.000	90	125069	10.0	9.57	
\$ 6 Toluene-d8 (Surr)	98	7.100	7.101	-0.001	89	467380	10.0	10.1	
\$ 7 4-Bromofluorobenzene (Surr	95	9.674	9.674	0.000	91	172585	10.0	9.67	
9 Dichlorodifluoromethane	85	1.598	1.622	-0.024	86	151920	10.0	9.16	
10 Chloromethane	50	1.811	1.823	-0.012	78	155433	10.0	9.68	
12 Butadiene	54	1.894	1.906	-0.012	88	137925	10.0	8.83	
11 Vinyl chloride	62	1.918	1.930	-0.012	73	148293	10.0	9.55	
13 Bromomethane	94	2.214	2.227	-0.013	91	114577	10.0	9.81	
14 Chloroethane	64	2.297	2.310	-0.013	94	93395	10.0	9.89	
15 Dichlorofluoromethane	67	2.499	2.511	-0.012	82	215631	10.0	9.68	
16 Trichlorofluoromethane	101	2.570	2.582	-0.012	98	187339	10.0	8.89	
17 Ethyl ether	59	2.807	2.820	-0.013	87	90620	10.0	9.57	
18 Acrolein	56	2.926	2.938	-0.012	95	106196	50.0	42.7	
21 1,1-Dichloroethene	61	3.033	3.033	0.000	90	185910	10.0	10.3	
20 1,1,2-Trichloro-1,2,2-trif	101	3.045	3.057	-0.012	76	134365	10.0	10.4	
22 Acetone	43	3.068	3.080	-0.012	55	52355	20.0	16.7	
23 Iodomethane	142	3.187	3.199	-0.012	97	228493	10.0	10.2	

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Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
24 Carbon disulfide	76	3.246	3.258	-0.012	98	387941	10.0	9.62	
26 3-Chloro-1-propene	41	3.365	3.365	0.000	82	184068	10.0	9.73	
27 Methyl acetate	43	3.377	3.389	-0.012	84	197122	20.0	18.3	
28 Methylene Chloride	49	3.471	3.484	-0.013	57	144386	10.0	10.0	
29 2-Methyl-2-propanol	59	3.578	3.579	0.000	32	110777	100.0	94.4	
30 Acrylonitrile	53	3.697	3.697	0.000	99	448754	100.0	92.1	
32 trans-1,2-Dichloroethene	61	3.732	3.733	-0.001	71	175373	10.0	9.87	
31 Methyl tert-butyl ether	73	3.732	3.733	-0.001	88	335243	10.0	10.1	
33 Hexane	57	3.981	3.982	-0.001	90	208123	10.0	10.7	
34 1,1-Dichloroethane	63	4.112	4.112	0.000	97	213583	10.0	10.2	
35 Vinyl acetate	43	4.147	4.148	-0.001	96	187841	10.0	9.87	
41 2-Butanone (MEK)	72	4.634	4.634	0.000	71	34072	20.0	19.0	
39 2,2-Dichloropropane	77	4.634	4.634	0.000	65	134434	10.0	10.7	
40 cis-1,2-Dichloroethene	96	4.622	4.634	-0.012	69	143871	10.0	9.80	
45 Chlorobromomethane	49	4.835	4.836	-0.001	84	89489	10.0	9.27	
46 Tetrahydrofuran	42	4.883	4.883	0.000	87	86462	20.0	18.7	
47 Chloroform	83	4.906	4.907	-0.001	70	213657	10.0	9.83	
48 1,1,1-Trichloroethane	97	5.084	5.085	-0.001	90	206006	10.0	10.5	
49 Cyclohexane	84	5.144	5.144	0.000	85	214696	10.0	10.5	
50 1,1-Dichloropropene	75	5.227	5.227	0.000	93	182947	10.0	10.3	
51 Carbon tetrachloride	117	5.238	5.239	-0.001	69	187898	10.0	10.3	
52 Isobutyl alcohol	41	5.298	5.298	0.000	69	105355	250.0	251.7	
53 Benzene	78	5.416	5.417	-0.001	94	494183	10.0	10.1	
54 1,2-Dichloroethane	62	5.416	5.417	-0.001	46	152677	10.0	9.72	
56 n-Heptane	57	5.642	5.642	0.000	60	135257	10.0	10.5	
58 Trichloroethene	130	5.985	5.986	-0.001	91	155201	10.0	10.3	
60 Methylcyclohexane	83	6.175	6.176	-0.001	89	256970	10.0	10.5	
61 1,2-Dichloropropane	63	6.187	6.187	0.000	84	110015	10.0	10.0	
63 Dibromomethane	174	6.294	6.294	0.000	91	95707	10.0	9.42	
64 1,4-Dioxane	88	6.306	6.306	0.000	33	23290	200.0	215.3	
65 Dichlorobromomethane	83	6.436	6.436	0.000	93	152581	10.0	9.92	
67 2-Chloroethyl vinyl ether	63	6.697	6.697	0.000	86	171233	20.0	21.0	
68 cis-1,3-Dichloropropene	75	6.839	6.840	-0.001	93	175580	10.0	9.76	
69 4-Methyl-2-pentanone (MIBK)	43	6.982	6.982	0.000	93	308673	20.0	21.2	
70 Toluene	91	7.171	7.172	-0.001	94	544060	10.0	9.89	
71 trans-1,3-Dichloropropene	75	7.361	7.361	0.000	85	172822	10.0	9.78	
72 Ethyl methacrylate	69	7.432	7.433	-0.001	88	166277	10.0	9.93	
74 1,1,2-Trichloroethane	97	7.539	7.539	0.000	80	109350	10.0	10.1	
75 Tetrachloroethene	166	7.693	7.693	0.000	91	166266	10.0	10.2	
76 1,3-Dichloropropane	76	7.705	7.705	0.000	87	188817	10.0	10.1	
77 2-Hexanone	43	7.764	7.765	-0.001	80	235229	20.0	20.8	
79 Chlorodibromomethane	129	7.930	7.931	-0.001	86	125585	10.0	9.75	

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Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
80 Ethylene Dibromide	107	8.049	8.049	0.000	98	121691	10.0	9.89	
82 Chlorobenzene	112	8.523	8.524	-0.001	97	362449	10.0	9.86	
83 1,1,1,2-Tetrachloroethane	131	8.606	8.607	-0.001	80	126948	10.0	10.1	
84 Ethylbenzene	106	8.630	8.630	0.000	98	197845	10.0	10.1	
85 m-Xylene & p-Xylene	106	8.749	8.749	0.000	99	245222	10.0	10.1	
87 Styrene	104	9.152	9.152	0.000	88	391122	10.0	10.1	
86 o-Xylene	106	9.152	9.152	0.000	87	240986	10.0	10.3	
88 Bromoform	173	9.353	9.354	-0.001	98	100560	10.0	9.77	
89 Isopropylbenzene	105	9.519	9.520	-0.001	95	636049	10.0	10.3	
91 1,1,2,2-Tetrachloroethane	83	9.816	9.816	0.000	88	173948	10.0	10.3	
92 Bromobenzene	156	9.840	9.840	0.000	87	164497	10.0	10.2	
93 1,2,3-Trichloropropane	110	9.863	9.864	-0.001	69	63108	10.0	10.5	
94 trans-1,4-Dichloro-2-buten	53	9.875	9.875	0.000	64	51819	10.0	9.96	
95 N-Propylbenzene	120	9.946	9.947	-0.001	96	181166	10.0	10.6	
96 2-Chlorotoluene	126	10.041	10.041	0.000	96	151745	10.0	10.4	
97 1,3,5-Trimethylbenzene	105	10.124	10.124	0.000	93	517511	10.0	10.7	
98 4-Chlorotoluene	126	10.148	10.148	0.000	97	160173	10.0	10.5	
99 tert-Butylbenzene	119	10.468	10.468	0.000	77	490442	10.0	10.6	
101 1,2,4-Trimethylbenzene	105	10.515	10.516	-0.001	70	518127	10.0	10.4	
102 sec-Butylbenzene	105	10.693	10.694	-0.001	94	681132	10.0	10.6	
103 1,3-Dichlorobenzene	146	10.812	10.812	0.000	82	309437	10.0	9.93	
104 4-Isopropyltoluene	119	10.848	10.848	0.000	91	582655	10.0	10.6	
105 1,4-Dichlorobenzene	146	10.907	10.907	0.000	91	316046	10.0	9.78	
108 n-Butylbenzene	91	11.274	11.275	-0.001	97	498908	10.0	10.5	
109 1,2-Dichlorobenzene	146	11.298	11.298	0.000	97	286113	10.0	10.0	
110 1,2-Dibromo-3-Chloropropan	157	12.128	12.129	-0.001	88	48670	10.0	9.63	
112 1,2,4-Trichlorobenzene	180	13.018	13.018	0.000	92	189226	10.0	9.67	
113 Hexachlorobutadiene	225	13.207	13.196	0.011	85	103707	10.0	10.2	
114 Naphthalene	128	13.279	13.279	0.000	96	544587	10.0	9.87	
115 1,2,3-Trichlorobenzene	180	13.539	13.540	-0.001	96	177768	10.0	10.0	
S 164 Total BTEX	1				0		50.0	50.6	
S 127 Trihalomethanes, Total	1				0		40.0	39.3	
S 124 1,2-Dichloroethene, Total	96				0			19.7	
S 125 1,3-Dichloropropene, Total	75				0			19.5	
S 126 Xylenes, Total	106				0		20.0	20.5	

Reagents:

vm50is_stk_A_00001	Amount Added: 2.00	Units: uL
vmrgas_00255	Amount Added: 8.00	Units: uL
vmarolistdw_00256	Amount Added: 8.00	Units: uL
vmrprimw_00292	Amount Added: 8.00	Units: uL
vm50ss_00329	Amount Added: 8.00	Units: uL

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\U1900792.d

Injection Date: 24-Jul-2018 19:20:02

Instrument ID: A3UX19

Operator ID: 001904

Lims ID: std8260 L3

Worklist Smp#: 11

Client ID:

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

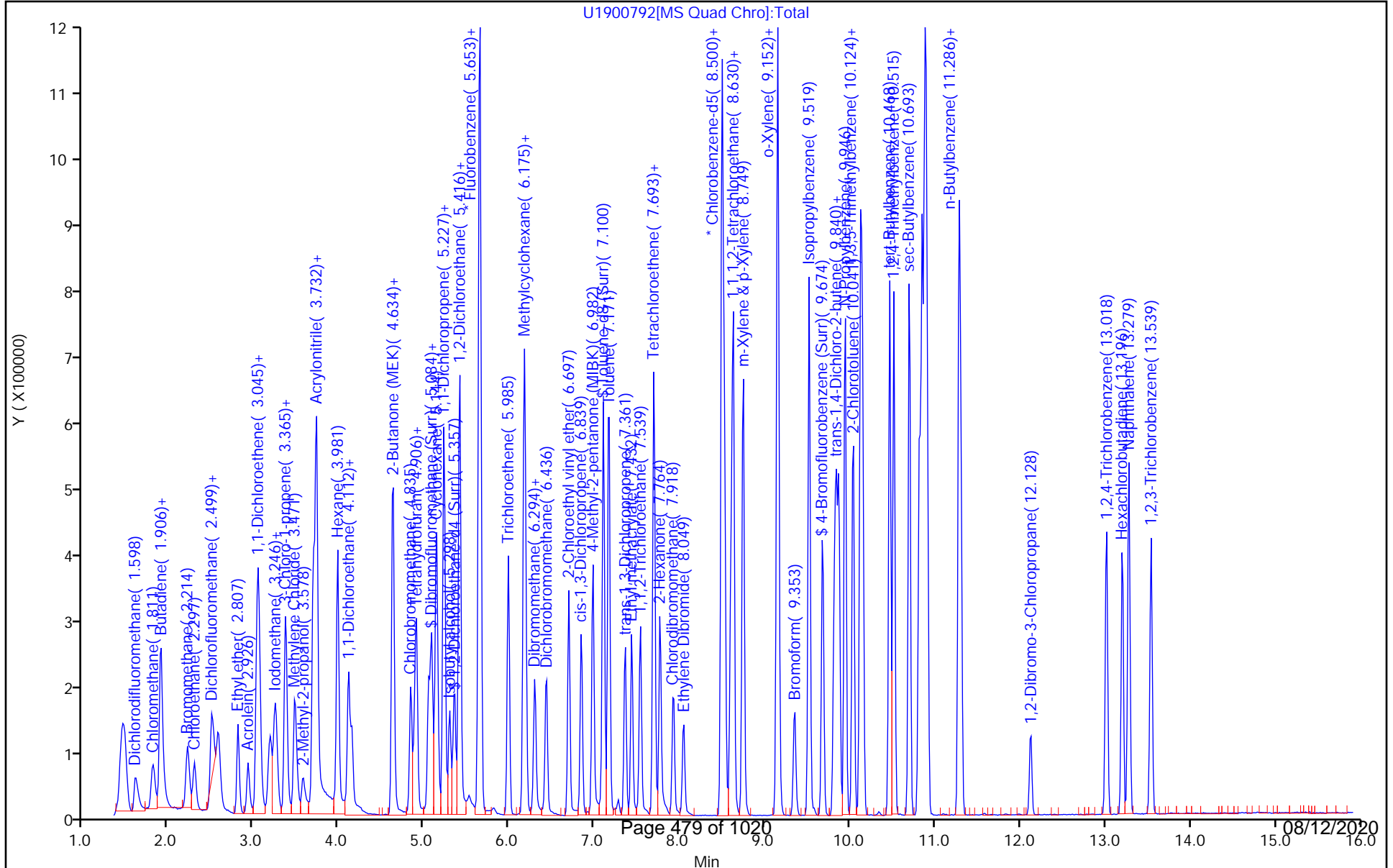
ALS Bottle#: 0

Method: 8260_19

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



TestAmerica Canton
Target Compound Quantitation Report

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\U1900793.d
 Lims ID: std8260 L2
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 24-Jul-2018 19:42:05 ALS Bottle#: 0 Worklist Smp#: 12
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: 240-0078277-012
 Operator ID: 001904 Instrument ID: A3UX19
 Sublist: chrom-8260_19*sub1
 Method: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\8260_19.m
 Limit Group: MSV 8260B ICAL
 Last Update: 25-Jul-2018 10:14:00 Calib Date: 24-Jul-2018 20:04:28
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\U1900794.d
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: XAWRK026

First Level Reviewer: laveyt

Date: 25-Jul-2018 09:51:22

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.654	5.654	0.000	99	894422	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.500	8.500	0.000	82	708670	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.884	10.883	0.001	93	428230	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr	111	5.049	5.049	0.000	60	11849	1.00	1.02	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	5.357	5.357	0.000	88	13421	1.00	1.09	
\$ 6 Toluene-d8 (Surr)	98	7.101	7.101	0.000	87	42636	1.00	1.00	
\$ 7 4-Bromofluorobenzene (Surr	95	9.674	9.674	0.000	86	17427	1.00	1.06	
9 Dichlorodifluoromethane	85	1.610	1.622	-0.012	74	14647	1.00	0.9411	
10 Chloromethane	50	1.812	1.823	-0.011	89	16570	1.00	1.10	
12 Butadiene	54	1.895	1.906	-0.011	88	15313	1.00	1.04	
11 Vinyl chloride	62	1.930	1.930	0.000	70	15847	1.00	1.09	
13 Bromomethane	94	2.215	2.227	-0.012	77	12818	1.00	1.17	
14 Chloroethane	64	2.298	2.310	-0.012	70	9377	1.00	1.06	
15 Dichlorofluoromethane	67	2.499	2.511	-0.012	82	21989	1.00	1.05	
16 Trichlorofluoromethane	101	2.559	2.582	-0.023	73	20928	1.00	1.06	
17 Ethyl ether	59	2.808	2.820	-0.012	80	9442	1.00	1.06	
18 Acrolein	56	2.926	2.938	-0.012	86	11339	5.00	4.86	
21 1,1-Dichloroethene	61	3.033	3.033	0.000	92	17119	1.00	1.01	
20 1,1,2-Trichloro-1,2,2-trif	101	3.057	3.057	0.000	63	12789	1.00	1.06	
22 Acetone	43	3.069	3.080	-0.011	66	7064	2.00	2.40	
23 Iodomethane	142	3.187	3.199	-0.012	96	21574	1.00	1.03	

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Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
24 Carbon disulfide	76	3.247	3.258	-0.011	96	43688	1.00	1.15	
26 3-Chloro-1-propene	41	3.365	3.365	0.000	84	18985	1.00	1.07	
27 Methyl acetate	43	3.389	3.389	0.000	92	19667	2.00	1.94	
28 Methylene Chloride	49	3.472	3.484	-0.012	75	15117	1.00	1.12	
29 2-Methyl-2-propanol	59	3.579	3.579	0.001	70	12788	10.0	11.6	
30 Acrylonitrile	53	3.697	3.697	0.000	100	41875	10.0	9.15	
31 Methyl tert-butyl ether	73	3.733	3.733	0.000	87	32315	1.00	1.04	
32 trans-1,2-Dichloroethene	61	3.733	3.733	0.000	73	17800	1.00	1.07	
33 Hexane	57	3.982	3.982	0.000	92	18280	1.00	1.00	
34 1,1-Dichloroethane	63	4.112	4.112	0.000	83	19272	1.00	0.9804	
35 Vinyl acetate	43	4.148	4.148	0.000	95	16923	1.00	0.9468	
40 cis-1,2-Dichloroethene	96	4.622	4.634	-0.012	78	14795	1.00	1.07	
39 2,2-Dichloropropane	77	4.634	4.634	0.000	56	12773	1.00	1.08	
41 2-Butanone (MEK)	72	4.634	4.634	0.000	60	3193	2.00	1.90	
45 Chlorobromomethane	49	4.836	4.836	0.000	67	9868	1.00	1.09	
46 Tetrahydrofuran	42	4.883	4.883	0.000	84	9301	2.00	2.14	
47 Chloroform	83	4.907	4.907	0.000	66	21458	1.00	1.05	
48 1,1,1-Trichloroethane	97	5.085	5.085	0.000	80	17835	1.00	0.9707	
49 Cyclohexane	84	5.144	5.144	0.000	82	19597	1.00	1.02	
50 1,1-Dichloropropene	75	5.227	5.227	0.000	87	17455	1.00	1.04	
51 Carbon tetrachloride	117	5.239	5.239	0.000	75	17198	1.00	1.01	
52 Isobutyl alcohol	41	5.298	5.298	0.000	89	7910	25.0	20.1	
54 1,2-Dichloroethane	62	5.417	5.417	0.000	50	15873	1.00	1.08	
53 Benzene	78	5.417	5.417	0.000	94	48419	1.00	1.06	
56 n-Heptane	57	5.654	5.642	0.012	38	35642	1.00	1.01	
58 Trichloroethene	130	5.986	5.986	0.000	84	14571	1.00	1.03	
60 Methylcyclohexane	83	6.176	6.176	0.000	88	22689	1.00	0.9886	
61 1,2-Dichloropropane	63	6.187	6.187	0.000	79	10704	1.00	1.04	
63 Dibromomethane	174	6.294	6.294	0.000	82	9635	1.00	1.01	
64 1,4-Dioxane	88	6.318	6.306	0.012	1	1478	20.0	14.6	
65 Dichlorobromomethane	83	6.425	6.436	-0.011	87	13539	1.00	0.9376	
67 2-Chloroethyl vinyl ether	63	6.697	6.697	0.000	82	14128	2.00	1.84	
68 cis-1,3-Dichloropropene	75	6.840	6.840	0.000	76	17042	1.00	1.01	
69 4-Methyl-2-pentanone (MIBK)	43	6.982	6.982	0.000	91	26811	2.00	1.96	
70 Toluene	91	7.172	7.172	0.000	93	51989	1.00	1.03	
71 trans-1,3-Dichloropropene	75	7.361	7.361	0.000	75	16254	1.00	1.00	
72 Ethyl methacrylate	69	7.433	7.433	0.000	77	14391	1.00	0.9357	
74 1,1,2-Trichloroethane	97	7.539	7.539	0.000	74	9825	1.00	0.99	
75 Tetrachloroethene	166	7.694	7.693	0.001	89	14983	1.00	1.00	
76 1,3-Dichloropropane	76	7.705	7.705	0.000	77	17817	1.00	1.03	
77 2-Hexanone	43	7.777	7.765	0.012	67	19416	2.00	1.87	
79 Chlorodibromomethane	129	7.931	7.931	0.000	74	11860	1.00	1.00	

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Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
80 Ethylene Dibromide	107	8.049	8.049	0.000	85	11944	1.00	1.06	
82 Chlorobenzene	112	8.524	8.524	0.000	65	36126	1.00	1.07	
83 1,1,1,2-Tetrachloroethane	131	8.607	8.607	0.000	59	11650	1.00	1.01	
84 Ethylbenzene	106	8.630	8.630	0.000	96	18517	1.00	1.03	
85 m-Xylene & p-Xylene	106	8.749	8.749	0.000	99	21784	1.00	0.9817	
86 o-Xylene	106	9.140	9.152	-0.012	91	20892	1.00	0.9751	
87 Styrene	104	9.152	9.152	0.000	88	33956	1.00	0.9551	
88 Bromoform	173	9.354	9.354	0.000	82	8645	1.00	0.9144	
89 Isopropylbenzene	105	9.520	9.520	0.000	91	55210	1.00	0.9739	
91 1,1,2,2-Tetrachloroethane	83	9.816	9.816	0.000	77	17817	1.00	1.04	
92 Bromobenzene	156	9.840	9.840	0.000	89	15559	1.00	0.9619	
93 1,2,3-Trichloropropane	110	9.864	9.864	0.000	70	5494	1.00	0.9090	
94 trans-1,4-Dichloro-2-buten	53	9.864	9.875	-0.011	44	4738	1.00	0.9051	
95 N-Propylbenzene	120	9.947	9.947	0.000	94	16107	1.00	0.9402	
96 2-Chlorotoluene	126	10.042	10.041	0.001	93	15255	1.00	1.04	
97 1,3,5-Trimethylbenzene	105	10.125	10.124	0.001	93	45567	1.00	0.9397	
98 4-Chlorotoluene	126	10.148	10.148	0.000	94	15545	1.00	1.01	
99 tert-Butylbenzene	119	10.468	10.468	0.000	88	47758	1.00	1.02	
101 1,2,4-Trimethylbenzene	105	10.516	10.516	0.000	68	49545	1.00	0.9846	
102 sec-Butylbenzene	105	10.694	10.694	0.000	90	61320	1.00	0.9521	
103 1,3-Dichlorobenzene	146	10.812	10.812	0.000	11	33191	1.00	1.06	
104 4-Isopropyltoluene	119	10.848	10.848	0.000	82	50862	1.00	0.9208	
105 1,4-Dichlorobenzene	146	10.907	10.907	0.000	52	35488	1.00	1.09	
108 n-Butylbenzene	91	11.275	11.275	0.000	94	45503	1.00	0.9538	
109 1,2-Dichlorobenzene	146	11.299	11.298	0.001	94	30581	1.00	1.07	
110 1,2-Dibromo-3-Chloropropan	157	12.129	12.129	0.000	47	4764	1.00	0.9369	
112 1,2,4-Trichlorobenzene	180	13.018	13.018	0.000	82	21592	1.00	1.10	
113 Hexachlorobutadiene	225	13.208	13.196	0.012	66	10992	1.00	1.07	
114 Naphthalene	128	13.279	13.279	0.000	93	57589	1.00	1.04	
115 1,2,3-Trichlorobenzene	180	13.540	13.540	0.000	86	18094	1.00	1.02	
S 127 Trihalomethanes, Total	1				0		4.00	3.91	
S 164 Total BTEX	1				0		5.00	5.07	
S 124 1,2-Dichloroethene, Total	96				0			2.14	
S 125 1,3-Dichloropropene, Total	75				0			2.01	
S 126 Xylenes, Total	106				0		2.00	1.96	

Reagents:

vm50is_stk_A_00001	Amount Added: 2.00	Units: uL
vmrgas_00255	Amount Added: 0.80	Units: uL
vmarolistdw_00256	Amount Added: 0.80	Units: uL
vmrprimw_00292	Amount Added: 0.80	Units: uL
vm50ss_00329	Amount Added: 0.80	Units: uL

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\U1900793.d

Injection Date: 24-Jul-2018 19:42:05

Instrument ID: A3UX19

Operator ID: 001904

Lims ID: std8260 L2

Worklist Smp#: 12

Client ID:

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

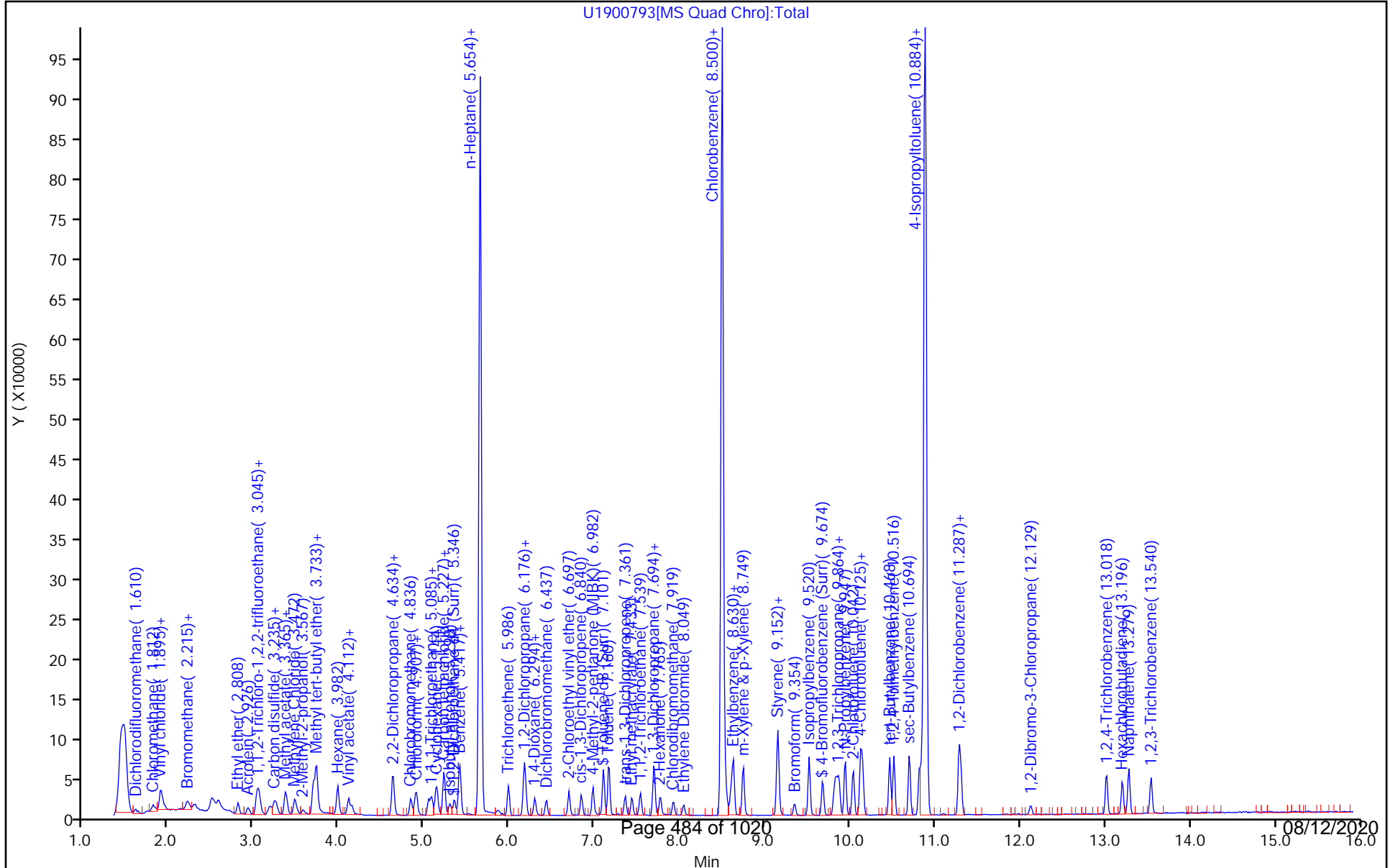
ALS Bottle#: 0

Method: 8260_19

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



TestAmerica Canton
Target Compound Quantitation Report

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\U1900794.d
 Lims ID: std8260 L1
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 24-Jul-2018 20:04:28 ALS Bottle#: 0 Worklist Smp#: 13
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: 240-0078277-013
 Operator ID: 001904 Instrument ID: A3UX19
 Sublist: chrom-8260_19*sub1
 Method: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\8260_19.m
 Limit Group: MSV 8260B ICAL
 Last Update: 25-Jul-2018 10:14:09 Calib Date: 24-Jul-2018 20:04:28
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\U1900794.d
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: XAWRK026

First Level Reviewer: laveyt Date: 25-Jul-2018 09:56:53

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.654	5.654	0.000	99	923893	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.500	8.500	0.000	84	731189	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.883	10.883	0.000	93	428789	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr	111	5.049	5.049	0.000	56	6754	0.5000	0.5647	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	5.357	5.357	0.000	75	7422	0.5000	0.5855	
\$ 6 Toluene-d8 (Surr)	98	7.100	7.101	-0.001	74	22890	0.5000	0.5200	
\$ 7 4-Bromofluorobenzene (Surr	95	9.674	9.674	0.000	79	10413	0.5000	0.6156	
9 Dichlorodifluoromethane	85	1.633	1.622	0.011	62	6894	0.5000	0.4288	
10 Chloromethane	50	1.823	1.823	0.000	71	8217	0.5000	0.5278	
12 Butadiene	54	1.906	1.906	0.000	82	7871	0.5000	0.5198	
11 Vinyl chloride	62	1.930	1.930	0.000	64	6342	0.5000	0.4211	
13 Bromomethane	94	2.238	2.227	0.011	71	6350	0.5000	0.5606	
14 Chloroethane	64	2.309	2.310	-0.001	60	4872	0.5000	0.5321	
15 Dichlorofluoromethane	67	2.511	2.511	0.000	53	12059	0.5000	0.5584	
16 Trichlorofluoromethane	101	2.582	2.582	0.000	75	10381	0.5000	0.5081	
17 Ethyl ether	59	2.819	2.820	-0.001	67	5066	0.5000	0.5520	
18 Acrolein	56	2.938	2.938	0.000	82	6772	2.50	2.81	
21 1,1-Dichloroethene	61	3.045	3.033	0.012	68	8796	0.5000	0.5026	
20 1,1,2-Trichloro-1,2,2-trif	101	3.057	3.057	-0.001	56	6009	0.5000	0.4815	
22 Acetone	43		3.080				ND	ND	U
23 Iodomethane	142	3.187	3.199	-0.012	82	10728	0.5000	0.4956	

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\U1900794.d

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
24 Carbon disulfide	76	3.246	3.258	-0.012	95	23708	0.5000	0.6063	
26 3-Chloro-1-propene	41	3.365	3.365	0.000	77	9784	0.5000	0.5336	
27 Methyl acetate	43	3.389	3.389	0.000	86	13362	1.00	1.28	
28 Methylene Chloride	49		3.484				ND	ND	U
29 2-Methyl-2-propanol	59		3.579				ND	ND	U
30 Acrylonitrile	53	3.697	3.697	0.000	99	26540	5.00	5.62	
32 trans-1,2-Dichloroethene	61	3.732	3.733	-0.001	74	9868	0.5000	0.5730	
31 Methyl tert-butyl ether	73	3.732	3.733	-0.001	83	15911	0.5000	0.4958	
33 Hexane	57	3.981	3.982	-0.001	90	9277	0.5000	0.4936	
34 1,1-Dichloroethane	63	4.112	4.112	0.000	54	9924	0.5000	0.4888	
35 Vinyl acetate	43	4.148	4.148	0.000	95	9654	0.5000	0.5229	
41 2-Butanone (MEK)	72		4.634				ND	ND	
39 2,2-Dichloropropane	77	4.634	4.634	0.000	46	6159	0.5000	0.5045	
40 cis-1,2-Dichloroethene	96	4.634	4.634	0.000	56	7528	0.5000	0.5287	
45 Chlorobromomethane	49	4.835	4.836	-0.001	65	5651	0.5000	0.6036	
46 Tetrahydrofuran	42	4.895	4.883	0.012	78	4596	1.00	1.02	
47 Chloroform	83	4.906	4.907	-0.001	60	10692	0.5000	0.5074	
48 1,1,1-Trichloroethane	97	5.084	5.085	-0.001	72	9137	0.5000	0.4814	
49 Cyclohexane	84	5.144	5.144	0.000	79	9806	0.5000	0.4936	
50 1,1-Dichloropropene	75	5.227	5.227	0.000	85	8674	0.5000	0.5025	
51 Carbon tetrachloride	117	5.239	5.239	-0.001	69	8406	0.5000	0.4757	
52 Isobutyl alcohol	41	5.298	5.298	0.000	73	5482	12.5	13.5	
53 Benzene	78	5.416	5.417	-0.001	94	22844	0.5000	0.4820	
54 1,2-Dichloroethane	62	5.416	5.417	-0.001	40	8485	0.5000	0.5573	
56 n-Heptane	57		5.642				ND	ND	U
58 Trichloroethene	130	5.986	5.986	0.000	83	7211	0.5000	0.4940	
60 Methylcyclohexane	83	6.175	6.176	-0.001	83	11515	0.5000	0.4857	
61 1,2-Dichloropropane	63	6.187	6.187	0.000	62	4734	0.5000	0.4448	
63 Dibromomethane	174	6.306	6.294	0.012	67	5496	0.5000	0.5580	
64 1,4-Dioxane	88		6.306				ND	ND	U
65 Dichlorobromomethane	83	6.436	6.436	0.000	71	7466	0.5000	0.5005	
67 2-Chloroethyl vinyl ether	63	6.697	6.697	0.000	76	7395	1.00	0.9347	
68 cis-1,3-Dichloropropene	75	6.839	6.840	-0.001	66	8313	0.5000	0.4764	
69 4-Methyl-2-pentanone (MIBK)	43	6.982	6.982	0.000	86	13091	1.00	0.9263	
70 Toluene	91	7.171	7.172	-0.001	90	28549	0.5000	0.5479	
71 trans-1,3-Dichloropropene	75	7.361	7.361	0.000	72	8702	0.5000	0.5197	
72 Ethyl methacrylate	69	7.432	7.433	-0.001	67	7650	0.5000	0.4821	
74 1,1,2-Trichloroethane	97	7.539	7.539	0.000	65	4656	0.5000	0.4562	
75 Tetrachloroethene	166	7.693	7.693	0.000	89	7470	0.5000	0.4851	
76 1,3-Dichloropropane	76	7.705	7.705	0.000	73	8871	0.5000	0.4993	
77 2-Hexanone	43	7.764	7.765	-0.001	87	10457	1.00	0.9783	
79 Chlorodibromomethane	129	7.919	7.931	-0.012	51	5763	0.5000	0.4723	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
80 Ethylene Dibromide	107	8.049	8.049	0.000	69	6061	0.5000	0.5198	
82 Chlorobenzene	112	8.523	8.524	-0.001	47	18258	0.5000	0.5243	
83 1,1,1,2-Tetrachloroethane	131	8.606	8.607	-0.001	47	5213	0.5000	0.4361	
84 Ethylbenzene	106	8.630	8.630	0.000	92	8398	0.5000	0.4528	
85 m-Xylene & p-Xylene	106	8.749	8.749	0.000	96	11276	0.5000	0.4925	
87 Styrene	104	9.152	9.152	0.000	84	17512	0.5000	0.4774	
86 o-Xylene	106	9.152	9.152	0.000	82	10860	0.5000	0.4913	
88 Bromoform	173		9.354				ND	ND	U
89 Isopropylbenzene	105	9.519	9.520	-0.001	87	28418	0.5000	0.4859	
91 1,1,2,2-Tetrachloroethane	83	9.816	9.816	0.000	49	8105	0.5000	0.4742	
92 Bromobenzene	156	9.840	9.840	0.000	80	8740	0.5000	0.5396	
93 1,2,3-Trichloropropane	110	9.863	9.864	-0.001	57	3387	0.5000	0.5596	
94 trans-1,4-Dichloro-2-buten	53	9.875	9.875	0.000	36	2893	0.5000	0.5519	
95 N-Propylbenzene	120	9.946	9.947	-0.001	90	8359	0.5000	0.4873	
96 2-Chlorotoluene	126	10.041	10.041	0.000	86	6977	0.5000	0.4728	
97 1,3,5-Trimethylbenzene	105	10.124	10.124	0.000	88	22067	0.5000	0.4545	
98 4-Chlorotoluene	126	10.148	10.148	0.000	89	7717	0.5000	0.4998	
99 tert-Butylbenzene	119	10.468	10.468	0.000	82	22397	0.5000	0.4799	
101 1,2,4-Trimethylbenzene	105	10.516	10.516	0.000	62	24672	0.5000	0.4897	
102 sec-Butylbenzene	105	10.693	10.694	-0.001	78	30350	0.5000	0.4706	
103 1,3-Dichlorobenzene	146	10.812	10.812	0.000	1	17372	0.5000	0.5533	a
104 4-Isopropyltoluene	119	10.848	10.848	0.000	80	25586	0.5000	0.4626	
105 1,4-Dichlorobenzene	146	10.907	10.907	0.000	42	19169	0.5000	0.5888	
108 n-Butylbenzene	91	11.275	11.275	0.000	91	21675	0.5000	0.4537	
109 1,2-Dichlorobenzene	146	11.298	11.298	0.000	87	14939	0.5000	0.5204	
110 1,2-Dibromo-3-Chloropropan	157	12.128	12.129	-0.001	24	2566	0.5000	0.5040	
112 1,2,4-Trichlorobenzene	180	13.018	13.018	0.000	65	10787	0.5000	0.5471	
113 Hexachlorobutadiene	225	13.196	13.196	0.000	52	5347	0.5000	0.5195	
114 Naphthalene	128	13.279	13.279	0.000	81	27099	0.5000	0.4874	
115 1,2,3-Trichlorobenzene	180	13.540	13.540	0.000	60	8865	0.5000	0.4972	
S 164 Total BTEX	1				0		2.50	2.47	
S 127 Trihalomethanes, Total	1				0		2.00	1.48	
S 124 1,2-Dichloroethene, Total	96				0			1.10	
S 125 1,3-Dichloropropene, Total	75				0			1.00	
S 126 Xylenes, Total	106				0		1.00	0.9838	

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

Review Flags

U - Marked Undetected

a - User Assigned ID

Reagents:

vm50is_stk_A_00001	Amount Added: 2.00	Units: uL
vmrgas_00255	Amount Added: 0.40	Units: uL
vmarolistdw_00256	Amount Added: 0.40	Units: uL
vmrprimw_00292	Amount Added: 0.40	Units: uL
vm50ss_00329	Amount Added: 0.40	Units: uL

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\U1900794.d

Injection Date: 24-Jul-2018 20:04:28

Instrument ID: A3UX19

Operator ID: 001904

Lims ID: std8260 L1

Worklist Smp#: 13

Client ID:

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

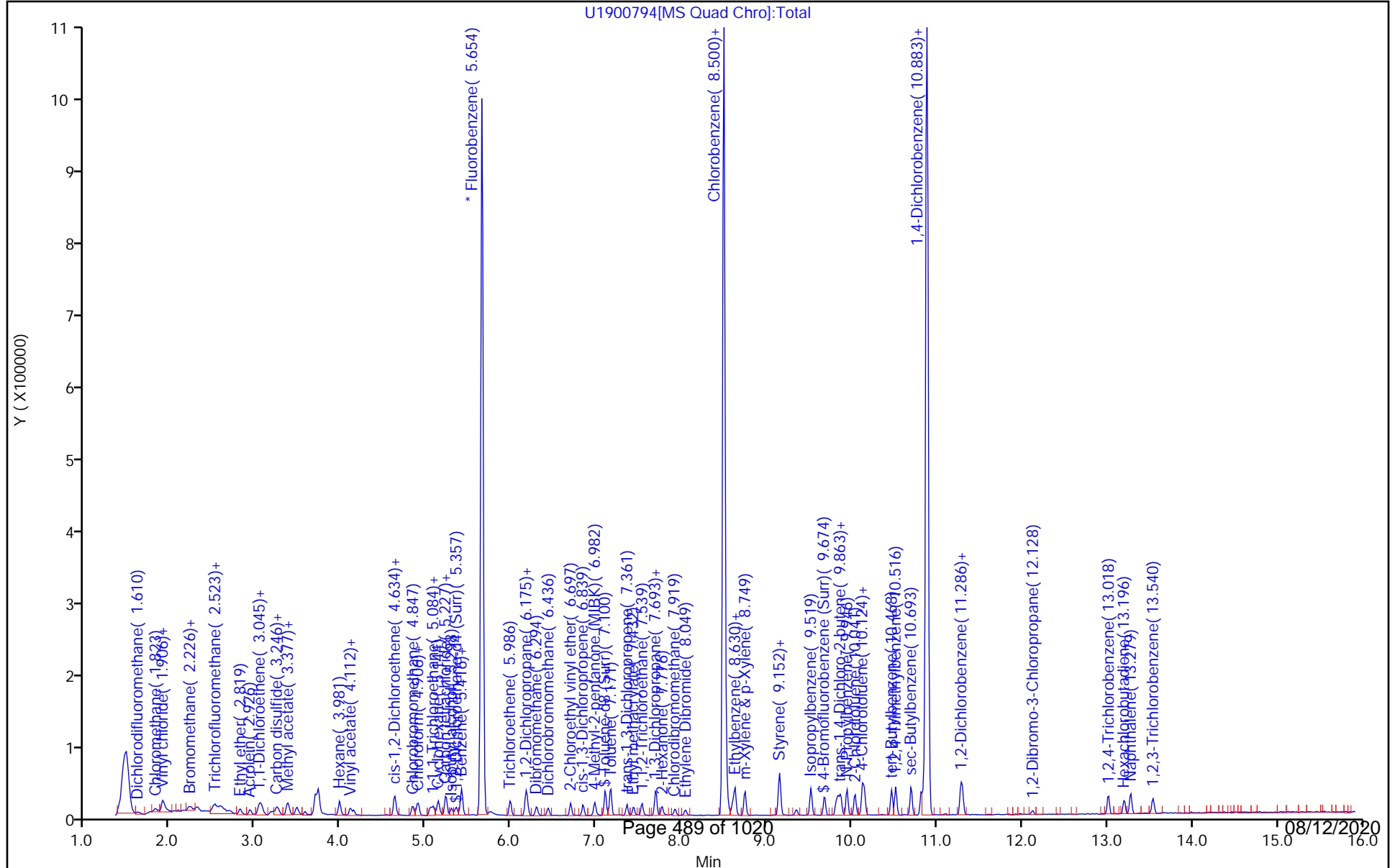
ALS Bottle#: 0

Method: 8260_19

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



TestAmerica Canton

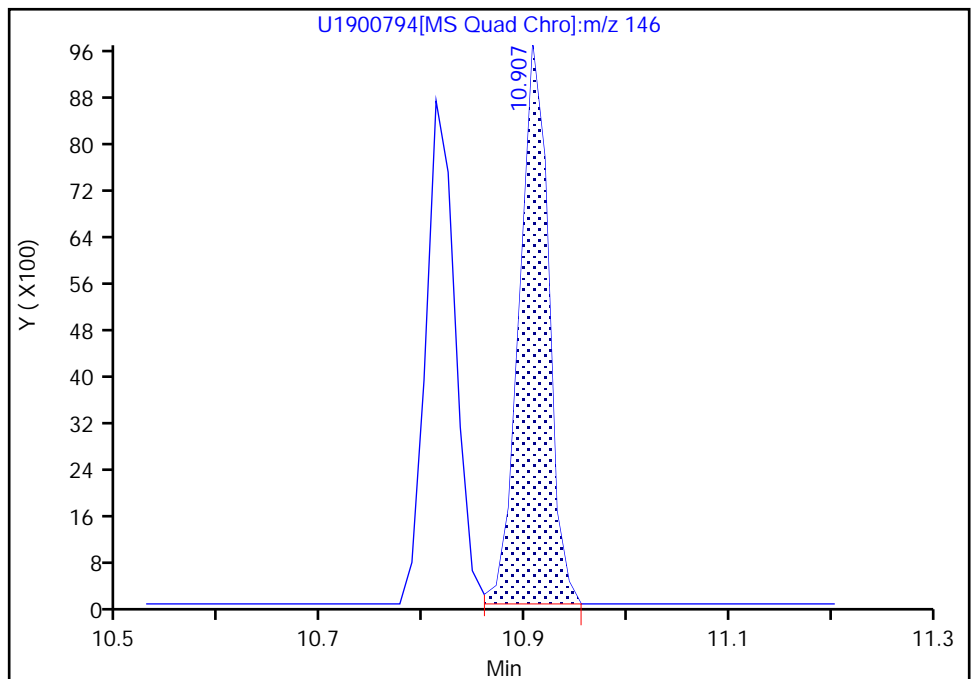
Data File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\U1900794.d
Injection Date: 24-Jul-2018 20:04:28 Instrument ID: A3UX19
Lims ID: std8260 L1
Client ID:
Operator ID: 001904 ALS Bottle#: 0 Worklist Smp#: 13
Injection Vol: 5.0 mL Dil. Factor: 1.0000
Method: 8260_19 Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector MS SCAN

103 1,3-Dichlorobenzene, CAS: 541-73-1

Signal: 1

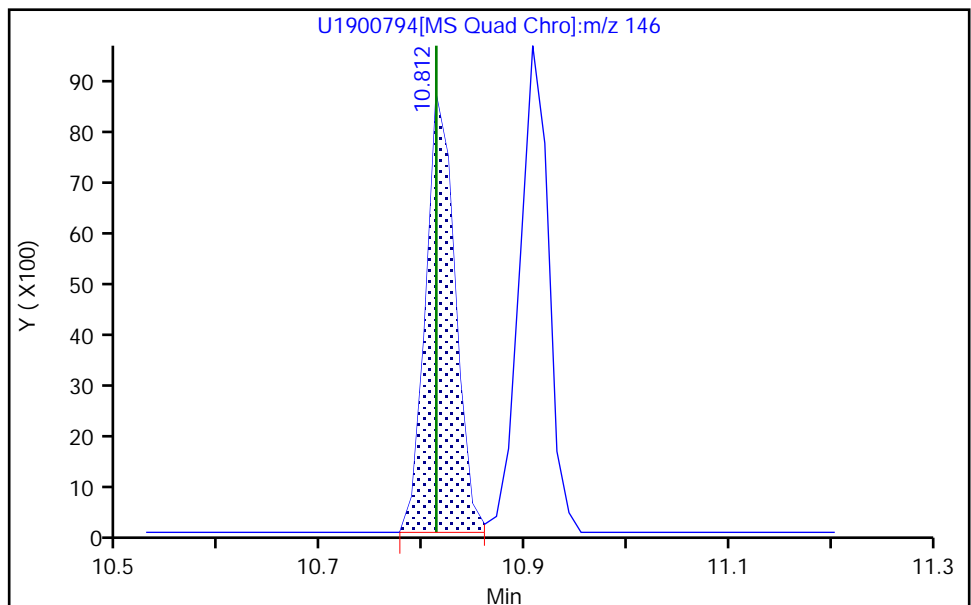
Processing Integration Results

RT: 10.91
Area: 19169
Amount: 0.600710
Amount Units: ug/l



Manual Integration Results

RT: 10.81
Area: 17372
Amount: 0.553299
Amount Units: ug/l



TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\U1900794.d

Injection Date: 24-Jul-2018 20:04:28

Instrument ID: A3UX19

Lims ID: std8260 L1

Client ID:

Operator ID: 001904

ALS Bottle#: 0

Worklist Smp#: 13

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

Method: 8260_19

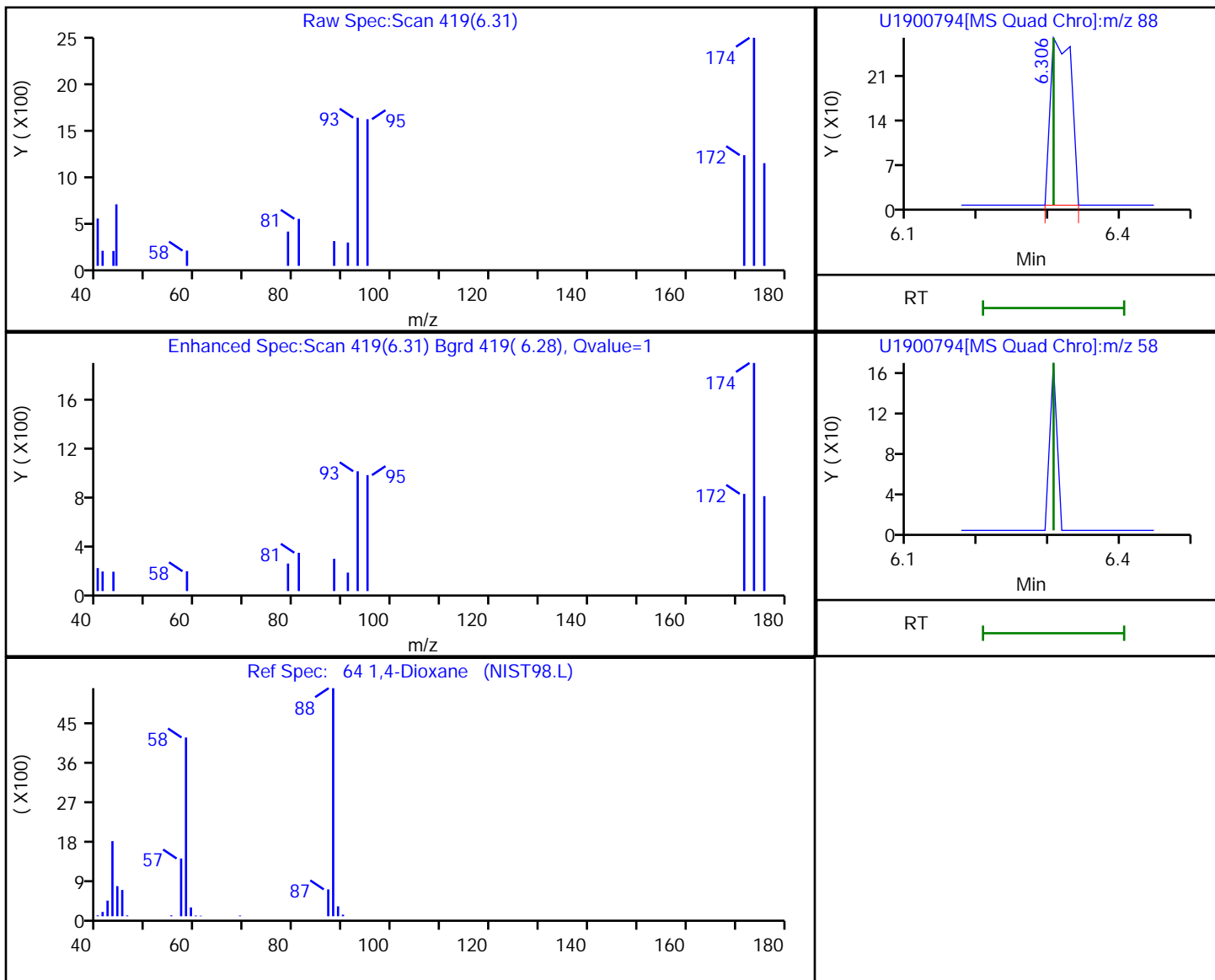
Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

64 1,4-Dioxane, CAS: 123-91-1

Processing Results



RT	Mass	Response	Amount
6.31	88.00	541	10.248924
6.31	58.00	0	

Reviewer: laveyt, 25-Jul-2018 10:11:40

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\U1900794.d

Injection Date: 24-Jul-2018 20:04:28

Instrument ID: A3UX19

Lims ID: std8260 L1

Client ID:

Operator ID: 001904

ALS Bottle#: 0

Worklist Smp#: 13

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

Method: 8260_19

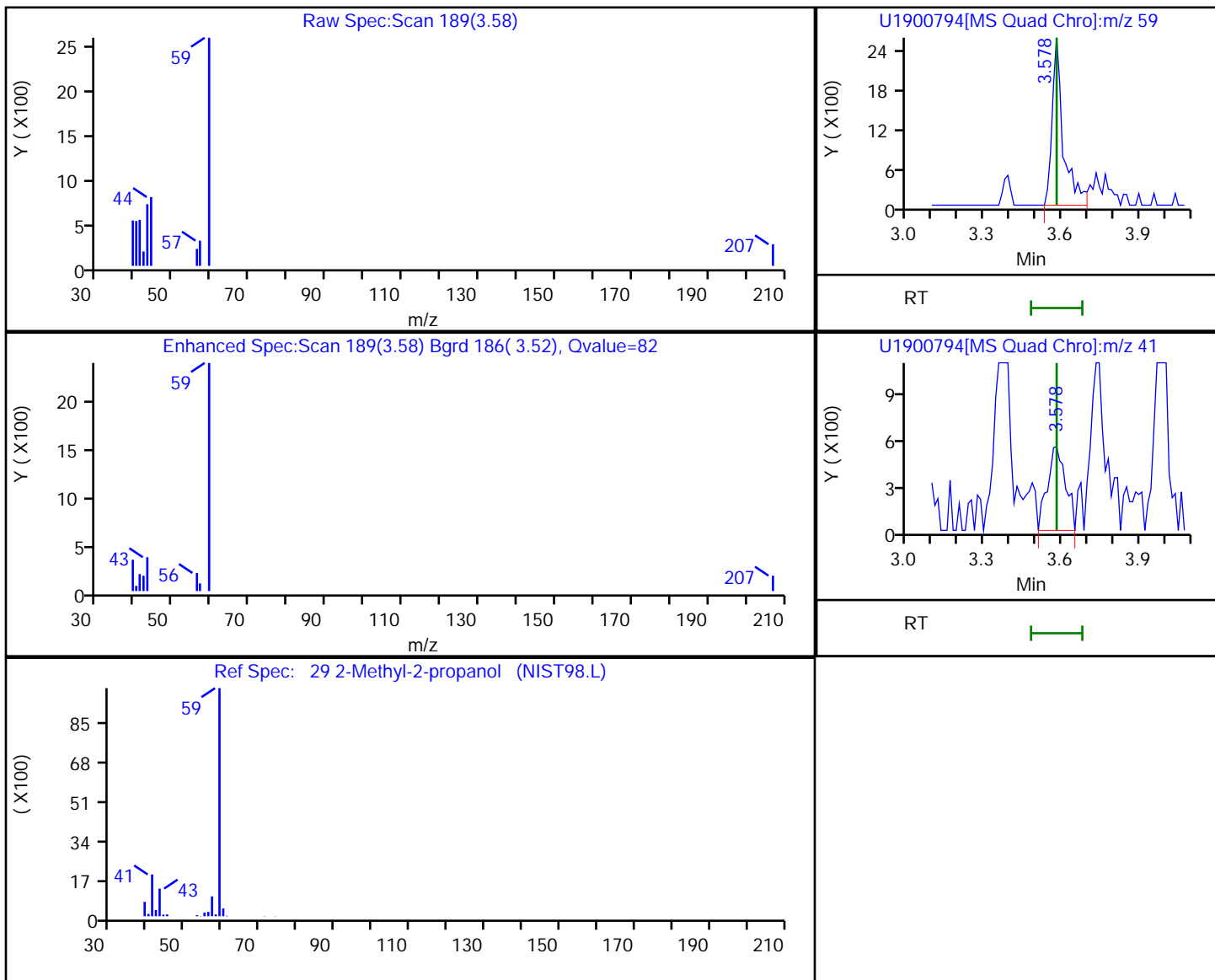
Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

29 2-Methyl-2-propanol, CAS: 75-65-0

Processing Results



RT	Mass	Response	Amount
3.58	59.00	7655	6.614472
3.58	41.00	2500	

Reviewer: laveyt, 25-Jul-2018 09:53:00

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\U1900794.d

Injection Date: 24-Jul-2018 20:04:28

Instrument ID: A3UX19

Lims ID: std8260 L1

Client ID:

Operator ID: 001904

ALS Bottle#: 0

Worklist Smp#: 13

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

Method: 8260_19

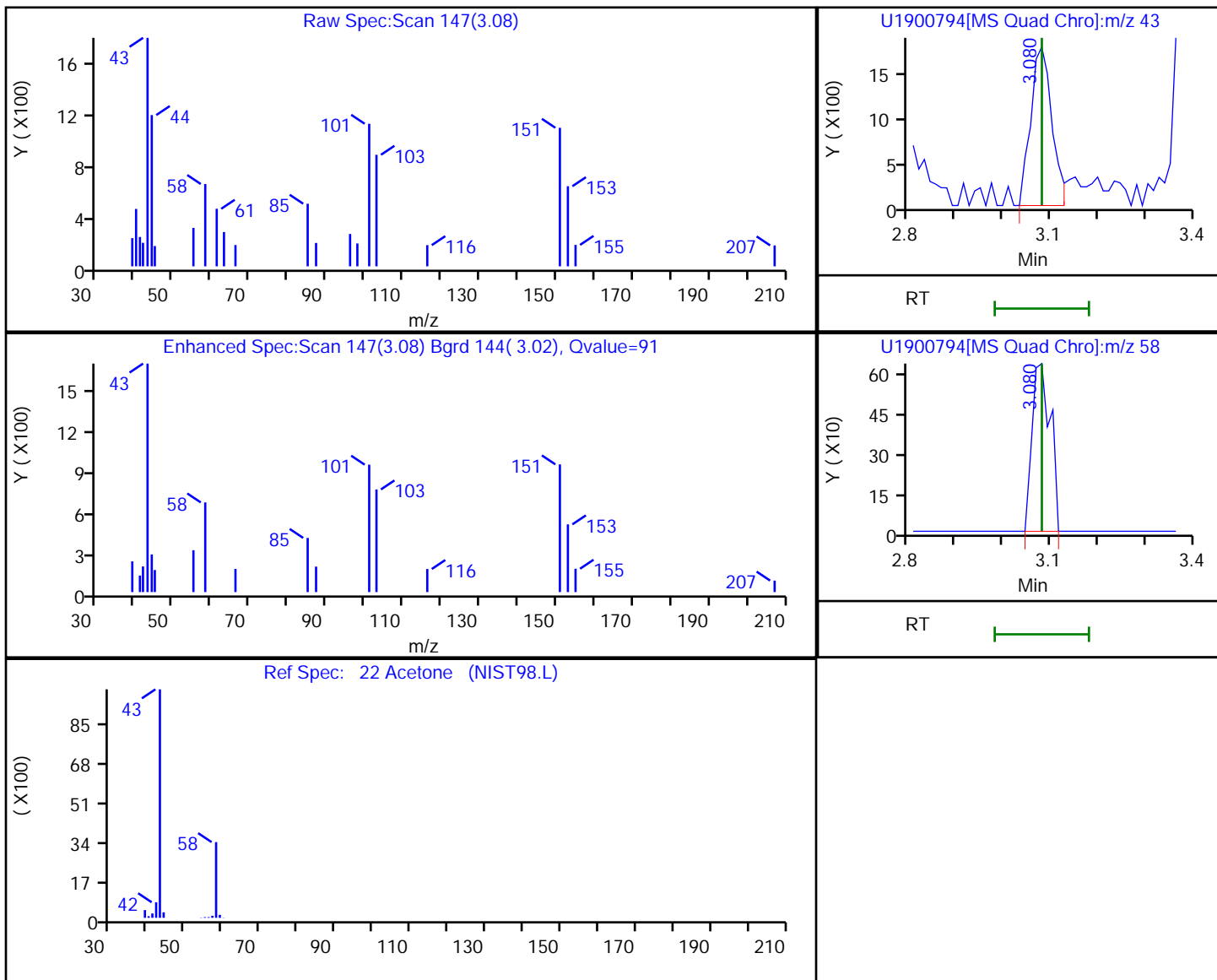
Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

22 Acetone, CAS: 67-64-1

Processing Results



RT	Mass	Response	Amount
3.08	43.00	5518	1.624733
3.08	58.00	1707	

Reviewer: laveyt, 25-Jul-2018 09:52:16

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\U1900794.d

Injection Date: 24-Jul-2018 20:04:28

Instrument ID: A3UX19

Lims ID: std8260 L1

Client ID:

Operator ID: 001904

ALS Bottle#: 0

Worklist Smp#: 13

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

Method: 8260_19

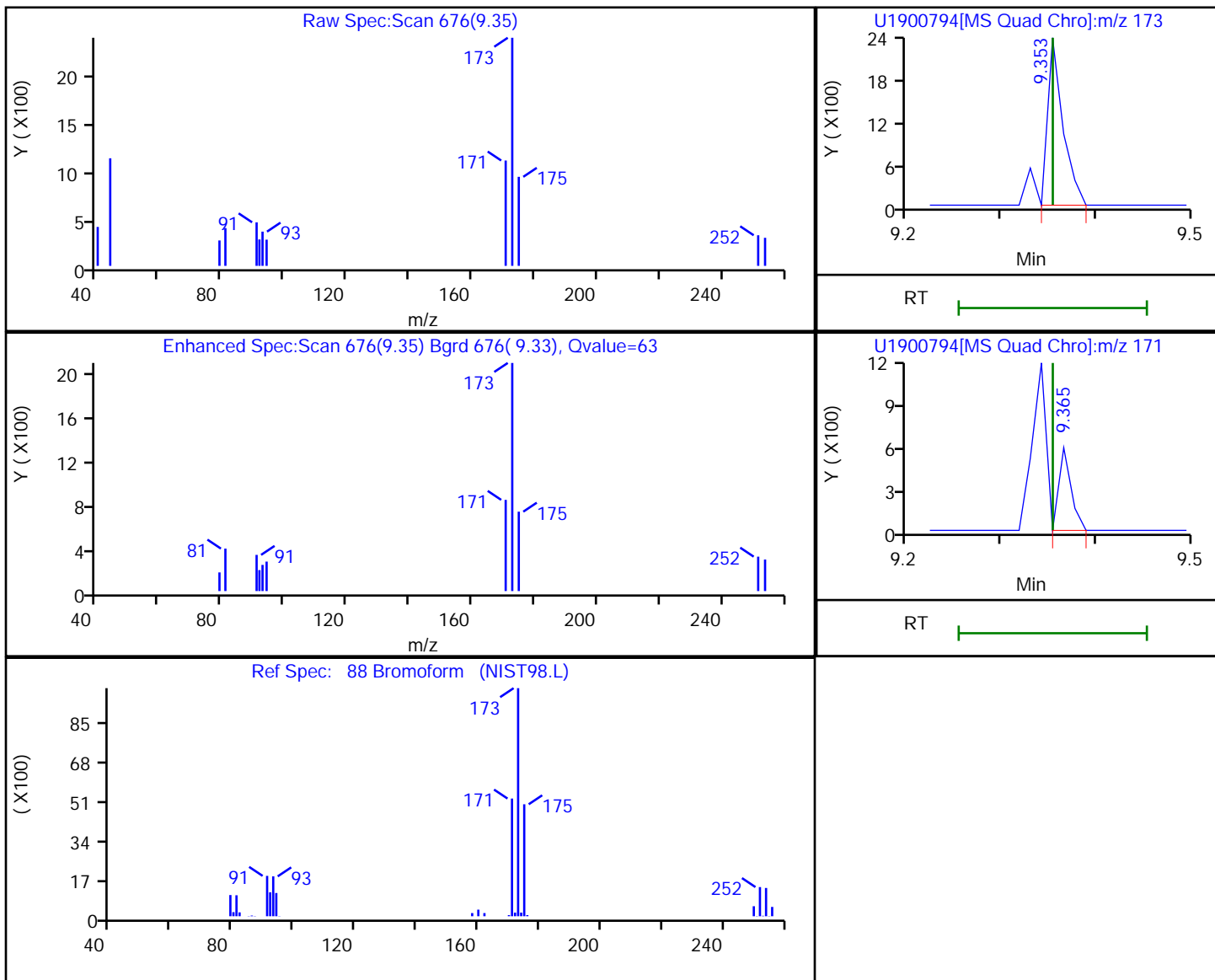
Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

88 Bromoform, CAS: 75-25-2

Processing Results



RT	Mass	Response	Amount
9.35	173.00	2603	0.492517
9.37	171.00	513	

Reviewer: laveyt, 25-Jul-2018 09:54:48

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\U1900794.d

Injection Date: 24-Jul-2018 20:04:28

Instrument ID: A3UX19

Lims ID: std8260 L1

Client ID:

Operator ID: 001904

ALS Bottle#: 0

Worklist Smp#: 13

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

Method: 8260_19

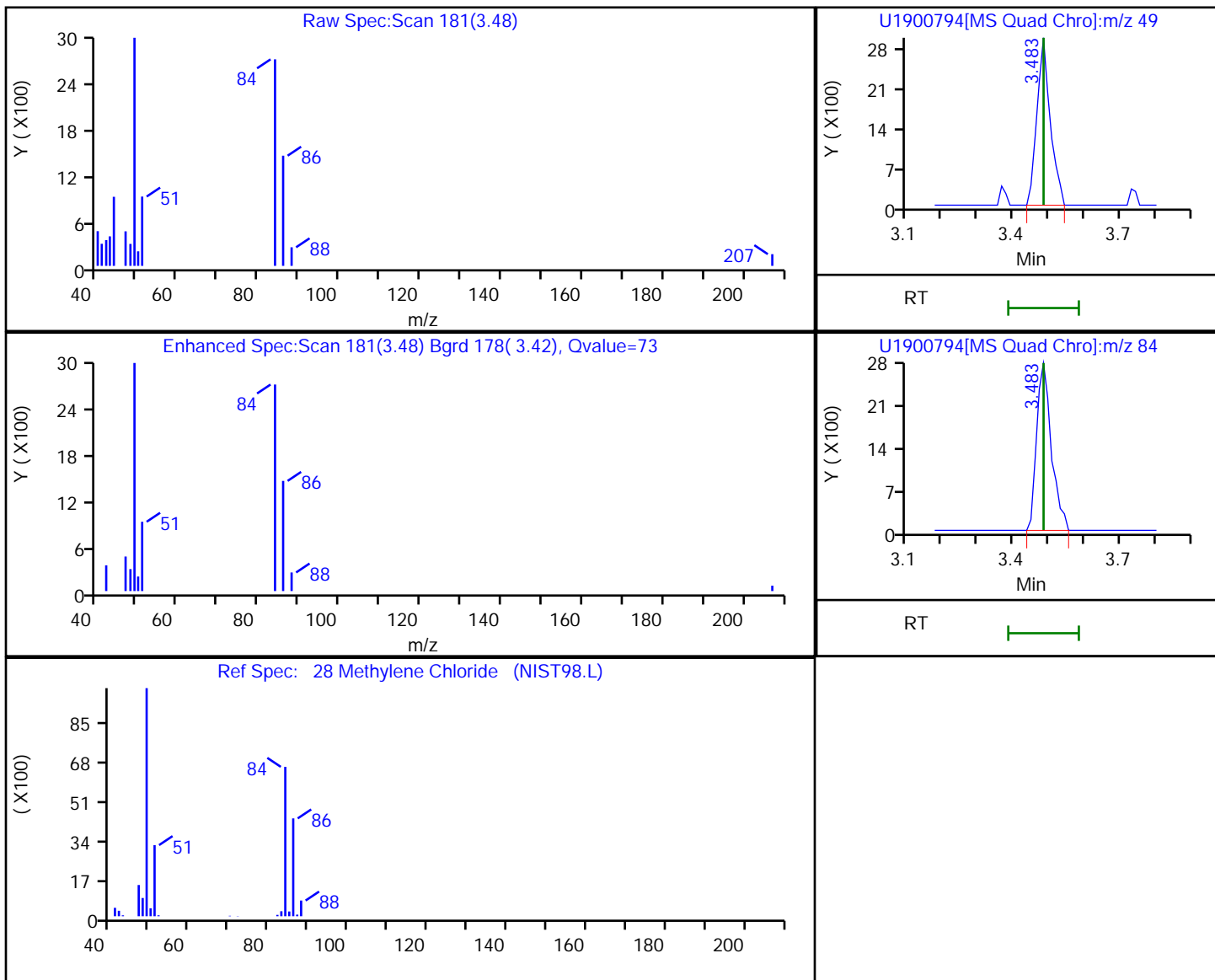
Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

28 Methylene Chloride, CAS: 75-09-2

Processing Results



RT	Mass	Response	Amount
3.48	49.00	7846	0.551972
3.48	84.00	7835	

Reviewer: laveyt, 25-Jul-2018 09:52:25

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\U1900794.d

Injection Date: 24-Jul-2018 20:04:28

Instrument ID: A3UX19

Lims ID: std8260 L1

Client ID:

Operator ID: 001904

ALS Bottle#: 0

Worklist Smp#: 13

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

Method: 8260_19

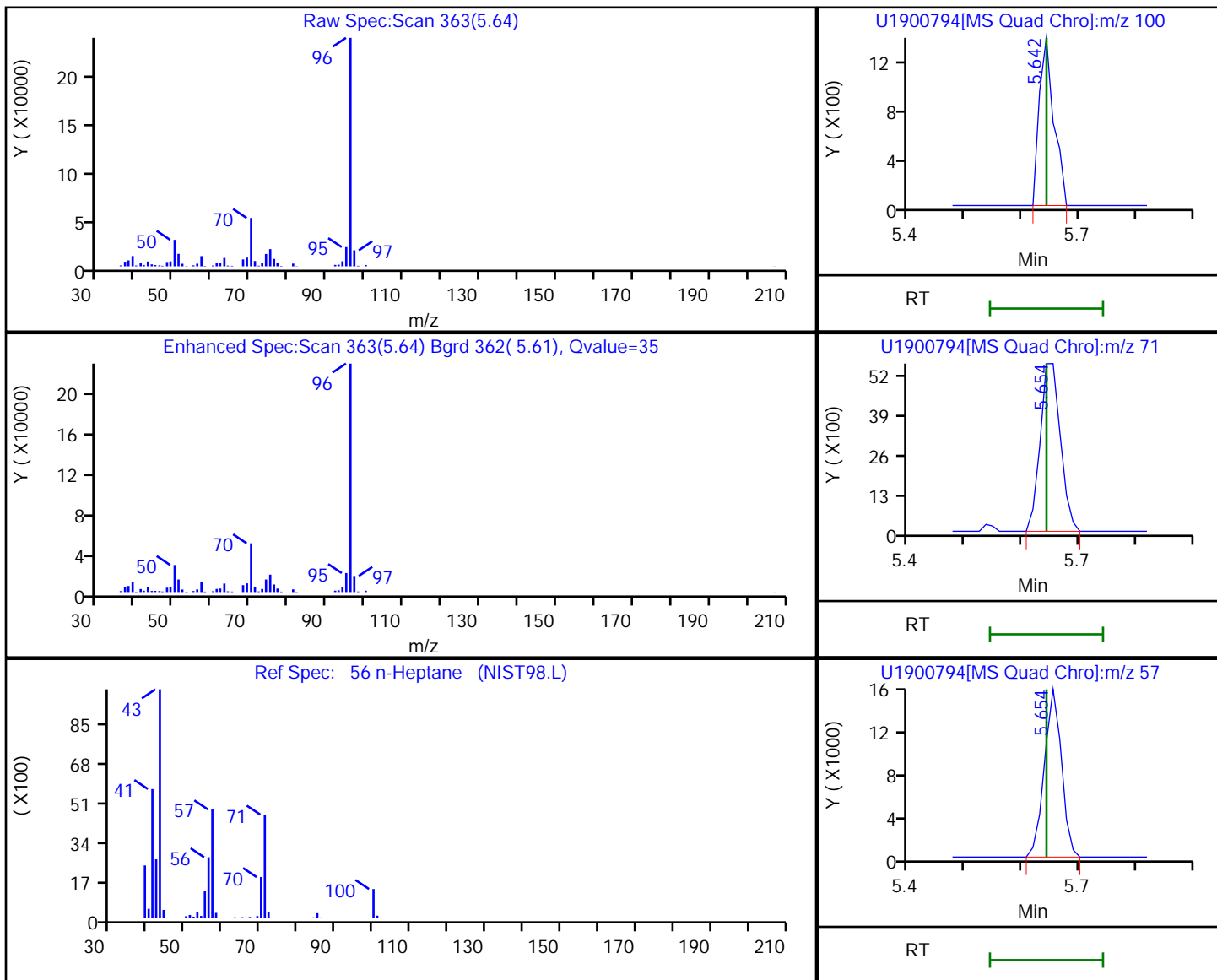
Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

56 n-Heptane, CAS: 142-82-5

Processing Results



RT	Mass	Response	Amount
5.64	100.00	2448	
5.65	71.00	13746	
5.65	57.00	32874	0.539419

Reviewer: laveyt, 25-Jul-2018 09:54:04

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 342718

SDG No.: _____

Instrument ID: A3UX19 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/27/2018 17:09 Calibration End Date: 08/27/2018 19:23 Calibration ID: 46686

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD8260 240-342718/13	U1901329.d
Level 2	STD8260 240-342718/12	U1901328.d
Level 3	STD8260 240-342718/11	U1901327.d
Level 4	ICIS 240-342718/10	U1901326.d
Level 5	STD8260 240-342718/9	U1901325.d
Level 6	STD8260 240-342718/8	U1901324.d
Level 7	STD8260 240-342718/7	U1901323.d

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
Dichlorodifluoromethane	0.3252 0.4073	0.3858 0.4041	0.3902	0.3772	0.4052	Ave		0.3850			7.5		15.0				
Chloromethane	0.3476 0.2860	0.2731 0.2757	0.2817	0.2748	0.2796	Ave		0.2883		0.1000	9.2		15.0				
Butadiene	0.2863 0.2923	0.2971 0.2827	0.2967	0.2831	0.2826	Ave		0.2887			2.3		15.0				
Vinyl chloride	0.2799 0.3039	0.3000 0.2955	0.3102	0.2950	0.3013	Ave		0.2980			3.2		15.0				
Bromomethane	0.2530 0.2308	0.2391 0.2251	0.2340	0.2259	0.2264	Ave		0.2335			4.3		15.0				
Chloroethane	0.2052 0.1842	0.1766 0.1812	0.1882	0.1779	0.1807	Ave		0.1848			5.3		15.0				
Dichlorofluoromethane	0.4944 0.4514	0.4567 0.4411	0.4677	0.4468	0.4490	Ave		0.4581			3.9		15.0				
Trichlorofluoromethane	0.4941 0.5030	0.4893 0.4931	0.5122	0.4967	0.5003	Ave		0.4984			1.5		15.0				
Ethyl ether	0.1731 0.1798	0.1898 0.1760	0.1849	0.1771	0.1791	Ave		0.1800			3.1		15.0				
Acrolein	0.0495 0.0430	0.0446 0.0441	0.0420	0.0454	0.0427	Ave		0.0445			5.6		15.0				
1,1-Dichloroethene	0.3476 0.3661	0.3473 0.3597	0.3727	0.3582	0.3610	Ave		0.3589			2.6		15.0				
1,1,2-Trichloro-1,2,2-trifluoroethane	0.2493 0.2658	0.2366 0.2616	0.2651	0.2563	0.2622	Ave		0.2567			4.1		15.0				
Acetone	++++ 0.0747	0.0941 0.0735	0.0766	0.0752	0.0764	Ave		0.0784			9.9		15.0				
Iodomethane	0.4872 0.4597	0.4730 0.4538	0.4730	0.4575	0.4539	Ave		0.4655			2.7		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

Analy Batch No.: 342718

SDG No.: _____

Instrument ID: A3UX19

GC Column: DB-624

ID: 0.18 (mm)

Heated Purge: (Y/N) N

Calibration Start Date: 08/27/2018 17:09

Calibration End Date: 08/27/2018 19:23

Calibration ID: 46686

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
Carbon disulfide	0.8746 0.7168	0.8257 0.7023	0.7362	0.7031	0.7015	Ave		0.7515			9.3		15.0				
3-Chloro-1-propene	0.3735 0.3489	0.3837 0.3396	0.3586	0.3361	0.3385	Ave		0.3541			5.3		15.0				
Methyl acetate	0.2638 0.2201	0.2366 0.2157	0.2398	0.2267	0.2267	Ave		0.2328			6.9		15.0				
Methylene Chloride	++++ 0.2751	0.3184 0.2694	0.2925	0.2792	0.2733	Ave		0.2846			6.5		15.0				
2-Methyl-2-propanol	0.0302 0.0245	0.0277 0.0251	0.0284	0.0260	0.0277	Ave		0.0271			7.4		15.0				
Acrylonitrile	0.1006 0.0983	0.1046 0.0951	0.1079	0.0977	0.0997	Ave		0.1006			4.3		15.0				
trans-1,2-Dichloroethene	0.3568 0.3338	0.3540 0.3216	0.3508	0.3269	0.3267	Ave		0.3387			4.4		15.0				
Methyl tert-butyl ether	0.6459 0.7174	0.6970 0.7172	0.7178	0.6715	0.6899	Ave		0.6938			3.9		15.0				
Hexane	0.3287 0.3643	0.3216 0.3693	0.3652	0.3577	0.3600	Ave		0.3524			5.4		15.0				
1,1-Dichloroethane	0.3877 0.4112	0.4141 0.3990	0.4182	0.3989	0.4043	Ave		0.4048		0.1000	2.6		15.0				
Vinyl acetate	0.4652 0.4557	0.4582 0.4625	0.4853	0.4584	0.4619	Ave		0.4639			2.1		15.0				
cis-1,2-Dichloroethene	0.3057 0.2869	0.2992 0.2782	0.2948	0.2801	0.2786	Ave		0.2891			3.8		15.0				
2,2-Dichloropropane	0.2469 0.2502	0.2497 0.2458	0.2443	0.2181	0.2515	Ave		0.2438			4.8		15.0				
2-Butanone (MEK)	0.0487 0.0444	0.0481 0.0466	0.0506	0.0457	0.0465	Ave		0.0472			4.3		15.0				
Chlorobromomethane	0.2347 0.1831	0.2161 0.1713	0.1973	0.1804	0.1790	Ave		0.1945			11.9		15.0				
Tetrahydrofuran	++++ 0.0978	0.2111 0.0981	0.1202	0.1027	0.1037	Lin1	0.2460	0.0976						0.9990		0.9900	
Chloroform	0.4336 0.4423	0.4430 0.4326	0.4702	0.4398	0.4415	Ave		0.4433			2.8		15.0				
1,1,1-Trichloroethane	0.3739 0.4296	0.4106 0.4262	0.4442	0.4096	0.4275	Ave		0.4174			5.4		15.0				
Cyclohexane	0.3499 0.3999	0.3515 0.3986	0.3944	0.3825	0.3967	Ave		0.3819			5.8		15.0				
1,1-Dichloropropene	0.3411 0.3565	0.3509 0.3499	0.3664	0.3469	0.3516	Ave		0.3519			2.3		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 342718

SDG No.: _____

Instrument ID: A3UX19 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/27/2018 17:09 Calibration End Date: 08/27/2018 19:23 Calibration ID: 46686

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
Carbon tetrachloride	0.3818 0.4136	0.3781 0.4121	0.4219	0.3956	0.4130	Ave		0.4023			4.3		15.0				
Isobutyl alcohol	0.0122 0.0101	0.0118 0.0103	0.0107	0.0108	0.0111	Ave		0.0110			7.0		15.0				
Benzene	0.9270 0.9480	0.9546 0.9366	1.0106	0.9431	0.9423	Ave		0.9518			2.9		15.0				
1,2-Dichloroethane	0.3794 0.3459	0.3845 0.3369	0.3743	0.3513	0.3479	Ave		0.3600			5.2		15.0				
n-Heptane	++++ 0.1978	0.8214 0.1912	0.2589	0.2169	0.2053	Lin1	0.6437	0.1861						1.0000		0.9900	
Trichloroethene	0.3334 0.3137	0.3081 0.3106	0.3277	0.3076	0.3109	Ave		0.3160			3.3		15.0				
Methylcyclohexane	0.4282 0.4825	0.4267 0.4698	0.4724	0.4580	0.4751	Ave		0.4590			5.0		15.0				
1,2-Dichloropropane	0.2171 0.2187	0.2141 0.2164	0.2362	0.2209	0.2218	Ave		0.2208			3.3		15.0				
Dibromomethane	0.2410 0.2204	0.2408 0.2155	0.2336	0.2191	0.2191	Ave		0.2271			4.9		15.0				
1,4-Dioxane	++++ 0.0025	0.0016 0.0027	0.0021	0.0026	0.0028	Lin1	-0.026	0.0026						0.9980		0.9900	
Dichlorobromomethane	0.3399 0.3440	0.3630 0.3379	0.3620	0.3462	0.3426	Ave		0.3479			3.0		15.0				
2-Chloroethyl vinyl ether	0.1593 0.1741	0.1654 0.1828	0.1943	0.1818	0.1815	Ave		0.1770			6.6		15.0				
cis-1,3-Dichloropropene	0.3743 0.3841	0.3867 0.3870	0.4032	0.3827	0.3872	Ave		0.3865			2.2		15.0				
4-Methyl-2-pentanone (MIBK)	0.3150 0.3064	0.3110 0.3144	0.3487	0.3229	0.3240	Ave		0.3203			4.4		15.0				
Toluene	1.3762 1.3312	1.3706 1.3223	1.4018	1.3282	1.3309	Ave		1.3516			2.3		15.0				
trans-1,3-Dichloropropene	0.4999 0.4712	0.5033 0.4805	0.4835	0.4641	0.4704	Ave		0.4818			3.1		15.0				
Ethyl methacrylate	0.3824 0.4408	0.4001 0.4600	0.4577	0.4462	0.4540	Ave		0.4344			7.1		15.0				
1,1,2-Trichloroethane	0.2808 0.2823	0.2821 0.2821	0.2973	0.2798	0.2847	Ave		0.2842			2.1		15.0				
Tetrachloroethene	0.4234 0.4375	0.4194 0.4317	0.4508	0.4248	0.4314	Ave		0.4313			2.4		15.0				
1,3-Dichloropropane	0.4988 0.4724	0.4733 0.4772	0.5009	0.4686	0.4705	Ave		0.4802			2.8		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 342718

SDG No.: _____

Instrument ID: A3UX19 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/27/2018 17:09 Calibration End Date: 08/27/2018 19:23 Calibration ID: 46686

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
2-Hexanone	0.2781 0.3092	0.3020 0.3219	0.3438	0.3247	0.3245	Ave		0.3149			6.6		15.0				
Chlorodibromomethane	0.3308 0.3663	0.3497 0.3646	0.3736	0.3604	0.3630	Ave		0.3583			3.9		15.0				
Ethylene Dibromide	0.3770 0.3214	0.3321 0.3219	0.3422	0.3286	0.3194	Ave		0.3346			6.1		15.0				
Chlorobenzene	0.9370 0.9055	0.9832 0.8914	0.9544	0.9002	0.9056	Ave		0.9253		0.3000	3.7		15.0				
1,1,1,2-Tetrachloroethane	0.3225 0.3380	0.3313 0.3315	0.3490	0.3282	0.3347	Ave		0.3336			2.5		15.0				
Ethylbenzene	0.4566 0.4899	0.4640 0.4838	0.5159	0.4863	0.4886	Ave		0.4836			4.0		15.0				
m-Xylene & p-Xylene	0.5709 0.5980	0.5535 0.5943	0.6142	0.5959	0.5965	Ave		0.5890			3.4		15.0				
o-Xylene	0.5188 0.5706	0.5578 0.5579	0.5806	0.5638	0.5683	Ave		0.5597			3.5		15.0				
Styrene	0.8915 0.9829	0.9056 0.9730	1.0088	0.9699	0.9794	Ave		0.9588			4.5		15.0				
Bromoform	0.2892 0.2933	0.2907 0.2979	0.3020	0.2847	0.2951	Ave		0.2933		0.1000	2.0		15.0				
Isopropylbenzene	1.3694 1.5447	1.4922 1.4942	1.5808	1.5060	1.5314	Ave		1.5027			4.4		15.0				
1,1,2,2-Tetrachloroethane	0.7123 0.7674	0.7872 0.7661	0.8261	0.7624	0.7730	Ave		0.7706		0.3000	4.4		15.0				
Bromobenzene	0.7562 0.7639	0.7920 0.7473	0.8125	0.7532	0.7575	Ave		0.7690			3.1		15.0				
1,2,3-Trichloropropane	0.2805 0.2866	0.2903 0.2882	0.3178	0.2884	0.2929	Ave		0.2921			4.1		15.0				
trans-1,4-Dichloro-2-butene	++++ 0.2667	0.2763 0.2751	0.2902	0.2665	0.2675	Ave		0.2737			3.3		15.0				
N-Propylbenzene	0.7009 0.7973	0.7492 0.7772	0.8251	0.7710	0.7894	Ave		0.7729			5.1		15.0				
2-Chlorotoluene	0.6131 0.6732	0.6212 0.6509	0.7079	0.6539	0.6587	Ave		0.6541			4.9		15.0				
1,3,5-Trimethylbenzene	2.1099 2.2883	2.1099 2.2183	2.3988	2.1936	2.2594	Ave		2.2255			4.6		15.0				
4-Chlorotoluene	0.7307 0.7048	0.6944 0.6840	0.7470	0.7010	0.6888	Ave		0.7072			3.3		15.0				
tert-Butylbenzene	1.9093 2.2037	2.0260 2.1009	2.2785	2.0983	2.1715	Ave		2.1126			5.7		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 342718

SDG No.: _____

Instrument ID: A3UX19 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/27/2018 17:09 Calibration End Date: 08/27/2018 19:23 Calibration ID: 46686

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
1,2,4-Trimethylbenzene	2.0996 2.3002	2.2590 2.2368	2.3762	2.2406	2.2826	Ave		2.2564			3.7		15.0				
sec-Butylbenzene	2.5921 3.0046	2.6994 2.8685	2.9965	2.8235	2.9285	Ave		2.8447			5.4		15.0				
1,3-Dichlorobenzene	1.4791 1.3933	1.5035 1.3394	1.4385	1.3676	1.3647	Ave		1.4123			4.4		15.0				
4-Isopropyltoluene	2.2955 2.5970	2.3910 2.5362	2.6099	2.4625	2.5496	Ave		2.4917			4.6		15.0				
1,4-Dichlorobenzene	1.6054 1.4113	1.5675 1.3669	1.4816	1.3825	1.3984	Ave		1.4591			6.5		15.0				
n-Butylbenzene	1.8944 2.1259	2.0232 2.0712	2.1091	2.0276	2.0953	Ave		2.0495			3.8		15.0				
1,2-Dichlorobenzene	1.3437 1.2534	1.3687 1.2318	1.3105	1.2348	1.2330	Ave		1.2823			4.5		15.0				
1,2-Dibromo-3-Chloropropane	0.2630 0.2491	0.2219 0.2547	0.2430	0.2371	0.2465	Ave		0.2450			5.4		15.0				
1,2,4-Trichlorobenzene	0.9409 0.8412	0.9494 0.8737	0.8099	0.7792	0.7909	Ave		0.8550			8.1		15.0				
Hexachlorobutadiene	0.4751 0.4459	0.4859 0.4196	0.4201	0.4076	0.4202	Ave		0.4392			7.0		15.0				
Naphthalene	++++ 2.4081	2.5248 2.5673	2.2519	2.1428	2.2829	Ave		2.3630			7.0		15.0				
1,2,3-Trichlorobenzene	0.7893 0.7724	0.8277 0.8517	0.7383	0.6846	0.7103	Ave		0.7677			7.9		15.0				
Dibromofluoromethane (Surr)	0.2950 0.2630	0.2820 0.2531	0.2707	0.2587	0.2619	Ave		0.2692			5.5		15.0				
1,2-Dichloroethane-d4 (Surr)	0.3515 0.2903	0.3408 0.2779	0.3137	0.2940	0.2963	Ave		0.3092			8.9		15.0				
Toluene-d8 (Surr)	1.2799 1.1805	1.2018 1.1653	1.2236	1.1594	1.1844	Ave		1.1993			3.5		15.0				
4-Bromofluorobenzene (Surr)	0.5295 0.4325	0.4716 0.4172	0.4467	0.4309	0.4307	Ave		0.4513			8.5		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 342718

SDG No.: _____

Instrument ID: A3UX19 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/27/2018 17:09 Calibration End Date: 08/27/2018 19:23 Calibration ID: 46686

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD8260 240-342718/13	U1901329.d
Level 2	STD8260 240-342718/12	U1901328.d
Level 3	STD8260 240-342718/11	U1901327.d
Level 4	ICIS 240-342718/10	U1901326.d
Level 5	STD8260 240-342718/9	U1901325.d
Level 6	STD8260 240-342718/8	U1901324.d
Level 7	STD8260 240-342718/7	U1901323.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
Dichlorodifluoromethane	FB	Ave	7625 1180992	18328 1552738	186223	366772	792590	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Chloromethane	FB	Ave	8152 829233	12972 1059365	134420	267203	546909	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Butadiene	FB	Ave	6713 847603	14115 1086231	141609	275330	552757	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Vinyl chloride	FB	Ave	6564 881108	14250 1135494	148037	286894	589426	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Bromomethane	FB	Ave	5934 669257	11360 864872	111689	219651	442826	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Chloroethane	FB	Ave	4812 533953	8387 696179	89838	172968	353502	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Dichlorofluoromethane	FB	Ave	11593 1308784	21694 1694878	223205	434465	878380	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Trichlorofluoromethane	FB	Ave	11587 1458414	23241 1894654	244417	483006	978643	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Ethyl ether	FB	Ave	4060 521372	9015 676475	88252	172224	350377	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Acrolein	FB	Ave	5804 622965	10600 846753	100203	220720	417769	2.50 300	5.00 400	50.0	100	200
1,1-Dichloroethene	FB	Ave	8152 1061526	16498 1382045	177882	348307	706289	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,1,2-Trichloro-1,2,2-trifluoroethane	FB	Ave	5847 770733	11240 1005400	126531	249289	512861	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Acetone	FB	Ave	++++ 433055	8941 564923	73077	146204	298968	++++ 120	2.00 160	20.0	40.0	80.0
Iodomethane	FB	Ave	11424 1332936	22471 1743886	225726	444884	888035	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Carbon disulfide	FB	Ave	20511 2078244	39223 2698750	351356	683722	1372316	0.500 60.0	1.00 80.0	10.0	20.0	40.0

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 342718

SDG No.: _____

Instrument ID: A3UX19 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/27/2018 17:09 Calibration End Date: 08/27/2018 19:23 Calibration ID: 46686

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
3-Chloro-1-propene	FB	Ave	8759 1011692	18227 1304832	171118	326833	662138	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Methyl acetate	FB	Ave	12374 1276471	22480 1658043	228841	440913	886871	1.00 120	2.00 160	20.0	40.0	80.0
Methylene Chloride	FB	Ave	++++ 797526	15126 1035294	139613	271471	534613	++++ 60.0	1.00 80.0	10.0	20.0	40.0
2-Methyl-2-propanol	FB	Ave	7089 709594	13140 963916	135517	252801	542388	5.00 600	10.0 800	100	200	400
Acrylonitrile	FB	Ave	23600 2849701	49680 3654042	514757	950386	1951040	5.00 600	10.0 800	100	200	400
trans-1,2-Dichloroethene	FB	Ave	8368 967924	16818 1235776	167419	317885	639131	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Methyl tert-butyl ether	FB	Ave	15146 2079947	33109 2755910	342568	653045	1349603	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Hexane	FB	Ave	7709 1056328	15276 1419117	174299	347875	704185	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,1-Dichloroethane	FB	Ave	9092 1192355	19673 1533220	199597	387941	790957	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Vinyl acetate	FB	Ave	10910 1321142	21765 1777280	231586	445770	903595	0.500 60.0	1.00 80.0	10.0	20.0	40.0
cis-1,2-Dichloroethene	FB	Ave	7168 831715	14212 1069027	140685	272438	545012	0.500 60.0	1.00 80.0	10.0	20.0	40.0
2,2-Dichloropropane	FB	Ave	5791 725393	11860 944363	116583	212094	491954	0.500 60.0	1.00 80.0	10.0	20.0	40.0
2-Butanone (MEK)	FB	Ave	2283 257675	4567 358198	48290	88909	181887	1.00 120	2.00 160	20.0	40.0	80.0
Chlorobromomethane	FB	Ave	5503 530825	10266 658069	94139	175479	350082	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Tetrahydrofuran	FB	Lin1	++++ 566965	20056 753652	114720	199816	405539	++++ 120	2.00 160	20.0	40.0	80.0
Chloroform	FB	Ave	10169 1282514	21044 1662428	224371	427697	863672	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,1,1-Trichloroethane	FB	Ave	8767 1245609	19503 1637723	211997	398309	836381	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Cyclohexane	FB	Ave	8206 1159393	16696 1531667	188221	372006	776128	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,1-Dichloropropene	FB	Ave	7998 1033663	16667 1344377	174842	337392	687882	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Carbon tetrachloride	FB	Ave	8954 1199313	17959 1583649	201366	384700	807965	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Isobutyl alcohol	FB	Ave	7140 731439	14010 985172	127213	263438	540692	12.5 1500	25.0 2000	250	500	1000

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 342718

SDG No.: _____

Instrument ID: A3UX19 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/27/2018 17:09 Calibration End Date: 08/27/2018 19:23 Calibration ID: 46686

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
Benzene	FB	Ave	21738 2748682	45349 3599104	482300	917150	1843426	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,2-Dichloroethane	FB	Ave	8896 1002994	18266 1294416	178638	341638	680627	0.500 60.0	1.00 80.0	10.0	20.0	40.0
n-Heptane	FB	Lin1	++++ 573367	39021 734621	123554	210893	401639	++++ 60.0	1.00 80.0	10.0	20.0	40.0
Trichloroethene	FB	Ave	7819 909646	14636 1193487	156409	299123	608172	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Methylcyclohexane	FB	Ave	10042 1399000	20268 1805108	225444	445411	929492	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,2-Dichloropropane	FB	Ave	5092 634222	10172 831616	112735	214790	433884	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Dibromomethane	FB	Ave	5652 638964	11437 828119	111478	213090	428543	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,4-Dioxane	FB	Lin1	++++ 147508	1560 204613	20257	50489	108387	++++ 1200	20.0 1600	200	400	800
Dichlorobromomethane	FB	Ave	7972 997303	17242 1298324	172767	336655	670319	0.500 60.0	1.00 80.0	10.0	20.0	40.0
2-Chloroethyl vinyl ether	FB	Ave	7473 1009556	15714 1404589	185460	353595	710198	1.00 120	2.00 160	20.0	40.0	80.0
cis-1,3-Dichloropropene	FB	Ave	8778 1113655	18371 1486992	192411	372198	757475	0.500 60.0	1.00 80.0	10.0	20.0	40.0
4-Methyl-2-pentanone (MIBK)	FB	Ave	14774 1776570	29549 2416341	332777	627983	1267570	1.00 120	2.00 160	20.0	40.0	80.0
Toluene	CBNZ d5	Ave	25413 3039879	50838 4036837	544474	1040131	2085055	0.500 60.0	1.00 80.0	10.0	20.0	40.0
trans-1,3-Dichloropropene	CBNZ d5	Ave	9232 1076004	18668 1466824	187797	363416	737016	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Ethyl methacrylate	CBNZ d5	Ave	7062 1006534	14839 1404401	177753	349427	711262	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,1,2-Trichloroethane	CBNZ d5	Ave	5186 644677	10462 861140	115489	219105	445968	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Tetrachloroethene	CBNZ d5	Ave	7818 999011	15556 1317893	175104	332664	675866	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,3-Dichloropropane	CBNZ d5	Ave	9211 1078694	17554 1456758	194537	366944	737142	0.500 60.0	1.00 80.0	10.0	20.0	40.0
2-Hexanone	CBNZ d5	Ave	10272 1411899	22402 1965782	267096	508487	1016835	1.00 120	2.00 160	20.0	40.0	80.0
Chlorodibromomethane	CBNZ d5	Ave	6108 836499	12969 1113195	145120	282195	568645	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Ethylene Dibromide	CBNZ d5	Ave	6962 733806	12317 982631	132926	257341	500324	0.500 60.0	1.00 80.0	10.0	20.0	40.0

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 342718

SDG No.: _____

Instrument ID: A3UX19 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/27/2018 17:09 Calibration End Date: 08/27/2018 19:23 Calibration ID: 46686

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
Chlorobenzene	CBNZ d5	Ave	17303 2067581	36469 2721351	370702	704913	1418747	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,1,1,2-Tetrachloroethane	CBNZ d5	Ave	5956 771705	12290 1012040	135561	257026	524311	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Ethylbenzene	CBNZ d5	Ave	8431 1118678	17209 1476959	200390	380861	765441	0.500 60.0	1.00 80.0	10.0	20.0	40.0
m-Xylene & p-Xylene	CBNZ d5	Ave	10542 1365436	20530 1814431	238543	466651	934583	0.500 60.0	1.00 80.0	10.0	20.0	40.0
o-Xylene	CBNZ d5	Ave	9580 1302937	20689 1703380	225509	441487	890297	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Styrene	CBNZ d5	Ave	16463 2244503	33591 2970527	391834	759556	1534422	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Bromoform	CBNZ d5	Ave	5340 669771	10783 909465	117306	222929	462320	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Isopropylbenzene	CBNZ d5	Ave	25288 3527221	55346 4561888	613985	1179370	2399226	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,1,2,2-Tetrachloroethane	DCBd 4	Ave	7218 951258	16261 1271933	172140	328526	660294	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Bromobenzene	DCBd 4	Ave	7663 946835	16361 1240722	169316	324573	647055	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,2,3-Trichloropropane	DCBd 4	Ave	2842 355186	5997 478494	66218	124262	250203	0.500 60.0	1.00 80.0	10.0	20.0	40.0
trans-1,4-Dichloro-2-butene	DCBd 4	Ave	++++ 330637	5707 456736	60466	114842	228469	++++ 60.0	1.00 80.0	10.0	20.0	40.0
N-Propylbenzene	DCBd 4	Ave	7103 988262	15476 1290307	171938	332244	674293	0.500 60.0	1.00 80.0	10.0	20.0	40.0
2-Chlorotoluene	DCBd 4	Ave	6213 834423	12831 1080636	147510	281753	562614	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,3,5-Trimethylbenzene	DCBd 4	Ave	21381 2836427	43584 3682951	499875	945225	1929863	0.500 60.0	1.00 80.0	10.0	20.0	40.0
4-Chlorotoluene	DCBd 4	Ave	7405 873575	14345 1135643	155656	302046	588358	0.500 60.0	1.00 80.0	10.0	20.0	40.0
tert-Butylbenzene	DCBd 4	Ave	19348 2731529	41850 3487952	474813	904165	1854784	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,2,4-Trimethylbenzene	DCBd 4	Ave	21277 2851175	46663 3713592	495166	965487	1949684	0.500 60.0	1.00 80.0	10.0	20.0	40.0
sec-Butylbenzene	DCBd 4	Ave	26267 3724288	55760 4762339	624437	1216655	2501406	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,3-Dichlorobenzene	DCBd 4	Ave	14989 1726981	31057 2223773	299776	589299	1165661	0.500 60.0	1.00 80.0	10.0	20.0	40.0
4-Isopropyltoluene	DCBd 4	Ave	23262 3219084	49391 4210777	543873	1061108	2177763	0.500 60.0	1.00 80.0	10.0	20.0	40.0

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 342718

SDG No.: _____

Instrument ID: A3UX19 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/27/2018 17:09 Calibration End Date: 08/27/2018 19:23 Calibration ID: 46686

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
1,4-Dichlorobenzene	DCBd 4	Ave	16269 1749380	32379 2269476	308743	595729	1194426	0.500 60.0	1.00 80.0	10.0	20.0	40.0
n-Butylbenzene	DCBd 4	Ave	19197 2635155	41792 3438646	439518	873706	1789693	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,2-Dichlorobenzene	DCBd 4	Ave	13617 1553579	28272 2045057	273092	532075	1053180	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,2-Dibromo-3-Chloropropane	DCBd 4	Ave	2665 308798	4583 422865	50642	102189	210526	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,2,4-Trichlorobenzene	DCBd 4	Ave	9535 1042664	19612 1450610	168774	335760	675526	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Hexachlorobutadiene	DCBd 4	Ave	4814 552719	10037 696652	87534	175651	358938	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Naphthalene	DCBd 4	Ave	++++ 2984863	52154 4262332	469280	923339	1949946	++++ 60.0	1.00 80.0	10.0	20.0	40.0
1,2,3-Trichlorobenzene	DCBd 4	Ave	7998 957428	17097 1414051	153843	295011	606712	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Dibromofluoromethane (Surr)	FB	Ave	6919 762443	13395 972724	129168	251584	512374	0.500 60.0	1.00 80.0	10.0	20.0	40.0
1,2-Dichloroethane-d4 (Surr)	FB	Ave	8242 841615	16187 1067780	149716	285917	579615	0.500 60.0	1.00 80.0	10.0	20.0	40.0
Toluene-d8 (Surr)	CBNZ d5	Ave	23636 2695636	44577 3557725	475254	907923	1855495	0.500 60.0	1.00 80.0	10.0	20.0	40.0
4-Bromofluorobenzene (Surr)	CBNZ d5	Ave	9778 987516	17494 1273707	173480	337411	674745	0.500 60.0	1.00 80.0	10.0	20.0	40.0

Curve Type Legend:

Ave = Average ISTD
Lin1 = Linear 1/conc ISTD

TestAmerica Canton
Target Compound Quantitation Report

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901323.d
 Lims ID: std8260 L7
 Client ID:
 Sample Type: IC Calib Level: 7
 Inject. Date: 27-Aug-2018 17:09:10 ALS Bottle#: 0 Worklist Smp#: 7
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: 240-0079307-003
 Operator ID: 001904 Instrument ID: A3UX19
 Sublist: chrom-8260_19*sub1
 Method: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\8260_19.m
 Limit Group: MSV 8260B ICAL
 Last Update: 27-Aug-2018 21:27:48 Calib Date: 27-Aug-2018 19:23:28
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901329.d
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: XAWRK010

First Level Reviewer: laveyt

Date: 27-Aug-2018 17:37:20

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.654	5.654	0.000	92	960659	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.500	8.500	0.000	82	763247	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.883	10.883	0.000	68	415062	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr	111	5.049	5.049	0.000	63	972724	80.0	75.2	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	5.345	5.345	0.000	100	1067780	80.0	71.9	
\$ 6 Toluene-d8 (Surr)	98	7.100	7.101	0.000	93	3557725	80.0	77.7	
\$ 7 4-Bromofluorobenzene (Surr	95	9.674	9.674	0.000	90	1273707	80.0	74.0	
9 Dichlorodifluoromethane	85	1.598	1.610	-0.012	88	1552738	80.0	84.0	
10 Chloromethane	50	1.811	1.812	-0.001	78	1059365	80.0	76.5	
12 Butadiene	54	1.894	1.906	-0.012	89	1086231	80.0	78.3	
11 Vinyl chloride	62	1.918	1.918	0.000	82	1135494	80.0	79.3	
13 Bromomethane	94	2.215	2.227	-0.013	84	864872	80.0	77.1	
14 Chloroethane	64	2.286	2.298	-0.012	86	696179	80.0	78.4	
15 Dichlorofluoromethane	67	2.499	2.499	0.000	83	1694878	80.0	77.0	
16 Trichlorofluoromethane	101	2.570	2.582	-0.012	87	1894654	80.0	79.1	
17 Ethyl ether	59	2.807	2.808	-0.001	88	676475	80.0	78.2	
18 Acrolein	56	2.926	2.926	0.000	91	846753	400.0	396.4	
21 1,1-Dichloroethene	61	3.033	3.045	-0.012	90	1382045	80.0	80.2	
20 1,1,2-Trichloro-1,2,2-trif	101	3.045	3.057	-0.012	78	1005400	80.0	81.5	
22 Acetone	43	3.068	3.069	-0.001	79	564923	160.0	150.0	
23 Iodomethane	142	3.187	3.199	-0.012	99	1743886	80.0	78.0	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
24 Carbon disulfide	76	3.258	3.258	0.000	89	2698750	80.0	74.8	
26 3-Chloro-1-propene	41	3.353	3.365	-0.012	81	1304832	80.0	76.7	
27 Methyl acetate	43	3.377	3.377	0.000	96	1658043	160.0	148.3	
28 Methylene Chloride	49	3.483	3.495	-0.012	52	1035294	80.0	75.7	
29 2-Methyl-2-propanol	59	3.578	3.567	0.011	69	963916	800.0	741.0	
30 Acrylonitrile	53	3.685	3.685	0.000	98	3654042	800.0	756.5	
32 trans-1,2-Dichloroethene	61	3.721	3.721	0.000	79	1235776	80.0	76.0	
31 Methyl tert-butyl ether	73	3.732	3.733	-0.001	89	2755910	80.0	82.7	
33 Hexane	57	3.970	3.982	-0.012	93	1419117	80.0	83.8	
34 1,1-Dichloroethane	63	4.100	4.112	-0.012	85	1533220	80.0	78.9	
35 Vinyl acetate	43	4.147	4.148	-0.001	97	1777280	80.0	79.8	
40 cis-1,2-Dichloroethene	96	4.622	4.622	0.000	63	1069027	80.0	77.0	
39 2,2-Dichloropropane	77	4.634	4.634	0.000	66	944363	80.0	80.7	
41 2-Butanone (MEK)	72	4.634	4.634	0.000	96	358198	160.0	157.9	
45 Chlorobromomethane	49	4.835	4.836	-0.001	81	658069	80.0	70.4	
46 Tetrahydrofuran	42	4.883	4.883	0.000	83	753652	160.0	158.3	
47 Chloroform	83	4.906	4.907	-0.001	70	1662428	80.0	78.1	
48 1,1,1-Trichloroethane	97	5.084	5.085	-0.001	91	1637723	80.0	81.7	
49 Cyclohexane	84	5.144	5.144	0.000	75	1531667	80.0	83.5	
50 1,1-Dichloropropene	75	5.227	5.227	0.000	89	1344377	80.0	79.5	
51 Carbon tetrachloride	117	5.238	5.239	-0.001	71	1583649	80.0	82.0	
52 Isobutyl alcohol	41	5.298	5.298	0.000	88	985172	2000.0	1867.6	
53 Benzene	78	5.404	5.417	-0.013	95	3599104	80.0	78.7	
54 1,2-Dichloroethane	62	5.416	5.417	-0.001	51	1294416	80.0	74.9	
56 n-Heptane	57	5.642	5.642	0.000	86	734621	80.0	78.7	
58 Trichloroethene	130	5.986	5.986	0.000	88	1193487	80.0	78.6	
60 Methylcyclohexane	83	6.175	6.176	-0.001	89	1805108	80.0	81.9	
61 1,2-Dichloropropane	63	6.187	6.187	0.000	81	831616	80.0	78.4	
63 Dibromomethane	174	6.294	6.294	0.000	85	828119	80.0	75.9	
64 1,4-Dioxane	88	6.306	6.306	0.000	33	204613	1600.0	1617.8	
65 Dichlorobromomethane	83	6.424	6.436	-0.012	93	1298324	80.0	77.7	
67 2-Chloroethyl vinyl ether	63	6.697	6.697	0.000	92	1404589	160.0	165.2	
68 cis-1,3-Dichloropropene	75	6.839	6.840	-0.001	91	1486992	80.0	80.1	
69 4-Methyl-2-pentanone (MIBK)	43	6.982	6.982	0.000	83	2416341	160.0	157.0	
70 Toluene	91	7.171	7.172	-0.001	94	4036837	80.0	78.3	
71 trans-1,3-Dichloropropene	75	7.361	7.361	0.000	83	1466824	80.0	79.8	
72 Ethyl methacrylate	69	7.432	7.433	-0.001	87	1404401	80.0	84.7	
74 1,1,2-Trichloroethane	97	7.539	7.539	0.000	84	861140	80.0	79.4	
75 Tetrachloroethene	166	7.693	7.693	0.000	93	1317893	80.0	80.1	
76 1,3-Dichloropropane	76	7.705	7.705	0.000	89	1456758	80.0	79.5	
77 2-Hexanone	43	7.764	7.765	-0.001	79	1965782	160.0	163.6	
79 Chlorodibromomethane	129	7.930	7.919	0.011	87	1113195	80.0	81.4	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
80 Ethylene Dibromide	107	8.049	8.049	0.000	98	982631	80.0	76.9	
82 Chlorobenzene	112	8.523	8.524	-0.001	92	2721351	80.0	77.1	
83 1,1,1,2-Tetrachloroethane	131	8.606	8.607	-0.001	88	1012040	80.0	79.5	
84 Ethylbenzene	106	8.630	8.630	0.000	98	1476959	80.0	80.0	
85 m-Xylene & p-Xylene	106	8.749	8.749	0.000	99	1814431	80.0	80.7	
86 o-Xylene	106	9.152	9.152	0.000	87	1703380	80.0	79.8	
87 Styrene	104	9.164	9.164	0.000	93	2970527	80.0	81.2	
88 Bromoform	173	9.353	9.354	-0.001	98	909465	80.0	81.3	
89 Isopropylbenzene	105	9.519	9.520	-0.001	95	4561888	80.0	79.6	
91 1,1,2,2-Tetrachloroethane	83	9.816	9.816	0.000	84	1271933	80.0	79.5	
92 Bromobenzene	156	9.840	9.840	0.000	81	1240722	80.0	77.7	
93 1,2,3-Trichloropropane	110	9.863	9.864	-0.001	65	478494	80.0	78.9	
94 trans-1,4-Dichloro-2-buten	53	9.875	9.875	0.000	62	456736	80.0	80.4	
95 N-Propylbenzene	120	9.946	9.947	-0.001	92	1290307	80.0	80.4	
96 2-Chlorotoluene	126	10.041	10.041	0.000	97	1080636	80.0	79.6	
97 1,3,5-Trimethylbenzene	105	10.124	10.124	0.000	93	3682951	80.0	79.7	
98 4-Chlorotoluene	126	10.148	10.148	0.000	98	1135643	80.0	77.4	
99 tert-Butylbenzene	119	10.468	10.468	0.000	77	3487952	80.0	79.6	
101 1,2,4-Trimethylbenzene	105	10.516	10.516	0.000	71	3713592	80.0	79.3	
102 sec-Butylbenzene	105	10.693	10.694	-0.001	94	4762339	80.0	80.7	
103 1,3-Dichlorobenzene	146	10.824	10.812	0.012	95	2223773	80.0	75.9	
104 4-Isopropyltoluene	119	10.848	10.848	0.000	90	4210777	80.0	81.4	
105 1,4-Dichlorobenzene	146	10.907	10.907	0.000	94	2269476	80.0	74.9	
108 n-Butylbenzene	91	11.286	11.287	-0.001	96	3438646	80.0	80.8	
109 1,2-Dichlorobenzene	146	11.310	11.298	0.012	98	2045057	80.0	76.9	
110 1,2-Dibromo-3-Chloropropan	157	12.128	12.129	-0.001	92	422865	80.0	83.2	
112 1,2,4-Trichlorobenzene	180	13.018	13.018	0.000	93	1450610	80.0	81.7	
113 Hexachlorobutadiene	225	13.207	13.208	-0.001	88	696652	80.0	76.4	
114 Naphthalene	128	13.279	13.279	0.000	97	4262332	80.0	86.9	
115 1,2,3-Trichlorobenzene	180	13.540	13.540	0.000	94	1414051	80.0	88.7	
S 127 Trihalomethanes, Total	1				0		320.0	318.4	
S 164 Total BTEX	1				0		400.0	397.5	
S 124 1,2-Dichloroethene, Total	96				0			153.0	
S 125 1,3-Dichloropropene, Total	75				0			159.9	
S 126 Xylenes, Total	106				0		160.0	160.5	

Reagents:

vm50is_stk_A_00001	Amount Added: 2.00	Units: uL
vmrgas_00259	Amount Added: 64.00	Units: uL
vmarolistdw_00260	Amount Added: 64.00	Units: uL
vmrprimw_00297	Amount Added: 64.00	Units: uL
vm50ss_00333	Amount Added: 64.00	Units: uL

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901323.d

Injection Date: 27-Aug-2018 17:09:10

Instrument ID: A3UX19

Operator ID: 001904

Lims ID: std8260 L7

Worklist Smp#: 7

Client ID:

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

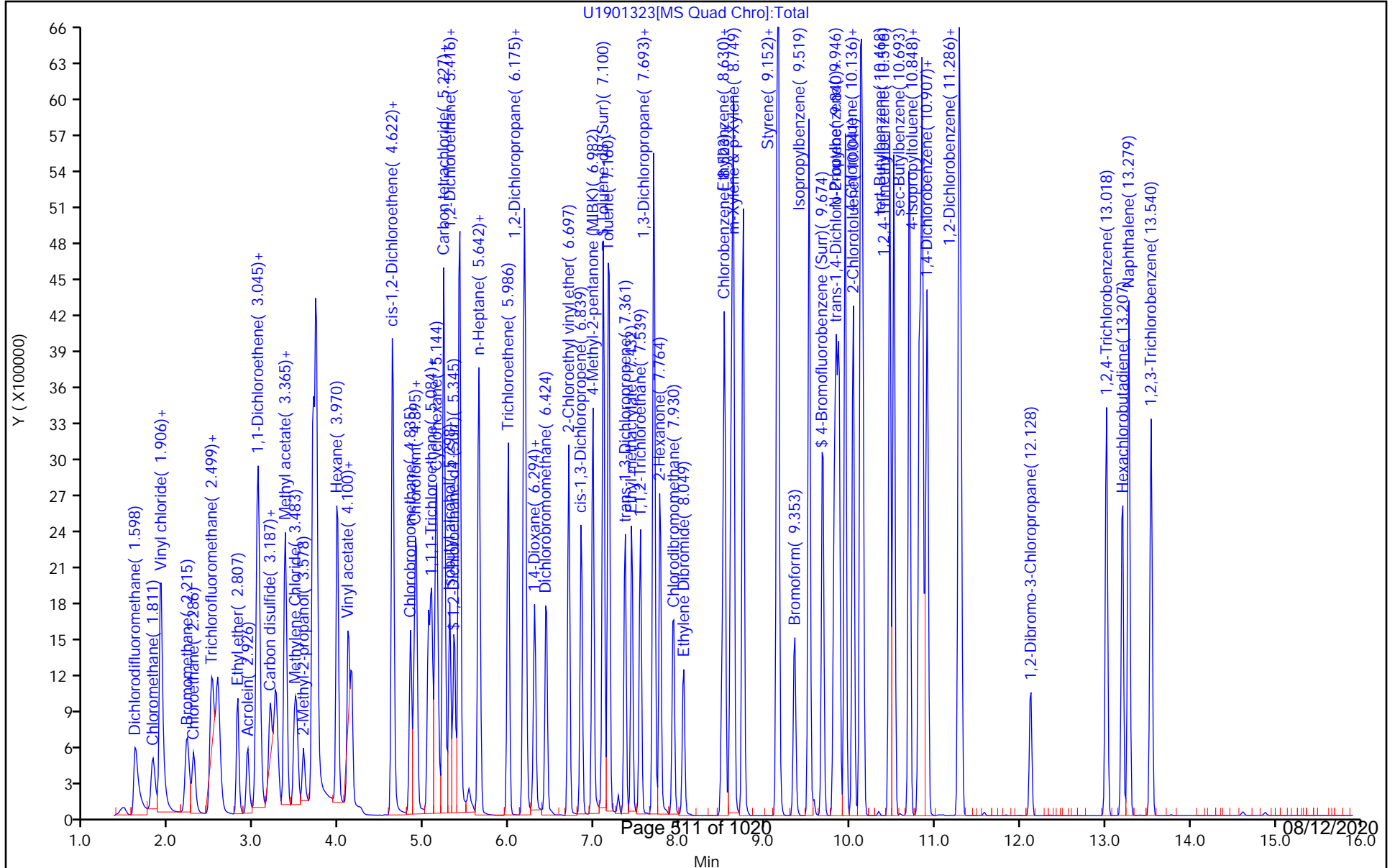
ALS Bottle#: 0

Method: 8260_19

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



TestAmerica Canton
Target Compound Quantitation Report

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901324.d
 Lims ID: std8260 L6
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 27-Aug-2018 17:31:36 ALS Bottle#: 0 Worklist Smp#: 8
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: 240-0079307-004
 Operator ID: 001904 Instrument ID: A3UX19
 Sublist: chrom-8260_19*sub1
 Method: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\8260_19.m
 Limit Group: MSV 8260B ICAL
 Last Update: 27-Aug-2018 21:27:54 Calib Date: 27-Aug-2018 19:23:28
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901329.d
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: XAWRK010

First Level Reviewer: laveyt

Date: 27-Aug-2018 18:08:38

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.654	5.654	0.000	92	966455	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.500	8.500	0.000	83	761160	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.883	10.883	0.000	74	413175	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr	111	5.049	5.049	0.000	59	762443	60.0	58.6	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	5.357	5.345	0.012	99	841615	60.0	56.3	
\$ 6 Toluene-d8 (Surr)	98	7.100	7.101	0.000	86	2695636	60.0	59.1	
\$ 7 4-Bromofluorobenzene (Surr	95	9.674	9.674	0.000	90	987516	60.0	57.5	
9 Dichlorodifluoromethane	85	1.610	1.610	0.000	80	1180992	60.0	63.5	
10 Chloromethane	50	1.823	1.812	0.011	77	829233	60.0	59.5	
12 Butadiene	54	1.906	1.906	0.000	88	847603	60.0	60.8	
11 Vinyl chloride	62	1.930	1.918	0.012	81	881108	60.0	61.2	
13 Bromomethane	94	2.226	2.227	-0.001	89	669257	60.0	59.3	
14 Chloroethane	64	2.298	2.298	0.000	94	533953	60.0	59.8	
15 Dichlorofluoromethane	67	2.511	2.499	0.012	82	1308784	60.0	59.1	
16 Trichlorofluoromethane	101	2.582	2.582	0.000	88	1458414	60.0	60.6	
17 Ethyl ether	59	2.807	2.808	-0.001	90	521372	60.0	59.9	
18 Acrolein	56	2.926	2.926	0.000	95	622965	300.0	289.9	
21 1,1-Dichloroethene	61	3.045	3.045	0.000	89	1061526	60.0	61.2	
20 1,1,2-Trichloro-1,2,2-trif	101	3.057	3.057	0.000	79	770733	60.0	62.1	
22 Acetone	43	3.068	3.069	-0.001	64	433055	120.0	114.3	
23 Iodomethane	142	3.199	3.199	0.000	99	1332936	60.0	59.3	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
24 Carbon disulfide	76	3.258	3.258	0.000	99	2078244	60.0	57.2	
26 3-Chloro-1-propene	41	3.365	3.365	0.000	74	1011692	60.0	59.1	
27 Methyl acetate	43	3.377	3.377	0.000	96	1276471	120.0	113.5	
28 Methylene Chloride	49	3.483	3.495	-0.012	53	797526	60.0	58.0	
29 2-Methyl-2-propanol	59	3.578	3.567	0.011	86	709594	600.0	542.2	
30 Acrylonitrile	53	3.697	3.685	0.012	98	2849701	600.0	586.4	
32 trans-1,2-Dichloroethene	61	3.732	3.721	0.011	69	967924	60.0	59.1	
31 Methyl tert-butyl ether	73	3.732	3.733	-0.001	89	2079947	60.0	62.0	
33 Hexane	57	3.982	3.982	0.000	89	1056328	60.0	62.0	
34 1,1-Dichloroethane	63	4.112	4.112	0.000	85	1192355	60.0	61.0	
35 Vinyl acetate	43	4.148	4.148	0.000	97	1321142	60.0	58.9	
40 cis-1,2-Dichloroethene	96	4.622	4.622	0.000	63	831715	60.0	59.5	
41 2-Butanone (MEK)	72	4.634	4.634	0.000	90	257675	120.0	112.9	
39 2,2-Dichloropropane	77	4.634	4.634	0.000	62	725393	60.0	61.6	
45 Chlorobromomethane	49	4.835	4.836	-0.001	68	530825	60.0	56.5	
46 Tetrahydrofuran	42	4.883	4.883	0.000	85	566965	120.0	117.7	
47 Chloroform	83	4.906	4.907	-0.001	70	1282514	60.0	59.9	
48 1,1,1-Trichloroethane	97	5.084	5.085	-0.001	89	1245609	60.0	61.8	
49 Cyclohexane	84	5.144	5.144	0.000	85	1159393	60.0	62.8	
50 1,1-Dichloropropene	75	5.227	5.227	0.000	91	1033663	60.0	60.8	
51 Carbon tetrachloride	117	5.239	5.239	0.000	70	1199313	60.0	61.7	
52 Isobutyl alcohol	41	5.298	5.298	0.000	82	731439	1500.0	1378.3	
54 1,2-Dichloroethane	62	5.416	5.417	-0.001	49	1002994	60.0	57.7	
53 Benzene	78	5.416	5.417	-0.001	94	2748682	60.0	59.8	
56 n-Heptane	57	5.642	5.642	0.000	87	573367	60.0	60.3	
58 Trichloroethene	130	5.986	5.986	0.000	93	909646	60.0	59.6	
60 Methylcyclohexane	83	6.175	6.176	-0.001	89	1399000	60.0	63.1	
61 1,2-Dichloropropane	63	6.187	6.187	0.000	79	634222	60.0	59.5	
63 Dibromomethane	174	6.294	6.294	0.000	86	638964	60.0	58.2	
64 1,4-Dioxane	88	6.306	6.306	0.000	32	147508	1200.0	1162.0	
65 Dichlorobromomethane	83	6.436	6.436	0.000	94	997303	60.0	59.3	
67 2-Chloroethyl vinyl ether	63	6.697	6.697	0.000	92	1009556	120.0	118.0	
68 cis-1,3-Dichloropropene	75	6.839	6.840	-0.001	93	1113655	60.0	59.6	
69 4-Methyl-2-pentanone (MIBK)	43	6.982	6.982	0.000	82	1776570	120.0	114.8	
70 Toluene	91	7.171	7.172	-0.001	94	3039879	60.0	59.1	
71 trans-1,3-Dichloropropene	75	7.361	7.361	0.000	87	1076004	60.0	58.7	
72 Ethyl methacrylate	69	7.432	7.433	-0.001	88	1006534	60.0	60.9	
74 1,1,2-Trichloroethane	97	7.539	7.539	0.000	84	644677	60.0	59.6	
75 Tetrachloroethene	166	7.693	7.693	0.000	93	999011	60.0	60.9	
76 1,3-Dichloropropane	76	7.705	7.705	0.000	89	1078694	60.0	59.0	
77 2-Hexanone	43	7.764	7.765	-0.001	79	1411899	120.0	117.8	
79 Chlorodibromomethane	129	7.930	7.919	0.011	87	836499	60.0	61.3	

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901324.d

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
80 Ethylene Dibromide	107	8.049	8.049	0.000	99	733806	60.0	57.6	
82 Chlorobenzene	112	8.523	8.524	-0.001	95	2067581	60.0	58.7	
83 1,1,1,2-Tetrachloroethane	131	8.606	8.607	-0.001	88	771705	60.0	60.8	
84 Ethylbenzene	106	8.630	8.630	0.000	98	1118678	60.0	60.8	
85 m-Xylene & p-Xylene	106	8.749	8.749	0.000	99	1365436	60.0	60.9	
86 o-Xylene	106	9.152	9.152	0.000	87	1302937	60.0	61.2	
87 Styrene	104	9.152	9.164	-0.012	88	2244503	60.0	61.5	
88 Bromoform	173	9.353	9.354	-0.001	98	669771	60.0	60.0	
89 Isopropylbenzene	105	9.519	9.520	-0.001	95	3527221	60.0	61.7	
91 1,1,2,2-Tetrachloroethane	83	9.816	9.816	0.000	84	951258	60.0	59.8	
92 Bromobenzene	156	9.840	9.840	0.000	87	946835	60.0	59.6	
93 1,2,3-Trichloropropane	110	9.863	9.864	-0.001	63	355186	60.0	58.9	
94 trans-1,4-Dichloro-2-buten	53	9.875	9.875	0.000	61	330637	60.0	58.5	
95 N-Propylbenzene	120	9.946	9.947	-0.001	91	988262	60.0	61.9	
96 2-Chlorotoluene	126	10.041	10.041	0.000	97	834423	60.0	61.7	
97 1,3,5-Trimethylbenzene	105	10.124	10.124	0.000	93	2836427	60.0	61.7	
98 4-Chlorotoluene	126	10.148	10.148	0.000	98	873575	60.0	59.8	
99 tert-Butylbenzene	119	10.468	10.468	0.000	77	2731529	60.0	62.6	
101 1,2,4-Trimethylbenzene	105	10.516	10.516	0.000	70	2851175	60.0	61.2	
102 sec-Butylbenzene	105	10.693	10.694	-0.001	94	3724288	60.0	63.4	
103 1,3-Dichlorobenzene	146	10.812	10.812	0.000	90	1726981	60.0	59.2	
104 4-Isopropyltoluene	119	10.848	10.848	0.000	90	3219084	60.0	62.5	
105 1,4-Dichlorobenzene	146	10.907	10.907	0.000	94	1749380	60.0	58.0	
108 n-Butylbenzene	91	11.275	11.287	-0.012	98	2635155	60.0	62.2	
109 1,2-Dichlorobenzene	146	11.298	11.298	0.000	97	1553579	60.0	58.6	
110 1,2-Dibromo-3-Chloropropan	157	12.128	12.129	-0.001	91	308798	60.0	61.0	
112 1,2,4-Trichlorobenzene	180	13.018	13.018	0.000	92	1042664	60.0	59.0	
113 Hexachlorobutadiene	225	13.208	13.208	0.000	88	552719	60.0	60.9	
114 Naphthalene	128	13.279	13.279	0.000	96	2984863	60.0	61.1	
115 1,2,3-Trichlorobenzene	180	13.540	13.540	0.000	94	957428	60.0	60.4	
S 164 Total BTEX	1				0		300.0	301.7	
S 127 Trihalomethanes, Total	1				0		240.0	240.5	
S 124 1,2-Dichloroethene, Total	96				0			118.7	
S 125 1,3-Dichloropropene, Total	75				0			118.3	
S 126 Xylenes, Total	106				0		120.0	122.1	

Reagents:

vm50is_stk_A_00001	Amount Added: 2.00	Units: uL
vmrgas_00259	Amount Added: 48.00	Units: uL
vmarolistdw_00260	Amount Added: 48.00	Units: uL
vmrprimw_00297	Amount Added: 48.00	Units: uL
vm50ss_00333	Amount Added: 48.00	Units: uL

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901324.d

Injection Date: 27-Aug-2018 17:31:36

Instrument ID: A3UX19

Operator ID: 001904

Lims ID: std8260 L6

Worklist Smp#: 8

Client ID:

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

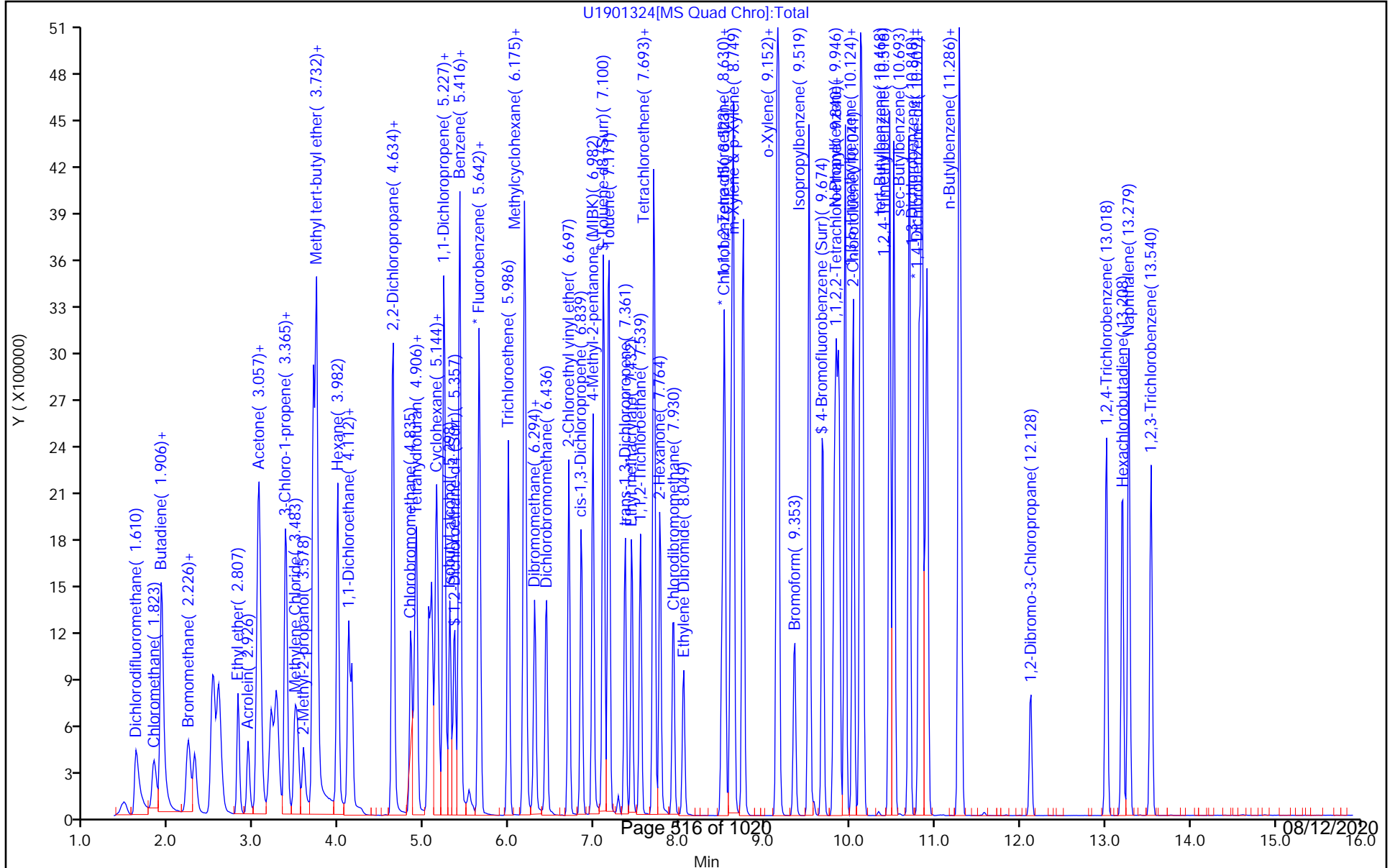
ALS Bottle#: 0

Method: 8260_19

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



TestAmerica Canton
Target Compound Quantitation Report

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901325.d
 Lims ID: std8260 L5
 Client ID:
 Sample Type: IC Calib Level: 5
 Inject. Date: 27-Aug-2018 17:53:51 ALS Bottle#: 0 Worklist Smp#: 9
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: 240-0079307-009
 Operator ID: 001904 Instrument ID: A3UX19
 Sublist: chrom-8260_19*sub1
 Method: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\8260_19.m
 Limit Group: MSV 8260B ICAL
 Last Update: 27-Aug-2018 21:28:08 Calib Date: 27-Aug-2018 19:23:28
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901329.d
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: XAWRK010

First Level Reviewer: laveyt Date: 27-Aug-2018 18:49:15

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.654	5.654	0.000	95	978140	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.500	8.500	0.000	82	783329	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.883	10.883	0.000	75	427081	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr	111	5.049	5.049	0.000	60	512374	40.0	38.9	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	5.345	5.345	0.000	100	579615	40.0	38.3	
\$ 6 Toluene-d8 (Surr)	98	7.101	7.101	0.000	86	1855495	40.0	39.5	
\$ 7 4-Bromofluorobenzene (Surr	95	9.674	9.674	0.000	89	674745	40.0	38.2	
9 Dichlorodifluoromethane	85	1.598	1.610	-0.012	88	792590	40.0	42.1	
10 Chloromethane	50	1.812	1.812	0.000	78	546909	40.0	38.8	
12 Butadiene	54	1.895	1.906	-0.011	89	552757	40.0	39.2	
11 Vinyl chloride	62	1.918	1.918	0.000	83	589426	40.0	40.4	
13 Bromomethane	94	2.215	2.227	-0.012	85	442826	40.0	38.8	
14 Chloroethane	64	2.298	2.298	0.000	82	353502	40.0	39.1	
15 Dichlorofluoromethane	67	2.499	2.499	0.000	83	878380	40.0	39.2	
16 Trichlorofluoromethane	101	2.571	2.582	-0.012	87	978643	40.0	40.2	
17 Ethyl ether	59	2.808	2.808	0.000	88	350377	40.0	39.8	
18 Acrolein	56	2.926	2.926	0.000	95	417769	200.0	192.1	
21 1,1-Dichloroethene	61	3.033	3.045	-0.012	90	706289	40.0	40.2	
20 1,1,2-Trichloro-1,2,2-trif	101	3.045	3.057	-0.012	72	512861	40.0	40.8	
22 Acetone	43	3.069	3.069	0.000	82	298968	80.0	78.0	
23 Iodomethane	142	3.187	3.199	-0.012	99	888035	40.0	39.0	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
24 Carbon disulfide	76	3.258	3.258	0.000	89	1372316	40.0	37.3	
26 3-Chloro-1-propene	41	3.353	3.365	-0.012	73	662138	40.0	38.2	
27 Methyl acetate	43	3.377	3.377	0.000	96	886871	80.0	77.9	
28 Methylene Chloride	49	3.484	3.495	-0.011	51	534613	40.0	38.4	
29 2-Methyl-2-propanol	59	3.578	3.567	0.011	69	542388	400.0	409.5	
30 Acrylonitrile	53	3.685	3.685	0.000	97	1951040	400.0	396.7	
32 trans-1,2-Dichloroethene	61	3.721	3.721	0.000	74	639131	40.0	38.6	
31 Methyl tert-butyl ether	73	3.733	3.733	0.000	87	1349603	40.0	39.8	
33 Hexane	57	3.982	3.982	0.000	92	704185	40.0	40.9	
34 1,1-Dichloroethane	63	4.100	4.112	-0.012	85	790957	40.0	40.0	
35 Vinyl acetate	43	4.148	4.148	0.000	97	903595	40.0	39.8	
40 cis-1,2-Dichloroethene	96	4.622	4.622	0.000	69	545012	40.0	38.6	
39 2,2-Dichloropropane	77	4.634	4.634	0.000	66	491954	40.0	41.3	
41 2-Butanone (MEK)	72	4.634	4.634	0.000	96	181887	80.0	78.7	
45 Chlorobromomethane	49	4.836	4.836	0.000	80	350082	40.0	36.8	
46 Tetrahydrofuran	42	4.883	4.883	0.000	84	405539	80.0	82.5	
47 Chloroform	83	4.907	4.907	0.000	68	863672	40.0	39.8	
48 1,1,1-Trichloroethane	97	5.085	5.085	0.000	90	836381	40.0	41.0	
49 Cyclohexane	84	5.144	5.144	0.000	75	776128	40.0	41.6	
50 1,1-Dichloropropene	75	5.227	5.227	0.000	89	687882	40.0	40.0	
51 Carbon tetrachloride	117	5.239	5.239	0.000	70	807965	40.0	41.1	
52 Isobutyl alcohol	41	5.298	5.298	0.000	88	540692	1000.0	1006.7	
53 Benzene	78	5.405	5.417	-0.012	95	1843426	40.0	39.6	
54 1,2-Dichloroethane	62	5.417	5.417	0.000	51	680627	40.0	38.7	
56 n-Heptane	57	5.642	5.642	0.000	84	401639	40.0	40.7	
58 Trichloroethene	130	5.986	5.986	0.000	92	608172	40.0	39.4	
60 Methylcyclohexane	83	6.176	6.176	0.000	88	929492	40.0	41.4	
61 1,2-Dichloropropane	63	6.187	6.187	0.000	80	433884	40.0	40.2	
63 Dibromomethane	174	6.294	6.294	0.000	86	428543	40.0	38.6	
64 1,4-Dioxane	88	6.306	6.306	0.000	35	108387	800.0	846.3	
65 Dichlorobromomethane	83	6.436	6.436	0.000	93	670319	40.0	39.4	
67 2-Chloroethyl vinyl ether	63	6.697	6.697	0.000	92	710198	80.0	82.0	
68 cis-1,3-Dichloropropene	75	6.840	6.840	0.000	92	757475	40.0	40.1	
69 4-Methyl-2-pentanone (MIBK)	43	6.982	6.982	0.000	82	1267570	80.0	80.9	
70 Toluene	91	7.172	7.172	0.000	95	2085055	40.0	39.4	
71 trans-1,3-Dichloropropene	75	7.361	7.361	0.000	83	737016	40.0	39.1	
72 Ethyl methacrylate	69	7.433	7.433	0.000	88	711262	40.0	41.8	
74 1,1,2-Trichloroethane	97	7.539	7.539	0.000	84	445968	40.0	40.1	
75 Tetrachloroethene	166	7.693	7.693	0.000	92	675866	40.0	40.0	
76 1,3-Dichloropropane	76	7.705	7.705	0.000	89	737142	40.0	39.2	
77 2-Hexanone	43	7.765	7.765	0.000	79	1016835	80.0	82.4	
79 Chlorodibromomethane	129	7.931	7.919	0.012	87	568645	40.0	40.5	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
80 Ethylene Dibromide	107	8.049	8.049	0.000	99	500324	40.0	38.2	
82 Chlorobenzene	112	8.524	8.524	0.000	97	1418747	40.0	39.1	
83 1,1,1,2-Tetrachloroethane	131	8.607	8.607	0.000	87	524311	40.0	40.1	
84 Ethylbenzene	106	8.630	8.630	0.000	98	765441	40.0	40.4	
85 m-Xylene & p-Xylene	106	8.749	8.749	0.000	99	934583	40.0	40.5	
86 o-Xylene	106	9.152	9.152	0.000	87	890297	40.0	40.6	
87 Styrene	104	9.164	9.164	0.000	93	1534422	40.0	40.9	
88 Bromoform	173	9.354	9.354	0.000	98	462320	40.0	40.2	
89 Isopropylbenzene	105	9.520	9.520	0.000	96	2399226	40.0	40.8	
91 1,1,2,2-Tetrachloroethane	83	9.816	9.816	0.000	88	660294	40.0	40.1	
92 Bromobenzene	156	9.840	9.840	0.000	81	647055	40.0	39.4	
93 1,2,3-Trichloropropane	110	9.864	9.864	0.000	70	250203	40.0	40.1	
94 trans-1,4-Dichloro-2-buten	53	9.875	9.875	0.000	61	228469	40.0	39.1	
95 N-Propylbenzene	120	9.947	9.947	0.000	91	674293	40.0	40.9	
96 2-Chlorotoluene	126	10.041	10.041	0.000	97	562614	40.0	40.3	
97 1,3,5-Trimethylbenzene	105	10.124	10.124	0.000	93	1929863	40.0	40.6	
98 4-Chlorotoluene	126	10.148	10.148	0.000	98	588358	40.0	39.0	
99 tert-Butylbenzene	119	10.468	10.468	0.000	77	1854784	40.0	41.1	
101 1,2,4-Trimethylbenzene	105	10.516	10.516	0.000	70	1949684	40.0	40.5	
102 sec-Butylbenzene	105	10.694	10.694	0.000	94	2501406	40.0	41.2	
103 1,3-Dichlorobenzene	146	10.812	10.812	0.000	90	1165661	40.0	38.7	
104 4-Isopropyltoluene	119	10.848	10.848	0.000	91	2177763	40.0	40.9	
105 1,4-Dichlorobenzene	146	10.907	10.907	0.000	94	1194426	40.0	38.3	
108 n-Butylbenzene	91	11.287	11.287	0.000	97	1789693	40.0	40.9	
109 1,2-Dichlorobenzene	146	11.298	11.298	0.000	96	1053180	40.0	38.5	
110 1,2-Dibromo-3-Chloropropan	157	12.129	12.129	0.000	92	210526	40.0	40.2	
112 1,2,4-Trichlorobenzene	180	13.018	13.018	0.000	91	675526	40.0	37.0	
113 Hexachlorobutadiene	225	13.208	13.208	0.000	88	358938	40.0	38.3	
114 Naphthalene	128	13.279	13.279	0.000	96	1949946	40.0	38.6	
115 1,2,3-Trichlorobenzene	180	13.540	13.540	0.000	93	606712	40.0	37.0	
S 127 Trihalomethanes, Total	1				0		160.0	160.0	
S 164 Total BTEX	1				0		200.0	200.5	
S 124 1,2-Dichloroethene, Total	96				0			77.1	
S 125 1,3-Dichloropropene, Total	75				0			79.1	
S 126 Xylenes, Total	106				0		80.0	81.1	

Reagents:

vm50is_stk_A_00001	Amount Added: 2.00	Units: uL
vmrgas_00259	Amount Added: 32.00	Units: uL
vmarolistdw_00260	Amount Added: 32.00	Units: uL
vmrprimw_00297	Amount Added: 32.00	Units: uL
vm50ss_00333	Amount Added: 32.00	Units: uL

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901325.d

Injection Date: 27-Aug-2018 17:53:51

Instrument ID: A3UX19

Operator ID: 001904

Lims ID: std8260 L5

Worklist Smp#: 9

Client ID:

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

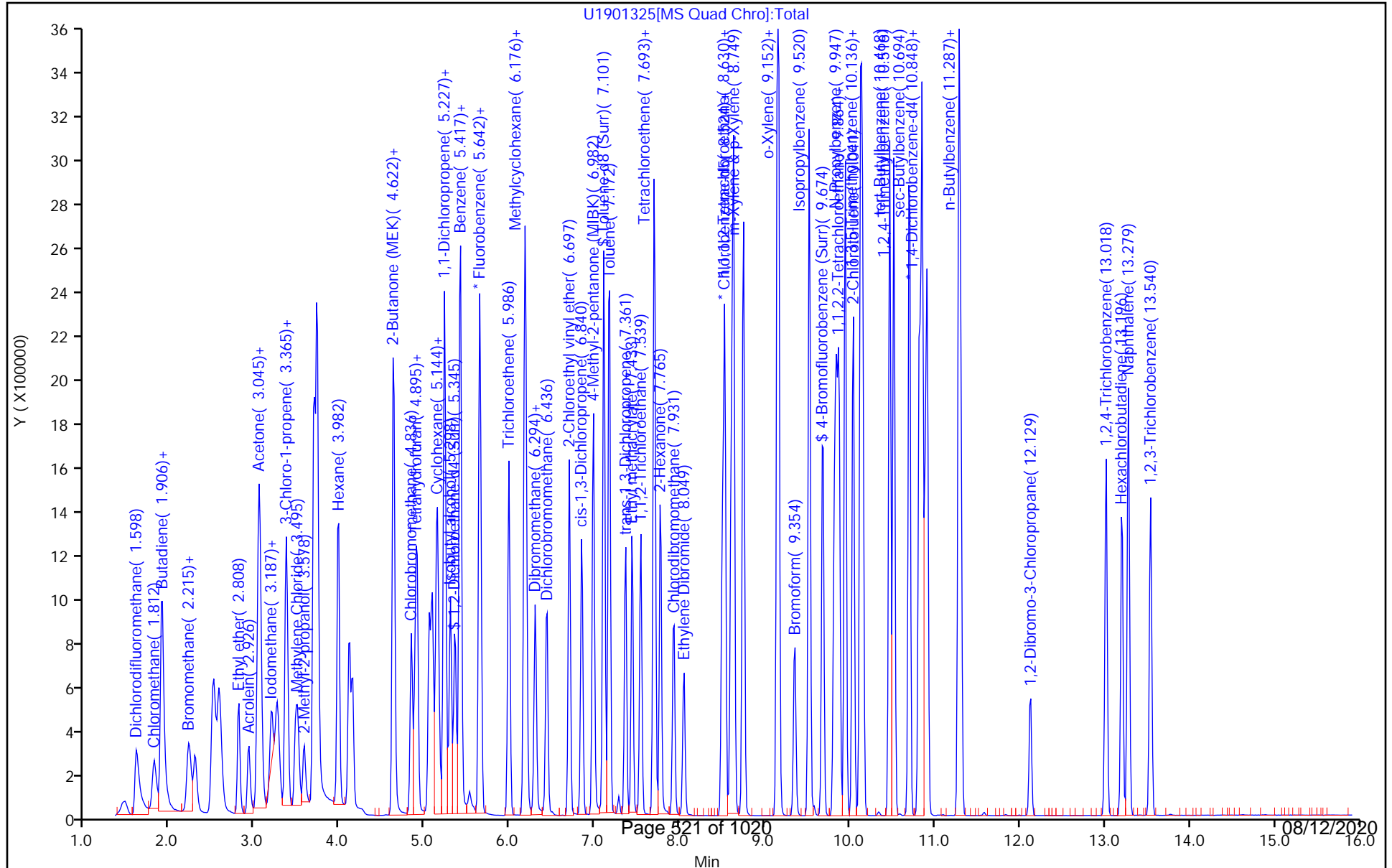
ALS Bottle#: 0

Method: 8260_19

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



TestAmerica Canton
Target Compound Quantitation Report

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901326.d
 Lims ID: ICIS L4
 Client ID:
 Sample Type: ICIS Calib Level: 4
 Inject. Date: 27-Aug-2018 18:16:31 ALS Bottle#: 0 Worklist Smp#: 10
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: 240-0079307-010
 Operator ID: 001904 Instrument ID: A3UX19
 Sublist: chrom-8260_19*sub1
 Method: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\8260_19.m
 Limit Group: MSV 8260B ICAL
 Last Update: 27-Aug-2018 21:28:20 Calib Date: 27-Aug-2018 19:23:28
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901329.d
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: XAWRK010

First Level Reviewer: laveyt

Date:

27-Aug-2018 18:47:30

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.654	5.654	0.000	97	972482	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.500	8.500	0.000	83	783101	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.883	10.883	0.000	86	430906	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr	111	5.049	5.049	0.000	59	251584	20.0	19.2	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	5.345	5.345	0.000	99	285917	20.0	19.0	
\$ 6 Toluene-d8 (Surr)	98	7.101	7.101	0.000	86	907923	20.0	19.3	
\$ 7 4-Bromofluorobenzene (Surr	95	9.674	9.674	0.000	90	337411	20.0	19.1	
9 Dichlorodifluoromethane	85	1.610	1.610	0.000	66	366772	20.0	19.6	
10 Chloromethane	50	1.812	1.812	0.000	77	267203	20.0	19.1	
12 Butadiene	54	1.906	1.906	0.000	88	275330	20.0	19.6	
11 Vinyl chloride	62	1.918	1.918	0.000	70	286894	20.0	19.8	
13 Bromomethane	94	2.227	2.227	0.000	90	219651	20.0	19.3	
14 Chloroethane	64	2.298	2.298	0.000	95	172968	20.0	19.2	
15 Dichlorofluoromethane	67	2.499	2.499	0.000	83	434465	20.0	19.5	
16 Trichlorofluoromethane	101	2.582	2.582	0.000	86	483006	20.0	19.9	
17 Ethyl ether	59	2.808	2.808	0.000	88	172224	20.0	19.7	
18 Acrolein	56	2.926	2.926	0.000	95	220720	100.0	102.1	
21 1,1-Dichloroethene	61	3.045	3.045	0.000	89	348307	20.0	20.0	
20 1,1,2-Trichloro-1,2,2-trif	101	3.057	3.057	0.000	80	249289	20.0	20.0	
22 Acetone	43	3.069	3.069	0.000	68	146204	40.0	38.3	
23 Iodomethane	142	3.199	3.199	0.000	99	444884	20.0	19.7	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
24 Carbon disulfide	76	3.258	3.258	0.000	99	683722	20.0	18.7	
26 3-Chloro-1-propene	41	3.365	3.365	0.000	80	326833	20.0	19.0	
27 Methyl acetate	43	3.377	3.377	0.000	96	440913	40.0	39.0	
28 Methylene Chloride	49	3.495	3.495	0.000	55	271471	20.0	19.6	
29 2-Methyl-2-propanol	59	3.567	3.567	0.000	51	252801	200.0	192.0	
30 Acrylonitrile	53	3.685	3.685	0.000	98	950386	200.0	194.4	
32 trans-1,2-Dichloroethene	61	3.721	3.721	0.000	72	317885	20.0	19.3	
31 Methyl tert-butyl ether	73	3.733	3.733	0.000	78	653045	20.0	19.4	
33 Hexane	57	3.982	3.982	0.000	91	347875	20.0	20.3	
34 1,1-Dichloroethane	63	4.112	4.112	0.000	85	387941	20.0	19.7	
35 Vinyl acetate	43	4.148	4.148	0.000	97	445770	20.0	19.8	
40 cis-1,2-Dichloroethene	96	4.622	4.622	0.000	69	272438	20.0	19.4	
41 2-Butanone (MEK)	72	4.634	4.634	0.000	95	88909	40.0	38.7	
39 2,2-Dichloropropane	77	4.634	4.634	0.000	63	212094	20.0	17.9	
45 Chlorobromomethane	49	4.836	4.836	0.000	81	175479	20.0	18.6	
46 Tetrahydrofuran	42	4.883	4.883	0.000	84	199816	40.0	39.6	
47 Chloroform	83	4.907	4.907	0.000	70	427697	20.0	19.8	
48 1,1,1-Trichloroethane	97	5.085	5.085	0.000	89	398309	20.0	19.6	
49 Cyclohexane	84	5.144	5.144	0.000	75	372006	20.0	20.0	
50 1,1-Dichloropropene	75	5.227	5.227	0.000	90	337392	20.0	19.7	
51 Carbon tetrachloride	117	5.239	5.239	0.000	70	384700	20.0	19.7	
52 Isobutyl alcohol	41	5.298	5.298	0.000	88	263438	500.0	493.3	
54 1,2-Dichloroethane	62	5.417	5.417	0.000	51	341638	20.0	19.5	
53 Benzene	78	5.417	5.417	0.000	94	917150	20.0	19.8	
56 n-Heptane	57	5.642	5.642	0.000	76	210893	20.0	19.9	
58 Trichloroethene	130	5.986	5.986	0.000	92	299123	20.0	19.5	
60 Methylcyclohexane	83	6.176	6.176	0.000	88	445411	20.0	20.0	
61 1,2-Dichloropropane	63	6.187	6.187	0.000	81	214790	20.0	20.0	
63 Dibromomethane	174	6.294	6.294	0.000	87	213090	20.0	19.3	
64 1,4-Dioxane	88	6.306	6.306	0.000	35	50489	400.0	401.7	
65 Dichlorobromomethane	83	6.436	6.436	0.000	93	336655	20.0	19.9	
67 2-Chloroethyl vinyl ether	63	6.697	6.697	0.000	93	353595	40.0	41.1	
68 cis-1,3-Dichloropropene	75	6.840	6.840	0.000	92	372198	20.0	19.8	
69 4-Methyl-2-pentanone (MIBK)	43	6.982	6.982	0.000	83	627983	40.0	40.3	
70 Toluene	91	7.172	7.172	0.000	94	1040131	20.0	19.7	
71 trans-1,3-Dichloropropene	75	7.361	7.361	0.000	85	363416	20.0	19.3	
72 Ethyl methacrylate	69	7.433	7.433	0.000	88	349427	20.0	20.5	
74 1,1,2-Trichloroethane	97	7.539	7.539	0.000	86	219105	20.0	19.7	
75 Tetrachloroethene	166	7.693	7.693	0.000	92	332664	20.0	19.7	
76 1,3-Dichloropropane	76	7.705	7.705	0.000	82	366944	20.0	19.5	
77 2-Hexanone	43	7.765	7.765	0.000	80	508487	40.0	41.2	
79 Chlorodibromomethane	129	7.919	7.919	0.000	89	282195	20.0	20.1	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
80 Ethylene Dibromide	107	8.049	8.049	0.000	98	257341	20.0	19.6	
82 Chlorobenzene	112	8.524	8.524	0.000	97	704913	20.0	19.5	
83 1,1,1,2-Tetrachloroethane	131	8.607	8.607	0.000	87	257026	20.0	19.7	
84 Ethylbenzene	106	8.630	8.630	0.000	98	380861	20.0	20.1	
85 m-Xylene & p-Xylene	106	8.749	8.749	0.000	99	466651	20.0	20.2	
86 o-Xylene	106	9.152	9.152	0.000	87	441487	20.0	20.1	
87 Styrene	104	9.164	9.164	0.000	93	759556	20.0	20.2	
88 Bromoform	173	9.354	9.354	0.000	98	222929	20.0	19.4	
89 Isopropylbenzene	105	9.520	9.520	0.000	95	1179370	20.0	20.0	
91 1,1,2,2-Tetrachloroethane	83	9.816	9.816	0.000	88	328526	20.0	19.8	
92 Bromobenzene	156	9.840	9.840	0.000	88	324573	20.0	19.6	
93 1,2,3-Trichloropropane	110	9.864	9.864	0.000	71	124262	20.0	19.7	
94 trans-1,4-Dichloro-2-buten	53	9.875	9.875	0.000	65	114842	20.0	19.5	
95 N-Propylbenzene	120	9.947	9.947	0.000	96	332244	20.0	20.0	
96 2-Chlorotoluene	126	10.041	10.041	0.000	96	281753	20.0	20.0	
97 1,3,5-Trimethylbenzene	105	10.124	10.124	0.000	93	945225	20.0	19.7	
98 4-Chlorotoluene	126	10.148	10.148	0.000	98	302046	20.0	19.8	
99 tert-Butylbenzene	119	10.468	10.468	0.000	78	904165	20.0	19.9	
101 1,2,4-Trimethylbenzene	105	10.516	10.516	0.000	72	965487	20.0	19.9	
102 sec-Butylbenzene	105	10.694	10.694	0.000	94	1216655	20.0	19.9	
103 1,3-Dichlorobenzene	146	10.812	10.812	0.000	84	589299	20.0	19.4	
104 4-Isopropyltoluene	119	10.848	10.848	0.000	90	1061108	20.0	19.8	
105 1,4-Dichlorobenzene	146	10.907	10.907	0.000	92	595729	20.0	19.0	
108 n-Butylbenzene	91	11.287	11.287	0.000	96	873706	20.0	19.8	
109 1,2-Dichlorobenzene	146	11.298	11.298	0.000	97	532075	20.0	19.3	
110 1,2-Dibromo-3-Chloropropan	157	12.129	12.129	0.000	91	102189	20.0	19.4	
112 1,2,4-Trichlorobenzene	180	13.018	13.018	0.000	92	335760	20.0	18.2	
113 Hexachlorobutadiene	225	13.208	13.208	0.000	88	175651	20.0	18.6	
114 Naphthalene	128	13.279	13.279	0.000	96	923339	20.0	18.1	
115 1,2,3-Trichlorobenzene	180	13.540	13.540	0.000	92	295011	20.0	17.8	
S 164 Total BTEX	1				0		100.0	100.0	
S 127 Trihalomethanes, Total	1				0		80.0	79.3	
S 126 Xylenes, Total	106				0		40.0	40.4	

Reagents:

vm50is_stk_A_00001	Amount Added: 2.00	Units: uL
vmrgas_00259	Amount Added: 16.00	Units: uL
vmarolistdw_00260	Amount Added: 16.00	Units: uL
vmrprimw_00297	Amount Added: 16.00	Units: uL
vm50ss_00333	Amount Added: 16.00	Units: uL

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901326.d

Injection Date: 27-Aug-2018 18:16:31

Instrument ID: A3UX19

Operator ID: 001904

Lims ID: ICIS L4

Worklist Smp#: 10

Client ID:

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

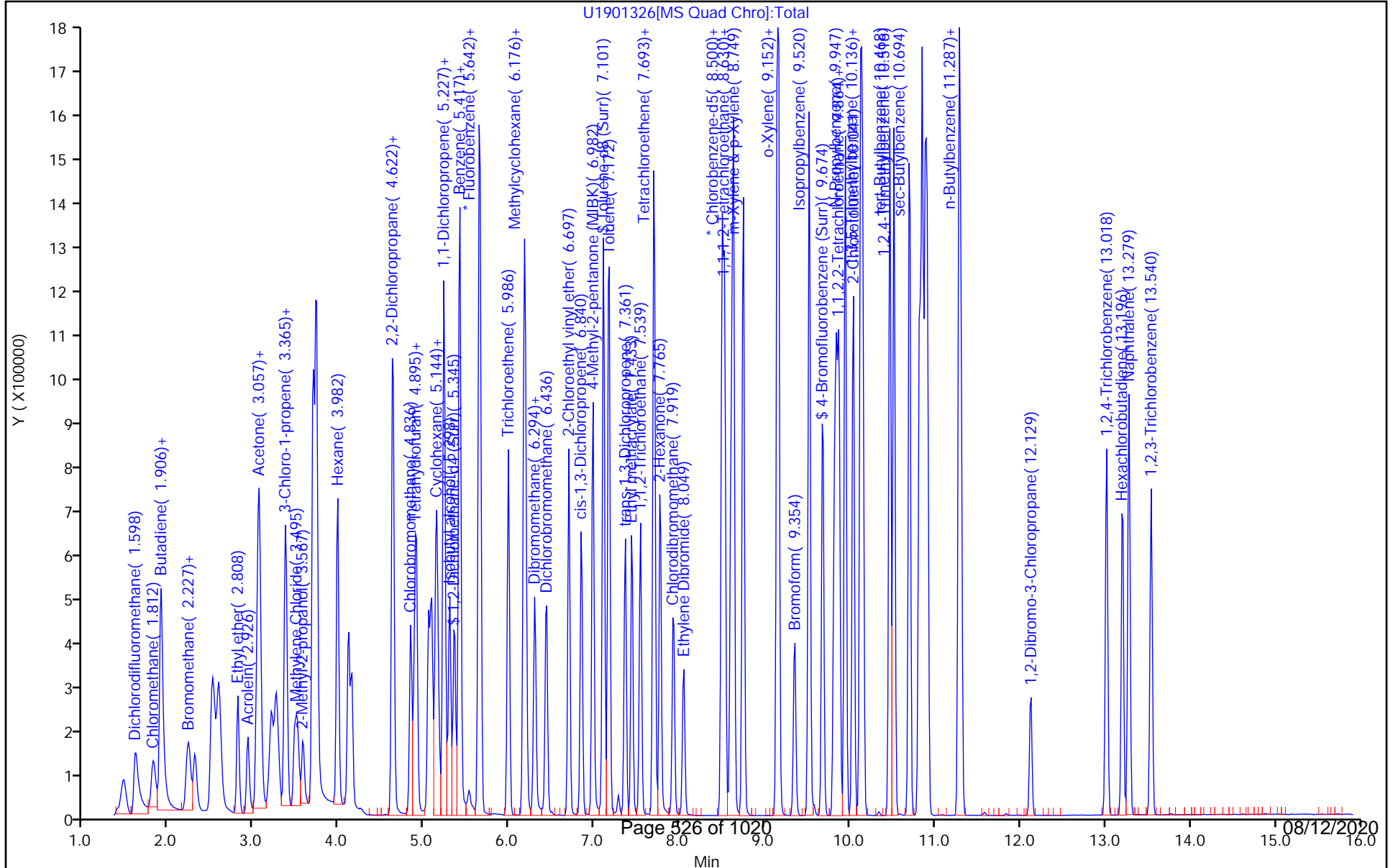
ALS Bottle#: 0

Method: 8260_19

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



TestAmerica Canton
Target Compound Quantitation Report

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901327.d
 Lims ID: std8260 L3
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 27-Aug-2018 18:38:57 ALS Bottle#: 0 Worklist Smp#: 11
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info:
 Operator ID: 001904 Instrument ID: A3UX19
 Sublist: chrom-8260_19*sub1
 Method: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\8260_19.m
 Limit Group: MSV 8260B ICAL
 Last Update: 27-Aug-2018 21:28:30 Calib Date: 27-Aug-2018 19:23:28
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901329.d
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: XAWRK010

First Level Reviewer: laveyt Date: 27-Aug-2018 19:29:46

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.654	5.654	0.000	97	954461	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.500	8.500	0.000	83	776799	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.883	10.883	0.000	92	416777	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr	111	5.049	5.049	0.000	59	129168	10.0	10.1	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	5.357	5.345	0.012	99	149716	10.0	10.1	
\$ 6 Toluene-d8 (Surr)	98	7.101	7.101	0.001	86	475254	10.0	10.2	
\$ 7 4-Bromofluorobenzene (Surr	95	9.674	9.674	0.000	89	173480	10.0	9.90	
9 Dichlorodifluoromethane	85	1.610	1.610	0.000	66	186223	10.0	10.1	
10 Chloromethane	50	1.823	1.812	0.011	81	134420	10.0	9.77	
12 Butadiene	54	1.906	1.906	0.000	90	141609	10.0	10.3	
11 Vinyl chloride	62	1.930	1.918	0.012	82	148037	10.0	10.4	
13 Bromomethane	94	2.227	2.227	0.000	90	111689	10.0	10.0	
14 Chloroethane	64	2.310	2.298	0.012	94	89838	10.0	10.2	
15 Dichlorofluoromethane	67	2.511	2.499	0.012	83	223205	10.0	10.2	
16 Trichlorofluoromethane	101	2.582	2.582	0.000	86	244417	10.0	10.3	
17 Ethyl ether	59	2.808	2.808	0.000	90	88252	10.0	10.3	
18 Acrolein	56	2.926	2.926	0.000	96	100203	50.0	47.2	
21 1,1-Dichloroethene	61	3.045	3.045	0.000	90	177882	10.0	10.4	
20 1,1,2-Trichloro-1,2,2-trif	101	3.057	3.057	0.000	78	126531	10.0	10.3	
22 Acetone	43	3.069	3.069	0.000	71	73077	20.0	19.5	
23 Iodomethane	142	3.199	3.199	0.000	99	225726	10.0	10.2	

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901327.d

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
24 Carbon disulfide	76	3.270	3.258	0.012	98	351356	10.0	9.80	
26 3-Chloro-1-propene	41	3.365	3.365	0.000	76	171118	10.0	10.1	
27 Methyl acetate	43	3.377	3.377	0.000	95	228841	20.0	20.6	
28 Methylene Chloride	49	3.484	3.495	-0.011	73	139613	10.0	10.3	
29 2-Methyl-2-propanol	59	3.579	3.567	0.012	89	135517	100.0	104.9	
30 Acrylonitrile	53	3.697	3.685	0.012	98	514757	100.0	107.3	
32 trans-1,2-Dichloroethene	61	3.733	3.721	0.012	68	167419	10.0	10.4	
31 Methyl tert-butyl ether	73	3.733	3.733	0.000	89	342568	10.0	10.3	
33 Hexane	57	3.982	3.982	0.000	93	174299	10.0	10.4	
34 1,1-Dichloroethane	63	4.112	4.112	0.000	85	199597	10.0	10.3	
35 Vinyl acetate	43	4.148	4.148	0.000	97	231586	10.0	10.5	
40 cis-1,2-Dichloroethene	96	4.634	4.622	0.012	68	140685	10.0	10.2	
39 2,2-Dichloropropane	77	4.634	4.634	0.000	61	116583	10.0	10.0	
41 2-Butanone (MEK)	72	4.634	4.634	0.000	92	48290	20.0	21.4	
45 Chlorobromomethane	49	4.836	4.836	0.000	68	94139	10.0	10.1	
46 Tetrahydrofuran	42	4.883	4.883	0.000	84	114720	20.0	22.1	
47 Chloroform	83	4.907	4.907	0.000	71	224371	10.0	10.6	
48 1,1,1-Trichloroethane	97	5.085	5.085	0.000	90	211997	10.0	10.6	
49 Cyclohexane	84	5.144	5.144	0.000	86	188221	10.0	10.3	
50 1,1-Dichloropropene	75	5.227	5.227	0.000	92	174842	10.0	10.4	
51 Carbon tetrachloride	117	5.239	5.239	0.000	70	201366	10.0	10.5	
52 Isobutyl alcohol	41	5.298	5.298	0.000	68	127213	250.0	242.7	
53 Benzene	78	5.417	5.417	0.000	94	482300	10.0	10.6	
54 1,2-Dichloroethane	62	5.417	5.417	0.000	48	178638	10.0	10.4	
56 n-Heptane	57	5.642	5.642	0.000	64	123554	10.0	10.5	
58 Trichloroethene	130	5.986	5.986	0.000	92	156409	10.0	10.4	
60 Methylcyclohexane	83	6.176	6.176	0.000	87	225444	10.0	10.3	
61 1,2-Dichloropropane	63	6.187	6.187	0.000	78	112735	10.0	10.7	
63 Dibromomethane	174	6.306	6.294	0.012	81	111478	10.0	10.3	
64 1,4-Dioxane	88	6.306	6.306	0.000	24	20257	200.0	170.0	
65 Dichlorobromomethane	83	6.436	6.436	0.000	93	172767	10.0	10.4	
67 2-Chloroethyl vinyl ether	63	6.697	6.697	0.000	93	185460	20.0	22.0	
68 cis-1,3-Dichloropropene	75	6.840	6.840	0.000	93	192411	10.0	10.4	
69 4-Methyl-2-pentanone (MIBK)	43	6.982	6.982	0.000	83	332777	20.0	21.8	
70 Toluene	91	7.172	7.172	0.000	95	544474	10.0	10.4	
71 trans-1,3-Dichloropropene	75	7.361	7.361	0.000	80	187797	10.0	10.0	
72 Ethyl methacrylate	69	7.433	7.433	0.000	88	177753	10.0	10.5	
74 1,1,2-Trichloroethane	97	7.539	7.539	0.000	87	115489	10.0	10.5	
75 Tetrachloroethene	166	7.693	7.693	0.000	91	175104	10.0	10.5	
76 1,3-Dichloropropane	76	7.705	7.705	0.000	89	194537	10.0	10.4	
77 2-Hexanone	43	7.765	7.765	0.000	79	267096	20.0	21.8	
79 Chlorodibromomethane	129	7.931	7.919	0.012	88	145120	10.0	10.4	

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901327.d

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
80 Ethylene Dibromide	107	8.049	8.049	0.000	97	132926	10.0	10.2	
82 Chlorobenzene	112	8.524	8.524	0.000	96	370702	10.0	10.3	
83 1,1,1,2-Tetrachloroethane	131	8.607	8.607	0.000	88	135561	10.0	10.5	
84 Ethylbenzene	106	8.630	8.630	0.000	98	200390	10.0	10.7	
85 m-Xylene & p-Xylene	106	8.749	8.749	0.000	99	238543	10.0	10.4	
86 o-Xylene	106	9.152	9.152	0.000	88	225509	10.0	10.4	
87 Styrene	104	9.164	9.164	0.000	93	391834	10.0	10.5	
88 Bromoform	173	9.354	9.354	0.000	98	117306	10.0	10.3	
89 Isopropylbenzene	105	9.520	9.520	0.000	96	613985	10.0	10.5	
91 1,1,2,2-Tetrachloroethane	83	9.816	9.816	0.000	90	172140	10.0	10.7	
92 Bromobenzene	156	9.840	9.840	0.000	88	169316	10.0	10.6	
93 1,2,3-Trichloropropane	110	9.864	9.864	0.000	71	66218	10.0	10.9	
94 trans-1,4-Dichloro-2-buten	53	9.875	9.875	0.000	63	60466	10.0	10.6	
95 N-Propylbenzene	120	9.947	9.947	0.000	90	171938	10.0	10.7	
96 2-Chlorotoluene	126	10.042	10.041	0.001	97	147510	10.0	10.8	
97 1,3,5-Trimethylbenzene	105	10.125	10.124	0.000	93	499875	10.0	10.8	
98 4-Chlorotoluene	126	10.148	10.148	0.000	98	155656	10.0	10.6	
99 tert-Butylbenzene	119	10.468	10.468	0.000	78	474813	10.0	10.8	
101 1,2,4-Trimethylbenzene	105	10.516	10.516	0.000	72	495166	10.0	10.5	
102 sec-Butylbenzene	105	10.694	10.694	0.000	94	624437	10.0	10.5	
103 1,3-Dichlorobenzene	146	10.812	10.812	0.000	83	299776	10.0	10.2	
104 4-Isopropyltoluene	119	10.848	10.848	0.000	90	543873	10.0	10.5	
105 1,4-Dichlorobenzene	146	10.907	10.907	0.000	90	308743	10.0	10.2	
108 n-Butylbenzene	91	11.287	11.287	0.000	96	439518	10.0	10.3	
109 1,2-Dichlorobenzene	146	11.299	11.298	0.001	97	273092	10.0	10.2	
110 1,2-Dibromo-3-Chloropropan	157	12.129	12.129	0.000	89	50642	10.0	9.92	
112 1,2,4-Trichlorobenzene	180	13.018	13.018	0.000	93	168774	10.0	9.47	
113 Hexachlorobutadiene	225	13.208	13.208	0.000	90	87534	10.0	9.56	
114 Naphthalene	128	13.279	13.279	0.000	97	469280	10.0	9.53	
115 1,2,3-Trichlorobenzene	180	13.540	13.540	0.000	95	153843	10.0	9.62	
S 127 Trihalomethanes, Total	1				0		40.0	41.7	
S 164 Total BTEX	1				0		50.0	52.5	
S 124 1,2-Dichloroethene, Total	96				0			20.6	
S 125 1,3-Dichloropropene, Total	75				0			20.5	
S 126 Xylenes, Total	106				0		20.0	20.8	

Reagents:

vm50is_stk_A_00001	Amount Added: 2.00	Units: uL
vmrgas_00259	Amount Added: 8.00	Units: uL
vmarolistdw_00260	Amount Added: 8.00	Units: uL
vmrprimw_00297	Amount Added: 8.00	Units: uL
vm50ss_00333	Amount Added: 8.00	Units: uL

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901327.d

Injection Date: 27-Aug-2018 18:38:57

Instrument ID: A3UX19

Operator ID: 001904

Lims ID: std8260 L3

Worklist Smp#: 11

Client ID:

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

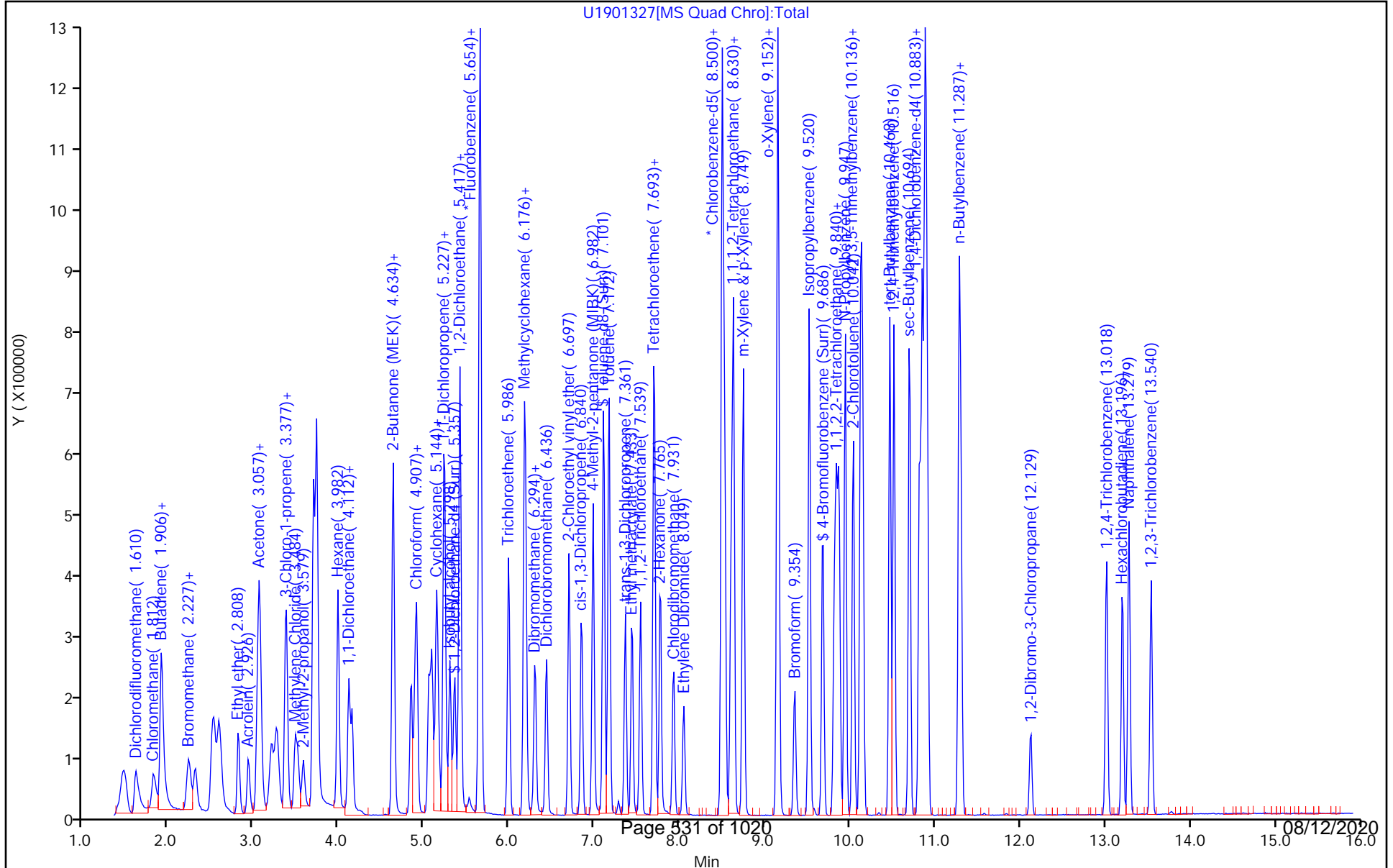
ALS Bottle#: 0

Method: 8260_19

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



TestAmerica Canton
Target Compound Quantitation Report

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901328.d
 Lims ID: std8260 L2
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 27-Aug-2018 19:01:13 ALS Bottle#: 0 Worklist Smp#: 12
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info:
 Operator ID: 001904 Instrument ID: A3UX19
 Sublist: chrom-8260_19*sub1
 Method: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\8260_19.m
 Limit Group: MSV 8260B ICAL
 Last Update: 27-Aug-2018 21:28:42 Calib Date: 27-Aug-2018 19:23:28
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901329.d
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: XAWRK010

First Level Reviewer: laveyt

Date:

27-Aug-2018 19:32:38

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.653	5.654	-0.001	99	950066	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.500	8.500	0.000	83	741822	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.883	10.883	0.000	93	413134	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr	111	5.049	5.049	0.000	60	13395	1.00	1.05	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	5.345	5.345	0.000	98	16187	1.00	1.10	
\$ 6 Toluene-d8 (Surr)	98	7.100	7.101	0.000	84	44577	1.00	1.00	
\$ 7 4-Bromofluorobenzene (Surr	95	9.674	9.674	0.000	85	17494	1.00	1.05	
9 Dichlorodifluoromethane	85	1.598	1.610	-0.012	61	18328	1.00	1.00	
10 Chloromethane	50	1.811	1.812	-0.001	83	12972	1.00	0.9471	
12 Butadiene	54	1.894	1.906	-0.012	89	14115	1.00	1.03	
11 Vinyl chloride	62	1.918	1.918	0.000	47	14250	1.00	1.01	
13 Bromomethane	94	2.238	2.227	0.011	86	11360	1.00	1.02	
14 Chloroethane	64	2.297	2.298	-0.001	81	8387	1.00	0.9552	
15 Dichlorofluoromethane	67	2.511	2.499	0.012	76	21694	1.00	1.00	
16 Trichlorofluoromethane	101	2.582	2.582	0.000	84	23241	1.00	0.9817	
17 Ethyl ether	59	2.807	2.808	-0.001	83	9015	1.00	1.05	
18 Acrolein	56	2.926	2.926	0.000	86	10600	5.00	5.02	
21 1,1-Dichloroethene	61	3.045	3.045	0.000	86	16498	1.00	0.9676	
20 1,1,2-Trichloro-1,2,2-trif	101	3.045	3.057	-0.012	67	11240	1.00	0.9217	
22 Acetone	43	3.068	3.069	-0.001	90	8941	2.00	2.40	
23 Iodomethane	142	3.187	3.199	-0.012	96	22471	1.00	1.02	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
24 Carbon disulfide	76	3.258	3.258	0.000	97	39223	1.00	1.10	
26 3-Chloro-1-propene	41	3.365	3.365	0.000	76	18227	1.00	1.08	
27 Methyl acetate	43	3.377	3.377	0.000	96	22480	2.00	2.03	
28 Methylene Chloride	49	3.483	3.495	-0.012	78	15126	1.00	1.12	
29 2-Methyl-2-propanol	59	3.566	3.567	-0.001	88	13140	10.0	10.2	
30 Acrylonitrile	53	3.697	3.685	0.012	99	49680	10.0	10.4	
32 trans-1,2-Dichloroethene	61	3.732	3.721	0.011	72	16818	1.00	1.05	
31 Methyl tert-butyl ether	73	3.732	3.733	-0.001	89	33109	1.00	1.00	
33 Hexane	57	3.981	3.982	-0.001	93	15276	1.00	0.9125	
34 1,1-Dichloroethane	63	4.112	4.112	0.000	76	19673	1.00	1.02	
35 Vinyl acetate	43	4.147	4.148	-0.001	96	21765	1.00	0.9877	
40 cis-1,2-Dichloroethene	96	4.622	4.622	0.000	70	14212	1.00	1.03	
41 2-Butanone (MEK)	72	4.634	4.634	0.000	91	4567	2.00	2.04	
39 2,2-Dichloropropane	77	4.634	4.634	0.000	58	11860	1.00	1.02	
45 Chlorobromomethane	49	4.835	4.836	-0.001	64	10266	1.00	1.11	
46 Tetrahydrofuran	42	4.883	4.883	0.000	85	20056	2.00	1.81	
47 Chloroform	83	4.906	4.907	-0.001	67	21044	1.00	1.00	
48 1,1,1-Trichloroethane	97	5.084	5.085	-0.001	84	19503	1.00	0.9837	
49 Cyclohexane	84	5.144	5.144	0.000	85	16696	1.00	0.9202	
50 1,1-Dichloropropene	75	5.227	5.227	0.000	88	16667	1.00	1.00	
51 Carbon tetrachloride	117	5.238	5.239	-0.001	77	17959	1.00	0.9397	
52 Isobutyl alcohol	41	5.298	5.298	0.000	78	14010	25.0	26.9	
54 1,2-Dichloroethane	62	5.416	5.417	-0.001	52	18266	1.00	1.07	
53 Benzene	78	5.416	5.417	-0.001	95	45349	1.00	1.00	
56 n-Heptane	57	5.653	5.642	0.011	38	39021	1.00	0.9553	
58 Trichloroethene	130	5.985	5.986	-0.001	90	14636	1.00	0.9750	
60 Methylcyclohexane	83	6.175	6.176	-0.001	87	20268	1.00	0.9296	
61 1,2-Dichloropropane	63	6.187	6.187	0.000	78	10172	1.00	0.9700	
63 Dibromomethane	174	6.294	6.294	0.000	83	11437	1.00	1.06	
64 1,4-Dioxane	88	6.306	6.306	0.000	1	1560	20.0	22.2	
65 Dichlorobromomethane	83	6.424	6.436	-0.012	86	17242	1.00	1.04	
67 2-Chloroethyl vinyl ether	63	6.697	6.697	0.000	90	15714	2.00	1.87	
68 cis-1,3-Dichloropropene	75	6.839	6.840	-0.001	72	18371	1.00	1.00	
69 4-Methyl-2-pentanone (MIBK)	43	6.982	6.982	0.000	81	29549	2.00	1.94	
70 Toluene	91	7.171	7.172	-0.001	86	50838	1.00	1.01	
71 trans-1,3-Dichloropropene	75	7.361	7.361	0.000	79	18668	1.00	1.04	
72 Ethyl methacrylate	69	7.432	7.433	-0.001	70	14839	1.00	0.9209	
74 1,1,2-Trichloroethane	97	7.539	7.539	0.000	87	10462	1.00	0.99	
75 Tetrachloroethene	166	7.693	7.693	0.000	95	15556	1.00	0.9725	
76 1,3-Dichloropropane	76	7.705	7.705	0.000	79	17554	1.00	0.9855	
77 2-Hexanone	43	7.764	7.765	-0.001	94	22402	2.00	1.92	
79 Chlorodibromomethane	129	7.930	7.919	0.011	80	12969	1.00	0.9758	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
80 Ethylene Dibromide	107	8.049	8.049	0.000	85	12317	1.00	0.99	
82 Chlorobenzene	112	8.523	8.524	-0.001	60	36469	1.00	1.06	
83 1,1,1,2-Tetrachloroethane	131	8.606	8.607	-0.001	75	12290	1.00	0.99	
84 Ethylbenzene	106	8.630	8.630	0.000	97	17209	1.00	0.9594	
85 m-Xylene & p-Xylene	106	8.749	8.749	0.000	99	20530	1.00	0.9397	
86 o-Xylene	106	9.152	9.152	0.000	87	20689	1.00	1.00	
87 Styrene	104	9.164	9.164	0.000	92	33591	1.00	0.9446	
88 Bromoform	173	9.353	9.354	-0.001	89	10783	1.00	0.99	
89 Isopropylbenzene	105	9.519	9.520	-0.001	93	55346	1.00	0.99	
91 1,1,2,2-Tetrachloroethane	83	9.816	9.816	0.000	75	16261	1.00	1.02	
92 Bromobenzene	156	9.840	9.840	0.000	89	16361	1.00	1.03	
93 1,2,3-Trichloropropane	110	9.863	9.864	-0.001	66	5997	1.00	0.99	
94 trans-1,4-Dichloro-2-buten	53	9.875	9.875	0.000	38	5707	1.00	1.01	
95 N-Propylbenzene	120	9.946	9.947	-0.001	95	15476	1.00	0.9694	
96 2-Chlorotoluene	126	10.041	10.041	0.000	92	12831	1.00	0.9496	
97 1,3,5-Trimethylbenzene	105	10.124	10.124	0.000	91	43584	1.00	0.9481	
98 4-Chlorotoluene	126	10.148	10.148	0.000	97	14345	1.00	0.9819	
99 tert-Butylbenzene	119	10.468	10.468	0.000	73	41850	1.00	0.9590	
101 1,2,4-Trimethylbenzene	105	10.515	10.516	-0.001	67	46663	1.00	1.00	
102 sec-Butylbenzene	105	10.693	10.694	-0.001	92	55760	1.00	0.9489	
103 1,3-Dichlorobenzene	146	10.812	10.812	0.000	11	31057	1.00	1.06	
104 4-Isopropyltoluene	119	10.848	10.848	0.000	77	49391	1.00	0.9596	
105 1,4-Dichlorobenzene	146	10.907	10.907	0.000	49	32379	1.00	1.07	
108 n-Butylbenzene	91	11.286	11.287	-0.001	95	41792	1.00	0.9871	
109 1,2-Dichlorobenzene	146	11.310	11.298	0.012	93	28272	1.00	1.07	
110 1,2-Dibromo-3-Chloropropan	157	12.128	12.129	-0.001	57	4583	1.00	0.9054	
112 1,2,4-Trichlorobenzene	180	13.018	13.018	0.000	83	19612	1.00	1.11	
113 Hexachlorobutadiene	225	13.207	13.208	-0.001	72	10037	1.00	1.11	
114 Naphthalene	128	13.279	13.279	0.000	94	52154	1.00	1.07	
115 1,2,3-Trichlorobenzene	180	13.539	13.540	-0.001	86	17097	1.00	1.08	
S 164 Total BTEX	1				0		5.00	4.91	
S 127 Trihalomethanes, Total	1				0		4.00	4.01	
S 124 1,2-Dichloroethene, Total	96				0			2.08	
S 125 1,3-Dichloropropene, Total	75				0			2.05	
S 126 Xylenes, Total	106				0		2.00	1.94	

Reagents:

vm50is_stk_A_00001	Amount Added: 2.00	Units: uL
vmrgas_00259	Amount Added: 0.80	Units: uL
vmarolistdw_00260	Amount Added: 0.80	Units: uL
vmrprimw_00297	Amount Added: 0.80	Units: uL
vm50ss_00333	Amount Added: 0.80	Units: uL

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901328.d

Injection Date: 27-Aug-2018 19:01:13

Instrument ID: A3UX19

Operator ID: 001904

Lims ID: std8260 L2

Worklist Smp#: 12

Client ID:

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

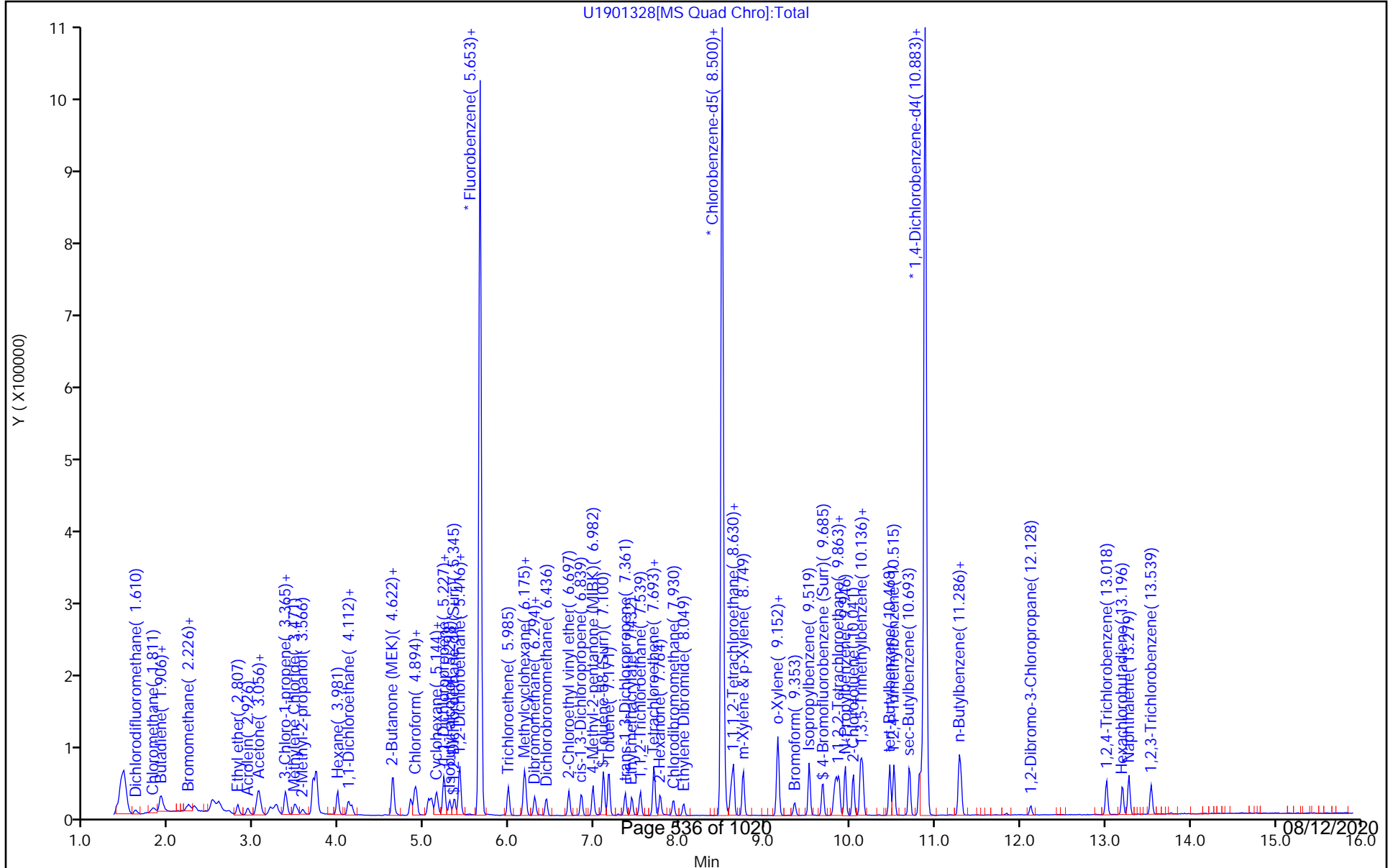
ALS Bottle#: 0

Method: 8260_19

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



TestAmerica Canton
Target Compound Quantitation Report

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901329.d
 Lims ID: std8260 L1
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 27-Aug-2018 19:23:28 ALS Bottle#: 0 Worklist Smp#: 13
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info:
 Operator ID: 001904 Instrument ID: A3UX19
 Sublist: chrom-8260_19*sub1
 Method: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\8260_19.m
 Limit Group: MSV 8260B ICAL
 Last Update: 27-Aug-2018 21:28:54 Calib Date: 27-Aug-2018 19:23:28
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901329.d
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: XAWRK010

First Level Reviewer: laveyt

Date: 27-Aug-2018 19:52:01

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.654	5.654	0.000	99	938021	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.500	8.500	0.000	83	738667	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.883	10.883	0.000	93	405345	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr	111	5.049	5.049	0.000	56	6919	0.5000	0.5480	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	5.357	5.345	0.012	94	8242	0.5000	0.5683	
\$ 6 Toluene-d8 (Surr)	98	7.100	7.101	0.000	74	23636	0.5000	0.5336	
\$ 7 4-Bromofluorobenzene (Surr	95	9.674	9.674	0.000	82	9778	0.5000	0.5866	
9 Dichlorodifluoromethane	85	1.622	1.610	0.012	56	7625	0.5000	0.4223	
10 Chloromethane	50	1.812	1.812	0.000	70	8152	0.5000	0.6028	
12 Butadiene	54	1.906	1.906	0.000	92	6713	0.5000	0.4958	
11 Vinyl chloride	62	1.942	1.918	0.024	39	6564	0.5000	0.4697	
13 Bromomethane	94	2.227	2.227	0.000	83	5934	0.5000	0.5419	
14 Chloroethane	64	2.310	2.298	0.012	73	4812	0.5000	0.5551	
15 Dichlorofluoromethane	67	2.511	2.499	0.012	55	11593	0.5000	0.5395	
16 Trichlorofluoromethane	101	2.582	2.582	0.000	76	11587	0.5000	0.4957	
17 Ethyl ether	59	2.808	2.808	0.000	84	4060	0.5000	0.4810	
18 Acrolein	56	2.938	2.926	0.012	73	5804	2.50	2.78	
21 1,1-Dichloroethene	61	3.045	3.045	0.000	72	8152	0.5000	0.4842	
20 1,1,2-Trichloro-1,2,2-trif	101	3.057	3.057	0.000	55	5847	0.5000	0.4856	
22 Acetone	43		3.069				ND	ND	U
23 Iodomethane	142	3.199	3.199	0.000	93	11424	0.5000	0.5233	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
24 Carbon disulfide	76	3.258	3.258	0.000	95	20511	0.5000	0.5820	
26 3-Chloro-1-propene	41	3.365	3.365	0.000	70	8759	0.5000	0.5274	
27 Methyl acetate	43	3.389	3.377	0.012	94	12374	1.00	1.13	
28 Methylene Chloride	49		3.495				ND	ND	U
29 2-Methyl-2-propanol	59	3.578	3.567	0.011	76	7089	5.00	5.58	
30 Acrylonitrile	53	3.697	3.685	0.012	98	23600	5.00	5.00	
32 trans-1,2-Dichloroethene	61	3.733	3.721	0.012	68	8368	0.5000	0.5268	
31 Methyl tert-butyl ether	73	3.733	3.733	0.000	83	15146	0.5000	0.4655	
33 Hexane	57	3.982	3.982	0.000	81	7709	0.5000	0.4664	
34 1,1-Dichloroethane	63	4.112	4.112	0.000	57	9092	0.5000	0.4789	
35 Vinyl acetate	43	4.148	4.148	0.000	96	10910	0.5000	0.5015	
40 cis-1,2-Dichloroethene	96	4.634	4.622	0.012	63	7168	0.5000	0.5287	
39 2,2-Dichloropropane	77	4.634	4.634	0.000	48	5791	0.5000	0.5065	
41 2-Butanone (MEK)	72	4.634	4.634	0.000	82	2283	1.00	1.03	
45 Chlorobromomethane	49	4.847	4.836	0.011	57	5503	0.5000	0.6031	
46 Tetrahydrofuran	42		4.883				ND	ND	U
47 Chloroform	83	4.907	4.907	0.000	71	10169	0.5000	0.4891	
48 1,1,1-Trichloroethane	97	5.085	5.085	0.000	78	8767	0.5000	0.4479	
49 Cyclohexane	84	5.144	5.144	0.000	85	8206	0.5000	0.4581	
50 1,1-Dichloropropene	75	5.227	5.227	0.000	80	7998	0.5000	0.4846	
51 Carbon tetrachloride	117	5.239	5.239	0.000	77	8954	0.5000	0.4745	
52 Isobutyl alcohol	41	5.298	5.298	0.000	52	7140	12.5	13.9	
53 Benzene	78	5.417	5.417	0.000	95	21738	0.5000	0.4870	
54 1,2-Dichloroethane	62	5.428	5.417	0.011	58	8896	0.5000	0.5268	
56 n-Heptane	57		5.642				ND	ND	U
58 Trichloroethene	130	5.986	5.986	0.000	77	7819	0.5000	0.5276	
60 Methylcyclohexane	83	6.176	6.176	0.000	85	10042	0.5000	0.4665	
61 1,2-Dichloropropane	63	6.187	6.187	0.000	64	5092	0.5000	0.4918	
63 Dibromomethane	174	6.306	6.294	0.012	66	5652	0.5000	0.5307	
64 1,4-Dioxane	88		6.306				ND	ND	U
65 Dichlorobromomethane	83	6.436	6.436	0.000	75	7972	0.5000	0.4885	
67 2-Chloroethyl vinyl ether	63	6.697	6.697	0.000	83	7473	1.00	0.9000	
68 cis-1,3-Dichloropropene	75	6.840	6.840	0.000	60	8778	0.5000	0.4843	
69 4-Methyl-2-pentanone (MIBK)	43	6.982	6.982	0.000	90	14774	1.00	0.9834	
70 Toluene	91	7.172	7.172	0.000	94	25413	0.5000	0.5091	
71 trans-1,3-Dichloropropene	75	7.361	7.361	0.000	76	9232	0.5000	0.5188	
72 Ethyl methacrylate	69	7.433	7.433	0.000	70	7062	0.5000	0.4401	
74 1,1,2-Trichloroethane	97	7.539	7.539	0.000	79	5186	0.5000	0.4942	
75 Tetrachloroethene	166	7.693	7.693	0.000	86	7818	0.5000	0.4908	
76 1,3-Dichloropropane	76	7.705	7.705	0.000	72	9211	0.5000	0.5193	
77 2-Hexanone	43	7.765	7.765	0.000	88	10272	1.00	0.8832	
79 Chlorodibromomethane	129	7.931	7.919	0.012	54	6108	0.5000	0.4615	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
80 Ethylene Dibromide	107	8.049	8.049	0.000	74	6962	0.5000	0.5633	
82 Chlorobenzene	112	8.524	8.524	0.000	45	17303	0.5000	0.5063	
83 1,1,1,2-Tetrachloroethane	131	8.607	8.607	0.000	55	5956	0.5000	0.4834	
84 Ethylbenzene	106	8.630	8.630	0.000	94	8431	0.5000	0.4721	
85 m-Xylene & p-Xylene	106	8.749	8.749	0.000	96	10542	0.5000	0.4846	
86 o-Xylene	106	9.140	9.152	-0.012	88	9580	0.5000	0.4635	
87 Styrene	104	9.164	9.164	0.000	83	16463	0.5000	0.4649	
88 Bromoform	173	9.354	9.354	0.000	77	5340	0.5000	0.4930	
89 Isopropylbenzene	105	9.520	9.520	0.000	90	25288	0.5000	0.4556	
91 1,1,2,2-Tetrachloroethane	83	9.816	9.816	0.000	62	7218	0.5000	0.4621	
92 Bromobenzene	156	9.840	9.840	0.000	88	7663	0.5000	0.4917	
93 1,2,3-Trichloropropane	110	9.864	9.864	0.000	66	2842	0.5000	0.4801	
94 trans-1,4-Dichloro-2-buten	53		9.875				ND	ND	U
95 N-Propylbenzene	120	9.947	9.947	0.000	91	7103	0.5000	0.4535	
96 2-Chlorotoluene	126	10.041	10.041	0.000	82	6213	0.5000	0.4687	
97 1,3,5-Trimethylbenzene	105	10.124	10.124	0.000	91	21381	0.5000	0.4740	
98 4-Chlorotoluene	126	10.148	10.148	0.000	91	7405	0.5000	0.5166	
99 tert-Butylbenzene	119	10.468	10.468	0.000	70	19348	0.5000	0.4519	
101 1,2,4-Trimethylbenzene	105	10.516	10.516	0.000	63	21277	0.5000	0.4653	
102 sec-Butylbenzene	105	10.694	10.694	0.000	88	26267	0.5000	0.4556	
103 1,3-Dichlorobenzene	146	10.824	10.812	0.012	1	14989	0.5000	0.5237	a
104 4-Isopropyltoluene	119	10.848	10.848	0.000	68	23262	0.5000	0.4606	
105 1,4-Dichlorobenzene	146	10.907	10.907	0.000	39	16269	0.5000	0.5502	
108 n-Butylbenzene	91	11.287	11.287	0.000	91	19197	0.5000	0.4622	
109 1,2-Dichlorobenzene	146	11.298	11.298	0.000	87	13617	0.5000	0.5240	
110 1,2-Dibromo-3-Chloropropan	157	12.129	12.129	0.000	31	2665	0.5000	0.5366	
112 1,2,4-Trichlorobenzene	180	13.018	13.018	0.000	63	9535	0.5000	0.5502	
113 Hexachlorobutadiene	225	13.208	13.208	0.000	55	4814	0.5000	0.5408	
114 Naphthalene	128		13.279				ND	ND	U
115 1,2,3-Trichlorobenzene	180	13.540	13.540	0.000	72	7998	0.5000	0.5140	
S 127 Trihalomethanes, Total	1				0		2.00	1.93	
S 164 Total BTEX	1				0		2.50	2.42	
S 124 1,2-Dichloroethene, Total	96				0			1.06	
S 125 1,3-Dichloropropene, Total	75				0			1.00	
S 126 Xylenes, Total	106				0		1.00	0.9480	

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

Review Flags

U - Marked Undetected

a - User Assigned ID

Reagents:

vm50is_stk_A_00001	Amount Added: 2.00	Units: uL
vmrgas_00259	Amount Added: 0.40	Units: uL
vmarolistdw_00260	Amount Added: 0.40	Units: uL
vmrprimw_00297	Amount Added: 0.40	Units: uL
vm50ss_00333	Amount Added: 0.40	Units: uL

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901329.d

Injection Date: 27-Aug-2018 19:23:28

Instrument ID: A3UX19

Operator ID: 001904

Lims ID: std8260 L1

Worklist Smp#: 13

Client ID:

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

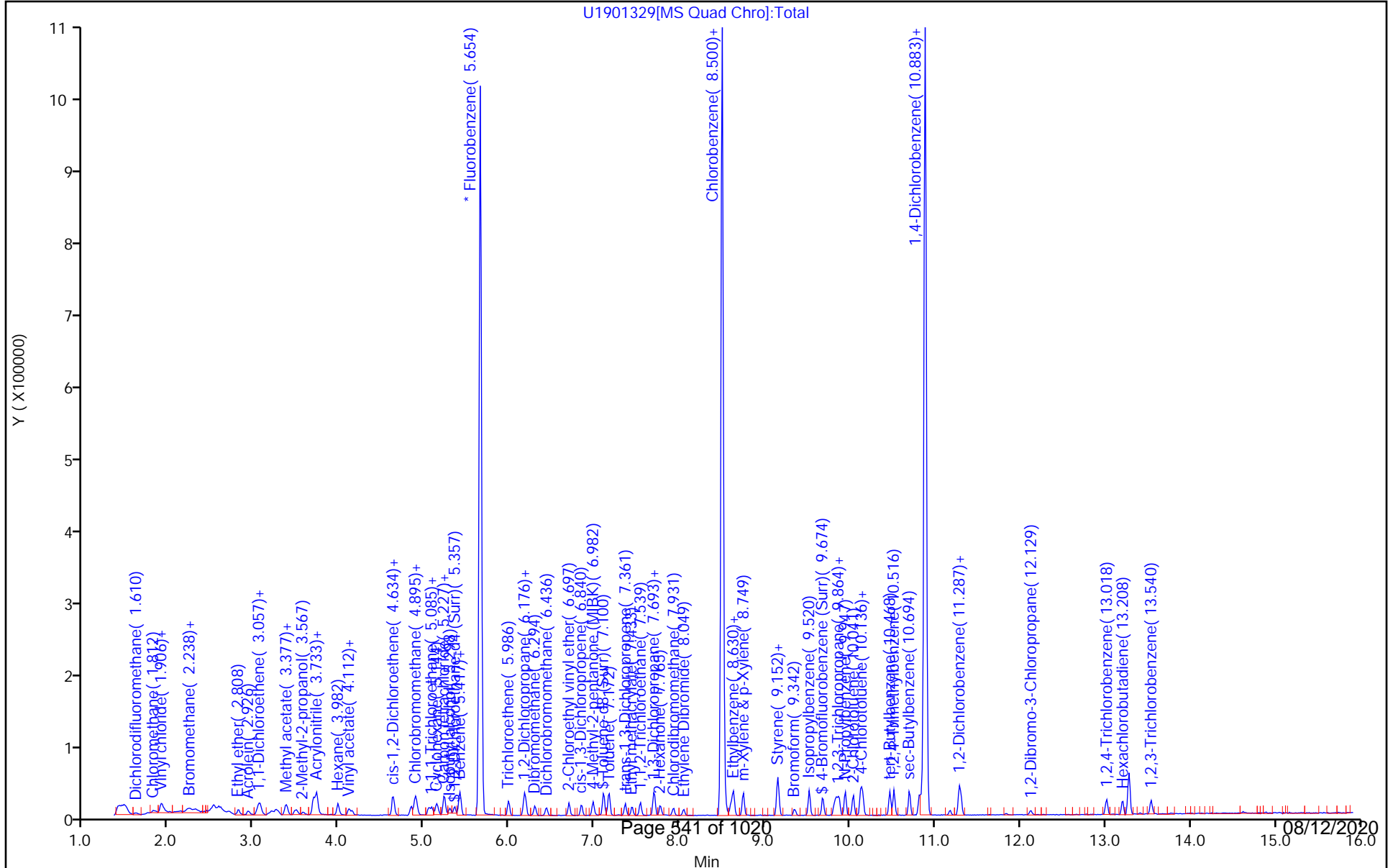
ALS Bottle#: 0

Method: 8260_19

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



TestAmerica Canton

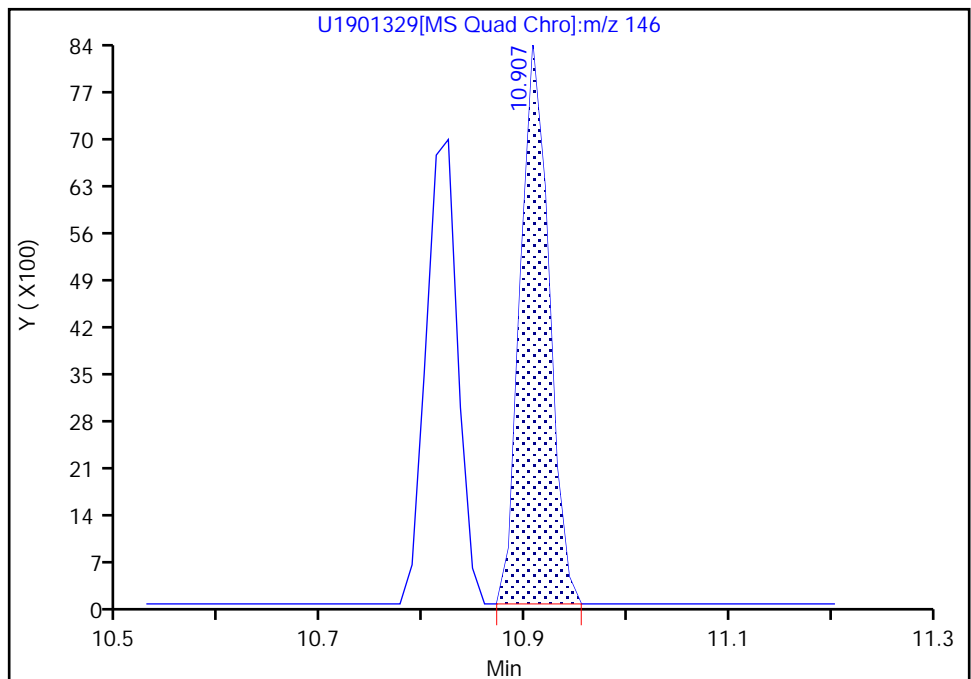
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Injection Date: 27-Aug-2018 19:23:28 Instrument ID: A3UX19
Lims ID: std8260 L1
Client ID:
Operator ID: 001904 ALS Bottle#: 0 Worklist Smp#: 13
Injection Vol: 5.0 mL Dil. Factor: 1.0000
Method: 8260_19 Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

103 1,3-Dichlorobenzene, CAS: 541-73-1

Signal: 1

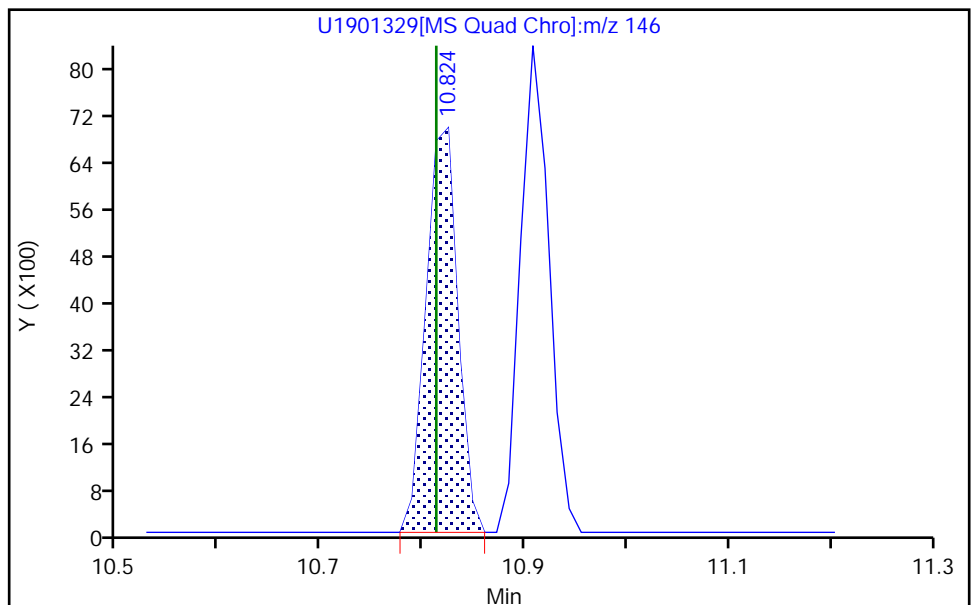
Processing Integration Results

RT: 10.91
Area: 16269
Amount: 0.561209
Amount Units: ug/l



Manual Integration Results

RT: 10.82
Area: 14989
Amount: 0.523661
Amount Units: ug/l



TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901329.d

Injection Date: 27-Aug-2018 19:23:28

Instrument ID: A3UX19

Lims ID: std8260 L1

Client ID:

Operator ID: 001904

ALS Bottle#: 0

Worklist Smp#: 13

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

Method: 8260_19

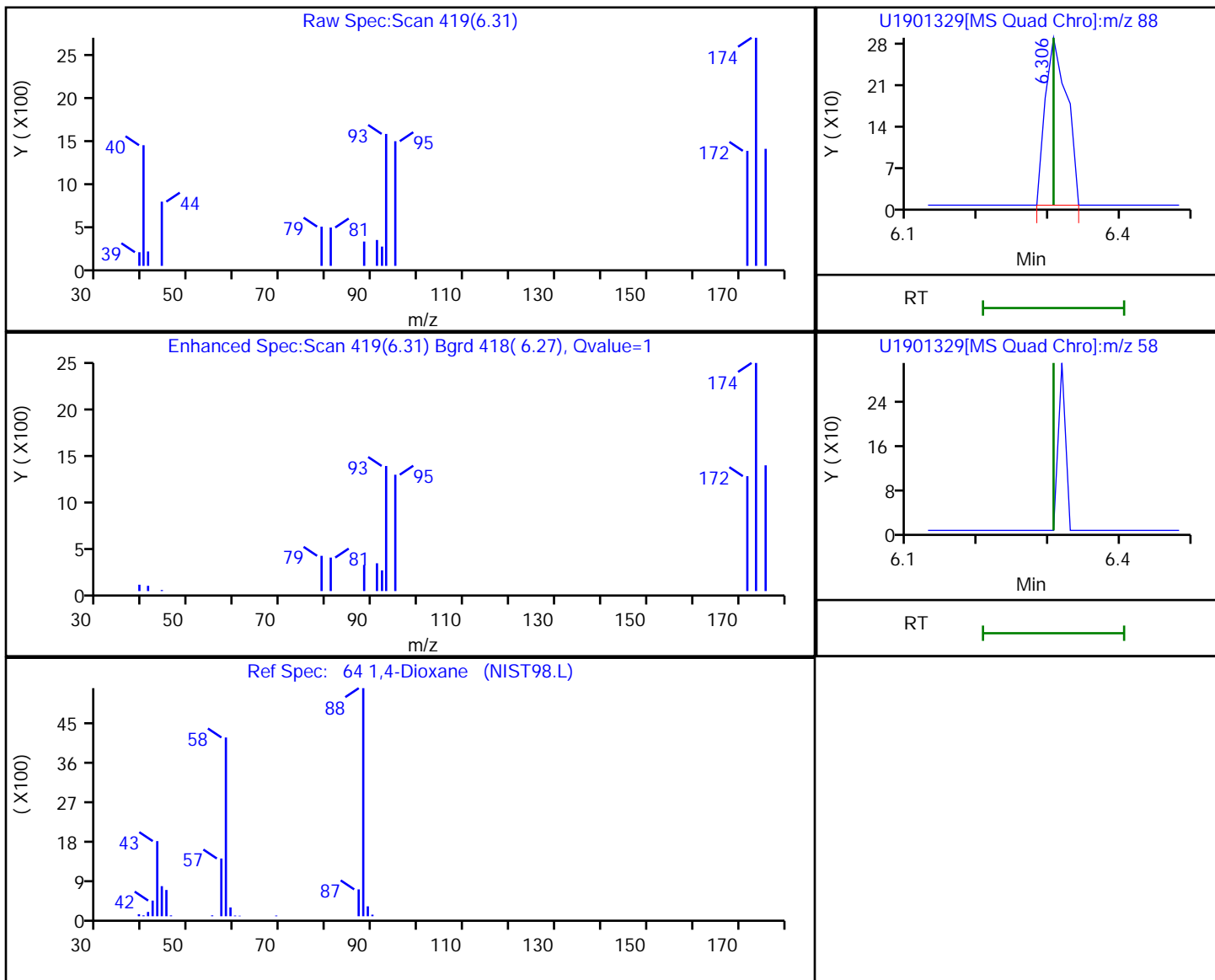
Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

64 1,4-Dioxane, CAS: 123-91-1

Processing Results



RT	Mass	Response	Amount
6.31	88.00	601	11.604682
6.31	58.00	0	

Reviewer: laveyt, 27-Aug-2018 19:49:09

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901329.d

Injection Date: 27-Aug-2018 19:23:28

Instrument ID: A3UX19

Lims ID: std8260 L1

Client ID:

Operator ID: 001904

ALS Bottle#: 0

Worklist Smp#: 13

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

Method: 8260_19

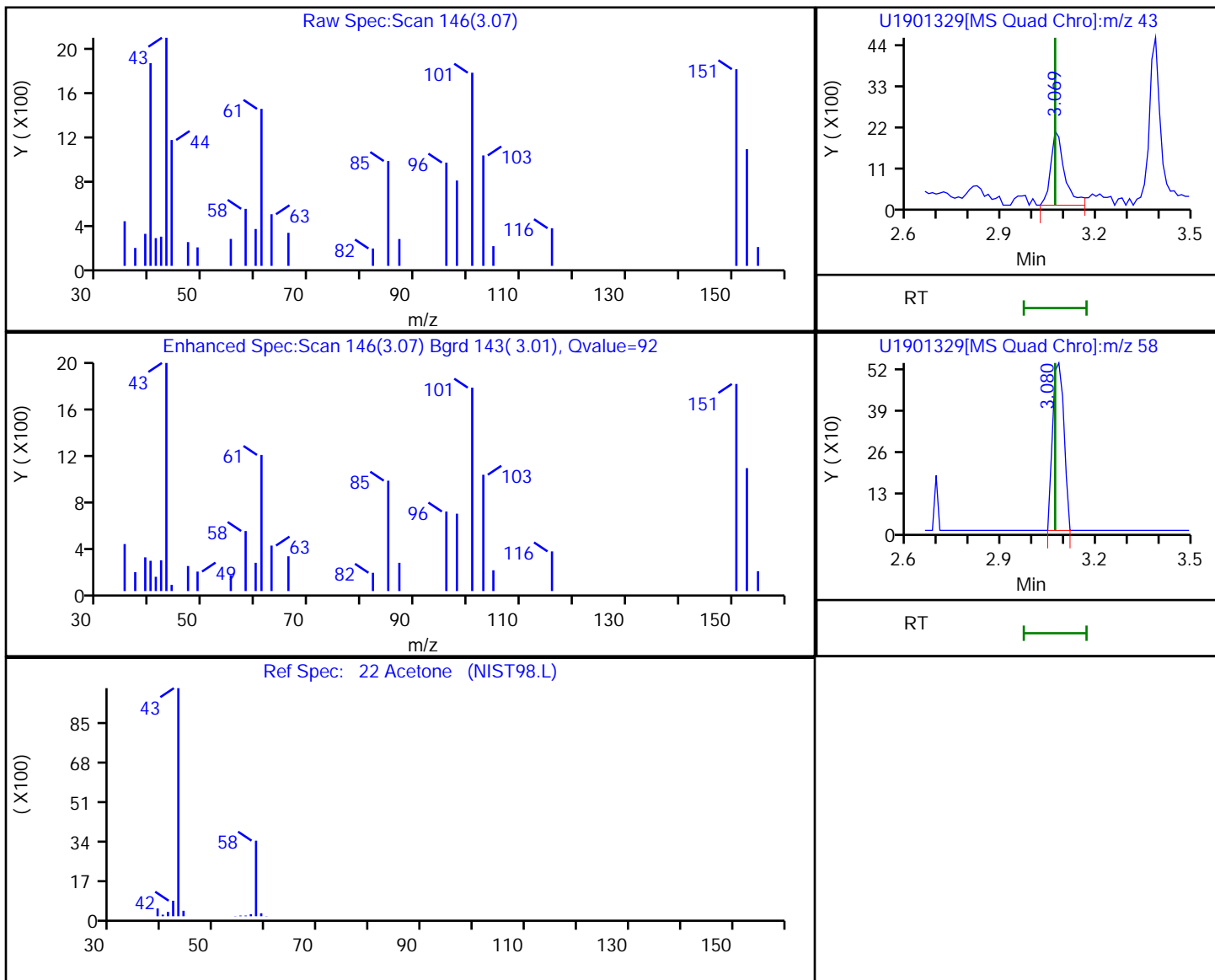
Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

22 Acetone, CAS: 67-64-1

Processing Results



RT	Mass	Response	Amount
3.07	43.00	6224	1.077444
3.08	58.00	1333	

Reviewer: laveyt, 27-Aug-2018 19:48:05

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901329.d

Injection Date: 27-Aug-2018 19:23:28

Instrument ID: A3UX19

Lims ID: std8260 L1

Client ID:

Operator ID: 001904

ALS Bottle#: 0

Worklist Smp#: 13

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

Method: 8260_19

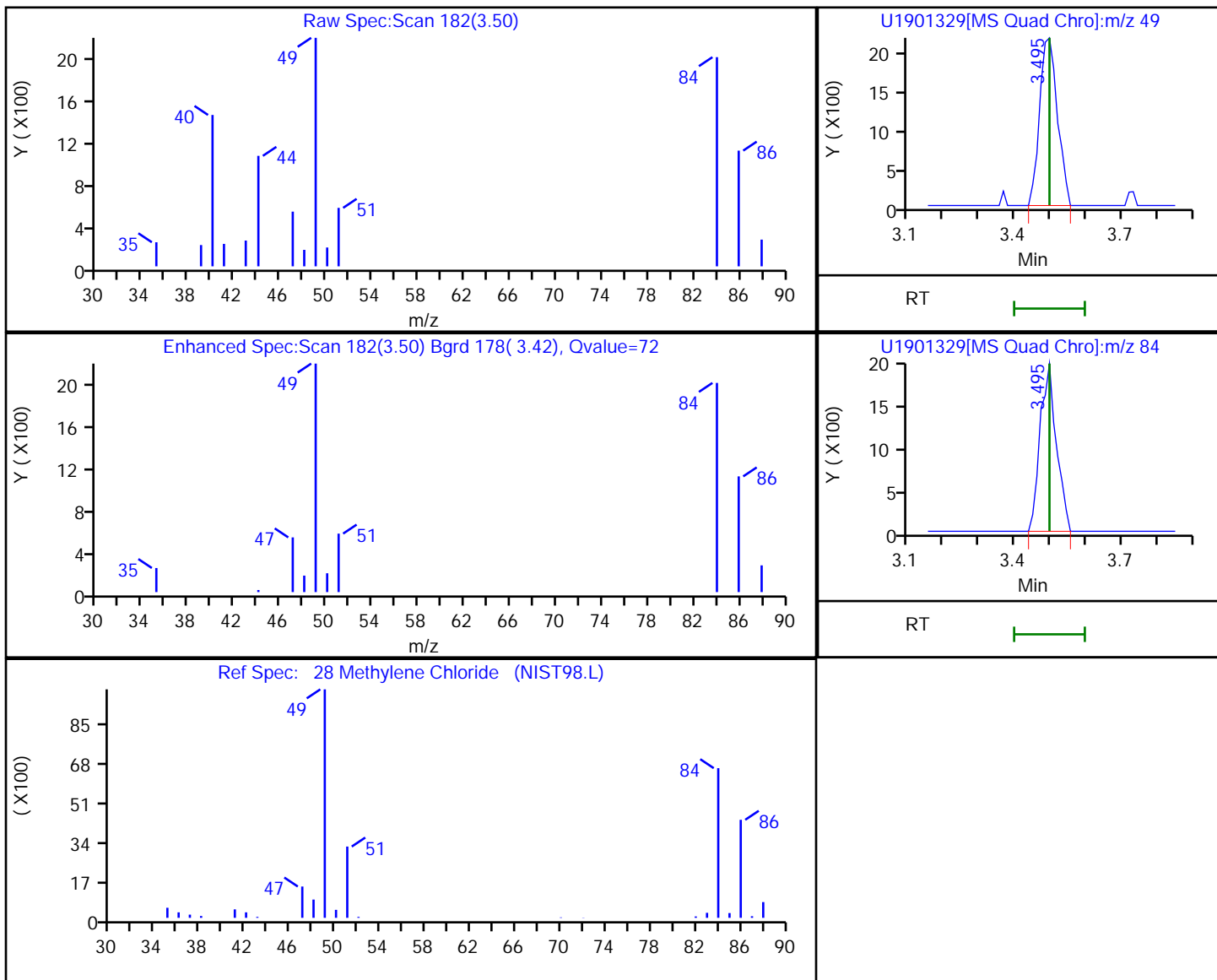
Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

28 Methylene Chloride, CAS: 75-09-2

Processing Results



RT	Mass	Response	Amount
3.50	49.00	7484	0.551047
3.50	84.00	6258	

Reviewer: laveyt, 27-Aug-2018 19:48:14

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901329.d

Injection Date: 27-Aug-2018 19:23:28

Instrument ID: A3UX19

Lims ID: std8260 L1

Client ID:

Operator ID: 001904

ALS Bottle#: 0

Worklist Smp#: 13

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

Method: 8260_19

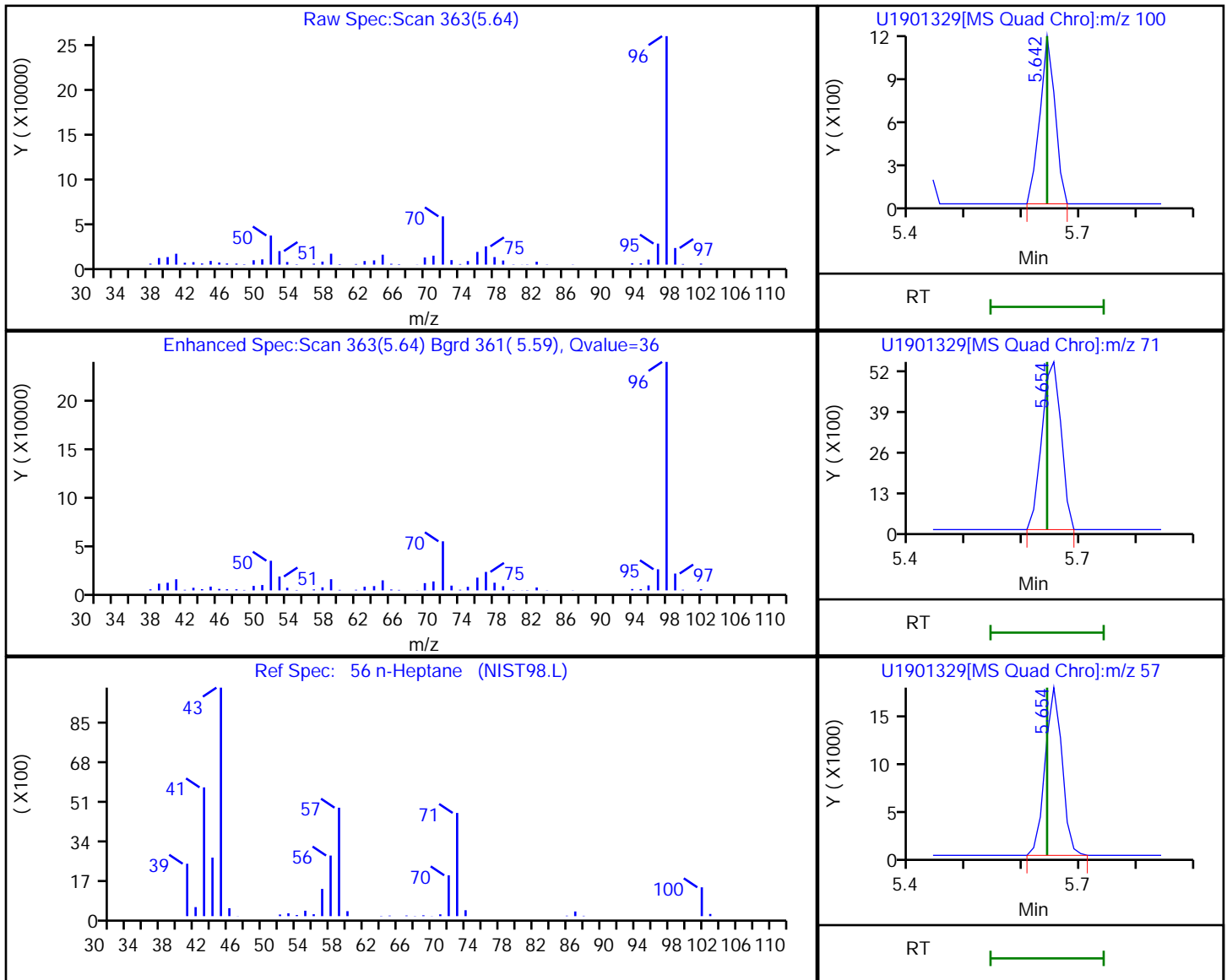
Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

56 n-Heptane, CAS: 142-82-5

Processing Results



RT	Mass	Response	Amount
5.64	100.00	2131	
5.65	71.00	12900	
5.65	57.00	35542	0.539390

Reviewer: laveyt, 27-Aug-2018 19:48:44

Audit Action: Marked Compound Undetected

Page 546 of 1020 Audit Reason: Invalid Compound ID

08/12/2020

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901329.d

Injection Date: 27-Aug-2018 19:23:28

Instrument ID: A3UX19

Lims ID: std8260 L1

Client ID:

Operator ID: 001904

ALS Bottle#: 0

Worklist Smp#: 13

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

Method: 8260_19

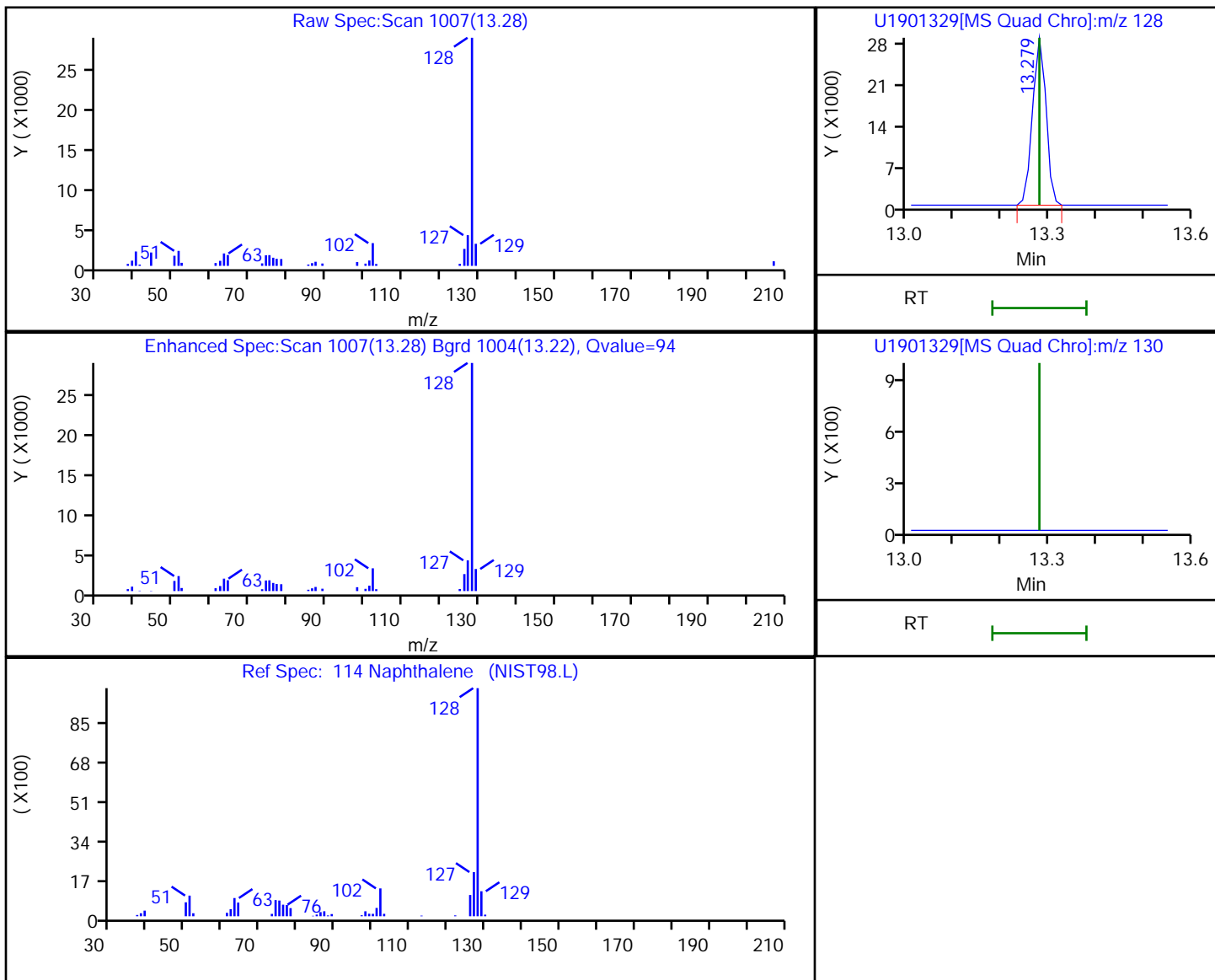
Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

114 Naphthalene, CAS: 91-20-3

Processing Results



RT	Mass	Response	Amount
13.28	128.00	56279	0.769368
13.28	130.00	0	

Reviewer: laveyt, 27-Aug-2018 20:00:12

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901329.d

Injection Date: 27-Aug-2018 19:23:28

Instrument ID: A3UX19

Lims ID: std8260 L1

Client ID:

Operator ID: 001904

ALS Bottle#: 0

Worklist Smp#: 13

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

Method: 8260_19

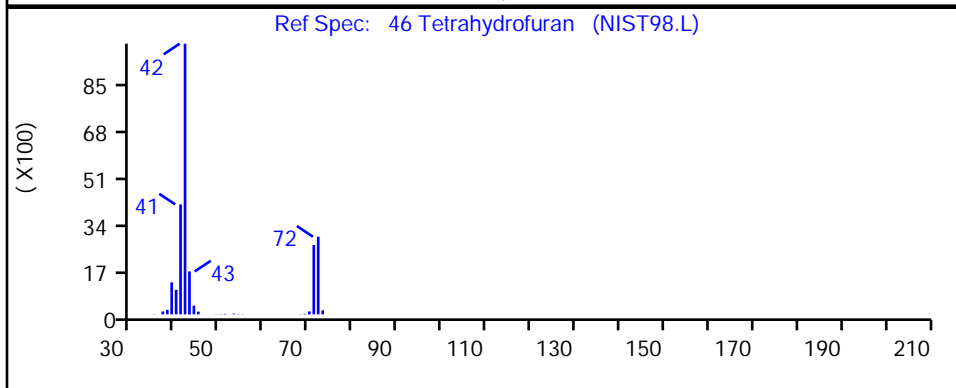
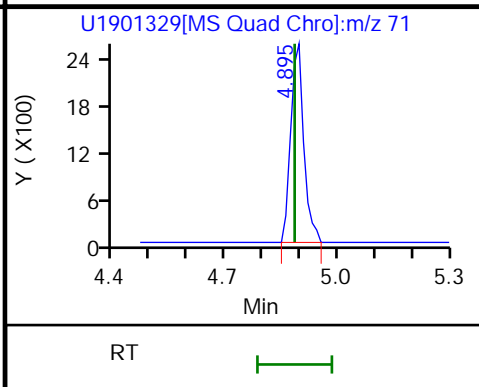
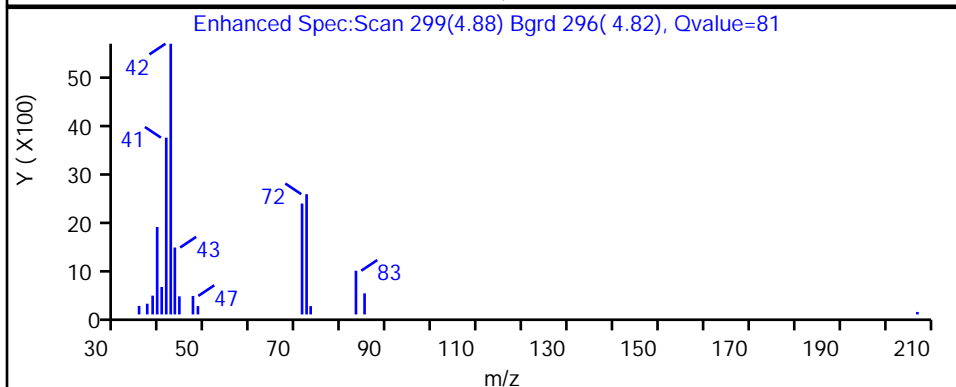
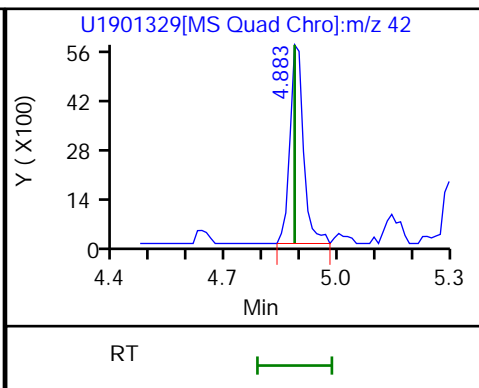
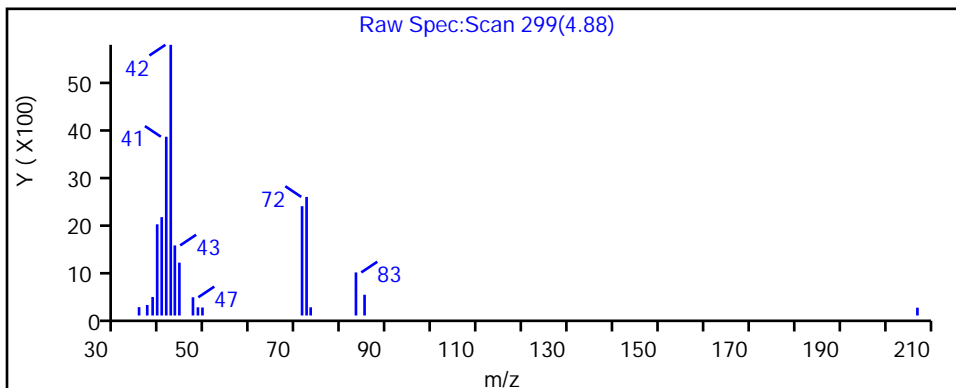
Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

46 Tetrahydrofuran, CAS: 109-99-9

Processing Results



RT	Mass	Response	Amount
4.88	42.00	14557	0.882444
4.89	71.00	6288	

Reviewer: laveyt, 27-Aug-2018 19:48:29

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901329.d

Injection Date: 27-Aug-2018 19:23:28

Instrument ID: A3UX19

Lims ID: std8260 L1

Client ID:

Operator ID: 001904

ALS Bottle#: 0

Worklist Smp#: 13

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

Method: 8260_19

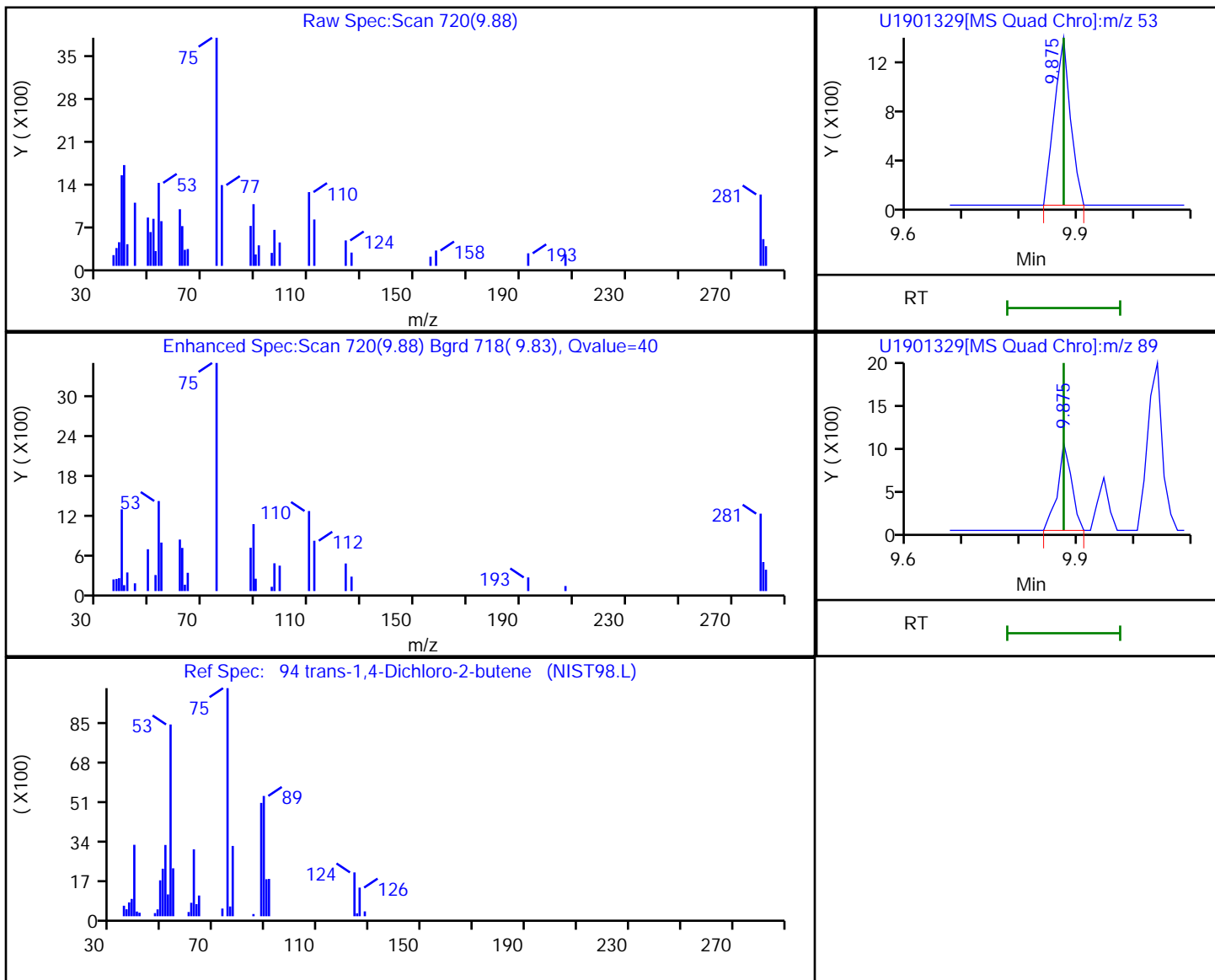
Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

94 trans-1,4-Dichloro-2-butene, CAS: 110-57-6

Processing Results



RT	Mass	Response	Amount
9.88	53.00	2712	0.490436
9.88	89.00	1752	

Reviewer: laveyt, 27-Aug-2018 19:50:09

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 440459

SDG No.: _____

Instrument ID: A3UX9 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/29/2020 10:22 Calibration End Date: 06/29/2020 12:37 Calibration ID: 57650

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD8260 240-440459/8	UX988356.D
Level 2	STD8260 240-440459/9	UX988357.D
Level 3	STD8260 240-440459/10	UX988358.D
Level 4	ICIS 240-440459/11	UX988359.D
Level 5	STD8260 240-440459/12	UX988360.D
Level 6	STD8260 240-440459/13	UX988361.D
Level 7	STD8260 240-440459/14	UX988362.D

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
Dichlorodifluoromethane	0.2290 0.2305	0.2553 0.2209	0.2074	0.2015	0.2356	Ave		0.2257			8.0		15.0				
Chloromethane	++++ 0.3159	0.4182 0.3152	0.3659	0.3459	0.3213	Ave		0.3471		0.1000	11.6		15.0				
Butadiene	0.3608 0.2678	0.3775 0.2697	0.3003	0.2889	0.2780	Ave		0.3061			14.6		15.0				
Vinyl chloride	0.2958 0.2906	0.3623 0.2945	0.3313	0.3225	0.3019	Ave		0.3141			8.3		15.0				
Bromomethane	0.2733 0.2322	0.2362 0.2802	0.2319	0.2295	0.2312	Ave		0.2449			8.9		15.0				
Chloroethane	0.2614 0.2500	0.2407 0.2845	0.2487	0.2479	0.2368	Ave		0.2529			6.3		15.0				
Dichlorofluoromethane	++++ 0.5395	0.7362 0.5832	0.5821	0.5687	0.5370	Ave		0.5911			12.5		15.0				
Trichlorofluoromethane	0.3789 0.4131	0.3860 0.4340	0.4106	0.3950	0.4067	Ave		0.4035			4.6		15.0				
Ethyl ether	0.3452 0.2717	0.3329 0.2694	0.3070	0.3029	0.2982	Ave		0.3039			9.3		15.0				
Acrolein	++++ 0.0502	0.0737 ++++	0.0543	0.0471	0.0503	Lin1	0.1267	0.0490						0.9980		0.9900	
1,1-Dichloroethene	0.4346 0.3979	0.4274 0.3987	0.4282	0.4064	0.3994	Ave		0.4132			3.9		15.0				
1,1,2-Trichloro-1,2,2-trifluoroethane	0.1929 0.2156	0.2045 0.2222	0.1997	0.1946	0.2203	Ave		0.2071			5.9		15.0				
Acetone	++++ 0.0359	0.0828 ++++	0.0378	0.0335	0.0361	Lin1	0.0944	0.0338						0.9980		0.9900	
Iodomethane	0.4320 0.3974	0.4319 0.4048	0.4199	0.4155	0.3964	Ave		0.4140			3.6		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

Analy Batch No.: 440459

SDG No.: _____

Instrument ID: A3UX9

GC Column: DB-624

ID: 0.18 (mm)

Heated Purge: (Y/N) N

Calibration Start Date: 06/29/2020 10:22

Calibration End Date: 06/29/2020 12:37

Calibration ID: 57650

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
Carbon disulfide	0.8679 0.7921	0.8595 0.7980	0.8386	0.8214	0.7977	Ave		0.8251			3.8		15.0				
3-Chloro-1-propene	0.6357 0.4976	0.5754 0.4941	0.5297	0.5183	0.5006	Ave		0.5359			9.7		15.0				
Methyl acetate	0.4015 0.3861	0.4631 0.3509	0.3872	0.3542	0.3738	Ave		0.3881			9.7		15.0				
Methylene Chloride	++++ 0.3986	0.4972 0.3939	0.4300	0.4158	0.4015	Ave		0.4228			9.2		15.0				
2-Methyl-2-propanol	++++ 0.0393	0.0553 0.0283	0.0423	0.0359	0.0384	Ave		0.0399			22.3	*	15.0				
Acrylonitrile	0.1586 0.1709	0.1979 0.1683	0.1772	0.1605	0.1734	Ave		0.1724			7.6		15.0				
trans-1,2-Dichloroethene	0.4207 0.4092	0.4473 0.4126	0.4236	0.4165	0.4144	Ave		0.4206			3.0		15.0				
Methyl tert-butyl ether	0.9572 0.9249	1.0290 0.8971	0.9422	0.9145	0.9280	Ave		0.9418			4.6		15.0				
Hexane	0.4064 0.2961	0.3287 0.3067	0.2738	0.2675	0.3003	Ave		0.3114			15.0		15.0				
1,1-Dichloroethane	0.6009 0.5347	0.5722 0.5253	0.5801	0.5476	0.5436	Ave		0.5578		0.1000	4.9		15.0				
Vinyl acetate	0.6976 0.5868	0.6684 0.5824	0.6568	0.6681	0.6664	Ave		0.6466			6.8		15.0				
2-Butanone (MEK)	0.0590 0.0585	0.0728 0.0531	0.0607	0.0525	0.0573	Ave		0.0591			11.4		15.0				
cis-1,2-Dichloroethene	0.4180 0.3106	0.3563 0.3155	0.3284	0.3248	0.3179	Ave		0.3388			11.2		15.0				
2,2-Dichloropropane	++++ 0.3228	0.4084 0.3305	0.3716	0.3601	0.3464	Ave		0.3566			8.7		15.0				
Chlorobromomethane	0.3291 0.2992	0.3047 0.2936	0.3211	0.3119	0.3027	Ave		0.3089			4.1		15.0				
Tetrahydrofuran	++++ 0.1635	0.2180 0.1480	0.1710	0.1560	0.1634	Ave		0.1700			14.6		15.0				
Chloroform	0.5957 0.4962	0.6194 0.4864	0.5157	0.5127	0.5010	Ave		0.5324			9.9		15.0				
1,1,1-Trichloroethane	0.5038 0.4336	0.4497 0.4226	0.4579	0.4331	0.4248	Ave		0.4465			6.3		15.0				
Cyclohexane	0.3815 0.3757	0.3911 0.3759	0.3744	0.3607	0.3840	Ave		0.3776			2.5		15.0				
1,1-Dichloropropene	0.4320 0.4010	0.4134 0.4012	0.4243	0.4119	0.4126	Ave		0.4138			2.7		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 440459

SDG No.: _____

Instrument ID: A3UX9 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/29/2020 10:22 Calibration End Date: 06/29/2020 12:37 Calibration ID: 57650

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
Carbon tetrachloride	0.3902 0.3683	0.3826 0.3619	0.3698	0.3814	0.3822	Ave		0.3766			2.7		15.0				
Isobutyl alcohol	0.0160 0.0145	0.0189 0.0116	0.0174	0.0152	0.0151	Ave		0.0155			14.8		15.0				
1,2-Dichloroethane	0.4392 0.4327	0.4669 0.4199	0.4497	0.4400	0.4357	Ave		0.4406			3.3		15.0				
Benzene	1.2197 1.1700	1.3043 1.1479	1.2363	1.2185	1.1971	Ave		1.2134			4.2		15.0				
n-Heptane	0.5441 0.1407	0.3455 0.1425	0.1360	0.1268	0.1434	Lin1	0.1993	0.1337						0.9960		0.9900	
Trichloroethene	0.3188 0.3113	0.3406 0.3057	0.3202	0.3161	0.3097	Ave		0.3175			3.6		15.0				
Methylcyclohexane	0.3522 0.3409	0.3474 0.3350	0.3274	0.3089	0.3445	Ave		0.3366			4.4		15.0				
1,2-Dichloropropane	0.3549 0.2830	0.3233 0.2840	0.3000	0.2995	0.3019	Ave		0.3066			8.2		15.0				
Dibromomethane	0.2130 0.2181	0.2086 0.2083	0.2195	0.2179	0.2186	Ave		0.2149			2.3		15.0				
1,4-Dioxane	++++ 0.0033	0.0026 0.0026	0.0027	0.0037	0.0032	Qua	-0.125	0.0044	-0.000001					0.9910		0.9900	
Dichlorobromomethane	0.4594 0.3899	0.4220 0.3832	0.4221	0.4102	0.3972	Ave		0.4120			6.3		15.0				
2-Chloroethyl vinyl ether	0.2149 0.2293	0.2353 0.2255	0.2365	0.2277	0.2313	Ave		0.2286			3.2		15.0				
cis-1,3-Dichloropropene	0.5161 0.4952	0.5257 0.4793	0.5348	0.5162	0.5128	Ave		0.5115			3.7		15.0				
4-Methyl-2-pentanone (MIBK)	0.5248 0.4962	0.5569 0.4774	0.5249	0.5088	0.5073	Ave		0.5138			4.9		15.0				
Toluene	1.7755 1.5919	1.6685 1.5588	1.6196	1.5738	1.6119	Ave		1.6286			4.5		15.0				
trans-1,3-Dichloropropene	0.6827 0.6431	0.6505 0.6225	0.6509	0.6338	0.6407	Ave		0.6463			2.9		15.0				
Ethyl methacrylate	0.7340 0.6185	0.6715 0.6022	0.6274	0.6357	0.6359	Ave		0.6464			6.8		15.0				
1,1,2-Trichloroethane	0.4050 0.3442	0.3613 0.3378	0.3411	0.3448	0.3434	Ave		0.3539			6.7		15.0				
1,3-Dichloropropane	0.6000 0.6435	0.6730 0.6249	0.6611	0.6422	0.6460	Ave		0.6415			3.7		15.0				
Tetrachloroethene	0.3463 0.3845	0.3976 0.3752	0.3859	0.3866	0.3922	Ave		0.3812			4.4		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 440459

SDG No.: _____

Instrument ID: A3UX9 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/29/2020 10:22 Calibration End Date: 06/29/2020 12:37 Calibration ID: 57650

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
2-Hexanone	0.5090 0.4649	0.5223 0.4310	0.4930	0.4747	0.4759	Ave		0.4816			6.3		15.0				
Chlorodibromomethane	0.4960 0.3979	0.4268 0.3902	0.3978	0.3913	0.4011	Ave		0.4145			9.2		15.0				
Ethylene Dibromide	0.4852 0.3732	0.3951 0.3576	0.3731	0.3638	0.3703	Ave		0.3883			11.4		15.0				
Chlorobenzene	1.0139 0.9862	1.0956 0.9744	1.0077	0.9868	1.0095	Ave		1.0106		0.3000	4.0		15.0				
1,1,1,2-Tetrachloroethane	0.3774 0.3873	0.3953 0.3751	0.3965	0.3795	0.3891	Ave		0.3857			2.2		15.0				
Ethylbenzene	0.5409 0.5468	0.5258 0.5301	0.5584	0.5385	0.5440	Ave		0.5406			2.0		15.0				
m-Xylene & p-Xylene	0.6355 0.6694	0.6831 0.6575	0.6793	0.6570	0.6881	Ave		0.6671			2.8		15.0				
o-Xylene	0.7302 0.6774	0.6881 0.6629	0.6881	0.6776	0.6880	Ave		0.6875			3.0		15.0				
Styrene	1.1210 1.1532	1.1462 1.1448	1.1377	1.1434	1.1600	Ave		1.1438			1.1		15.0				
Bromoform	0.2603 0.3249	0.2745 0.3195	0.3042	0.3088	0.3175	Ave		0.3014		0.1000	8.1		15.0				
Isopropylbenzene	1.6033 1.6013	1.5726 1.5673	1.5953	1.5870	1.6053	Ave		1.5903			1.0		15.0				
1,1,2,2-Tetrachloroethane	1.1939 0.9487	1.1135 0.8657	1.0260	0.9762	0.9709	Ave		1.0136		0.3000	10.8		15.0				
Bromobenzene	0.8672 0.7888	0.8970 0.7121	0.8097	0.7866	0.7790	Ave		0.8058			7.6		15.0				
trans-1,4-Dichloro-2-butene	++++ 0.3678	0.4233 0.3305	0.3938	0.3694	0.3788	Ave		0.3772			8.2		15.0				
1,2,3-Trichloropropane	0.3761 0.3508	0.3979 0.3043	0.3790	0.3352	0.3414	Ave		0.3550			8.9		15.0				
N-Propylbenzene	0.8741 0.7541	0.7917 0.7083	0.7958	0.7526	0.7631	Ave		0.7771			6.7		15.0				
2-Chlorotoluene	0.7357 0.7010	0.7579 0.6518	0.7224	0.7032	0.7131	Ave		0.7122			4.7		15.0				
1,3,5-Trimethylbenzene	2.1957 2.2451	2.3197 2.0980	2.2731	2.1671	2.2252	Ave		2.2177			3.3		15.0				
4-Chlorotoluene	0.8626 0.7380	0.7518 0.6932	0.7656	0.7254	0.7435	Ave		0.7543			7.0		15.0				
tert-Butylbenzene	1.8373 1.9522	1.8806 2.0113	1.9951	1.9646	2.1374	Ave		1.9684			4.9		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 440459

SDG No.: _____

Instrument ID: A3UX9 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/29/2020 10:22 Calibration End Date: 06/29/2020 12:37 Calibration ID: 57650

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
1,2,4-Trimethylbenzene	2.5085 2.3137	2.4751 2.1892	2.4092	2.2794	2.3444	Ave		2.3599			4.8		15.0				
sec-Butylbenzene	0.4932 0.5588	0.5234 0.5332	0.5797	0.5376	0.5531	Ave		0.5399			5.1		15.0				
1,3-Dichlorobenzene	1.4445 1.4101	1.5705 1.3383	1.4529	1.3930	1.4101	Ave		1.4314			5.0		15.0				
4-Isopropyltoluene	2.2356 2.1884	2.1281 2.0996	2.2022	2.1359	2.2028	Ave		2.1704			2.3		15.0				
1,4-Dichlorobenzene	1.5715 1.4774	1.5783 1.3981	1.5072	1.4528	1.4687	Ave		1.4934			4.3		15.0				
n-Butylbenzene	1.8917 1.7609	1.9303 1.7023	1.8513	1.7393	1.7714	Ave		1.8067			4.7		15.0				
1,2-Dichlorobenzene	1.3696 1.4208	1.5303 1.3641	1.4923	1.4100	1.4274	Ave		1.4306			4.3		15.0				
1,2-Dibromo-3-Chloropropane	0.2952 0.2710	0.3366 0.2577	0.2965	0.2679	0.2724	Ave		0.2853			9.4		15.0				
1,2,4-Trichlorobenzene	0.7839 0.7233	0.8122 0.7835	0.7553	0.7060	0.7200	Ave		0.7549			5.3		15.0				
Hexachlorobutadiene	0.2474 0.2680	0.3066 0.2817	0.2757	0.2632	0.2623	Ave		0.2722			6.9		15.0				
Naphthalene	2.8256 2.5498	2.6817 2.7535	2.7045	2.5483	2.5801	Ave		2.6633			4.0		15.0				
1,2,3-Trichlorobenzene	0.7878 0.6531	0.6991 0.7820	0.6994	0.6649	0.6795	Ave		0.7094			7.6		15.0				
Dibromofluoromethane (Surr)	++++ 0.2661	0.3108 0.2649	0.2737	0.2783	0.2656	Ave		0.2766			6.4		15.0				
1,2-Dichloroethane-d4 (Surr)	++++ 0.3594	0.4320 0.3495	0.3655	0.3711	0.3655	Ave		0.3738			7.9		15.0				
Toluene-d8 (Surr)	++++ 1.3712	1.3716 1.3071	1.3604	1.3480	1.3738	Ave		1.3553			1.9		15.0				
4-Bromofluorobenzene (Surr)	++++ 0.4807	0.5402 0.4756	0.4652	0.4644	0.4754	Ave		0.4836			5.9		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 440459

SDG No.: _____

Instrument ID: A3UX9 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/29/2020 10:22 Calibration End Date: 06/29/2020 12:37 Calibration ID: 57650

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD8260 240-440459/8	UX988356.D
Level 2	STD8260 240-440459/9	UX988357.D
Level 3	STD8260 240-440459/10	UX988358.D
Level 4	ICIS 240-440459/11	UX988359.D
Level 5	STD8260 240-440459/12	UX988360.D
Level 6	STD8260 240-440459/13	UX988361.D
Level 7	STD8260 240-440459/14	UX988362.D

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
Dichlorodifluoromethane	FB	Ave	5791 567786	12786 826874	107494	214942	412501	0.500 40.0	1.00 60.0	10.0	20.0	30.0
Chloromethane	FB	Ave	++++ 778274	20946 1180034	189652	368898	562544	++++ 40.0	1.00 60.0	10.0	20.0	30.0
Butadiene	FB	Ave	9125 659625	18905 1009583	155666	308103	486779	0.500 40.0	1.00 60.0	10.0	20.0	30.0
Vinyl chloride	FB	Ave	7482 715973	18147 1102714	171710	344013	528664	0.500 40.0	1.00 60.0	10.0	20.0	30.0
Bromomethane	FB	Ave	6911 571976	11827 1048903	120211	244814	404794	0.500 40.0	1.00 60.0	10.0	20.0	30.0
Chloroethane	FB	Ave	6612 615946	12057 1065168	128910	264362	414702	0.500 40.0	1.00 60.0	10.0	20.0	30.0
Dichlorofluoromethane	FB	Ave	++++ 1329117	36872 2183562	301730	606627	940343	++++ 40.0	1.00 60.0	10.0	20.0	30.0
Trichlorofluoromethane	FB	Ave	9584 1017773	19334 1624970	212805	421366	712199	0.500 40.0	1.00 60.0	10.0	20.0	30.0
Ethyl ether	FB	Ave	8732 669465	16671 1008589	159126	323026	522097	0.500 40.0	1.00 60.0	10.0	20.0	30.0
Acrolein	FB	Lin1	++++ 618089	18454 ++++	140767	251187	440445	++++ 200	5.00 ++++	50.0	100	150
1,1-Dichloroethene	FB	Ave	10993 980155	21406 1492592	221940	433505	699316	0.500 40.0	1.00 60.0	10.0	20.0	30.0
1,1,2-Trichloro-1,2,2-trifluoroethane	FB	Ave	4879 531057	10243 831767	103488	207545	385791	0.500 40.0	1.00 60.0	10.0	20.0	30.0
Acetone	FB	Lin1	++++ 177046	8291 ++++	39153	71502	126384	++++ 80.0	2.00 ++++	20.0	40.0	60.0
Iodomethane	FB	Ave	10925 978953	21630 1515754	217627	443225	694145	0.500 40.0	1.00 60.0	10.0	20.0	30.0
Carbon disulfide	FB	Ave	21952 1951454	43047 2987775	434673	876107	1396890	0.500 40.0	1.00 60.0	10.0	20.0	30.0

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 440459

SDG No.: _____

Instrument ID: A3UX9 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/29/2020 10:22 Calibration End Date: 06/29/2020 12:37 Calibration ID: 57650

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
3-Chloro-1-propene	FB	Ave	16077 1225799	28817 1849902	274544	552816	876499	0.500 40.0	1.00 60.0	10.0	20.0	30.0
Methyl acetate	FB	Ave	20308 1902587	46386 2627808	401343	755597	1309208	1.00 80.0	2.00 120	20.0	40.0	60.0
Methylene Chloride	FB	Ave	++++ 981902	24903 1474730	222886	443460	703034	++++ 40.0	1.00 60.0	10.0	20.0	30.0
2-Methyl-2-propanol	FB	Ave	++++ 968308	27679 1061280	219053	382477	671833	++++ 400	10.0 600	100	200	300
Acrylonitrile	FB	Ave	40123 4209860	99089 6300621	918406	1711698	3036302	5.00 400	10.0 600	100	200	300
trans-1,2-Dichloroethene	FB	Ave	10640 1008034	22402 1544611	219576	444243	725625	0.500 40.0	1.00 60.0	10.0	20.0	30.0
Methyl tert-butyl ether	FB	Ave	24210 2278588	51534 3358697	488375	975369	1624929	0.500 40.0	1.00 60.0	10.0	20.0	30.0
Hexane	FB	Ave	10278 729548	16462 1148317	141897	285369	525822	0.500 40.0	1.00 60.0	10.0	20.0	30.0
1,1-Dichloroethane	FB	Ave	15198 1317228	28658 1966851	300657	584093	951849	0.500 40.0	1.00 60.0	10.0	20.0	30.0
Vinyl acetate	FB	Ave	17644 1445655	33475 2180380	340417	712590	1166898	0.500 40.0	1.00 60.0	10.0	20.0	30.0
2-Butanone (MEK)	FB	Ave	2985 288253	7293 397315	62976	112097	200833	1.00 80.0	2.00 120	20.0	40.0	60.0
cis-1,2-Dichloroethene	FB	Ave	10573 765234	17842 1181269	170196	346432	556664	0.500 40.0	1.00 60.0	10.0	20.0	30.0
2,2-Dichloropropane	FB	Ave	++++ 795265	20455 1237408	192636	384040	606654	++++ 40.0	1.00 60.0	10.0	20.0	30.0
Chlorobromomethane	FB	Ave	8324 737186	15262 1099133	166447	332713	530038	0.500 40.0	1.00 60.0	10.0	20.0	30.0
Tetrahydrofuran	FB	Ave	++++ 805709	21840 1107945	177222	332757	572157	++++ 80.0	2.00 120	20.0	40.0	60.0
Chloroform	FB	Ave	15066 1222401	31023 1820963	267315	546894	877203	0.500 40.0	1.00 60.0	10.0	20.0	30.0
1,1,1-Trichloroethane	FB	Ave	12742 1068204	22524 1582306	237363	461918	743814	0.500 40.0	1.00 60.0	10.0	20.0	30.0
Cyclohexane	FB	Ave	9650 925518	19589 1407301	194057	384757	672323	0.500 40.0	1.00 60.0	10.0	20.0	30.0
1,1-Dichloropropene	FB	Ave	10925 988006	20704 1501932	219950	439375	722531	0.500 40.0	1.00 60.0	10.0	20.0	30.0
Carbon tetrachloride	FB	Ave	9868 907421	19160 1354860	191665	406855	669221	0.500 40.0	1.00 60.0	10.0	20.0	30.0
Isobutyl alcohol	FB	Ave	10116 894274	23666 1084422	224927	406283	660696	12.5 1000	25.0 1500	250	500	750

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 440459

SDG No.: _____

Instrument ID: A3UX9 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/29/2020 10:22 Calibration End Date: 06/29/2020 12:37 Calibration ID: 57650

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
1,2-Dichloroethane	FB	Ave	11109 1065954	23385 1572244	233081	469349	762860	0.500 40.0	1.00 60.0	10.0	20.0	30.0
Benzene	FB	Ave	30849 2882473	65320 4297881	640789	1299629	2096244	0.500 40.0	1.00 60.0	10.0	20.0	30.0
n-Heptane	FB	Lin1	13761 346744	17302 533440	70492	135231	251171	0.500 40.0	1.00 60.0	10.0	20.0	30.0
Trichloroethene	FB	Ave	8062 766909	17058 1144430	165988	337176	542250	0.500 40.0	1.00 60.0	10.0	20.0	30.0
Methylcyclohexane	FB	Ave	8907 839858	17397 1254317	169718	329438	603153	0.500 40.0	1.00 60.0	10.0	20.0	30.0
1,2-Dichloropropane	FB	Ave	8975 697071	16190 1063221	155514	319430	528729	0.500 40.0	1.00 60.0	10.0	20.0	30.0
Dibromomethane	FB	Ave	5386 537323	10446 779968	113798	232426	382730	0.500 40.0	1.00 60.0	10.0	20.0	30.0
1,4-Dioxane	FB	Qua	++++ 161236	2615 195107	27691	79504	112606	++++ 800	20.0 1200	200	400	600
Dichlorobromomethane	FB	Ave	11618 960620	21137 1434611	218786	437559	695514	0.500 40.0	1.00 60.0	10.0	20.0	30.0
2-Chloroethyl vinyl ether	FB	Ave	10868 1129759	23568 1688441	245216	485842	809961	1.00 80.0	2.00 120	20.0	40.0	60.0
cis-1,3-Dichloropropene	FB	Ave	13054 1219941	26330 1794488	277188	550574	898024	0.500 40.0	1.00 60.0	10.0	20.0	30.0
4-Methyl-2-pentanone (MIBK)	FB	Ave	26545 2444947	55785 3574694	544170	1085319	1776464	1.00 80.0	2.00 120	20.0	40.0	60.0
Toluene	CBNZ d5	Ave	33067 2962734	63054 4577454	647666	1297962	2152855	0.500 40.0	1.00 60.0	10.0	20.0	30.0
trans-1,3-Dichloropropene	CBNZ d5	Ave	12715 1196928	24584 1828083	260314	522674	855789	0.500 40.0	1.00 60.0	10.0	20.0	30.0
Ethyl methacrylate	CBNZ d5	Ave	13670 1151043	25378 1768438	250878	524252	849317	0.500 40.0	1.00 60.0	10.0	20.0	30.0
1,1,2-Trichloroethane	CBNZ d5	Ave	7542 640581	13653 991836	136388	284360	458614	0.500 40.0	1.00 60.0	10.0	20.0	30.0
1,3-Dichloropropane	CBNZ d5	Ave	11174 1197698	25433 1835048	264359	529588	862789	0.500 40.0	1.00 60.0	10.0	20.0	30.0
Tetrachloroethene	CBNZ d5	Ave	6450 715598	15024 1101882	154331	318796	523861	0.500 40.0	1.00 60.0	10.0	20.0	30.0
2-Hexanone	CBNZ d5	Ave	18961 1730567	39479 2531254	394319	783007	1271142	1.00 80.0	2.00 120	20.0	40.0	60.0
Chlorodibromomethane	CBNZ d5	Ave	9238 740578	16128 1145872	159095	322723	535760	0.500 40.0	1.00 60.0	10.0	20.0	30.0
Ethylene Dibromide	CBNZ d5	Ave	9036 694540	14931 1050042	149193	300062	494643	0.500 40.0	1.00 60.0	10.0	20.0	30.0

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 440459

SDG No.: _____

Instrument ID: A3UX9 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/29/2020 10:22 Calibration End Date: 06/29/2020 12:37 Calibration ID: 57650

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
Chlorobenzene	CBNZ d5	Ave	18883 1835450	41403 2861514	402963	813806	1348359	0.500 40.0	1.00 60.0	10.0	20.0	30.0
1,1,1,2-Tetrachloroethane	CBNZ d5	Ave	7028 720729	14938 1101590	158555	312977	519706	0.500 40.0	1.00 60.0	10.0	20.0	30.0
Ethylbenzene	CBNZ d5	Ave	10073 1017624	19870 1556804	223312	444076	726603	0.500 40.0	1.00 60.0	10.0	20.0	30.0
m-Xylene & p-Xylene	CBNZ d5	Ave	11836 1245900	25815 1930823	271636	541839	919086	0.500 40.0	1.00 60.0	10.0	20.0	30.0
o-Xylene	CBNZ d5	Ave	13600 1260691	26002 1946514	275170	558801	918901	0.500 40.0	1.00 60.0	10.0	20.0	30.0
Styrene	CBNZ d5	Ave	20878 2146284	43314 3361915	454969	942961	1549361	0.500 40.0	1.00 60.0	10.0	20.0	30.0
Bromoform	CBNZ d5	Ave	4848 604676	10375 938103	121658	254706	424107	0.500 40.0	1.00 60.0	10.0	20.0	30.0
Isopropylbenzene	CBNZ d5	Ave	29860 2980230	59429 4602595	637951	1308852	2144128	0.500 40.0	1.00 60.0	10.0	20.0	30.0
1,1,2,2-Tetrachloroethane	DCBd 4	Ave	11888 1004449	22899 1549935	225780	458404	748104	0.500 40.0	1.00 60.0	10.0	20.0	30.0
Bromobenzene	DCBd 4	Ave	8635 835159	18447 1275046	178180	369384	600238	0.500 40.0	1.00 60.0	10.0	20.0	30.0
trans-1,4-Dichloro-2-butene	DCBd 4	Ave	++++ 389417	8705 591655	86652	173461	291843	++++ 40.0	1.00 60.0	10.0	20.0	30.0
1,2,3-Trichloropropane	DCBd 4	Ave	3745 371438	8183 544779	83404	157411	263039	0.500 40.0	1.00 60.0	10.0	20.0	30.0
N-Propylbenzene	DCBd 4	Ave	8704 798375	16281 1268250	175115	353383	588013	0.500 40.0	1.00 60.0	10.0	20.0	30.0
2-Chlorotoluene	DCBd 4	Ave	7326 742154	15586 1167000	158963	330215	549448	0.500 40.0	1.00 60.0	10.0	20.0	30.0
1,3,5-Trimethylbenzene	DCBd 4	Ave	21864 2377056	47702 3756266	500215	1017603	1714595	0.500 40.0	1.00 60.0	10.0	20.0	30.0
4-Chlorotoluene	DCBd 4	Ave	8589 781391	15461 1241043	168473	340638	572899	0.500 40.0	1.00 60.0	10.0	20.0	30.0
tert-Butylbenzene	DCBd 4	Ave	18295 2066954	38674 3601138	439033	922549	1646981	0.500 40.0	1.00 60.0	10.0	20.0	30.0
1,2,4-Trimethylbenzene	DCBd 4	Ave	24979 2449700	50898 3919638	530164	1070332	1806483	0.500 40.0	1.00 60.0	10.0	20.0	30.0
sec-Butylbenzene	DCBd 4	Ave	4911 591654	10764 954692	127572	252428	426188	0.500 40.0	1.00 60.0	10.0	20.0	30.0
1,3-Dichlorobenzene	DCBd 4	Ave	14384 1493009	32297 2396185	319729	654117	1086547	0.500 40.0	1.00 60.0	10.0	20.0	30.0
4-Isopropyltoluene	DCBd 4	Ave	22261 2317059	43763 3759254	484614	1002989	1697348	0.500 40.0	1.00 60.0	10.0	20.0	30.0

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 440459

SDG No.: _____

Instrument ID: A3UX9 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/29/2020 10:22 Calibration End Date: 06/29/2020 12:37 Calibration ID: 57650

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
1,4-Dichlorobenzene	DCBd 4	Ave	15648 1564278	32457 2503167	331657	682221	1131700	0.500 40.0	1.00 60.0	10.0	20.0	30.0
n-Butylbenzene	DCBd 4	Ave	18837 1864391	39695 3047931	407382	816712	1364960	0.500 40.0	1.00 60.0	10.0	20.0	30.0
1,2-Dichlorobenzene	DCBd 4	Ave	13638 1504311	31469 2442407	328393	662084	1099828	0.500 40.0	1.00 60.0	10.0	20.0	30.0
1,2-Dibromo-3-Chloropropane	DCBd 4	Ave	2939 286950	6921 461441	65245	125820	209864	0.500 40.0	1.00 60.0	10.0	20.0	30.0
1,2,4-Trichlorobenzene	DCBd 4	Ave	7806 765789	16703 1402795	166206	331531	554821	0.500 40.0	1.00 60.0	10.0	20.0	30.0
Hexachlorobutadiene	DCBd 4	Ave	2464 283768	6306 504327	60673	123594	202144	0.500 40.0	1.00 60.0	10.0	20.0	30.0
Naphthalene	DCBd 4	Ave	28136 2699667	55146 4929908	595138	1196631	1988046	0.500 40.0	1.00 60.0	10.0	20.0	30.0
1,2,3-Trichlorobenzene	DCBd 4	Ave	7845 691524	14377 1400112	153907	312236	523602	0.500 40.0	1.00 60.0	10.0	20.0	30.0
Dibromofluoromethane (Surr)	FB	Ave	++++ 655448	15568 991853	141889	296849	465144	++++ 40.0	1.00 60.0	10.0	20.0	30.0
1,2-Dichloroethane-d4 (Surr)	FB	Ave	++++ 885351	21634 1308350	189456	395806	640099	++++ 40.0	1.00 60.0	10.0	20.0	30.0
Toluene-d8 (Surr)	CBNZ d5	Ave	++++ 2552012	51834 3838305	544004	1111744	1834874	++++ 40.0	1.00 60.0	10.0	20.0	30.0
4-Bromofluorobenzene (Surr)	CBNZ d5	Ave	++++ 894653	20415 1396673	186029	382992	634899	++++ 40.0	1.00 60.0	10.0	20.0	30.0

Curve Type Legend:

Ave = Average ISTD
Lin1 = Linear 1/conc ISTD
Qua = Quadratic ISTD

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988356.D
 Lims ID: std8260 L1
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 29-Jun-2020 10:22:30 ALS Bottle#: 8 Worklist Smp#: 8
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0099598-008
 Operator ID: 001765 Instrument ID: A3UX9
 Sublist: chrom-8260_9*sub46
 Method: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Jul-2020 12:42:23 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1033

First Level Reviewer: bosworthh

Date: 29-Jun-2020 12:57:44

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.866	5.865	0.001	98	1011673	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.575	8.575	0.000	87	744962	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.812	10.823	-0.011	97	398304	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	113		5.277				ND	ND	U
\$ 5 1,2-Dichloroethane-d4 (Surr)	65		5.573				ND	ND	U
\$ 6 Toluene-d8 (Surr)	98		7.253				ND	ND	U
\$ 7 4-Bromofluorobenzene (Surr)	95		9.679				ND	ND	U
9 Dichlorodifluoromethane	85	1.783	1.786	-0.003	12	5791	0.5000	0.5072	
10 Chloromethane	50		2.011				ND	ND	U
12 Butadiene	54	2.115	2.117	-0.002	91	9125	0.5000	0.5893	
11 Vinyl chloride	62	2.138	2.129	0.009	68	7482	0.5000	0.4708	
13 Bromomethane	94	2.434	2.449	-0.015	76	6911	0.5000	0.5579	
15 Chloroethane	64	2.552	2.543	0.009	26	6612	0.5000	0.5169	
16 Dichlorofluoromethane	67		2.745				ND	ND	U
17 Trichlorofluoromethane	101	2.825	2.816	0.009	85	9584	0.5000	0.4696	
18 Ethyl ether	59	3.073	3.064	0.009	86	8732	0.5000	0.5680	
21 Acrolein	56		3.182				ND	ND	U
24 1,1-Dichloroethene	61	3.298	3.289	0.009	94	10993	0.5000	0.5259	
22 1,1,2-Trichloro-1,2,2-trifluoro	101	3.310	3.324	-0.014	77	4879	0.5000	0.4657	
23 Acetone	58		3.336				ND	ND	U
25 Iodomethane	142	3.440	3.443	-0.003	91	10925	0.5000	0.5217	
26 Carbon disulfide	76	3.523	3.514	0.009	96	21952	0.5000	0.5260	
28 3-Chloro-1-propene	41	3.629	3.632	-0.003	90	16077	0.5000	0.5931	
29 Methyl acetate	43	3.653	3.644	0.009	96	20308	1.00	1.03	
30 Methylene Chloride	49		3.739				ND	ND	U
31 2-Methyl-2-propanol	59		3.833				ND	ND	U
32 Acrylonitrile	53	3.960	3.952	0.008	98	40123	5.00	4.60	
34 trans-1,2-Dichloroethene	61	3.996	3.999	-0.003	71	10640	0.5000	0.5001	
33 Methyl tert-butyl ether	73	4.008	3.999	0.009	96	24210	0.5000	0.5082	
35 Hexane	57	4.244	4.247	-0.003	93	10278	0.5000	0.6526	
36 1,1-Dichloroethane	63	4.375	4.366	0.009	95	15198	0.5000	0.5387	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
37 Vinyl acetate	43	4.410	4.401	0.009	97	17644	0.5000	0.5394	
43 cis-1,2-Dichloroethene	96	4.883	4.874	0.009	82	10573	0.5000	0.6170	
41 2-Butanone (MEK)	72	4.872	4.874	-0.002	81	2985	1.00	1.00	
42 2,2-Dichloropropane	77		4.886				ND	ND	U
47 Chlorobromomethane	49	5.085	5.076	0.009	91	8324	0.5000	0.5327	
48 Tetrahydrofuran	42		5.135				ND	ND	U
49 Chloroform	83	5.144	5.135	0.009	94	15066	0.5000	0.5594	
50 1,1,1-Trichloroethane	97	5.321	5.324	-0.003	95	12742	0.5000	0.5642	
51 Cyclohexane	84	5.380	5.383	-0.003	89	9650	0.5000	0.5052	
52 1,1-Dichloropropene	75	5.463	5.454	0.009	90	10925	0.5000	0.5220	
53 Carbon tetrachloride	117	5.475	5.466	0.009	75	9868	0.5000	0.5180	
54 Isobutyl alcohol	41	5.511	5.502	0.009	88	10116	12.5	12.9	
56 1,2-Dichloroethane	62	5.641	5.644	-0.003	59	11109	0.5000	0.4985	
55 Benzene	78	5.641	5.644	-0.003	96	30849	0.5000	0.5026	
58 n-Heptane	71	5.877	5.857	0.020	37	13761	0.5000	0.5438	
60 Trichloroethene	130	6.185	6.188	-0.003	87	8062	0.5000	0.5020	
62 Methylcyclohexane	83	6.374	6.365	0.009	76	8907	0.5000	0.5231	
63 1,2-Dichloropropane	63	6.374	6.377	-0.003	78	8975	0.5000	0.5786	
66 Dibromomethane	174	6.481	6.484	-0.003	84	5386	0.5000	0.4956	
65 1,4-Dioxane	88		6.484				ND	ND	U
67 Dichlorobromomethane	83	6.611	6.602	0.009	92	11618	0.5000	0.5575	
69 2-Chloroethyl vinyl ether	63	6.848	6.851	-0.003	91	10868	1.00	0.9397	
71 cis-1,3-Dichloropropene	75	7.002	6.993	0.009	93	13054	0.5000	0.5046	
72 4-Methyl-2-pentanone (MIBK)	43	7.120	7.123	-0.003	98	26545	1.00	1.02	
73 Toluene	91	7.309	7.312	-0.003	98	33067	0.5000	0.5451	
74 trans-1,3-Dichloropropene	75	7.487	7.478	0.009	91	12715	0.5000	0.5281	
75 Ethyl methacrylate	69	7.546	7.549	-0.003	84	13670	0.5000	0.5677	
76 1,1,2-Trichloroethane	97	7.652	7.655	-0.003	87	7542	0.5000	0.5721	
77 1,3-Dichloropropane	76	7.806	7.809	-0.003	89	11174	0.5000	0.4676	
78 Tetrachloroethene	166	7.818	7.821	-0.003	77	6450	0.5000	0.4543	
80 2-Hexanone	43	7.865	7.868	-0.003	97	18961	1.00	1.06	
82 Chlorodibromomethane	129	8.031	8.022	0.009	86	9238	0.5000	0.5984	
83 Ethylene Dibromide	107	8.149	8.140	0.009	88	9036	0.5000	0.6247	
85 Chlorobenzene	112	8.599	8.602	-0.003	97	18883	0.5000	0.5016	
86 1,1,1,2-Tetrachloroethane	131	8.670	8.661	0.009	88	7028	0.5000	0.4891	
87 Ethylbenzene	106	8.682	8.696	-0.014	99	10073	0.5000	0.5002	
88 m-Xylene & p-Xylene	106	8.800	8.803	-0.003	96	11836	0.5000	0.4763	
89 o-Xylene	106	9.179	9.182	-0.003	92	13600	0.5000	0.5311	
90 Styrene	104	9.191	9.193	-0.002	90	20878	0.5000	0.4901	
91 Bromoform	173	9.368	9.371	-0.003	94	4848	0.5000	0.4318	
92 Isopropylbenzene	105	9.522	9.525	-0.003	95	29860	0.5000	0.5041	
94 1,1,2,2-Tetrachloroethane	83	9.794	9.797	-0.003	96	11888	0.5000	0.5889	
96 trans-1,4-Dichloro-2-butene	53		9.844				ND	ND	U
95 Bromobenzene	156	9.841	9.844	-0.003	90	8635	0.5000	0.5381	
97 1,2,3-Trichloropropane	110	9.853	9.844	0.009	83	3745	0.5000	0.5298	
98 N-Propylbenzene	120	9.924	9.927	-0.003	98	8704	0.5000	0.5624	
100 2-Chlorotoluene	126	10.019	10.022	-0.003	96	7326	0.5000	0.5165	
101 1,3,5-Trimethylbenzene	105	10.090	10.093	-0.003	94	21864	0.5000	0.4950	
102 4-Chlorotoluene	126	10.125	10.128	-0.003	96	8589	0.5000	0.5718	
104 tert-Butylbenzene	119	10.421	10.424	-0.003	91	18295	0.5000	0.4667	
106 1,2,4-Trimethylbenzene	105	10.469	10.460	0.009	95	24979	0.5000	0.5315	
107 sec-Butylbenzene	134	10.634	10.637	-0.003	94	4911	0.5000	0.4568	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
108 1,3-Dichlorobenzene	146	10.753	10.755	-0.003	90	14384	0.5000	0.5046	
109 4-Isopropyltoluene	119	10.776	10.779	-0.003	95	22261	0.5000	0.5150	
110 1,4-Dichlorobenzene	146	10.835	10.838	-0.003	37	15648	0.5000	0.5261	
113 n-Butylbenzene	91	11.178	11.181	-0.003	96	18837	0.5000	0.5235	
114 1,2-Dichlorobenzene	146	11.214	11.217	-0.003	91	13638	0.5000	0.4787	
115 1,2-Dibromo-3-Chloropropane	157	11.983	11.986	-0.003	84	2939	0.5000	0.5172	
117 1,2,4-Trichlorobenzene	180	12.823	12.826	-0.003	91	7806	0.5000	0.5192	
118 Hexachlorobutadiene	225	13.001	13.004	-0.003	76	2464	0.5000	0.4546	
119 Naphthalene	128	13.084	13.086	-0.002	97	28136	0.5000	0.5305	
120 1,2,3-Trichlorobenzene	180	13.356	13.359	-0.003	92	7845	0.5000	0.5553	
S 158 Total BTEX	1				0		2.50	2.56	
S 128 1,2-Dichloroethene, Total	96				0			1.12	
S 129 1,3-Dichloropropene, Total	75				0			1.03	
S 130 Trihalomethanes, Total	83				0		2.00	2.15	
S 131 Xylenes, Total	106				0		1.00	1.01	

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

Review Flags

U - Marked Undetected

Reagents:

vm100is_stk_A_00005	Amount Added: 1.00	Units: uL
vmrgas_00344	Amount Added: 0.40	Units: uL
vmarolistdw_00350	Amount Added: 0.40	Units: uL
vmrprimw_00391	Amount Added: 0.40	Units: uL
vm50ss_00408	Amount Added: 0.40	Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988356.D

Injection Date: 29-Jun-2020 10:22:30

Instrument ID: A3UX9

Operator ID: 001765

Lims ID: std8260 L1

Worklist Smp#: 8

Client ID:

Purge Vol: 5.000 mL

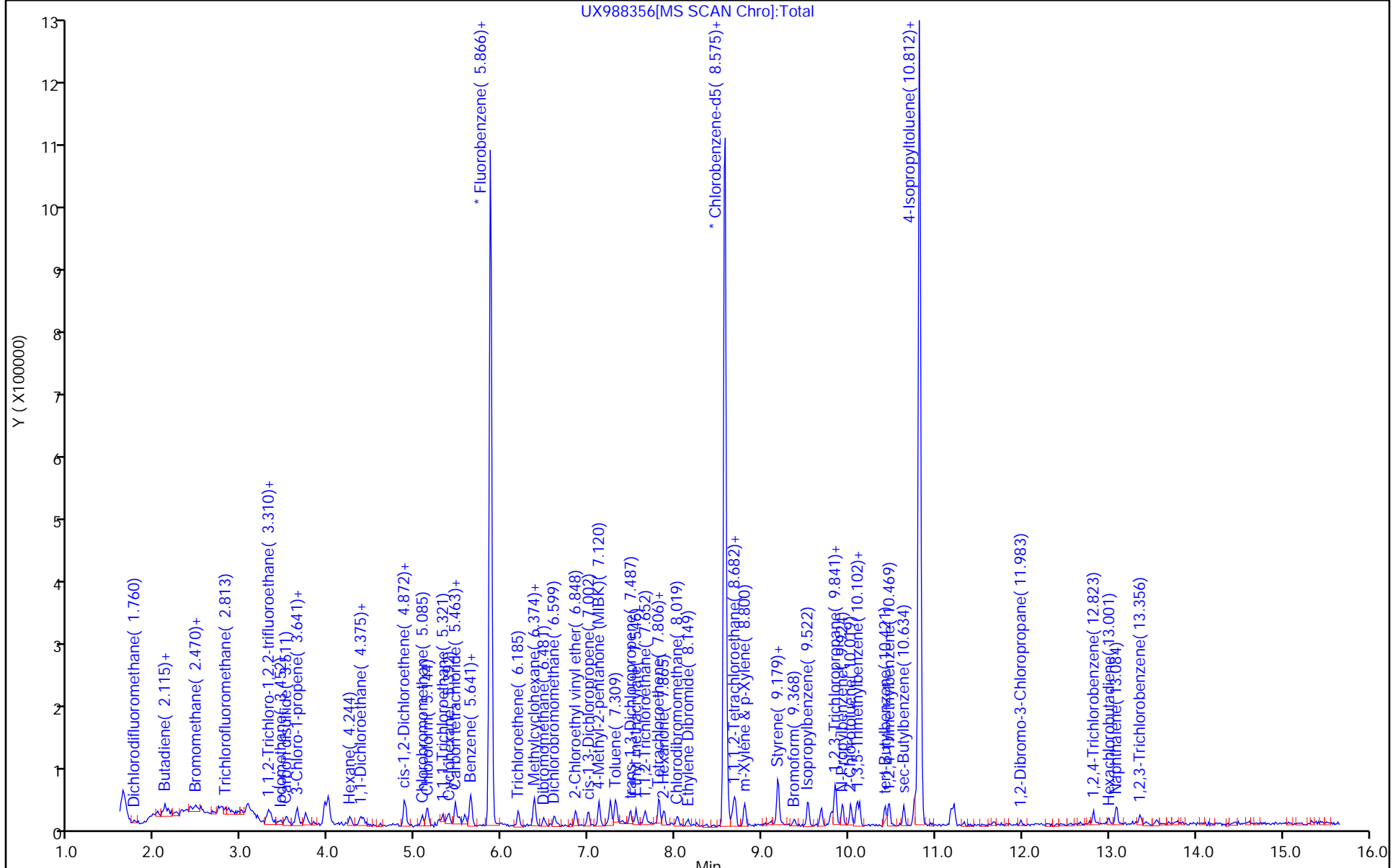
Dil. Factor: 1.0000

ALS Bottle#: 8

Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton

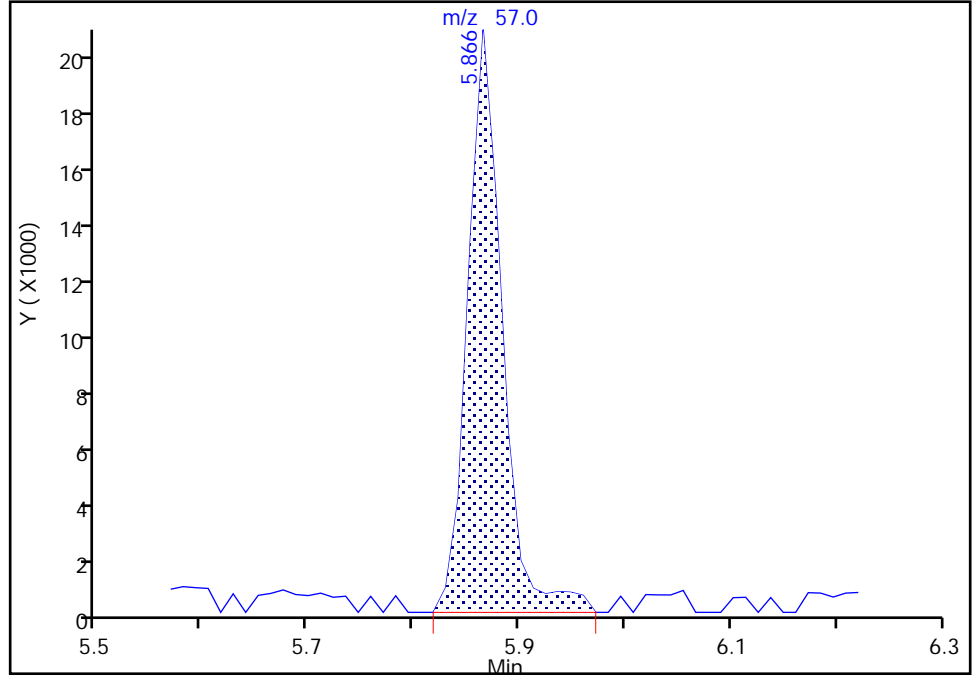
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Injection Date: 29-Jun-2020 10:22:30 Instrument ID: A3UX9
Lims ID: std8260 L1
Client ID:
Operator ID: 001765 ALS Bottle#: 8 Worklist Smp#: 8
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_9 Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

58 n-Heptane, CAS: 142-82-5

Signal: 2

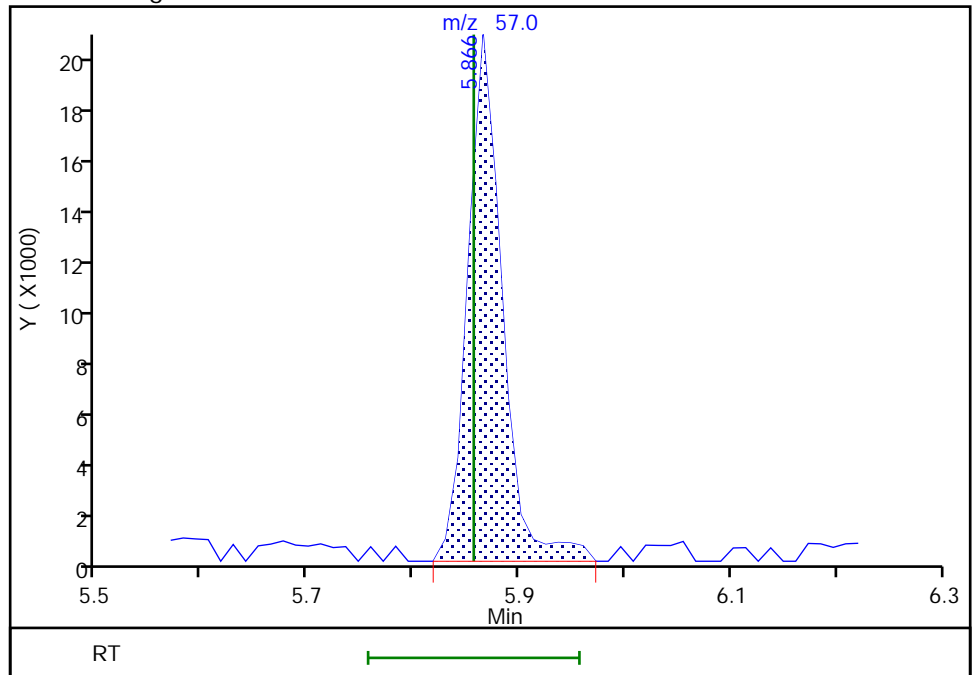
RT: 5.87
Area: 46402
Amount: 0.543783
Amount Units: ug/l

Processing Integration Results



RT: 5.87
Area: 46402
Amount: 0.543783
Amount Units: ug/l

Manual Integration Results



Reviewer: bosworth, 01-Jul-2020 12:11:37
Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

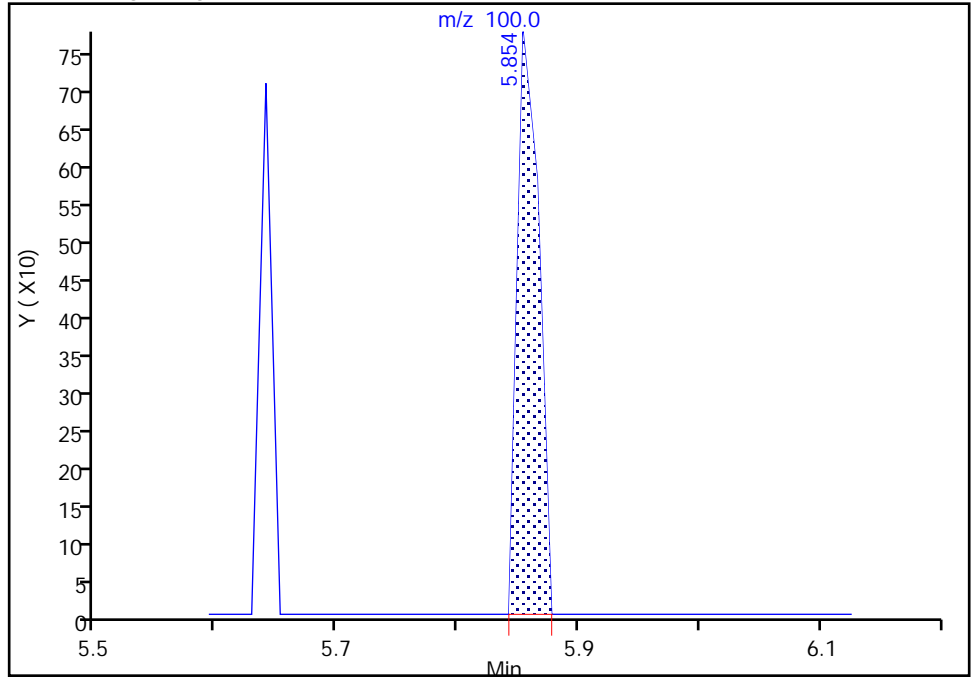
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Injection Date: 29-Jun-2020 10:22:30 Instrument ID: A3UX9
Lims ID: std8260 L1
Client ID:
Operator ID: 001765 ALS Bottle#: 8 Worklist Smp#: 8
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_9 Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

58 n-Heptane, CAS: 142-82-5

Signal: 3

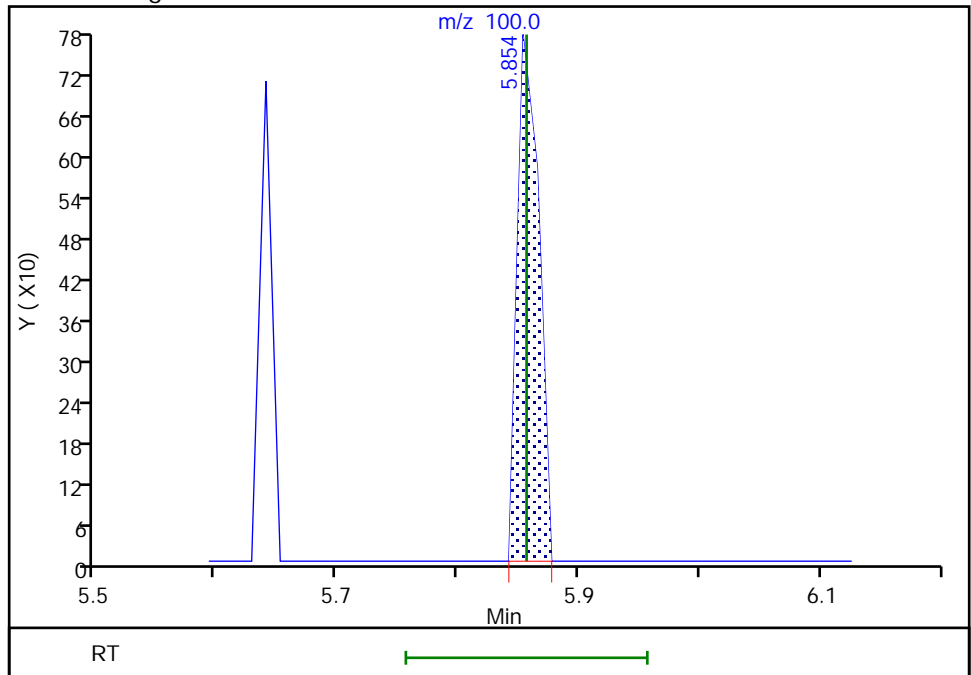
RT: 5.85
Area: 964
Amount: 0.543783
Amount Units: ug/l

Processing Integration Results



RT: 5.85
Area: 964
Amount: 0.543783
Amount Units: ug/l

Manual Integration Results

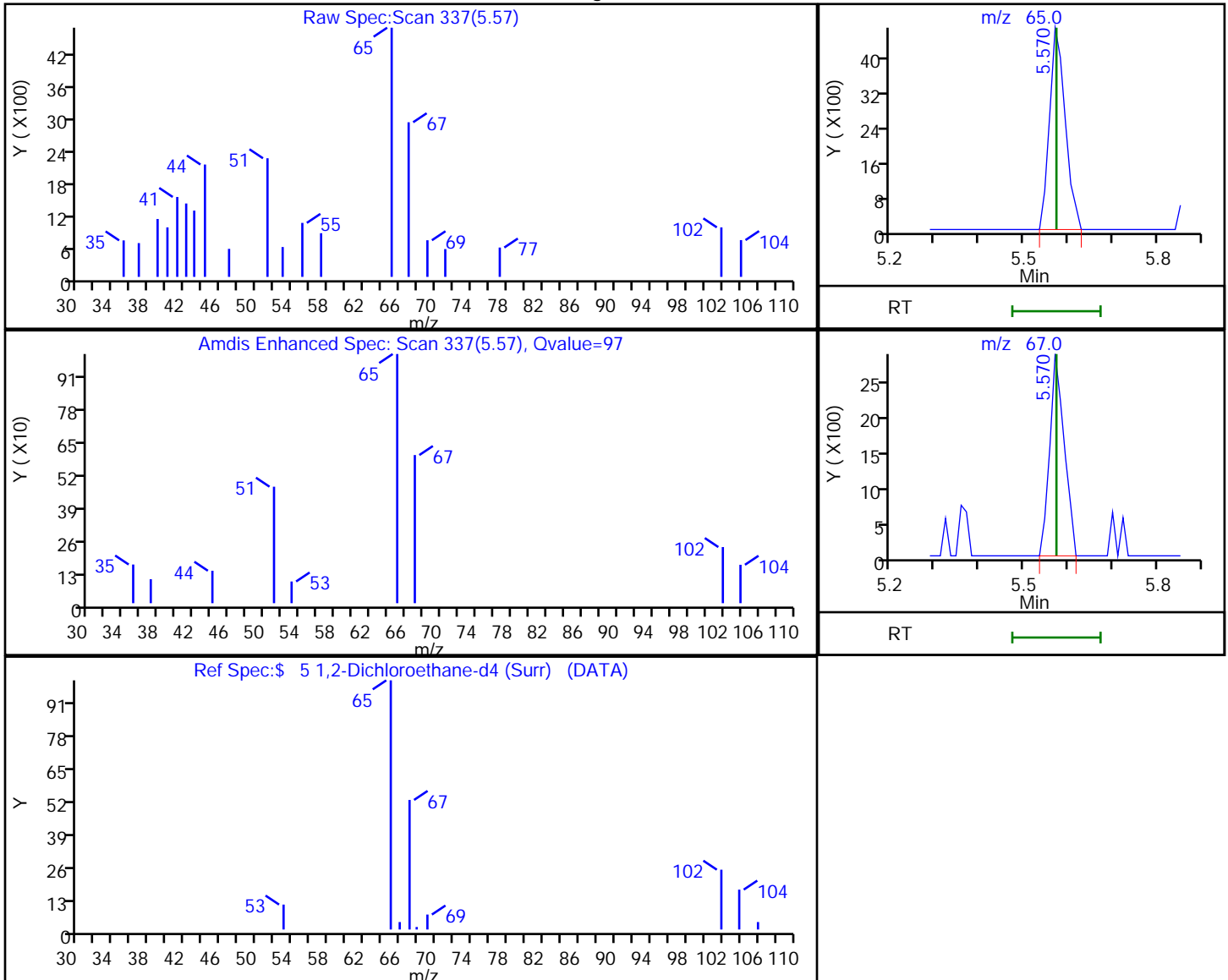


Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988356.D
 Injection Date: 29-Jun-2020 10:22:30 Instrument ID: A3UX9
 Lims ID: std8260 L1
 Client ID:
 Operator ID: 001765 ALS Bottle#: 8 Worklist Smp#: 8
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Method: 8260_9 Limit Group: MSV 8260B ICAL
 Column: DB-624 (0.18 mm) Detector: MS SCAN

\$ 5 1,2-Dichloroethane-d4 (Surr), CAS: 17060-07-0

Processing Results



RT	Mass	Response	Amount
5.57	65.00	11553	0.592190
5.57	67.00	6632	

Reviewer: bosworthh, 01-Jul-2020 12:37:48

Audit Action: Marked Compound Undetected

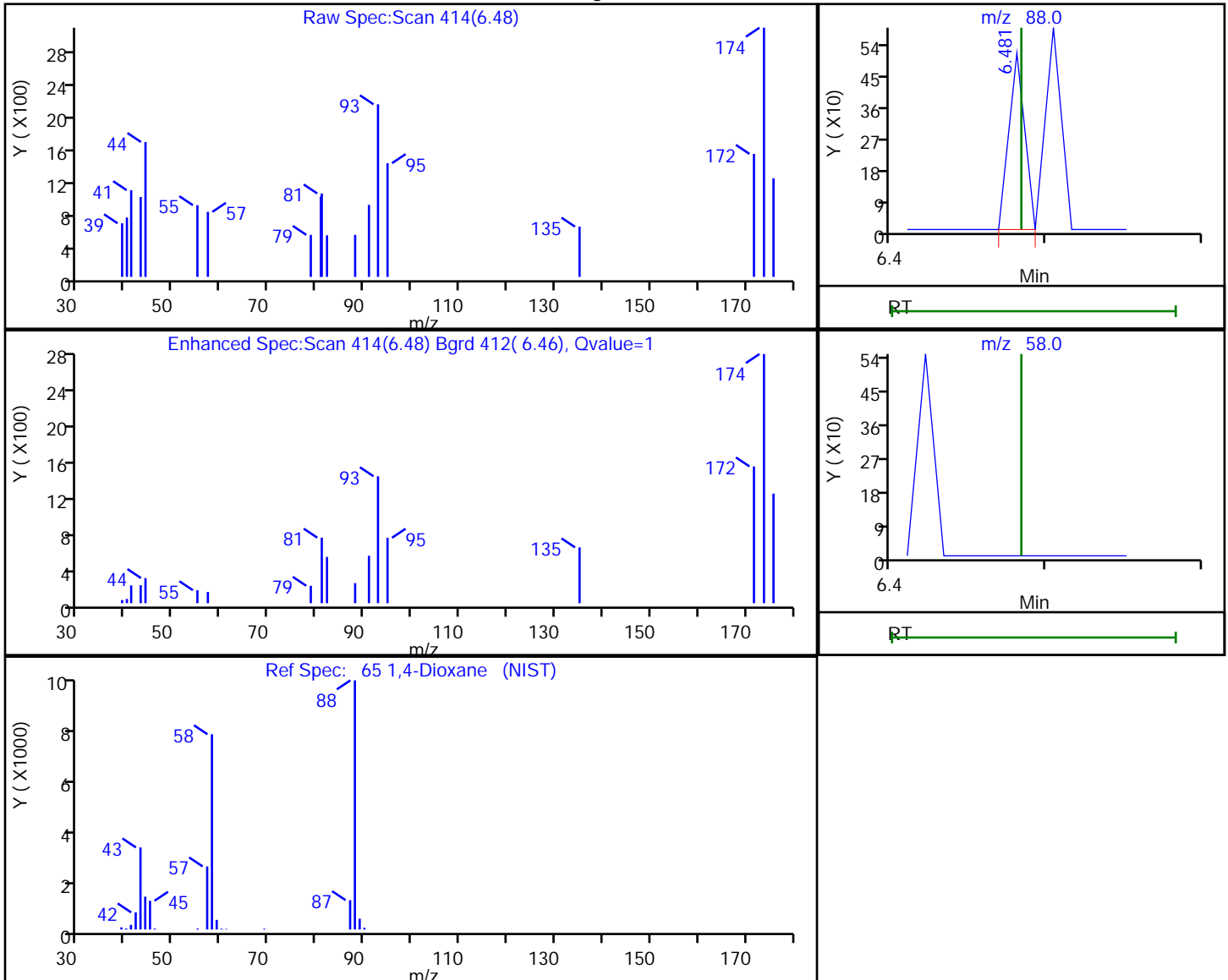
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

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Injection Date: 29-Jun-2020 10:22:30 Instrument ID: A3UX9
Lims ID: std8260 L1
Client ID:
Operator ID: 001765 ALS Bottle#: 8 Worklist Smp#: 8
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_9 Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

65 1,4-Dioxane, CAS: 123-91-1

Processing Results



RT	Mass	Response	Amount
6.48	88.00	361	2.758067
6.48	58.00	0	

Reviewer: bosworthh, 29-Jun-2020 12:56:03
Audit Action: Marked Compound Undetected

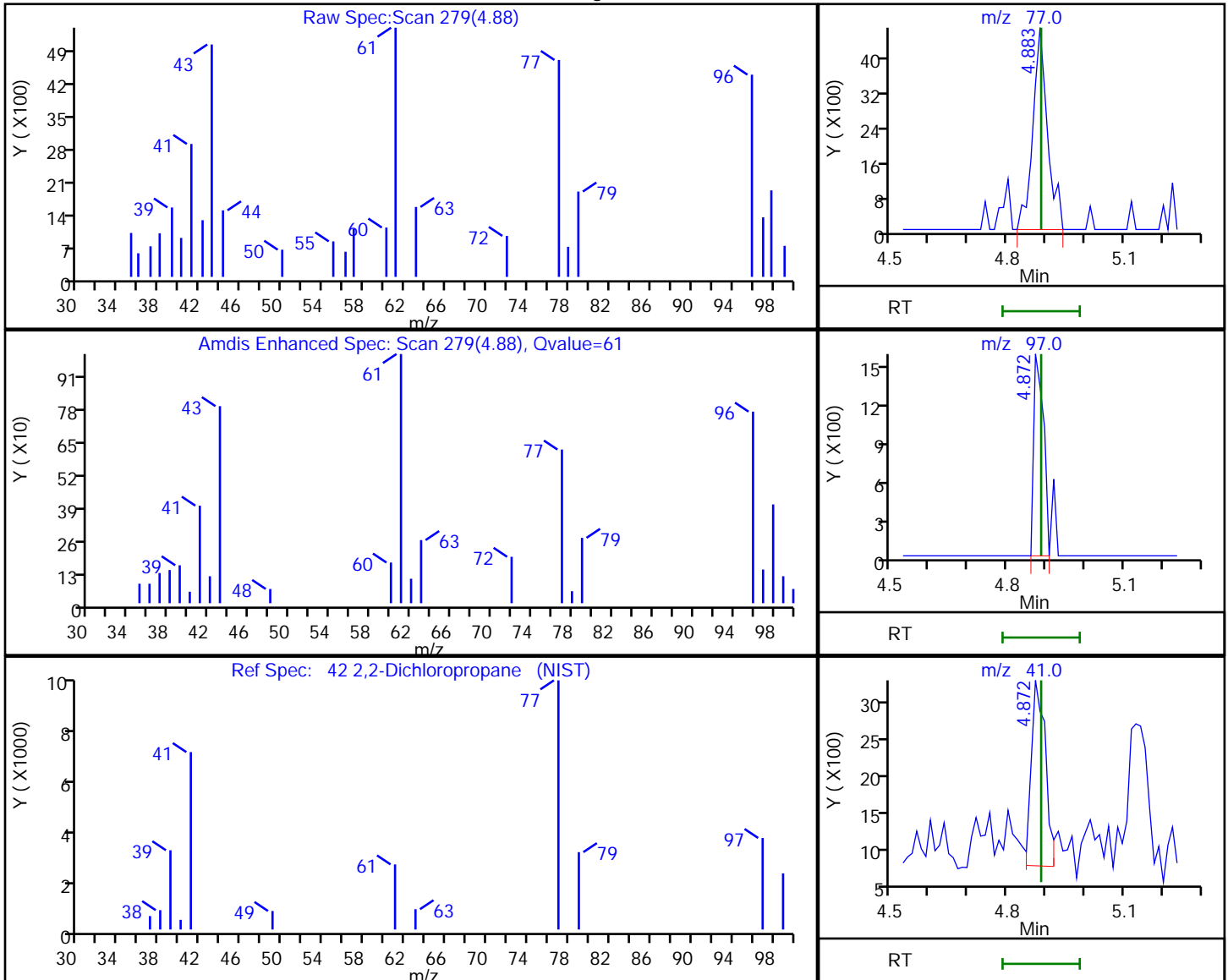
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988356.D
Injection Date: 29-Jun-2020 10:22:30 Instrument ID: A3UX9
Lims ID: std8260 L1
Client ID:
Operator ID: 001765 ALS Bottle#: 8 Worklist Smp#: 8
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_9 Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

42 2,2-Dichloropropane, CAS: 594-20-7

Processing Results



RT	Mass	Response	Amount
4.88	77.00	12298	0.465254
4.87	97.00	2677	
4.87	41.00	6478	

Reviewer: bosworthh, 01-Jul-2020 12:10:43
Audit Action: Marked Compound Undetected

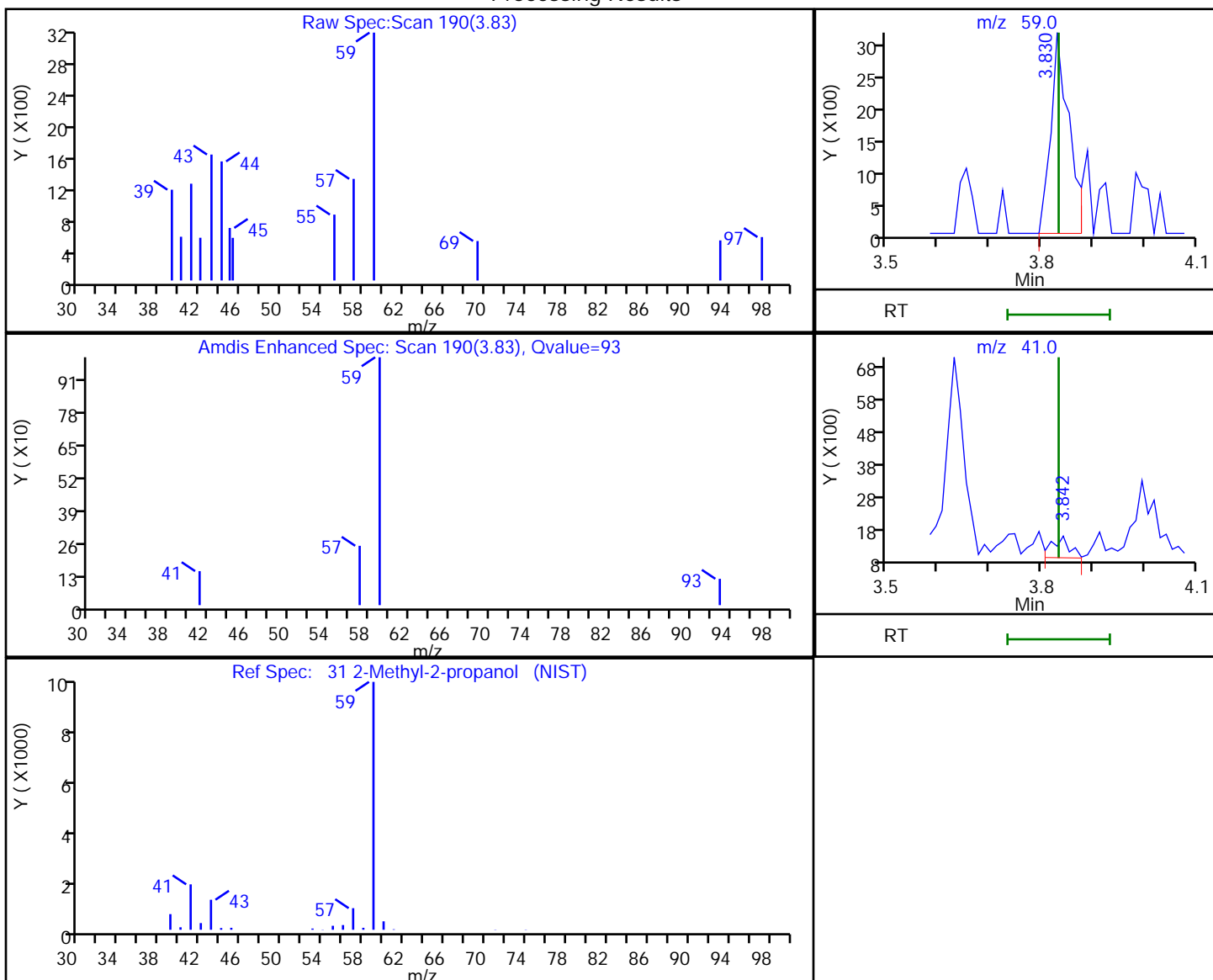
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988356.D
Injection Date: 29-Jun-2020 10:22:30 Instrument ID: A3UX9
Lims ID: std8260 L1
Client ID:
Operator ID: 001765 ALS Bottle#: 8 Worklist Smp#: 8
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_9 Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

31 2-Methyl-2-propanol, CAS: 75-65-0

Processing Results



RT	Mass	Response	Amount
3.83	59.00	7939	4.057067
3.84	41.00	1586	

Reviewer: bosworthh, 01-Jul-2020 08:22:09

Audit Action: Marked Compound Undetected

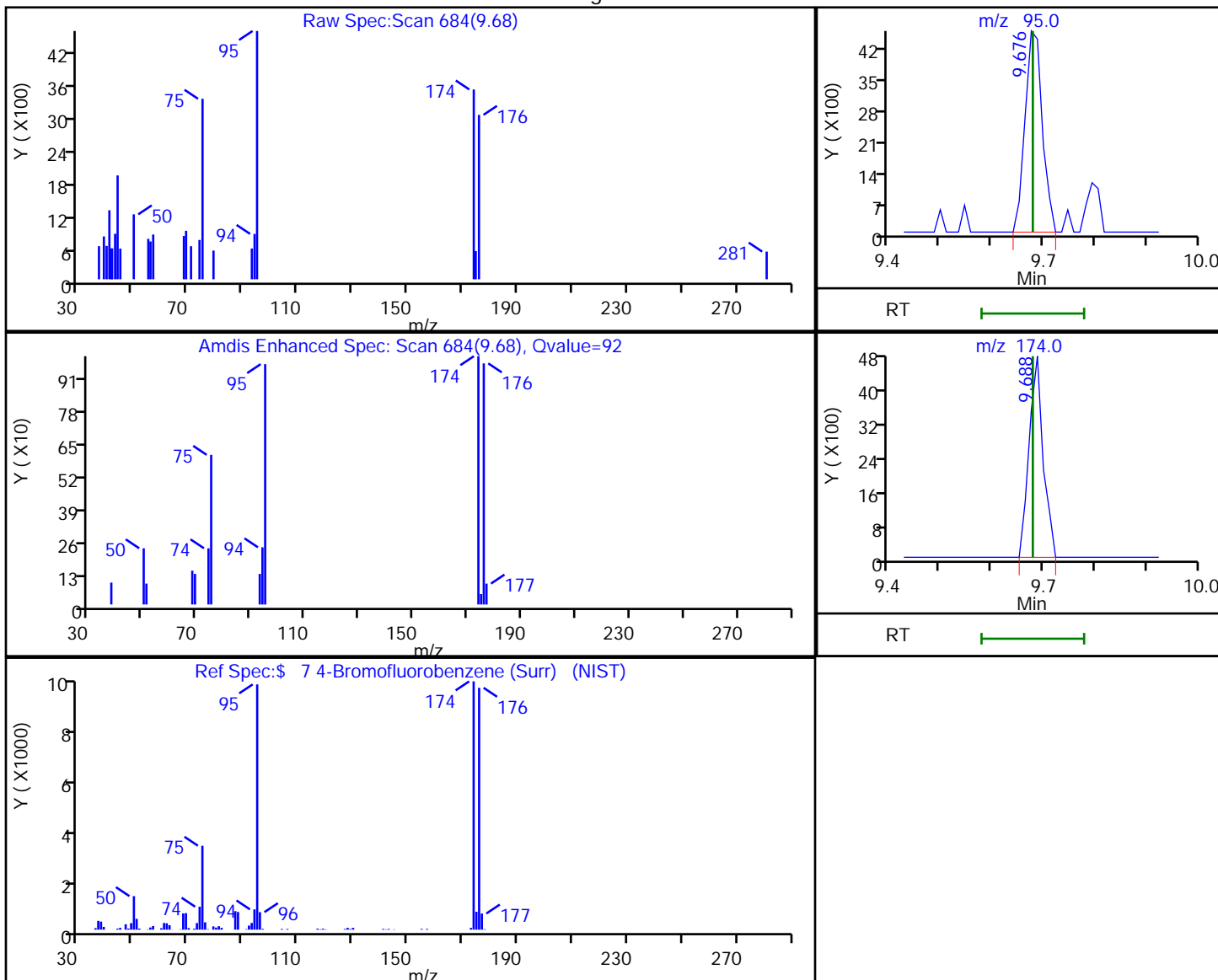
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988356.D
 Injection Date: 29-Jun-2020 10:22:30 Instrument ID: A3UX9
 Lims ID: std8260 L1
 Client ID:
 Operator ID: 001765 ALS Bottle#: 8 Worklist Smp#: 8
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Method: 8260_9 Limit Group: MSV 8260B ICAL
 Column: DB-624 (0.18 mm) Detector: MS SCAN

\$ 7 4-Bromofluorobenzene (Surr), CAS: 460-00-4

Processing Results



RT	Mass	Response	Amount
9.68	95.00	10709	0.578899
9.69	174.00	9072	

Reviewer: bosworthh, 01-Jul-2020 12:37:50

Audit Action: Marked Compound Undetected

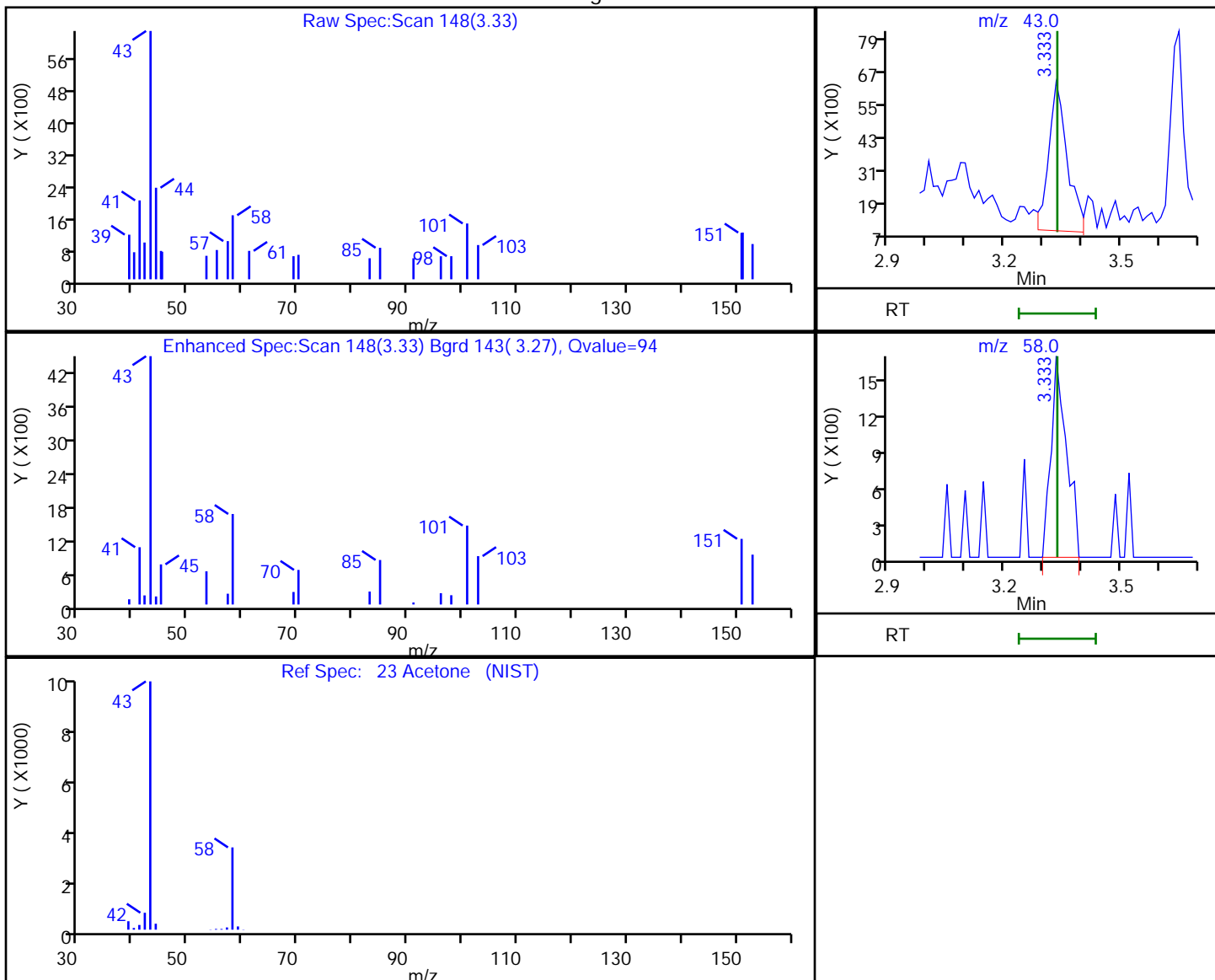
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Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988356.D
 Injection Date: 29-Jun-2020 10:22:30 Instrument ID: A3UX9
 Lims ID: std8260 L1
 Client ID:
 Operator ID: 001765 ALS Bottle#: 8 Worklist Smp#: 8
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Method: 8260_9 Limit Group: MSV 8260B ICAL
 Column: DB-624 (0.18 mm) Detector: MS SCAN

23 Acetone, CAS: 67-64-1

Processing Results



RT	Mass	Response	Amount
3.33	43.00	18546	
3.33	58.00	4555	1.825480

Reviewer: bosworthh, 01-Jul-2020 09:51:33

Audit Action: Marked Compound Undetected

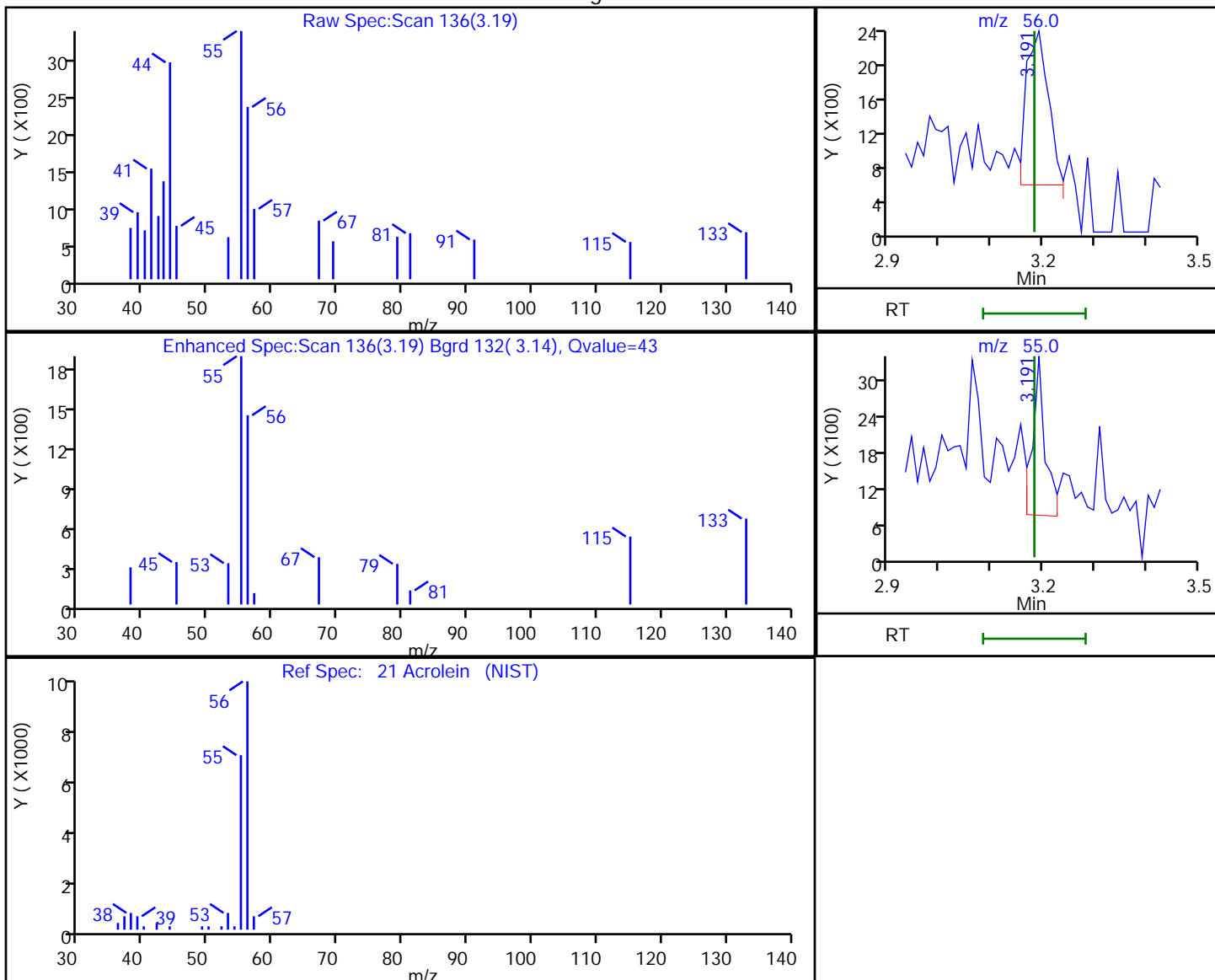
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Eurofins TestAmerica, Canton

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 Injection Date: 29-Jun-2020 10:22:30 Instrument ID: A3UX9
 Lims ID: std8260 L1
 Client ID:
 Operator ID: 001765 ALS Bottle#: 8 Worklist Smp#: 8
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Method: 8260_9 Limit Group: MSV 8260B ICAL
 Column: DB-624 (0.18 mm) Detector: MS SCAN

21 Acrolein, CAS: 107-02-8

Processing Results



RT	Mass	Response	Amount
3.19	56.00	5335	1.348989
3.19	55.00	4656	

Reviewer: bosworthh, 01-Jul-2020 09:52:53

Audit Action: Marked Compound Undetected

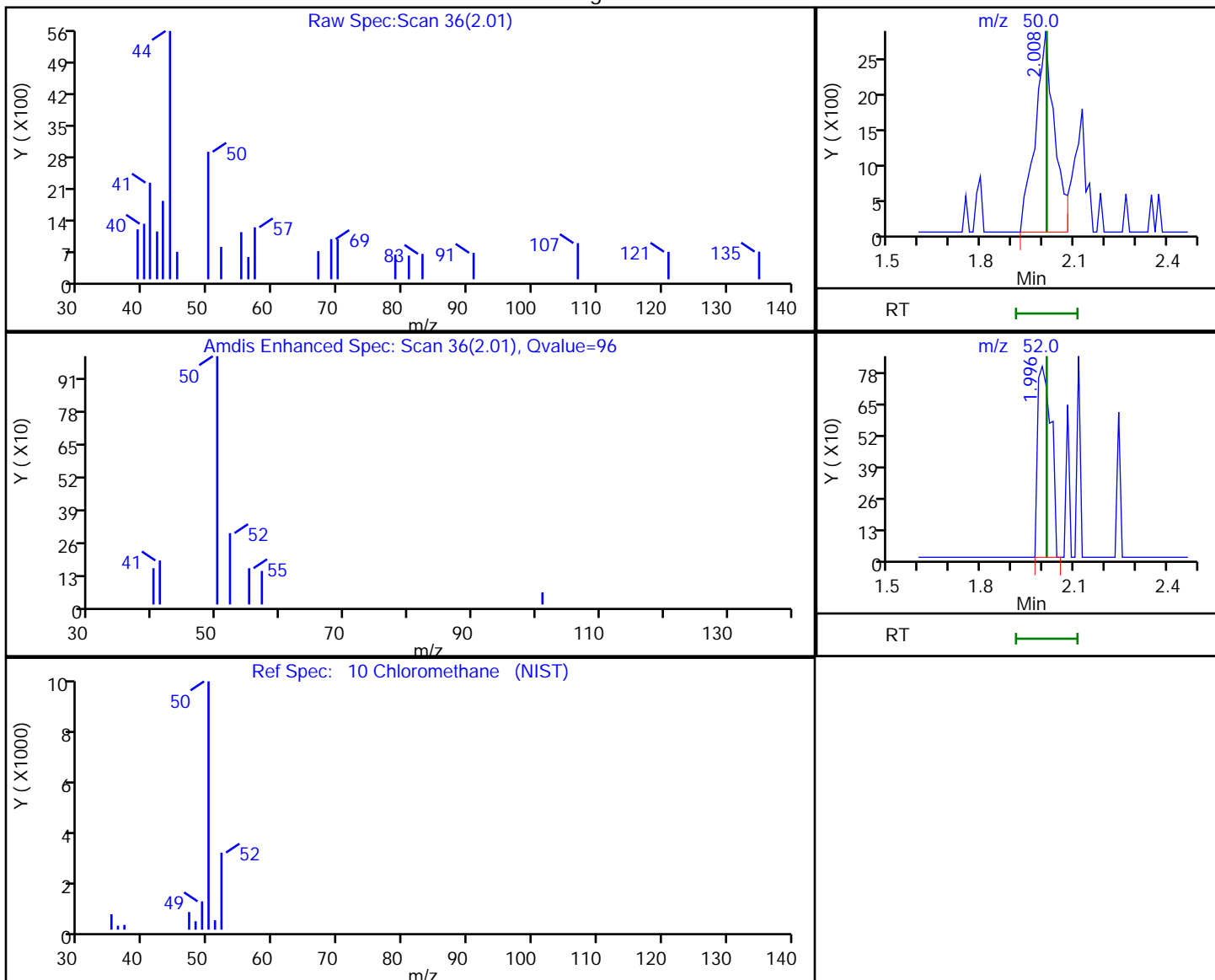
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988356.D
Injection Date: 29-Jun-2020 10:22:30 Instrument ID: A3UX9
Lims ID: std8260 L1
Client ID:
Operator ID: 001765 ALS Bottle#: 8 Worklist Smp#: 8
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_9 Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

10 Chloromethane, CAS: 74-87-3

Processing Results



RT	Mass	Response	Amount
2.01	50.00	12437	0.445371
2.00	52.00	2430	

Reviewer: bosworthh, 01-Jul-2020 12:08:17

Audit Action: Marked Compound Undetected

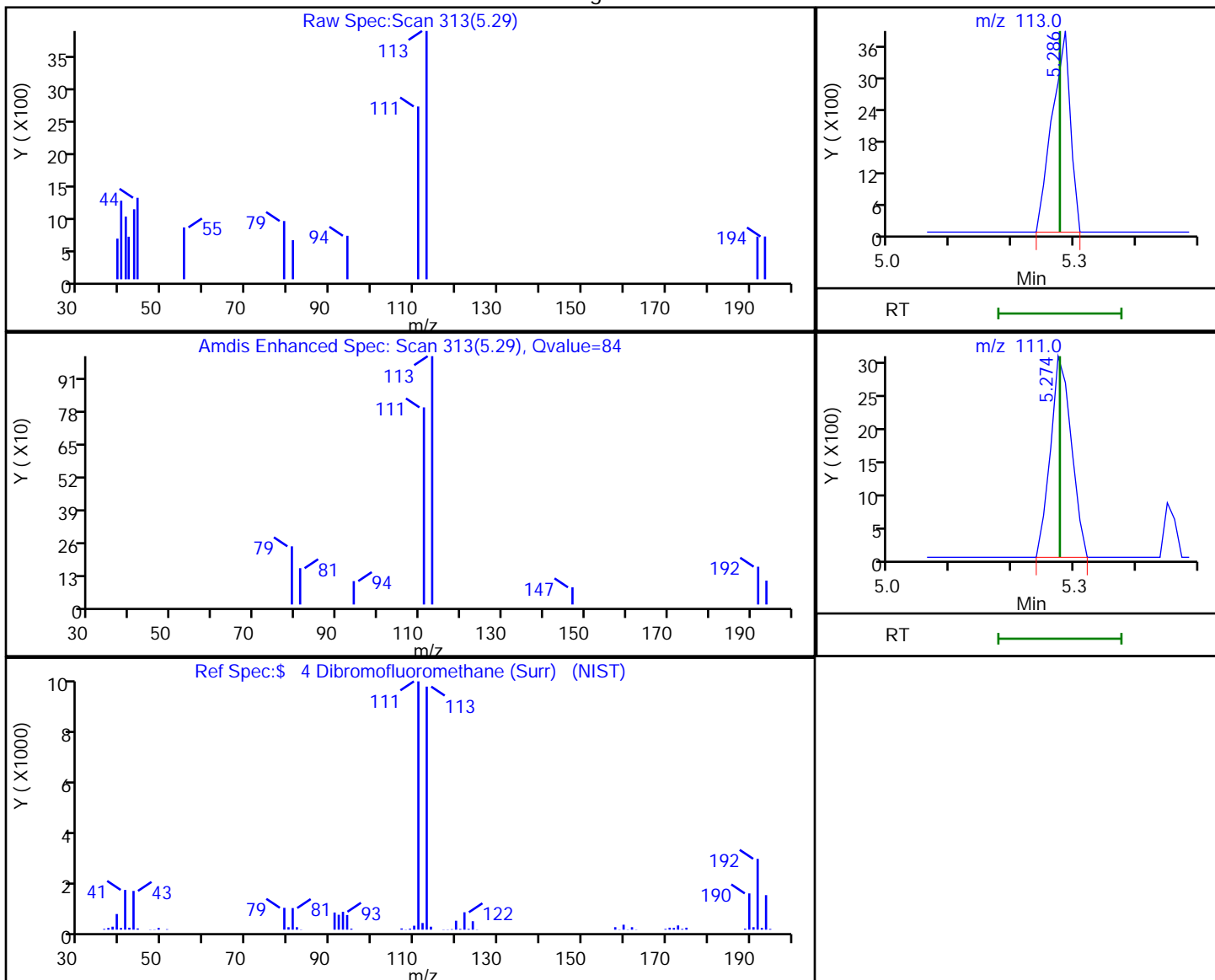
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Eurofins TestAmerica, Canton

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Injection Date: 29-Jun-2020 10:22:30 Instrument ID: A3UX9
Lims ID: std8260 L1
Client ID:
Operator ID: 001765 ALS Bottle#: 8 Worklist Smp#: 8
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_9 Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

\$ 4 Dibromofluoromethane (Surr), CAS: 1868-53-7

Processing Results



RT	Mass	Response	Amount
5.29	113.00	7910	0.555009
5.27	111.00	7256	

Reviewer: bosworthh, 01-Jul-2020 12:37:46

Audit Action: Marked Compound Undetected

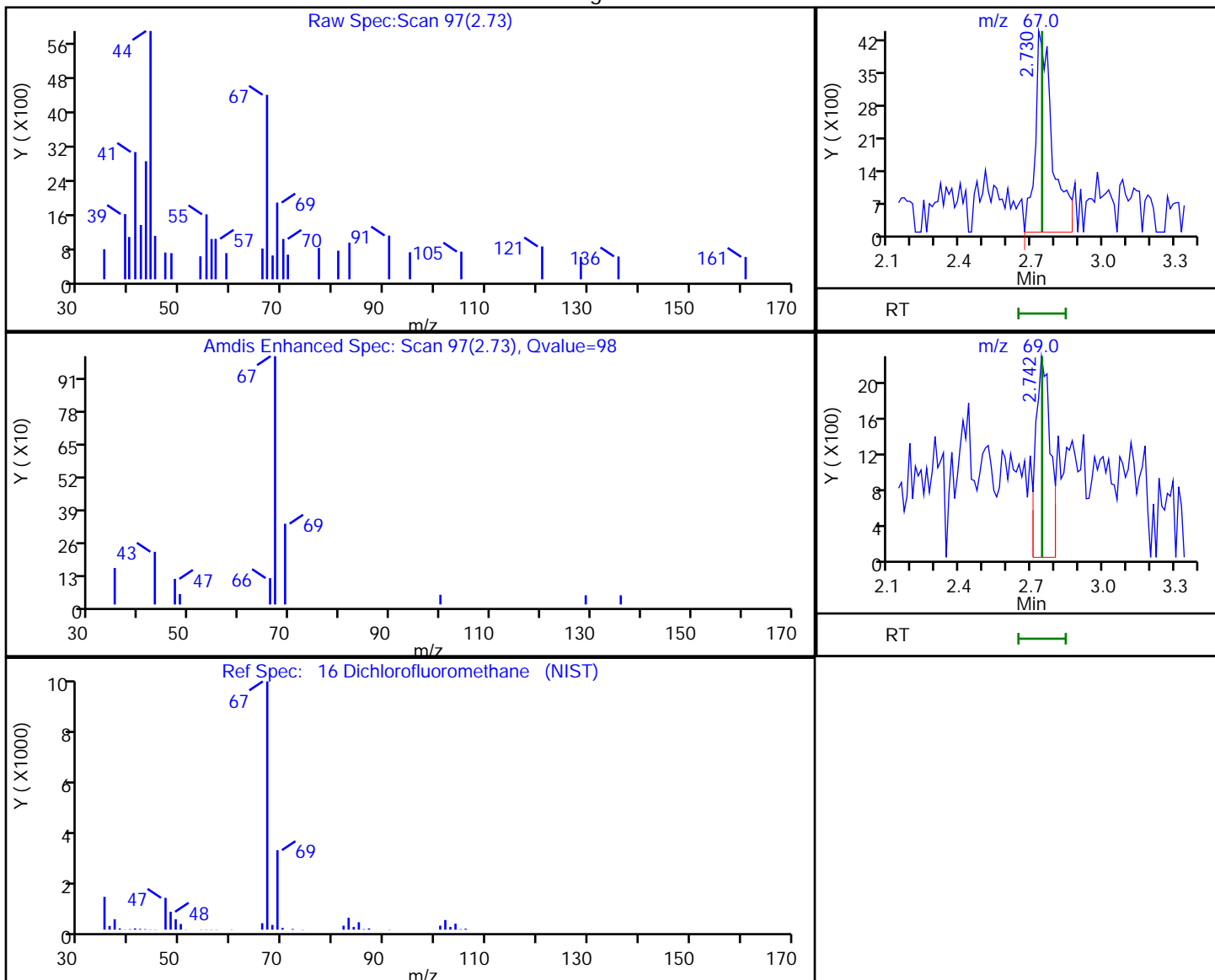
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988356.D
Injection Date: 29-Jun-2020 10:22:30 Instrument ID: A3UX9
Lims ID: std8260 L1
Client ID:
Operator ID: 001765 ALS Bottle#: 8 Worklist Smp#: 8
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_9 Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

16 Dichlorofluoromethane, CAS: 75-43-4

Processing Results



RT	Mass	Response	Amount
2.73	67.00	21797	0.489603
2.74	69.00	9645	

Reviewer: bosworthh, 01-Jul-2020 12:08:32

Audit Action: Marked Compound Undetected

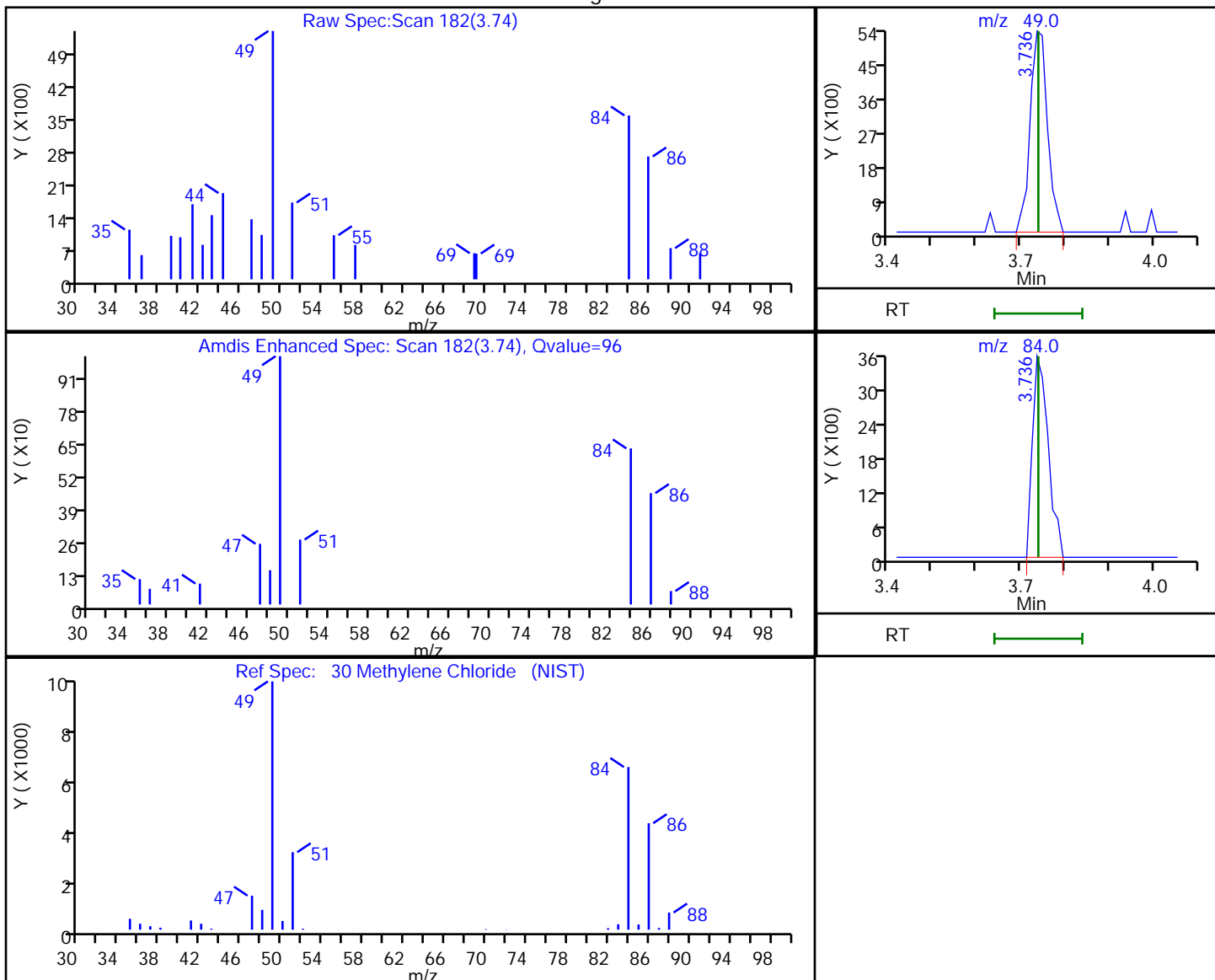
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988356.D
Injection Date: 29-Jun-2020 10:22:30 Instrument ID: A3UX9
Lims ID: std8260 L1
Client ID:
Operator ID: 001765 ALS Bottle#: 8 Worklist Smp#: 8
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_9 Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

30 Methylene Chloride, CAS: 75-09-2

Processing Results



RT	Mass	Response	Amount
3.74	49.00	14583	0.470154
3.74	84.00	8706	

Reviewer: bosworthh, 01-Jul-2020 12:10:09

Audit Action: Marked Compound Undetected

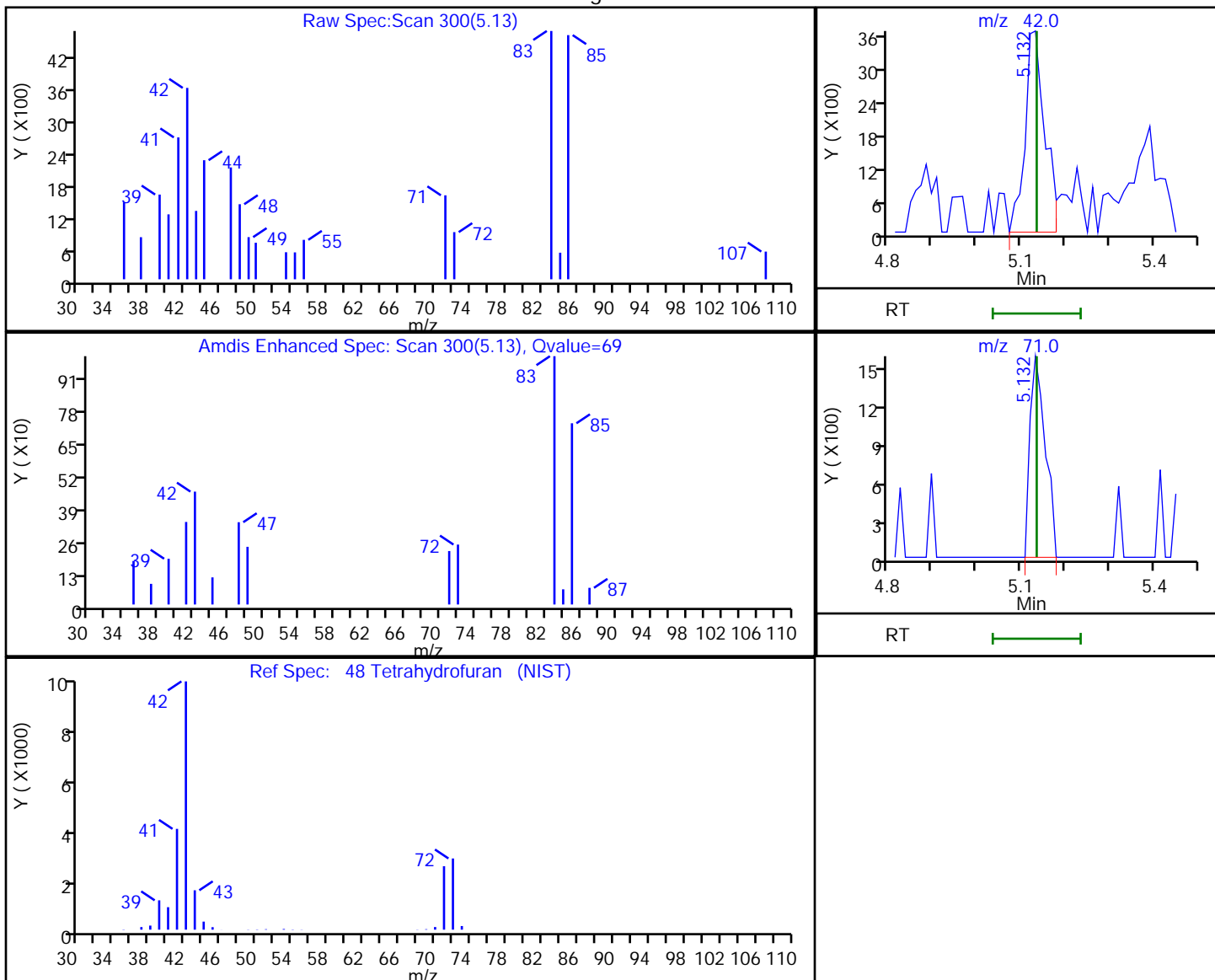
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988356.D
 Injection Date: 29-Jun-2020 10:22:30 Instrument ID: A3UX9
 Lims ID: std8260 L1
 Client ID:
 Operator ID: 001765 ALS Bottle#: 8 Worklist Smp#: 8
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Method: 8260_9 Limit Group: MSV 8260B ICAL
 Column: DB-624 (0.18 mm) Detector: MS SCAN

48 Tetrahydrofuran, CAS: 109-99-9

Processing Results



RT	Mass	Response	Amount
5.13	42.00	11302	0.824200
5.13	71.00	3826	

Reviewer: bosworthh, 01-Jul-2020 12:11:21

Audit Action: Marked Compound Undetected

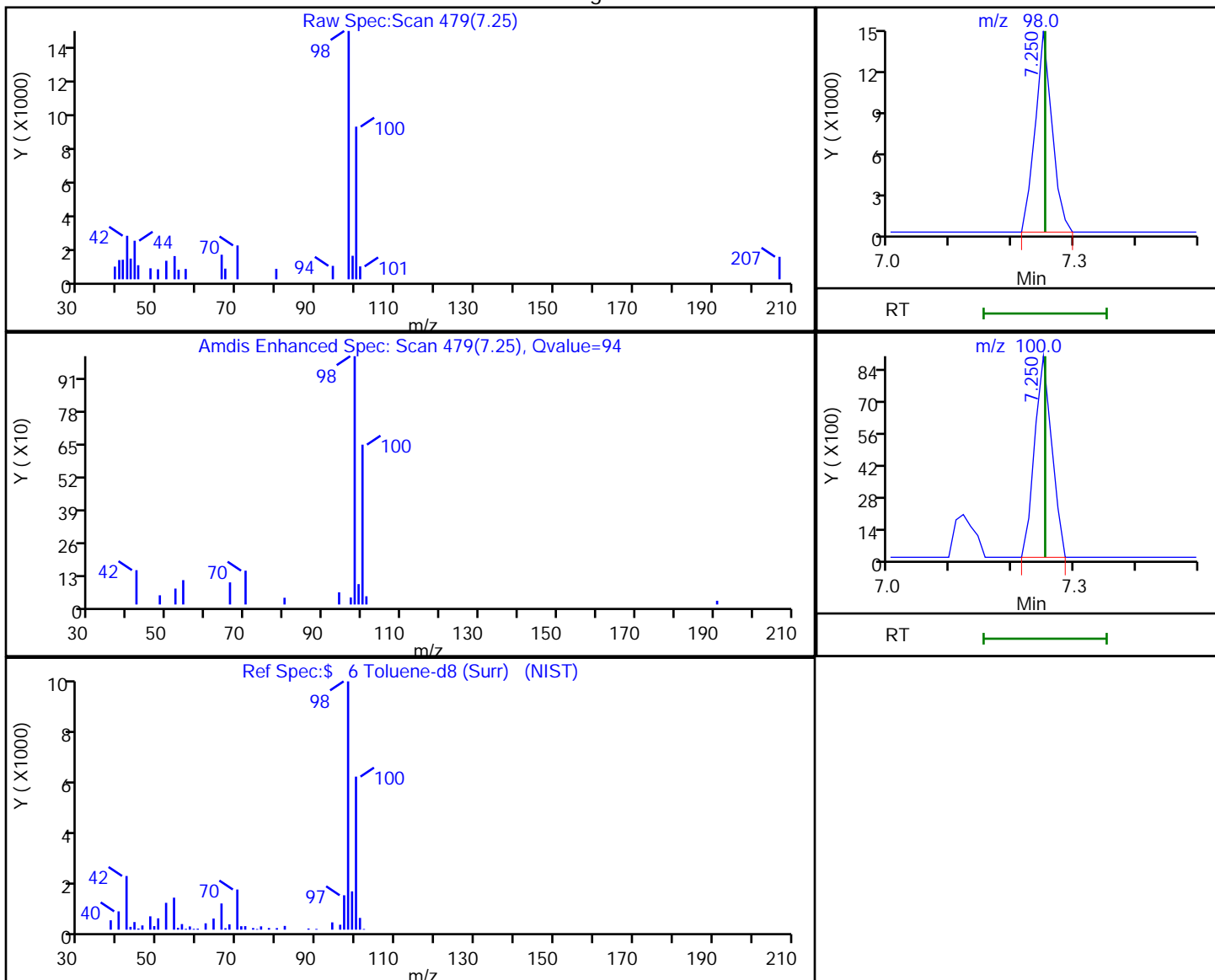
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988356.D
Injection Date: 29-Jun-2020 10:22:30 Instrument ID: A3UX9
Lims ID: std8260 L1
Client ID:
Operator ID: 001765 ALS Bottle#: 8 Worklist Smp#: 8
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_9 Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

\$ 6 Toluene-d8 (Surr), CAS: 2037-26-5

Processing Results



RT	Mass	Response	Amount
7.25	98.00	27463	0.537240
7.25	100.00	17280	

Reviewer: bosworthh, 01-Jul-2020 12:37:49

Audit Action: Marked Compound Undetected

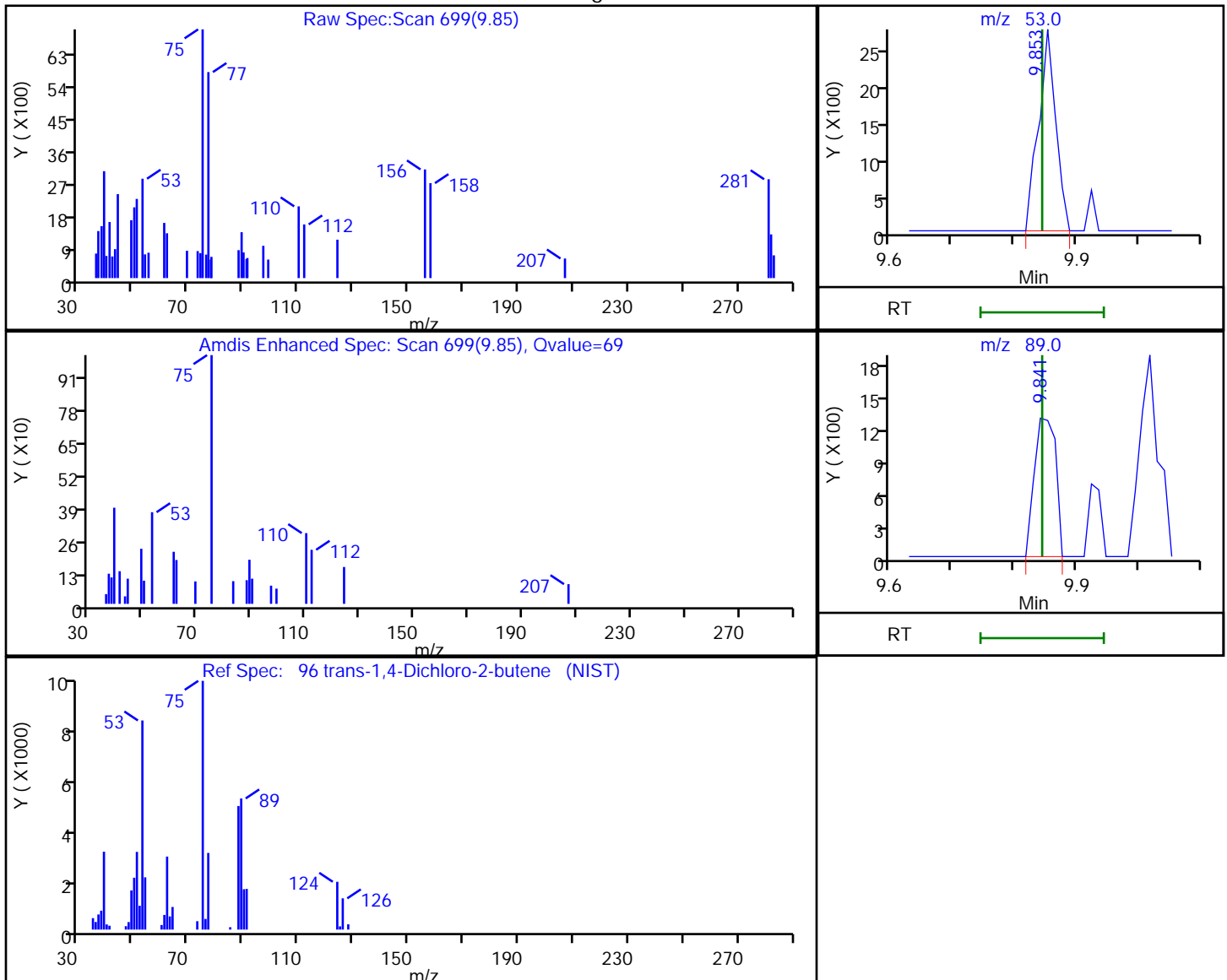
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988356.D
 Injection Date: 29-Jun-2020 10:22:30 Instrument ID: A3UX9
 Lims ID: std8260 L1
 Client ID:
 Operator ID: 001765 ALS Bottle#: 8 Worklist Smp#: 8
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Method: 8260_9 Limit Group: MSV 8260B ICAL
 Column: DB-624 (0.18 mm) Detector: MS SCAN

96 trans-1,4-Dichloro-2-butene, CAS: 110-57-6

Processing Results



RT	Mass	Response	Amount
9.85	53.00	5365	0.478439
9.84	89.00	3110	

Reviewer: bosworthh, 01-Jul-2020 12:12:33

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988357.D
 Lims ID: std8260 L2
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 29-Jun-2020 10:44:30 ALS Bottle#: 9 Worklist Smp#: 9
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0099598-009
 Operator ID: 001765 Instrument ID: A3UX9
 Sublist: chrom-8260_9*sub46
 Method: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Jul-2020 12:42:26 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1033

First Level Reviewer: bosworthh

Date: 01-Jul-2020 12:18:06

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.866	5.865	0.001	98	1001648	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.576	8.575	0.001	87	755806	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.812	10.823	-0.011	96	411284	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	113	5.274	5.277	-0.003	88	15568	1.00	1.12	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.570	5.573	-0.003	97	21634	1.00	1.16	
\$ 6 Toluene-d8 (Surr)	98	7.250	7.253	-0.003	94	51834	1.00	1.01	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.676	9.679	-0.003	92	20415	1.00	1.12	
9 Dichlorodifluoromethane	85	1.784	1.786	-0.002	91	12786	1.00	1.13	
10 Chloromethane	50	1.997	2.011	-0.014	96	20946	1.00	1.21	
12 Butadiene	54	2.115	2.117	-0.002	96	18905	1.00	1.23	
11 Vinyl chloride	62	2.127	2.129	-0.002	57	18147	1.00	1.15	
13 Bromomethane	94	2.458	2.449	0.009	87	11827	1.00	0.9642	
15 Chloroethane	64	2.541	2.543	-0.002	94	12057	1.00	0.9520	
16 Dichlorofluoromethane	67	2.742	2.745	-0.003	97	36872	1.00	1.25	
17 Trichlorofluoromethane	101	2.825	2.816	0.009	82	19334	1.00	0.9567	
18 Ethyl ether	59	3.062	3.064	-0.002	90	16671	1.00	1.10	
21 Acrolein	56	3.192	3.182	0.010	94	18454	5.00	4.93	
24 1,1-Dichloroethene	61	3.298	3.289	0.009	95	21406	1.00	1.03	
22 1,1,2-Trichloro-1,2,2-trifluoro	101	3.322	3.324	-0.002	65	10243	1.00	0.9875	
23 Acetone	58	3.334	3.336	-0.002	99	8291	2.00	2.10	
25 Iodomethane	142	3.440	3.443	-0.003	99	21630	1.00	1.04	
26 Carbon disulfide	76	3.511	3.514	-0.003	100	43047	1.00	1.04	
28 3-Chloro-1-propene	41	3.630	3.632	-0.002	87	28817	1.00	1.07	
29 Methyl acetate	43	3.641	3.644	-0.003	97	46386	2.00	2.39	
30 Methylene Chloride	49	3.736	3.739	-0.003	97	24903	1.00	1.18	
31 2-Methyl-2-propanol	59	3.831	3.833	-0.002	98	27679	10.0	13.9	
32 Acrylonitrile	53	3.961	3.952	0.009	98	99089	10.0	11.5	
34 trans-1,2-Dichloroethene	61	3.996	3.999	-0.003	60	22402	1.00	1.06	
33 Methyl tert-butyl ether	73	3.996	3.999	-0.003	96	51534	1.00	1.09	
35 Hexane	57	4.245	4.247	-0.002	93	16462	1.00	1.06	
36 1,1-Dichloroethane	63	4.375	4.366	0.009	97	28658	1.00	1.03	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
37 Vinyl acetate	43	4.399	4.401	-0.002	97	33475	1.00	1.03	
43 cis-1,2-Dichloroethene	96	4.884	4.874	0.010	88	17842	1.00	1.05	
41 2-Butanone (MEK)	72	4.872	4.874	-0.002	96	7293	2.00	2.46	
42 2,2-Dichloropropane	77	4.884	4.886	-0.002	87	20455	1.00	1.15	
47 Chlorobromomethane	49	5.073	5.076	-0.003	95	15262	1.00	0.9865	
48 Tetrahydrofuran	42	5.132	5.135	-0.003	74	21840	2.00	2.57	
49 Chloroform	83	5.144	5.135	0.009	96	31023	1.00	1.16	
50 1,1,1-Trichloroethane	97	5.322	5.324	-0.002	95	22524	1.00	1.01	
51 Cyclohexane	84	5.381	5.383	-0.002	90	19589	1.00	1.04	
52 1,1-Dichloropropene	75	5.464	5.454	0.010	94	20704	1.00	1.00	
53 Carbon tetrachloride	117	5.464	5.466	-0.002	93	19160	1.00	1.02	
54 Isobutyl alcohol	41	5.511	5.502	0.009	89	23666	25.0	30.4	
56 1,2-Dichloroethane	62	5.641	5.644	-0.003	60	23385	1.00	1.06	
55 Benzene	78	5.641	5.644	-0.003	96	65320	1.00	1.07	
58 n-Heptane	71	5.866	5.857	0.009	37	17302	1.00	1.09	
60 Trichloroethene	130	6.185	6.188	-0.003	96	17058	1.00	1.07	
62 Methylcyclohexane	83	6.375	6.365	0.010	89	17397	1.00	1.03	
63 1,2-Dichloropropane	63	6.375	6.377	-0.002	83	16190	1.00	1.05	
65 1,4-Dioxane	88	6.481	6.484	-0.003	40	2615	20.0	40.9	
66 Dibromomethane	174	6.481	6.484	-0.003	93	10446	1.00	0.9708	
67 Dichlorobromomethane	83	6.600	6.602	-0.002	95	21137	1.00	1.02	
69 2-Chloroethyl vinyl ether	63	6.848	6.851	-0.003	93	23568	2.00	2.06	
71 cis-1,3-Dichloropropene	75	7.002	6.993	0.009	92	26330	1.00	1.03	
72 4-Methyl-2-pentanone (MIBK)	43	7.120	7.123	-0.003	97	55785	2.00	2.17	
73 Toluene	91	7.310	7.312	-0.002	98	63054	1.00	1.02	
74 trans-1,3-Dichloropropene	75	7.475	7.478	-0.003	96	24584	1.00	1.01	
75 Ethyl methacrylate	69	7.546	7.549	-0.003	92	25378	1.00	1.04	
76 1,1,2-Trichloroethane	97	7.653	7.655	-0.002	90	13653	1.00	1.02	
77 1,3-Dichloropropane	76	7.807	7.809	-0.002	92	25433	1.00	1.05	
78 Tetrachloroethene	166	7.818	7.821	-0.003	78	15024	1.00	1.04	
80 2-Hexanone	43	7.866	7.868	-0.002	96	39479	2.00	2.17	
82 Chlorodibromomethane	129	8.020	8.022	-0.002	88	16128	1.00	1.03	
83 Ethylene Dibromide	107	8.150	8.140	0.010	92	14931	1.00	1.02	
85 Chlorobenzene	112	8.599	8.602	-0.003	96	41403	1.00	1.08	
86 1,1,1,2-Tetrachloroethane	131	8.670	8.661	0.009	89	14938	1.00	1.02	
87 Ethylbenzene	106	8.694	8.696	-0.002	99	19870	1.00	0.9725	
88 m-Xylene & p-Xylene	106	8.801	8.803	-0.003	98	25815	1.00	1.02	
89 o-Xylene	106	9.179	9.182	-0.003	96	26002	1.00	1.00	
90 Styrene	104	9.191	9.193	-0.002	93	43314	1.00	1.00	
91 Bromoform	173	9.368	9.371	-0.003	88	10375	1.00	0.9109	
92 Isopropylbenzene	105	9.534	9.525	0.009	95	59429	1.00	0.9889	
94 1,1,2,2-Tetrachloroethane	83	9.794	9.797	-0.003	95	22899	1.00	1.10	
96 trans-1,4-Dichloro-2-butene	53	9.854	9.844	0.010	73	8705	1.00	1.12	
95 Bromobenzene	156	9.842	9.844	-0.002	95	18447	1.00	1.11	
97 1,2,3-Trichloropropane	110	9.842	9.844	-0.002	81	8183	1.00	1.12	
98 N-Propylbenzene	120	9.925	9.927	-0.002	99	16281	1.00	1.02	
100 2-Chlorotoluene	126	10.019	10.022	-0.003	97	15586	1.00	1.06	
101 1,3,5-Trimethylbenzene	105	10.090	10.093	-0.003	94	47702	1.00	1.05	
102 4-Chlorotoluene	126	10.126	10.128	-0.002	98	15461	1.00	1.00	
104 tert-Butylbenzene	119	10.422	10.424	-0.002	89	38674	1.00	0.9554	
106 1,2,4-Trimethylbenzene	105	10.469	10.460	0.009	95	50898	1.00	1.05	
107 sec-Butylbenzene	134	10.635	10.637	-0.002	93	10764	1.00	0.9696	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
108 1,3-Dichlorobenzene	146	10.753	10.755	-0.002	96	32297	1.00	1.10	
109 4-Isopropyltoluene	119	10.777	10.779	-0.002	97	43763	1.00	0.9805	
110 1,4-Dichlorobenzene	146	10.836	10.838	-0.002	94	32457	1.00	1.06	
113 n-Butylbenzene	91	11.179	11.181	-0.002	97	39695	1.00	1.07	
114 1,2-Dichlorobenzene	146	11.214	11.217	-0.003	96	31469	1.00	1.07	
115 1,2-Dibromo-3-Chloropropane	157	11.984	11.986	-0.002	80	6921	1.00	1.18	
117 1,2,4-Trichlorobenzene	180	12.824	12.826	-0.002	91	16703	1.00	1.08	
118 Hexachlorobutadiene	225	13.001	13.004	-0.003	90	6306	1.00	1.13	
119 Naphthalene	128	13.084	13.086	-0.002	99	55146	1.00	1.01	
120 1,2,3-Trichlorobenzene	180	13.356	13.359	-0.003	93	14377	1.00	0.9855	
S 158 Total BTEX	1				0		5.00	5.10	
S 128 1,2-Dichloroethene, Total	96				0			2.12	
S 129 1,3-Dichloropropene, Total	75				0			2.03	
S 130 Trihalomethanes, Total	83				0		4.00	4.13	
S 131 Xylenes, Total	106				0		2.00	2.02	

Reagents:

vm100is_stk_A_00005	Amount Added: 1.00	Units: uL
vmrgas_00344	Amount Added: 0.80	Units: uL
vmarolistdw_00350	Amount Added: 0.80	Units: uL
vmrprimw_00391	Amount Added: 0.80	Units: uL
vm50ss_00408	Amount Added: 0.80	Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988357.D

Injection Date: 29-Jun-2020 10:44:30

Instrument ID: A3UX9

Operator ID: 001765

Lims ID: std8260 L2

Worklist Smp#: 9

Client ID:

Purge Vol: 5.000 mL

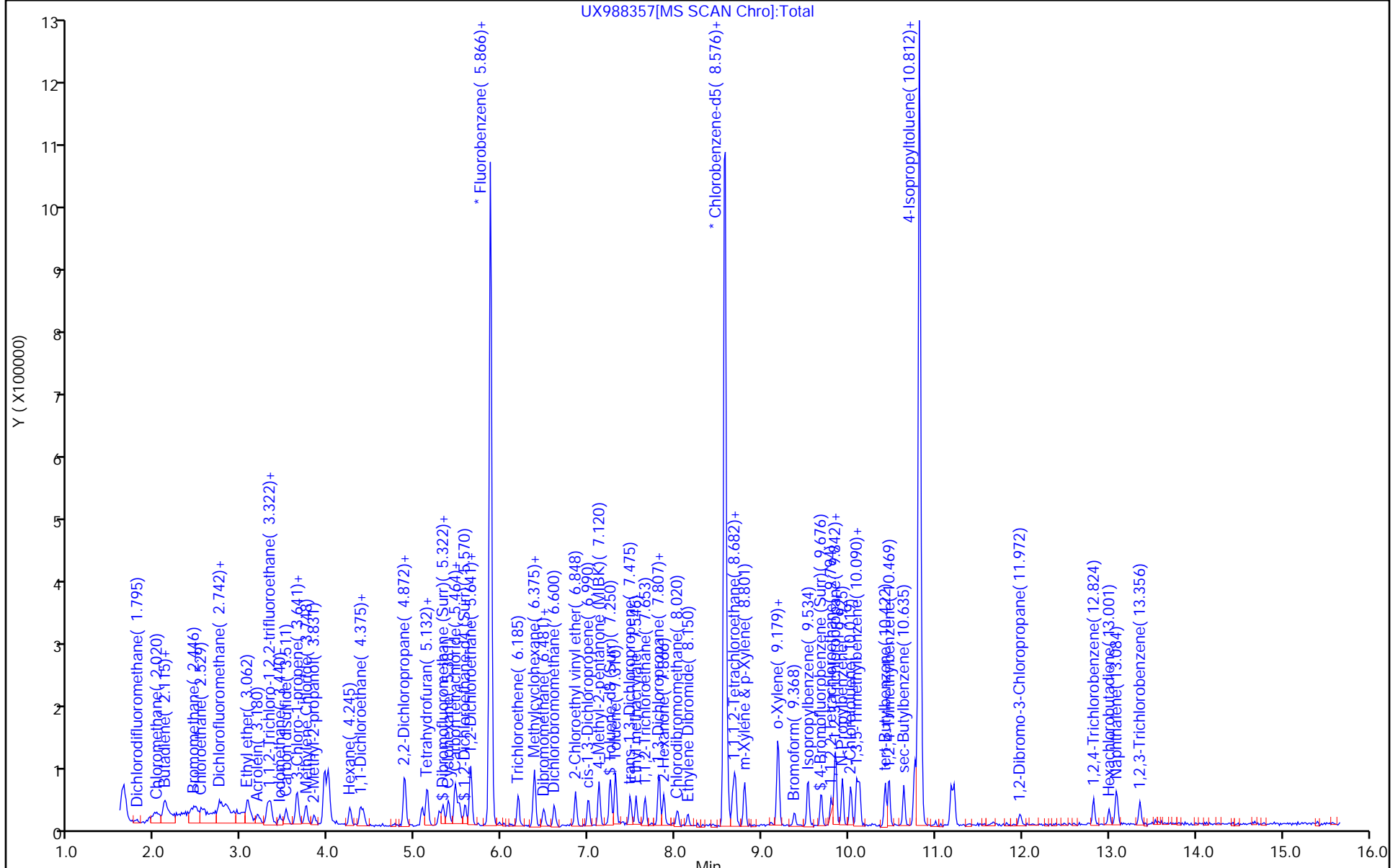
Dil. Factor: 1.0000

ALS Bottle#: 9

Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988358.D
 Lims ID: std8260 L3
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 29-Jun-2020 11:07:30 ALS Bottle#: 10 Worklist Smp#: 10
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0099598-010
 Operator ID: 001765 Instrument ID: A3UX9
 Sublist: chrom-8260_9*sub46
 Method: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Jul-2020 12:42:28 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1033

First Level Reviewer: bosworthh

Date: 01-Jul-2020 12:18:49

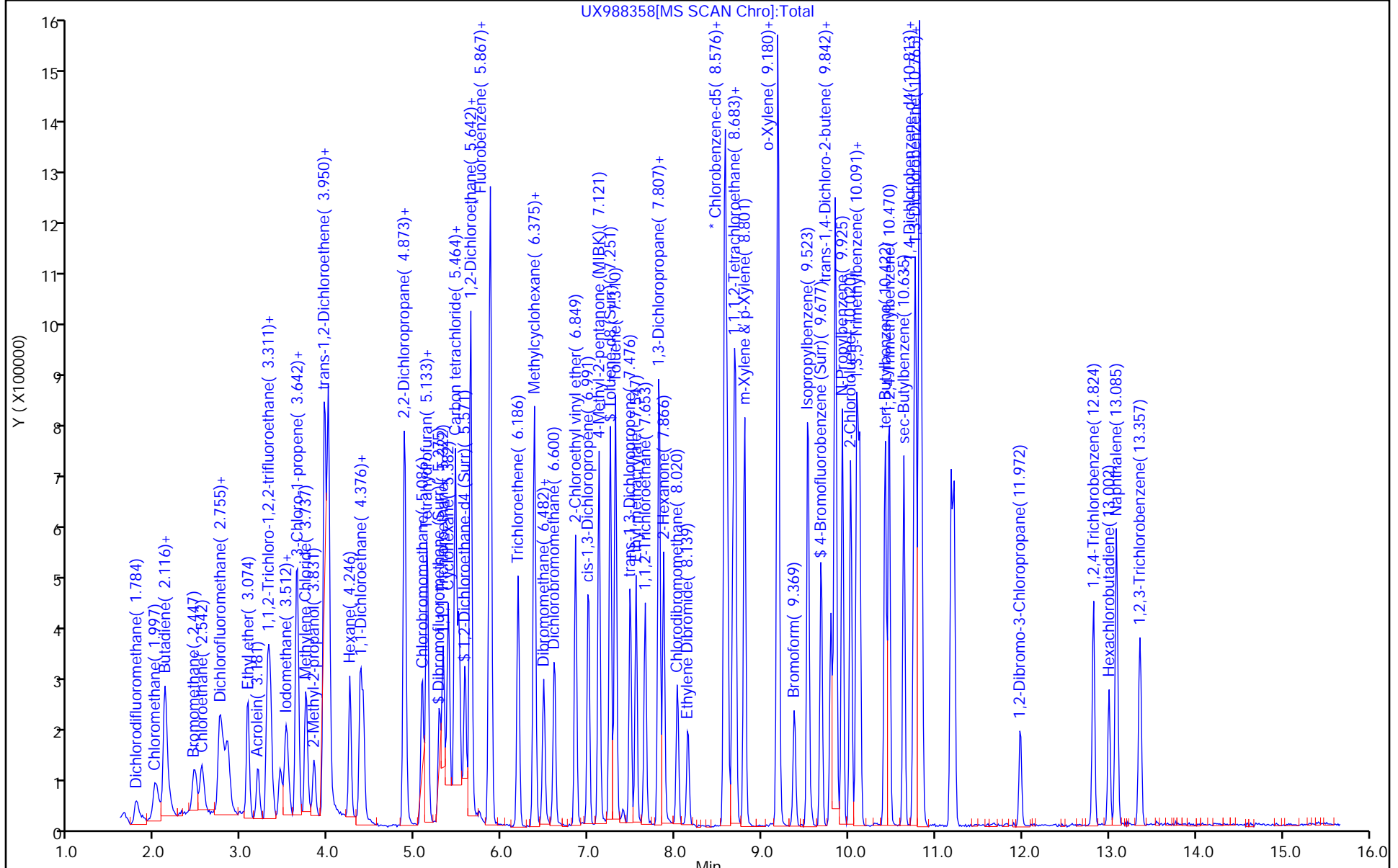
Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.867	5.865	0.002	98	1036653	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.576	8.575	0.001	87	799798	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.813	10.823	-0.010	95	440111	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	113	5.275	5.277	-0.002	92	141889	10.0	9.90	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.571	5.573	-0.002	99	189456	10.0	9.78	
\$ 6 Toluene-d8 (Surr)	98	7.251	7.253	-0.002	94	544004	10.0	10.0	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.677	9.679	-0.002	92	186029	10.0	9.62	
9 Dichlorodifluoromethane	85	1.784	1.786	-0.002	98	107494	10.0	9.19	
10 Chloromethane	50	2.009	2.011	-0.002	99	189652	10.0	10.5	
12 Butadiene	54	2.116	2.117	-0.001	94	155666	10.0	9.81	
11 Vinyl chloride	62	2.127	2.129	-0.002	97	171710	10.0	10.5	
13 Bromomethane	94	2.459	2.449	0.010	91	120211	10.0	9.47	
15 Chloroethane	64	2.542	2.543	-0.001	99	128910	10.0	9.84	
16 Dichlorofluoromethane	67	2.743	2.745	-0.002	99	301730	10.0	9.85	
17 Trichlorofluoromethane	101	2.790	2.816	-0.026	97	212805	10.0	10.2	
18 Ethyl ether	59	3.074	3.064	0.010	94	159126	10.0	10.1	
21 Acrolein	56	3.181	3.182	-0.001	99	140767	50.0	52.8	
24 1,1-Dichloroethene	61	3.299	3.289	0.010	97	221940	10.0	10.4	
22 1,1,2-Trichloro-1,2,2-trifluoro	101	3.323	3.324	-0.001	95	103488	10.0	9.64	
23 Acetone	58	3.334	3.336	-0.002	100	39153	20.0	19.5	
25 Iodomethane	142	3.441	3.443	-0.002	99	217627	10.0	10.1	
26 Carbon disulfide	76	3.512	3.514	-0.002	100	434673	10.0	10.2	
28 3-Chloro-1-propene	41	3.630	3.632	-0.002	88	274544	10.0	9.88	
29 Methyl acetate	43	3.642	3.644	-0.002	98	401343	20.0	20.0	
30 Methylene Chloride	49	3.737	3.739	-0.002	97	222886	10.0	10.2	
31 2-Methyl-2-propanol	59	3.831	3.833	-0.002	99	219053	100.0	105.9	
32 Acrylonitrile	53	3.950	3.952	-0.002	99	918406	100.0	102.8	
34 trans-1,2-Dichloroethene	61	3.997	3.999	-0.002	96	219576	10.0	10.1	
33 Methyl tert-butyl ether	73	3.997	3.999	-0.002	96	488375	10.0	10.0	
35 Hexane	57	4.246	4.247	-0.001	95	141897	10.0	8.79	
36 1,1-Dichloroethane	63	4.364	4.366	-0.002	98	300657	10.0	10.4	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
37 Vinyl acetate	43	4.399	4.401	-0.002	97	340417	10.0	10.2	
43 cis-1,2-Dichloroethene	96	4.873	4.874	-0.001	88	170196	10.0	9.69	
41 2-Butanone (MEK)	72	4.873	4.874	-0.001	97	62976	20.0	20.5	
42 2,2-Dichloropropane	77	4.885	4.886	-0.001	89	192636	10.0	10.4	
47 Chlorobromomethane	49	5.074	5.076	-0.002	96	166447	10.0	10.4	
48 Tetrahydrofuran	42	5.133	5.135	-0.002	88	177222	20.0	20.1	
49 Chloroform	83	5.145	5.135	0.010	98	267315	10.0	9.69	
50 1,1,1-Trichloroethane	97	5.322	5.324	-0.002	99	237363	10.0	10.3	
51 Cyclohexane	84	5.382	5.383	-0.001	92	194057	10.0	9.91	
52 1,1-Dichloropropene	75	5.464	5.454	0.010	94	219950	10.0	10.3	
53 Carbon tetrachloride	117	5.464	5.466	-0.002	97	191665	10.0	9.82	
54 Isobutyl alcohol	41	5.500	5.502	-0.002	88	224927	250.0	279.5	
56 1,2-Dichloroethane	62	5.642	5.644	-0.002	61	233081	10.0	10.2	
55 Benzene	78	5.642	5.644	-0.002	97	640789	10.0	10.2	
58 n-Heptane	71	5.855	5.857	-0.002	93	70492	10.0	8.68	
60 Trichloroethene	130	6.186	6.188	-0.002	95	165988	10.0	10.1	
62 Methylcyclohexane	83	6.375	6.365	0.010	93	169718	10.0	9.73	
63 1,2-Dichloropropane	63	6.375	6.377	-0.002	92	155514	10.0	9.78	
66 Dibromomethane	174	6.482	6.484	-0.002	93	113798	10.0	10.2	
65 1,4-Dioxane	88	6.482	6.484	-0.002	39	27691	200.0	158.0	
67 Dichlorobromomethane	83	6.600	6.602	-0.002	98	218786	10.0	10.2	
69 2-Chloroethyl vinyl ether	63	6.849	6.851	-0.002	93	245216	20.0	20.7	
71 cis-1,3-Dichloropropene	75	6.991	6.993	-0.002	93	277188	10.0	10.5	
72 4-Methyl-2-pentanone (MIBK)	43	7.121	7.123	-0.002	98	544170	20.0	20.4	
73 Toluene	91	7.310	7.312	-0.002	98	647666	10.0	9.94	
74 trans-1,3-Dichloropropene	75	7.476	7.478	-0.002	97	260314	10.0	10.1	
75 Ethyl methacrylate	69	7.547	7.549	-0.002	90	250878	10.0	9.70	
76 1,1,2-Trichloroethane	97	7.653	7.655	-0.002	94	136388	10.0	9.64	
77 1,3-Dichloropropane	76	7.807	7.809	-0.002	95	264359	10.0	10.3	
78 Tetrachloroethene	166	7.819	7.821	-0.002	96	154331	10.0	10.1	
80 2-Hexanone	43	7.866	7.868	-0.002	98	394319	20.0	20.5	
82 Chlorodibromomethane	129	8.020	8.022	-0.002	90	159095	10.0	9.60	
83 Ethylene Dibromide	107	8.139	8.140	-0.001	97	149193	10.0	9.61	
85 Chlorobenzene	112	8.600	8.602	-0.002	96	402963	10.0	9.97	
86 1,1,1,2-Tetrachloroethane	131	8.671	8.661	0.010	93	158555	10.0	10.3	
87 Ethylbenzene	106	8.695	8.696	-0.001	98	223312	10.0	10.3	
88 m-Xylene & p-Xylene	106	8.801	8.803	-0.002	98	271636	10.0	10.2	
89 o-Xylene	106	9.180	9.182	-0.002	96	275170	10.0	10.0	
90 Styrene	104	9.192	9.193	-0.001	94	454969	10.0	9.95	
91 Bromoform	173	9.369	9.371	-0.002	95	121658	10.0	10.1	
92 Isopropylbenzene	105	9.523	9.525	-0.002	96	637951	10.0	10.0	
94 1,1,2,2-Tetrachloroethane	83	9.795	9.797	-0.002	96	225780	10.0	10.1	
96 trans-1,4-Dichloro-2-butene	53	9.842	9.844	-0.002	71	86652	10.0	10.4	
95 Bromobenzene	156	9.842	9.844	-0.002	97	178180	10.0	10.0	
97 1,2,3-Trichloropropane	110	9.854	9.844	0.010	82	83404	10.0	10.7	
98 N-Propylbenzene	120	9.925	9.927	-0.002	99	175115	10.0	10.2	
100 2-Chlorotoluene	126	10.020	10.022	-0.002	96	158963	10.0	10.1	
101 1,3,5-Trimethylbenzene	105	10.091	10.093	-0.002	95	500215	10.0	10.2	
102 4-Chlorotoluene	126	10.126	10.128	-0.002	98	168473	10.0	10.1	
104 tert-Butylbenzene	119	10.422	10.424	-0.002	92	439033	10.0	10.1	
106 1,2,4-Trimethylbenzene	105	10.470	10.460	0.010	97	530164	10.0	10.2	
107 sec-Butylbenzene	134	10.635	10.637	-0.002	94	127572	10.0	10.7	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
108 1,3-Dichlorobenzene	146	10.754	10.755	-0.001	98	319729	10.0	10.2	
109 4-Isopropyltoluene	119	10.777	10.779	-0.002	97	484614	10.0	10.1	
110 1,4-Dichlorobenzene	146	10.836	10.838	-0.002	94	331657	10.0	10.1	
113 n-Butylbenzene	91	11.180	11.181	-0.001	97	407382	10.0	10.2	
114 1,2-Dichlorobenzene	146	11.215	11.217	-0.002	97	328393	10.0	10.4	
115 1,2-Dibromo-3-Chloropropane	157	11.984	11.986	-0.002	86	65245	10.0	10.4	
117 1,2,4-Trichlorobenzene	180	12.824	12.826	-0.002	95	166206	10.0	10.0	
118 Hexachlorobutadiene	225	13.002	13.004	-0.002	95	60673	10.0	10.1	
119 Naphthalene	128	13.085	13.086	-0.001	97	595138	10.0	10.2	
120 1,2,3-Trichlorobenzene	180	13.357	13.359	-0.002	95	153907	10.0	9.86	
S 158 Total BTEX	1				0		50.0	50.7	
S 128 1,2-Dichloroethene, Total	96				0			19.8	
S 129 1,3-Dichloropropene, Total	75				0			20.5	
S 130 Trihalomethanes, Total	83				0		40.0	39.6	
S 131 Xylenes, Total	106				0		20.0	20.2	

Reagents:

vm100is_stk_A_00005	Amount Added: 1.00	Units: uL
vmrgas_00344	Amount Added: 8.00	Units: uL
vmarolistdw_00350	Amount Added: 8.00	Units: uL
vmrprimw_00391	Amount Added: 8.00	Units: uL
vm50ss_00408	Amount Added: 8.00	Units: uL



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988359.D
 Lims ID: ICIS L4
 Client ID:
 Sample Type: ICIS Calib Level: 4
 Inject. Date: 29-Jun-2020 11:29:30 ALS Bottle#: 11 Worklist Smp#: 11
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0099598-011
 Operator ID: 001765 Instrument ID: A3UX9
 Sublist: chrom-8260_9*sub46
 Method: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Jul-2020 12:42:30 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1033

First Level Reviewer: bosworthh

Date: 01-Jul-2020 12:19:23

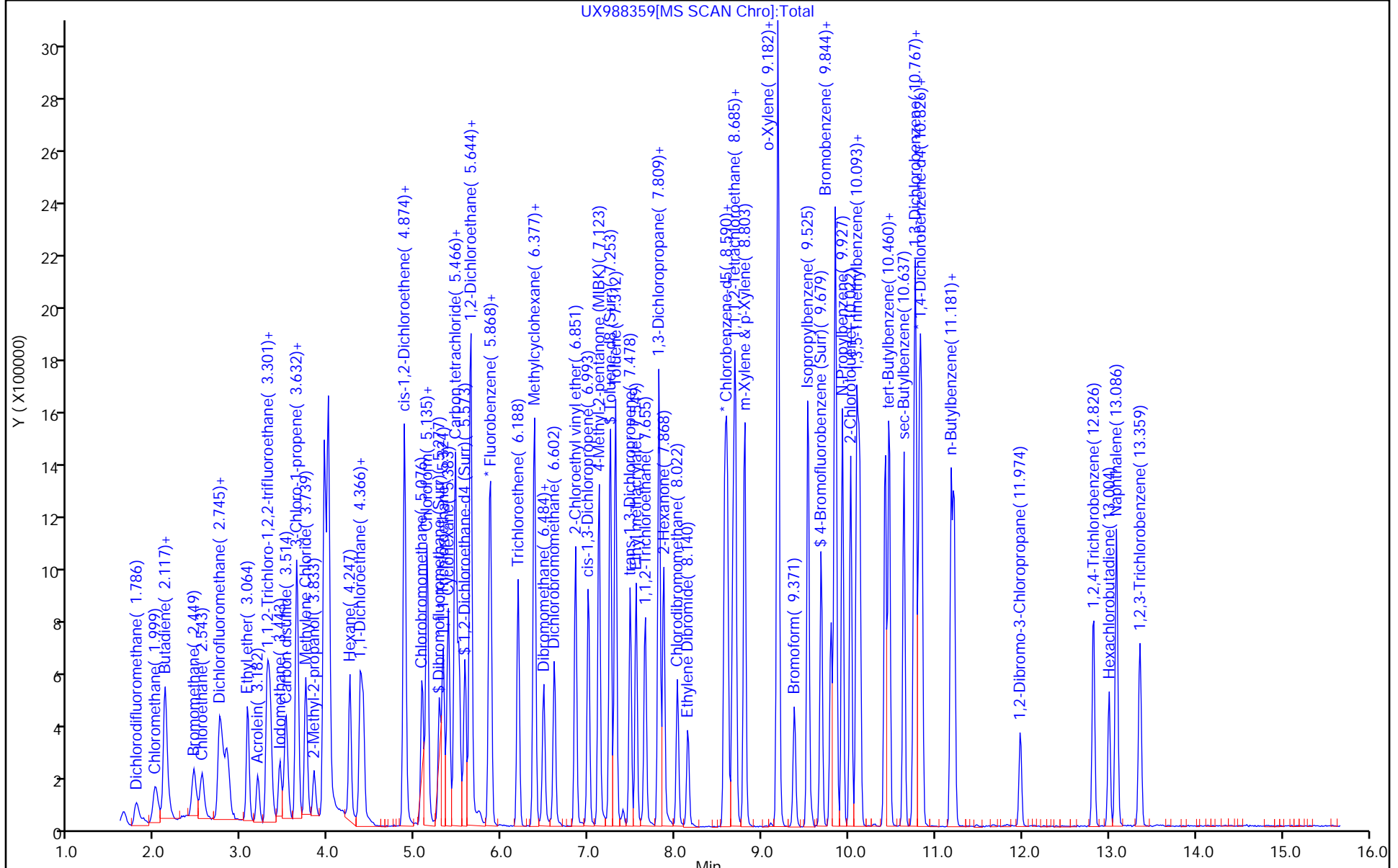
Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.868	5.868	0.000	98	1066616	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.566	8.566	0.000	89	824710	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.815	10.815	0.000	94	469576	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	113	5.277	5.277	0.000	94	296849	20.0	20.1	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.573	5.573	0.000	99	395806	20.0	19.9	
\$ 6 Toluene-d8 (Surr)	98	7.253	7.253	0.000	93	1111744	20.0	19.9	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.679	9.679	0.000	92	382992	20.0	19.2	
9 Dichlorodifluoromethane	85	1.786	1.786	0.000	99	214942	20.0	17.9	
10 Chloromethane	50	2.011	2.011	0.000	99	368898	20.0	19.9	
12 Butadiene	54	2.117	2.117	0.000	93	308103	20.0	18.9	
11 Vinyl chloride	62	2.129	2.129	0.000	99	344013	20.0	20.5	
13 Bromomethane	94	2.449	2.449	0.000	91	244814	20.0	18.7	
15 Chloroethane	64	2.543	2.543	0.000	99	264362	20.0	19.6	
16 Dichlorofluoromethane	67	2.745	2.745	0.000	99	606627	20.0	19.2	
17 Trichlorofluoromethane	101	2.816	2.816	0.000	98	421366	20.0	19.6	
18 Ethyl ether	59	3.064	3.064	0.000	94	323026	20.0	19.9	
21 Acrolein	56	3.182	3.182	0.000	99	251187	100.0	93.5	
24 1,1-Dichloroethene	61	3.289	3.289	0.000	97	433505	20.0	19.7	
22 1,1,2-Trichloro-1,2,2-trifluoro	101	3.324	3.324	0.000	97	207545	20.0	18.8	
23 Acetone	58	3.324	3.336	-0.012	100	71502	40.0	36.9	
25 Iodomethane	142	3.443	3.443	0.000	99	443225	20.0	20.1	
26 Carbon disulfide	76	3.514	3.514	0.000	100	876107	20.0	19.9	
28 3-Chloro-1-propene	41	3.632	3.632	0.000	88	552816	20.0	19.3	
29 Methyl acetate	43	3.644	3.644	0.000	98	755597	40.0	36.5	
30 Methylene Chloride	49	3.739	3.739	0.000	97	443460	20.0	19.7	
31 2-Methyl-2-propanol	59	3.833	3.833	0.000	99	382477	200.0	179.7	
32 Acrylonitrile	53	3.952	3.952	0.000	99	1711698	200.0	186.2	
34 trans-1,2-Dichloroethene	61	3.999	3.999	0.000	95	444243	20.0	19.8	
33 Methyl tert-butyl ether	73	3.999	3.999	0.000	96	975369	20.0	19.4	
35 Hexane	57	4.247	4.247	0.000	94	285369	20.0	17.2	
36 1,1-Dichloroethane	63	4.366	4.366	0.000	97	584093	20.0	19.6	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
37 Vinyl acetate	43	4.401	4.401	0.000	98	712590	20.0	20.7	
43 cis-1,2-Dichloroethene	96	4.874	4.874	0.000	87	346432	20.0	19.2	
41 2-Butanone (MEK)	72	4.874	4.874	0.000	87	112097	40.0	35.5	
42 2,2-Dichloropropane	77	4.886	4.886	0.000	89	384040	20.0	20.2	
47 Chlorobromomethane	49	5.076	5.076	0.000	97	332713	20.0	20.2	
48 Tetrahydrofuran	42	5.135	5.135	0.000	90	332757	40.0	36.7	
49 Chloroform	83	5.135	5.135	0.000	98	546894	20.0	19.3	
50 1,1,1-Trichloroethane	97	5.324	5.324	0.000	98	461918	20.0	19.4	
51 Cyclohexane	84	5.383	5.383	0.000	92	384757	20.0	19.1	
52 1,1-Dichloropropene	75	5.454	5.454	0.000	93	439375	20.0	19.9	
53 Carbon tetrachloride	117	5.466	5.466	0.000	97	406855	20.0	20.3	
54 Isobutyl alcohol	41	5.502	5.502	0.000	95	406283	500.0	490.6	
56 1,2-Dichloroethane	62	5.644	5.644	0.000	60	469349	20.0	20.0	
55 Benzene	78	5.644	5.644	0.000	97	1299629	20.0	20.1	
58 n-Heptane	71	5.857	5.857	0.000	91	135231	20.0	17.5	
60 Trichloroethene	130	6.188	6.188	0.000	95	337176	20.0	19.9	
62 Methylcyclohexane	83	6.365	6.365	0.000	93	329438	20.0	18.4	
63 1,2-Dichloropropane	63	6.377	6.377	0.000	93	319430	20.0	19.5	
65 1,4-Dioxane	88	6.484	6.484	0.000	38	79504	400.0	424.4	
66 Dibromomethane	174	6.484	6.484	0.000	95	232426	20.0	20.3	
67 Dichlorobromomethane	83	6.602	6.602	0.000	98	437559	20.0	19.9	
69 2-Chloroethyl vinyl ether	63	6.851	6.851	0.000	93	485842	40.0	39.8	
71 cis-1,3-Dichloropropene	75	6.993	6.993	0.000	93	550574	20.0	20.2	
72 4-Methyl-2-pentanone (MIBK)	43	7.123	7.123	0.000	97	1085319	40.0	39.6	
73 Toluene	91	7.312	7.312	0.000	98	1297962	20.0	19.3	
74 trans-1,3-Dichloropropene	75	7.478	7.478	0.000	97	522674	20.0	19.6	
75 Ethyl methacrylate	69	7.549	7.549	0.000	90	524252	20.0	19.7	
76 1,1,2-Trichloroethane	97	7.655	7.655	0.000	95	284360	20.0	19.5	
77 1,3-Dichloropropane	76	7.809	7.809	0.000	92	529588	20.0	20.0	
78 Tetrachloroethene	166	7.821	7.821	0.000	84	318796	20.0	20.3	
80 2-Hexanone	43	7.868	7.868	0.000	97	783007	40.0	39.4	
82 Chlorodibromomethane	129	8.022	8.022	0.000	90	322723	20.0	18.9	
83 Ethylene Dibromide	107	8.140	8.140	0.000	99	300062	20.0	18.7	
85 Chlorobenzene	112	8.602	8.602	0.000	93	813806	20.0	19.5	
86 1,1,1,2-Tetrachloroethane	131	8.661	8.661	0.000	93	312977	20.0	19.7	
87 Ethylbenzene	106	8.696	8.696	0.000	99	444076	20.0	19.9	
88 m-Xylene & p-Xylene	106	8.803	8.803	0.000	99	541839	20.0	19.7	
89 o-Xylene	106	9.182	9.182	0.000	95	558801	20.0	19.7	
90 Styrene	104	9.193	9.193	0.000	94	942961	20.0	20.0	
91 Bromoform	173	9.371	9.371	0.000	95	254706	20.0	20.5	
92 Isopropylbenzene	105	9.525	9.525	0.000	96	1308852	20.0	20.0	
94 1,1,2,2-Tetrachloroethane	83	9.797	9.797	0.000	95	458404	20.0	19.3	
96 trans-1,4-Dichloro-2-butene	53	9.844	9.844	0.000	73	173461	20.0	19.6	
95 Bromobenzene	156	9.844	9.844	0.000	98	369384	20.0	19.5	
97 1,2,3-Trichloropropane	110	9.844	9.844	0.000	82	157411	20.0	18.9	
98 N-Propylbenzene	120	9.927	9.927	0.000	99	353383	20.0	19.4	
100 2-Chlorotoluene	126	10.022	10.022	0.000	96	330215	20.0	19.7	
101 1,3,5-Trimethylbenzene	105	10.093	10.093	0.000	95	1017603	20.0	19.5	
102 4-Chlorotoluene	126	10.128	10.128	0.000	98	340638	20.0	19.2	
104 tert-Butylbenzene	119	10.424	10.424	0.000	92	922549	20.0	20.0	
106 1,2,4-Trimethylbenzene	105	10.460	10.460	0.000	95	1070332	20.0	19.3	
107 sec-Butylbenzene	134	10.637	10.637	0.000	94	252428	20.0	19.9	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
108 1,3-Dichlorobenzene	146	10.755	10.755	0.000	98	654117	20.0	19.5	
109 4-Isopropyltoluene	119	10.779	10.779	0.000	97	1002989	20.0	19.7	
110 1,4-Dichlorobenzene	146	10.838	10.838	0.000	94	682221	20.0	19.5	
113 n-Butylbenzene	91	11.181	11.181	0.000	98	816712	20.0	19.3	
114 1,2-Dichlorobenzene	146	11.217	11.217	0.000	97	662084	20.0	19.7	
115 1,2-Dibromo-3-Chloropropane	157	11.986	11.986	0.000	87	125820	20.0	18.8	
117 1,2,4-Trichlorobenzene	180	12.826	12.826	0.000	93	331531	20.0	18.7	
118 Hexachlorobutadiene	225	13.004	13.004	0.000	96	123594	20.0	19.3	
119 Naphthalene	128	13.086	13.086	0.000	97	1196631	20.0	19.1	
120 1,2,3-Trichlorobenzene	180	13.359	13.359	0.000	94	312236	20.0	18.7	
S 158 Total BTEX	1				0		100.0	98.7	
S 130 Trihalomethanes, Total	83				0		80.0	78.6	
S 131 Xylenes, Total	106				0		40.0	39.4	

Reagents:

vm100is_stk_A_00005	Amount Added: 1.00	Units: uL
vmrgas_00344	Amount Added: 16.00	Units: uL
vmarolistdw_00350	Amount Added: 16.00	Units: uL
vmrprimw_00391	Amount Added: 16.00	Units: uL
vm50ss_00408	Amount Added: 16.00	Units: uL



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988360.D
 Lims ID: std8260 L5
 Client ID:
 Sample Type: IC Calib Level: 5
 Inject. Date: 29-Jun-2020 11:52:30 ALS Bottle#: 12 Worklist Smp#: 12
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0099598-012
 Operator ID: 001765 Instrument ID: A3UX9
 Sublist: chrom-8260_9*sub46
 Method: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Jul-2020 12:42:32 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1033

First Level Reviewer: bosworthh

Date: 29-Jun-2020 12:58:05

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.865	5.868	-0.003	99	1167374	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.574	8.566	0.008	88	890423	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.811	10.815	-0.004	93	513692	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	113	5.285	5.277	0.008	93	465144	30.0	28.8	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.581	5.573	0.008	100	640099	30.0	29.3	
\$ 6 Toluene-d8 (Surr)	98	7.249	7.253	-0.004	94	1834874	30.0	30.4	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.675	9.679	-0.004	93	634899	30.0	29.5	
9 Dichlorodifluoromethane	85	1.782	1.786	-0.004	99	412501	30.0	31.3	
10 Chloromethane	50	2.007	2.011	-0.004	100	562544	30.0	27.8	
12 Butadiene	54	2.114	2.117	-0.003	96	486779	30.0	27.2	
11 Vinyl chloride	62	2.137	2.129	0.008	99	528664	30.0	28.8	
13 Bromomethane	94	2.457	2.449	0.008	92	404794	30.0	28.3	
15 Chloroethane	64	2.540	2.543	-0.003	99	414702	30.0	28.1	
16 Dichlorofluoromethane	67	2.752	2.745	0.007	99	940343	30.0	27.3	
17 Trichlorofluoromethane	101	2.835	2.816	0.019	98	712199	30.0	30.2	
18 Ethyl ether	59	3.072	3.064	0.008	94	522097	30.0	29.4	
21 Acrolein	56	3.190	3.182	0.008	99	440445	150.0	151.4	
24 1,1-Dichloroethene	61	3.297	3.289	0.008	97	699316	30.0	29.0	
22 1,1,2-Trichloro-1,2,2-trifluoro	101	3.320	3.324	-0.004	96	385791	30.0	31.9	
23 Acetone	58	3.332	3.336	-0.004	99	126384	60.0	61.3	
25 Iodomethane	142	3.439	3.443	-0.004	99	694145	30.0	28.7	
26 Carbon disulfide	76	3.510	3.514	-0.004	100	1396890	30.0	29.0	
28 3-Chloro-1-propene	41	3.628	3.632	-0.004	88	876499	30.0	28.0	
29 Methyl acetate	43	3.652	3.644	0.008	98	1309208	60.0	57.8	
30 Methylene Chloride	49	3.746	3.739	0.007	97	703034	30.0	28.5	
31 2-Methyl-2-propanol	59	3.841	3.833	0.008	99	671833	300.0	288.5	
32 Acrylonitrile	53	3.959	3.952	0.007	99	3036302	300.0	301.8	
34 trans-1,2-Dichloroethene	61	3.995	3.999	-0.004	94	725625	30.0	29.6	
33 Methyl tert-butyl ether	73	4.007	3.999	0.008	96	1624929	30.0	29.6	
35 Hexane	57	4.243	4.247	-0.004	94	525822	30.0	28.9	
36 1,1-Dichloroethane	63	4.374	4.366	0.008	98	951849	30.0	29.2	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
37 Vinyl acetate	43	4.409	4.401	0.008	97	1166898	30.0	30.9	
43 cis-1,2-Dichloroethene	96	4.871	4.874	-0.003	88	556664	30.0	28.2	
41 2-Butanone (MEK)	72	4.871	4.874	-0.003	98	200833	60.0	58.2	
42 2,2-Dichloropropane	77	4.882	4.886	-0.004	89	606654	30.0	29.1	
47 Chlorobromomethane	49	5.084	5.076	0.008	97	530038	30.0	29.4	
48 Tetrahydrofuran	42	5.131	5.135	-0.004	90	572157	60.0	57.7	
49 Chloroform	83	5.143	5.135	0.008	98	877203	30.0	28.2	
50 1,1,1-Trichloroethane	97	5.320	5.324	-0.004	98	743814	30.0	28.5	
51 Cyclohexane	84	5.379	5.383	-0.004	93	672323	30.0	30.5	
52 1,1-Dichloropropene	75	5.462	5.454	0.008	94	722531	30.0	29.9	
53 Carbon tetrachloride	117	5.474	5.466	0.008	96	669221	30.0	30.4	
54 Isobutyl alcohol	41	5.510	5.502	0.008	93	660696	750.0	729.0	
56 1,2-Dichloroethane	62	5.640	5.644	-0.004	61	762860	30.0	29.7	
55 Benzene	78	5.640	5.644	-0.004	97	2096244	30.0	29.6	
58 n-Heptane	71	5.853	5.857	-0.004	95	251171	30.0	30.7	
60 Trichloroethene	130	6.184	6.188	-0.004	95	542250	30.0	29.3	
62 Methylcyclohexane	83	6.373	6.365	0.008	93	603153	30.0	30.7	
63 1,2-Dichloropropane	63	6.373	6.377	-0.004	92	528729	30.0	29.5	
66 Dibromomethane	174	6.480	6.484	-0.004	92	382730	30.0	30.5	
65 1,4-Dioxane	88	6.492	6.484	0.008	92	112606	600.0	569.5	
67 Dichlorobromomethane	83	6.610	6.602	0.008	98	695514	30.0	28.9	
69 2-Chloroethyl vinyl ether	63	6.847	6.851	-0.004	93	809961	60.0	60.7	
71 cis-1,3-Dichloropropene	75	7.000	6.993	0.007	93	898024	30.0	30.1	
72 4-Methyl-2-pentanone (MIBK)	43	7.119	7.123	-0.004	98	1776464	60.0	59.2	
73 Toluene	91	7.308	7.312	-0.004	98	2152855	30.0	29.7	
74 trans-1,3-Dichloropropene	75	7.486	7.478	0.008	97	855789	30.0	29.7	
75 Ethyl methacrylate	69	7.545	7.549	-0.004	90	849317	30.0	29.5	
76 1,1,2-Trichloroethane	97	7.651	7.655	-0.004	95	458614	30.0	29.1	
77 1,3-Dichloropropane	76	7.805	7.809	-0.004	93	862789	30.0	30.2	
78 Tetrachloroethene	166	7.817	7.821	-0.004	95	523861	30.0	30.9	
80 2-Hexanone	43	7.864	7.868	-0.004	98	1271142	60.0	59.3	
82 Chlorodibromomethane	129	8.030	8.022	0.008	90	535760	30.0	29.0	
83 Ethylene Dibromide	107	8.148	8.140	0.008	98	494643	30.0	28.6	
85 Chlorobenzene	112	8.598	8.602	-0.004	93	1348359	30.0	30.0	
86 1,1,1,2-Tetrachloroethane	131	8.669	8.661	0.008	94	519706	30.0	30.3	
87 Ethylbenzene	106	8.693	8.696	-0.003	99	726603	30.0	30.2	
88 m-Xylene & p-Xylene	106	8.799	8.803	-0.004	99	919086	30.0	30.9	
89 o-Xylene	106	9.178	9.182	-0.004	96	918901	30.0	30.0	
90 Styrene	104	9.190	9.193	-0.003	94	1549361	30.0	30.4	
91 Bromoform	173	9.367	9.371	-0.004	95	424107	30.0	31.6	
92 Isopropylbenzene	105	9.533	9.525	0.008	96	2144128	30.0	30.3	
94 1,1,2,2-Tetrachloroethane	83	9.793	9.797	-0.004	96	748104	30.0	28.7	
96 trans-1,4-Dichloro-2-butene	53	9.852	9.844	0.008	74	291843	30.0	30.1	
95 Bromobenzene	156	9.840	9.844	-0.004	98	600238	30.0	29.0	
97 1,2,3-Trichloropropane	110	9.852	9.844	0.008	83	263039	30.0	28.9	
98 N-Propylbenzene	120	9.923	9.927	-0.004	99	588013	30.0	29.5	
100 2-Chlorotoluene	126	10.018	10.022	-0.004	96	549448	30.0	30.0	
101 1,3,5-Trimethylbenzene	105	10.089	10.093	-0.004	95	1714595	30.0	30.1	
102 4-Chlorotoluene	126	10.124	10.128	-0.004	98	572899	30.0	29.6	
104 tert-Butylbenzene	119	10.420	10.424	-0.004	93	1646981	30.0	32.6	
106 1,2,4-Trimethylbenzene	105	10.467	10.460	0.007	97	1806483	30.0	29.8	
107 sec-Butylbenzene	134	10.633	10.637	-0.004	95	426188	30.0	30.7	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
108 1,3-Dichlorobenzene	146	10.751	10.755	-0.004	98	1086547	30.0	29.6	
109 4-Isopropyltoluene	119	10.775	10.779	-0.004	97	1697348	30.0	30.4	
110 1,4-Dichlorobenzene	146	10.846	10.838	0.008	95	1131700	30.0	29.5	
113 n-Butylbenzene	91	11.177	11.181	-0.004	97	1364960	30.0	29.4	
114 1,2-Dichlorobenzene	146	11.213	11.217	-0.004	97	1099828	30.0	29.9	
115 1,2-Dibromo-3-Chloropropane	157	11.982	11.986	-0.004	87	209864	30.0	28.6	
117 1,2,4-Trichlorobenzene	180	12.822	12.826	-0.004	93	554821	30.0	28.6	
118 Hexachlorobutadiene	225	13.000	13.004	-0.004	96	202144	30.0	28.9	
119 Naphthalene	128	13.083	13.086	-0.003	97	1988046	30.0	29.1	
120 1,2,3-Trichlorobenzene	180	13.355	13.359	-0.004	94	523602	30.0	28.7	
S 158 Total BTEX	1				0		150.0	150.4	
S 128 1,2-Dichloroethene, Total	96				0			57.7	
S 129 1,3-Dichloropropene, Total	75				0			59.8	
S 130 Trihalomethanes, Total	83				0		120.0	117.8	
S 131 Xylenes, Total	106				0		60.0	61.0	

Reagents:

vmrgas_00344	Amount Added: 24.00	Units: uL
vmarolistdw_00350	Amount Added: 24.00	Units: uL
vmrprimw_00391	Amount Added: 24.00	Units: uL
vm50ss_00408	Amount Added: 24.00	Units: uL
vm100is_stk_A_00005	Amount Added: 1.00	Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988360.D

Injection Date: 29-Jun-2020 11:52:30

Instrument ID: A3UX9

Operator ID: 001765

Lims ID: std8260 L5

Worklist Smp#: 12

Client ID:

Purge Vol: 5.000 mL

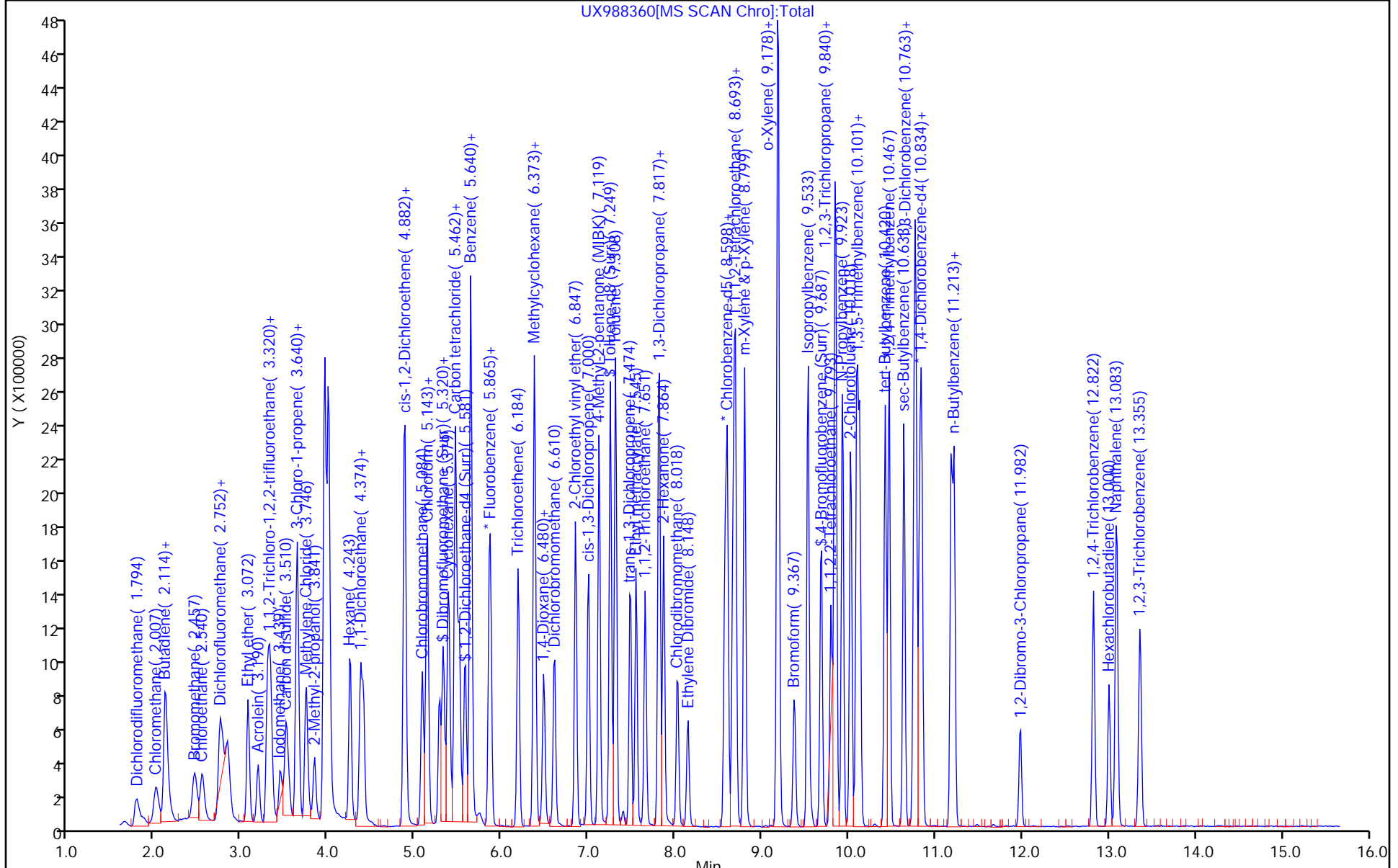
Dil. Factor: 1.0000

ALS Bottle#: 12

Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988361.D
 Lims ID: std8260 L6
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 29-Jun-2020 12:14:30 ALS Bottle#: 13 Worklist Smp#: 13
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0099598-013
 Operator ID: 001765 Instrument ID: A3UX9
 Sublist: chrom-8260_9*sub46
 Method: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Jul-2020 12:42:35 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1033

First Level Reviewer: bosworthh

Date: 01-Jul-2020 12:21:23

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.865	5.868	-0.003	98	1231779	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.575	8.566	0.009	86	930569	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.811	10.815	-0.004	95	529388	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	113	5.274	5.277	-0.003	93	655448	40.0	38.5	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.569	5.573	-0.004	99	885351	40.0	38.5	
\$ 6 Toluene-d8 (Surr)	98	7.250	7.253	-0.003	94	2552012	40.0	40.5	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.675	9.679	-0.004	92	894653	40.0	39.8	
9 Dichlorodifluoromethane	85	1.783	1.786	-0.003	99	567786	40.0	40.8	
10 Chloromethane	50	2.008	2.011	-0.003	100	778274	40.0	36.4	
12 Butadiene	54	2.114	2.117	-0.003	97	659625	40.0	35.0	
11 Vinyl chloride	62	2.138	2.129	0.009	99	715973	40.0	37.0	
13 Bromomethane	94	2.446	2.449	-0.003	92	571976	40.0	37.9	
15 Chloroethane	64	2.540	2.543	-0.003	100	615946	40.0	39.5	
16 Dichlorofluoromethane	67	2.741	2.745	-0.004	100	1329117	40.0	36.5	
17 Trichlorofluoromethane	101	2.812	2.816	-0.004	98	1017773	40.0	41.0	
18 Ethyl ether	59	3.061	3.064	-0.003	94	669465	40.0	35.8	
21 Acrolein	56	3.179	3.182	-0.003	99	618089	200.0	202.2	
24 1,1-Dichloroethene	61	3.286	3.289	-0.003	96	980155	40.0	38.5	
22 1,1,2-Trichloro-1,2,2-trifluoro	101	3.321	3.324	-0.003	96	531057	40.0	41.6	
23 Acetone	58	3.333	3.336	-0.003	99	177046	80.0	82.2	
25 Iodomethane	142	3.440	3.443	-0.003	98	978953	40.0	38.4	
26 Carbon disulfide	76	3.511	3.514	-0.003	100	1951454	40.0	38.4	
28 3-Chloro-1-propene	41	3.629	3.632	-0.003	88	1225799	40.0	37.1	
29 Methyl acetate	43	3.641	3.644	-0.003	98	1902587	80.0	79.6	
30 Methylene Chloride	49	3.735	3.739	-0.004	97	981902	40.0	37.7	
31 2-Methyl-2-propanol	59	3.830	3.833	-0.003	100	968308	400.0	394.0	
32 Acrylonitrile	53	3.948	3.952	-0.004	99	4209860	400.0	396.5	
34 trans-1,2-Dichloroethene	61	3.996	3.999	-0.003	95	1008034	40.0	38.9	
33 Methyl tert-butyl ether	73	3.996	3.999	-0.003	97	2278588	40.0	39.3	
35 Hexane	57	4.244	4.247	-0.003	94	729548	40.0	38.0	
36 1,1-Dichloroethane	63	4.362	4.366	-0.004	97	1317228	40.0	38.3	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
37 Vinyl acetate	43	4.398	4.401	-0.003	97	1445655	40.0	36.3	
43 cis-1,2-Dichloroethene	96	4.871	4.874	-0.003	87	765234	40.0	36.7	
41 2-Butanone (MEK)	72	4.871	4.874	-0.003	98	288253	80.0	79.1	
42 2,2-Dichloropropane	77	4.883	4.886	-0.003	90	795265	40.0	36.2	
47 Chlorobromomethane	49	5.072	5.076	-0.004	96	737186	40.0	38.7	
48 Tetrahydrofuran	42	5.132	5.135	-0.003	89	805709	80.0	77.0	
49 Chloroform	83	5.143	5.135	0.008	98	1222401	40.0	37.3	
50 1,1,1-Trichloroethane	97	5.321	5.324	-0.003	98	1068204	40.0	38.8	
51 Cyclohexane	84	5.380	5.383	-0.003	92	925518	40.0	39.8	
52 1,1-Dichloropropene	75	5.463	5.454	0.009	94	988006	40.0	38.8	
53 Carbon tetrachloride	117	5.475	5.466	0.009	97	907421	40.0	39.1	
54 Isobutyl alcohol	41	5.510	5.502	0.008	93	894274	1000.0	935.1	
56 1,2-Dichloroethane	62	5.640	5.644	-0.004	61	1065954	40.0	39.3	
55 Benzene	78	5.640	5.644	-0.004	97	2882473	40.0	38.6	
58 n-Heptane	71	5.853	5.857	-0.004	93	346744	40.0	40.6	
60 Trichloroethene	130	6.185	6.188	-0.003	95	766909	40.0	39.2	
62 Methylcyclohexane	83	6.374	6.365	0.009	94	839858	40.0	40.5	
63 1,2-Dichloropropane	63	6.374	6.377	-0.003	91	697071	40.0	36.9	
65 1,4-Dioxane	88	6.481	6.484	-0.003	96	161236	800.0	852.9	
66 Dibromomethane	174	6.481	6.484	-0.003	92	537323	40.0	40.6	
67 Dichlorobromomethane	83	6.599	6.602	-0.003	98	960620	40.0	37.9	
69 2-Chloroethyl vinyl ether	63	6.847	6.851	-0.004	93	1129759	80.0	80.2	
71 cis-1,3-Dichloropropene	75	7.001	6.993	0.008	93	1219941	40.0	38.7	
72 4-Methyl-2-pentanone (MIBK)	43	7.120	7.123	-0.003	98	2444947	80.0	77.3	
73 Toluene	91	7.309	7.312	-0.003	98	2962734	40.0	39.1	
74 trans-1,3-Dichloropropene	75	7.475	7.478	-0.003	98	1196928	40.0	39.8	
75 Ethyl methacrylate	69	7.546	7.549	-0.003	90	1151043	40.0	38.3	
76 1,1,2-Trichloroethane	97	7.652	7.655	-0.003	94	640581	40.0	38.9	
77 1,3-Dichloropropane	76	7.806	7.809	-0.003	93	1197698	40.0	40.1	
78 Tetrachloroethene	166	7.818	7.821	-0.003	95	715598	40.0	40.3	
80 2-Hexanone	43	7.865	7.868	-0.003	97	1730567	80.0	77.2	
82 Chlorodibromomethane	129	8.019	8.022	-0.003	90	740578	40.0	38.4	
83 Ethylene Dibromide	107	8.149	8.140	0.009	98	694540	40.0	38.4	
85 Chlorobenzene	112	8.599	8.602	-0.003	93	1835450	40.0	39.0	
86 1,1,1,2-Tetrachloroethane	131	8.670	8.661	0.009	94	720729	40.0	40.2	
87 Ethylbenzene	106	8.693	8.696	-0.003	98	1017624	40.0	40.5	
88 m-Xylene & p-Xylene	106	8.800	8.803	-0.003	98	1245900	40.0	40.1	
89 o-Xylene	106	9.178	9.182	-0.004	97	1260691	40.0	39.4	
90 Styrene	104	9.190	9.193	-0.003	93	2146284	40.0	40.3	
91 Bromoform	173	9.368	9.371	-0.003	95	604676	40.0	43.1	
92 Isopropylbenzene	105	9.533	9.525	0.008	96	2980230	40.0	40.3	
94 1,1,2,2-Tetrachloroethane	83	9.794	9.797	-0.003	96	1004449	40.0	37.4	
96 trans-1,4-Dichloro-2-butene	53	9.853	9.844	0.009	73	389417	40.0	39.0	
95 Bromobenzene	156	9.841	9.844	-0.003	98	835159	40.0	39.2	
97 1,2,3-Trichloropropane	110	9.853	9.844	0.009	83	371438	40.0	39.5	
98 N-Propylbenzene	120	9.924	9.927	-0.003	99	798375	40.0	38.8	
100 2-Chlorotoluene	126	10.019	10.022	-0.003	96	742154	40.0	39.4	
101 1,3,5-Trimethylbenzene	105	10.090	10.093	-0.003	95	2377056	40.0	40.5	
102 4-Chlorotoluene	126	10.125	10.128	-0.003	98	781391	40.0	39.1	
104 tert-Butylbenzene	119	10.421	10.424	-0.003	92	2066954	40.0	39.7	
106 1,2,4-Trimethylbenzene	105	10.468	10.460	0.008	97	2449700	40.0	39.2	
107 sec-Butylbenzene	134	10.634	10.637	-0.003	95	591654	40.0	41.4	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
108 1,3-Dichlorobenzene	146	10.752	10.755	-0.003	98	1493009	40.0	39.4	
109 4-Isopropyltoluene	119	10.776	10.779	-0.003	97	2317059	40.0	40.3	
110 1,4-Dichlorobenzene	146	10.835	10.838	-0.003	93	1564278	40.0	39.6	
113 n-Butylbenzene	91	11.178	11.181	-0.003	97	1864391	40.0	39.0	
114 1,2-Dichlorobenzene	146	11.214	11.217	-0.003	97	1504311	40.0	39.7	
115 1,2-Dibromo-3-Chloropropane	157	11.983	11.986	-0.003	86	286950	40.0	38.0	
117 1,2,4-Trichlorobenzene	180	12.823	12.826	-0.003	94	765789	40.0	38.3	
118 Hexachlorobutadiene	225	13.000	13.004	-0.004	96	283768	40.0	39.4	
119 Naphthalene	128	13.083	13.086	-0.003	98	2699667	40.0	38.3	
120 1,2,3-Trichlorobenzene	180	13.355	13.359	-0.004	95	691524	40.0	36.8	
S 158 Total BTEX	1				0		200.0	197.7	
S 128 1,2-Dichloroethene, Total	96				0			75.6	
S 129 1,3-Dichloropropene, Total	75				0			78.5	
S 130 Trihalomethanes, Total	83				0		160.0	156.7	
S 131 Xylenes, Total	106				0		80.0	79.6	

Reagents:

vm100is_stk_A_00005	Amount Added: 1.00	Units: uL
vmrgas_00344	Amount Added: 32.00	Units: uL
vmarolistdw_00350	Amount Added: 32.00	Units: uL
vmrprimw_00391	Amount Added: 32.00	Units: uL
vm50ss_00408	Amount Added: 32.00	Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988361.D

Injection Date: 29-Jun-2020 12:14:30

Instrument ID: A3UX9

Operator ID: 001765

Lims ID: std8260 L6

Worklist Smp#: 13

Client ID:

Purge Vol: 5.000 mL

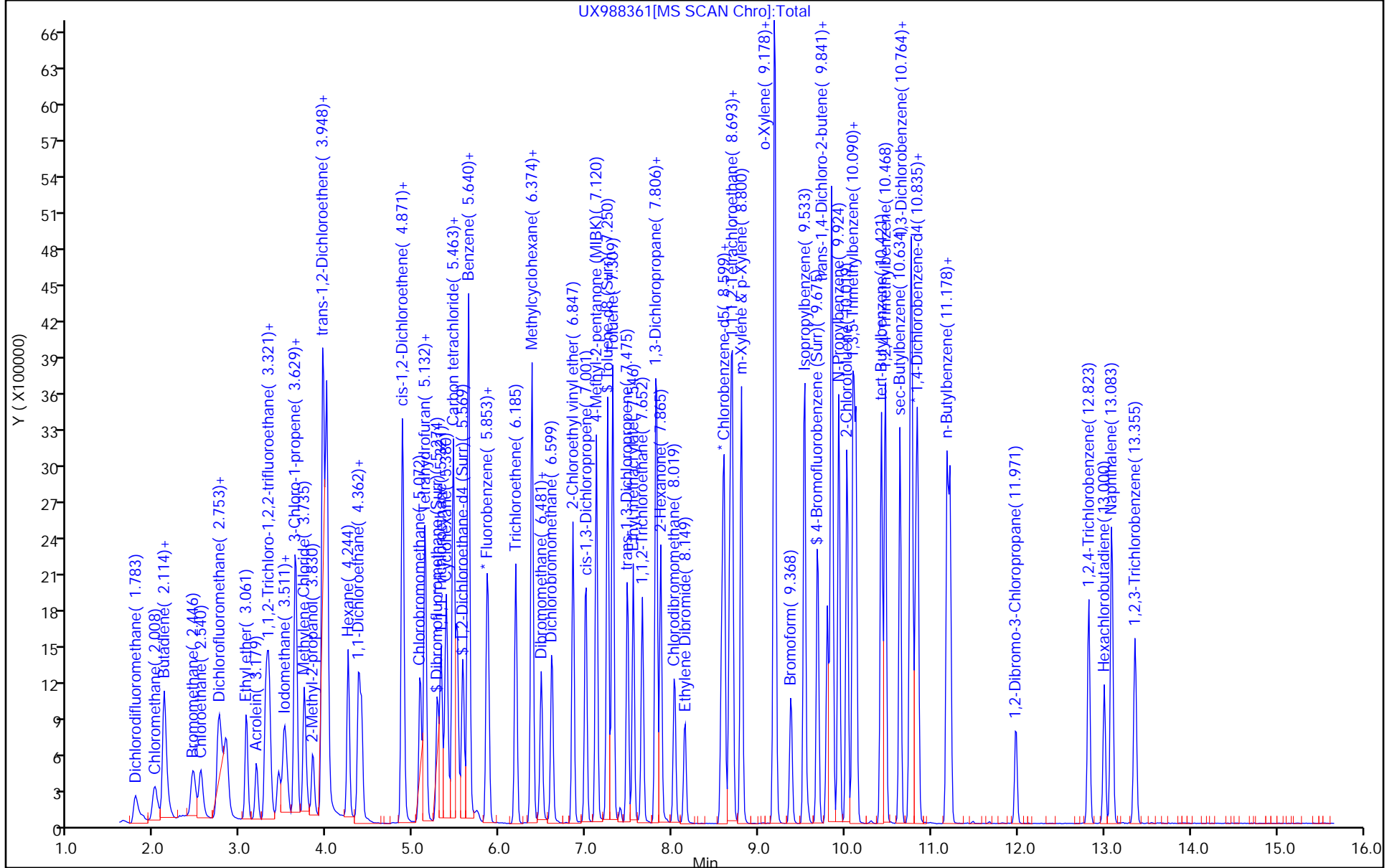
Dil. Factor: 1.0000

ALS Bottle#: 13

Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988362.D
 Lims ID: std8260 L7
 Client ID:
 Sample Type: IC Calib Level: 7
 Inject. Date: 29-Jun-2020 12:37:30 ALS Bottle#: 14 Worklist Smp#: 14
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0099598-014
 Operator ID: 001765 Instrument ID: A3UX9
 Sublist: chrom-8260_9*sub46
 Method: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Jul-2020 12:42:37 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1033

First Level Reviewer: bosworthh

Date: 01-Jul-2020 09:52:38

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.866	5.868	-0.002	98	1248003	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.575	8.566	0.009	85	978855	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.812	10.815	-0.003	92	596812	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	113	5.274	5.277	-0.003	93	991853	60.0	57.5	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.570	5.573	-0.003	99	1308350	60.0	56.1	
\$ 6 Toluene-d8 (Surr)	98	7.250	7.253	-0.003	93	3838305	60.0	57.9	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.676	9.679	-0.003	93	1396673	60.0	59.0	
9 Dichlorodifluoromethane	85	1.783	1.786	-0.003	99	826874	60.0	58.7	
10 Chloromethane	50	2.008	2.011	-0.003	100	1180034	60.0	54.5	
12 Butadiene	54	2.115	2.117	-0.002	97	1009583	60.0	52.9	
11 Vinyl chloride	62	2.126	2.129	-0.003	99	1102714	60.0	56.3	
13 Bromomethane	94	2.446	2.449	-0.003	93	1048903	60.0	68.6	
15 Chloroethane	64	2.529	2.543	-0.014	99	1065168	60.0	67.5	
16 Dichlorofluoromethane	67	2.742	2.745	-0.003	100	2183562	60.0	59.2	
17 Trichlorofluoromethane	101	2.825	2.816	0.008	98	1624970	60.0	64.5	
18 Ethyl ether	59	3.073	3.064	0.009	94	1008589	60.0	53.2	
21 Acrolein	56		3.182				ND	ND	U
24 1,1-Dichloroethene	61	3.298	3.289	0.009	97	1492592	60.0	57.9	
22 1,1,2-Trichloro-1,2,2-trifluoro	101	3.321	3.324	-0.003	96	831767	60.0	64.4	
23 Acetone	58		3.336				ND	ND	U
25 Iodomethane	142	3.440	3.443	-0.003	99	1515754	60.0	58.7	
26 Carbon disulfide	76	3.511	3.514	-0.003	100	2987775	60.0	58.0	
28 3-Chloro-1-propene	41	3.629	3.632	-0.003	88	1849902	60.0	55.3	
29 Methyl acetate	43	3.641	3.644	-0.003	98	2627808	120.0	108.5	
30 Methylene Chloride	49	3.736	3.739	-0.003	97	1474730	60.0	55.9	
31 2-Methyl-2-propanol	59	3.842	3.833	0.009	100	1061280	600.0	426.2	
32 Acrylonitrile	53	3.949	3.952	-0.003	98	6300621	600.0	585.7	
34 trans-1,2-Dichloroethene	61	3.996	3.999	-0.003	96	1544611	60.0	58.9	
33 Methyl tert-butyl ether	73	4.008	3.999	0.009	97	3358697	60.0	57.1	
35 Hexane	57	4.244	4.247	-0.003	95	1148317	60.0	59.1	
36 1,1-Dichloroethane	63	4.363	4.366	-0.003	97	1966851	60.0	56.5	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
37 Vinyl acetate	43	4.398	4.401	-0.003	97	2180380	60.0	54.0	
43 cis-1,2-Dichloroethene	96	4.872	4.874	-0.002	87	1181269	60.0	55.9	
41 2-Butanone (MEK)	72	4.872	4.874	-0.002	99	397315	120.0	107.7	
42 2,2-Dichloropropane	77	4.883	4.886	-0.003	89	1237408	60.0	55.6	
47 Chlorobromomethane	49	5.073	5.076	-0.003	96	1099133	60.0	57.0	
48 Tetrahydrofuran	42	5.132	5.135	-0.003	89	1107945	120.0	104.5	
49 Chloroform	83	5.144	5.135	0.009	98	1820963	60.0	54.8	
50 1,1,1-Trichloroethane	97	5.321	5.324	-0.003	98	1582306	60.0	56.8	
51 Cyclohexane	84	5.380	5.383	-0.003	93	1407301	60.0	59.7	
52 1,1-Dichloropropene	75	5.463	5.454	0.009	96	1501932	60.0	58.2	
53 Carbon tetrachloride	117	5.475	5.466	0.009	93	1354860	60.0	57.7	
54 Isobutyl alcohol	41	5.511	5.502	0.009	94	1084422	1500.0	1119.2	
56 1,2-Dichloroethane	62	5.641	5.644	-0.003	61	1572244	60.0	57.2	
55 Benzene	78	5.641	5.644	-0.003	97	4297881	60.0	56.8	
58 n-Heptane	71	5.854	5.857	-0.003	93	533440	60.0	62.4	
60 Trichloroethene	130	6.185	6.188	-0.003	95	1144430	60.0	57.8	
62 Methylcyclohexane	83	6.374	6.365	0.009	93	1254317	60.0	59.7	
63 1,2-Dichloropropane	63	6.374	6.377	-0.003	92	1063221	60.0	55.6	
66 Dibromomethane	174	6.481	6.484	-0.003	93	779968	60.0	58.2	
65 1,4-Dioxane	88	6.481	6.484	-0.003	92	195107	1200.0	1170.8	
67 Dichlorobromomethane	83	6.599	6.602	-0.003	98	1434611	60.0	55.8	
69 2-Chloroethyl vinyl ether	63	6.848	6.851	-0.003	94	1688441	120.0	118.3	
71 cis-1,3-Dichloropropene	75	7.001	6.993	0.008	93	1794488	60.0	56.2	
72 4-Methyl-2-pentanone (MIBK)	43	7.120	7.123	-0.003	98	3574694	120.0	111.5	
73 Toluene	91	7.309	7.312	-0.003	98	4577454	60.0	57.4	
74 trans-1,3-Dichloropropene	75	7.475	7.478	-0.003	97	1828083	60.0	57.8	
75 Ethyl methacrylate	69	7.546	7.549	-0.003	90	1768438	60.0	55.9	
76 1,1,2-Trichloroethane	97	7.652	7.655	-0.003	94	991836	60.0	57.3	
77 1,3-Dichloropropane	76	7.806	7.809	-0.003	93	1835048	60.0	58.4	
78 Tetrachloroethene	166	7.818	7.821	-0.003	78	1101882	60.0	59.1	
80 2-Hexanone	43	7.865	7.868	-0.003	97	2531254	120.0	107.4	
82 Chlorodibromomethane	129	8.019	8.022	-0.003	90	1145872	60.0	56.5	
83 Ethylene Dibromide	107	8.149	8.140	0.009	98	1050042	60.0	55.2	
85 Chlorobenzene	112	8.599	8.602	-0.003	93	2861514	60.0	57.9	
86 1,1,1,2-Tetrachloroethane	131	8.670	8.661	0.009	94	1101590	60.0	58.4	
87 Ethylbenzene	106	8.694	8.696	-0.002	99	1556804	60.0	58.8	
88 m-Xylene & p-Xylene	106	8.800	8.803	-0.003	98	1930823	60.0	59.1	
89 o-Xylene	106	9.179	9.182	-0.003	94	1946514	60.0	57.9	
90 Styrene	104	9.191	9.193	-0.002	91	3361915	60.0	60.1	
91 Bromoform	173	9.368	9.371	-0.003	95	938103	60.0	63.6	
92 Isopropylbenzene	105	9.534	9.525	0.009	96	4602595	60.0	59.1	
94 1,1,2,2-Tetrachloroethane	83	9.794	9.797	-0.003	96	1549935	60.0	51.2	
96 trans-1,4-Dichloro-2-butene	53	9.853	9.844	0.009	73	591655	60.0	52.6	
95 Bromobenzene	156	9.841	9.844	-0.003	98	1275046	60.0	53.0	
97 1,2,3-Trichloropropane	110	9.853	9.844	0.009	83	544779	60.0	51.4	
98 N-Propylbenzene	120	9.924	9.927	-0.003	99	1268250	60.0	54.7	
100 2-Chlorotoluene	126	10.019	10.022	-0.003	96	1167000	60.0	54.9	
101 1,3,5-Trimethylbenzene	105	10.090	10.093	-0.003	95	3756266	60.0	56.8	
102 4-Chlorotoluene	126	10.125	10.128	-0.003	98	1241043	60.0	55.1	
104 tert-Butylbenzene	119	10.421	10.424	-0.003	92	3601138	60.0	61.3	
106 1,2,4-Trimethylbenzene	105	10.469	10.460	0.008	97	3919638	60.0	55.7	
107 sec-Butylbenzene	134	10.634	10.637	-0.003	95	954692	60.0	59.3	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
108 1,3-Dichlorobenzene	146	10.752	10.755	-0.003	98	2396185	60.0	56.1	
109 4-Isopropyltoluene	119	10.776	10.779	-0.003	97	3759254	60.0	58.0	
110 1,4-Dichlorobenzene	146	10.835	10.838	-0.003	96	2503167	60.0	56.2	
113 n-Butylbenzene	91	11.178	11.181	-0.003	98	3047931	60.0	56.5	
114 1,2-Dichlorobenzene	146	11.214	11.217	-0.003	97	2442407	60.0	57.2	
115 1,2-Dibromo-3-Chloropropane	157	11.983	11.986	-0.003	87	461441	60.0	54.2	
117 1,2,4-Trichlorobenzene	180	12.823	12.826	-0.003	94	1402795	60.0	62.3	
118 Hexachlorobutadiene	225	13.001	13.004	-0.003	97	504327	60.0	62.1	
119 Naphthalene	128	13.084	13.086	-0.002	98	4929908	60.0	62.0	
120 1,2,3-Trichlorobenzene	180	13.356	13.359	-0.003	95	1400112	60.0	66.1	
S 158 Total BTEX	1				0		300.0	290.0	
S 128 1,2-Dichloroethene, Total	96				0			114.7	
S 129 1,3-Dichloropropene, Total	75				0			114.0	
S 130 Trihalomethanes, Total	83				0		240.0	230.7	
S 131 Xylenes, Total	106				0		120.0	117.0	

QC Flag Legend

Processing Flags

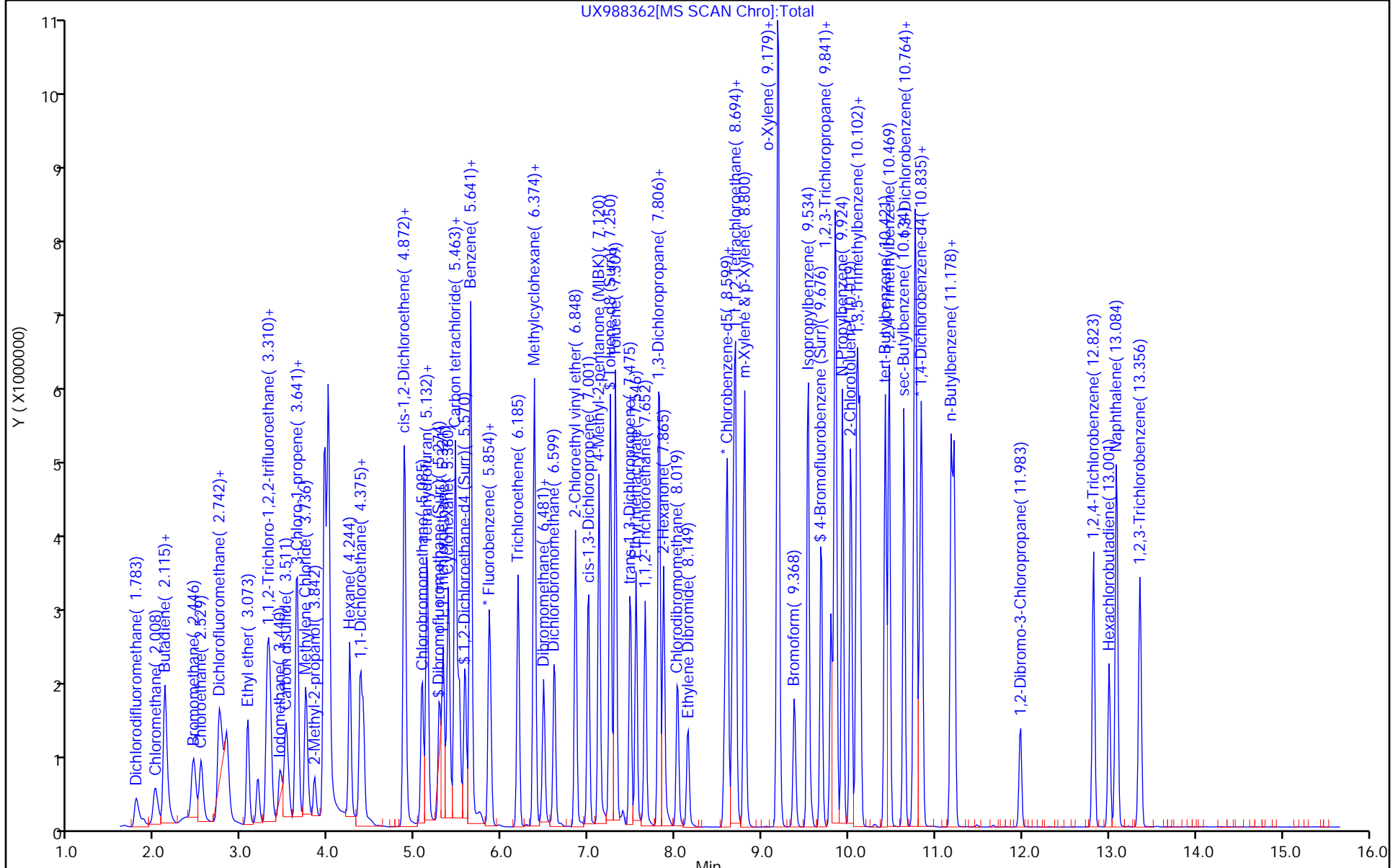
ND - Not Detected or Marked ND

Review Flags

U - Marked Undetected

Reagents:

vm100is_stk_A_00005	Amount Added: 1.00	Units: uL
vmrgas_00344	Amount Added: 48.00	Units: uL
vmarolistdw_00350	Amount Added: 48.00	Units: uL
vmrprimw_00391	Amount Added: 48.00	Units: uL
vm50ss_00408	Amount Added: 48.00	Units: uL



Eurofins TestAmerica, Canton

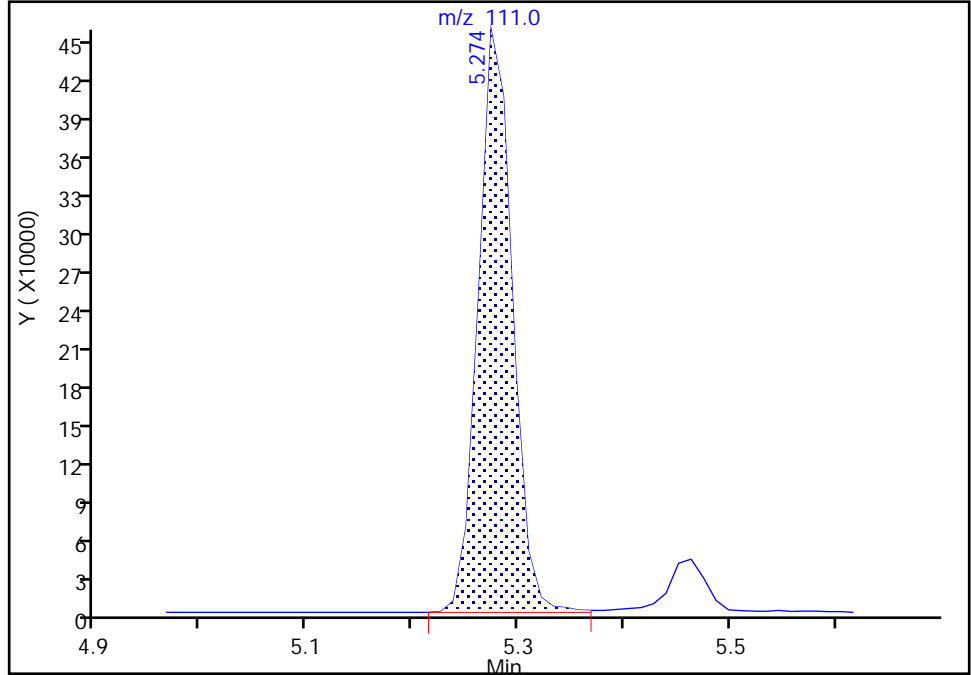
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Injection Date: 29-Jun-2020 12:37:30 Instrument ID: A3UX9
Lims ID: std8260 L7
Client ID:
Operator ID: 001765 ALS Bottle#: 14 Worklist Smp#: 14
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_9 Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

\$ 4 Dibromofluoromethane (Surr), CAS: 1868-53-7

Signal: 2

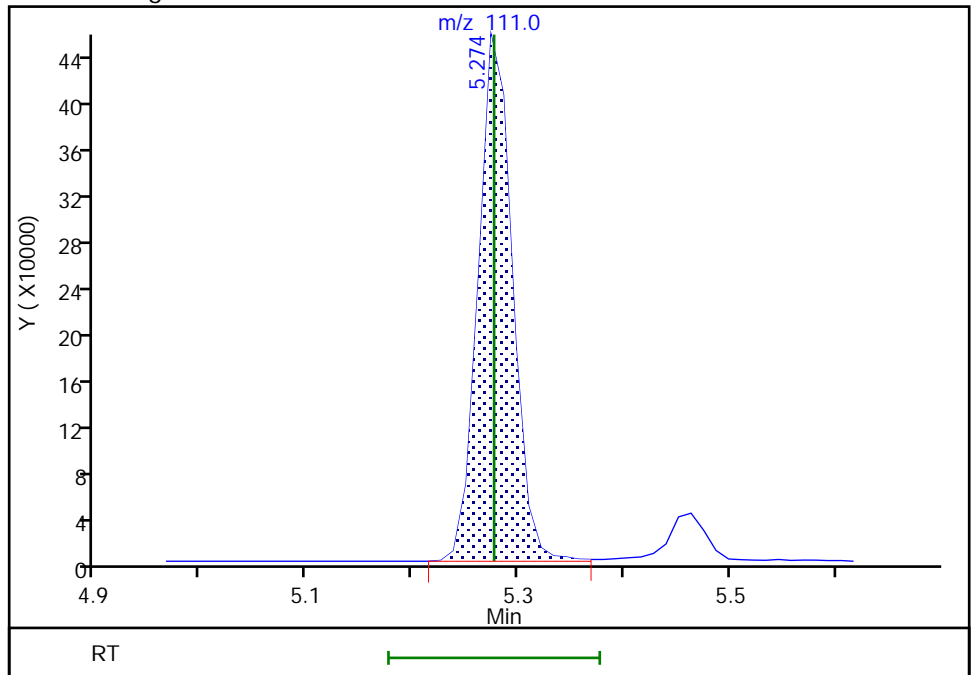
RT: 5.27
Area: 1013450
Amount: 56.415097
Amount Units: ug/l

Processing Integration Results



RT: 5.27
Area: 1013450
Amount: 57.468864
Amount Units: ug/l

Manual Integration Results



Reviewer: bosworth, 01-Jul-2020 12:24:34
Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

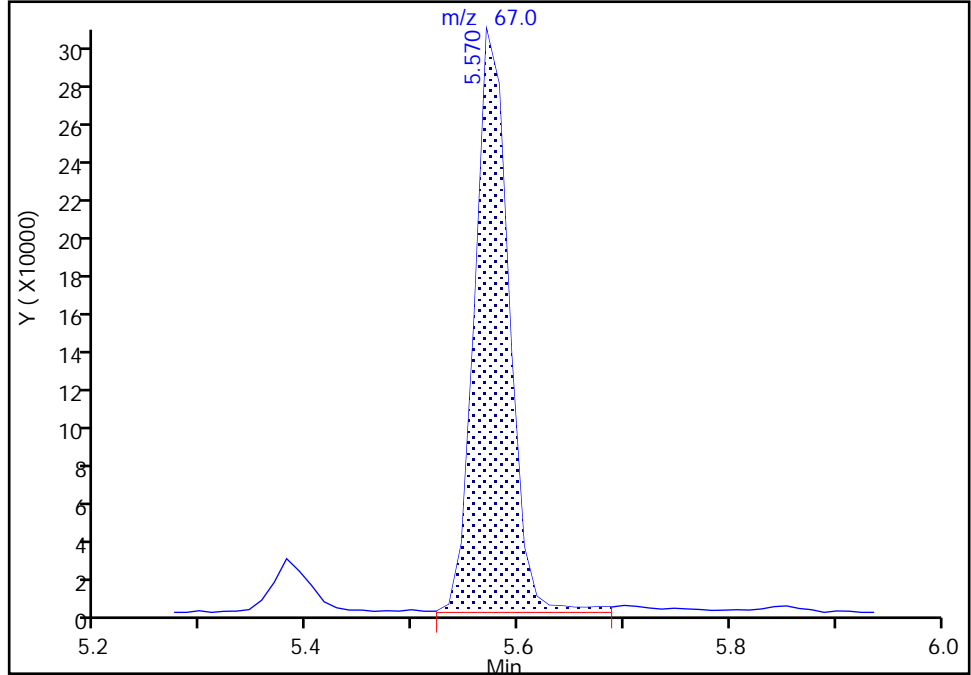
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Injection Date: 29-Jun-2020 12:37:30 Instrument ID: A3UX9
Lims ID: std8260 L7
Client ID:
Operator ID: 001765 ALS Bottle#: 14 Worklist Smp#: 14
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_9 Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

\$ 5 1,2-Dichloroethane-d4 (Surr), CAS: 17060-07-0

Signal: 2

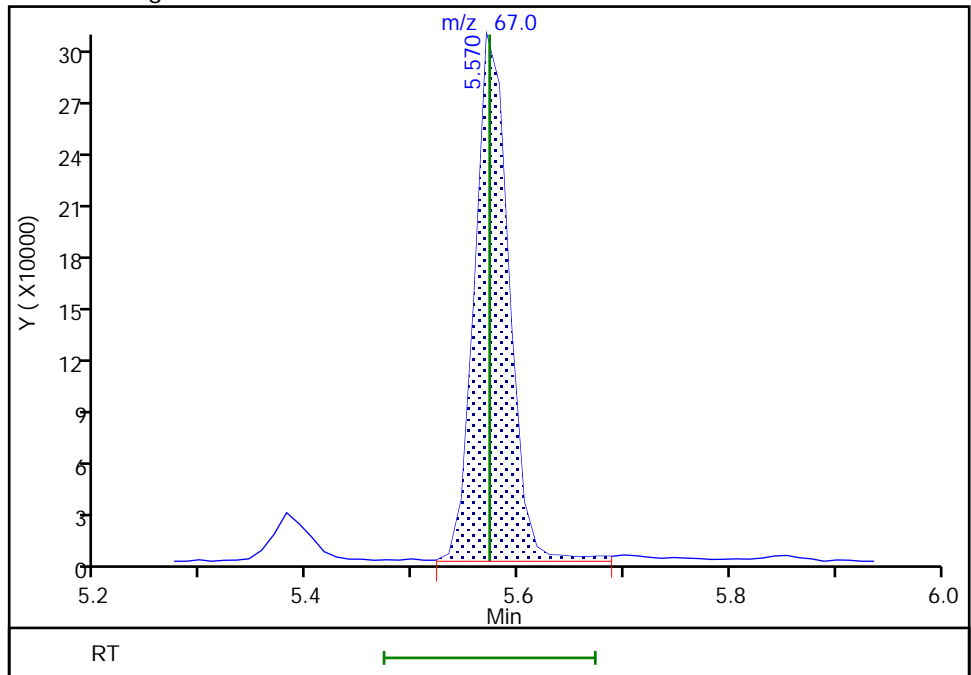
RT: 5.57
Area: 680661
Amount: 54.364448
Amount Units: ug/l

Processing Integration Results



RT: 5.57
Area: 680661
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Amount Units: ug/l

Manual Integration Results



Reviewer: bosworth, 01-Jul-2020 12:24:35
Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

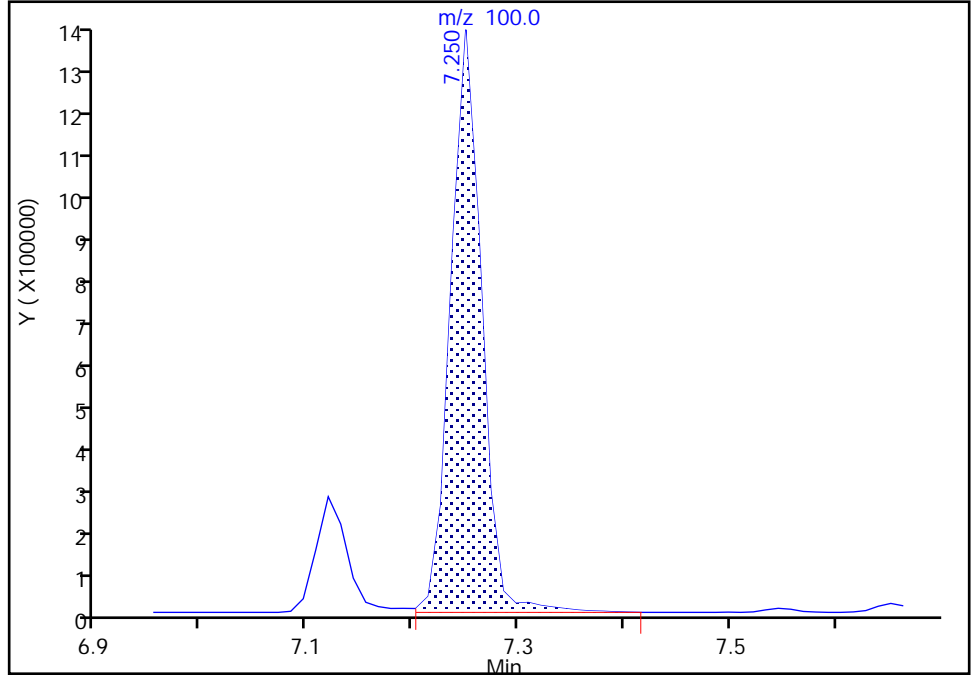
Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988362.D
Injection Date: 29-Jun-2020 12:37:30 Instrument ID: A3UX9
Lims ID: std8260 L7
Client ID:
Operator ID: 001765 ALS Bottle#: 14 Worklist Smp#: 14
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_9 Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

\$ 6 Toluene-d8 (Surr), CAS: 2037-26-5
Signal: 2

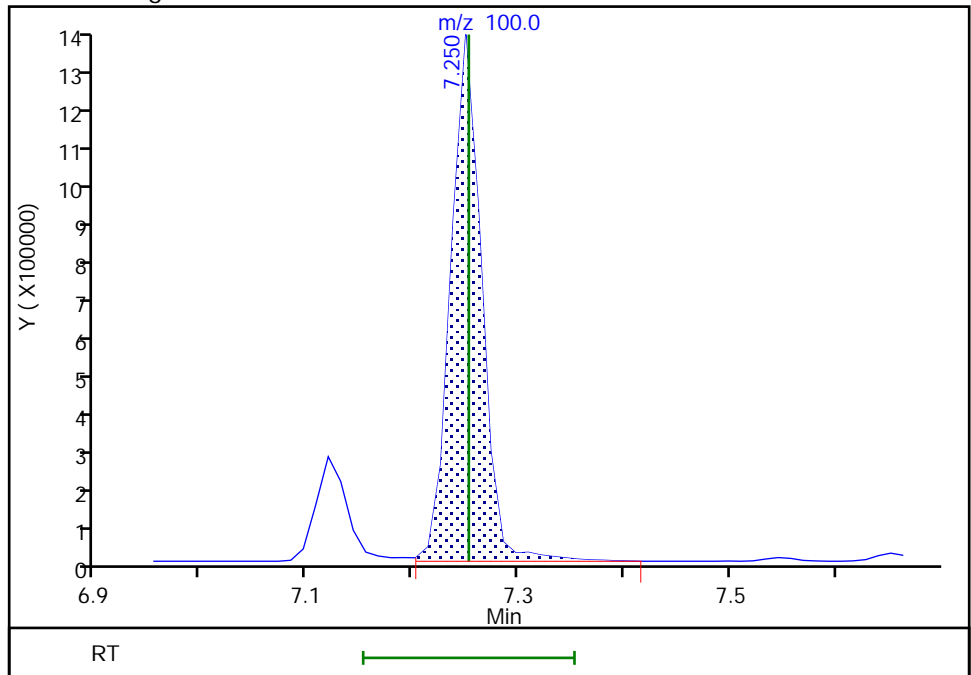
RT: 7.25
Area: 2718872
Amount: 57.144657
Amount Units: ug/l

Processing Integration Results



RT: 7.25
Area: 2718872
Amount: 57.862929
Amount Units: ug/l

Manual Integration Results



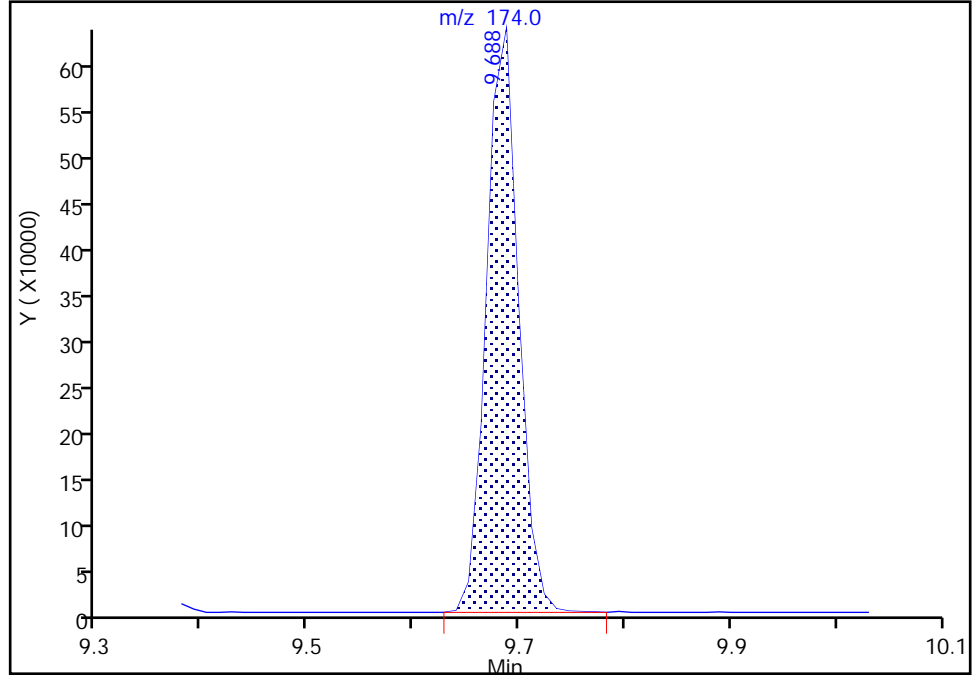
Euofins TestAmerica, Canton

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Injection Date: 29-Jun-2020 12:37:30 Instrument ID: A3UX9
Lims ID: std8260 L7
Client ID:
Operator ID: 001765 ALS Bottle#: 14 Worklist Smp#: 14
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_9 Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

\$ 7 4-Bromofluorobenzene (Surr), CAS: 460-00-4
Signal: 2

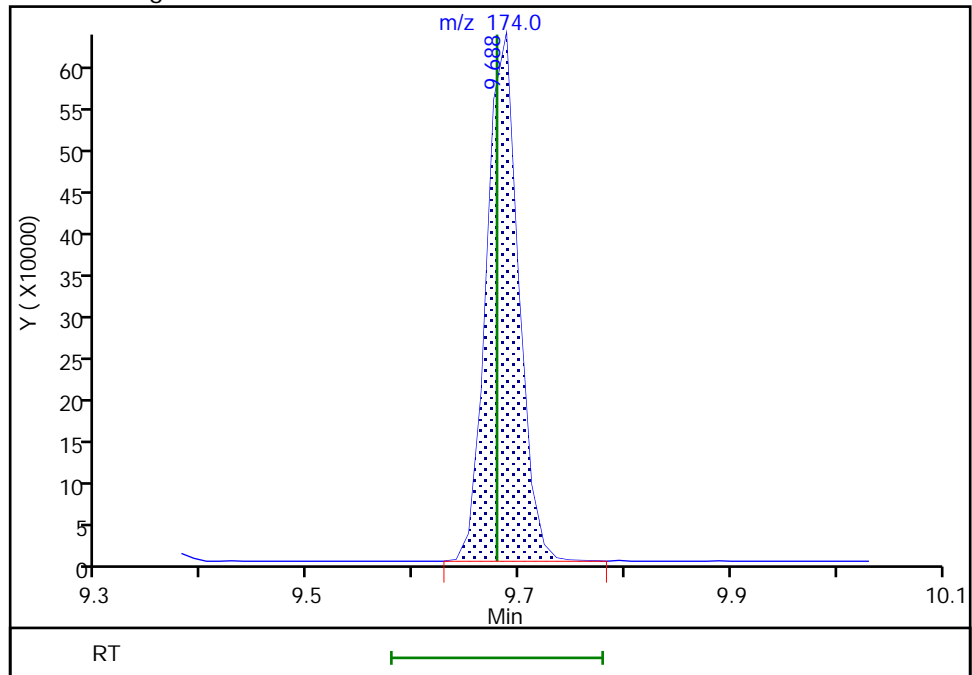
RT: 9.69
Area: 1328056
Amount: 57.459815
Amount Units: ug/l

Processing Integration Results



RT: 9.69
Area: 1328056
Amount: 59.011801
Amount Units: ug/l

Manual Integration Results



Reviewer: bosworth, 01-Jul-2020 12:24:37
Audit Action: Marked Compound Undetected

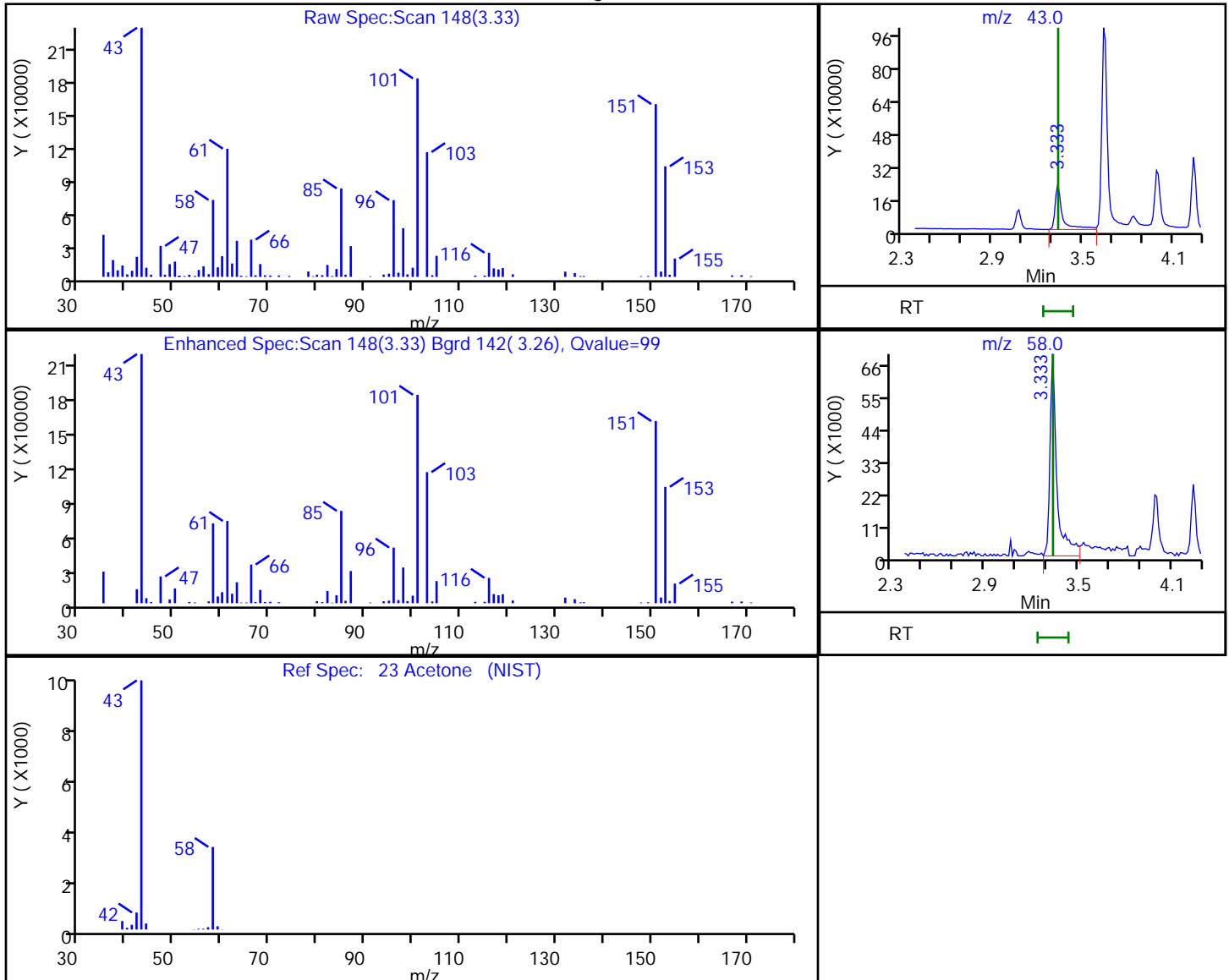
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

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 Lims ID: std8260 L7
 Client ID:
 Operator ID: 001765 ALS Bottle#: 14 Worklist Smp#: 14
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Method: 8260_9 Limit Group: MSV 8260B ICAL
 Column: DB-624 (0.18 mm) Detector: MS SCAN

23 Acetone, CAS: 67-64-1

Processing Results



RT	Mass	Response	Amount
3.33	43.00	757486	
3.33	58.00	218440	107.5773

Reviewer: bosworthh, 01-Jul-2020 09:52:12

Audit Action: Marked Compound Undetected

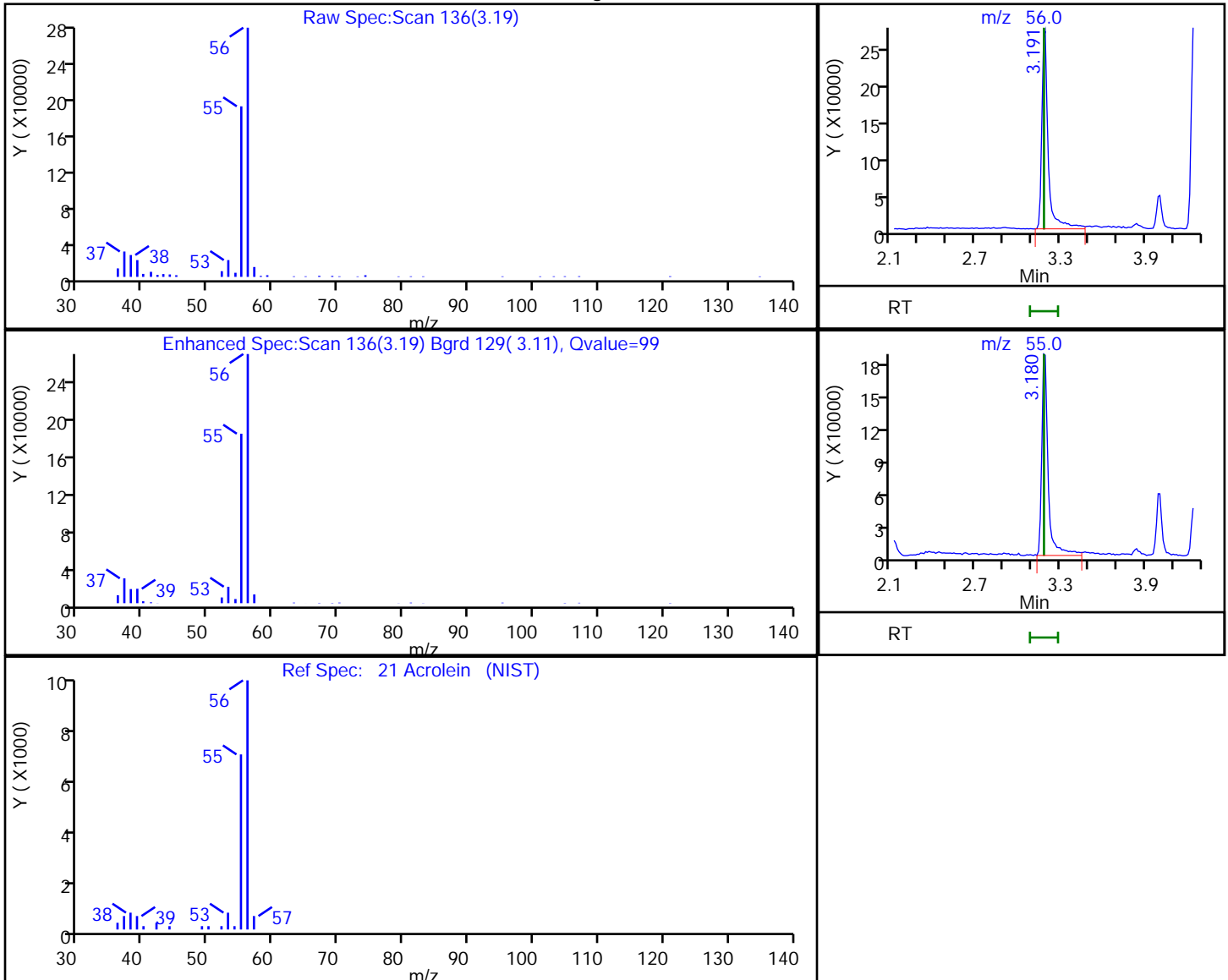
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988362.D
Injection Date: 29-Jun-2020 12:37:30 Instrument ID: A3UX9
Lims ID: std8260 L7
Client ID:
Operator ID: 001765 ALS Bottle#: 14 Worklist Smp#: 14
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_9 Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

21 Acrolein, CAS: 107-02-8

Processing Results



RT	Mass	Response	Amount
3.19	56.00	856882	286.1400
3.18	55.00	587286	

Reviewer: bosworthh, 01-Jul-2020 09:53:41

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: ICV 240-442964/17 Calibration Date: 07/16/2020 20:43
 Instrument ID: A3UX12 Calib Start Date: 07/16/2020 17:43
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 07/16/2020 20:20
 Lab File ID: U1279121.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.3124	0.3509		0.0225	0.0200	12.3	50.0
Chloromethane	Lin1		0.5904	0.1000	0.0233	0.0200	16.5	50.0
Butadiene	Ave	0.3681	0.4281		0.0233	0.0200	16.3	50.0
Vinyl chloride	Ave	0.3743	0.4391		0.0235	0.0200	17.3	20.0
Bromomethane	Ave	0.2481	0.2751		0.0222	0.0200	10.9	50.0
Chloroethane	Ave	0.2724	0.3111		0.0228	0.0200	14.2	50.0
Dichlorofluoromethane	Ave	0.5688	0.6178		0.0217	0.0200	8.6	50.0
Trichlorofluoromethane	Ave	0.4377	0.4814		0.0220	0.0200	10.0	50.0
Ethyl ether	Ave	0.3037	0.3304		0.0218	0.0200	8.8	50.0
Acrolein	Ave	0.0262	0.0321		0.123	0.100	22.6	50.0
1,1-Dichloroethene	Ave	0.4021	0.4100		0.0204	0.0200	2.0	20.0
1,1,2-Trichloro-1,2,2-trifluoroethane	Ave	0.2362	0.2354		0.0199	0.0200	-0.3	50.0
Acetone	Lin1		0.1438		0.0518	0.0400	29.6	50.0
Iodomethane	Ave	0.4091	0.4420		0.0216	0.0200	8.0	50.0
Carbon disulfide	Ave	0.8097	0.8205		0.0203	0.0200	1.3	50.0
3-Chloro-1-propene	Ave	0.4509	0.4651		0.0206	0.0200	3.1	50.0
Methyl acetate	Ave	0.3065	0.3473		0.0453	0.0400	13.3	50.0
Methylene Chloride	Ave	0.3674	0.4042		0.0220	0.0200	10.0	50.0
2-Methyl-2-propanol	Ave	0.0380	0.0557		0.293	0.200	46.7	50.0
Acrylonitrile	Ave	0.1589	0.1738		0.219	0.200	9.4	50.0
trans-1,2-Dichloroethene	Ave	0.3859	0.4140		0.0215	0.0200	7.3	50.0
Methyl tert-butyl ether	Ave	0.8861	0.9183		0.0207	0.0200	3.6	50.0
Hexane	Ave	0.4275	0.4675		0.0219	0.0200	9.4	20.0
1,1-Dichloroethane	Ave	0.5143	0.6173	0.1000	0.0240	0.0200	20.0	50.0
Vinyl acetate	Ave	0.7246	0.7980		0.0220	0.0200	10.1	50.0
2,2-Dichloropropane	Ave	0.3526	0.3801		0.0216	0.0200	7.8	50.0
cis-1,2-Dichloroethene	Ave	0.3599	0.3890		0.0216	0.0200	8.1	50.0
2-Butanone (MEK)	Ave	0.0631	0.0726		0.0460	0.0400	15.0	50.0
Chlorobromomethane	Ave	0.2926	0.3171		0.0217	0.0200	8.4	50.0
Tetrahydrofuran	Ave	0.1611	0.1994		0.0495	0.0400	23.8	50.0
Chloroform	Ave	0.5092	0.5736		0.0225	0.0200	12.6	20.0
1,1,1-Trichloroethane	Ave	0.4037	0.4657		0.0231	0.0200	15.3	50.0
Cyclohexane	Ave	0.4779	0.5352		0.0224	0.0200	12.0	50.0
1,1-Dichloropropene	Ave	0.4108	0.4615		0.0225	0.0200	12.3	50.0
Carbon tetrachloride	Ave	0.3288	0.3656		0.0222	0.0200	11.2	50.0
Isobutyl alcohol	Ave	0.0161	0.0230		0.714	0.500	42.7	50.0
Benzene	Ave	1.228	1.390		0.0226	0.0200	13.2	50.0
1,2-Dichloroethane	Ave	0.3989	0.4554		0.0228	0.0200	14.2	50.0
n-Heptane	Lin1		0.2072		0.0187	0.0200	-6.5	50.0
Trichloroethene	Ave	0.2776	0.2927		0.0211	0.0200	5.4	50.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: ICV 240-442964/17 Calibration Date: 07/16/2020 20:43
 Instrument ID: A3UX12 Calib Start Date: 07/16/2020 17:43
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 07/16/2020 20:20
 Lab File ID: U1279121.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Methylcyclohexane	Ave	0.4860	0.4602		0.0189	0.0200	-5.3	50.0
1,2-Dichloropropane	Ave	0.2651	0.2751		0.0207	0.0200	3.7	20.0
Dibromomethane	Ave	0.1882	0.2021		0.0215	0.0200	7.4	50.0
1,4-Dioxane	Ave	0.0035	0.0039		0.454	0.400	13.5	50.0
Dichlorobromomethane	Ave	0.3312	0.3543		0.0214	0.0200	7.0	50.0
2-Chloroethyl vinyl ether	Ave	0.1997	0.2025		0.0203	0.0200	1.4	50.0
cis-1,3-Dichloropropene	Ave	0.4197	0.4401		0.0210	0.0200	4.9	50.0
4-Methyl-2-pentanone (MIBK)	Ave	0.4341	0.4137		0.0381	0.0400	-4.7	50.0
Toluene	Ave	1.659	1.351		0.0163	0.0200	-18.6	20.0
trans-1,3-Dichloropropene	Ave	0.5377	0.4494		0.0167	0.0200	-16.4	50.0
Ethyl methacrylate	Ave	0.5422	0.4760		0.0176	0.0200	-12.2	50.0
1,1,2-Trichloroethane	Ave	0.3249	0.2775		0.0171	0.0200	-14.6	50.0
Tetrachloroethene	Ave	0.3971	0.3339		0.0168	0.0200	-15.9	50.0
1,3-Dichloropropane	Ave	0.6096	0.5170		0.0170	0.0200	-15.2	50.0
2-Hexanone	Ave	0.4350	0.4478		0.0412	0.0400	2.9	50.0
Chlorodibromomethane	Ave	0.3194	0.3179		0.0199	0.0200	-0.5	50.0
Ethylene Dibromide	Ave	0.3359	0.3434		0.0204	0.0200	2.2	50.0
Chlorobenzene	Ave	0.9701	0.998	0.3000	0.0206	0.0200	2.9	50.0
1,1,1,2-Tetrachloroethane	Ave	0.3307	0.3372		0.0204	0.0200	2.0	50.0
Ethylbenzene	Ave	0.5327	0.5515		0.0207	0.0200	3.5	20.0
m-Xylene & p-Xylene	Ave	0.6598	0.6862		0.0208	0.0200	4.0	50.0
o-Xylene	Ave	0.6795	0.6513		0.0192	0.0200	-4.1	50.0
Styrene	Ave	1.091	1.089		0.0200	0.0200	-0.2	50.0
Bromoform	Ave	0.2201	0.2169	0.1000	0.0197	0.0200	-1.5	50.0
Isopropylbenzene	Ave	1.703	1.642		0.0193	0.0200	-3.6	50.0
1,1,2,2-Tetrachloroethane	Ave	1.000	1.064	0.3000	0.0213	0.0200	6.4	50.0
Bromobenzene	Ave	0.7816	0.8109		0.0207	0.0200	3.7	50.0
1,2,3-Trichloropropane	Ave	0.3449	0.3582		0.0208	0.0200	3.8	50.0
trans-1,4-Dichloro-2-butene	Ave	0.2927	0.3519		0.0240	0.0200	20.2	50.0
N-Propylbenzene	Ave	0.8506	0.9062		0.0213	0.0200	6.5	50.0
2-Chlorotoluene	Ave	0.7510	0.7708		0.0205	0.0200	2.6	50.0
1,3,5-Trimethylbenzene	Ave	2.508	2.720		0.0217	0.0200	8.5	50.0
4-Chlorotoluene	Ave	0.7704	0.7927		0.0206	0.0200	2.9	50.0
tert-Butylbenzene	Ave	2.195	2.312		0.0211	0.0200	5.3	50.0
1,2,4-Trimethylbenzene	Ave	2.634	2.787		0.0212	0.0200	5.8	50.0
sec-Butylbenzene	Ave	3.184	3.288		0.0207	0.0200	3.3	50.0
1,3-Dichlorobenzene	Ave	1.484	1.505		0.0203	0.0200	1.4	50.0
4-Isopropyltoluene	Ave	2.648	2.880		0.0218	0.0200	8.8	50.0
1,4-Dichlorobenzene	Ave	1.537	1.557		0.0203	0.0200	1.3	50.0
n-Butylbenzene	Ave	2.220	2.439		0.0220	0.0200	9.8	50.0
1,2-Dichlorobenzene	Ave	1.473	1.461		0.0198	0.0200	-0.8	50.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: ICV 240-442964/17 Calibration Date: 07/16/2020 20:43
 Instrument ID: A3UX12 Calib Start Date: 07/16/2020 17:43
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 07/16/2020 20:20
 Lab File ID: U1279121.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,2-Dibromo-3-Chloropropane	Ave	0.2336	0.2648		0.0227	0.0200	13.4	50.0
1,2,4-Trichlorobenzene	Ave	0.8111	0.9289		0.0229	0.0200	14.5	50.0
Hexachlorobutadiene	Lin1		0.3818		0.0254	0.0200	26.8	50.0
Naphthalene	Ave	2.686	3.079		0.0229	0.0200	14.6	50.0
1,2,3-Trichlorobenzene	Ave	0.7472	0.8510		0.0228	0.0200	13.9	50.0
Dibromofluoromethane (Surr)	Ave	0.2655	0.2811		0.0212	0.0200	5.9	50.0
1,2-Dichloroethane-d4 (Surr)	Ave	0.3249	0.3526		0.0217	0.0200	8.5	50.0
Toluene-d8 (Surr)	Ave	1.353	1.134		0.0168	0.0200	-16.2	50.0
4-Bromofluorobenzene (Surr)	Ave	0.4632	0.4776		0.0206	0.0200	3.1	50.0

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279121.D
 Lims ID: ICV
 Client ID:
 Sample Type: ICV
 Inject. Date: 16-Jul-2020 20:43:30 ALS Bottle#: 13 Worklist Smp#: 17
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100113-017
 Operator ID: 001904 Instrument ID: A3UX12
 Sublist: chrom-8260_12*sub56
 Method: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 17-Jul-2020 16:45:48 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1036

First Level Reviewer: bosworthh

Date: 17-Jul-2020 16:59:59

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	993337	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	838058	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.971	9.970	0.000	92	407737	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	279224	20.0	21.2	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.823	4.823	0.000	97	350252	20.0	21.7	
\$ 6 Toluene-d8 (Surr)	98	6.456	6.456	0.000	93	949955	20.0	16.8	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	95	400258	20.0	20.6	
9 Dichlorodifluoromethane	85	1.403	1.403	0.000	99	348544	20.0	22.5	
10 Chloromethane	50	1.605	1.605	0.000	99	586447	20.0	23.3	
11 Butadiene	54	1.652	1.652	0.000	88	425236	20.0	23.3	
12 Vinyl chloride	62	1.699	1.687	0.012	98	436198	20.0	23.5	
14 Bromomethane	94	1.936	1.936	0.000	91	273299	20.0	22.2	
15 Chloroethane	64	1.995	1.995	0.000	100	309023	20.0	22.8	
16 Dichlorofluoromethane	67	2.184	2.184	0.000	97	613723	20.0	21.7	
17 Trichlorofluoromethane	101	2.184	2.184	0.000	63	478218	20.0	22.0	
19 Ethyl ether	59	2.433	2.445	-0.012	92	328196	20.0	21.8	
20 Acrolein	56	2.551	2.563	-0.012	99	159396	100.0	122.6	
21 1,1-Dichloroethene	61	2.634	2.634	0.000	98	407247	20.0	20.4	
22 112TCTFE	101	2.670	2.670	0.000	94	233841	20.0	19.9	
23 Acetone	43	2.693	2.693	0.000	100	285678	40.0	51.8	
24 Iodomethane	142	2.764	2.776	-0.012	98	439011	20.0	21.6	
25 Carbon disulfide	76	2.823	2.823	0.000	100	815013	20.0	20.3	
27 3-Chloro-1-propene	41	2.954	2.954	0.000	89	461947	20.0	20.6	
28 Methyl acetate	43	2.977	2.977	0.000	97	689875	40.0	45.3	
29 Methylene Chloride	49	3.060	3.060	0.000	93	401453	20.0	22.0	
30 2-Methyl-2-propanol	59	3.167	3.167	0.000	99	553660	200.0	293.5	
31 Acrylonitrile	53	3.273	3.285	-0.012	99	1725957	200.0	218.8	
32 trans-1,2-Dichloroethene	61	3.285	3.297	-0.012	67	411242	20.0	21.5	
33 Methyl tert-butyl ether	73	3.297	3.297	0.000	96	912225	20.0	20.7	
34 Hexane	57	3.522	3.522	0.000	91	464381	20.0	21.9	
35 1,1-Dichloroethane	63	3.652	3.652	0.000	96	613203	20.0	24.0	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
36 Vinyl acetate	43	3.687	3.699	-0.012	97	792663	20.0	22.0	
41 cis-1,2-Dichloroethene	96	4.137	4.137	0.000	83	386440	20.0	21.6	
40 2,2-Dichloropropane	77	4.137	4.137	0.000	60	377531	20.0	21.6	
42 2-Butanone (MEK)	72	4.149	4.149	0.000	100	144149	40.0	46.0	
46 Chlorobromomethane	49	4.338	4.338	0.000	97	314975	20.0	21.7	
47 Tetrahydrofuran	42	4.374	4.374	0.000	88	396167	40.0	49.5	
48 Chloroform	83	4.397	4.409	-0.012	94	569805	20.0	22.5	
49 1,1,1-Trichloroethane	97	4.551	4.551	0.000	99	462552	20.0	23.1	
50 Cyclohexane	84	4.598	4.598	0.000	91	531634	20.0	22.4	
51 1,1-Dichloropropene	75	4.693	4.693	0.000	94	458449	20.0	22.5	
52 Carbon tetrachloride	117	4.693	4.693	0.000	77	363141	20.0	22.2	
53 Isobutyl alcohol	41	4.788	4.788	0.000	95	571724	500.0	713.6	
54 Benzene	78	4.871	4.870	0.001	96	1380254	20.0	22.6	
55 1,2-Dichloroethane	62	4.882	4.882	0.000	97	452321	20.0	22.8	
57 n-Heptane	57	5.072	5.083	-0.011	90	205767	20.0	18.7	
59 Trichloroethene	130	5.403	5.403	0.000	96	290757	20.0	21.1	
61 Methylcyclohexane	83	5.569	5.569	0.000	88	457177	20.0	18.9	
62 1,2-Dichloropropane	63	5.604	5.604	0.000	95	273216	20.0	20.7	
65 1,4-Dioxane	88	5.711	5.711	0.000	92	77958	400.0	453.8	
64 Dibromomethane	174	5.699	5.711	-0.012	94	200761	20.0	21.5	
66 Dichlorobromomethane	83	5.829	5.829	0.000	99	351960	20.0	21.4	
68 2-Chloroethyl vinyl ether	63	6.089	6.089	0.000	92	201159	20.0	20.3	
69 cis-1,3-Dichloropropene	75	6.219	6.219	0.000	95	437123	20.0	21.0	
70 4-Methyl-2-pentanone (MIBK)	43	6.350	6.350	0.000	95	821820	40.0	38.1	
71 Toluene	91	6.515	6.515	0.000	99	1132493	20.0	16.3	
72 trans-1,3-Dichloropropene	75	6.705	6.705	0.000	95	376655	20.0	16.7	
74 Ethyl methacrylate	69	6.776	6.776	0.000	90	398944	20.0	17.6	
75 1,1,2-Trichloroethane	97	6.870	6.870	0.000	93	232540	20.0	17.1	
76 Tetrachloroethene	166	7.000	7.000	0.000	97	279828	20.0	16.8	
77 1,3-Dichloropropane	76	7.024	7.024	0.000	91	433260	20.0	17.0	
78 2-Hexanone	43	7.083	7.095	-0.012	96	750568	40.0	41.2	
80 Chlorodibromomethane	129	7.225	7.225	0.000	90	266384	20.0	19.9	
81 Ethylene Dibromide	107	7.332	7.332	0.000	98	287765	20.0	20.4	
83 Chlorobenzene	112	7.781	7.781	0.000	95	836668	20.0	20.6	
84 1,1,1,2-Tetrachloroethane	131	7.852	7.852	0.000	94	282602	20.0	20.4	
85 Ethylbenzene	106	7.876	7.876	0.000	98	462200	20.0	20.7	
86 m-Xylene & p-Xylene	106	7.983	7.983	0.000	99	575048	20.0	20.8	
87 o-Xylene	106	8.361	8.361	0.000	94	545846	20.0	19.2	
88 Styrene	104	8.373	8.373	0.000	96	912644	20.0	20.0	
89 Bromoform	173	8.551	8.551	0.000	97	181797	20.0	19.7	
90 Isopropylbenzene	105	8.704	8.704	0.000	96	1376423	20.0	19.3	
92 Bromobenzene	156	9.000	9.000	0.000	94	330644	20.0	20.7	
93 1,1,2,2-Tetrachloroethane	83	9.000	9.000	0.000	84	433631	20.0	21.3	
94 1,2,3-Trichloropropane	110	9.036	9.036	0.000	85	146054	20.0	20.8	
95 trans-1,4-Dichloro-2-butene	53	9.048	9.048	0.000	92	143465	20.0	24.0	
96 N-Propylbenzene	120	9.095	9.095	0.000	99	369474	20.0	21.3	
97 2-Chlorotoluene	126	9.190	9.178	0.012	97	314297	20.0	20.5	
98 1,3,5-Trimethylbenzene	105	9.272	9.272	0.000	96	1109190	20.0	21.7	
99 4-Chlorotoluene	126	9.284	9.284	0.000	99	323205	20.0	20.6	
102 tert-Butylbenzene	119	9.580	9.580	0.000	92	942757	20.0	21.1	
104 1,2,4-Trimethylbenzene	105	9.627	9.627	0.000	97	1136160	20.0	21.2	
105 sec-Butylbenzene	105	9.793	9.793	0.000	95	1340543	20.0	20.7	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
106 1,3-Dichlorobenzene	146	9.911	9.911	0.000	98	613552	20.0	20.3	
107 4-Isopropyltoluene	119	9.935	9.947	-0.012	97	1174175	20.0	21.8	
108 1,4-Dichlorobenzene	146	9.994	9.994	0.000	94	634809	20.0	20.3	
111 n-Butylbenzene	91	10.337	10.337	0.000	97	994318	20.0	22.0	
112 1,2-Dichlorobenzene	146	10.361	10.361	0.000	97	595587	20.0	19.8	
113 1,2-Dibromo-3-Chloropropane	157	11.130	11.130	0.000	84	107973	20.0	22.7	
115 1,2,4-Trichlorobenzene	180	11.947	11.947	0.000	94	378752	20.0	22.9	
116 Hexachlorobutadiene	225	12.124	12.124	0.000	95	155689	20.0	25.4	
117 Naphthalene	128	12.195	12.195	0.000	97	1255549	20.0	22.9	
118 1,2,3-Trichlorobenzene	180	12.432	12.432	0.000	95	346971	20.0	22.8	
S 124 Trihalomethanes, Total	1				0		80.0	83.5	
S 125 Total BTEX	1				0		100.0	99.6	
S 128 Xylenes, Total	106				0		40.0	40.0	

Reagents:

vmfasgw_00367	Amount Added: 16.00	Units: uL	
vmfaspw_00358	Amount Added: 16.00	Units: uL	
vmfasaw_00336	Amount Added: 16.00	Units: uL	
vmDist_H2o_00176	Amount Added: 0.00	Units:	Run Reagent
vm50ss_stk_00085	Amount Added: 2.00	Units: uL	Run Reagent
vm50is_stk_a_00006	Amount Added: 2.00	Units: uL	Run Reagent
vm40ml_vials_00015	Amount Added: 0.00	Units:	Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromf\Canton\ChromData\A3UX12\20200716-100113.b\U1279121.D

Injection Date: 16-Jul-2020 20:43:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: ICV

Worklist Smp#: 17

Client ID:

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

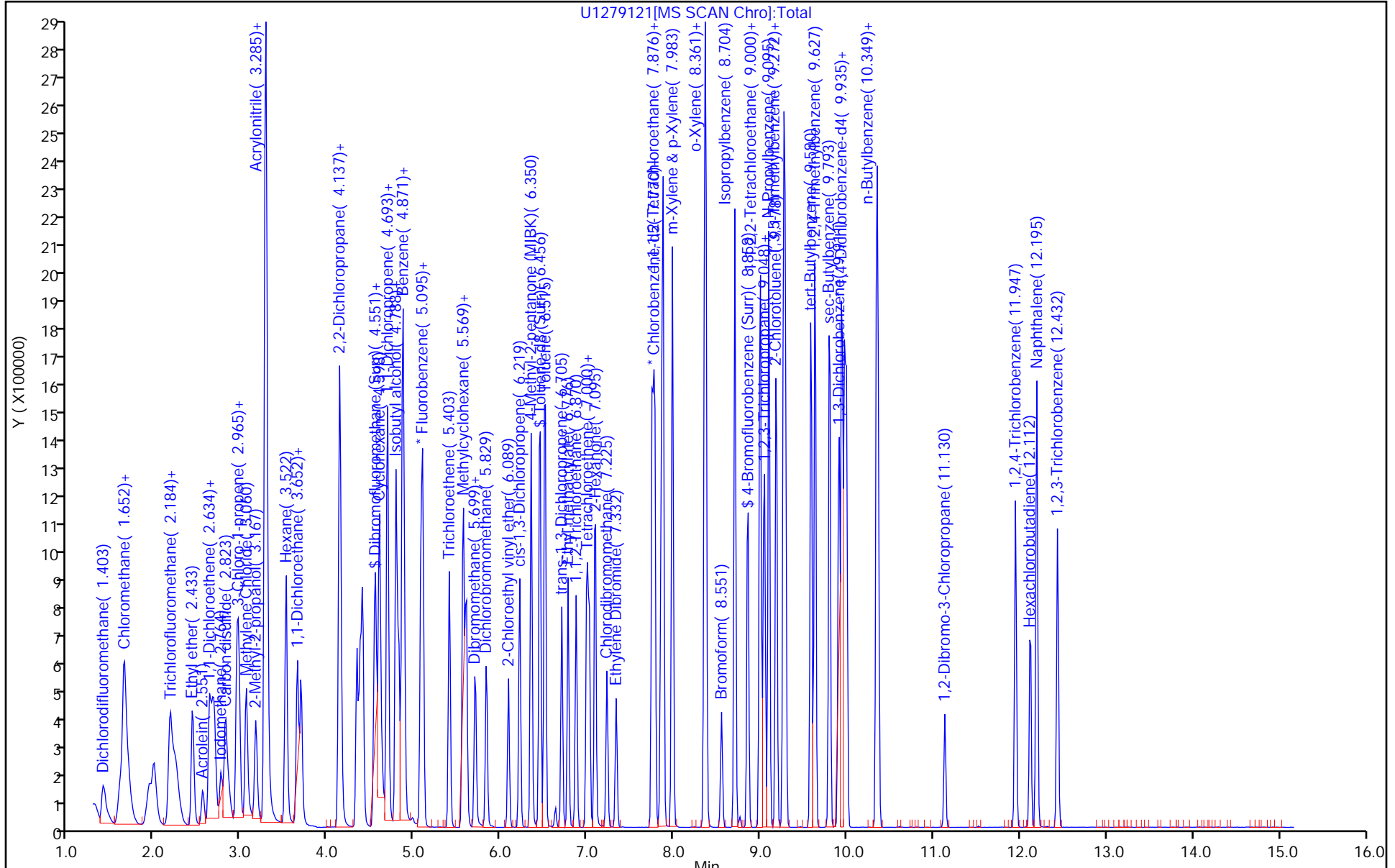
ALS Bottle#: 13

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: CCVIS 240-445595/4 Calibration Date: 08/04/2020 16:38
 Instrument ID: A3UX12 Calib Start Date: 07/16/2020 17:43
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 07/16/2020 20:20
 Lab File ID: U1279490.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.3124	0.3679		0.0236	0.0200	17.8	50.0
Chloromethane	Lin1		0.5761	0.1000	0.0227	0.0200	13.7	50.0
Butadiene	Ave	0.3681	0.4155		0.0226	0.0200	12.9	50.0
Vinyl chloride	Ave	0.3743	0.4017		0.0215	0.0200	7.3	20.0
Bromomethane	Ave	0.2481	0.2225		0.0179	0.0200	-10.3	50.0
Chloroethane	Ave	0.2724	0.2573		0.0189	0.0200	-5.6	50.0
Dichlorofluoromethane	Ave	0.5688	0.5057		0.0178	0.0200	-11.1	50.0
Trichlorofluoromethane	Ave	0.4377	0.4064		0.0186	0.0200	-7.2	50.0
Ethyl ether	Ave	0.3037	0.2780		0.0183	0.0200	-8.5	50.0
Acrolein	Ave	0.0262	0.0318		0.121	0.100	21.5	50.0
1,1-Dichloroethene	Ave	0.4021	0.4313		0.0215	0.0200	7.3	20.0
1,1,2-Trichloro-1,2,2-trifluoroethane	Ave	0.2362	0.2552		0.0216	0.0200	8.0	50.0
Acetone	Lin1		0.1468		0.0530	0.0400	32.4	50.0
Iodomethane	Ave	0.4091	0.3915		0.0191	0.0200	-4.3	50.0
Carbon disulfide	Ave	0.8097	0.8506		0.0210	0.0200	5.1	50.0
3-Chloro-1-propene	Ave	0.4509	0.5437		0.0241	0.0200	20.6	50.0
Methyl acetate	Ave	0.3065	0.3627		0.0473	0.0400	18.3	50.0
Methylene Chloride	Ave	0.3674	0.3926		0.0214	0.0200	6.8	50.0
2-Methyl-2-propanol	Ave	0.0380	0.0519		0.273	0.200	36.7	50.0
Acrylonitrile	Ave	0.1589	0.1740		0.219	0.200	9.5	50.0
trans-1,2-Dichloroethene	Ave	0.3859	0.4255		0.0221	0.0200	10.3	50.0
Methyl tert-butyl ether	Ave	0.8861	0.8937		0.0202	0.0200	0.9	50.0
Hexane	Ave	0.4275	0.4935		0.0231	0.0200	15.4	20.0
1,1-Dichloroethane	Ave	0.5143	0.5387	0.1000	0.0209	0.0200	4.7	50.0
Vinyl acetate	Ave	0.7246	0.7464		0.0206	0.0200	3.0	50.0
2,2-Dichloropropane	Ave	0.3526	0.3161		0.0179	0.0200	-10.4	50.0
cis-1,2-Dichloroethene	Ave	0.3599	0.3098		0.0172	0.0200	-13.9	50.0
2-Butanone (MEK)	Ave	0.0631	0.0610		0.0387	0.0400	-3.3	50.0
Chlorobromomethane	Ave	0.2926	0.2731		0.0187	0.0200	-6.7	50.0
Tetrahydrofuran	Ave	0.1611	0.1677		0.0416	0.0400	4.1	50.0
Chloroform	Ave	0.5092	0.4682		0.0184	0.0200	-8.1	20.0
1,1,1-Trichloroethane	Ave	0.4037	0.3945		0.0195	0.0200	-2.3	50.0
Cyclohexane	Ave	0.4779	0.4967		0.0208	0.0200	3.9	50.0
1,1-Dichloropropene	Ave	0.4108	0.4238		0.0206	0.0200	3.1	50.0
Carbon tetrachloride	Ave	0.3288	0.3365		0.0205	0.0200	2.3	50.0
Isobutyl alcohol	Ave	0.0161	0.0189		0.585	0.500	17.0	50.0
Benzene	Ave	1.228	1.195		0.0195	0.0200	-2.7	50.0
1,2-Dichloroethane	Ave	0.3989	0.3780		0.0190	0.0200	-5.2	50.0
n-Heptane	Lin1		0.2323		0.0214	0.0200	6.9	50.0
Trichloroethene	Ave	0.2776	0.2820		0.0203	0.0200	1.6	50.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: CCVIS 240-445595/4 Calibration Date: 08/04/2020 16:38
 Instrument ID: A3UX12 Calib Start Date: 07/16/2020 17:43
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 07/16/2020 20:20
 Lab File ID: U1279490.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Methylcyclohexane	Ave	0.4860	0.5267		0.0217	0.0200	8.4	50.0
1,2-Dichloropropane	Ave	0.2651	0.2814		0.0212	0.0200	6.1	20.0
1,4-Dioxane	Ave	0.0035	0.0044		0.514	0.400	28.4	50.0
Dibromomethane	Ave	0.1882	0.1707		0.0181	0.0200	-9.3	50.0
Dichlorobromomethane	Ave	0.3312	0.3355		0.0203	0.0200	1.3	50.0
2-Chloroethyl vinyl ether	Ave	0.1997	0.2053		0.0411	0.0400	2.8	50.0
cis-1,3-Dichloropropene	Ave	0.4197	0.4373		0.0208	0.0200	4.2	50.0
4-Methyl-2-pentanone (MIBK)	Ave	0.4341	0.4422		0.0407	0.0400	1.9	50.0
Toluene	Ave	1.659	1.713		0.0206	0.0200	3.2	20.0
trans-1,3-Dichloropropene	Ave	0.5377	0.5955		0.0222	0.0200	10.8	50.0
Ethyl methacrylate	Ave	0.5422	0.5962		0.0220	0.0200	10.0	50.0
1,1,2-Trichloroethane	Ave	0.3249	0.3350		0.0206	0.0200	3.1	50.0
Tetrachloroethene	Ave	0.3971	0.4154		0.0209	0.0200	4.6	50.0
1,3-Dichloropropane	Ave	0.6096	0.6327		0.0208	0.0200	3.8	50.0
2-Hexanone	Ave	0.4350	0.4810		0.0442	0.0400	10.6	50.0
Chlorodibromomethane	Ave	0.3194	0.3409		0.0213	0.0200	6.7	50.0
Ethylene Dibromide	Ave	0.3359	0.3430		0.0204	0.0200	2.1	50.0
Chlorobenzene	Ave	0.9701	1.031	0.3000	0.0213	0.0200	6.3	50.0
1,1,1,2-Tetrachloroethane	Ave	0.3307	0.3549		0.0215	0.0200	7.3	50.0
Ethylbenzene	Ave	0.5327	0.5822		0.0219	0.0200	9.3	20.0
m-Xylene & p-Xylene	Ave	0.6598	0.7387		0.0224	0.0200	12.0	50.0
o-Xylene	Ave	0.6795	0.7226		0.0213	0.0200	6.3	50.0
Styrene	Ave	1.091	1.183		0.0217	0.0200	8.4	50.0
Bromoform	Ave	0.2201	0.2533	0.1000	0.0230	0.0200	15.1	50.0
Isopropylbenzene	Ave	1.703	1.891		0.0222	0.0200	11.0	50.0
1,1,2,2-Tetrachloroethane	Ave	1.000	1.122	0.3000	0.0224	0.0200	12.2	50.0
Bromobenzene	Ave	0.7816	0.8481		0.0217	0.0200	8.5	50.0
1,2,3-Trichloropropane	Ave	0.3449	0.3668		0.0213	0.0200	6.3	50.0
trans-1,4-Dichloro-2-butene	Ave	0.2927	0.3954		0.0270	0.0200	35.1	50.0
N-Propylbenzene	Ave	0.8506	1.032		0.0243	0.0200	21.3	50.0
2-Chlorotoluene	Ave	0.7510	0.8472		0.0226	0.0200	12.8	50.0
1,3,5-Trimethylbenzene	Ave	2.508	2.998		0.0239	0.0200	19.5	50.0
4-Chlorotoluene	Ave	0.7704	0.8450		0.0219	0.0200	9.7	50.0
tert-Butylbenzene	Ave	2.195	2.592		0.0236	0.0200	18.1	50.0
1,2,4-Trimethylbenzene	Ave	2.634	3.011		0.0229	0.0200	14.3	50.0
sec-Butylbenzene	Ave	3.184	3.750		0.0236	0.0200	17.8	50.0
1,3-Dichlorobenzene	Ave	1.484	1.596		0.0215	0.0200	7.6	50.0
4-Isopropyltoluene	Ave	2.648	3.204		0.0242	0.0200	21.0	50.0
1,4-Dichlorobenzene	Ave	1.537	1.616		0.0210	0.0200	5.2	50.0
n-Butylbenzene	Ave	2.220	2.731		0.0246	0.0200	23.0	50.0
1,2-Dichlorobenzene	Ave	1.473	1.573		0.0214	0.0200	6.8	50.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: CCVIS 240-445595/4 Calibration Date: 08/04/2020 16:38
 Instrument ID: A3UX12 Calib Start Date: 07/16/2020 17:43
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 07/16/2020 20:20
 Lab File ID: U1279490.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,2-Dibromo-3-Chloropropane	Ave	0.2336	0.2888		0.0247	0.0200	23.6	50.0
1,2,4-Trichlorobenzene	Ave	0.8111	0.9374		0.0231	0.0200	15.6	50.0
Hexachlorobutadiene	Lin1		0.3387		0.0225	0.0200	12.5	50.0
Naphthalene	Ave	2.686	3.199		0.0238	0.0200	19.1	50.0
1,2,3-Trichlorobenzene	Ave	0.7472	0.8521		0.0228	0.0200	14.0	50.0
Dibromofluoromethane (Surr)	Ave	0.2655	0.2397		0.0181	0.0200	-9.7	50.0
1,2-Dichloroethane-d4 (Surr)	Ave	0.3249	0.3024		0.0186	0.0200	-6.9	50.0
Toluene-d8 (Surr)	Ave	1.353	1.420		0.0210	0.0200	5.0	50.0
4-Bromofluorobenzene (Surr)	Ave	0.4632	0.4982		0.0215	0.0200	7.6	50.0

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279490.D
 Lims ID: CCVIS
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 04-Aug-2020 16:38:30 ALS Bottle#: 3 Worklist Smp#: 4
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-004
 Operator ID: 001904 Instrument ID: A3UX12
 Sublist: chrom-8260_12_h2o*sub2
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 17:00:38 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1064

First Level Reviewer: laveyt

Date: 04-Aug-2020 17:00:38

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1127735	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	738729	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.971	9.971	0.000	93	363181	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	270258	20.0	18.1	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.823	4.823	0.000	96	341005	20.0	18.6	
\$ 6 Toluene-d8 (Surr)	98	6.456	6.456	0.000	93	1048965	20.0	21.0	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	94	368018	20.0	21.5	
9 Dichlorodifluoromethane	85	1.404	1.404	0.000	99	414878	20.0	23.6	
10 Chloromethane	50	1.605	1.605	0.000	99	649664	20.0	22.7	
11 Butadiene	54	1.652	1.652	0.000	91	468566	20.0	22.6	
12 Vinyl chloride	62	1.699	1.699	0.000	97	453032	20.0	21.5	
14 Bromomethane	94	1.948	1.948	0.000	90	250952	20.0	17.9	
15 Chloroethane	64	2.007	2.007	0.000	99	290132	20.0	18.9	
16 Dichlorofluoromethane	67	2.184	2.184	0.000	97	570324	20.0	17.8	
17 Trichlorofluoromethane	101	2.184	2.184	0.000	96	458254	20.0	18.6	
19 Ethyl ether	59	2.433	2.433	0.000	93	313513	20.0	18.3	
20 Acrolein	56	2.551	2.551	0.000	99	179292	100.0	121.5	
21 1,1-Dichloroethene	61	2.634	2.634	0.000	96	486381	20.0	21.5	
22 112TCTFE	101	2.670	2.670	0.000	95	287762	20.0	21.6	
23 Acetone	43	2.693	2.693	0.000	100	331171	40.0	53.0	
24 Iodomethane	142	2.764	2.764	0.000	98	441468	20.0	19.1	
25 Carbon disulfide	76	2.823	2.823	0.000	100	959302	20.0	21.0	
27 3-Chloro-1-propene	41	2.954	2.954	0.000	91	613152	20.0	24.1	
28 Methyl acetate	43	2.977	2.977	0.000	98	818055	40.0	47.3	
29 Methylene Chloride	49	3.060	3.060	0.000	96	442717	20.0	21.4	
30 2-Methyl-2-propanol	59	3.167	3.167	0.000	100	585741	200.0	273.5	
31 Acrylonitrile	53	3.273	3.273	0.000	99	1962312	200.0	219.1	
32 trans-1,2-Dichloroethene	61	3.285	3.285	0.000	99	479898	20.0	22.1	
33 Methyl tert-butyl ether	73	3.297	3.297	0.000	96	1007859	20.0	20.2	
34 Hexane	57	3.522	3.522	0.000	92	556516	20.0	23.1	
35 1,1-Dichloroethane	63	3.652	3.652	0.000	96	607538	20.0	20.9	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
36 Vinyl acetate	43	3.699	3.699	0.000	97	841751	20.0	20.6	
41 cis-1,2-Dichloroethene	96	4.137	4.137	0.000	88	349406	20.0	17.2	
40 2,2-Dichloropropane	77	4.137	4.137	0.000	60	356487	20.0	17.9	
42 2-Butanone (MEK)	72	4.149	4.149	0.000	100	137616	40.0	38.7	
46 Chlorobromomethane	49	4.338	4.338	0.000	95	307970	20.0	18.7	
47 Tetrahydrofuran	42	4.374	4.374	0.000	90	378241	40.0	41.6	
48 Chloroform	83	4.409	4.409	0.000	94	528032	20.0	18.4	
49 1,1,1-Trichloroethane	97	4.551	4.551	0.000	99	444865	20.0	19.5	
50 Cyclohexane	84	4.598	4.598	0.000	91	560096	20.0	20.8	
51 1,1-Dichloropropene	75	4.693	4.693	0.000	95	477885	20.0	20.6	
52 Carbon tetrachloride	117	4.693	4.693	0.000	77	379479	20.0	20.5	
53 Isobutyl alcohol	41	4.788	4.788	0.000	95	532318	500.0	585.2	
54 Benzene	78	4.871	4.871	0.000	96	1347555	20.0	19.5	
55 1,2-Dichloroethane	62	4.882	4.882	0.000	97	426288	20.0	19.0	
57 n-Heptane	57	5.072	5.084	-0.012	93	261925	20.0	21.4	
59 Trichloroethene	130	5.403	5.403	0.000	98	318051	20.0	20.3	
61 Methylcyclohexane	83	5.569	5.569	0.000	90	593947	20.0	21.7	
62 1,2-Dichloropropane	63	5.604	5.604	0.000	94	317314	20.0	21.2	
65 1,4-Dioxane	88	5.711	5.711	0.000	95	100175	400.0	513.7	
64 Dibromomethane	174	5.711	5.711	0.000	95	192472	20.0	18.1	
66 Dichlorobromomethane	83	5.829	5.829	0.000	99	378296	20.0	20.3	
68 2-Chloroethyl vinyl ether	63	6.089	6.089	0.000	92	462940	40.0	41.1	
69 cis-1,3-Dichloropropene	75	6.220	6.220	0.000	95	493098	20.0	20.8	
70 4-Methyl-2-pentanone (MIBK)	43	6.350	6.350	0.000	97	997348	40.0	40.7	
71 Toluene	91	6.515	6.515	0.000	99	1265145	20.0	20.6	
72 trans-1,3-Dichloropropene	75	6.705	6.705	0.000	95	439894	20.0	22.2	
74 Ethyl methacrylate	69	6.776	6.776	0.000	91	440436	20.0	22.0	
75 1,1,2-Trichloroethane	97	6.870	6.870	0.000	92	247444	20.0	20.6	
76 Tetrachloroethene	166	7.000	7.000	0.000	97	306885	20.0	20.9	
77 1,3-Dichloropropane	76	7.024	7.024	0.000	91	467410	20.0	20.8	
78 2-Hexanone	43	7.095	7.095	0.000	96	710718	40.0	44.2	
80 Chlorodibromomethane	129	7.225	7.225	0.000	91	251802	20.0	21.3	
81 Ethylene Dibromide	107	7.332	7.332	0.000	99	253376	20.0	20.4	
83 Chlorobenzene	112	7.781	7.781	0.000	94	761880	20.0	21.3	
84 1,1,1,2-Tetrachloroethane	131	7.852	7.852	0.000	95	262186	20.0	21.5	
85 Ethylbenzene	106	7.876	7.876	0.000	99	430119	20.0	21.9	
86 m-Xylene & p-Xylene	106	7.983	7.983	0.000	99	545710	20.0	22.4	
87 o-Xylene	106	8.361	8.361	0.000	97	533831	20.0	21.3	
88 Styrene	104	8.373	8.373	0.000	95	873632	20.0	21.7	
89 Bromoform	173	8.551	8.551	0.000	97	187139	20.0	23.0	
90 Isopropylbenzene	105	8.704	8.704	0.000	96	1396796	20.0	22.2	
92 Bromobenzene	156	9.000	9.000	0.000	94	307999	20.0	21.7	
93 1,1,2,2-Tetrachloroethane	83	9.000	9.000	0.000	84	407606	20.0	22.4	
94 1,2,3-Trichloropropane	110	9.036	9.036	0.000	85	133211	20.0	21.3	
95 trans-1,4-Dichloro-2-butene	53	9.048	9.048	0.000	93	143585	20.0	27.0	
96 N-Propylbenzene	120	9.095	9.095	0.000	99	374642	20.0	24.3	
97 2-Chlorotoluene	126	9.190	9.190	0.000	97	307678	20.0	22.6	
98 1,3,5-Trimethylbenzene	105	9.272	9.272	0.000	96	1088786	20.0	23.9	
99 4-Chlorotoluene	126	9.284	9.284	0.000	99	306902	20.0	21.9	
102 tert-Butylbenzene	119	9.580	9.580	0.000	93	941417	20.0	23.6	
104 1,2,4-Trimethylbenzene	105	9.627	9.627	0.000	96	1093683	20.0	22.9	
105 sec-Butylbenzene	105	9.793	9.793	0.000	95	1361825	20.0	23.6	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
106 1,3-Dichlorobenzene	146	9.911	9.911	0.000	98	579799	20.0	21.5	
107 4-Isopropyltoluene	119	9.947	9.947	0.000	98	1163638	20.0	24.2	
108 1,4-Dichlorobenzene	146	9.994	9.994	0.000	96	586888	20.0	21.0	
111 n-Butylbenzene	91	10.337	10.337	0.000	97	991814	20.0	24.6	
112 1,2-Dichlorobenzene	146	10.361	10.361	0.000	97	571125	20.0	21.4	
113 1,2-Dibromo-3-Chloropropane	157	11.130	11.130	0.000	85	104901	20.0	24.7	
115 1,2,4-Trichlorobenzene	180	11.947	11.947	0.000	94	340459	20.0	23.1	
116 Hexachlorobutadiene	225	12.124	12.124	0.000	95	123018	20.0	22.5	
117 Naphthalene	128	12.195	12.195	0.000	97	1161730	20.0	23.8	
118 1,2,3-Trichlorobenzene	180	12.432	12.432	0.000	95	309461	20.0	22.8	
S 124 Trihalomethanes, Total	1				0		80.0	83.0	
S 125 Total BTEX	1				0		100.0	105.6	
S 128 Xylenes, Total	106				0		40.0	43.7	

Reagents:

vmarolistdw_00355	Amount Added: 16.00	Units: uL	
vmrprimw_00397	Amount Added: 16.00	Units: uL	
vmrgas_00349	Amount Added: 16.00	Units: uL	
vmDist_H2o_00177	Amount Added: 0.00	Units:	Run Reagent
vm50ss_stk_00085	Amount Added: 2.00	Units: uL	Run Reagent
vm50is_stk_a_00006	Amount Added: 2.00	Units: uL	Run Reagent
vm40ml_vials_00015	Amount Added: 0.00	Units:	Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279490.D

Injection Date: 04-Aug-2020 16:38:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: CCVIS

Worklist Smp#: 4

Client ID:

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

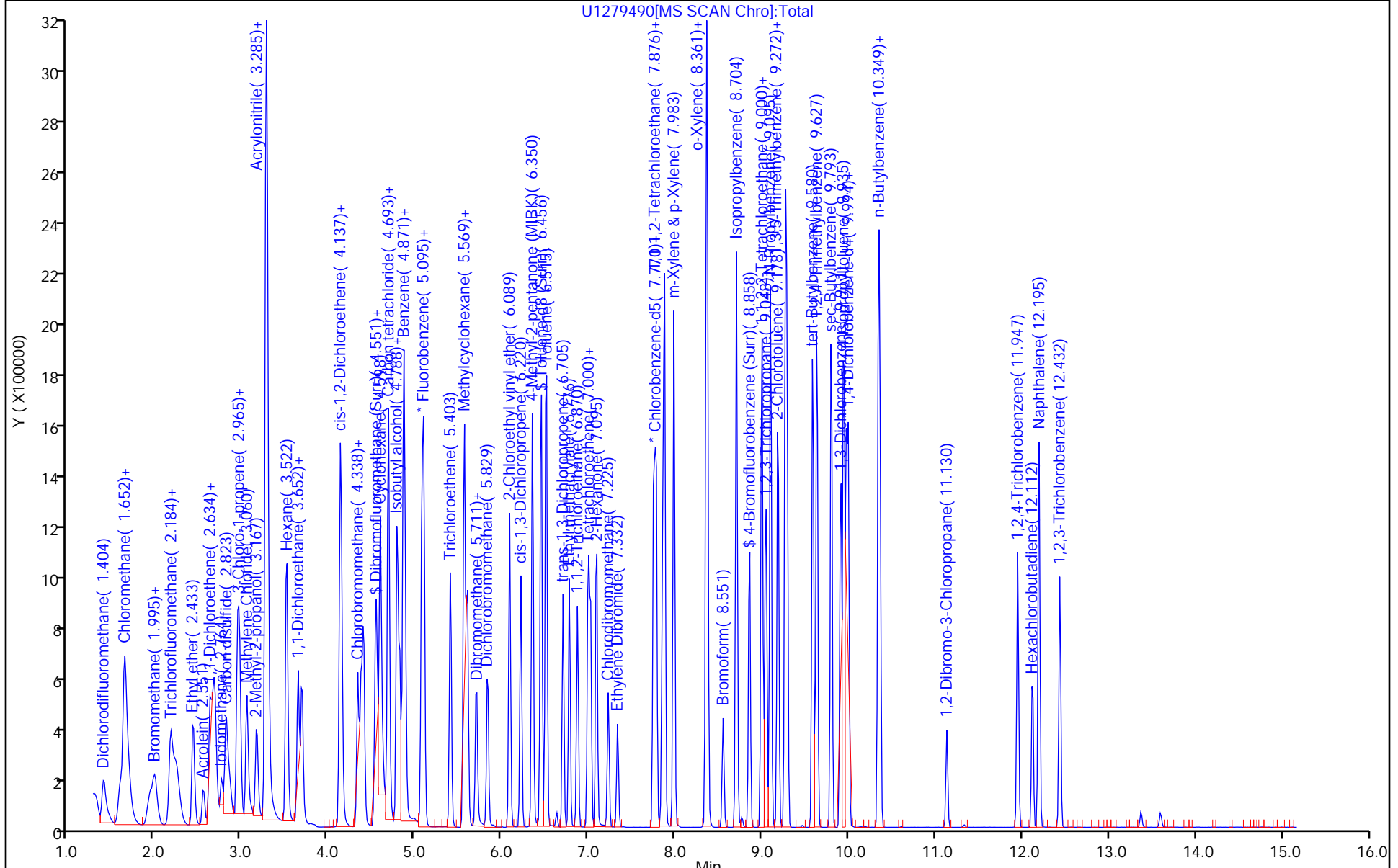
ALS Bottle#: 3

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: ICV 240-337916/14 Calibration Date: 07/25/2018 15:37
 Instrument ID: A3UX19 Calib Start Date: 07/24/2018 17:50
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 07/24/2018 20:04
 Lab File ID: U1900808.d Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dibromofluoromethane (Surr)	Ave	0.2589	0.2758		0.0213	0.0200	6.5	50.0
1,2-Dichloroethane-d4 (Surr)	Ave	0.2744	0.2888		0.0211	0.0200	5.3	50.0
Toluene-d8 (Surr)	Ave	1.204	1.258		0.0209	0.0200	4.5	50.0
4-Bromofluorobenzene (Surr)	Ave	0.4627	0.4749		0.0205	0.0200	2.6	50.0

TestAmerica Canton
Target Compound Quantitation Report

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180725-78311.b\U1900808.d
 Lims ID: ICV
 Client ID:
 Sample Type: ICV
 Inject. Date: 25-Jul-2018 15:37:29 ALS Bottle#: 0 Worklist Smp#: 14
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: 240-0078311-014
 Operator ID: 001904 Instrument ID: A3UX19
 Sublist:
 Method: \\ChromNA\Canton\ChromData\A3UX19\20180725-78311.b\8260_19.m
 Limit Group: MSV 8260B ICAL
 Last Update: 25-Jul-2018 16:30:24 Calib Date: 25-Jul-2018 15:15:13
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Canton\ChromData\A3UX19\20180725-78311.b\U1900807.d
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: XAWRK026

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.654	5.654	0.000	99	882991	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.500	8.500	0.000	82	707956	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.883	10.883	0.000	83	413254	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr	111	5.049	5.049	0.000	84	243481	20.0	21.3	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	5.345	5.357	-0.012	96	255028	20.0	21.1	
\$ 6 Toluene-d8 (Surr)	98	7.100	7.100	0.000	93	890649	20.0	20.9	
\$ 7 4-Bromofluorobenzene (Surr	95	9.674	9.674	0.000	90	336222	20.0	20.5	
25 Acetonitrile	41	3.329	3.329	0.000	100	288916	200.0	164.3	
36 Isopropyl ether	87	4.171	4.171	0.000	94	210236	20.0	20.6	
37 2-Chloro-1,3-butadiene	53	4.195	4.195	0.000	86	354575	20.0	20.2	
38 Tert-butyl ethyl ether	59	4.492	4.491	0.001	97	657887	20.0	20.5	
42 Ethyl acetate	43	4.681	4.681	0.000	96	486199	40.0	36.6	
43 Propionitrile	54	4.681	4.681	0.000	59	348995	200.0	169.9	
44 Methacrylonitrile	41	4.824	4.823	0.001	91	1700375	200.0	210.7	
55 Tert-amyl methyl ether	73	5.500	5.499	0.001	91	691178	20.0	20.3	
57 n-Butanol	56	5.891	5.891	0.000	85	188747	500.0	456.8	
59 Ethyl acrylate	55	6.057	6.057	0.000	99	329918	20.0	20.2	
62 Methyl methacrylate	41	6.270	6.270	0.000	91	440657	40.0	40.6	
66 2-Nitropropane	41	6.638	6.638	0.000	98	128315	40.0	40.0	
78 n-Butyl acetate	43	7.883	7.883	0.000	99	386791	20.0	20.4	
81 1-Chlorohexane	91	8.488	8.488	0.000	74	315130	20.0	19.3	
90 Cyclohexanone	55	9.615	9.614	0.000	91	97723	200.0	202.0	

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180725-78311.b\U1900808.d

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
100 Pentachloroethane	167	10.492	10.492	0.000	86	279031	40.0	39.0	
106 1,2,3-Trimethylbenzene	105	10.966	10.966	0.000	86	994788	20.0	21.2	
107 Benzyl chloride	91	11.049	11.049	0.000	97	499238	20.0	16.6	
111 1,3,5-Trichlorobenzene	180	12.354	12.354	0.000	97	414514	20.0	19.6	
116 2-Methylnaphthalene	142	14.619	14.619	0.000	89	1147583	40.0	38.8	

Reagents:

VMFASA9W_00194	Amount Added: 16.00	Units: uL	
vm50ss_stk_00077	Amount Added: 2.00	Units: uL	Run Reagent
vmDist_H2o_00121	Amount Added: 0.00	Units:	Run Reagent
vm50is_stk_A_00001	Amount Added: 2.00	Units: uL	Run Reagent

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180725-78311.b\U1900808.d

Injection Date: 25-Jul-2018 15:37:29

Instrument ID: A3UX19

Operator ID: 001904

Lims ID: ICV

Worklist Smp#: 14

Client ID:

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

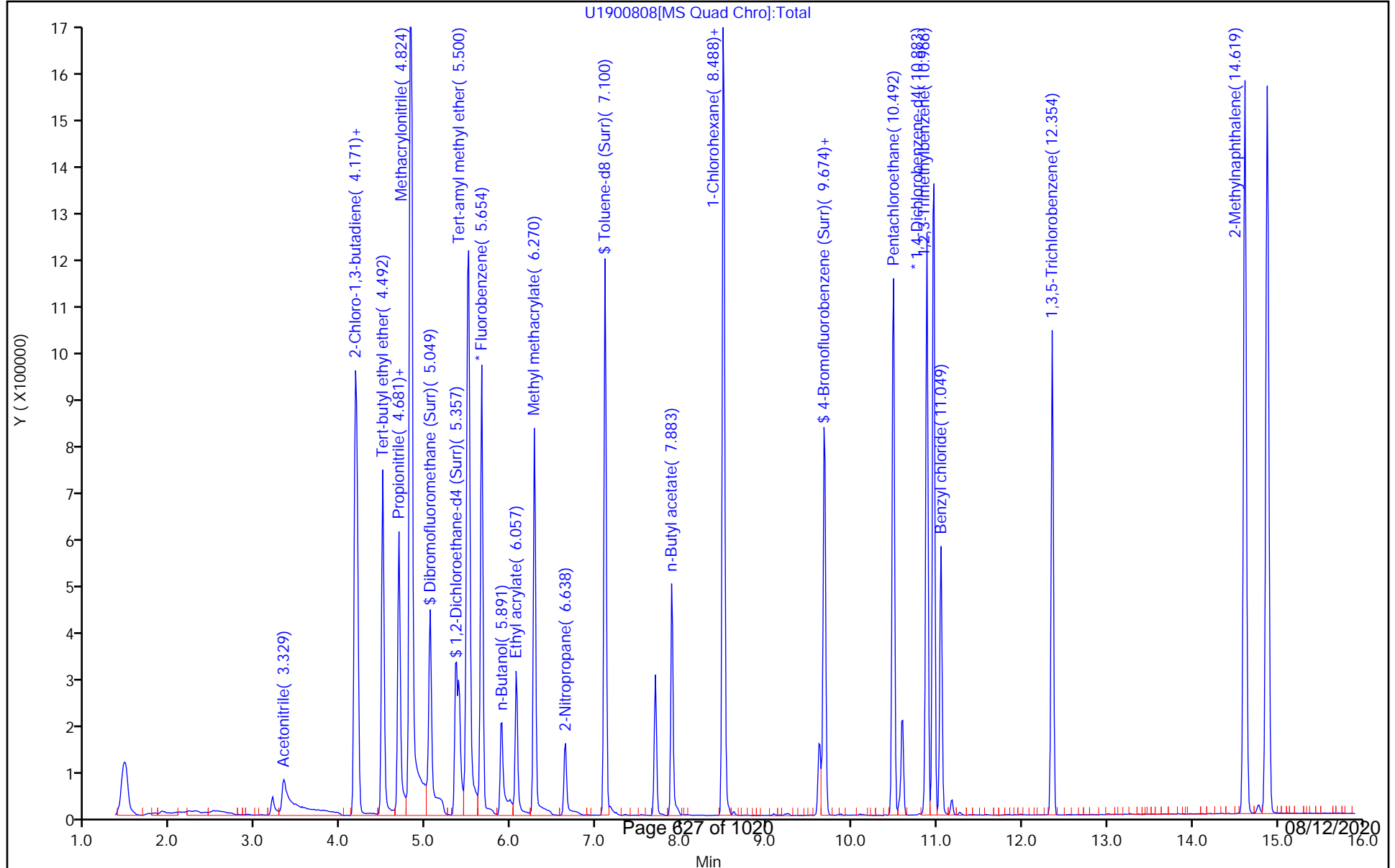
ALS Bottle#: 0

Method: 8260_19

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: ICV 240-337916/14 Calibration Date: 07/25/2018 15:37
 Instrument ID: A3UX19 Calib Start Date: 07/25/2018 13:24
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 07/25/2018 15:15
 Lab File ID: U1900808.d Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Acetonitrile	Lin1		0.0327		0.164	0.200	-17.8	50.0
Isopropyl ether	Ave	0.2313	0.2381		0.0206	0.0200	3.0	50.0
2-Chloro-1,3-butadiene	Ave	0.3979	0.4016		0.0202	0.0200	0.9	50.0
Tert-butyl ethyl ether	Ave	0.7258	0.7451		0.0205	0.0200	2.7	50.0
Ethyl acetate	Ave	0.3007	0.2753		0.0366	0.0400	-8.5	50.0
Propionitrile	Lin1		0.0395		0.170	0.200	-15.0	50.0
Methacrylonitrile	Ave	0.1828	0.1926		0.211	0.200	5.3	50.0
Tert-amyl methyl ether	Ave	0.7700	0.7828		0.0203	0.0200	1.7	50.0
n-Butanol	Ave	0.0094	0.0086		0.457	0.500	-8.6	50.0
Ethyl acrylate	Ave	0.3703	0.3736		0.0202	0.0200	0.9	50.0
Methyl methacrylate	Ave	0.2459	0.2495		0.0406	0.0400	1.5	50.0
2-Nitropropane	Ave	0.0726	0.0727		0.0400	0.0400	0.1	50.0
n-Butyl acetate	Ave	0.5364	0.5464		0.0204	0.0200	1.9	50.0
1-Chlorohexane	Ave	0.4610	0.4451		0.0193	0.0200	-3.4	50.0
Cyclohexanone	Ave	0.0137	0.0138		0.202	0.200	1.0	50.0
Pentachloroethane	Ave	0.3462	0.3376		0.0390	0.0400	-2.5	50.0
1,2,3-Trimethylbenzene	Ave	2.276	2.407		0.0212	0.0200	5.8	50.0
Benzyl chloride	Lin1		1.208		0.0166	0.0200	-17.2	50.0
1,3,5-Trichlorobenzene	Ave	1.021	1.003		0.0196	0.0200	-1.8	50.0
2-Methylnaphthalene	Ave	1.433	1.388		0.0388	0.0400	-3.1	50.0

TestAmerica Canton
Target Compound Quantitation Report

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180725-78311.b\U1900808.d
 Lims ID: ICV
 Client ID:
 Sample Type: ICV
 Inject. Date: 25-Jul-2018 15:37:29 ALS Bottle#: 0 Worklist Smp#: 14
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: 240-0078311-014
 Operator ID: 001904 Instrument ID: A3UX19
 Sublist:
 Method: \\ChromNA\Canton\ChromData\A3UX19\20180725-78311.b\8260_19.m
 Limit Group: MSV 8260B ICAL
 Last Update: 25-Jul-2018 16:30:24 Calib Date: 25-Jul-2018 15:15:13
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Canton\ChromData\A3UX19\20180725-78311.b\U1900807.d
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: XAWRK026

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.654	5.654	0.000	99	882991	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.500	8.500	0.000	82	707956	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.883	10.883	0.000	83	413254	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr	111	5.049	5.049	0.000	84	243481	20.0	21.3	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	5.345	5.357	-0.012	96	255028	20.0	21.1	
\$ 6 Toluene-d8 (Surr)	98	7.100	7.100	0.000	93	890649	20.0	20.9	
\$ 7 4-Bromofluorobenzene (Surr	95	9.674	9.674	0.000	90	336222	20.0	20.5	
25 Acetonitrile	41	3.329	3.329	0.000	100	288916	200.0	164.3	
36 Isopropyl ether	87	4.171	4.171	0.000	94	210236	20.0	20.6	
37 2-Chloro-1,3-butadiene	53	4.195	4.195	0.000	86	354575	20.0	20.2	
38 Tert-butyl ethyl ether	59	4.492	4.491	0.001	97	657887	20.0	20.5	
42 Ethyl acetate	43	4.681	4.681	0.000	96	486199	40.0	36.6	
43 Propionitrile	54	4.681	4.681	0.000	59	348995	200.0	169.9	
44 Methacrylonitrile	41	4.824	4.823	0.001	91	1700375	200.0	210.7	
55 Tert-amyl methyl ether	73	5.500	5.499	0.001	91	691178	20.0	20.3	
57 n-Butanol	56	5.891	5.891	0.000	85	188747	500.0	456.8	
59 Ethyl acrylate	55	6.057	6.057	0.000	99	329918	20.0	20.2	
62 Methyl methacrylate	41	6.270	6.270	0.000	91	440657	40.0	40.6	
66 2-Nitropropane	41	6.638	6.638	0.000	98	128315	40.0	40.0	
78 n-Butyl acetate	43	7.883	7.883	0.000	99	386791	20.0	20.4	
81 1-Chlorohexane	91	8.488	8.488	0.000	74	315130	20.0	19.3	
90 Cyclohexanone	55	9.615	9.614	0.000	91	97723	200.0	202.0	

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180725-78311.b\U1900808.d

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
100 Pentachloroethane	167	10.492	10.492	0.000	86	279031	40.0	39.0	
106 1,2,3-Trimethylbenzene	105	10.966	10.966	0.000	86	994788	20.0	21.2	
107 Benzyl chloride	91	11.049	11.049	0.000	97	499238	20.0	16.6	
111 1,3,5-Trichlorobenzene	180	12.354	12.354	0.000	97	414514	20.0	19.6	
116 2-Methylnaphthalene	142	14.619	14.619	0.000	89	1147583	40.0	38.8	

Reagents:

VMFASA9W_00194	Amount Added: 16.00	Units: uL	
vm50ss_stk_00077	Amount Added: 2.00	Units: uL	Run Reagent
vmDist_H2o_00121	Amount Added: 0.00	Units:	Run Reagent
vm50is_stk_A_00001	Amount Added: 2.00	Units: uL	Run Reagent

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180725-78311.b\U1900808.d

Injection Date: 25-Jul-2018 15:37:29

Instrument ID: A3UX19

Operator ID: 001904

Lims ID: ICV

Worklist Smp#: 14

Client ID:

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

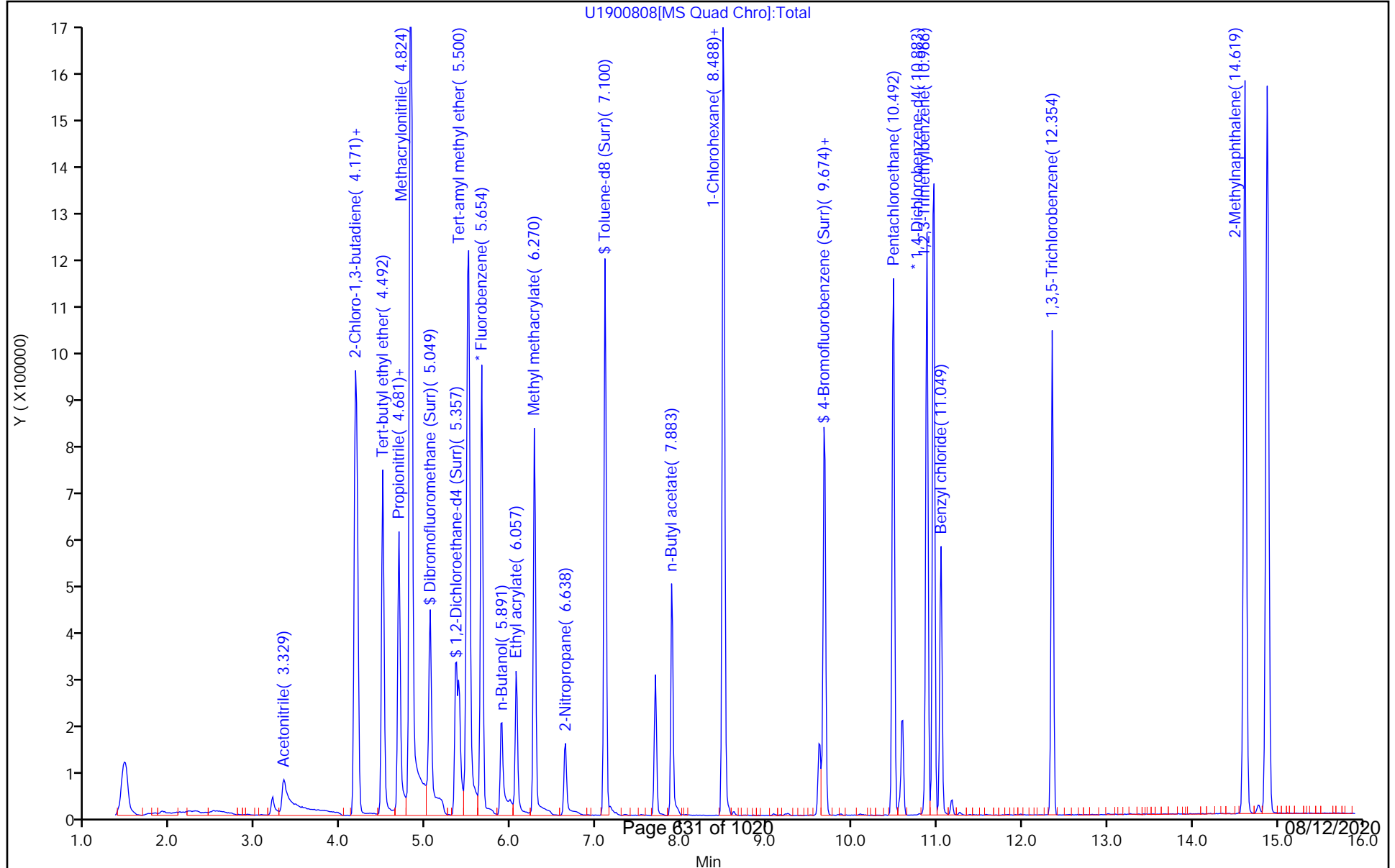
ALS Bottle#: 0

Method: 8260_19

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: ICV 240-342718/14 Calibration Date: 08/27/2018 19:45
 Instrument ID: A3UX19 Calib Start Date: 08/27/2018 17:09
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 08/27/2018 19:23
 Lab File ID: U1901330.d Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.3850	0.2913		0.0151	0.0200	-24.3	50.0
Chloromethane	Ave	0.2883	0.2492	0.1000	0.0173	0.0200	-13.6	50.0
Butadiene	Ave	0.2887	0.2477		0.0172	0.0200	-14.2	50.0
Vinyl chloride	Ave	0.2980	0.2874		0.0193	0.0200	-3.5	20.0
Bromomethane	Ave	0.2335	0.2187		0.0187	0.0200	-6.3	50.0
Chloroethane	Ave	0.1848	0.1799		0.0195	0.0200	-2.7	50.0
Dichlorofluoromethane	Ave	0.4581	0.4762		0.0208	0.0200	3.9	50.0
Trichlorofluoromethane	Ave	0.4984	0.5062		0.0203	0.0200	1.6	50.0
Ethyl ether	Ave	0.1800	0.1933		0.0215	0.0200	7.4	50.0
Acrolein	Ave	0.0445	0.0361		0.0812	0.100	-18.8	50.0
1,1-Dichloroethene	Ave	0.3589	0.3889		0.0217	0.0200	8.3	20.0
1,1,2-Trichloro-1,2,2-trifluoroethane	Ave	0.2567	0.2852		0.0222	0.0200	11.1	50.0
Acetone	Ave	0.0784	0.0730		0.0372	0.0400	-6.9	50.0
Iodomethane	Ave	0.4655	0.4827		0.0207	0.0200	3.7	50.0
Carbon disulfide	Ave	0.7515	0.7522		0.0200	0.0200	0.0	50.0
3-Chloro-1-propene	Ave	0.3541	0.3611		0.0204	0.0200	2.0	50.0
Methyl acetate	Ave	0.2328	0.2202		0.0378	0.0400	-5.4	50.0
Methylene Chloride	Ave	0.2846	0.2847		0.0200	0.0200	0.0	50.0
2-Methyl-2-propanol	Ave	0.0271	0.0283		0.209	0.200	4.3	50.0
Acrylonitrile	Ave	0.1006	0.1020		0.203	0.200	1.4	50.0
Methyl tert-butyl ether	Ave	0.6938	0.7063		0.0204	0.0200	1.8	50.0
trans-1,2-Dichloroethene	Ave	0.3387	0.3554		0.0210	0.0200	4.9	50.0
Hexane	Ave	0.3524	0.3872		0.0220	0.0200	9.9	20.0
1,1-Dichloroethane	Ave	0.4048	0.4171	0.1000	0.0206	0.0200	3.0	50.0
Vinyl acetate	Ave	0.4639	0.5080		0.0219	0.0200	9.5	50.0
2,2-Dichloropropane	Ave	0.2438	0.2691		0.0221	0.0200	10.4	50.0
2-Butanone (MEK)	Ave	0.0472	0.0464		0.0393	0.0400	-1.8	50.0
cis-1,2-Dichloroethene	Ave	0.2891	0.2867		0.0198	0.0200	-0.8	50.0
Chlorobromomethane	Ave	0.1945	0.1891		0.0194	0.0200	-2.8	50.0
Tetrahydrofuran	Lin1		0.1082		0.0418	0.0400	4.6	50.0
Chloroform	Ave	0.4433	0.4563		0.0206	0.0200	2.9	20.0
1,1,1-Trichloroethane	Ave	0.4174	0.4498		0.0216	0.0200	7.8	50.0
Cyclohexane	Ave	0.3819	0.4119		0.0216	0.0200	7.8	50.0
1,1-Dichloropropene	Ave	0.3519	0.3667		0.0208	0.0200	4.2	50.0
Carbon tetrachloride	Ave	0.4023	0.4240		0.0211	0.0200	5.4	50.0
Isobutyl alcohol	Ave	0.0110	0.0112		0.508	0.500	1.6	50.0
1,2-Dichloroethane	Ave	0.3600	0.3604		0.0200	0.0200	0.1	50.0
Benzene	Ave	0.9518	0.9713		0.0204	0.0200	2.1	50.0
n-Heptane	Lin1		0.2300		0.0213	0.0200	6.3	50.0
Trichloroethene	Ave	0.3160	0.3196		0.0202	0.0200	1.1	50.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: ICV 240-342718/14 Calibration Date: 08/27/2018 19:45
 Instrument ID: A3UX19 Calib Start Date: 08/27/2018 17:09
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 08/27/2018 19:23
 Lab File ID: U1901330.d Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Methylcyclohexane	Ave	0.4590	0.4761		0.0207	0.0200	3.7	50.0
1,2-Dichloropropane	Ave	0.2208	0.2306		0.0209	0.0200	4.5	20.0
Dibromomethane	Ave	0.2271	0.2193		0.0193	0.0200	-3.4	50.0
1,4-Dioxane	Lin1		0.0028		0.437	0.400	9.3	50.0
Dichlorobromomethane	Ave	0.3479	0.3495		0.0201	0.0200	0.4	50.0
2-Chloroethyl vinyl ether	Ave	0.1770	0.1822		0.0206	0.0200	2.9	50.0
cis-1,3-Dichloropropene	Ave	0.3865	0.4060		0.0210	0.0200	5.1	50.0
4-Methyl-2-pentanone (MIBK)	Ave	0.3203	0.3230		0.0403	0.0400	0.8	50.0
Toluene	Ave	1.352	1.362		0.0201	0.0200	0.7	20.0
trans-1,3-Dichloropropene	Ave	0.4818	0.4613		0.0191	0.0200	-4.3	50.0
Ethyl methacrylate	Ave	0.4344	0.4432		0.0204	0.0200	2.0	50.0
1,1,2-Trichloroethane	Ave	0.2842	0.2905		0.0204	0.0200	2.2	50.0
Tetrachloroethene	Ave	0.4313	0.4447		0.0206	0.0200	3.1	50.0
1,3-Dichloropropane	Ave	0.4802	0.4738		0.0197	0.0200	-1.3	50.0
2-Hexanone	Ave	0.3149	0.3202		0.0407	0.0400	1.7	50.0
Chlorodibromomethane	Ave	0.3583	0.3632		0.0203	0.0200	1.3	50.0
Ethylene Dibromide	Ave	0.3346	0.3230		0.0193	0.0200	-3.5	50.0
Chlorobenzene	Ave	0.9253	0.9231	0.3000	0.0200	0.0200	-0.2	50.0
1,1,1,2-Tetrachloroethane	Ave	0.3336	0.3465		0.0208	0.0200	3.9	50.0
Ethylbenzene	Ave	0.4836	0.4959		0.0205	0.0200	2.5	20.0
m-Xylene & p-Xylene	Ave	0.5890	0.6110		0.0207	0.0200	3.7	50.0
o-Xylene	Ave	0.5597	0.5768		0.0206	0.0200	3.1	50.0
Styrene	Ave	0.9588	0.9701		0.0202	0.0200	1.2	50.0
Bromoform	Ave	0.2933	0.2923	0.1000	0.0199	0.0200	-0.3	50.0
Isopropylbenzene	Ave	1.503	1.583		0.0211	0.0200	5.3	50.0
1,1,2,2-Tetrachloroethane	Ave	0.7706	0.7768	0.3000	0.0202	0.0200	0.8	50.0
Bromobenzene	Ave	0.7690	0.7545		0.0196	0.0200	-1.9	50.0
1,2,3-Trichloropropane	Ave	0.2921	0.3010		0.0206	0.0200	3.0	50.0
trans-1,4-Dichloro-2-butene	Ave	0.2737	0.2785		0.0203	0.0200	1.7	50.0
N-Propylbenzene	Ave	0.7729	0.7998		0.0207	0.0200	3.5	50.0
2-Chlorotoluene	Ave	0.6541	0.6592		0.0202	0.0200	0.8	50.0
1,3,5-Trimethylbenzene	Ave	2.225	2.303		0.0207	0.0200	3.5	50.0
4-Chlorotoluene	Ave	0.7072	0.7078		0.0200	0.0200	0.0	50.0
tert-Butylbenzene	Ave	2.113	2.203		0.0209	0.0200	4.3	50.0
1,2,4-Trimethylbenzene	Ave	2.256	2.278		0.0202	0.0200	1.0	50.0
sec-Butylbenzene	Ave	2.845	3.009		0.0212	0.0200	5.8	50.0
1,3-Dichlorobenzene	Ave	1.412	1.370		0.0194	0.0200	-3.0	50.0
4-Isopropyltoluene	Ave	2.492	2.628		0.0211	0.0200	5.5	50.0
1,4-Dichlorobenzene	Ave	1.459	1.395		0.0191	0.0200	-4.4	50.0
n-Butylbenzene	Ave	2.050	2.114		0.0206	0.0200	3.1	50.0
1,2-Dichlorobenzene	Ave	1.282	1.257		0.0196	0.0200	-2.0	50.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: ICV 240-342718/14 Calibration Date: 08/27/2018 19:45
 Instrument ID: A3UX19 Calib Start Date: 08/27/2018 17:09
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 08/27/2018 19:23
 Lab File ID: U1901330.d Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,2-Dibromo-3-Chloropropane	Ave	0.2450	0.2412		0.0197	0.0200	-1.6	50.0
1,2,4-Trichlorobenzene	Ave	0.8550	0.8004		0.0187	0.0200	-6.4	50.0
Hexachlorobutadiene	Ave	0.4392	0.4373		0.0199	0.0200	-0.4	50.0
Naphthalene	Ave	2.363	2.262		0.0191	0.0200	-4.3	50.0
1,2,3-Trichlorobenzene	Ave	0.7677	0.7284		0.0190	0.0200	-5.1	50.0
Dibromofluoromethane (Surr)	Ave	0.2692	0.2770		0.0206	0.0200	2.9	50.0
1,2-Dichloroethane-d4 (Surr)	Ave	0.3092	0.3266		0.0211	0.0200	5.6	50.0
Toluene-d8 (Surr)	Ave	1.199	1.238		0.0206	0.0200	3.2	50.0
4-Bromofluorobenzene (Surr)	Ave	0.4513	0.4759		0.0211	0.0200	5.5	50.0

TestAmerica Canton
Target Compound Quantitation Report

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901330.d
 Lims ID: ICV
 Client ID:
 Sample Type: ICV
 Inject. Date: 27-Aug-2018 19:45:31 ALS Bottle#: 0 Worklist Smp#: 14
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info:
 Operator ID: 001904 Instrument ID: A3UX19
 Sublist:
 Method: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\8260_19.m
 Limit Group: MSV 8260B ICAL
 Last Update: 27-Aug-2018 21:12:05 Calib Date: 27-Aug-2018 19:23:28
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901329.d
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: XAWRK010

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.654	5.654	0.000	96	955207	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.500	8.500	0.000	83	765531	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.883	10.883	0.000	87	424750	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr	111	5.049	5.049	0.000	59	264542	20.0	20.6	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	5.357	5.345	0.012	100	311954	20.0	21.1	
\$ 6 Toluene-d8 (Surr)	98	7.100	7.101	0.000	86	947747	20.0	20.6	
\$ 7 4-Bromofluorobenzene (Surr	95	9.674	9.674	0.000	89	364329	20.0	21.1	
9 Dichlorodifluoromethane	85	1.610	1.610	0.000	88	278240	20.0	15.1	
10 Chloromethane	50	1.823	1.812	0.011	78	238040	20.0	17.3	
12 Butadiene	54	1.906	1.906	0.000	87	236605	20.0	17.2	
11 Vinyl chloride	62	1.930	1.918	0.012	82	274549	20.0	19.3	
13 Bromomethane	94	2.227	2.227	0.000	92	208903	20.0	18.7	
14 Chloroethane	64	2.298	2.298	0.000	95	171871	20.0	19.5	
15 Dichlorofluoromethane	67	2.511	2.499	0.012	83	454821	20.0	20.8	
16 Trichlorofluoromethane	101	2.582	2.582	0.000	88	483563	20.0	20.3	
17 Ethyl ether	59	2.808	2.808	0.000	90	184629	20.0	21.5	
18 Acrolein	56	2.926	2.926	0.000	94	172494	100.0	81.2	
21 1,1-Dichloroethene	61	3.045	3.045	0.000	89	371471	20.0	21.7	
20 1,1,2-Trichloro-1,2,2-trif	101	3.057	3.057	0.000	81	272453	20.0	22.2	
22 Acetone	43	3.068	3.069	-0.001	72	139402	40.0	37.2	
23 Iodomethane	142	3.199	3.199	0.000	99	461057	20.0	20.7	
24 Carbon disulfide	76	3.258	3.258	0.000	99	718482	20.0	20.0	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
26 3-Chloro-1-propene	41	3.365	3.365	0.000	74	344875	20.0	20.4	
27 Methyl acetate	43	3.377	3.377	0.000	96	420737	40.0	37.8	
28 Methylene Chloride	49	3.484	3.495	-0.011	55	271908	20.0	20.0	
29 2-Methyl-2-propanol	59	3.578	3.567	0.011	87	269854	200.0	208.6	
30 Acrylonitrile	53	3.697	3.685	0.012	98	973795	200.0	202.8	
32 trans-1,2-Dichloroethene	61	3.733	3.721	0.012	68	339431	20.0	21.0	
31 Methyl tert-butyl ether	73	3.733	3.733	0.000	89	674668	20.0	20.4	
33 Hexane	57	3.982	3.982	0.000	92	369879	20.0	22.0	
34 1,1-Dichloroethane	63	4.112	4.112	0.000	85	398379	20.0	20.6	
35 Vinyl acetate	43	4.148	4.148	0.000	97	485201	20.0	21.9	
40 cis-1,2-Dichloroethene	96	4.634	4.622	0.012	68	273831	20.0	19.8	
41 2-Butanone (MEK)	72	4.634	4.634	0.000	92	88581	40.0	39.3	
39 2,2-Dichloropropane	77	4.634	4.634	0.000	65	257071	20.0	22.1	
45 Chlorobromomethane	49	4.835	4.836	-0.001	70	180641	20.0	19.4	
46 Tetrahydrofuran	42	4.883	4.883	0.000	83	206721	40.0	41.8	
47 Chloroform	83	4.907	4.907	0.000	71	435869	20.0	20.6	
48 1,1,1-Trichloroethane	97	5.084	5.085	-0.001	90	429620	20.0	21.6	
49 Cyclohexane	84	5.144	5.144	0.000	86	393450	20.0	21.6	
50 1,1-Dichloropropene	75	5.227	5.227	0.000	90	350261	20.0	20.8	
51 Carbon tetrachloride	117	5.239	5.239	0.000	70	405050	20.0	21.1	
52 Isobutyl alcohol	41	5.298	5.298	0.000	83	266481	500.0	508.1	
54 1,2-Dichloroethane	62	5.416	5.417	-0.001	50	344294	20.0	20.0	
53 Benzene	78	5.416	5.417	-0.001	94	927804	20.0	20.4	
56 n-Heptane	57	5.642	5.642	0.000	82	219666	20.0	21.3	
58 Trichloroethene	130	5.986	5.986	0.000	92	305241	20.0	20.2	
60 Methylcyclohexane	83	6.175	6.176	-0.001	87	454812	20.0	20.7	
61 1,2-Dichloropropane	63	6.187	6.187	0.000	80	220275	20.0	20.9	
63 Dibromomethane	174	6.294	6.294	0.000	89	209471	20.0	19.3	
64 1,4-Dioxane	88	6.306	6.306	0.000	35	54068	400.0	437.1	
65 Dichlorobromomethane	83	6.436	6.436	0.000	93	333796	20.0	20.1	
67 2-Chloroethyl vinyl ether	63	6.697	6.697	0.000	93	174029	20.0	20.6	
68 cis-1,3-Dichloropropene	75	6.840	6.840	0.000	89	387819	20.0	21.0	
69 4-Methyl-2-pentanone (MIBK)	43	6.982	6.982	0.000	83	617114	40.0	40.3	
70 Toluene	91	7.172	7.172	0.000	94	1042380	20.0	20.1	
71 trans-1,3-Dichloropropene	75	7.361	7.361	0.000	85	353136	20.0	19.1	
72 Ethyl methacrylate	69	7.432	7.433	-0.001	89	339271	20.0	20.4	
74 1,1,2-Trichloroethane	97	7.539	7.539	0.000	86	222400	20.0	20.4	
75 Tetrachloroethene	166	7.693	7.693	0.000	92	340390	20.0	20.6	
76 1,3-Dichloropropane	76	7.705	7.705	0.000	90	362713	20.0	19.7	
77 2-Hexanone	43	7.765	7.765	-0.001	79	490171	40.0	40.7	
79 Chlorodibromomethane	129	7.931	7.919	0.012	88	278002	20.0	20.3	
80 Ethylene Dibromide	107	8.049	8.049	0.000	99	247260	20.0	19.3	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
82 Chlorobenzene	112	8.523	8.524	-0.001	92	706649	20.0	20.0	
83 1,1,1,2-Tetrachloroethane	131	8.606	8.607	-0.001	87	265224	20.0	20.8	
84 Ethylbenzene	106	8.630	8.630	0.000	98	379588	20.0	20.5	
85 m-Xylene & p-Xylene	106	8.749	8.749	0.000	100	467728	20.0	20.7	
86 o-Xylene	106	9.152	9.152	0.000	88	441586	20.0	20.6	
87 Styrene	104	9.164	9.164	0.000	93	742653	20.0	20.2	
88 Bromoform	173	9.354	9.354	0.000	98	223782	20.0	19.9	
89 Isopropylbenzene	105	9.520	9.520	0.000	96	1211475	20.0	21.1	
91 1,1,2,2-Tetrachloroethane	83	9.816	9.816	0.000	88	329964	20.0	20.2	
92 Bromobenzene	156	9.840	9.840	0.000	89	320488	20.0	19.6	
93 1,2,3-Trichloropropane	110	9.863	9.864	-0.001	69	127830	20.0	20.6	
94 trans-1,4-Dichloro-2-buten	53	9.875	9.875	0.000	61	118291	20.0	20.3	
95 N-Propylbenzene	120	9.946	9.947	-0.001	96	339730	20.0	20.7	
96 2-Chlorotoluene	126	10.041	10.041	0.000	97	279994	20.0	20.2	
97 1,3,5-Trimethylbenzene	105	10.124	10.124	0.000	95	978383	20.0	20.7	
98 4-Chlorotoluene	126	10.148	10.148	0.000	98	300639	20.0	20.0	
99 tert-Butylbenzene	119	10.468	10.468	0.000	78	935547	20.0	20.9	
101 1,2,4-Trimethylbenzene	105	10.516	10.516	0.000	71	967584	20.0	20.2	
102 sec-Butylbenzene	105	10.694	10.694	0.000	93	1277861	20.0	21.2	
103 1,3-Dichlorobenzene	146	10.812	10.812	0.000	84	581709	20.0	19.4	
104 4-Isopropyltoluene	119	10.848	10.848	0.000	91	1116328	20.0	21.1	
105 1,4-Dichlorobenzene	146	10.907	10.907	0.000	92	592339	20.0	19.1	
108 n-Butylbenzene	91	11.287	11.287	0.000	97	897771	20.0	20.6	
109 1,2-Dichlorobenzene	146	11.310	11.298	0.012	98	533790	20.0	19.6	
110 1,2-Dibromo-3-Chloropropan	157	12.128	12.129	-0.001	89	102428	20.0	19.7	
112 1,2,4-Trichlorobenzene	180	13.018	13.018	0.000	92	339973	20.0	18.7	
113 Hexachlorobutadiene	225	13.208	13.208	0.000	88	185743	20.0	19.9	
114 Naphthalene	128	13.279	13.279	0.000	96	960764	20.0	19.1	
115 1,2,3-Trichlorobenzene	180	13.540	13.540	0.000	93	309386	20.0	19.0	
S 164 Total BTEX	1				0		100.0	102.4	
S 127 Trihalomethanes, Total	1				0		80.0	80.9	
S 126 Xylenes, Total	106				0		40.0	41.4	

Reagents:

vmfasgw_00271	Amount Added: 16.00	Units: uL	
vmfasaw_00246	Amount Added: 16.00	Units: uL	
vmfaspw_00264	Amount Added: 16.00	Units: uL	
vm50ss_stk_00077	Amount Added: 2.00	Units: uL	Run Reagent
vmDist_H2o_00123	Amount Added: 0.00	Units:	Run Reagent
vm50is_stk_A_00001	Amount Added: 2.00	Units: uL	Run Reagent

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901330.d

Injection Date: 27-Aug-2018 19:45:31

Instrument ID: A3UX19

Operator ID: 001904

Lims ID: ICV

Worklist Smp#: 14

Client ID:

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

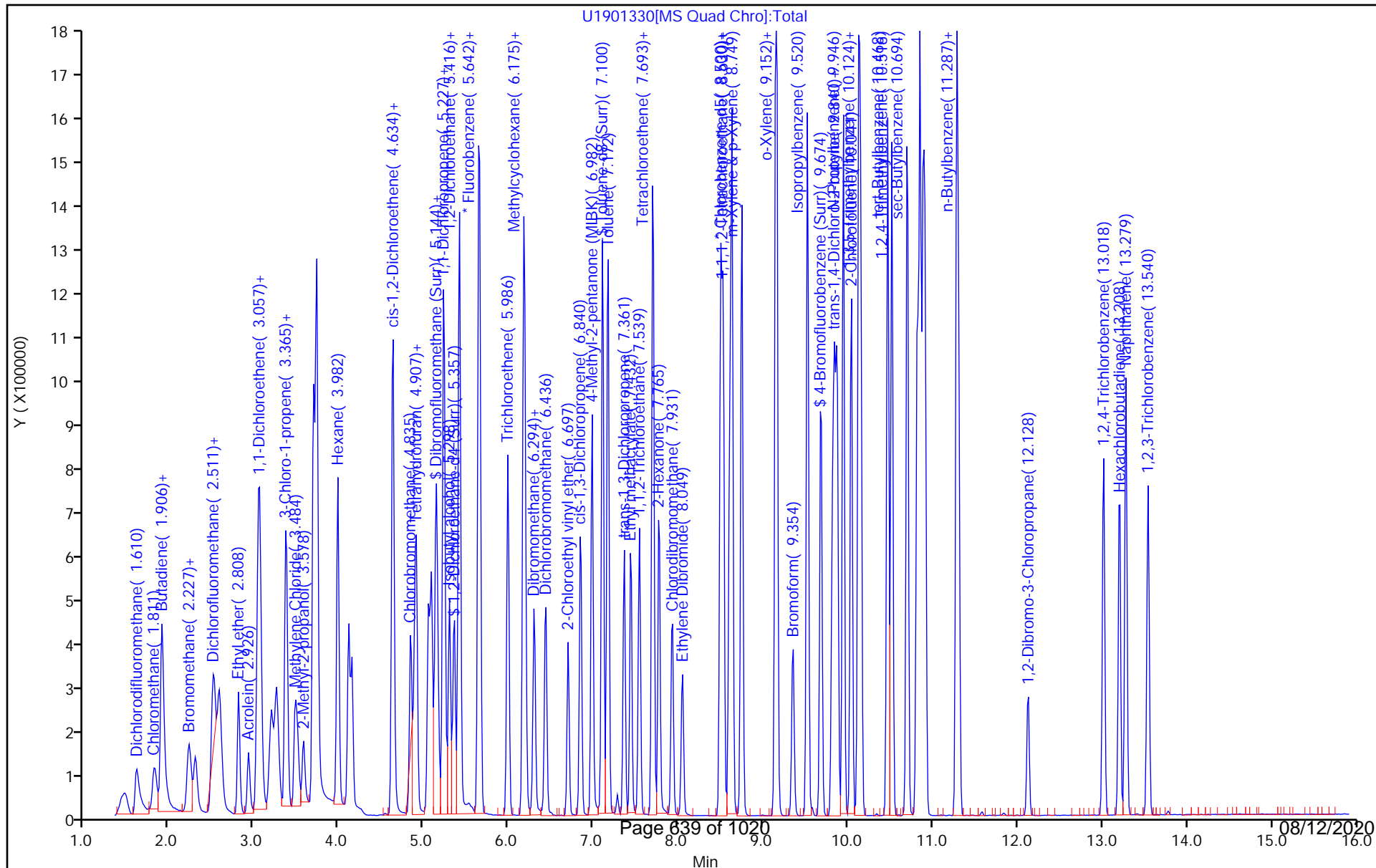
ALS Bottle#: 0

Method: 8260_19

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: CCVIS 240-446008/4 Calibration Date: 08/06/2020 18:08
 Instrument ID: A3UX19 Calib Start Date: 08/27/2018 17:09
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 08/27/2018 19:23
 Lab File ID: U1916160.d Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.3850	0.3137		0.0163	0.0200	-18.5	50.0
Chloromethane	Ave	0.2883	0.2949	0.1000	0.0205	0.0200	2.3	50.0
Vinyl chloride	Ave	0.2980	0.3072		0.0206	0.0200	3.1	20.0
Butadiene	Ave	0.2887	0.2987		0.0207	0.0200	3.5	50.0
Bromomethane	Ave	0.2335	0.2120		0.0182	0.0200	-9.2	50.0
Chloroethane	Ave	0.1848	0.1916		0.0207	0.0200	3.6	50.0
Dichlorofluoromethane	Ave	0.4581	0.4352		0.0190	0.0200	-5.0	50.0
Trichlorofluoromethane	Ave	0.4984	0.4046		0.0162	0.0200	-18.8	50.0
Ethyl ether	Ave	0.1800	0.2087		0.0232	0.0200	15.9	50.0
Acrolein	Ave	0.0445	0.0226		0.0508	0.100	-49.2	50.0
1,1-Dichloroethene	Ave	0.3589	0.3584		0.0200	0.0200	-0.1	20.0
1,1,2-Trichloro-1,2,2-trifluoroethane	Ave	0.2567	0.2607		0.0203	0.0200	1.6	50.0
Acetone	Ave	0.0784	0.1139		0.0581	0.0400	45.2	50.0
Iodomethane	Ave	0.4655	0.4101		0.0176	0.0200	-11.9	50.0
Carbon disulfide	Ave	0.7515	0.7472		0.0199	0.0200	-0.6	50.0
3-Chloro-1-propene	Ave	0.3541	0.3464		0.0196	0.0200	-2.2	50.0
Methyl acetate	Ave	0.2328	0.2626		0.0451	0.0400	12.8	50.0
Methylene Chloride	Ave	0.2846	0.2986		0.0210	0.0200	4.9	50.0
2-Methyl-2-propanol	Ave	0.0271	0.0411		0.303	0.200	51.6*	50.0
Acrylonitrile	Ave	0.1006	0.1362		0.271	0.200	35.5	50.0
Methyl tert-butyl ether	Ave	0.6938	0.6911		0.0199	0.0200	-0.4	50.0
trans-1,2-Dichloroethene	Ave	0.3387	0.3529		0.0208	0.0200	4.2	50.0
Hexane	Ave	0.3524	0.3539		0.0201	0.0200	0.4	20.0
1,1-Dichloroethane	Ave	0.4048	0.4382	0.1000	0.0217	0.0200	8.3	50.0
Vinyl acetate	Ave	0.4639	0.5166		0.0223	0.0200	11.4	50.0
2-Butanone (MEK)	Ave	0.0472	0.0531		0.0449	0.0400	12.3	50.0
cis-1,2-Dichloroethene	Ave	0.2891	0.2803		0.0194	0.0200	-3.0	50.0
2,2-Dichloropropane	Ave	0.2438	0.2707		0.0222	0.0200	11.1	50.0
Chlorobromomethane	Ave	0.1945	0.2041		0.0210	0.0200	4.9	50.0
Tetrahydrofuran	Lin1		0.1148		0.0446	0.0400	11.4	50.0
Chloroform	Ave	0.4433	0.4488		0.0202	0.0200	1.2	20.0
1,1,1-Trichloroethane	Ave	0.4174	0.3791		0.0182	0.0200	-9.2	50.0
Cyclohexane	Ave	0.3819	0.3940		0.0206	0.0200	3.2	50.0
1,1-Dichloropropene	Ave	0.3519	0.3644		0.0207	0.0200	3.6	50.0
Carbon tetrachloride	Ave	0.4023	0.3568		0.0177	0.0200	-11.3	50.0
Isobutyl alcohol	Ave	0.0110	0.0145		0.659	0.500	31.9	50.0
Benzene	Ave	0.9518	1.022		0.0215	0.0200	7.4	50.0
1,2-Dichloroethane	Ave	0.3600	0.3328		0.0185	0.0200	-7.6	50.0
n-Heptane	Lin1		0.1760		0.0155	0.0200	-22.7	50.0
Trichloroethene	Ave	0.3160	0.2856		0.0181	0.0200	-9.6	50.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: CCVIS 240-446008/4 Calibration Date: 08/06/2020 18:08
 Instrument ID: A3UX19 Calib Start Date: 08/27/2018 17:09
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 08/27/2018 19:23
 Lab File ID: U1916160.d Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Methylcyclohexane	Ave	0.4590	0.4219		0.0184	0.0200	-8.1	50.0
1,2-Dichloropropane	Ave	0.2208	0.2356		0.0213	0.0200	6.7	20.0
1,4-Dioxane	Lin1		0.0040		0.616	0.400	54.0*	50.0
Dibromomethane	Ave	0.2271	0.1811		0.0160	0.0200	-20.2	50.0
Dichlorobromomethane	Ave	0.3479	0.3181		0.0183	0.0200	-8.6	50.0
2-Chloroethyl vinyl ether	Ave	0.1770	0.1699		0.0384	0.0400	-4.0	50.0
cis-1,3-Dichloropropene	Ave	0.3865	0.3731		0.0193	0.0200	-3.5	50.0
4-Methyl-2-pentanone (MIBK)	Ave	0.3203	0.3302		0.0412	0.0400	3.1	50.0
Toluene	Ave	1.352	1.481		0.0219	0.0200	9.6	20.0
trans-1,3-Dichloropropene	Ave	0.4818	0.4701		0.0195	0.0200	-2.4	50.0
Ethyl methacrylate	Ave	0.4344	0.4577		0.0211	0.0200	5.3	50.0
1,1,2-Trichloroethane	Ave	0.2842	0.3098		0.0218	0.0200	9.0	50.0
1,3-Dichloropropane	Ave	0.4802	0.5313		0.0221	0.0200	10.6	50.0
Tetrachloroethene	Ave	0.4313	0.3985		0.0185	0.0200	-7.6	50.0
2-Hexanone	Ave	0.3149	0.3439		0.0437	0.0400	9.2	50.0
Chlorodibromomethane	Ave	0.3583	0.3540		0.0198	0.0200	-1.2	50.0
Ethylene Dibromide	Ave	0.3346	0.3273		0.0196	0.0200	-2.2	50.0
Chlorobenzene	Ave	0.9253	0.9378	0.3000	0.0203	0.0200	1.3	50.0
1,1,1,2-Tetrachloroethane	Ave	0.3336	0.3451		0.0207	0.0200	3.4	50.0
Ethylbenzene	Ave	0.4836	0.4965		0.0205	0.0200	2.7	20.0
m-Xylene & p-Xylene	Ave	0.5890	0.6214		0.0211	0.0200	5.5	50.0
o-Xylene	Ave	0.5597	0.5968		0.0213	0.0200	6.6	50.0
Styrene	Ave	0.9588	0.999		0.0208	0.0200	4.2	50.0
Bromoform	Ave	0.2933	0.2576	0.1000	0.0176	0.0200	-12.2	50.0
Isopropylbenzene	Ave	1.503	1.577		0.0210	0.0200	4.9	50.0
1,1,2,2-Tetrachloroethane	Ave	0.7706	0.9308	0.3000	0.0242	0.0200	20.8	50.0
Bromobenzene	Ave	0.7690	0.7246		0.0188	0.0200	-5.8	50.0
1,2,3-Trichloropropane	Ave	0.2921	0.3109		0.0213	0.0200	6.5	50.0
trans-1,4-Dichloro-2-butene	Ave	0.2737	0.2418		0.0177	0.0200	-11.7	50.0
N-Propylbenzene	Ave	0.7729	0.8099		0.0210	0.0200	4.8	50.0
2-Chlorotoluene	Ave	0.6541	0.6873		0.0210	0.0200	5.1	50.0
1,3,5-Trimethylbenzene	Ave	2.225	2.362		0.0212	0.0200	6.1	50.0
4-Chlorotoluene	Ave	0.7072	0.7195		0.0203	0.0200	1.7	50.0
tert-Butylbenzene	Ave	2.113	2.009		0.0190	0.0200	-4.9	50.0
1,2,4-Trimethylbenzene	Ave	2.256	2.401		0.0213	0.0200	6.4	50.0
sec-Butylbenzene	Ave	2.845	2.852		0.0201	0.0200	0.3	50.0
1,3-Dichlorobenzene	Ave	1.412	1.375		0.0195	0.0200	-2.6	50.0
4-Isopropyltoluene	Ave	2.492	2.446		0.0196	0.0200	-1.8	50.0
1,4-Dichlorobenzene	Ave	1.459	1.373		0.0188	0.0200	-5.9	50.0
n-Butylbenzene	Ave	2.050	2.031		0.0198	0.0200	-0.9	50.0
1,2-Dichlorobenzene	Ave	1.282	1.352		0.0211	0.0200	5.4	50.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: CCVIS 240-446008/4 Calibration Date: 08/06/2020 18:08
 Instrument ID: A3UX19 Calib Start Date: 08/27/2018 17:09
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 08/27/2018 19:23
 Lab File ID: U1916160.d Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,2-Dibromo-3-Chloropropane	Ave	0.2450	0.2495		0.0204	0.0200	1.8	50.0
1,2,4-Trichlorobenzene	Ave	0.8550	0.7238		0.0169	0.0200	-15.3	50.0
Hexachlorobutadiene	Ave	0.4392	0.2966		0.0135	0.0200	-32.5	50.0
Naphthalene	Ave	2.363	2.530		0.0214	0.0200	7.1	50.0
1,2,3-Trichlorobenzene	Ave	0.7677	0.7366		0.0192	0.0200	-4.1	50.0
Dibromofluoromethane (Surr)	Ave	0.2692	0.2569		0.0191	0.0200	-4.6	50.0
1,2-Dichloroethane-d4 (Surr)	Ave	0.3092	0.2908		0.0188	0.0200	-5.9	50.0
Toluene-d8 (Surr)	Ave	1.199	1.276		0.0213	0.0200	6.4	50.0
4-Bromofluorobenzene (Surr)	Ave	0.4513	0.4576		0.0203	0.0200	1.4	50.0

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX19\20200806-100740.b\U1916160.d
 Lims ID: CCVIS
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 06-Aug-2020 18:08:24 ALS Bottle#: 0 Worklist Smp#: 4
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100740-004
 Operator ID: 001904 Instrument ID: A3UX19
 Sublist: chrom-8260_19*sub1
 Method: \\chromfs\Canton\ChromData\A3UX19\20200806-100740.b\8260_19.m
 Limit Group: MSV 8260B ICAL
 Last Update: 06-Aug-2020 18:28:12 Calib Date: 09-Jun-2020 21:22:13
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX19\20200609-98977.b\U1914735.d
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1070

First Level Reviewer: laveyt

Date: 06-Aug-2020 18:28:12

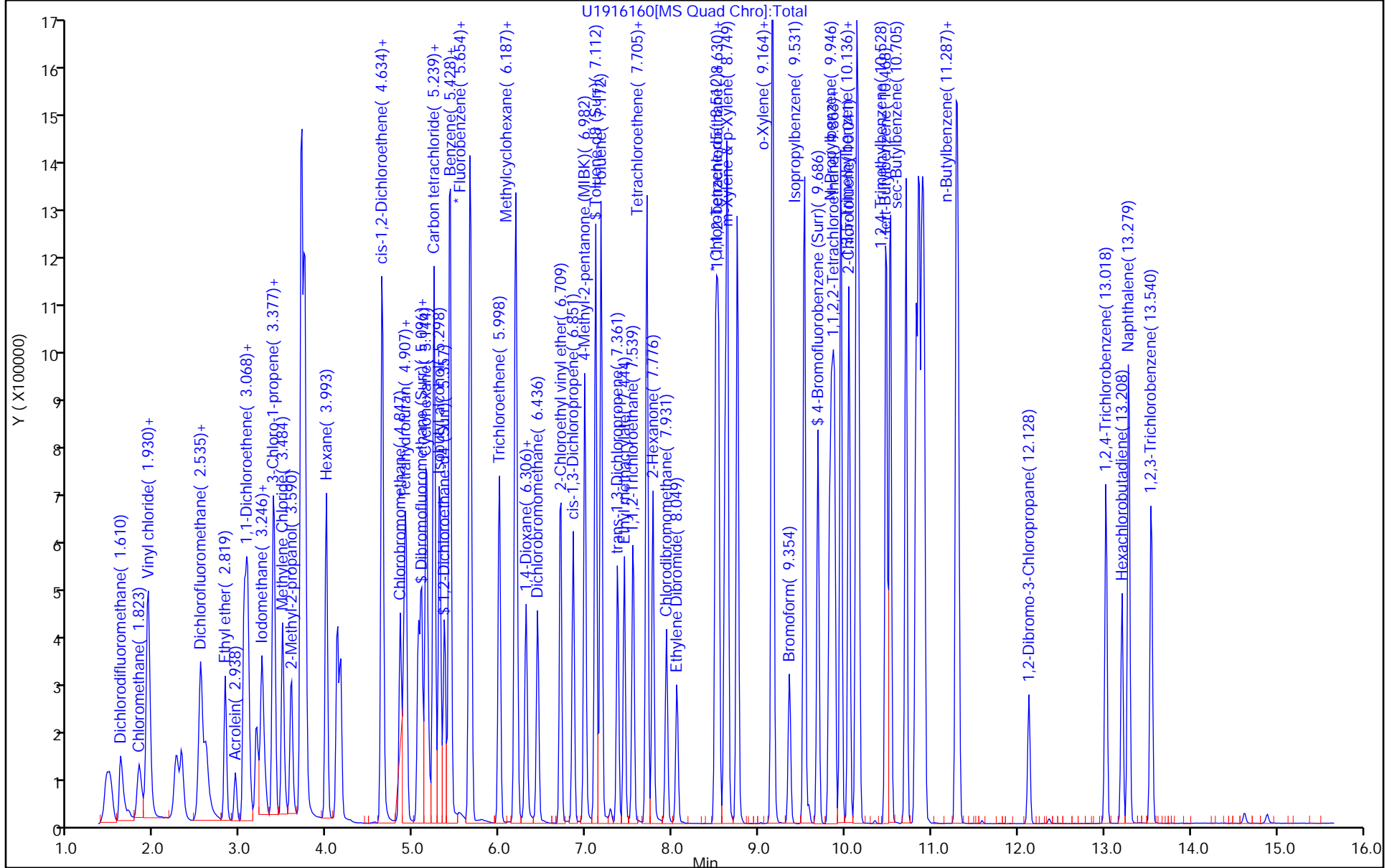
Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.666	5.666	0.000	99	1008282	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.500	8.500	0.000	85	721822	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.883	10.883	0.000	93	392493	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	5.061	5.061	0.000	93	258991	20.0	19.1	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.357	5.357	0.000	98	293248	20.0	18.8	
\$ 6 Toluene-d8 (Surr)	98	7.112	7.112	0.000	93	921295	20.0	21.3	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.686	9.686	0.000	91	330293	20.0	20.3	
9 Dichlorodifluoromethane	85	1.610	1.610	0.000	99	316297	20.0	16.3	
10 Chloromethane	50	1.823	1.823	0.000	99	297312	20.0	20.5	
12 Vinyl chloride	62	1.918	1.918	0.000	97	309699	20.0	20.6	
11 Butadiene	54	1.930	1.930	0.000	89	301149	20.0	20.7	
13 Bromomethane	94	2.262	2.262	0.000	91	213746	20.0	18.2	
15 Chloroethane	64	2.321	2.321	0.000	100	193137	20.0	20.7	
16 Dichlorofluoromethane	67	2.535	2.535	0.000	97	438758	20.0	19.0	
17 Trichlorofluoromethane	101	2.547	2.547	0.000	97	407949	20.0	16.2	
18 Ethyl ether	59	2.819	2.819	0.000	90	210406	20.0	23.2	
19 Acrolein	56	2.938	2.938	0.000	99	113781	100.0	50.8	
20 1,1-Dichloroethene	61	3.033	3.033	0.000	98	361406	20.0	20.0	
21 1,1,2-Trichloro-1,2,2-trifluoro	101	3.068	3.068	0.000	94	262896	20.0	20.3	
22 Acetone	43	3.080	3.080	0.000	100	229617	40.0	58.1	
24 Iodomethane	142	3.187	3.187	0.000	99	413518	20.0	17.6	
25 Carbon disulfide	76	3.246	3.246	0.000	99	753371	20.0	19.9	
27 3-Chloro-1-propene	41	3.377	3.377	0.000	91	349310	20.0	19.6	
28 Methyl acetate	43	3.389	3.389	0.000	97	529640	40.0	45.1	
29 Methylene Chloride	49	3.484	3.484	0.000	89	301047	20.0	21.0	
30 2-Methyl-2-propanol	59	3.590	3.590	0.000	97	413985	200.0	303.2	
31 Acrylonitrile	53	3.709	3.709	0.000	99	1373720	200.0	271.0	
32 trans-1,2-Dichloroethene	61	3.744	3.744	0.000	73	355802	20.0	20.8	
33 Methyl tert-butyl ether	73	3.744	3.744	0.000	94	696842	20.0	19.9	
34 Hexane	57	3.993	3.993	0.000	90	356780	20.0	20.1	
35 1,1-Dichloroethane	63	4.124	4.124	0.000	96	441852	20.0	21.7	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
36 Vinyl acetate	43	4.159	4.159	0.000	97	520856	20.0	22.3	
41 cis-1,2-Dichloroethene	96	4.634	4.634	0.000	81	282611	20.0	19.4	
40 2-Butanone (MEK)	72	4.634	4.634	0.000	97	106996	40.0	44.9	
42 2,2-Dichloropropane	77	4.646	4.646	0.000	86	272956	20.0	22.2	
46 Chlorobromomethane	49	4.847	4.847	0.000	91	205799	20.0	21.0	
47 Tetrahydrofuran	42	4.895	4.895	0.000	85	231566	40.0	44.6	
48 Chloroform	83	4.918	4.918	0.000	93	452490	20.0	20.2	
49 1,1,1-Trichloroethane	97	5.096	5.096	0.000	98	382221	20.0	18.2	
50 Cyclohexane	84	5.156	5.156	0.000	89	397245	20.0	20.6	
51 1,1-Dichloropropene	75	5.239	5.239	0.000	97	367447	20.0	20.7	
52 Carbon tetrachloride	117	5.239	5.239	0.000	97	359789	20.0	17.7	
53 Isobutyl alcohol	41	5.298	5.298	0.000	93	365066	500.0	659.4	
54 Benzene	78	5.416	5.416	0.000	95	1030478	20.0	21.5	
55 1,2-Dichloroethane	62	5.428	5.428	0.000	97	335523	20.0	18.5	
57 n-Heptane	57	5.654	5.654	0.000	81	177492	20.0	15.5	
59 Trichloroethene	130	5.998	5.998	0.000	97	287990	20.0	18.1	
61 Methylcyclohexane	83	6.175	6.175	0.000	91	425400	20.0	18.4	
62 1,2-Dichloropropane	63	6.199	6.199	0.000	96	237556	20.0	21.3	
65 1,4-Dioxane	88	6.306	6.306	0.000	91	80992	400.0	616.2	
64 Dibromomethane	174	6.306	6.306	0.000	94	182602	20.0	16.0	
66 Dichlorobromomethane	83	6.436	6.436	0.000	99	320684	20.0	18.3	
68 2-Chloroethyl vinyl ether	63	6.709	6.709	0.000	92	342666	40.0	38.4	
69 cis-1,3-Dichloropropene	75	6.851	6.851	0.000	96	376203	20.0	19.3	
70 4-Methyl-2-pentanone (MIBK)	43	6.982	6.982	0.000	96	665876	40.0	41.2	
71 Toluene	91	7.172	7.172	0.000	98	1068810	20.0	21.9	
72 trans-1,3-Dichloropropene	75	7.361	7.361	0.000	92	339326	20.0	19.5	
73 Ethyl methacrylate	69	7.444	7.444	0.000	88	330363	20.0	21.1	
74 1,1,2-Trichloroethane	97	7.539	7.539	0.000	91	223581	20.0	21.8	
75 Tetrachloroethene	166	7.705	7.705	0.000	95	287621	20.0	18.5	
76 1,3-Dichloropropane	76	7.705	7.705	0.000	89	383477	20.0	22.1	
77 2-Hexanone	43	7.776	7.776	0.000	95	496532	40.0	43.7	
79 Chlorodibromomethane	129	7.931	7.931	0.000	90	255516	20.0	19.8	
81 Ethylene Dibromide	107	8.049	8.049	0.000	98	236283	20.0	19.6	
83 Chlorobenzene	112	8.535	8.535	0.000	95	676925	20.0	20.3	
84 1,1,1,2-Tetrachloroethane	131	8.606	8.606	0.000	96	249083	20.0	20.7	
85 Ethylbenzene	106	8.642	8.642	0.000	98	358373	20.0	20.5	
86 m-Xylene & p-Xylene	106	8.749	8.749	0.000	100	448504	20.0	21.1	
87 o-Xylene	106	9.152	9.152	0.000	96	430796	20.0	21.3	
88 Styrene	104	9.164	9.164	0.000	93	721041	20.0	20.8	
89 Bromoform	173	9.354	9.354	0.000	97	185902	20.0	17.6	
90 Isopropylbenzene	105	9.531	9.531	0.000	96	1137953	20.0	21.0	
93 1,1,2,2-Tetrachloroethane	83	9.816	9.816	0.000	94	365345	20.0	24.2	
95 Bromobenzene	156	9.852	9.852	0.000	93	284412	20.0	18.8	
96 1,2,3-Trichloropropane	110	9.875	9.875	0.000	84	122037	20.0	21.3	
97 trans-1,4-Dichloro-2-butene	53	9.875	9.875	0.000	75	94899	20.0	17.7	
98 N-Propylbenzene	120	9.946	9.946	0.000	99	317890	20.0	21.0	
100 2-Chlorotoluene	126	10.041	10.041	0.000	96	269762	20.0	21.0	
101 1,3,5-Trimethylbenzene	105	10.136	10.136	0.000	95	927180	20.0	21.2	
102 4-Chlorotoluene	126	10.160	10.160	0.000	99	282412	20.0	20.3	
103 tert-Butylbenzene	119	10.480	10.480	0.000	91	788593	20.0	19.0	
105 1,2,4-Trimethylbenzene	105	10.528	10.528	0.000	96	942239	20.0	21.3	
106 sec-Butylbenzene	105	10.705	10.705	0.000	94	1119463	20.0	20.1	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
107 1,3-Dichlorobenzene	146	10.824	10.824	0.000	98	539656	20.0	19.5	
108 4-Isopropyltoluene	119	10.860	10.860	0.000	97	959928	20.0	19.6	
109 1,4-Dichlorobenzene	146	10.919	10.919	0.000	96	538956	20.0	18.8	
112 n-Butylbenzene	91	11.287	11.287	0.000	98	797307	20.0	19.8	
113 1,2-Dichlorobenzene	146	11.310	11.310	0.000	98	530492	20.0	21.1	
114 1,2-Dibromo-3-Chloropropane	157	12.128	12.128	0.000	88	97922	20.0	20.4	
116 1,2,4-Trichlorobenzene	180	13.018	13.018	0.000	94	284093	20.0	16.9	
117 Hexachlorobutadiene	225	13.208	13.208	0.000	97	116406	20.0	13.5	
118 Naphthalene	128	13.279	13.279	0.000	97	992956	20.0	21.4	
119 1,2,3-Trichlorobenzene	180	13.540	13.540	0.000	96	289093	20.0	19.2	
S 125 Trihalomethanes, Total	1				0		80.0	75.9	
S 124 Total BTEX	1				0		100.0	106.3	
S 128 Xylenes, Total	106				0		40.0	42.4	

Reagents:

vmarolistdw_00355	Amount Added: 16.00	Units: uL	
vmrprimw_00397	Amount Added: 16.00	Units: uL	
vmrgas_00349	Amount Added: 16.00	Units: uL	
vm50ss_stk_00085	Amount Added: 2.00	Units: uL	Run Reagent
vmDist_H2o_00177	Amount Added: 0.00	Units:	Run Reagent
vm40ml_vials_00015	Amount Added: 0.00	Units:	Run Reagent
vm50is_stk_A_00006	Amount Added: 2.00	Units: uL	Run Reagent



FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: ICV 240-440459/15 Calibration Date: 06/29/2020 12:59
 Instrument ID: A3UX9 Calib Start Date: 06/29/2020 10:22
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 06/29/2020 12:37
 Lab File ID: UX988363.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.2257	0.2789		0.0247	0.0200	23.6	50.0
Chloromethane	Ave	0.3471	0.3858	0.1000	0.0222	0.0200	11.2	50.0
Butadiene	Ave	0.3061	0.3605		0.0235	0.0200	17.7	50.0
Vinyl chloride	Ave	0.3141	0.3621		0.0231	0.0200	15.3	20.0
Bromomethane	Ave	0.2449	0.2446		0.0200	0.0200	-0.1	50.0
Chloroethane	Ave	0.2529	0.2602		0.0206	0.0200	2.9	50.0
Dichlorofluoromethane	Ave	0.5911	0.5754		0.0195	0.0200	-2.7	50.0
Trichlorofluoromethane	Ave	0.4035	0.4438		0.0220	0.0200	10.0	50.0
Ethyl ether	Ave	0.3039	0.2764		0.0182	0.0200	-9.1	50.0
Acrolein	Lin1		0.0353		0.0695	0.100	-30.5	50.0
1,1-Dichloroethene	Ave	0.4132	0.4252		0.0206	0.0200	2.9	20.0
1,1,2-Trichloro-1,2,2-trifluoroethane	Ave	0.2071	0.2149		0.0207	0.0200	3.7	50.0
Acetone	Lin1		0.0337		0.0371	0.0400	-7.2	50.0
Iodomethane	Ave	0.4140	0.4165		0.0201	0.0200	0.6	50.0
Carbon disulfide	Ave	0.8251	0.8880		0.0215	0.0200	7.6	50.0
3-Chloro-1-propene	Ave	0.5359	0.5131		0.0191	0.0200	-4.3	50.0
Methyl acetate	Ave	0.3881	0.3587		0.0370	0.0400	-7.6	50.0
Methylene Chloride	Ave	0.4228	0.4264		0.0202	0.0200	0.8	50.0
2-Methyl-2-propanol	Ave	0.0399	0.0390		0.195	0.200	-2.3	50.0
Acrylonitrile	Ave	0.1724	0.1676		0.194	0.200	-2.8	50.0
trans-1,2-Dichloroethene	Ave	0.4206	0.4267		0.0203	0.0200	1.5	50.0
Methyl tert-butyl ether	Ave	0.9418	0.9130		0.0194	0.0200	-3.1	50.0
Hexane	Ave	0.3114	0.3172		0.0204	0.0200	1.9	20.0
1,1-Dichloroethane	Ave	0.5578	0.5331	0.1000	0.0191	0.0200	-4.4	50.0
Vinyl acetate	Ave	0.6466	0.6805		0.0210	0.0200	5.2	50.0
2-Butanone (MEK)	Ave	0.0591	0.0547		0.0370	0.0400	-7.5	50.0
cis-1,2-Dichloroethene	Ave	0.3388	0.3193		0.0188	0.0200	-5.8	50.0
2,2-Dichloropropane	Ave	0.3566	0.3456		0.0194	0.0200	-3.1	50.0
Chlorobromomethane	Ave	0.3089	0.2947		0.0191	0.0200	-4.6	50.0
Tetrahydrofuran	Ave	0.1700	0.1573		0.0370	0.0400	-7.5	50.0
Chloroform	Ave	0.5324	0.4999		0.0188	0.0200	-6.1	20.0
1,1,1-Trichloroethane	Ave	0.4465	0.4334		0.0194	0.0200	-2.9	50.0
Cyclohexane	Ave	0.3776	0.3899		0.0207	0.0200	3.3	50.0
1,1-Dichloropropene	Ave	0.4138	0.4021		0.0194	0.0200	-2.8	50.0
Carbon tetrachloride	Ave	0.3766	0.3740		0.0199	0.0200	-0.7	50.0
Isobutyl alcohol	Ave	0.0155	0.0154		0.497	0.500	-0.6	50.0
1,2-Dichloroethane	Ave	0.4406	0.4229		0.0192	0.0200	-4.0	50.0
Benzene	Ave	1.213	1.173		0.0193	0.0200	-3.3	50.0
n-Heptane	Lin1		0.1527		0.0213	0.0200	6.7	50.0
Trichloroethene	Ave	0.3175	0.3056		0.0192	0.0200	-3.8	50.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: ICV 240-440459/15 Calibration Date: 06/29/2020 12:59
 Instrument ID: A3UX9 Calib Start Date: 06/29/2020 10:22
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 06/29/2020 12:37
 Lab File ID: UX988363.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,2-Dichloropropane	Ave	0.3066	0.2950		0.0192	0.0200	-3.8	20.0
Methylcyclohexane	Ave	0.3366	0.3340		0.0198	0.0200	-0.8	50.0
Dibromomethane	Ave	0.2149	0.2130		0.0198	0.0200	-0.9	50.0
1,4-Dioxane	Qua		0.0024		0.270	0.400	-32.5	50.0
Dichlorobromomethane	Ave	0.4120	0.3934		0.0191	0.0200	-4.5	50.0
2-Chloroethyl vinyl ether	Ave	0.2286	0.2238		0.0196	0.0200	-2.1	50.0
cis-1,3-Dichloropropene	Ave	0.5115	0.4878		0.0191	0.0200	-4.6	50.0
4-Methyl-2-pentanone (MIBK)	Ave	0.5138	0.4763		0.0371	0.0400	-7.3	50.0
Toluene	Ave	1.629	1.546		0.0190	0.0200	-5.1	20.0
trans-1,3-Dichloropropene	Ave	0.6463	0.5887		0.0182	0.0200	-8.9	50.0
Ethyl methacrylate	Ave	0.6464	0.5952		0.0184	0.0200	-7.9	50.0
1,1,2-Trichloroethane	Ave	0.3539	0.3375		0.0191	0.0200	-4.6	50.0
1,3-Dichloropropane	Ave	0.6415	0.6188		0.0193	0.0200	-3.5	50.0
Tetrachloroethene	Ave	0.3812	0.3849		0.0202	0.0200	1.0	50.0
2-Hexanone	Ave	0.4816	0.4498		0.0374	0.0400	-6.6	50.0
Chlorodibromomethane	Ave	0.4145	0.3861		0.0186	0.0200	-6.8	50.0
Ethylene Dibromide	Ave	0.3883	0.3522		0.0181	0.0200	-9.3	50.0
Chlorobenzene	Ave	1.011	0.9775	0.3000	0.0193	0.0200	-3.3	50.0
1,1,1,2-Tetrachloroethane	Ave	0.3857	0.3756		0.0195	0.0200	-2.6	50.0
Ethylbenzene	Ave	0.5406	0.5313		0.0197	0.0200	-1.7	20.0
m-Xylene & p-Xylene	Ave	0.6671	0.6673		0.0200	0.0200	0.0	50.0
o-Xylene	Ave	0.6875	0.6676		0.0194	0.0200	-2.9	50.0
Styrene	Ave	1.144	1.115		0.0195	0.0200	-2.5	50.0
Bromoform	Ave	0.3014	0.3094	0.1000	0.0205	0.0200	2.6	50.0
Isopropylbenzene	Ave	1.590	1.571		0.0198	0.0200	-1.2	50.0
1,1,2,2-Tetrachloroethane	Ave	1.014	0.9427	0.3000	0.0186	0.0200	-7.0	50.0
Bromobenzene	Ave	0.8058	0.7856		0.0195	0.0200	-2.5	50.0
1,2,3-Trichloropropane	Ave	0.3550	0.3441		0.0194	0.0200	-3.0	50.0
trans-1,4-Dichloro-2-butene	Ave	0.3772	0.3747		0.0199	0.0200	-0.7	50.0
N-Propylbenzene	Ave	0.7771	0.7306		0.0188	0.0200	-6.0	50.0
2-Chlorotoluene	Ave	0.7122	0.7013		0.0197	0.0200	-1.5	50.0
1,3,5-Trimethylbenzene	Ave	2.218	2.167		0.0195	0.0200	-2.3	50.0
4-Chlorotoluene	Ave	0.7543	0.7103		0.0188	0.0200	-5.8	50.0
tert-Butylbenzene	Ave	1.968	1.942		0.0197	0.0200	-1.4	50.0
1,2,4-Trimethylbenzene	Ave	2.360	2.297		0.0195	0.0200	-2.7	50.0
sec-Butylbenzene	Ave	0.5399	0.5523		0.0205	0.0200	2.3	50.0
1,3-Dichlorobenzene	Ave	1.431	1.389		0.0194	0.0200	-3.0	50.0
4-Isopropyltoluene	Ave	2.170	2.166		0.0200	0.0200	-0.2	50.0
1,4-Dichlorobenzene	Ave	1.493	1.455		0.0195	0.0200	-2.6	50.0
n-Butylbenzene	Ave	1.807	1.754		0.0194	0.0200	-2.9	50.0
1,2-Dichlorobenzene	Ave	1.431	1.363		0.0191	0.0200	-4.7	50.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: ICV 240-440459/15 Calibration Date: 06/29/2020 12:59
 Instrument ID: A3UX9 Calib Start Date: 06/29/2020 10:22
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 06/29/2020 12:37
 Lab File ID: UX988363.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,2-Dibromo-3-Chloropropane	Ave	0.2853	0.2622		0.0184	0.0200	-8.1	50.0
1,2,4-Trichlorobenzene	Ave	0.7549	0.7477		0.0198	0.0200	-0.9	50.0
Hexachlorobutadiene	Ave	0.2722	0.2907		0.0214	0.0200	6.8	50.0
Naphthalene	Ave	2.663	2.568		0.0193	0.0200	-3.6	50.0
1,2,3-Trichlorobenzene	Ave	0.7094	0.6854		0.0193	0.0200	-3.4	50.0

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988363.D
 Lims ID: ICV
 Client ID:
 Sample Type: ICV
 Inject. Date: 29-Jun-2020 12:59:30 ALS Bottle#: 15 Worklist Smp#: 15
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0099598-015
 Operator ID: 001765 Instrument ID: A3UX9
 Sublist:
 Method: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Jul-2020 12:42:37 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1033

First Level Reviewer: bosworthh

Date: 01-Jul-2020 07:52:10

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.866	5.868	-0.002	97	1192236	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.576	8.566	0.010	87	889467	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.812	10.815	-0.003	93	499905	20.0	20.0	
9 Dichlorodifluoromethane	85	1.784	1.786	-0.002	99	332505	20.0	24.7	
10 Chloromethane	50	2.008	2.011	-0.003	100	459976	20.0	22.2	
12 Butadiene	54	2.115	2.117	-0.002	96	429740	20.0	23.5	
11 Vinyl chloride	62	2.139	2.129	0.010	99	431739	20.0	23.1	
13 Bromomethane	94	2.458	2.449	0.009	92	291565	20.0	20.0	
15 Chloroethane	64	2.541	2.543	-0.002	99	310223	20.0	20.6	
16 Dichlorofluoromethane	67	2.754	2.745	0.009	99	686053	20.0	19.5	
17 Trichlorofluoromethane	101	2.813	2.816	-0.003	98	529112	20.0	22.0	
18 Ethyl ether	59	3.073	3.064	0.009	93	329482	20.0	18.2	
21 Acrolein	56	3.192	3.182	0.010	99	210406	100.0	69.5	
24 1,1-Dichloroethene	61	3.298	3.289	0.009	97	506939	20.0	20.6	
22 1,1,2-Trichloro-1,2,2-trifluoroethane	101	3.322	3.324	-0.002	94	256147	20.0	20.7	
23 Acetone	58	3.334	3.336	-0.002	99	80412	40.0	37.1	
25 Iodomethane	142	3.440	3.443	-0.003	100	496521	20.0	20.1	
26 Carbon disulfide	76	3.511	3.514	-0.003	100	1058693	20.0	21.5	
28 3-Chloro-1-propene	41	3.630	3.632	-0.002	88	611719	20.0	19.1	
29 Methyl acetate	43	3.641	3.644	-0.003	98	855226	40.0	37.0	
30 Methylene Chloride	49	3.736	3.739	-0.003	96	508320	20.0	20.2	
31 2-Methyl-2-propanol	59	3.831	3.833	-0.002	99	464935	200.0	195.5	
32 Acrylonitrile	53	3.949	3.952	-0.003	99	1998455	200.0	194.5	
34 trans-1,2-Dichloroethene	61	3.996	3.999	-0.003	96	508741	20.0	20.3	
33 Methyl tert-butyl ether	73	4.008	3.999	0.009	97	1088546	20.0	19.4	
35 Hexane	57	4.245	4.247	-0.002	95	378127	20.0	20.4	
36 1,1-Dichloroethane	63	4.363	4.366	-0.003	97	635579	20.0	19.1	
37 Vinyl acetate	43	4.399	4.401	-0.002	98	811327	20.0	21.0	
43 cis-1,2-Dichloroethene	96	4.872	4.874	-0.002	87	380670	20.0	18.8	
41 2-Butanone (MEK)	72	4.872	4.874	-0.002	95	130419	40.0	37.0	
42 2,2-Dichloropropane	77	4.884	4.886	-0.002	90	412045	20.0	19.4	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
47 Chlorobromomethane	49	5.073	5.076	-0.003	96	351361	20.0	19.1	
48 Tetrahydrofuran	42	5.132	5.135	-0.003	89	375098	40.0	37.0	
49 Chloroform	83	5.144	5.135	0.009	98	595996	20.0	18.8	
50 1,1,1-Trichloroethane	97	5.322	5.324	-0.002	98	516727	20.0	19.4	
51 Cyclohexane	84	5.381	5.383	-0.002	93	464851	20.0	20.7	
52 1,1-Dichloropropene	75	5.464	5.454	0.010	94	479351	20.0	19.4	
53 Carbon tetrachloride	117	5.475	5.466	0.009	97	445850	20.0	19.9	
54 Isobutyl alcohol	41	5.511	5.502	0.009	92	460146	500.0	497.1	
56 1,2-Dichloroethane	62	5.641	5.644	-0.003	61	504243	20.0	19.2	
55 Benzene	78	5.641	5.644	-0.003	97	1398420	20.0	19.3	
58 n-Heptane	71	5.854	5.857	-0.003	93	182062	20.0	21.3	
60 Trichloroethene	130	6.185	6.188	-0.003	95	364283	20.0	19.2	
62 Methylcyclohexane	83	6.375	6.365	0.010	94	398186	20.0	19.8	
63 1,2-Dichloropropane	63	6.375	6.377	-0.002	92	351735	20.0	19.2	
65 1,4-Dioxane	88	6.493	6.484	0.009	93	57245	400.0	270.0	
66 Dibromomethane	174	6.481	6.484	-0.003	92	253914	20.0	19.8	
67 Dichlorobromomethane	83	6.600	6.602	-0.002	98	469053	20.0	19.1	
69 2-Chloroethyl vinyl ether	63	6.848	6.851	-0.003	94	266762	20.0	19.6	
71 cis-1,3-Dichloropropene	75	7.002	6.993	0.009	92	581588	20.0	19.1	
72 4-Methyl-2-pentanone (MIBK)	43	7.120	7.123	-0.003	98	1135658	40.0	37.1	
73 Toluene	91	7.310	7.312	-0.002	98	1374692	20.0	19.0	
74 trans-1,3-Dichloropropene	75	7.475	7.478	-0.003	98	523653	20.0	18.2	
75 Ethyl methacrylate	69	7.546	7.549	-0.003	91	529426	20.0	18.4	
76 1,1,2-Trichloroethane	97	7.653	7.655	-0.002	94	300209	20.0	19.1	
77 1,3-Dichloropropane	76	7.806	7.809	-0.003	93	550372	20.0	19.3	
78 Tetrachloroethene	166	7.818	7.821	-0.003	81	342348	20.0	20.2	
80 2-Hexanone	43	7.866	7.868	-0.002	98	800110	40.0	37.4	
82 Chlorodibromomethane	129	8.019	8.022	-0.003	91	343416	20.0	18.6	
83 Ethylene Dibromide	107	8.150	8.140	0.010	99	313295	20.0	18.1	
85 Chlorobenzene	112	8.599	8.602	-0.003	93	869480	20.0	19.3	
86 1,1,1,2-Tetrachloroethane	131	8.670	8.661	0.009	94	334035	20.0	19.5	
87 Ethylbenzene	106	8.694	8.696	-0.002	98	472572	20.0	19.7	
88 m-Xylene & p-Xylene	106	8.800	8.803	-0.003	98	593500	20.0	20.0	
89 o-Xylene	106	9.179	9.182	-0.003	97	593815	20.0	19.4	
90 Styrene	104	9.191	9.193	-0.002	93	991524	20.0	19.5	
91 Bromoform	173	9.368	9.371	-0.003	95	275186	20.0	20.5	
92 Isopropylbenzene	105	9.534	9.525	0.009	96	1397503	20.0	19.8	
94 1,1,2,2-Tetrachloroethane	83	9.794	9.797	-0.003	96	471258	20.0	18.6	
96 trans-1,4-Dichloro-2-butene	53	9.854	9.844	0.010	74	187298	20.0	19.9	
95 Bromobenzene	156	9.842	9.844	-0.002	97	392722	20.0	19.5	
97 1,2,3-Trichloropropane	110	9.854	9.844	0.010	84	172035	20.0	19.4	
98 N-Propylbenzene	120	9.925	9.927	-0.002	99	365236	20.0	18.8	
100 2-Chlorotoluene	126	10.019	10.022	-0.003	96	350563	20.0	19.7	
101 1,3,5-Trimethylbenzene	105	10.090	10.093	-0.003	95	1083388	20.0	19.5	
102 4-Chlorotoluene	126	10.126	10.128	-0.002	98	355072	20.0	18.8	
104 tert-Butylbenzene	119	10.422	10.424	-0.002	92	970576	20.0	19.7	
106 1,2,4-Trimethylbenzene	105	10.469	10.460	0.009	97	1148257	20.0	19.5	
107 sec-Butylbenzene	134	10.635	10.637	-0.002	94	276084	20.0	20.5	
108 1,3-Dichlorobenzene	146	10.753	10.755	-0.002	98	694167	20.0	19.4	
109 4-Isopropyltoluene	119	10.777	10.779	-0.002	97	1082897	20.0	20.0	
110 1,4-Dichlorobenzene	146	10.836	10.838	-0.002	96	727143	20.0	19.5	
113 n-Butylbenzene	91	11.179	11.181	-0.002	97	876714	20.0	19.4	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
114 1,2-Dichlorobenzene	146	11.214	11.217	-0.003	98	681341	20.0	19.1	
115 1,2-Dibromo-3-Chloropropane	157	11.983	11.986	-0.003	83	131084	20.0	18.4	
117 1,2,4-Trichlorobenzene	180	12.824	12.826	-0.002	93	373794	20.0	19.8	
118 Hexachlorobutadiene	225	13.001	13.004	-0.003	96	145305	20.0	21.4	
119 Naphthalene	128	13.084	13.086	-0.002	98	1283808	20.0	19.3	
120 1,2,3-Trichlorobenzene	180	13.356	13.359	-0.003	94	342611	20.0	19.3	
S 158 Total BTEX	1				0		100.0	97.4	
S 130 Trihalomethanes, Total	83				0		80.0	77.0	
S 131 Xylenes, Total	106				0		40.0	39.4	

Reagents:

vmfasgw_00365	Amount Added: 16.00	Units: uL
VMFASAW_00333	Amount Added: 16.00	Units: uL
vmfaspw_00356	Amount Added: 16.00	Units: uL
vm100is_stk_A_00005	Amount Added: 1.00	Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988363.D

Injection Date: 29-Jun-2020 12:59:30

Instrument ID: A3UX9

Operator ID: 001765

Lims ID: ICV

Worklist Smp#: 15

Client ID:

Purge Vol: 5.000 mL

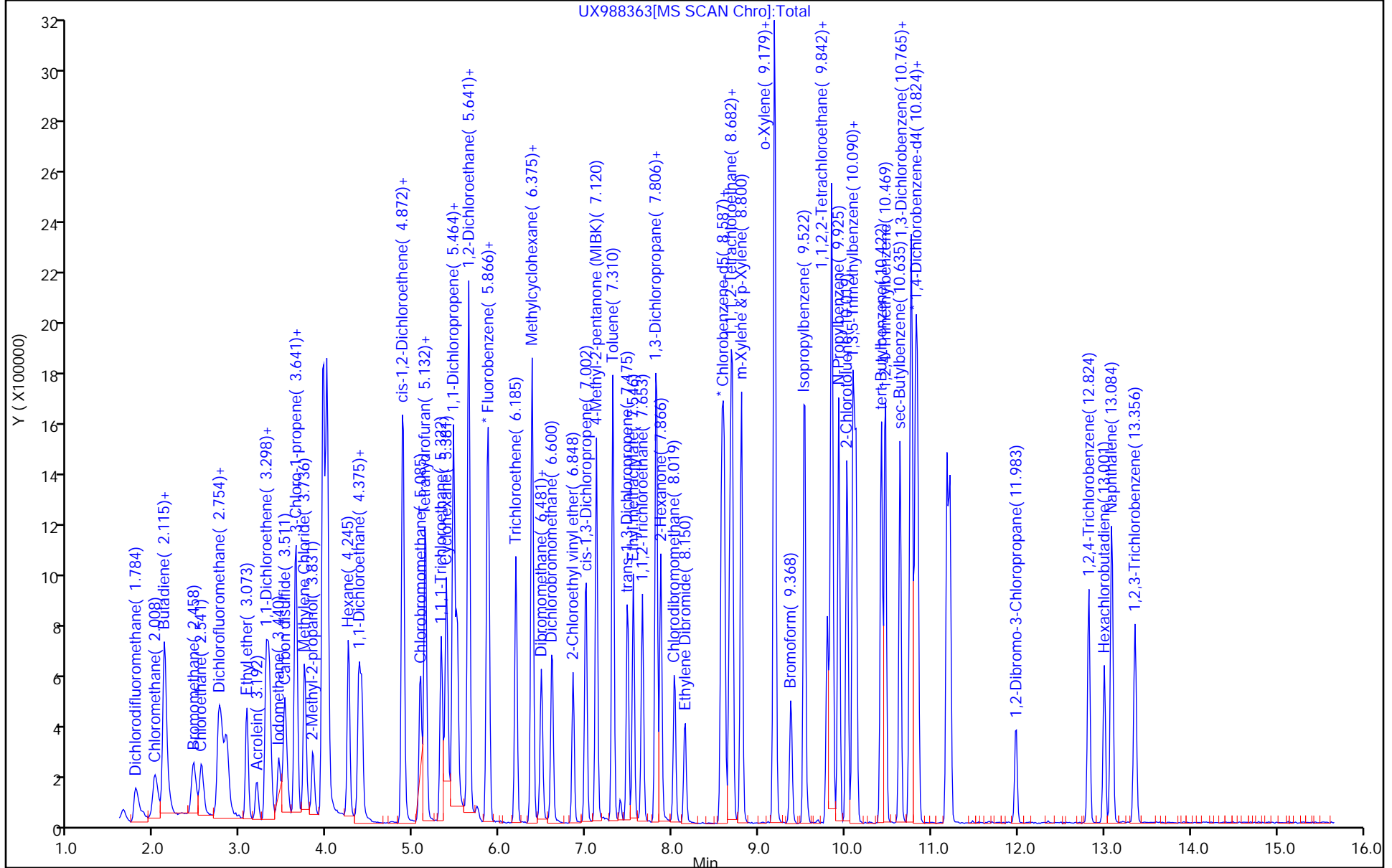
Dil. Factor: 1.0000

ALS Bottle#: 15

Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: CCVIS 240-445537/3 Calibration Date: 08/04/2020 10:03
 Instrument ID: A3UX9 Calib Start Date: 06/29/2020 10:22
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 06/29/2020 12:37
 Lab File ID: UX989074.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.2257	0.3523		0.0312	0.0200	56.1*	50.0
Chloromethane	Ave	0.3471	0.3875	0.1000	0.0223	0.0200	11.6	50.0
Vinyl chloride	Ave	0.3141	0.3681		0.0234	0.0200	17.2	20.0
Butadiene	Ave	0.3061	0.3515		0.0230	0.0200	14.8	50.0
Bromomethane	Ave	0.2449	0.2742		0.0224	0.0200	12.0	50.0
Chloroethane	Ave	0.2529	0.2627		0.0208	0.0200	3.9	50.0
Dichlorofluoromethane	Ave	0.5911	0.5529		0.0187	0.0200	-6.5	50.0
Trichlorofluoromethane	Ave	0.4035	0.4925		0.0244	0.0200	22.1	50.0
Ethyl ether	Ave	0.3039	0.2668		0.0176	0.0200	-12.2	50.0
Acrolein	Lin1		0.0340		0.0668	0.100	-33.2	50.0
1,1-Dichloroethene	Ave	0.4132	0.3976		0.0192	0.0200	-3.8	20.0
1,1,2-Trichloro-1,2,2-trifluoroethane	Ave	0.2071	0.2442		0.0236	0.0200	17.9	50.0
Acetone	Lin1		0.0297		0.0324	0.0400	-19.0	50.0
Iodomethane	Ave	0.4140	0.4917		0.0238	0.0200	18.8	50.0
Carbon disulfide	Ave	0.8251	0.8127		0.0197	0.0200	-1.5	50.0
3-Chloro-1-propene	Ave	0.5359	0.4952		0.0185	0.0200	-7.6	50.0
Methyl acetate	Ave	0.3881	0.3198		0.0330	0.0400	-17.6	50.0
Methylene Chloride	Ave	0.4228	0.3783		0.0179	0.0200	-10.5	50.0
2-Methyl-2-propanol	Ave	0.0399	0.0317		0.159	0.200	-20.6	50.0
Acrylonitrile	Ave	0.1724	0.1458		0.169	0.200	-15.4	50.0
Methyl tert-butyl ether	Ave	0.9418	0.9587		0.0204	0.0200	1.8	50.0
trans-1,2-Dichloroethene	Ave	0.4206	0.4045		0.0192	0.0200	-3.8	50.0
Hexane	Ave	0.3114	0.2868		0.0184	0.0200	-7.9	20.0
1,1-Dichloroethane	Ave	0.5578	0.5137	0.1000	0.0184	0.0200	-7.9	50.0
Vinyl acetate	Ave	0.6466	0.8082		0.0250	0.0200	25.0	50.0
2-Butanone (MEK)	Ave	0.0591	0.0529		0.0358	0.0400	-10.6	50.0
cis-1,2-Dichloroethene	Ave	0.3388	0.3305		0.0195	0.0200	-2.4	50.0
2,2-Dichloropropane	Ave	0.3566	0.3468		0.0194	0.0200	-2.8	50.0
Chlorobromomethane	Ave	0.3089	0.2747		0.0178	0.0200	-11.1	50.0
Tetrahydrofuran	Ave	0.1700	0.1421		0.0334	0.0400	-16.4	50.0
Chloroform	Ave	0.5324	0.5104		0.0192	0.0200	-4.1	20.0
1,1,1-Trichloroethane	Ave	0.4465	0.4563		0.0204	0.0200	2.2	50.0
Cyclohexane	Ave	0.3776	0.3924		0.0208	0.0200	3.9	50.0
1,1-Dichloropropene	Ave	0.4138	0.4075		0.0197	0.0200	-1.5	50.0
Carbon tetrachloride	Ave	0.3766	0.3935		0.0209	0.0200	4.5	50.0
Isobutyl alcohol	Ave	0.0155	0.0139		0.448	0.500	-10.3	50.0
1,2-Dichloroethane	Ave	0.4406	0.4329		0.0196	0.0200	-1.8	50.0
Benzene	Ave	1.213	1.210		0.0199	0.0200	-0.3	50.0
n-Heptane	Lin1		0.1423		0.0198	0.0200	-1.1	50.0
Trichloroethene	Ave	0.3175	0.3455		0.0218	0.0200	8.8	50.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: CCVIS 240-445537/3 Calibration Date: 08/04/2020 10:03
 Instrument ID: A3UX9 Calib Start Date: 06/29/2020 10:22
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 06/29/2020 12:37
 Lab File ID: UX989074.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,2-Dichloropropane	Ave	0.3066	0.2776		0.0181	0.0200	-9.5	20.0
Methylcyclohexane	Ave	0.3366	0.3421		0.0203	0.0200	1.6	50.0
1,4-Dioxane	Qua		0.0032		0.357	0.400	-10.9	50.0
Dibromomethane	Ave	0.2149	0.2538		0.0236	0.0200	18.1	50.0
Dichlorobromomethane	Ave	0.4120	0.3919		0.0190	0.0200	-4.9	50.0
2-Chloroethyl vinyl ether	Ave	0.2286	0.2251		0.0394	0.0400	-1.6	50.0
cis-1,3-Dichloropropene	Ave	0.5115	0.4999		0.0195	0.0200	-2.3	50.0
4-Methyl-2-pentanone (MIBK)	Ave	0.5138	0.4453		0.0347	0.0400	-13.3	50.0
Toluene	Ave	1.629	1.321		0.0162	0.0200	-18.9	20.0
trans-1,3-Dichloropropene	Ave	0.6463	0.5094		0.0158	0.0200	-21.2	50.0
Ethyl methacrylate	Ave	0.6464	0.4871		0.0151	0.0200	-24.7	50.0
1,1,2-Trichloroethane	Ave	0.3539	0.2835		0.0160	0.0200	-19.9	50.0
1,3-Dichloropropane	Ave	0.6415	0.5160		0.0161	0.0200	-19.6	50.0
Tetrachloroethene	Ave	0.3812	0.3590		0.0188	0.0200	-5.8	50.0
2-Hexanone	Ave	0.4816	0.3454		0.0287	0.0400	-28.3	50.0
Chlorodibromomethane	Ave	0.4145	0.3321		0.0160	0.0200	-19.9	50.0
Ethylene Dibromide	Ave	0.3883	0.3172		0.0163	0.0200	-18.3	50.0
Chlorobenzene	Ave	1.011	0.8671	0.3000	0.0172	0.0200	-14.2	50.0
1,1,1,2-Tetrachloroethane	Ave	0.3857	0.3392		0.0176	0.0200	-12.1	50.0
Ethylbenzene	Ave	0.5406	0.4588		0.0170	0.0200	-15.1	20.0
m-Xylene & p-Xylene	Ave	0.6671	0.5721		0.0172	0.0200	-14.2	50.0
o-Xylene	Ave	0.6875	0.5711		0.0166	0.0200	-16.9	50.0
Styrene	Ave	1.144	0.9619		0.0168	0.0200	-15.9	50.0
Bromoform	Ave	0.3014	0.2691	0.1000	0.0179	0.0200	-10.7	50.0
Isopropylbenzene	Ave	1.590	1.335		0.0168	0.0200	-16.1	50.0
1,1,2,2-Tetrachloroethane	Ave	1.014	0.7083	0.3000	0.0140	0.0200	-30.1	50.0
Bromobenzene	Ave	0.8058	0.6686		0.0166	0.0200	-17.0	50.0
1,2,3-Trichloropropane	Ave	0.3550	0.2723		0.0153	0.0200	-23.3	50.0
trans-1,4-Dichloro-2-butene	Ave	0.3772	0.2438		0.0129	0.0200	-35.4	50.0
N-Propylbenzene	Ave	0.7771	0.5947		0.0153	0.0200	-23.5	50.0
2-Chlorotoluene	Ave	0.7122	0.5658		0.0159	0.0200	-20.5	50.0
1,3,5-Trimethylbenzene	Ave	2.218	1.717		0.0155	0.0200	-22.6	50.0
4-Chlorotoluene	Ave	0.7543	0.5797		0.0154	0.0200	-23.1	50.0
tert-Butylbenzene	Ave	1.968	1.682		0.0171	0.0200	-14.5	50.0
1,2,4-Trimethylbenzene	Ave	2.360	1.796		0.0152	0.0200	-23.9	50.0
sec-Butylbenzene	Ave	0.5399	0.4343		0.0161	0.0200	-19.6	50.0
1,3-Dichlorobenzene	Ave	1.431	1.149		0.0161	0.0200	-19.7	50.0
4-Isopropyltoluene	Ave	2.170	1.698		0.0156	0.0200	-21.8	50.0
1,4-Dichlorobenzene	Ave	1.493	1.215		0.0163	0.0200	-18.6	50.0
n-Butylbenzene	Ave	1.807	1.284		0.0142	0.0200	-29.0	50.0
1,2-Dichlorobenzene	Ave	1.431	1.190		0.0166	0.0200	-16.9	50.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: CCVIS 240-445537/3 Calibration Date: 08/04/2020 10:03
 Instrument ID: A3UX9 Calib Start Date: 06/29/2020 10:22
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 06/29/2020 12:37
 Lab File ID: UX989074.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,2-Dibromo-3-Chloropropane	Ave	0.2853	0.2085		0.0146	0.0200	-26.9	50.0
1,2,4-Trichlorobenzene	Ave	0.7549	0.6852		0.0182	0.0200	-9.2	50.0
Hexachlorobutadiene	Ave	0.2722	0.2477		0.0182	0.0200	-9.0	50.0
Naphthalene	Ave	2.663	2.213		0.0166	0.0200	-16.9	50.0
1,2,3-Trichlorobenzene	Ave	0.7094	0.6413		0.0181	0.0200	-9.6	50.0
Dibromofluoromethane (Surr)	Ave	0.2766	0.3076		0.0222	0.0200	11.2	50.0
1,2-Dichloroethane-d4 (Surr)	Ave	0.3738	0.3806		0.0204	0.0200	1.8	50.0
Toluene-d8 (Surr)	Ave	1.355	1.197		0.0177	0.0200	-11.7	50.0
4-Bromofluorobenzene (Surr)	Ave	0.4836	0.4419		0.0183	0.0200	-8.6	50.0

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989074.D
 Lims ID: CCVIS
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 04-Aug-2020 10:03:30 ALS Bottle#: 3 Worklist Smp#: 3
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100652-003
 Operator ID: 001765 Instrument ID: A3UX9
 Sublist: chrom-8260_9*sub46
 Method: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 12:57:40 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1053

First Level Reviewer: bosworthh Date: 04-Aug-2020 12:57:40

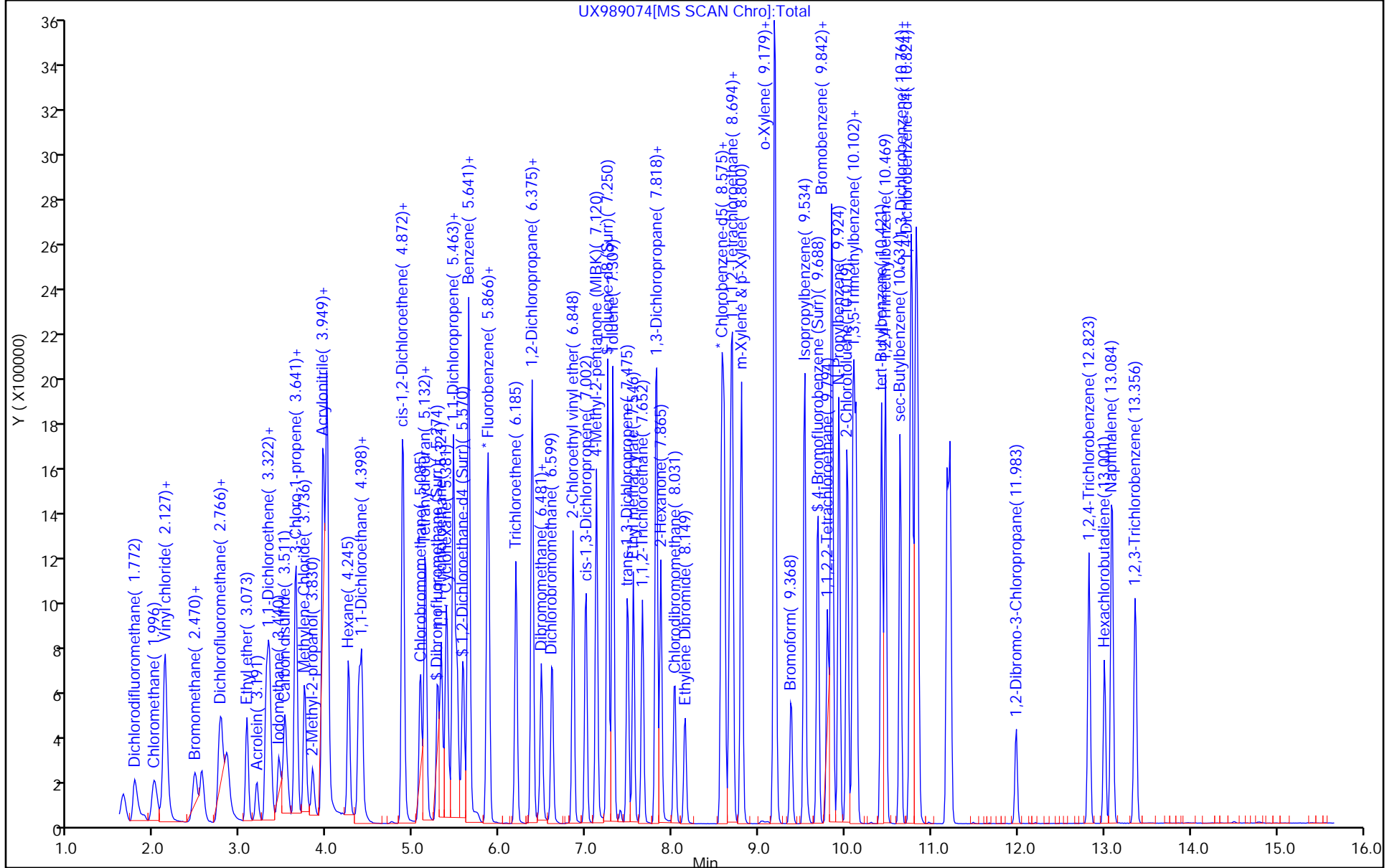
Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.866	5.866	0.000	99	1324707	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.575	8.575	0.000	86	1250397	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.824	10.824	0.000	93	767182	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	113	5.274	5.274	0.000	94	407506	20.0	22.2	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.570	5.570	0.000	100	504161	20.0	20.4	
\$ 6 Toluene-d8 (Surr)	98	7.250	7.250	0.000	93	1497093	20.0	17.7	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.688	9.688	0.000	96	552581	20.0	18.3	
9 Dichlorodifluoromethane	85	1.772	1.772	0.000	100	466738	20.0	31.2	
10 Chloromethane	50	1.996	1.996	0.000	99	513299	20.0	22.3	
11 Vinyl chloride	62	2.115	2.115	0.000	98	487640	20.0	23.4	
12 Butadiene	54	2.127	2.127	0.000	95	465602	20.0	23.0	
13 Bromomethane	94	2.470	2.470	0.000	91	363289	20.0	22.4	
15 Chloroethane	64	2.553	2.553	0.000	99	347996	20.0	20.8	
16 Dichlorofluoromethane	67	2.754	2.754	0.000	99	732484	20.0	18.7	
17 Trichlorofluoromethane	101	2.789	2.789	0.000	99	652375	20.0	24.4	
18 Ethyl ether	59	3.073	3.073	0.000	92	353410	20.0	17.6	
21 Acrolein	56	3.191	3.191	0.000	99	225090	100.0	66.8	
24 1,1-Dichloroethene	61	3.298	3.298	0.000	99	526704	20.0	19.2	
22 1,1,2-Trichloro-1,2,2-trifluoro	101	3.333	3.333	0.000	93	323435	20.0	23.6	
23 Acetone	58	3.333	3.333	0.000	99	78781	40.0	32.4	
25 Iodomethane	142	3.440	3.440	0.000	99	651325	20.0	23.8	
26 Carbon disulfide	76	3.511	3.511	0.000	100	1076533	20.0	19.7	
28 3-Chloro-1-propene	41	3.629	3.629	0.000	88	656039	20.0	18.5	
29 Methyl acetate	43	3.641	3.641	0.000	98	847387	40.0	33.0	
30 Methylene Chloride	49	3.736	3.736	0.000	93	501183	20.0	17.9	
31 2-Methyl-2-propanol	59	3.830	3.830	0.000	99	419832	200.0	158.9	
32 Acrylonitrile	53	3.949	3.949	0.000	98	1931867	200.0	169.2	
33 Methyl tert-butyl ether	73	3.996	3.996	0.000	95	1270042	20.0	20.4	
34 trans-1,2-Dichloroethene	61	3.996	3.996	0.000	98	535883	20.0	19.2	
35 Hexane	57	4.245	4.245	0.000	95	379916	20.0	18.4	
36 1,1-Dichloroethane	63	4.375	4.375	0.000	96	680490	20.0	18.4	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
37 Vinyl acetate	43	4.398	4.398	0.000	97	1070561	20.0	25.0	
41 2-Butanone (MEK)	72	4.872	4.872	0.000	90	140079	40.0	35.8	
43 cis-1,2-Dichloroethene	96	4.872	4.872	0.000	85	437804	20.0	19.5	
42 2,2-Dichloropropane	77	4.884	4.884	0.000	89	459361	20.0	19.4	
47 Chlorobromomethane	49	5.073	5.073	0.000	95	363930	20.0	17.8	
48 Tetrahydrofuran	42	5.132	5.132	0.000	87	376374	40.0	33.4	
49 Chloroform	83	5.144	5.144	0.000	96	676162	20.0	19.2	
50 1,1,1-Trichloroethane	97	5.321	5.321	0.000	98	604513	20.0	20.4	
51 Cyclohexane	84	5.381	5.381	0.000	91	519751	20.0	20.8	
52 1,1-Dichloropropene	75	5.463	5.463	0.000	94	539768	20.0	19.7	
53 Carbon tetrachloride	117	5.475	5.475	0.000	99	521281	20.0	20.9	
54 Isobutyl alcohol	41	5.511	5.511	0.000	92	461142	500.0	448.4	
56 1,2-Dichloroethane	62	5.641	5.641	0.000	60	573444	20.0	19.6	
55 Benzene	78	5.641	5.641	0.000	96	1602793	20.0	19.9	
58 n-Heptane	71	5.854	5.854	0.000	91	188478	20.0	19.8	
60 Trichloroethene	130	6.185	6.185	0.000	95	457677	20.0	21.8	
62 Methylcyclohexane	83	6.375	6.375	0.000	92	453190	20.0	20.3	
63 1,2-Dichloropropane	63	6.375	6.375	0.000	91	367783	20.0	18.1	
66 Dibromomethane	174	6.481	6.481	0.000	92	336212	20.0	23.6	
65 1,4-Dioxane	88	6.481	6.481	0.000	94	83832	400.0	356.5	
67 Dichlorobromomethane	83	6.599	6.599	0.000	99	519191	20.0	19.0	
69 2-Chloroethyl vinyl ether	63	6.848	6.848	0.000	94	596242	40.0	39.4	
71 cis-1,3-Dichloropropene	75	7.002	7.002	0.000	93	662188	20.0	19.5	
72 4-Methyl-2-pentanone (MIBK)	43	7.120	7.120	0.000	97	1179834	40.0	34.7	
73 Toluene	91	7.309	7.309	0.000	98	1652189	20.0	16.2	
74 trans-1,3-Dichloropropene	75	7.475	7.475	0.000	97	636920	20.0	15.8	
75 Ethyl methacrylate	69	7.546	7.546	0.000	90	609001	20.0	15.1	
76 1,1,2-Trichloroethane	97	7.652	7.652	0.000	93	354516	20.0	16.0	
77 1,3-Dichloropropane	76	7.806	7.806	0.000	92	645193	20.0	16.1	
78 Tetrachloroethene	166	7.818	7.818	0.000	85	448867	20.0	18.8	
80 2-Hexanone	43	7.865	7.865	0.000	97	863874	40.0	28.7	
82 Chlorodibromomethane	129	8.031	8.031	0.000	90	415221	20.0	16.0	
83 Ethylene Dibromide	107	8.149	8.149	0.000	98	396672	20.0	16.3	
85 Chlorobenzene	112	8.599	8.599	0.000	96	1084264	20.0	17.2	
86 1,1,1,2-Tetrachloroethane	131	8.670	8.670	0.000	94	424094	20.0	17.6	
87 Ethylbenzene	106	8.694	8.694	0.000	98	573718	20.0	17.0	
88 m-Xylene & p-Xylene	106	8.800	8.800	0.000	99	715391	20.0	17.2	
89 o-Xylene	106	9.179	9.179	0.000	95	714034	20.0	16.6	
90 Styrene	104	9.191	9.191	0.000	94	1202802	20.0	16.8	
91 Bromoform	173	9.380	9.380	0.000	97	336530	20.0	17.9	
92 Isopropylbenzene	105	9.534	9.534	0.000	95	1668854	20.0	16.8	
94 1,1,2,2-Tetrachloroethane	83	9.794	9.794	0.000	97	543411	20.0	14.0	
95 Bromobenzene	156	9.842	9.842	0.000	93	512960	20.0	16.6	
96 trans-1,4-Dichloro-2-butene	53	9.853	9.853	0.000	73	187018	20.0	12.9	
97 1,2,3-Trichloropropane	110	9.853	9.853	0.000	83	208912	20.0	15.3	
98 N-Propylbenzene	120	9.924	9.924	0.000	99	456214	20.0	15.3	
100 2-Chlorotoluene	126	10.031	10.031	0.000	97	434096	20.0	15.9	
101 1,3,5-Trimethylbenzene	105	10.090	10.090	0.000	95	1317619	20.0	15.5	
102 4-Chlorotoluene	126	10.126	10.126	0.000	97	444760	20.0	15.4	
104 tert-Butylbenzene	119	10.421	10.421	0.000	91	1290659	20.0	17.1	
106 1,2,4-Trimethylbenzene	105	10.469	10.469	0.000	97	1377745	20.0	15.2	
107 sec-Butylbenzene	134	10.634	10.634	0.000	94	333150	20.0	16.1	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
108 1,3-Dichlorobenzene	146	10.753	10.753	0.000	99	881724	20.0	16.1	
109 4-Isopropyltoluene	119	10.776	10.776	0.000	97	1302897	20.0	15.6	
110 1,4-Dichlorobenzene	146	10.847	10.847	0.000	95	932172	20.0	16.3	
113 n-Butylbenzene	91	11.179	11.179	0.000	96	984813	20.0	14.2	
114 1,2-Dichlorobenzene	146	11.214	11.214	0.000	99	912592	20.0	16.6	
115 1,2-Dibromo-3-Chloropropane	157	11.983	11.983	0.000	89	159989	20.0	14.6	
117 1,2,4-Trichlorobenzene	180	12.823	12.823	0.000	94	525677	20.0	18.2	
118 Hexachlorobutadiene	225	13.001	13.001	0.000	94	190031	20.0	18.2	
119 Naphthalene	128	13.096	13.096	0.000	97	1697922	20.0	16.6	
120 1,2,3-Trichlorobenzene	180	13.356	13.356	0.000	95	491976	20.0	18.1	
S 158 Total BTEX	1				0		100.0	86.9	
S 130 Trihalomethanes, Total	83				0		80.0	72.1	
S 131 Xylenes, Total	106				0		40.0	33.8	

Reagents:

vmrgas_00349	Amount Added: 16.00	Units: uL
vmrprimw_00397	Amount Added: 16.00	Units: uL
vmarolistdw_00355	Amount Added: 16.00	Units: uL
vm50ss_00413	Amount Added: 16.00	Units: uL
vm100is_stk_A_00005	Amount Added: 1.00	Units: uL



FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: CCVIS 240-445702/3 Calibration Date: 08/05/2020 09:34
 Instrument ID: A3UX9 Calib Start Date: 06/29/2020 10:22
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 06/29/2020 12:37
 Lab File ID: UX989108.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.2257	0.3777		0.0335	0.0200	67.3*	50.0
Chloromethane	Ave	0.3471	0.3602	0.1000	0.0208	0.0200	3.8	50.0
Vinyl chloride	Ave	0.3141	0.3597		0.0229	0.0200	14.5	20.0
Butadiene	Ave	0.3061	0.3595		0.0235	0.0200	17.4	50.0
Bromomethane	Ave	0.2449	0.2538		0.0207	0.0200	3.6	50.0
Chloroethane	Ave	0.2529	0.2477		0.0196	0.0200	-2.0	50.0
Dichlorofluoromethane	Ave	0.5911	0.5346		0.0181	0.0200	-9.6	50.0
Trichlorofluoromethane	Ave	0.4035	0.5267		0.0261	0.0200	30.5	50.0
Ethyl ether	Ave	0.3039	0.2777		0.0183	0.0200	-8.6	50.0
Acrolein	Lin1		0.0340		0.0668	0.100	-33.2	50.0
1,1-Dichloroethene	Ave	0.4132	0.4143		0.0201	0.0200	0.3	20.0
1,1,2-Trichloro-1,2,2-trifluoroethane	Ave	0.2071	0.2740		0.0265	0.0200	32.3	50.0
Acetone	Lin1		0.0310		0.0339	0.0400	-15.2	50.0
Iodomethane	Ave	0.4140	0.5098		0.0246	0.0200	23.1	50.0
Carbon disulfide	Ave	0.8251	0.8566		0.0208	0.0200	3.8	50.0
3-Chloro-1-propene	Ave	0.5359	0.5194		0.0194	0.0200	-3.1	50.0
Methyl acetate	Ave	0.3881	0.3295		0.0340	0.0400	-15.1	50.0
Methylene Chloride	Ave	0.4228	0.3934		0.0186	0.0200	-7.0	50.0
2-Methyl-2-propanol	Ave	0.0399	0.0326		0.163	0.200	-18.4	50.0
Acrylonitrile	Ave	0.1724	0.1537		0.178	0.200	-10.8	50.0
Methyl tert-butyl ether	Ave	0.9418	1.002		0.0213	0.0200	6.4	50.0
trans-1,2-Dichloroethene	Ave	0.4206	0.4158		0.0198	0.0200	-1.1	50.0
Hexane	Ave	0.3114	0.3282		0.0211	0.0200	5.4	20.0
1,1-Dichloroethane	Ave	0.5578	0.5324	0.1000	0.0191	0.0200	-4.6	50.0
Vinyl acetate	Ave	0.6466	0.8876		0.0275	0.0200	37.3	50.0
2-Butanone (MEK)	Ave	0.0591	0.0563		0.0380	0.0400	-4.9	50.0
cis-1,2-Dichloroethene	Ave	0.3388	0.3400		0.0201	0.0200	0.4	50.0
2,2-Dichloropropane	Ave	0.3566	0.3737		0.0210	0.0200	4.8	50.0
Chlorobromomethane	Ave	0.3089	0.2806		0.0182	0.0200	-9.2	50.0
Tetrahydrofuran	Ave	0.1700	0.1486		0.0350	0.0400	-12.6	50.0
Chloroform	Ave	0.5324	0.5224		0.0196	0.0200	-1.9	20.0
1,1,1-Trichloroethane	Ave	0.4465	0.4775		0.0214	0.0200	6.9	50.0
Cyclohexane	Ave	0.3776	0.4299		0.0228	0.0200	13.8	50.0
1,1-Dichloropropene	Ave	0.4138	0.4357		0.0211	0.0200	5.3	50.0
Carbon tetrachloride	Ave	0.3766	0.4225		0.0224	0.0200	12.2	50.0
Isobutyl alcohol	Ave	0.0155	0.0158		0.510	0.500	2.0	50.0
1,2-Dichloroethane	Ave	0.4406	0.4476		0.0203	0.0200	1.6	50.0
Benzene	Ave	1.213	1.261		0.0208	0.0200	3.9	50.0
n-Heptane	Lin1		0.1628		0.0229	0.0200	14.3	50.0
Trichloroethene	Ave	0.3175	0.3554		0.0224	0.0200	11.9	50.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: CCVIS 240-445702/3 Calibration Date: 08/05/2020 09:34
 Instrument ID: A3UX9 Calib Start Date: 06/29/2020 10:22
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 06/29/2020 12:37
 Lab File ID: UX989108.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,2-Dichloropropane	Ave	0.3066	0.2968		0.0194	0.0200	-3.2	20.0
Methylcyclohexane	Ave	0.3366	0.3813		0.0227	0.0200	13.3	50.0
Dibromomethane	Ave	0.2149	0.2582		0.0240	0.0200	20.2	50.0
1,4-Dioxane	Qua		0.0035		0.402	0.400	0.4	50.0
Dichlorobromomethane	Ave	0.4120	0.3987		0.0194	0.0200	-3.2	50.0
2-Chloroethyl vinyl ether	Ave	0.2286	0.2409		0.0422	0.0400	5.4	50.0
cis-1,3-Dichloropropene	Ave	0.5115	0.5206		0.0204	0.0200	1.8	50.0
4-Methyl-2-pentanone (MIBK)	Ave	0.5138	0.4762		0.0371	0.0400	-7.3	50.0
Toluene	Ave	1.629	1.353		0.0166	0.0200	-16.9	20.0
trans-1,3-Dichloropropene	Ave	0.6463	0.5197		0.0161	0.0200	-19.6	50.0
Ethyl methacrylate	Ave	0.6464	0.5022		0.0155	0.0200	-22.3	50.0
1,1,2-Trichloroethane	Ave	0.3539	0.2941		0.0166	0.0200	-16.9	50.0
1,3-Dichloropropane	Ave	0.6415	0.5443		0.0170	0.0200	-15.2	50.0
Tetrachloroethene	Ave	0.3812	0.3730		0.0196	0.0200	-2.1	50.0
2-Hexanone	Ave	0.4816	0.3582		0.0298	0.0400	-25.6	50.0
Chlorodibromomethane	Ave	0.4145	0.3319		0.0160	0.0200	-19.9	50.0
Ethylene Dibromide	Ave	0.3883	0.3237		0.0167	0.0200	-16.6	50.0
Chlorobenzene	Ave	1.011	0.8941	0.3000	0.0177	0.0200	-11.5	50.0
1,1,1,2-Tetrachloroethane	Ave	0.3857	0.3396		0.0176	0.0200	-12.0	50.0
Ethylbenzene	Ave	0.5406	0.4684		0.0173	0.0200	-13.4	20.0
m-Xylene & p-Xylene	Ave	0.6671	0.5871		0.0176	0.0200	-12.0	50.0
o-Xylene	Ave	0.6875	0.5784		0.0168	0.0200	-15.9	50.0
Styrene	Ave	1.144	0.9856		0.0172	0.0200	-13.8	50.0
Bromoform	Ave	0.3014	0.2680	0.1000	0.0178	0.0200	-11.1	50.0
Isopropylbenzene	Ave	1.590	1.348		0.0170	0.0200	-15.2	50.0
1,1,2,2-Tetrachloroethane	Ave	1.014	0.7285	0.3000	0.0144	0.0200	-28.1	50.0
Bromobenzene	Ave	0.8058	0.7002		0.0174	0.0200	-13.1	50.0
1,2,3-Trichloropropane	Ave	0.3550	0.2859		0.0161	0.0200	-19.5	50.0
trans-1,4-Dichloro-2-butene	Ave	0.3772	0.2754		0.0146	0.0200	-27.0	50.0
N-Propylbenzene	Ave	0.7771	0.6165		0.0159	0.0200	-20.7	50.0
2-Chlorotoluene	Ave	0.7122	0.5737		0.0161	0.0200	-19.4	50.0
1,3,5-Trimethylbenzene	Ave	2.218	1.774		0.0160	0.0200	-20.0	50.0
4-Chlorotoluene	Ave	0.7543	0.6112		0.0162	0.0200	-19.0	50.0
tert-Butylbenzene	Ave	1.968	1.744		0.0177	0.0200	-11.4	50.0
1,2,4-Trimethylbenzene	Ave	2.360	1.823		0.0154	0.0200	-22.8	50.0
sec-Butylbenzene	Ave	0.5399	0.4484		0.0166	0.0200	-16.9	50.0
1,3-Dichlorobenzene	Ave	1.431	1.184		0.0165	0.0200	-17.3	50.0
4-Isopropyltoluene	Ave	2.170	1.750		0.0161	0.0200	-19.4	50.0
1,4-Dichlorobenzene	Ave	1.493	1.232		0.0165	0.0200	-17.5	50.0
n-Butylbenzene	Ave	1.807	1.304		0.0144	0.0200	-27.8	50.0
1,2-Dichlorobenzene	Ave	1.431	1.179		0.0165	0.0200	-17.6	50.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: CCVIS 240-445702/3 Calibration Date: 08/05/2020 09:34
 Instrument ID: A3UX9 Calib Start Date: 06/29/2020 10:22
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 06/29/2020 12:37
 Lab File ID: UX989108.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,2-Dibromo-3-Chloropropane	Ave	0.2853	0.2119		0.0148	0.0200	-25.8	50.0
1,2,4-Trichlorobenzene	Ave	0.7549	0.6570		0.0174	0.0200	-13.0	50.0
Hexachlorobutadiene	Ave	0.2722	0.2594		0.0191	0.0200	-4.7	50.0
Naphthalene	Ave	2.663	2.197		0.0165	0.0200	-17.5	50.0
1,2,3-Trichlorobenzene	Ave	0.7094	0.6219		0.0175	0.0200	-12.3	50.0
Dibromofluoromethane (Surr)	Ave	0.2766	0.3058		0.0221	0.0200	10.6	50.0
1,2-Dichloroethane-d4 (Surr)	Ave	0.3738	0.3811		0.0204	0.0200	1.9	50.0
Toluene-d8 (Surr)	Ave	1.355	1.205		0.0178	0.0200	-11.1	50.0
4-Bromofluorobenzene (Surr)	Ave	0.4836	0.4428		0.0183	0.0200	-8.4	50.0

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\UX989108.D
 Lims ID: CCVIS
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 05-Aug-2020 09:34:30 ALS Bottle#: 3 Worklist Smp#: 3
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100687-003
 Operator ID: 001765 Instrument ID: A3UX9
 Sublist: chrom-8260_9*sub46
 Method: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 10:59:02 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1061

First Level Reviewer: bosworthh Date: 05-Aug-2020 10:59:02

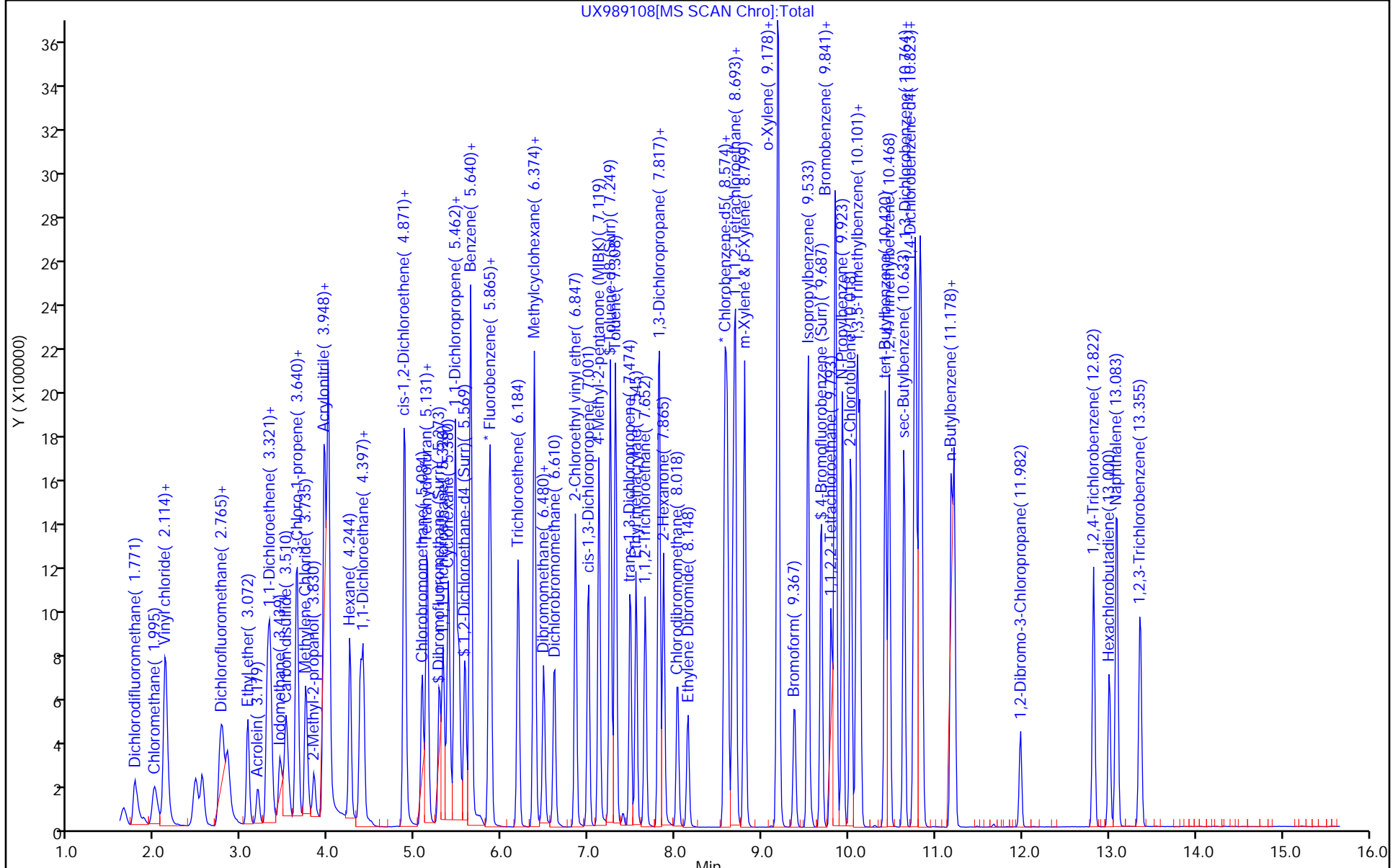
Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.865	5.865	0.000	99	1352769	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.574	8.574	0.000	86	1300622	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.823	10.823	0.000	92	779877	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	113	5.273	5.273	0.000	95	413718	20.0	22.1	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.569	5.569	0.000	99	515529	20.0	20.4	
\$ 6 Toluene-d8 (Surr)	98	7.249	7.249	0.000	92	1567527	20.0	17.8	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.675	9.675	0.000	96	575971	20.0	18.3	
9 Dichlorodifluoromethane	85	1.771	1.771	0.000	100	510923	20.0	33.5	
10 Chloromethane	50	1.995	1.995	0.000	100	487275	20.0	20.8	
11 Vinyl chloride	62	2.114	2.114	0.000	99	486561	20.0	22.9	
12 Butadiene	54	2.126	2.126	0.000	94	486307	20.0	23.5	
13 Bromomethane	94	2.469	2.469	0.000	91	343382	20.0	20.7	
15 Chloroethane	64	2.540	2.540	0.000	100	335131	20.0	19.6	
16 Dichlorofluoromethane	67	2.753	2.753	0.000	99	723172	20.0	18.1	
17 Trichlorofluoromethane	101	2.788	2.788	0.000	100	712488	20.0	26.1	
18 Ethyl ether	59	3.072	3.072	0.000	92	375610	20.0	18.3	
21 Acrolein	56	3.179	3.179	0.000	99	229862	100.0	66.8	
24 1,1-Dichloroethene	61	3.297	3.297	0.000	99	560478	20.0	20.1	
22 1,1,2-Trichloro-1,2,2-trifluoro	101	3.321	3.321	0.000	94	370653	20.0	26.5	
23 Acetone	58	3.333	3.333	0.000	99	83952	40.0	33.9	
25 Iodomethane	142	3.439	3.439	0.000	98	689622	20.0	24.6	
26 Carbon disulfide	76	3.510	3.510	0.000	100	1158831	20.0	20.8	
28 3-Chloro-1-propene	41	3.628	3.628	0.000	89	702652	20.0	19.4	
29 Methyl acetate	43	3.640	3.640	0.000	97	891520	40.0	34.0	
30 Methylene Chloride	49	3.735	3.735	0.000	93	532114	20.0	18.6	
31 2-Methyl-2-propanol	59	3.830	3.830	0.000	99	440353	200.0	163.2	
32 Acrylonitrile	53	3.948	3.948	0.000	98	2079581	200.0	178.3	
34 trans-1,2-Dichloroethene	61	3.995	3.995	0.000	96	562488	20.0	19.8	
33 Methyl tert-butyl ether	73	3.995	3.995	0.000	95	1355834	20.0	21.3	
35 Hexane	57	4.244	4.244	0.000	95	443969	20.0	21.1	
36 1,1-Dichloroethane	63	4.374	4.374	0.000	97	720145	20.0	19.1	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
37 Vinyl acetate	43	4.397	4.397	0.000	97	1200661	20.0	27.5	
43 cis-1,2-Dichloroethene	96	4.871	4.871	0.000	85	459963	20.0	20.1	
41 2-Butanone (MEK)	72	4.871	4.871	0.000	92	152194	40.0	38.0	
42 2,2-Dichloropropane	77	4.883	4.883	0.000	89	505478	20.0	21.0	
47 Chlorobromomethane	49	5.084	5.084	0.000	94	379564	20.0	18.2	
48 Tetrahydrofuran	42	5.131	5.131	0.000	89	402082	40.0	35.0	
49 Chloroform	83	5.143	5.143	0.000	96	706699	20.0	19.6	
50 1,1,1-Trichloroethane	97	5.320	5.320	0.000	98	645962	20.0	21.4	
51 Cyclohexane	84	5.380	5.380	0.000	91	581488	20.0	22.8	
52 1,1-Dichloropropene	75	5.462	5.462	0.000	95	589421	20.0	21.1	
53 Carbon tetrachloride	117	5.474	5.474	0.000	97	571542	20.0	22.4	
54 Isobutyl alcohol	41	5.510	5.510	0.000	93	535479	500.0	509.9	
56 1,2-Dichloroethane	62	5.640	5.640	0.000	60	605476	20.0	20.3	
55 Benzene	78	5.640	5.640	0.000	96	1705289	20.0	20.8	
58 n-Heptane	71	5.853	5.853	0.000	91	220283	20.0	22.9	
60 Trichloroethene	130	6.184	6.184	0.000	96	480745	20.0	22.4	
62 Methylcyclohexane	83	6.374	6.374	0.000	92	515756	20.0	22.7	
63 1,2-Dichloropropane	63	6.374	6.374	0.000	94	401474	20.0	19.4	
66 Dibromomethane	174	6.480	6.480	0.000	90	349313	20.0	24.0	
65 1,4-Dioxane	88	6.492	6.492	0.000	87	95835	400.0	401.7	
67 Dichlorobromomethane	83	6.610	6.610	0.000	99	539380	20.0	19.4	
69 2-Chloroethyl vinyl ether	63	6.847	6.847	0.000	94	651885	40.0	42.2	
71 cis-1,3-Dichloropropene	75	7.001	7.001	0.000	94	704307	20.0	20.4	
72 4-Methyl-2-pentanone (MIBK)	43	7.119	7.119	0.000	97	1288304	40.0	37.1	
73 Toluene	91	7.308	7.308	0.000	99	1759857	20.0	16.6	
74 trans-1,3-Dichloropropene	75	7.474	7.474	0.000	97	675913	20.0	16.1	
75 Ethyl methacrylate	69	7.545	7.545	0.000	89	653109	20.0	15.5	
76 1,1,2-Trichloroethane	97	7.652	7.652	0.000	93	382444	20.0	16.6	
77 1,3-Dichloropropane	76	7.805	7.805	0.000	95	707957	20.0	17.0	
78 Tetrachloroethene	166	7.817	7.817	0.000	96	485178	20.0	19.6	
80 2-Hexanone	43	7.865	7.865	0.000	97	931664	40.0	29.8	
82 Chlorodibromomethane	129	8.030	8.030	0.000	91	431665	20.0	16.0	
83 Ethylene Dibromide	107	8.148	8.148	0.000	98	421056	20.0	16.7	
85 Chlorobenzene	112	8.598	8.598	0.000	97	1162831	20.0	17.7	
86 1,1,1,2-Tetrachloroethane	131	8.669	8.669	0.000	94	441715	20.0	17.6	
87 Ethylbenzene	106	8.693	8.693	0.000	98	609169	20.0	17.3	
88 m-Xylene & p-Xylene	106	8.799	8.799	0.000	99	763594	20.0	17.6	
89 o-Xylene	106	9.178	9.178	0.000	95	752257	20.0	16.8	
90 Styrene	104	9.190	9.190	0.000	94	1281880	20.0	17.2	
91 Bromoform	173	9.379	9.379	0.000	97	348521	20.0	17.8	
92 Isopropylbenzene	105	9.533	9.533	0.000	95	1753210	20.0	17.0	
94 1,1,2,2-Tetrachloroethane	83	9.793	9.793	0.000	97	568148	20.0	14.4	
95 Bromobenzene	156	9.841	9.841	0.000	96	546087	20.0	17.4	
97 1,2,3-Trichloropropane	110	9.852	9.852	0.000	83	222956	20.0	16.1	
96 trans-1,4-Dichloro-2-butene	53	9.852	9.852	0.000	73	214758	20.0	14.6	
98 N-Propylbenzene	120	9.923	9.923	0.000	99	480764	20.0	15.9	
100 2-Chlorotoluene	126	10.030	10.030	0.000	97	447430	20.0	16.1	
101 1,3,5-Trimethylbenzene	105	10.089	10.089	0.000	95	1383482	20.0	16.0	
102 4-Chlorotoluene	126	10.125	10.125	0.000	97	476637	20.0	16.2	
104 tert-Butylbenzene	119	10.420	10.420	0.000	91	1359963	20.0	17.7	
106 1,2,4-Trimethylbenzene	105	10.468	10.468	0.000	97	1421613	20.0	15.4	
107 sec-Butylbenzene	134	10.633	10.633	0.000	94	349672	20.0	16.6	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
108 1,3-Dichlorobenzene	146	10.752	10.752	0.000	99	923581	20.0	16.5	
109 4-Isopropyltoluene	119	10.775	10.775	0.000	97	1364430	20.0	16.1	
110 1,4-Dichlorobenzene	146	10.846	10.846	0.000	96	960476	20.0	16.5	
113 n-Butylbenzene	91	11.178	11.178	0.000	96	1016692	20.0	14.4	
114 1,2-Dichlorobenzene	146	11.213	11.213	0.000	98	919530	20.0	16.5	
115 1,2-Dibromo-3-Chloropropane	157	11.982	11.982	0.000	88	165216	20.0	14.8	
117 1,2,4-Trichlorobenzene	180	12.822	12.822	0.000	94	512357	20.0	17.4	
118 Hexachlorobutadiene	225	13.000	13.000	0.000	94	202277	20.0	19.1	
119 Naphthalene	128	13.095	13.095	0.000	97	1713501	20.0	16.5	
120 1,2,3-Trichlorobenzene	180	13.367	13.367	0.000	95	485035	20.0	17.5	
S 158 Total BTEX	1				0		100.0	89.1	
S 130 Trihalomethanes, Total	83				0		80.0	72.8	
S 131 Xylenes, Total	106				0		40.0	34.4	

Reagents:

vmrgas_00349	Amount Added: 16.00	Units: uL
vmrprimw_00397	Amount Added: 16.00	Units: uL
vmarolistdw_00355	Amount Added: 16.00	Units: uL
vm50ss_00413	Amount Added: 16.00	Units: uL
vm100is_stk_A_00005	Amount Added: 1.00	Units: uL



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\BFB4436a.D
 Lims ID: BFB
 Client ID:
 Sample Type: BFB
 Inject. Date: 16-Jul-2020 16:09:30 ALS Bottle#: 1 Worklist Smp#: 1
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: 240-0100113-001
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 16-Jul-2020 16:51:51 Calib Date: 15-Jul-2020 22:21:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200715-100077.b\U1279106.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1017

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 8 BFB	95	3.421	3.421	0.000	0	523292	NR	NR	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

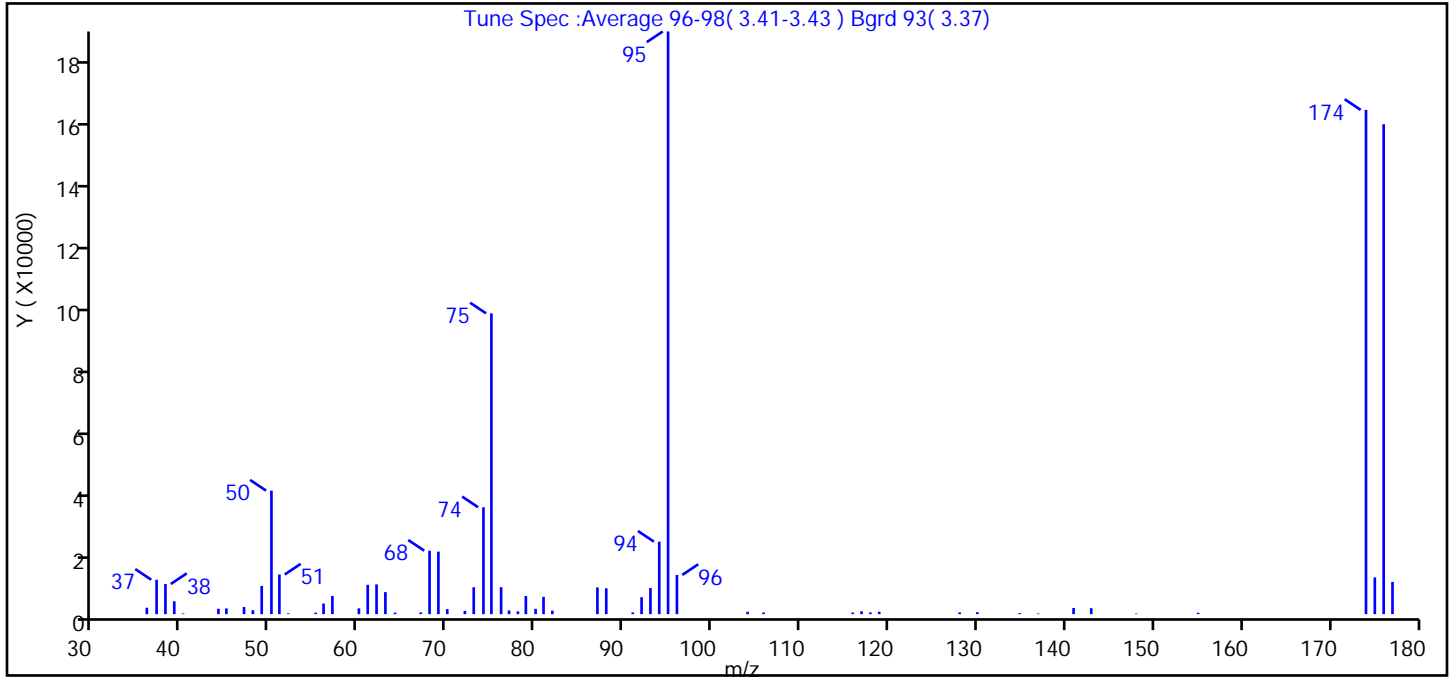
Reagents:

vmbfb_00025 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\BFB4436a.D
 Injection Date: 16-Jul-2020 16:09:30 Instrument ID: A3UX12
 Lims ID: BFB
 Client ID:
 Operator ID: 001904 ALS Bottle#: 1 Worklist Smp#: 1
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
 Tune Method: BFB Method 8260

\$ 8 BFB



m/z	Ion Abundance Criteria	% Relative Abundance
95	Base peak, 100% relative abundance	100.0
50	15 to 40% of m/z 95	21.2
75	30 to 60% of m/z 95	51.6
96	5 to 9% of m/z 95	6.7
173	Less than 2% of m/z 174	0.0 (0.0)
174	50 to 120% of m/z 95	86.5
175	5 to 9% of m/z 174	6.3 (7.3)
176	Greater than 95% but less than 101% of m/z 174	84.1 (97.2)
177	5 to 9% of m/z 176	5.5 (6.6)

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\BFB4436a.D\8260_12_h2o.rsl\spectra.d
Injection Date: 16-Jul-2020 16:09:30
Spectrum: Tune Spec :Average 96-98(3.41-3.43) Bgrd 93(3.37)
Base Peak: 95.00
Minimum % Base Peak: 0
Number of Points: 62

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	2092	60.00	1892	79.00	5925	118.00	553
37.00	11204	61.00	9556	80.00	1722	119.00	790
38.00	9809	62.00	9693	81.00	5646	128.00	579
39.00	4190	63.00	7176	82.00	1157	130.00	628
40.00	211	64.00	505	87.00	8707	135.00	337
44.00	1759	67.00	566	88.00	8430	137.00	194
45.00	1870	68.00	20672	91.00	571	141.00	2014
47.00	2314	69.00	20352	92.00	5506	143.00	1946
48.00	1290	70.00	1628	93.00	8490	148.00	196
49.00	9168	72.00	1068	94.00	23608	155.00	446
50.00	40224	73.00	8768	95.00	189760	174.00	164224
51.00	12908	74.00	34816	96.00	12771	175.00	11968
52.00	259	75.00	97960	104.00	786	176.00	159552
55.00	490	76.00	8776	106.00	525	177.00	10502
56.00	3458	77.00	1200	116.00	539		
57.00	5925	78.00	890	117.00	922		

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\BFB4436a.D

Injection Date: 16-Jul-2020 16:09:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: BFB

Worklist Smp#: 1

Client ID:

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

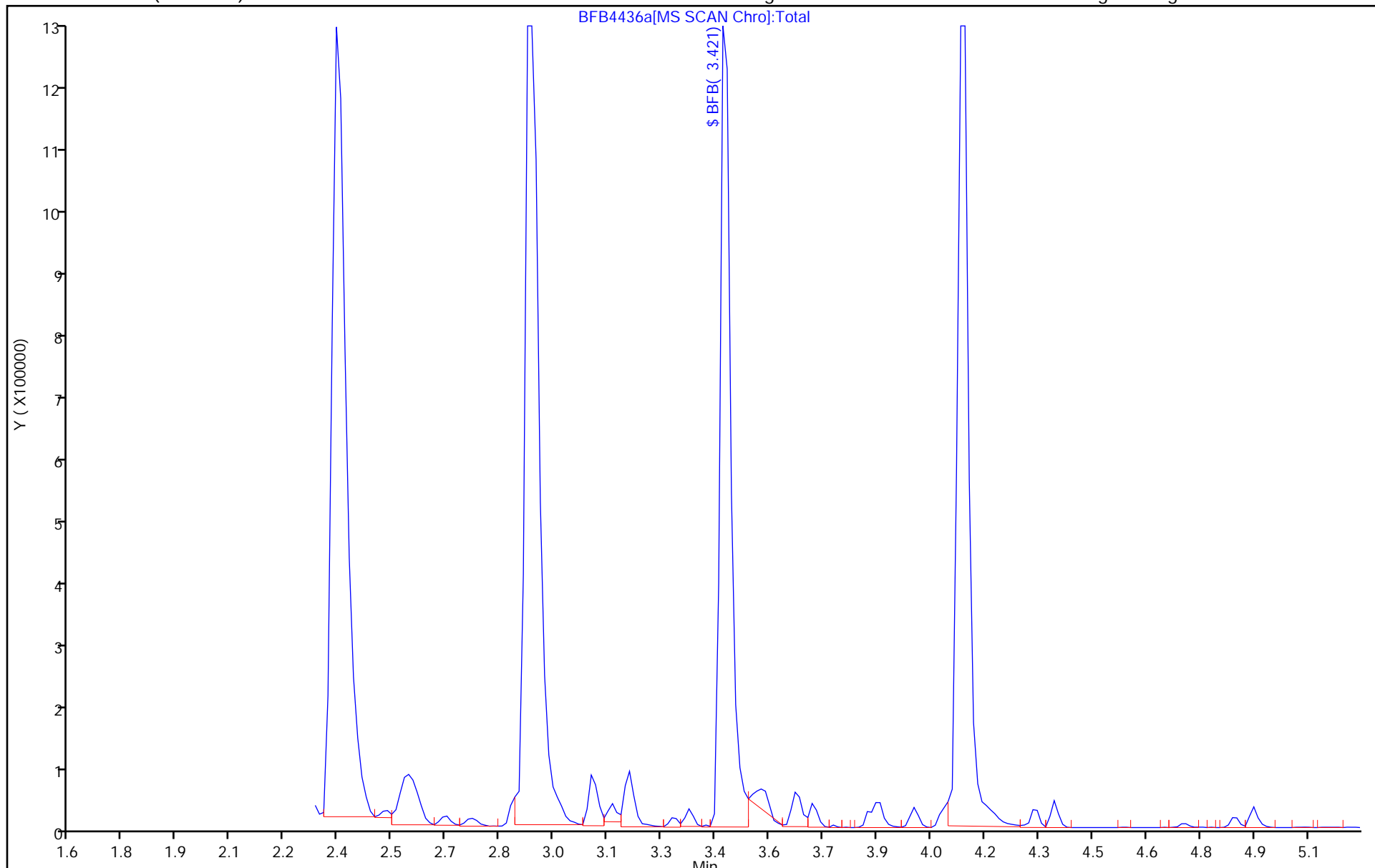
ALS Bottle#: 1

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\BFB4451.D
 Lims ID: BFB
 Client ID:
 Sample Type: BFB
 Inject. Date: 04-Aug-2020 15:54:30 ALS Bottle#: 1 Worklist Smp#: 1
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-001
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 16:08:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1064

First Level Reviewer: laveyt Date: 04-Aug-2020 16:08:51

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 8 BFB	95	3.433	3.433	0.000	0	535058	NR	NR	

QC Flag Legend

Processing Flags
 NR - Missing Quant Standard

Reagents:

vmbfb_00025 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\BFB4451.D

Injection Date: 04-Aug-2020 15:54:30

Instrument ID: A3UX12

Lims ID: BFB

Client ID:

Operator ID: 001904

ALS Bottle#: 1 Worklist Smp#: 1

Injection Vol: 5.0 mL

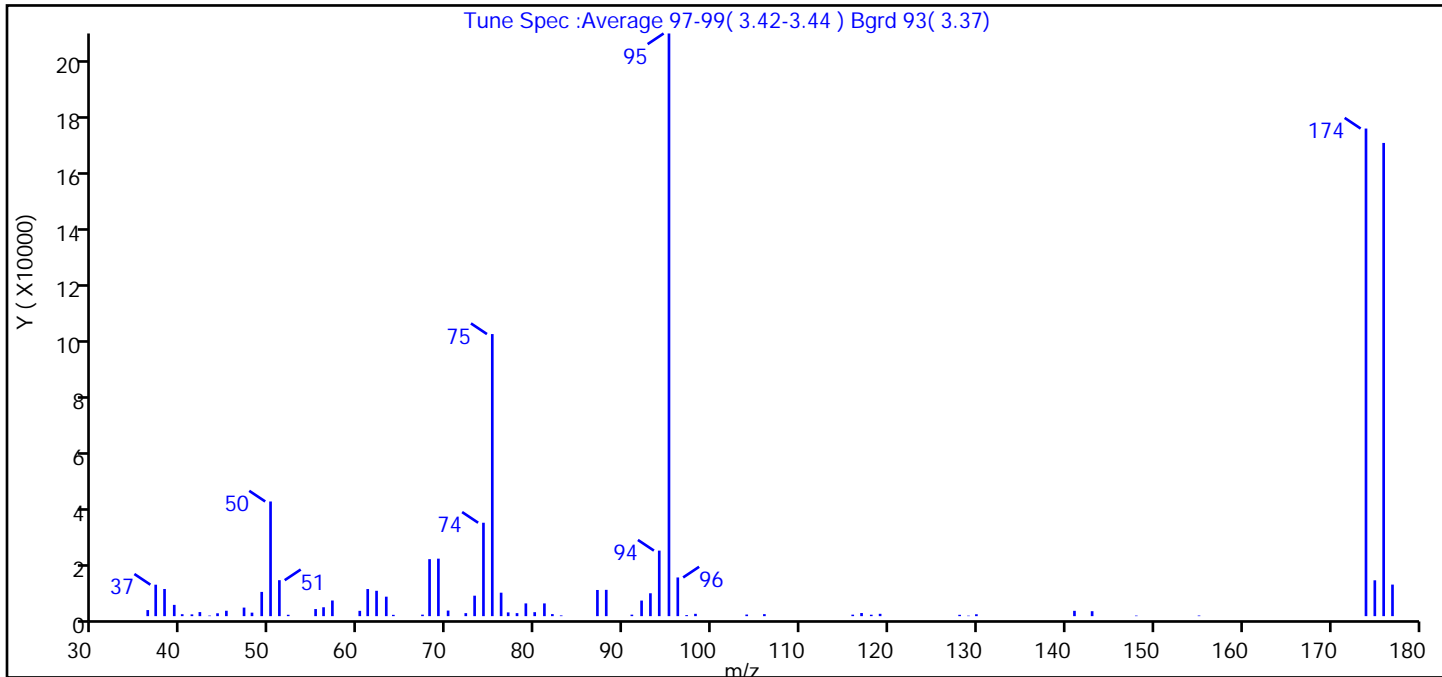
Dil. Factor: 1.0000

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Tune Method: BFB Method 8260

\$ 8 BFB



m/z	Ion Abundance Criteria	% Relative Abundance
95	Base peak, 100% relative abundance	100.0
50	15 to 40% of m/z 95	19.7
75	30 to 60% of m/z 95	48.4
96	5 to 9% of m/z 95	6.6
173	Less than 2% of m/z 174	0.0 (0.0)
174	50 to 120% of m/z 95	83.7
175	5 to 9% of m/z 174	6.2 (7.4)
176	Greater than 95% but less than 101% of m/z 174	81.2 (97.1)
177	5 to 9% of m/z 176	5.4 (6.7)

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\BFB4451.D\8260_12_h2o.rslt\spectra.d
 Injection Date: 04-Aug-2020 15:54:30
 Spectrum: Tune Spec :Average 97-99(3.42-3.44) Bgrd 93(3.37)
 Base Peak: 95.10
 Minimum % Base Peak: 0
 Number of Points: 67

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	2163	56.00	3163	78.00	1073	106.00	712
37.00	11202	57.00	5570	79.00	4540	116.00	529
38.00	9671	60.00	1891	80.00	1413	117.00	1110
39.00	4014	61.00	9650	81.00	4536	118.00	508
40.00	692	62.00	9028	82.00	732	119.00	831
41.00	628	63.00	6934	83.00	251	128.00	480
42.00	1446	64.00	467	87.00	9316	129.00	172
43.00	202	67.00	531	88.00	9365	130.00	672
44.00	1021	68.00	20296	91.00	530	141.00	1894
45.00	1922	69.00	20472	92.00	5552	143.00	1765
47.00	3047	70.00	1991	93.00	8148	148.00	193
48.00	1244	72.00	1071	94.00	23336	155.00	217
49.00	8630	73.00	7285	95.00	207488	174.00	173632
50.00	40832	74.00	33264	96.00	13778	175.00	12763
51.00	12804	75.00	100448	97.00	367	176.00	168512
52.00	491	76.00	8352	98.00	829	177.00	11238
55.00	2522	77.00	1336	104.00	570		

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\BFB4451.D

Injection Date: 04-Aug-2020 15:54:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: BFB

Worklist Smp#: 1

Client ID:

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

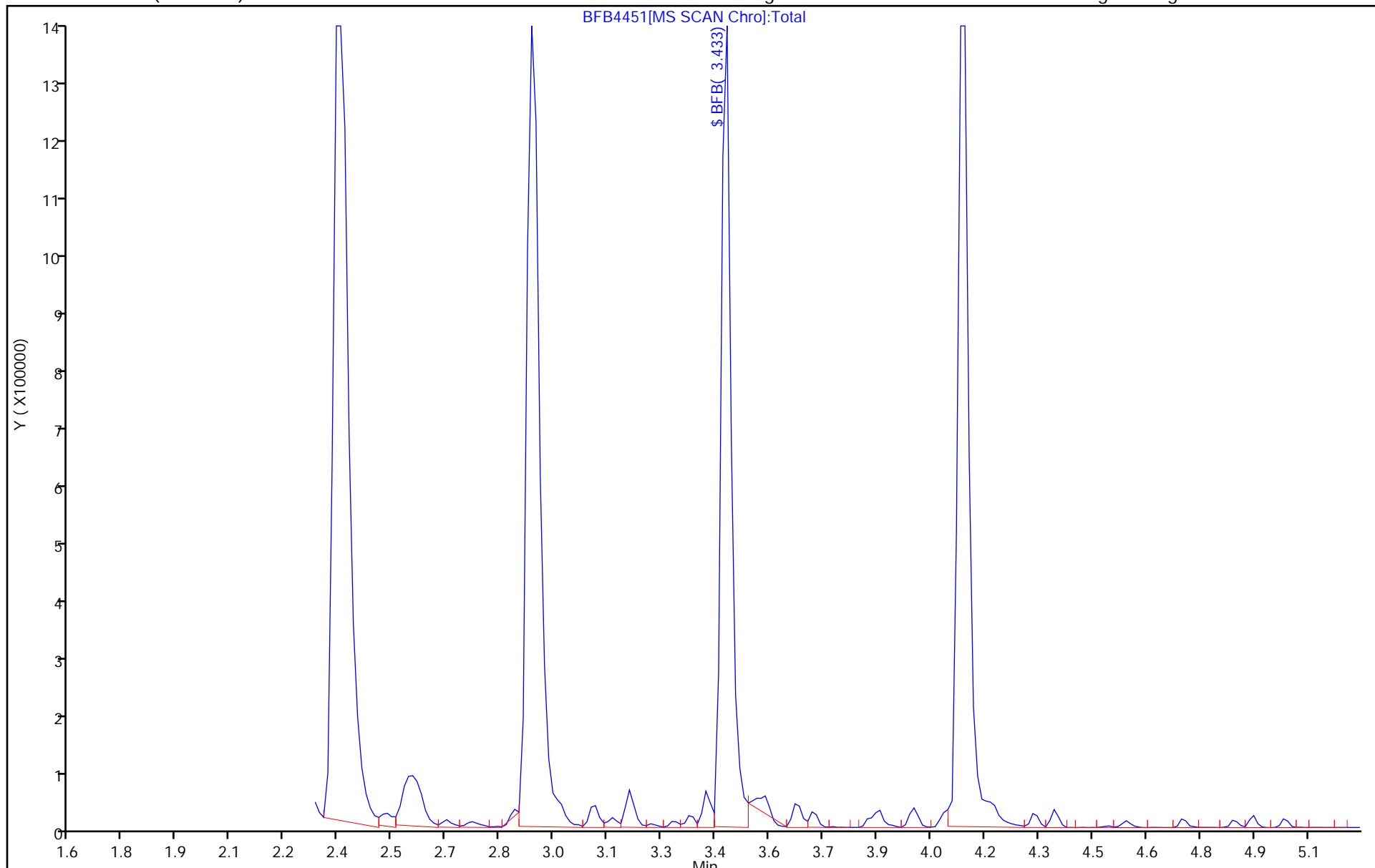
ALS Bottle#: 1

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



TestAmerica Canton
Target Compound Quantitation Report

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\bf036.d
 Lims ID: BFB
 Client ID:
 Sample Type: BFB
 Inject. Date: 24-Jul-2018 17:22:19 ALS Bottle#: 0 Worklist Smp#: 1
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: 240-0078277-001
 Operator ID: 001904 Instrument ID: A3UX19
 Method: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\8260_19.m
 Limit Group: MSV 8260B ICAL
 Last Update: 24-Jul-2018 18:26:01 Calib Date: 01-Jan-0001 00:00:00
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: XAWRK002

First Level Reviewer: laveyt Date: 24-Jul-2018 18:26:01

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 8 BFB	95	4.698	4.698	0.000	0	1090680	NR	NR	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

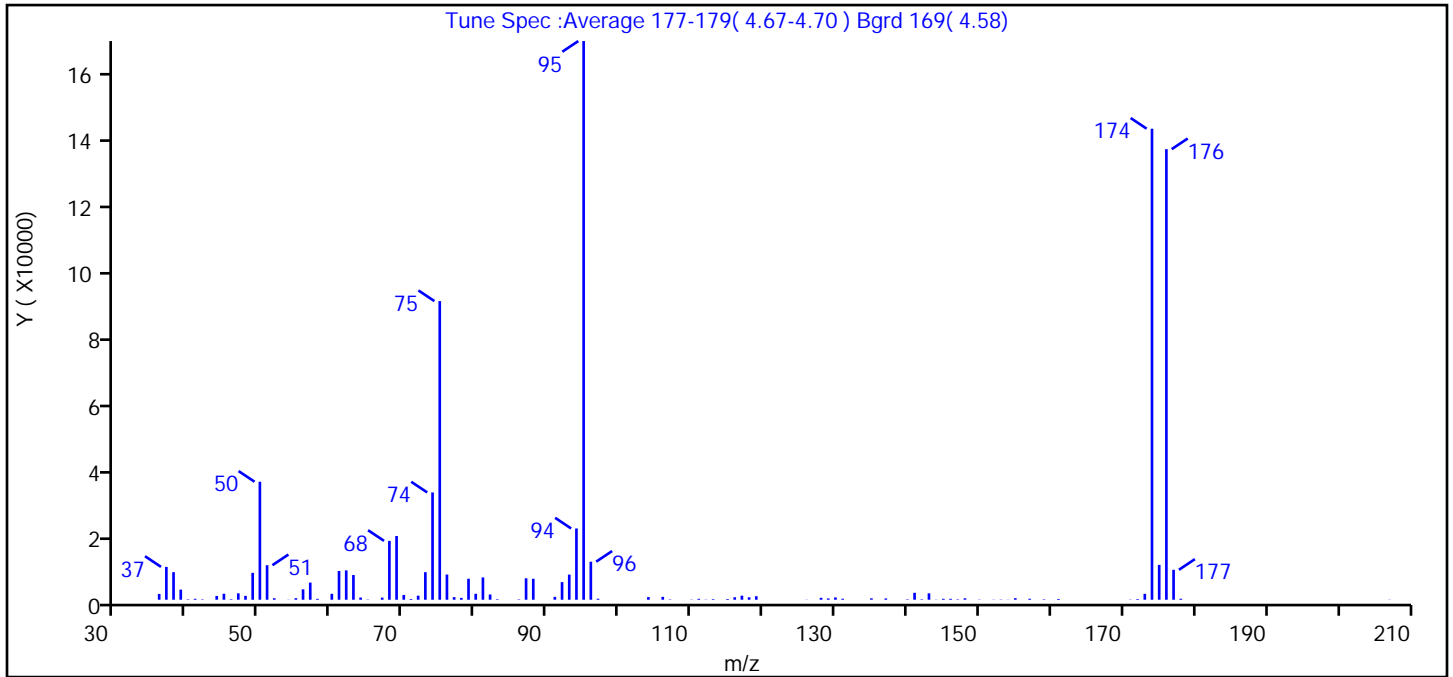
Reagents:

vmbfb_00020 Amount Added: 1.00 Units: uL

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\bf036.d
 Injection Date: 24-Jul-2018 17:22:19 Instrument ID: A3UX19
 Lims ID: BFB
 Client ID:
 Operator ID: 001904 ALS Bottle#: 0 Worklist Smp#: 1
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Method: 8260_19 Limit Group: MSV 8260B ICAL
 Tune Method: BFB Method 8260

\$ 8 BFB



m/z	Ion Abundance Criteria	% Relative Abundance
95	Base peak, 100% relative abundance	100.0
50	15 to 40% of m/z 95	21.1
75	30 to 60% of m/z 95	53.5
96	5 to 9% of m/z 95	6.8
173	Less than 2% of m/z 174	1.1 (1.2)
174	50 to 120% of m/z 95	84.3
175	5 to 9% of m/z 174	6.2 (7.4)
176	Greater than 95% but less than 101% of m/z 174	80.7 (95.7)
177	5 to 9% of m/z 176	5.4 (6.6)

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\bfb036.d\8260_19.rslt\spectra.d

Injection Date: 24-Jul-2018 17:22:19

Spectrum: Tune Spec :Average 177-179(4.67-4.70) Bgrd 169(4.58)

Base Peak: 95.00

Minimum % Base Peak: 0

Number of Points: 99

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1706	64.00	645	94.00	20976	142.00	135
37.00	9667	65.00	75	95.00	164416	143.00	1887
38.00	8121	67.00	620	96.00	11195	144.00	54
39.00	2976	68.00	17320	97.00	297	145.00	282
40.00	128	69.00	18752	104.00	777	146.00	275
41.00	280	70.00	1405	106.00	846	147.00	123
42.00	120	71.00	220	107.00	102	148.00	420
44.00	1112	72.00	1196	110.00	66	150.00	76
45.00	1770	73.00	8112	111.00	269	152.00	57
46.00	157	74.00	31576	112.00	68	153.00	83
47.00	1883	75.00	87888	113.00	186	154.00	50
48.00	1146	76.00	7419	115.00	214	155.00	454
49.00	7909	77.00	768	116.00	734	157.00	295
50.00	34728	78.00	542	117.00	1191	159.00	132
51.00	10164	79.00	6178	118.00	715	161.00	228
52.00	428	80.00	1749	119.00	1035	171.00	76
54.00	52	81.00	6569	126.00	50	172.00	196
55.00	455	82.00	1544	128.00	562	173.00	1730
56.00	3065	83.00	158	129.00	380	174.00	138624
57.00	5049	86.00	123	130.00	675	175.00	10263
58.00	260	87.00	6315	131.00	295	176.00	132608
60.00	1747	88.00	6174	135.00	411	177.00	8811
61.00	8473	91.00	844	137.00	377	178.00	300
62.00	8634	92.00	5187	140.00	129	207.00	54
63.00	7267	93.00	7390	141.00	2044		

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180724-78277.b\bfb036.d

Injection Date: 24-Jul-2018 17:22:19

Instrument ID: A3UX19

Operator ID: 001904

Lims ID: BFB

Worklist Smp#: 1

Client ID:

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

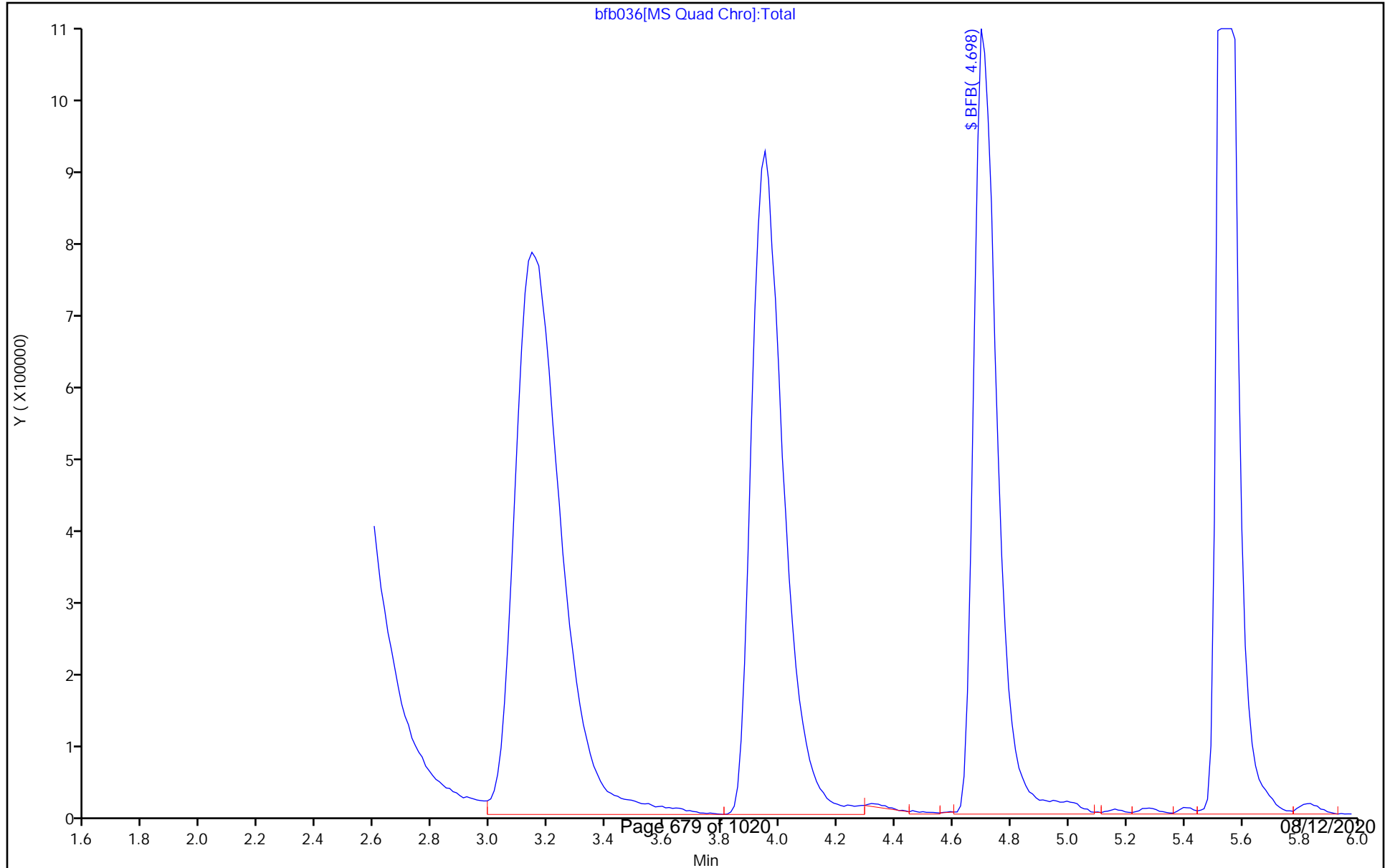
ALS Bottle#: 0

Method: 8260_19

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



bfb036[MS Quad Chro]:Total

TestAmerica Canton
Target Compound Quantitation Report

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180725-78311.b\bfb037.d
 Lims ID: BFB
 Client ID:
 Sample Type: BFB
 Inject. Date: 25-Jul-2018 11:28:13 ALS Bottle#: 0 Worklist Smp#: 1
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: 240-0078311-001
 Operator ID: 001904 Instrument ID: A3UX19
 Method: \\ChromNA\Canton\ChromData\A3UX19\20180725-78311.b\8260_19.m
 Limit Group: MSV 8260B ICAL
 Last Update: 25-Jul-2018 16:32:06 Calib Date: 25-Jul-2018 15:15:13
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Canton\ChromData\A3UX19\20180725-78311.b\U1900807.d
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: XAWRK026

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 8 BFB	95	4.686	4.686	0.000	0	1106546	NR	NR	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

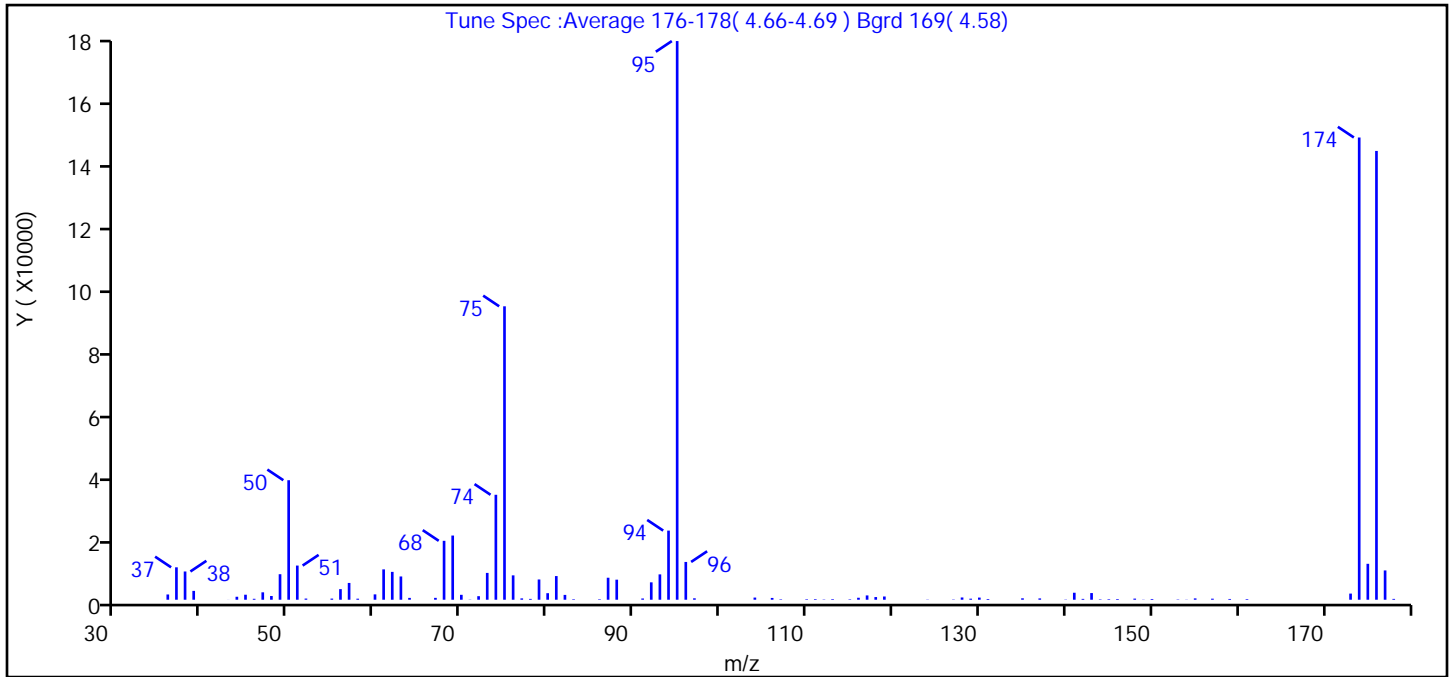
Reagents:

vmbfb_00020 Amount Added: 1.00 Units: uL

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180725-78311.b\bf037.d
 Injection Date: 25-Jul-2018 11:28:13 Instrument ID: A3UX19
 Lims ID: BFB
 Client ID:
 Operator ID: 001904 ALS Bottle#: 0 Worklist Smp#: 1
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Method: 8260_19 Limit Group: MSV 8260B ICAL
 Tune Method: BFB Method 8260

\$ 8 BFB



m/z	Ion Abundance Criteria	% Relative Abundance
95	Base peak, 100% relative abundance	100.0
50	15 to 40% of m/z 95	21.4
75	30 to 60% of m/z 95	52.5
96	5 to 9% of m/z 95	6.8
173	Less than 2% of m/z 174	1.1 (1.3)
174	50 to 120% of m/z 95	82.7
175	5 to 9% of m/z 174	6.4 (7.8)
176	Greater than 95% but less than 101% of m/z 174	80.3 (97.1)
177	5 to 9% of m/z 176	5.2 (6.5)

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180725-78311.b\bfb037.d\8260_19.rslt\spectra.d

Injection Date: 25-Jul-2018 11:28:13

Spectrum: Tune Spec :Average 176-178(4.66-4.69) Bgrd 169(4.58)

Base Peak: 95.00

Minimum % Base Peak: 0

Number of Points: 92

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1628	67.00	581	94.00	21384	137.00	409
37.00	10027	68.00	18224	95.00	172800	140.00	80
38.00	8737	69.00	19856	96.00	11689	141.00	2163
39.00	2738	70.00	1521	97.00	441	142.00	263
43.00	20	71.00	65	104.00	670	143.00	2064
44.00	922	72.00	1099	106.00	557	144.00	132
45.00	1551	73.00	8295	107.00	144	145.00	176
46.00	292	74.00	32464	110.00	165	146.00	215
47.00	2293	75.00	90760	111.00	202	148.00	348
48.00	1156	76.00	7539	112.00	94	149.00	57
49.00	7894	77.00	416	113.00	196	150.00	232
50.00	36968	78.00	262	115.00	145	153.00	106
51.00	10570	79.00	6264	116.00	614	154.00	54
52.00	361	80.00	2025	117.00	1332	155.00	412
55.00	352	81.00	7320	118.00	827	157.00	327
56.00	3282	82.00	1495	119.00	1001	159.00	239
57.00	5195	83.00	170	124.00	70	161.00	201
58.00	322	86.00	159	127.00	96	173.00	1900
60.00	1660	87.00	6806	128.00	700	174.00	142976
61.00	9391	88.00	6205	129.00	329	175.00	11113
62.00	8617	91.00	385	130.00	667	176.00	138816
63.00	7197	92.00	5382	131.00	228	177.00	9062
64.00	572	93.00	7843	135.00	442	178.00	262

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180725-78311.b\bfb037.d

Injection Date: 25-Jul-2018 11:28:13

Instrument ID: A3UX19

Operator ID: 001904

Lims ID: BFB

Worklist Smp#: 1

Client ID:

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

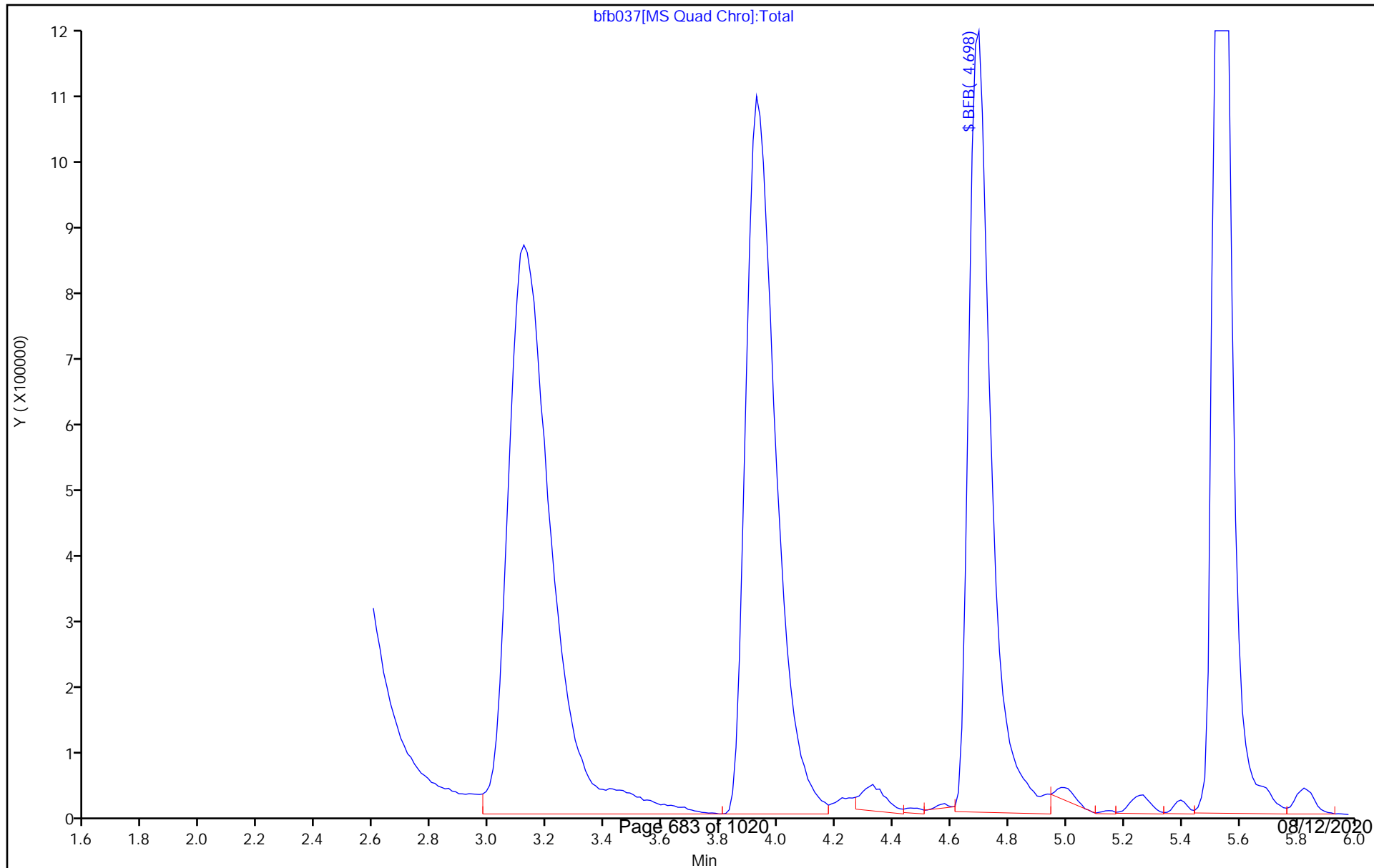
ALS Bottle#: 0

Method: 8260_19

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



TestAmerica Canton
Target Compound Quantitation Report

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\bfb058.d
 Lims ID: BFB
 Client ID:
 Sample Type: BFB
 Inject. Date: 27-Aug-2018 16:23:35 ALS Bottle#: 0 Worklist Smp#: 1
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: 240-0079307-001
 Operator ID: 001904 Instrument ID: A3UX19
 Method: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\8260_19.m
 Limit Group: MSV 8260B ICAL
 Last Update: 27-Aug-2018 20:00:43 Calib Date: 27-Aug-2018 19:23:28
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\U1901329.d
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: XAWRK010

First Level Reviewer: laveyt Date: 27-Aug-2018 19:59:46

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 8 BFB	95	4.698	4.698	0.000	0	1569511	NR	NR	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

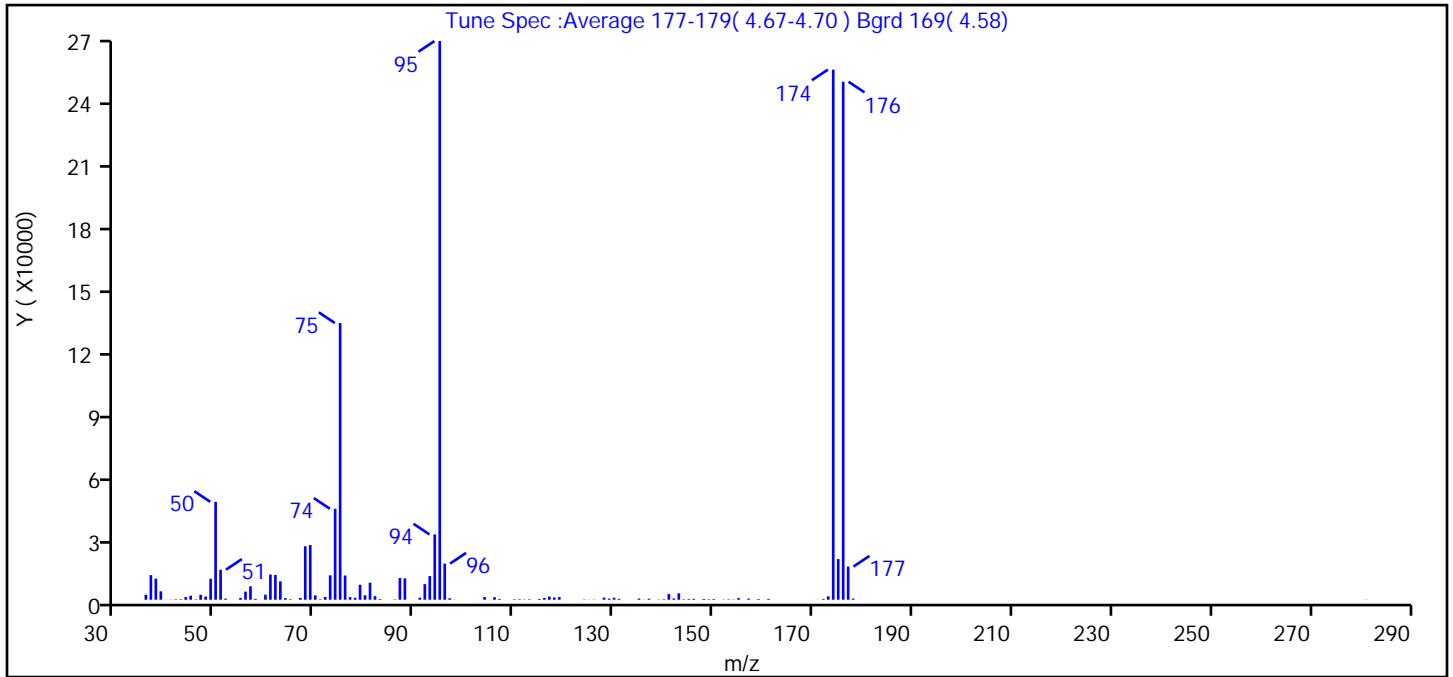
Reagents:

vmbfb_00020 Amount Added: 1.00 Units: uL

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\bf058.d
 Injection Date: 27-Aug-2018 16:23:35 Instrument ID: A3UX19
 Lims ID: BFB
 Client ID:
 Operator ID: 001904 ALS Bottle#: 0 Worklist Smp#: 1
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Method: 8260_19 Limit Group: MSV 8260B ICAL
 Tune Method: BFB Method 8260

\$ 8 BFB



m/z	Ion Abundance Criteria	% Relative Abundance
95	Base peak, 100% relative abundance	100.0
50	15 to 40% of m/z 95	17.5
75	30 to 60% of m/z 95	49.5
96	5 to 9% of m/z 95	6.5
173	Less than 2% of m/z 174	0.6 (0.6)
174	50 to 120% of m/z 95	94.9
175	5 to 9% of m/z 174	7.3 (7.7)
176	Greater than 95% but less than 101% of m/z 174	92.7 (97.7)
177	5 to 9% of m/z 176	5.9 (6.4)

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\bfb058.d\8260_19.rslt\spectra.d

Injection Date: 27-Aug-2018 16:23:35

Spectrum: Tune Spec :Average 177-179(4.67-4.70) Bgrd 169(4.58)

Base Peak: 95.00

Minimum % Base Peak: 0

Number of Points: 104

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	2349	65.00	256	96.00	17360	140.00	251
37.00	11809	67.00	862	97.00	688	141.00	2734
38.00	10107	68.00	25672	98.00	58	142.00	600
39.00	4064	69.00	26264	104.00	1300	143.00	3067
40.00	66	70.00	2099	106.00	1203	144.00	221
41.00	100	71.00	235	107.00	359	145.00	322
42.00	232	72.00	1321	110.00	224	146.00	434
43.00	243	73.00	11723	111.00	256	148.00	370
44.00	1279	74.00	43680	112.00	119	149.00	227
45.00	1945	75.00	132864	113.00	246	150.00	326
46.00	198	76.00	11659	115.00	360	152.00	127
47.00	2373	77.00	1269	116.00	866	153.00	224
48.00	1513	78.00	954	117.00	1530	154.00	142
49.00	10079	79.00	7185	118.00	1063	155.00	786
50.00	47000	80.00	2148	119.00	1259	157.00	556
51.00	14416	81.00	8168	124.00	158	159.00	325
52.00	549	82.00	1723	125.00	69	161.00	362
55.00	872	83.00	325	126.00	112	171.00	51
56.00	3900	86.00	204	128.00	1021	172.00	331
57.00	6486	87.00	10430	129.00	555	173.00	1639
58.00	440	88.00	10260	130.00	946	174.00	254528
60.00	2424	91.00	1000	131.00	447	175.00	19520
61.00	12091	92.00	7487	135.00	583	176.00	248704
62.00	11912	93.00	11359	136.00	73	177.00	15935
63.00	8822	94.00	31360	137.00	488	178.00	556
64.00	782	95.00	268224	139.00	133	281.00	85

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX19\20180827-79307.b\bfb058.d

Injection Date: 27-Aug-2018 16:23:35

Instrument ID: A3UX19

Operator ID: 001904

Lims ID: BFB

Worklist Smp#: 1

Client ID:

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

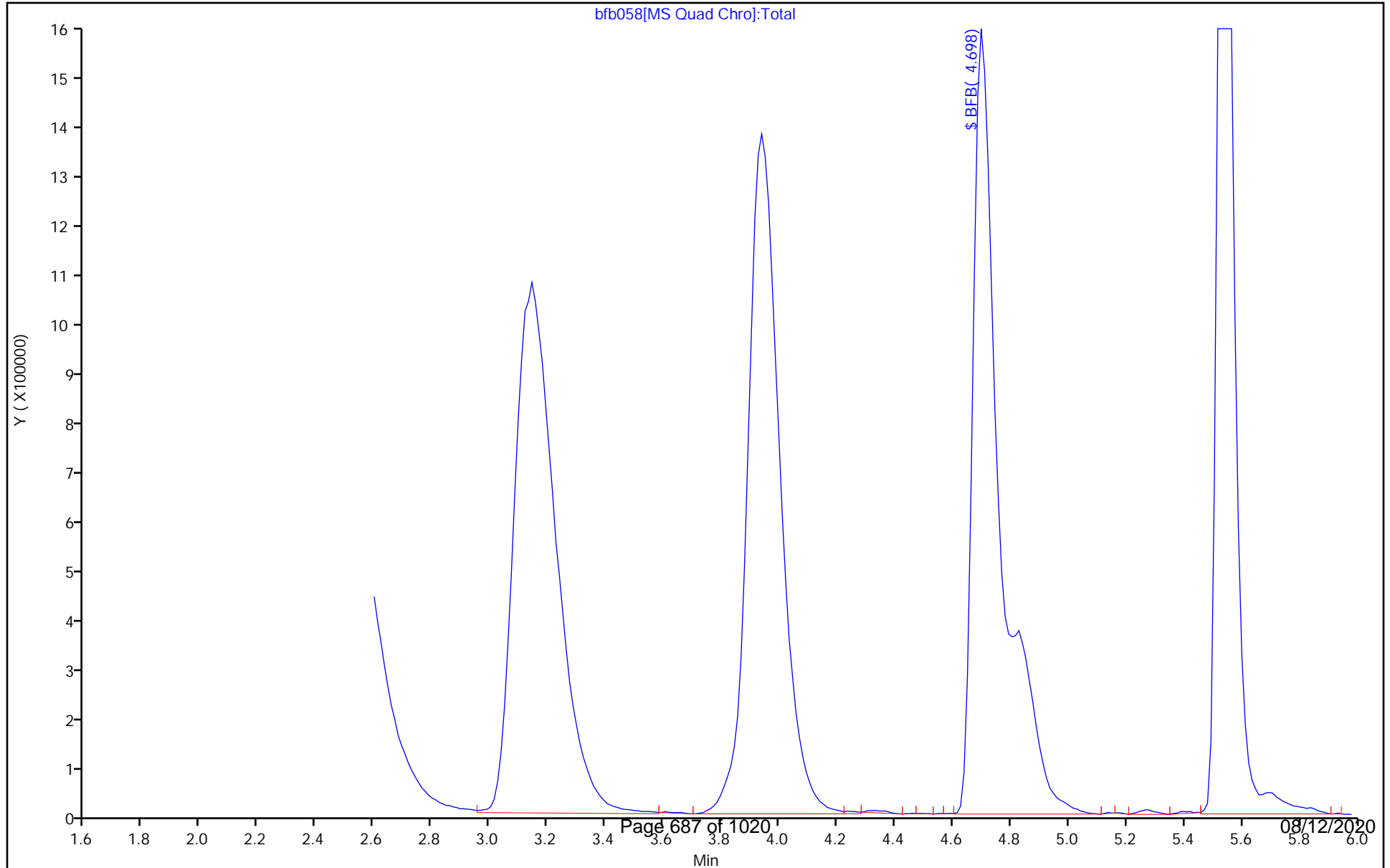
ALS Bottle#: 0

Method: 8260_19

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX19\20200806-100740.b\bfb592.d
 Lims ID: BFB
 Client ID:
 Sample Type: BFB
 Inject. Date: 06-Aug-2020 17:23:31 ALS Bottle#: 0 Worklist Smp#: 1
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: 240-0100740-001
 Operator ID: 001904 Instrument ID: A3UX19
 Method: \\chromfs\Canton\ChromData\A3UX19\20200806-100740.b\8260_19.m
 Limit Group: MSV 8260B ICAL
 Last Update: 06-Aug-2020 17:34:22 Calib Date: 09-Jun-2020 21:22:13
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX19\20200609-98977.b\U1914735.d
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1070

First Level Reviewer: laveyt Date: 06-Aug-2020 17:34:22

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 8 BFB	95	4.703	4.703	0.000	0	1478249	NR	NR	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

Reagents:

vmbfb_00025

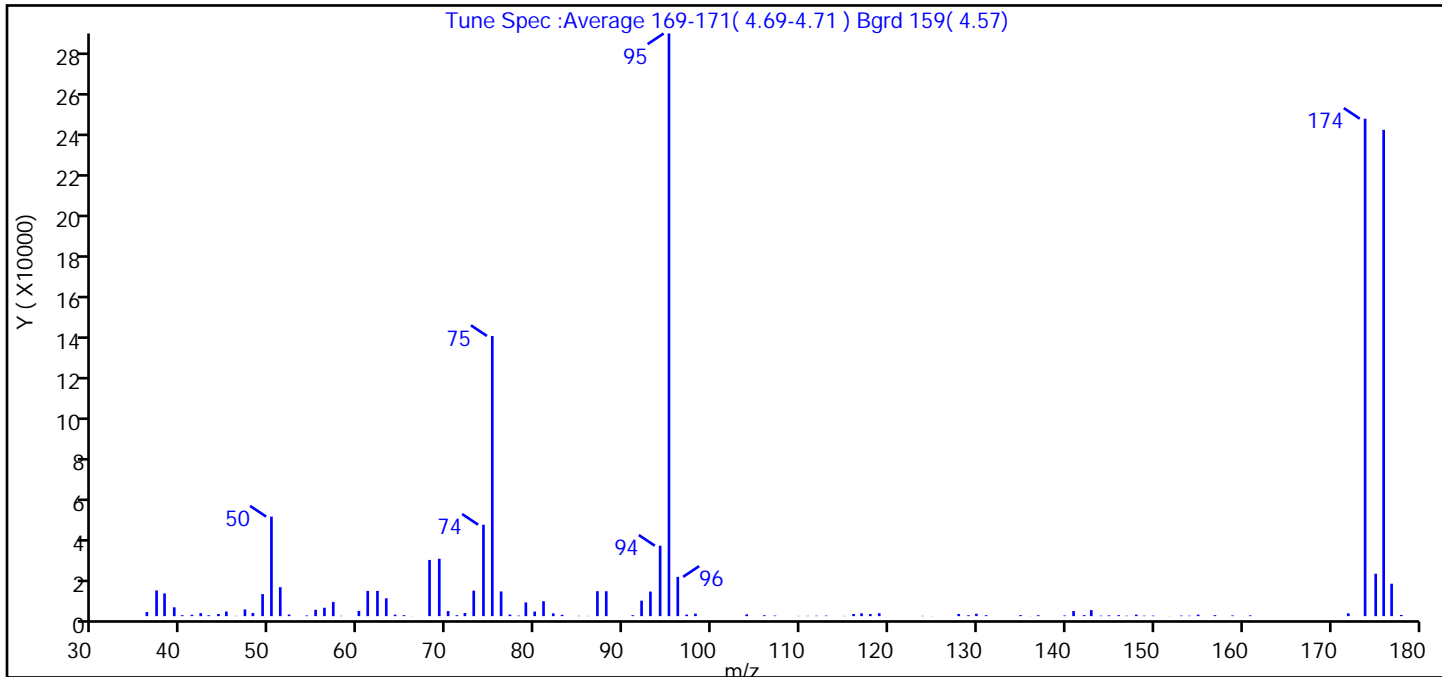
Amount Added: 1.00

Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX19\20200806-100740.b\bfb592.d
 Injection Date: 06-Aug-2020 17:23:31 Instrument ID: A3UX19
 Lims ID: BFB
 Client ID:
 Operator ID: 001904 ALS Bottle#: 0 Worklist Smp#: 1
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Method: 8260_19 Limit Group: MSV 8260B ICAL
 Tune Method: BFB Method 8260

\$ 8 BFB



m/z	Ion Abundance Criteria	% Relative Abundance
95	Base peak, 100% relative abundance	100.0
50	15 to 40% of m/z 95	17.1
75	30 to 60% of m/z 95	48.1
96	5 to 9% of m/z 95	6.7
173	Less than 2% of m/z 174	0.0 (0.0)
174	50 to 120% of m/z 95	85.4
175	5 to 9% of m/z 174	7.3 (8.5)
176	Greater than 95% but less than 101% of m/z 174	83.5 (97.8)
177	5 to 9% of m/z 176	5.6 (6.7)

Data File: \\chromfs\Canton\ChromData\A3UX19\20200806-100740.b\bfb592.d\8260_19.rslt\spectra.d
Injection Date: 06-Aug-2020 17:23:31
Spectrum: Tune Spec :Average 169-171(4.69-4.71) Bgrd 159(4.57)
Base Peak: 95.10
Minimum % Base Peak: 0
Number of Points: 103

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	2016	63.00	8633	93.00	11913	137.00	438
37.00	12449	64.00	705	94.00	34112	140.00	320
38.00	11007	65.00	475	95.00	282176	141.00	2472
39.00	4278	66.00	52	96.00	19040	142.00	485
40.00	459	68.00	27224	97.00	758	143.00	2925
41.00	643	69.00	27784	98.00	1215	144.00	246
42.00	1438	70.00	2464	104.00	862	145.00	376
43.00	439	71.00	457	106.00	434	146.00	470
44.00	1032	72.00	1501	107.00	281	147.00	209
45.00	2225	73.00	12369	110.00	109	148.00	715
46.00	145	74.00	44288	111.00	154	149.00	238
47.00	3258	75.00	135680	112.00	214	150.00	262
48.00	1525	76.00	11968	113.00	262	152.00	58
49.00	10687	77.00	769	115.00	118	153.00	270
50.00	48216	78.00	257	116.00	1017	154.00	220
51.00	14019	79.00	6647	117.00	1361	155.00	730
52.00	768	80.00	2213	118.00	1010	157.00	481
53.00	1	81.00	7247	119.00	1430	159.00	339
54.00	342	82.00	1328	124.00	142	161.00	364
55.00	3082	83.00	652	125.00	61	172.00	1363
56.00	4067	85.00	158	128.00	1057	174.00	240896
57.00	6898	86.00	111	129.00	417	175.00	20536
58.00	147	87.00	12093	130.00	1167	176.00	235520
60.00	2549	88.00	12065	131.00	454	177.00	15715
61.00	12210	91.00	464	135.00	487	178.00	570
62.00	12236	92.00	7514	136.00	51		

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX19\20200806-100740.b\bfb592.d

Injection Date: 06-Aug-2020 17:23:31

Instrument ID: A3UX19

Operator ID: 001904

Lims ID: BFB

Worklist Smp#: 1

Client ID:

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

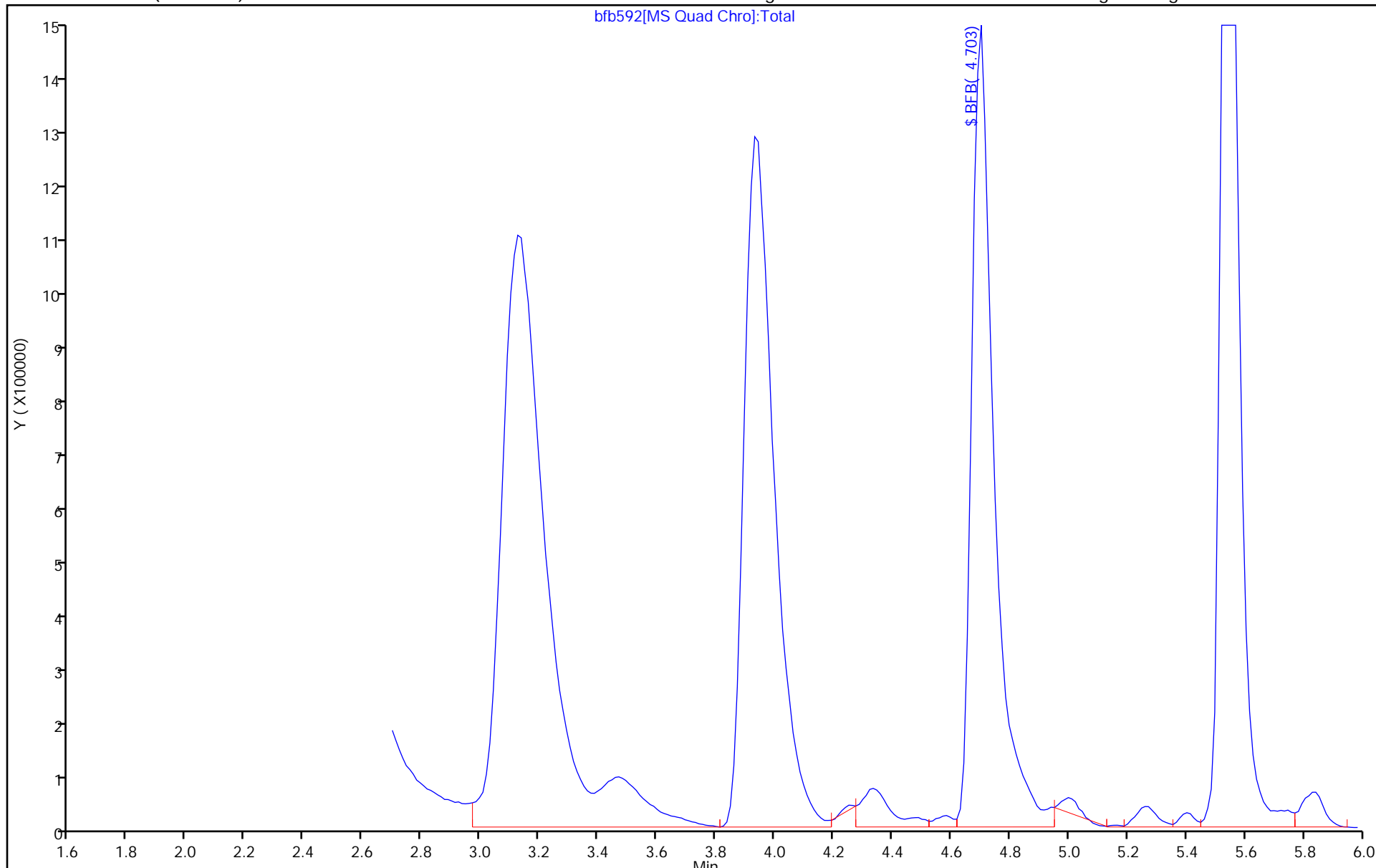
ALS Bottle#: 0

Method: 8260_19

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\BFB1008.D
 Lims ID: BFB
 Client ID:
 Sample Type: BFB
 Inject. Date: 29-Jun-2020 09:36:30 ALS Bottle#: 4 Worklist Smp#: 2
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: 240-0099598-002
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Jul-2020 12:42:50 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1033

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 8 BFB	95	3.925	3.925	0.000	0	369331	NR	NR	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

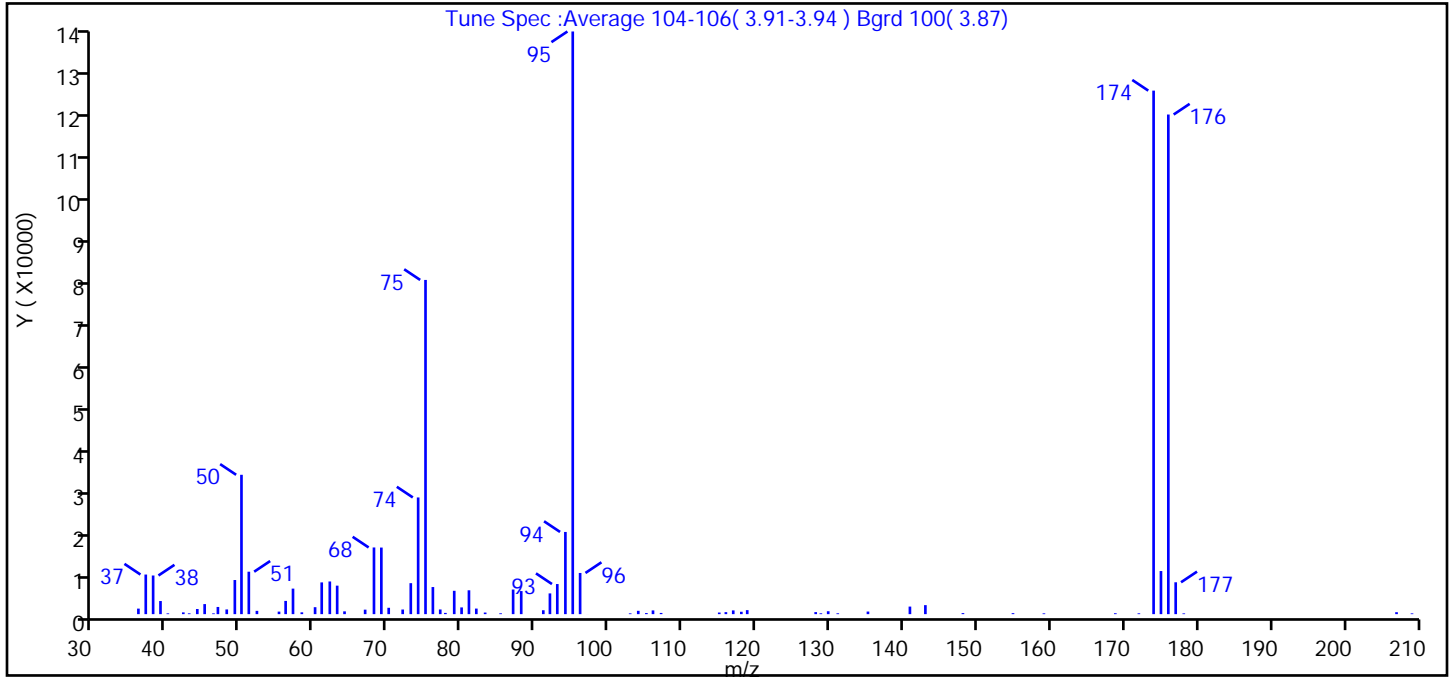
Reagents:

vmbfb_00025 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\BFB1008.D
 Injection Date: 29-Jun-2020 09:36:30 Instrument ID: A3UX9
 Lims ID: BFB
 Client ID:
 Operator ID: 001765 ALS Bottle#: 4 Worklist Smp#: 2
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Method: 8260_9 Limit Group: MSV 8260B ICAL
 Tune Method: BFB Method 8260

\$ 8 BFB



m/z	Ion Abundance Criteria	% Relative Abundance
95	Base peak, 100% relative abundance	100.0
50	15 to 40% of m/z 95	23.9
75	30 to 60% of m/z 95	57.4
96	5 to 9% of m/z 95	7.1
173	Less than 2% of m/z 174	0.0 (0.0)
174	50 to 120% of m/z 95	89.8
175	5 to 9% of m/z 174	7.4 (8.2)
176	Greater than 95% but less than 101% of m/z 174	85.7 (95.4)
177	5 to 9% of m/z 176	5.5 (6.4)

Data File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\BFB1008.D\8260_9.rslt\spectra.d
Injection Date: 29-Jun-2020 09:36:30
Spectrum: Tune Spec :Average 104-106(3.91-3.94) Bgrd 100(3.87)
Base Peak: 95.05
Minimum % Base Peak: 0
Number of Points: 80

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1248	60.00	1569	83.00	360	119.00	904
37.00	8935	61.00	7162	85.00	192	128.00	460
38.00	8719	62.00	7371	87.00	5555	129.00	192
39.00	2957	63.00	6428	88.00	5205	130.00	655
40.00	175	64.00	630	91.00	879	131.00	193
42.00	396	67.00	1012	92.00	4679	135.00	585
43.00	182	68.00	15043	93.00	6792	141.00	1706
44.00	1157	69.00	15024	94.00	18544	143.00	2032
45.00	2268	70.00	1433	95.00	131456	148.00	235
46.00	177	72.00	1042	96.00	9291	155.00	222
47.00	1621	73.00	6990	97.00	6	159.00	178
48.00	1061	74.00	26328	103.00	179	169.00	204
49.00	7698	75.00	75400	104.00	750	172.00	186
50.00	31440	76.00	6113	105.00	243	174.00	118112
51.00	9575	77.00	1053	106.00	845	175.00	9725
52.00	742	78.00	281	107.00	272	176.00	112720
55.00	572	79.00	5267	115.00	366	177.00	7189
56.00	2985	80.00	1519	116.00	455	178.00	171
57.00	5759	81.00	5382	117.00	846	207.00	441
58.00	409	82.00	1256	118.00	537	209.00	172

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\BFB1008.D

Injection Date: 29-Jun-2020 09:36:30

Instrument ID: A3UX9

Operator ID: 001765

Lims ID: BFB

Worklist Smp#: 2

Client ID:

Injection Vol: 5.0 mL

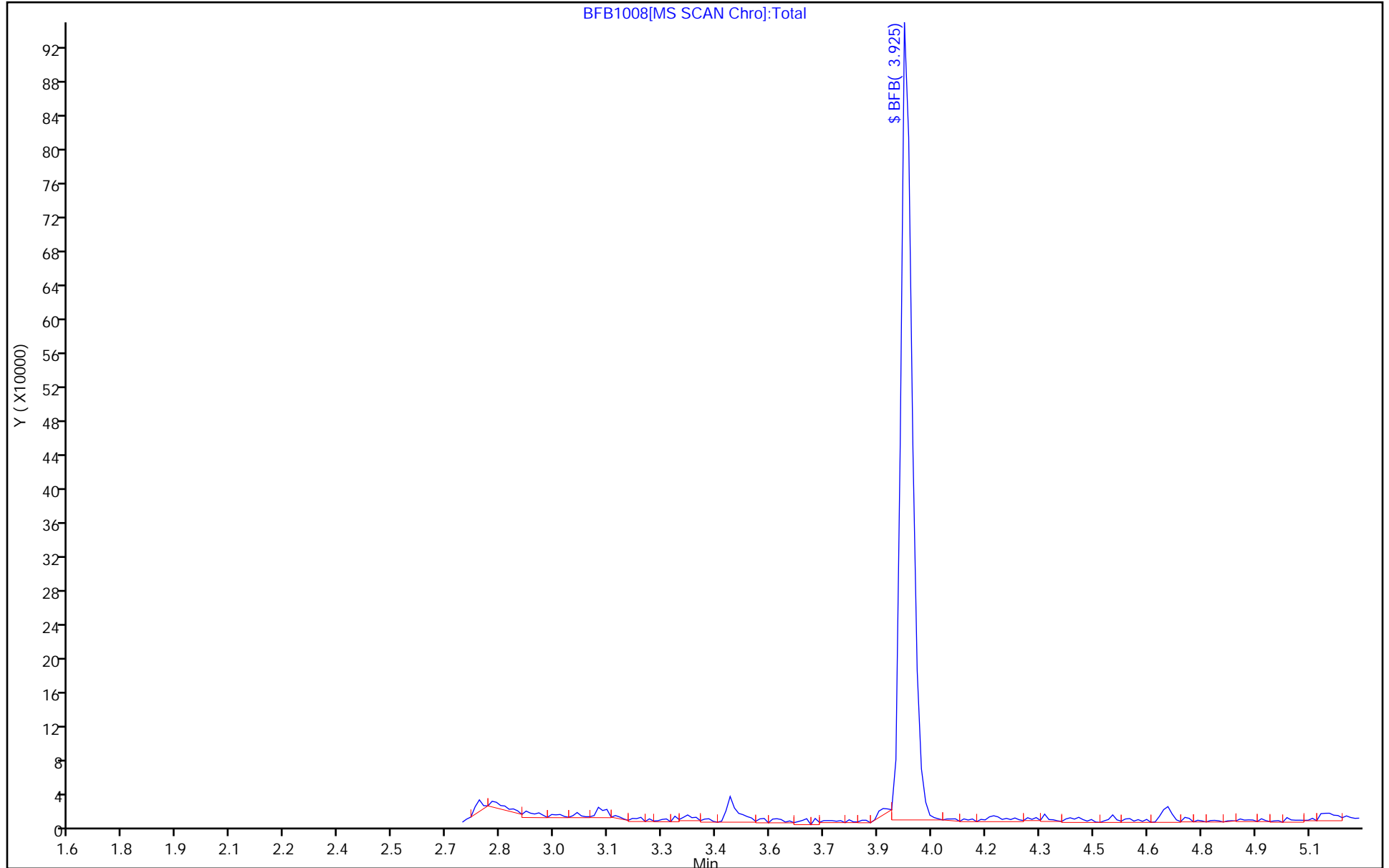
Dil. Factor: 1.0000

ALS Bottle#: 4

Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\BFB1032.D
 Lims ID: BFB
 Client ID:
 Sample Type: BFB
 Inject. Date: 04-Aug-2020 09:37:30 ALS Bottle#: 3 Worklist Smp#: 1
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: 240-0100652-001
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 10:21:43 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1053

First Level Reviewer: bosworthh Date: 04-Aug-2020 10:21:43

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 8 BFB	95	4.010	4.010	0.000	0	598681	NR	NR	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

Reagents:

vmbfb_00025

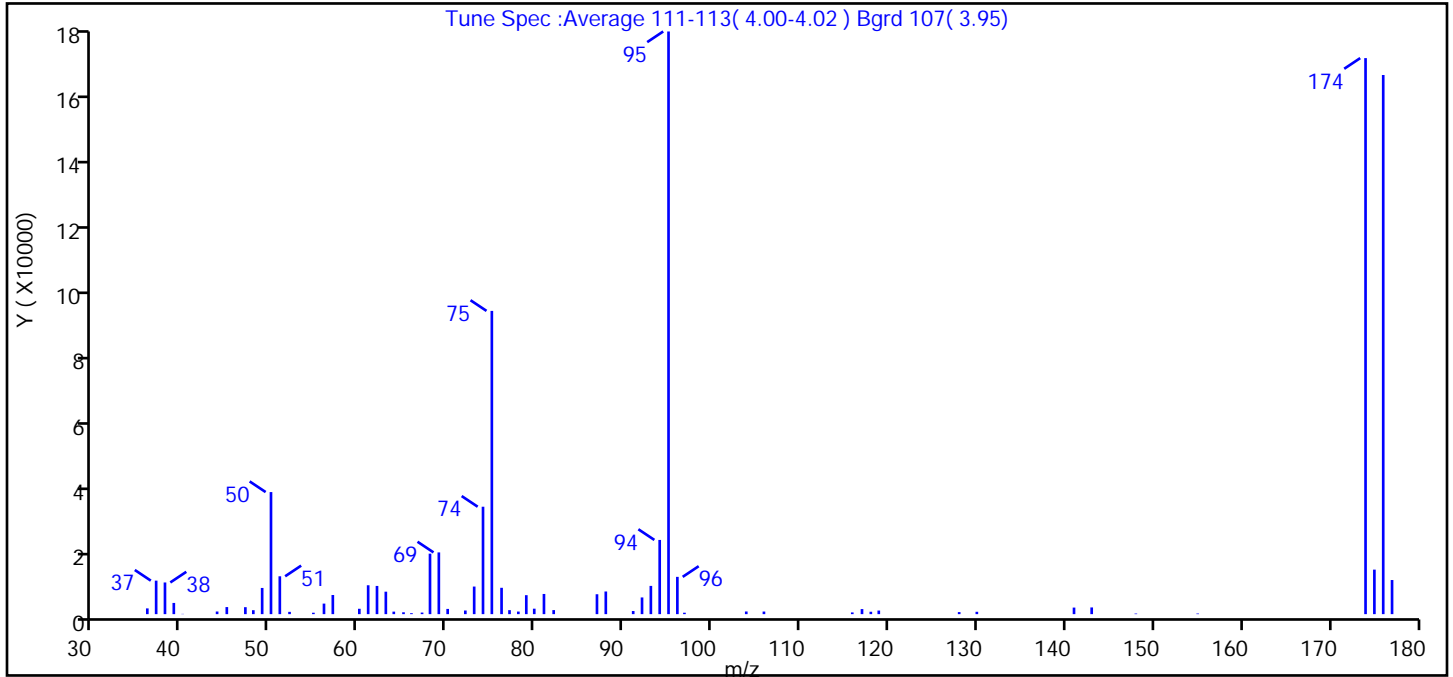
Amount Added: 1.00

Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\BFB1032.D
 Injection Date: 04-Aug-2020 09:37:30 Instrument ID: A3UX9
 Lims ID: BFB
 Client ID:
 Operator ID: 001765 ALS Bottle#: 3 Worklist Smp#: 1
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Method: 8260_9 Limit Group: MSV 8260B ICAL
 Tune Method: BFB Method 8260

\$ 8 BFB



m/z	Ion Abundance Criteria	% Relative Abundance
95	Base peak, 100% relative abundance	100.0
50	15 to 40% of m/z 95	20.9
75	30 to 60% of m/z 95	52.0
96	5 to 9% of m/z 95	6.4
173	Less than 2% of m/z 174	0.0 (0.0)
174	50 to 120% of m/z 95	95.4
175	5 to 9% of m/z 174	7.6 (8.0)
176	Greater than 95% but less than 101% of m/z 174	92.5 (97.0)
177	5 to 9% of m/z 176	5.9 (6.3)

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\BFB1032.D\8260_9.rslt\spectra.d
 Injection Date: 04-Aug-2020 09:37:30
 Spectrum: Tune Spec :Average 111-113(4.00-4.02) Bgrd 107(3.95)
 Base Peak: 95.05
 Minimum % Base Peak: 0
 Number of Points: 63

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1699	60.00	1587	77.00	1179	106.00	768
37.00	9902	61.00	8539	78.00	764	116.00	509
38.00	9362	62.00	8336	79.00	5606	117.00	1497
39.00	3313	63.00	6640	80.00	1614	118.00	710
40.00	76	64.00	746	81.00	5966	119.00	1061
44.00	777	65.00	550	82.00	1196	128.00	606
45.00	2089	66.00	285	87.00	5882	130.00	699
47.00	2058	67.00	468	88.00	6698	141.00	1940
48.00	1167	68.00	17880	91.00	919	143.00	1982
49.00	7744	69.00	18248	92.00	4936	148.00	173
50.00	36080	70.00	1544	93.00	8348	155.00	179
51.00	11190	72.00	1074	94.00	21936	174.00	164352
52.00	678	73.00	8154	95.00	172224	175.00	13160
55.00	421	74.00	31752	96.00	11020	176.00	159360
56.00	3117	75.00	89632	97.00	422	177.00	10085
57.00	5656	76.00	7790	104.00	787		

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\BFB1032.D

Injection Date: 04-Aug-2020 09:37:30

Instrument ID: A3UX9

Operator ID: 001765

Lims ID: BFB

Worklist Smp#: 1

Client ID:

Injection Vol: 5.0 mL

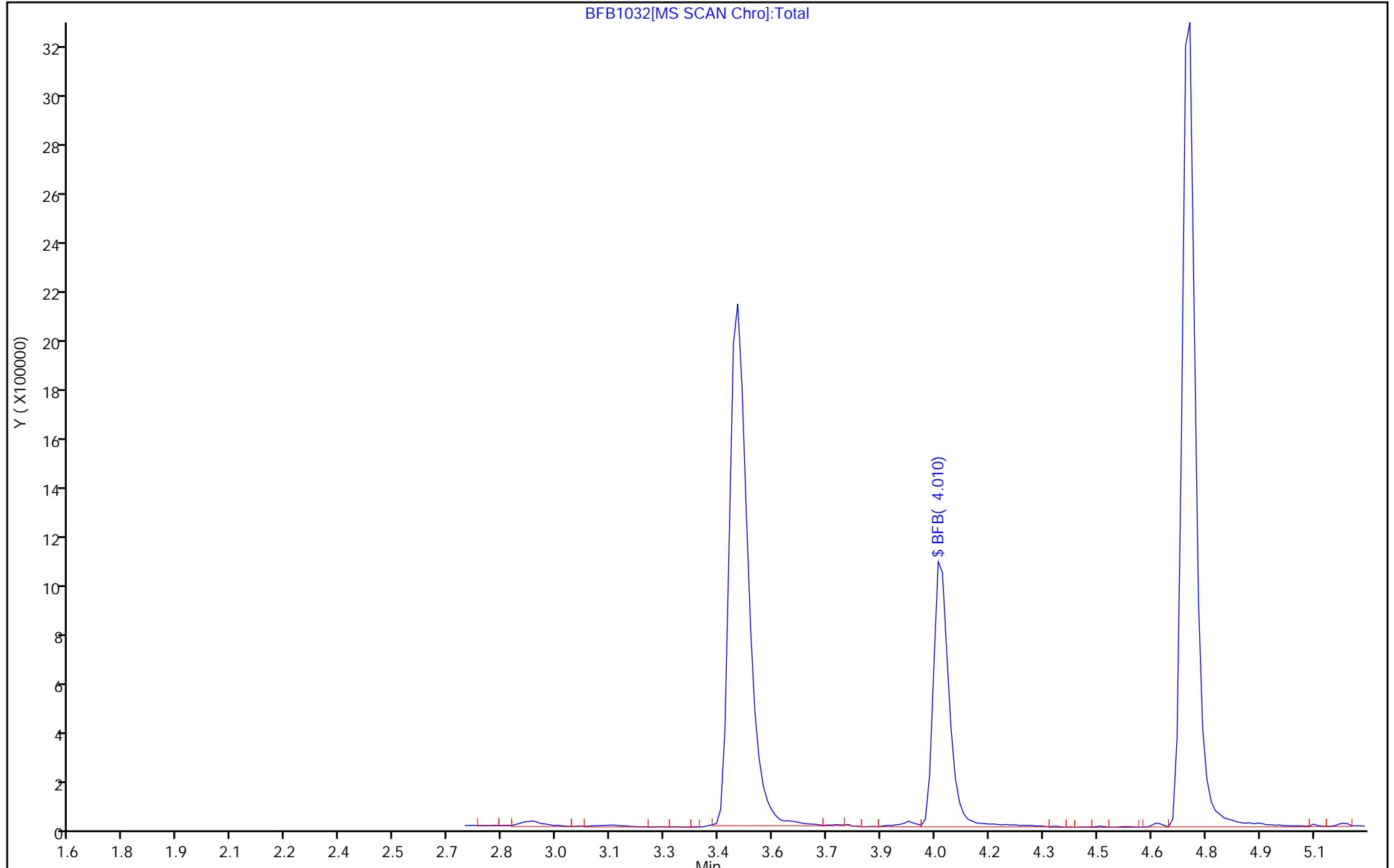
Dil. Factor: 1.0000

ALS Bottle#: 3

Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\BFB1033.D
 Lims ID: BFB
 Client ID:
 Sample Type: BFB
 Inject. Date: 05-Aug-2020 09:07:30 ALS Bottle#: 1 Worklist Smp#: 1
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: 240-0100687-001
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 10:20:39 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1061

First Level Reviewer: bosworthh Date: 05-Aug-2020 10:20:39

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
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\$ 8 BFB	95	4.007	4.007	0.000	0	580824	NR	NR	
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QC Flag Legend

Processing Flags

NR - Missing Quant Standard

Reagents:

vmbfb_00025

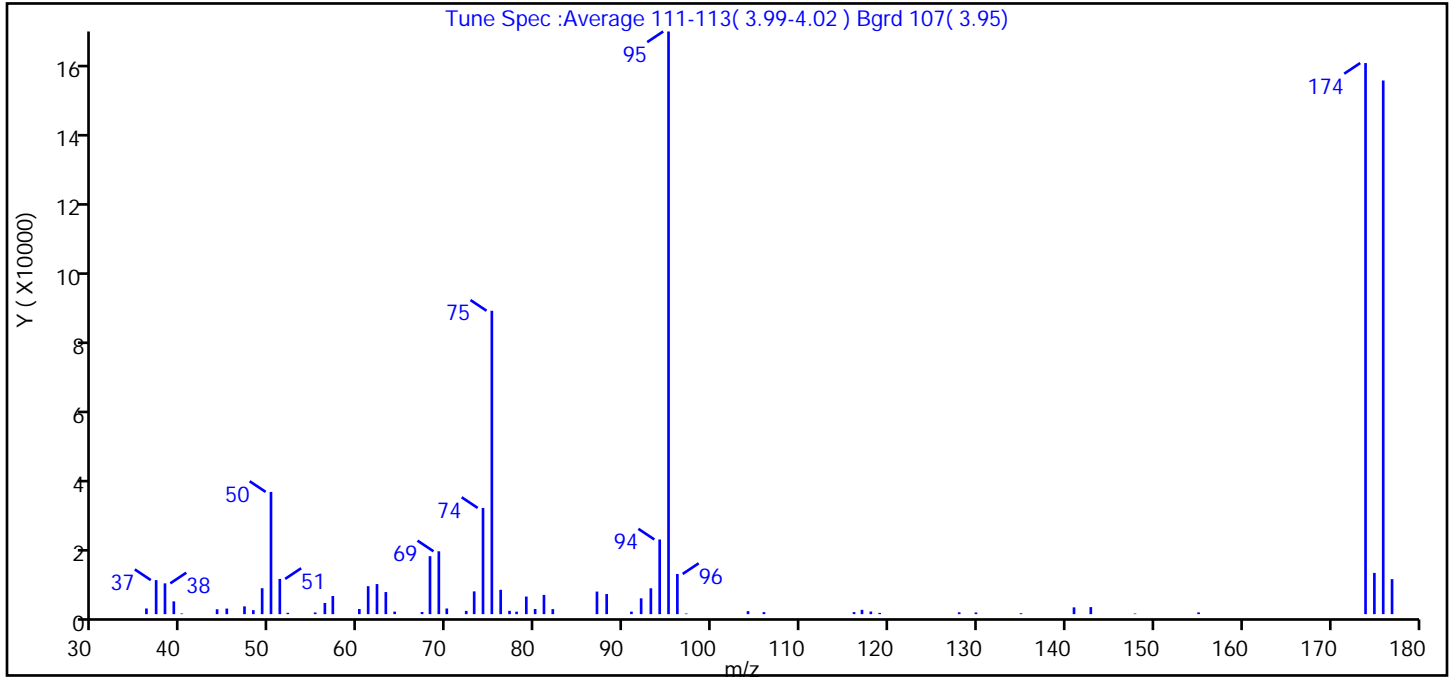
Amount Added: 1.00

Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\BFB1033.D
 Injection Date: 05-Aug-2020 09:07:30 Instrument ID: A3UX9
 Lims ID: BFB
 Client ID:
 Operator ID: 001765 ALS Bottle#: 1 Worklist Smp#: 1
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Method: 8260_9 Limit Group: MSV 8260B ICAL
 Tune Method: BFB Method 8260

\$ 8 BFB



m/z	Ion Abundance Criteria	% Relative Abundance
95	Base peak, 100% relative abundance	100.0
50	15 to 40% of m/z 95	21.0
75	30 to 60% of m/z 95	52.1
96	5 to 9% of m/z 95	6.9
173	Less than 2% of m/z 174	0.0 (0.0)
174	50 to 120% of m/z 95	94.6
175	5 to 9% of m/z 174	7.1 (7.5)
176	Greater than 95% but less than 101% of m/z 174	91.6 (96.8)
177	5 to 9% of m/z 176	6.0 (6.6)

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\BFB1033.D\8260_9.rslt\spectra.d
 Injection Date: 05-Aug-2020 09:07:30
 Spectrum: Tune Spec :Average 111-113(3.99-4.02) Bgrd 107(3.95)
 Base Peak: 95.05
 Minimum % Base Peak: 0
 Number of Points: 62

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1642	60.00	1481	79.00	5100	117.00	1251
37.00	9870	61.00	8103	80.00	1486	118.00	759
38.00	8923	62.00	8720	81.00	5580	119.00	367
39.00	3707	63.00	6406	82.00	1460	128.00	537
40.00	191	64.00	734	87.00	6544	130.00	483
44.00	1411	67.00	621	88.00	5828	135.00	266
45.00	1618	68.00	16800	91.00	740	141.00	1964
47.00	2258	69.00	18216	92.00	4589	143.00	2039
48.00	1152	70.00	1640	93.00	7498	148.00	174
49.00	7526	72.00	939	94.00	21640	155.00	505
50.00	35432	73.00	6599	95.00	168896	174.00	159744
51.00	10214	74.00	30784	96.00	11649	175.00	11947
52.00	383	75.00	87944	97.00	183	176.00	154688
55.00	488	76.00	7052	104.00	864	177.00	10149
56.00	3242	77.00	960	106.00	591		
57.00	5264	78.00	723	116.00	596		

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200805-100687.b\BFB1033.D

Injection Date: 05-Aug-2020 09:07:30

Instrument ID: A3UX9

Operator ID: 001765

Lims ID: BFB

Worklist Smp#: 1

Client ID:

Injection Vol: 5.0 mL

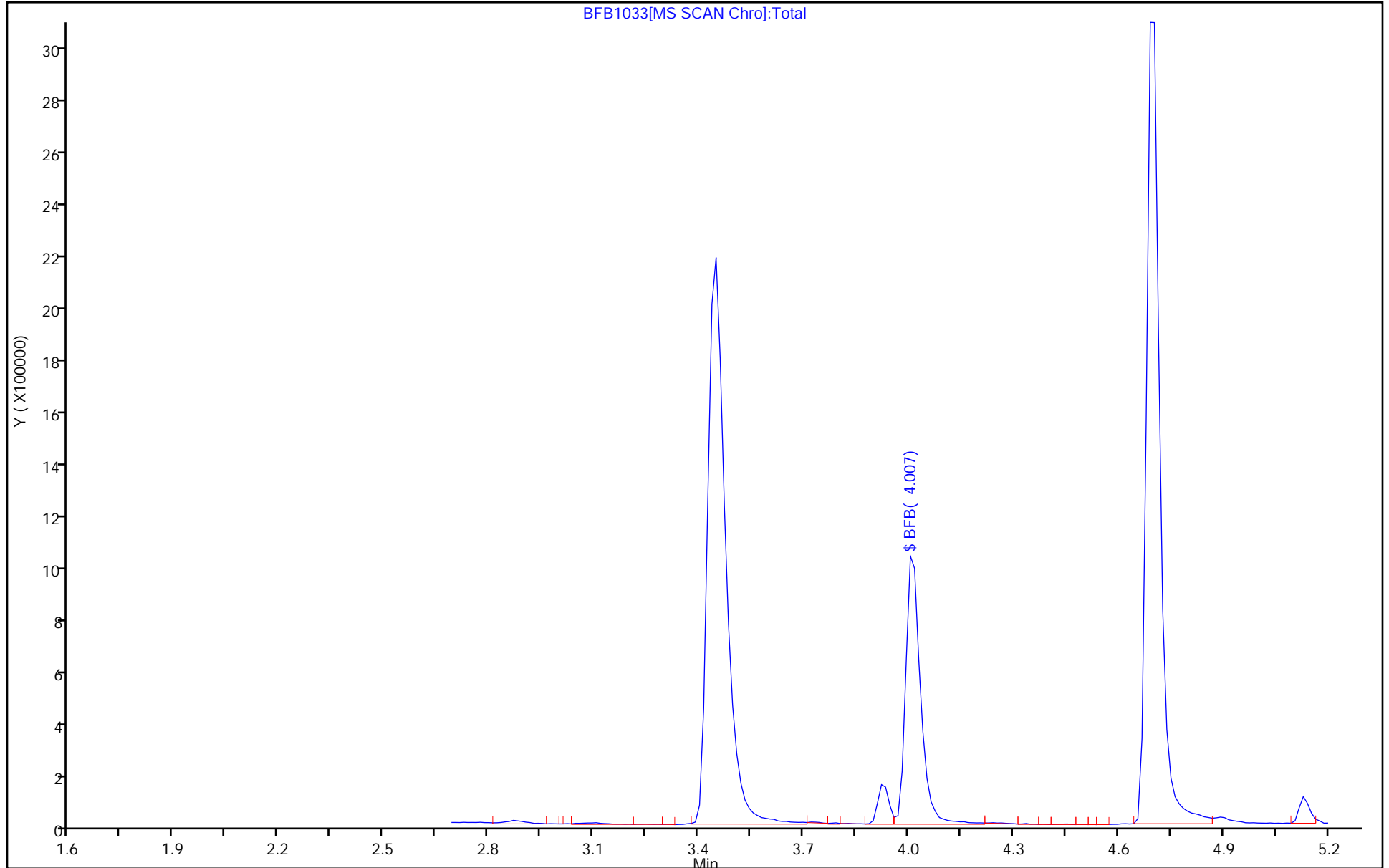
Dil. Factor: 1.0000

ALS Bottle#: 1

Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 240-445424/1-A
 Matrix: Solid Lab File ID: U1279494a.D
 Analysis Method: 8260B MI Date Collected: _____
 Sample wt/vol: 10.00(g) Date Analyzed: 08/04/2020 18:24
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18(mm)
 % Moisture: _____ Level: (low/med) Medium
 Analysis Batch No.: 445595 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	40	U	40	16
123-91-1	1,4-Dioxane	13000	U	13000	1100
156-59-2	cis-1,2-Dichloroethene	40	U	40	9.0
127-18-4	Tetrachloroethene	40	U	40	18
156-60-5	trans-1,2-Dichloroethene	40	U	40	10
79-01-6	Trichloroethene	40	U	40	11
75-01-4	Vinyl chloride	32	U	32	12

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	82		47-136
460-00-4	4-Bromofluorobenzene (Surr)	93		51-124
1868-53-7	Dibromofluoromethane (Surr)	76		49-122
2037-26-5	Toluene-d8 (Surr)	93		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279494a.D
 Lims ID: MB 240-445424/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 04-Aug-2020 18:24:30 ALS Bottle#: 7 Worklist Smp#: 9
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-009
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 20:00:54 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1064

First Level Reviewer: laveyt

Date: 04-Aug-2020 20:00:54

Compound	Sig	RT (min.)	Exp RT (min.)	Diff RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1115717	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	751371	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.971	-0.001	96	374333	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.527	4.539	-0.012	94	281989	25.0	19.0	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	94	369330	25.0	20.4	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1187299	25.0	23.4	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.846	8.858	-0.012	90	406430	25.0	23.4	
9 Dichlorodifluoromethane	85		1.404					ND	
10 Chloromethane	50		1.605					ND	
11 Butadiene	54		1.652					ND	
12 Vinyl chloride	62		1.699					ND	
13 1-Chloro-1-fluoroethane TIC	47		1.900					ND	U
14 Bromomethane	94		1.948					ND	
15 Chloroethane	64		2.007					ND	
16 Dichlorofluoromethane	67		2.184					ND	
17 Trichlorofluoromethane	101		2.184					ND	
18 Methylal	45		2.346					ND	
19 Ethyl ether	59		2.433					ND	
20 Acrolein	56		2.551					ND	
21 1,1-Dichloroethene	61		2.634					ND	
22 112TCTFE	101		2.670					ND	
23 Acetone	43		2.693					ND	
24 Iodomethane	142		2.764					ND	
25 Carbon disulfide	76		2.823					ND	
26 Acetonitrile	41		2.942					ND	
27 3-Chloro-1-propene	41		2.954					ND	
28 Methyl acetate	43		2.977					ND	U
29 Methylene Chloride	49	3.036	3.060	-0.024	81	4788		0.2336	
30 2-Methyl-2-propanol	59		3.167					ND	
31 Acrylonitrile	53		3.273					ND	
32 trans-1,2-Dichloroethene	61		3.285					ND	
33 Methyl tert-butyl ether	73		3.297					ND	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
34 Hexane	57		3.522					ND	
35 1,1-Dichloroethane	63		3.652					ND	
36 Vinyl acetate	43		3.699					ND	
37 Isopropyl ether	87		3.711					ND	
38 2-Chloro-1,3-butadiene	53		3.723					ND	
39 Tert-butyl ethyl ether	59		4.007					ND	
40 2,2-Dichloropropane	77		4.137					ND	
41 cis-1,2-Dichloroethene	96		4.137					ND	
42 2-Butanone (MEK)	72		4.149					ND	
43 Ethyl acetate	43		4.196					ND	
44 Propionitrile	54		4.208					ND	
45 Methacrylonitrile	41		4.338					ND	
46 Chlorobromomethane	49		4.338					ND	
47 Tetrahydrofuran	42	4.373	4.374	-0.001	85	10054		1.12	
48 Chloroform	83		4.409					ND	
49 1,1,1-Trichloroethane	97		4.551					ND	
50 Cyclohexane	84		4.598					ND	
52 Carbon tetrachloride	117		4.693					ND	
51 1,1-Dichloropropene	75		4.693					ND	
53 Isobutyl alcohol	41		4.788					ND	
54 Benzene	78		4.871					ND	
55 1,2-Dichloroethane	62		4.882					ND	
56 Tert-amyl methyl ether	73		4.953					ND	
57 n-Heptane	57		5.084					ND	
58 n-Butanol	56		5.344					ND	
59 Trichloroethene	130		5.403					ND	
60 Ethyl acrylate	55		5.486					ND	U
61 Methylcyclohexane	83		5.569					ND	
62 1,2-Dichloropropane	63		5.604					ND	
63 Methyl methacrylate	41		5.687					ND	
64 Dibromomethane	174		5.711					ND	
65 1,4-Dioxane	88		5.711					ND	
66 Dichlorobromomethane	83		5.829					ND	
67 2-Nitropropane	41		6.030					ND	U
68 2-Chloroethyl vinyl ether	63		6.089					ND	
69 cis-1,3-Dichloropropene	75		6.220					ND	
70 4-Methyl-2-pentanone (MIBK)	43		6.350					ND	U
71 Toluene	91		6.515					ND	
72 trans-1,3-Dichloropropene	75		6.705					ND	
73 Tetrahydrothiophene	60		6.745					ND	
74 Ethyl methacrylate	69		6.776					ND	
75 1,1,2-Trichloroethane	97		6.870					ND	
76 Tetrachloroethene	166		7.000					ND	
77 1,3-Dichloropropane	76		7.024					ND	
78 2-Hexanone	43		7.095					ND	
79 n-Butyl acetate	43		7.201					ND	
80 Chlorodibromomethane	129		7.225					ND	
81 Ethylene Dibromide	107		7.332					ND	
82 1-Chlorohexane	91		7.746					ND	
83 Chlorobenzene	112		7.781					ND	
84 1,1,1,2-Tetrachloroethane	131		7.852					ND	
85 Ethylbenzene	106		7.876					ND	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
86 m-Xylene & p-Xylene	106		7.983					ND	
87 o-Xylene	106		8.361					ND	
88 Styrene	104		8.373					ND	
89 Bromoform	173		8.551					ND	
90 Isopropylbenzene	105		8.704					ND	
91 Cyclohexanone	55		8.799					ND	
92 Bromobenzene	156		9.000					ND	
93 1,1,2,2-Tetrachloroethane	83		9.000					ND	
94 1,2,3-Trichloropropane	110		9.036					ND	
95 trans-1,4-Dichloro-2-butene	53		9.048					ND	
96 N-Propylbenzene	120		9.095					ND	
97 2-Chlorotoluene	126		9.190					ND	
98 1,3,5-Trimethylbenzene	105		9.272					ND	
99 4-Chlorotoluene	126		9.284					ND	
100 3-Ethyltoluene	105		9.324					ND	
101 2-Ethyltoluene	105		9.513					ND	
102 tert-Butylbenzene	119		9.580					ND	
103 Pentachloroethane	167		9.604					ND	
104 1,2,4-Trimethylbenzene	105		9.627					ND	
105 sec-Butylbenzene	105		9.793					ND	
106 1,3-Dichlorobenzene	146		9.911					ND	
107 4-Isopropyltoluene	119		9.947					ND	
108 1,4-Dichlorobenzene	146		9.994					ND	
109 1,2,3-Trimethylbenzene	105		10.041					ND	
110 Benzyl chloride	91		10.136					ND	
111 n-Butylbenzene	91		10.337					ND	
112 1,2-Dichlorobenzene	146		10.361					ND	
113 1,2-Dibromo-3-Chloropropane	157		11.130					ND	
114 1,3,5-Trichlorobenzene	180		11.331					ND	
115 1,2,4-Trichlorobenzene	180		11.947					ND	
116 Hexachlorobutadiene	225		12.124					ND	
117 Naphthalene	128		12.195					ND	
118 1,2,3-Trichlorobenzene	180		12.432					ND	
119 2-Methylnaphthalene	142		13.366					ND	
168 1-Methylnaphthalene	142		13.591					ND	
169 Isooctane	57		0.000					ND	
120 1,4-Dichlorobutane	1		-0.510					ND	
123 Epichlorohydrin	1		-0.510					ND	
121 Ethylene oxide	1		-0.510					ND	
122 Propene oxide	1		-0.510					ND	
S 124 Trihalomethanes, Total	1		-0.510					ND	
S 125 Total BTEX	1		-0.510					ND	
S 126 1,2-Dichloroethene, Total	96		0.630					ND	
S 127 1,3-Dichloropropene, Total	75		6.250					ND	
S 128 Xylenes, Total	106		16.020					ND	

QC Flag Legend

Review Flags

U - Marked Undetected

Reagents:

vm50is_stk_a_00006

Amount Added: 2.00

Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279494a.D

Injection Date: 04-Aug-2020 18:24:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: MB 240-445424/1-A

Worklist Smp#: 9

Client ID:

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

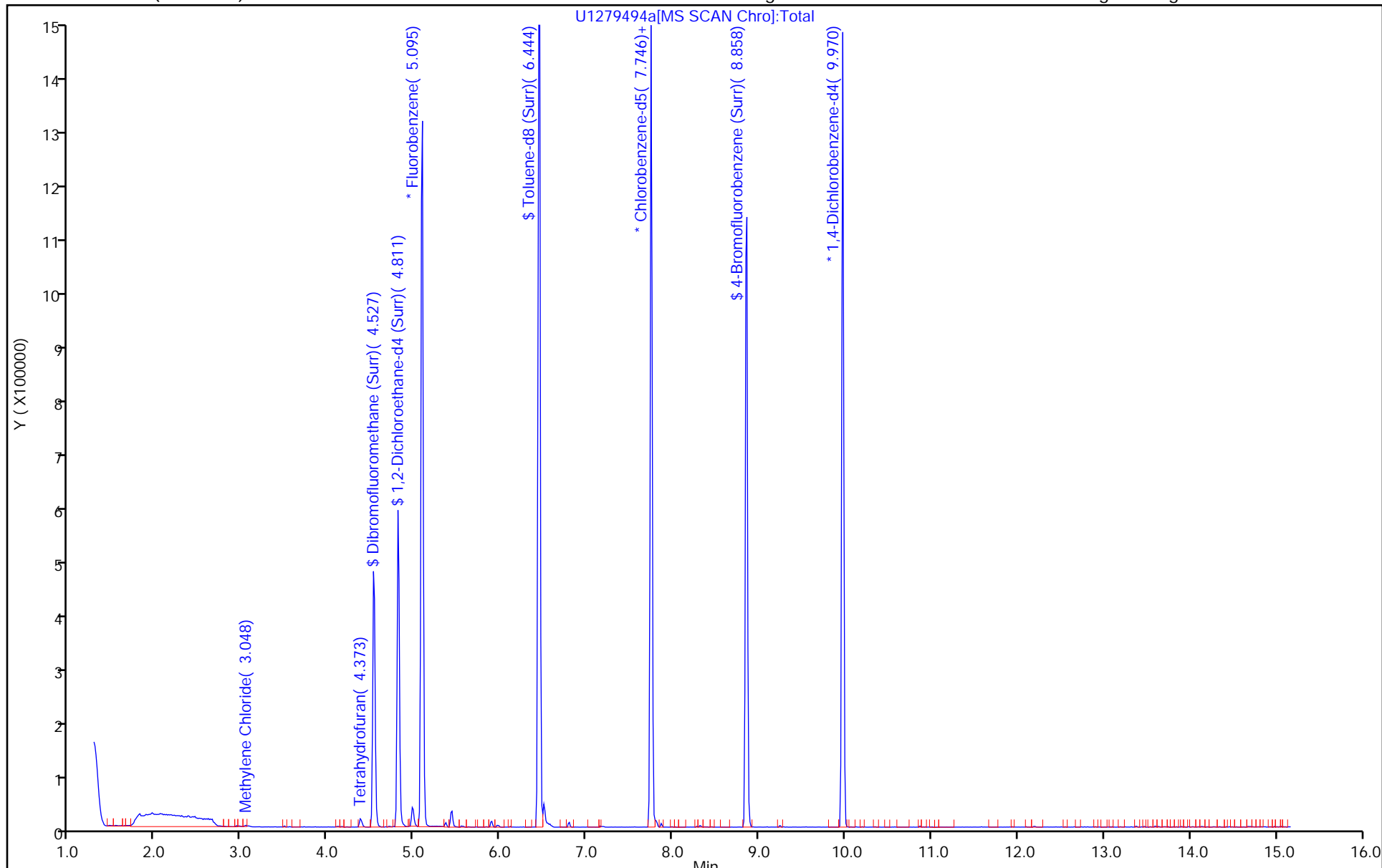
ALS Bottle#: 7

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279494a.D
 Lims ID: MB 240-445424/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 04-Aug-2020 18:24:30 ALS Bottle#: 7 Worklist Smp#: 9
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-009
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 20:00:54 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1064

First Level Reviewer: laveyt Date: 04-Aug-2020 20:00:54

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	19.0	76.17
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	20.4	81.51
\$ 6 Toluene-d8 (Surr)	25.0	23.4	93.45
\$ 7 4-Bromofluorobenzene (Surr)	25.0	23.4	93.43

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 240-445438/1-A
 Matrix: Solid Lab File ID: UX989094.D
 Analysis Method: 8260B MI Date Collected: _____
 Sample wt/vol: 10.00(g) Date Analyzed: 08/04/2020 17:46
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Medium
 Analysis Batch No.: 445537 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	40	U	40	16
123-91-1	1,4-Dioxane	13000	U	13000	1100
156-59-2	cis-1,2-Dichloroethene	40	U	40	9.0
127-18-4	Tetrachloroethene	40	U	40	18
156-60-5	trans-1,2-Dichloroethene	10.2	J	40	10
79-01-6	Trichloroethene	40	U	40	11
75-01-4	Vinyl chloride	32	U	32	12

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	101		47-136
460-00-4	4-Bromofluorobenzene (Surr)	88		51-124
1868-53-7	Dibromofluoromethane (Surr)	106		49-122
2037-26-5	Toluene-d8 (Surr)	87		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989094.D
 Lims ID: MB 240-445438/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 04-Aug-2020 17:46:30 ALS Bottle#: 23 Worklist Smp#: 23
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100652-023
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 08:27:12 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1061

First Level Reviewer: bosworthh

Date: 05-Aug-2020 08:27:12

Compound	Sig	RT (min.)	Exp RT (min.)	Diff RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.865	5.876	-0.011	99	1288673	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.575	8.574	0.001	85	1194946	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.823	10.823	0.000	94	704262	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	113	5.274	5.274	0.000	95	470128	25.0	26.4	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.570	5.570	0.000	99	605617	25.0	25.1	
\$ 6 Toluene-d8 (Surr)	98	7.250	7.250	0.000	93	1770733	25.0	21.9	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.676	9.688	-0.012	96	637600	25.0	22.1	
9 Dichlorodifluoromethane	85		1.772					ND	
10 Chloromethane	50		1.996					ND	
11 Vinyl chloride	62		2.115					ND	
12 Butadiene	54		2.127					ND	
14 Ethylene oxide	43		2.390					ND	
13 Bromomethane	94	2.458	2.470	-0.012	33	2557		0.1620	
15 Chloroethane	64		2.553					ND	
16 Dichlorofluoromethane	67		2.754					ND	
17 Trichlorofluoromethane	101		2.789					ND	
18 Ethyl ether	59		3.073					ND	
19 Propene oxide	58		3.123					ND	
21 Acrolein	56		3.191					ND	
24 1,1-Dichloroethene	61		3.298					ND	
22 1,1,2-Trichloro-1,2,2-trifluoroethane	101		3.333					ND	
23 Acetone	58		3.333					ND	
25 Iodomethane	142		3.440					ND	
26 Carbon disulfide	76	3.534	3.511	0.023	98	18561		0.3491	
20 Methylal	45		3.534					ND	
27 Acetonitrile	41		3.593					ND	U
28 3-Chloro-1-propene	41	3.617	3.629	-0.012	82	9262		0.2682	
29 Methyl acetate	43		3.641					ND	U
30 Methylene Chloride	49	3.735	3.736	-0.001	81	7908		0.2903	
31 2-Methyl-2-propanol	59		3.830					ND	
32 Acrylonitrile	53		3.949					ND	
33 Methyl tert-butyl ether	73		3.996					ND	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
34 trans-1,2-Dichloroethene	61	3.984	3.996	-0.012	88	5547		0.2047	
35 Hexane	57	4.244	4.245	-0.001	88	3280		0.1635	
36 1,1-Dichloroethane	63		4.375					ND	
37 Vinyl acetate	43		4.398					ND	
38 Isopropyl ether	87		4.433					ND	
39 2-Chloro-1,3-butadiene	53		4.457					ND	
40 Tert-butyl ethyl ether	59		4.740					ND	
41 2-Butanone (MEK)	72		4.872					ND	
43 cis-1,2-Dichloroethene	96		4.872					ND	
42 2,2-Dichloropropane	77		4.884					ND	
45 Propionitrile	54		4.918					ND	
44 Ethyl acetate	43	4.883	4.930	-0.047	86	4572		0.1605	
46 Methacrylonitrile	41		5.060					ND	
47 Chlorobromomethane	49		5.073					ND	
48 Tetrahydrofuran	42	5.132	5.132	0.000	84	14188		1.30	
49 Chloroform	83		5.144					ND	
50 1,1,1-Trichloroethane	97		5.321					ND	
51 Cyclohexane	84		5.381					ND	
52 1,1-Dichloropropene	75		5.463					ND	
53 Carbon tetrachloride	117		5.475					ND	
54 Isobutyl alcohol	41		5.511					ND	
56 1,2-Dichloroethane	62		5.641					ND	
55 Benzene	78		5.641					ND	
57 Tert-amyl methyl ether	73		5.723					ND	
58 n-Heptane	71		5.854					ND	U
59 n-Butanol	56		6.078					ND	U
60 Trichloroethene	130		6.185					ND	
61 Ethyl acrylate	55		6.243					ND	U
62 Methylcyclohexane	83	6.362	6.375	-0.012	76	2072		0.0955	
63 1,2-Dichloropropane	63		6.375					ND	
64 Methyl methacrylate	41		6.444					ND	
66 Dibromomethane	174		6.481					ND	
65 1,4-Dioxane	88		6.481					ND	
67 Dichlorobromomethane	83		6.599					ND	
68 2-Nitropropane	41		6.788					ND	U
69 2-Chloroethyl vinyl ether	63		6.848					ND	
70 Epichlorohydrin	57		6.910					ND	
71 cis-1,3-Dichloropropene	75		7.002					ND	
72 4-Methyl-2-pentanone (MIBK)	43		7.120					ND	
73 Toluene	91		7.309					ND	
74 trans-1,3-Dichloropropene	75		7.475					ND	
75 Ethyl methacrylate	69		7.546					ND	
76 1,1,2-Trichloroethane	97		7.652					ND	
77 1,3-Dichloropropane	76		7.806					ND	
78 Tetrachloroethene	166		7.818					ND	
80 2-Hexanone	43		7.865					ND	
79 Tetrahydrothiophene	60		7.955					ND	
81 n-Butyl acetate	43		7.971					ND	
82 Chlorodibromomethane	129		8.031					ND	
83 Ethylene Dibromide	107		8.149					ND	
84 1-Chlorohexane	91		8.551					ND	
85 Chlorobenzene	112		8.599					ND	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
86 1,1,1,2-Tetrachloroethane	131		8.670					ND	
87 Ethylbenzene	106		8.694					ND	
88 m-Xylene & p-Xylene	106		8.800					ND	
89 o-Xylene	106		9.179					ND	
90 Styrene	104		9.191					ND	
91 Bromoform	173		9.380					ND	
92 Isopropylbenzene	105		9.534					ND	
93 Cyclohexanone	55		9.627					ND	
99 3-Ethyltoluene	105		9.768					ND	
94 1,1,2,2-Tetrachloroethane	83		9.794					ND	
95 Bromobenzene	156		9.842					ND	
96 trans-1,4-Dichloro-2-butene	53		9.853					ND	
97 1,2,3-Trichloropropane	110		9.853					ND	
98 N-Propylbenzene	120		9.924					ND	
100 2-Chlorotoluene	126		10.031					ND	
103 2-Ethyltoluene	105	10.090	10.051	0.039	88	3916		NC	
101 1,3,5-Trimethylbenzene	105		10.090					ND	
102 4-Chlorotoluene	126		10.126					ND	
104 tert-Butylbenzene	119		10.421					ND	
105 Pentachloroethane	167		10.444					ND	
106 1,2,4-Trimethylbenzene	105		10.469					ND	
107 sec-Butylbenzene	134		10.634					ND	
108 1,3-Dichlorobenzene	146		10.753					ND	
109 4-Isopropyltoluene	119		10.776					ND	
110 1,4-Dichlorobenzene	146		10.847					ND	
111 1,2,3-Trimethylbenzene	105		10.882					ND	
112 Benzyl chloride	126		10.965					ND	
113 n-Butylbenzene	91	11.178	11.179	-0.001	94	5811		0.0913	
114 1,2-Dichlorobenzene	146		11.214					ND	
115 1,2-Dibromo-3-Chloropropane	157		11.983					ND	
116 1,3,5-Trichlorobenzene	180		12.207					ND	
117 1,2,4-Trichlorobenzene	180	12.823	12.823	0.000	79	3537		0.1331	
118 Hexachlorobutadiene	225	13.001	13.001	0.000	79	3222		0.3362	
119 Naphthalene	128	13.083	13.096	-0.013	90	11067		0.1180	
120 1,2,3-Trichlorobenzene	180	13.367	13.356	0.011	87	3872		0.1550	
121 2-Methylnaphthalene	142	14.515	14.503	0.012	84	3877		0.6662	
162 1-Methylnaphthalene	142		0.000					ND	
163 Isooctane	57		0.000					ND	
123 1,4-Dichlorobutane	1		0.700					ND	
122 Butyl Methacrylate TIC	1		0.700					ND	
126 Isobutylene TIC	1		0.700					ND	
S 158 Total BTEX	1		0.400					ND	
S 128 1,2-Dichloroethene, Total	96				0			0.2047	
S 129 1,3-Dichloropropene, Total	75		7.460					ND	
S 130 Trihalomethanes, Total	83		16.700					ND	
S 131 Xylenes, Total	106		17.230					ND	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

U - Marked Undetected

Reagents:

vm100is_stk_A_00005

Amount Added: 1.00

Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989094.D

Injection Date: 04-Aug-2020 17:46:30

Instrument ID: A3UX9

Operator ID: 001765

Lims ID: MB 240-445438/1-A

Worklist Smp#: 23

Client ID:

Purge Vol: 5.000 mL

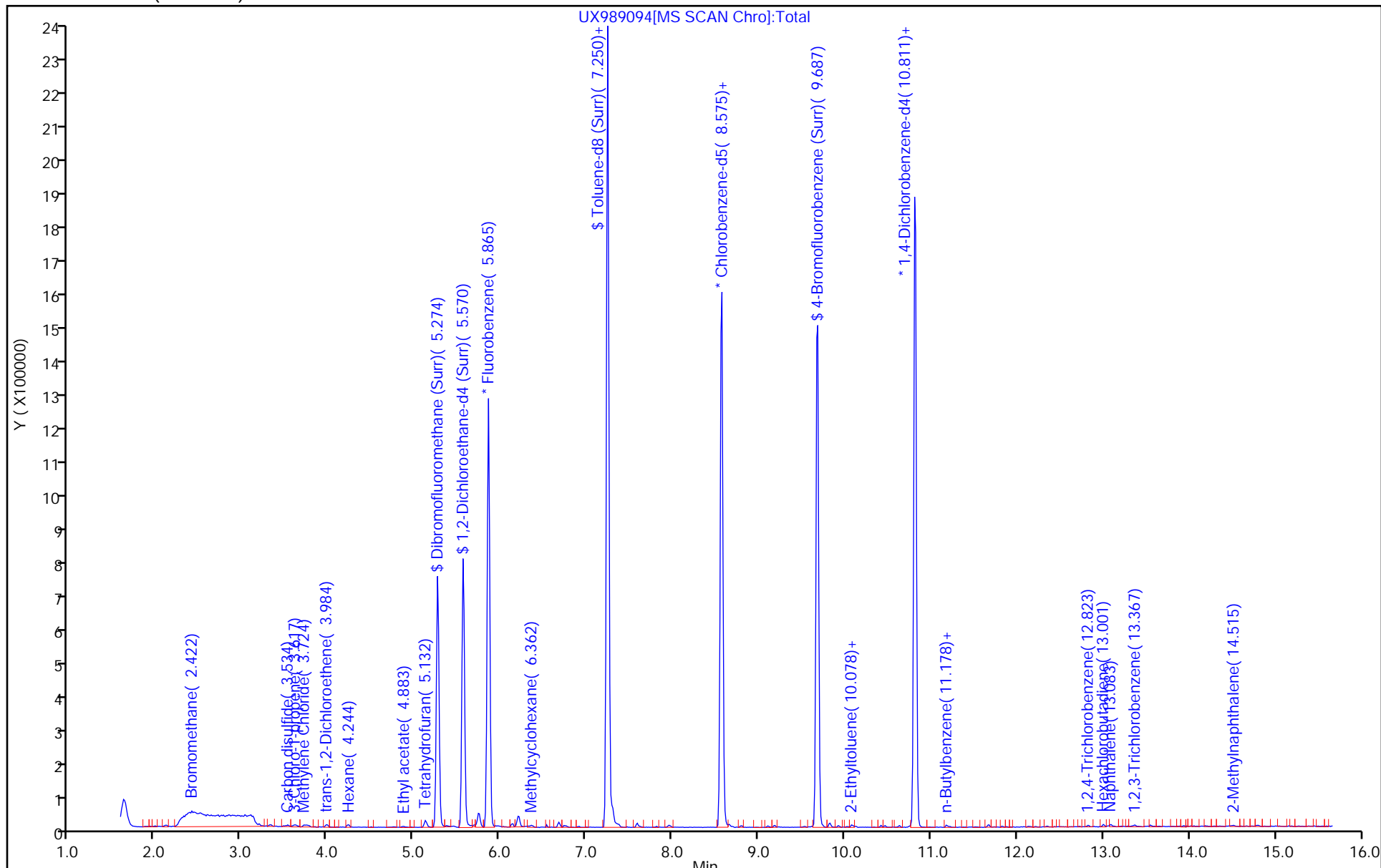
Dil. Factor: 1.0000

ALS Bottle#: 23

Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989094.D
 Lims ID: MB 240-445438/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 04-Aug-2020 17:46:30 ALS Bottle#: 23 Worklist Smp#: 23
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100652-023
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 08:27:12 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1061

First Level Reviewer: bosworthh

Date: 05-Aug-2020 08:27:12

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	26.4	105.52
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	25.1	100.57
\$ 6 Toluene-d8 (Surr)	25.0	21.9	87.47
\$ 7 4-Bromofluorobenzene (Surr)	25.0	22.1	88.27

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989094.D

Injection Date: 04-Aug-2020 17:46:30

Instrument ID: A3UX9

Lims ID: MB 240-445438/1-A

Client ID:

Operator ID: 001765

ALS Bottle#: 23

Worklist Smp#: 23

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

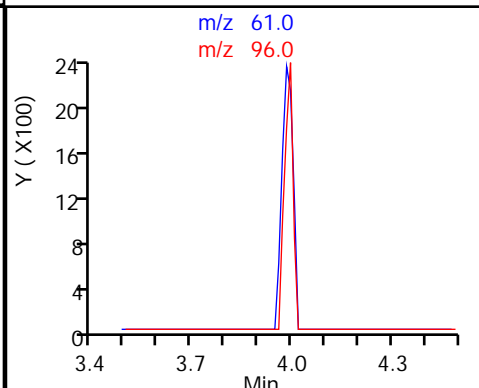
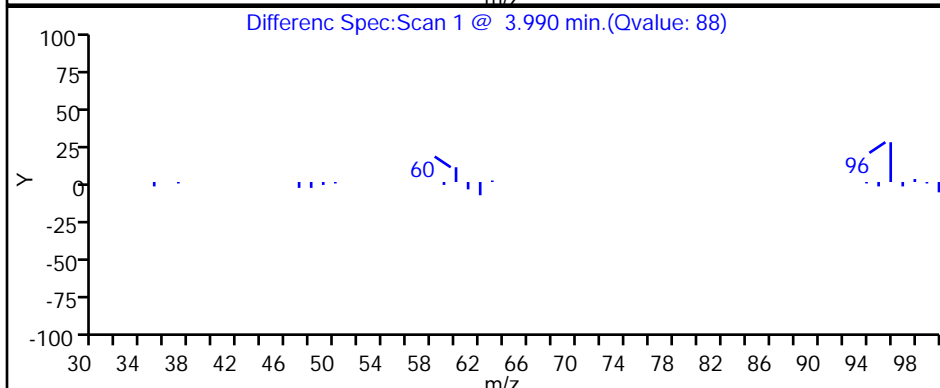
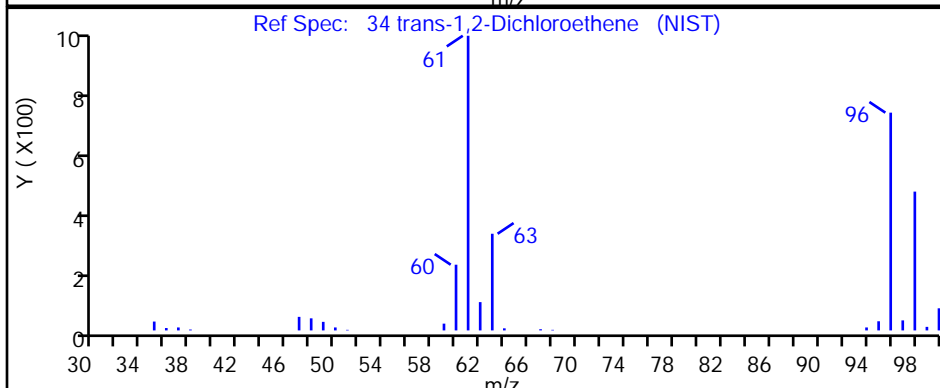
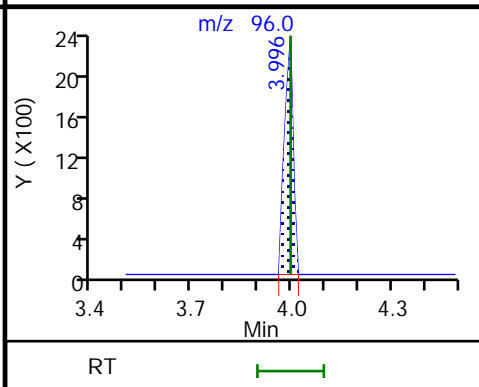
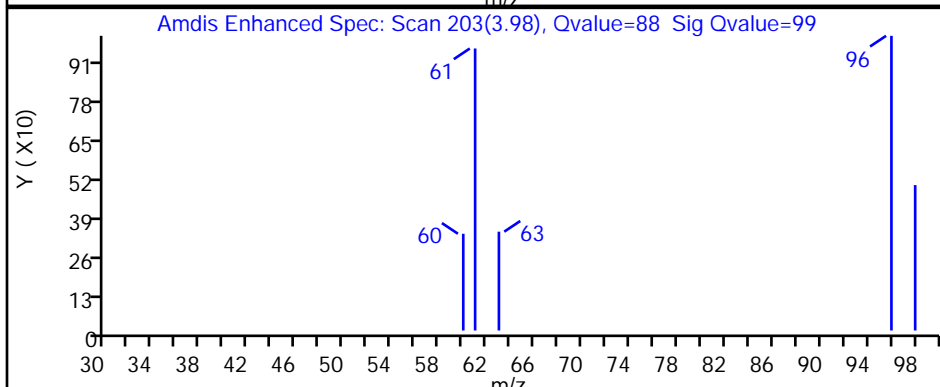
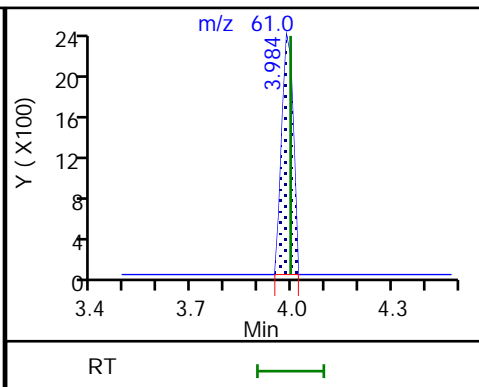
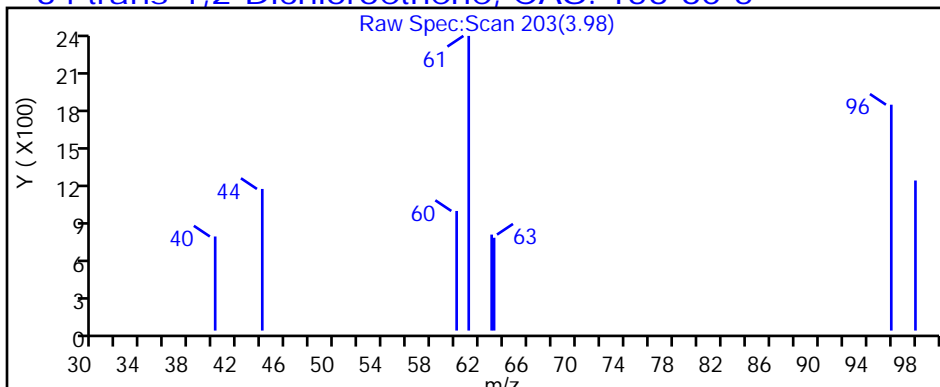
Method: 8260_9

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

34 trans-1,2-Dichloroethene, CAS: 156-60-5



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 240-445619/1-A
 Matrix: Solid Lab File ID: U1916164.d
 Analysis Method: 8260B MI Date Collected: _____
 Sample wt/vol: 10.00(g) Date Analyzed: 08/06/2020 19:38
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Medium
 Analysis Batch No.: 446008 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	40	U	40	16
123-91-1	1,4-Dioxane	13000	U	13000	1100
156-59-2	cis-1,2-Dichloroethene	40	U	40	9.0
127-18-4	Tetrachloroethene	40	U	40	18
156-60-5	trans-1,2-Dichloroethene	40	U	40	10
79-01-6	Trichloroethene	40	U	40	11
75-01-4	Vinyl chloride	32	U	32	12

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	71		47-136
460-00-4	4-Bromofluorobenzene (Surr)	73		51-124
1868-53-7	Dibromofluoromethane (Surr)	74		49-122
2037-26-5	Toluene-d8 (Surr)	84		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX19\20200806-100740.b\U1916164.d
 Lims ID: MB 240-445619/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 06-Aug-2020 19:38:03 ALS Bottle#: 0 Worklist Smp#: 10
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100740-010
 Operator ID: 001904 Instrument ID: A3UX19
 Method: \\chromfs\Canton\ChromData\A3UX19\20200806-100740.b\8260_19.m
 Limit Group: MSV 8260B ICAL
 Last Update: 06-Aug-2020 20:29:19 Calib Date: 09-Jun-2020 21:22:13
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX19\20200609-98977.b\U1914735.d
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1070

First Level Reviewer: laveyt Date: 06-Aug-2020 20:17:16

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.654	5.666	-0.012	99	962857	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.500	8.500	0.000	86	694053	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.895	10.883	0.012	94	348619	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	5.049	5.061	-0.012	94	240337	25.0	18.5	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.357	5.357	0.000	95	265604	25.0	17.8	
\$ 6 Toluene-d8 (Surr)	98	7.112	7.112	0.000	93	870954	25.0	20.9	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.685	9.686	-0.001	91	284634	25.0	18.2	
9 Dichlorodifluoromethane	85		1.610					ND	
10 Chloromethane	50		1.823					ND	
12 Vinyl chloride	62		1.918					ND	
11 Butadiene	54		1.930					ND	
14 1-Chloro-1-fluoroethane TIC	47		2.215					ND	U
13 Bromomethane	94		2.262					ND	U
15 Chloroethane	64		2.321					ND	
16 Dichlorofluoromethane	67		2.535					ND	
17 Trichlorofluoromethane	101		2.547					ND	
18 Ethyl ether	59		2.819					ND	
19 Acrolein	56		2.938					ND	
20 1,1-Dichloroethene	61		3.033					ND	
21 1,1,2-Trichloro-1,2,2-trifluoro	101		3.068					ND	
22 Acetone	43	3.092	3.080	0.012	100	5216		1.38	
23 Methylal	45		3.092					ND	
24 Iodomethane	142		3.187					ND	
25 Carbon disulfide	76		3.246					ND	
26 Acetonitrile	41		3.330					ND	U
27 3-Chloro-1-propene	41		3.377					ND	
28 Methyl acetate	43		3.389					ND	U
29 Methylene Chloride	49	3.472	3.484	-0.012	89	5595		0.4083	
30 2-Methyl-2-propanol	59		3.590					ND	
31 Acrylonitrile	53		3.709					ND	
32 trans-1,2-Dichloroethene	61		3.744					ND	
33 Methyl tert-butyl ether	73		3.744					ND	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
34 Hexane	57		3.993					ND	
35 1,1-Dichloroethane	63		4.124					ND	
36 Vinyl acetate	43		4.159					ND	
37 Isopropyl ether	87		4.172					ND	
38 2-Chloro-1,3-butadiene	53		4.195					ND	
39 Tert-butyl ethyl ether	59		4.504					ND	
41 cis-1,2-Dichloroethene	96		4.634					ND	
40 2-Butanone (MEK)	72		4.634					ND	
42 2,2-Dichloropropane	77		4.646					ND	
43 Propionitrile	54		4.681					ND	
44 Ethyl acetate	43		4.681					ND	
45 Methacrylonitrile	41		4.824					ND	
46 Chlorobromomethane	49		4.847					ND	
47 Tetrahydrofuran	42		4.895					ND	
48 Chloroform	83		4.918					ND	
49 1,1,1-Trichloroethane	97		5.096					ND	
50 Cyclohexane	84		5.156					ND	
51 1,1-Dichloropropene	75		5.239					ND	
52 Carbon tetrachloride	117		5.239					ND	
53 Isobutyl alcohol	41		5.298					ND	
54 Benzene	78		5.416					ND	
55 1,2-Dichloroethane	62		5.428					ND	
56 Tert-amyl methyl ether	73		5.512					ND	
57 n-Heptane	57		5.654					ND	
58 n-Butanol	56		5.891					ND	U
59 Trichloroethene	130		5.998					ND	
60 Ethyl acrylate	55		6.069					ND	U
61 Methylcyclohexane	83		6.175					ND	
62 1,2-Dichloropropane	63		6.199					ND	
63 Methyl methacrylate	41		6.282					ND	
65 1,4-Dioxane	88		6.306					ND	
64 Dibromomethane	174		6.306					ND	
66 Dichlorobromomethane	83		6.436					ND	
67 2-Nitropropane	41		6.638					ND	U
68 2-Chloroethyl vinyl ether	63		6.709					ND	
69 cis-1,3-Dichloropropene	75		6.851					ND	
70 4-Methyl-2-pentanone (MIBK)	43		6.982					ND	
71 Toluene	91		7.172					ND	
72 trans-1,3-Dichloropropene	75		7.361					ND	
73 Ethyl methacrylate	69		7.444					ND	
74 1,1,2-Trichloroethane	97		7.539					ND	
75 Tetrachloroethene	166		7.705					ND	
76 1,3-Dichloropropane	76		7.705					ND	
77 2-Hexanone	43		7.776					ND	
78 n-Butyl acetate	43		7.895					ND	
79 Chlorodibromomethane	129		7.931					ND	
80 Tetrahydrothiophene	60		7.931					ND	
81 Ethylene Dibromide	107		8.049					ND	
82 1-Chlorohexane	91		8.500					ND	
83 Chlorobenzene	112		8.535					ND	
84 1,1,1,2-Tetrachloroethane	131		8.606					ND	
85 Ethylbenzene	106		8.642					ND	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
86 m-Xylene & p-Xylene	106		8.749					ND	
87 o-Xylene	106		9.152					ND	
88 Styrene	104		9.164					ND	
89 Bromoform	173		9.354					ND	
90 Isopropylbenzene	105		9.531					ND	
91 Cyclohexanone	55		9.615					ND	
92 1,4-Dichlorobutane	55		9.626					ND	
93 1,1,2,2-Tetrachloroethane	83		9.816					ND	
95 Bromobenzene	156		9.852					ND	
96 1,2,3-Trichloropropane	110		9.875					ND	
97 trans-1,4-Dichloro-2-butene	53		9.875					ND	
98 N-Propylbenzene	120		9.946					ND	
94 3-Ethyltoluene	105		10.041					ND	
100 2-Chlorotoluene	126		10.041					ND	
101 1,3,5-Trimethylbenzene	105		10.136					ND	
102 4-Chlorotoluene	126		10.160					ND	
99 2-Ethyltoluene	105		10.350					ND	
103 tert-Butylbenzene	119		10.480					ND	
104 Pentachloroethane	167		10.492					ND	
105 1,2,4-Trimethylbenzene	105		10.528					ND	
106 sec-Butylbenzene	105		10.705					ND	
107 1,3-Dichlorobenzene	146		10.824					ND	
108 4-Isopropyltoluene	119		10.860					ND	
109 1,4-Dichlorobenzene	146		10.919					ND	
110 1,2,3-Trimethylbenzene	105		10.967					ND	
111 Benzyl chloride	91		11.050					ND	
112 n-Butylbenzene	91		11.287					ND	
113 1,2-Dichlorobenzene	146		11.310					ND	
114 1,2-Dibromo-3-Chloropropane	157		12.128					ND	
115 1,3,5-Trichlorobenzene	180		12.366					ND	
116 1,2,4-Trichlorobenzene	180		13.018					ND	
117 Hexachlorobutadiene	225		13.208					ND	
118 Naphthalene	128		13.279					ND	
119 1,2,3-Trichlorobenzene	180		13.540					ND	
120 2-Methylnaphthalene	142		14.631					ND	
122 Ethylene oxide	1		-0.010					ND	
123 Propene oxide	1		-0.010					ND	
121 Epichlorohydrin	1		-0.010					ND	
S 125 Trihalomethanes, Total	1		-0.010					ND	
S 124 Total BTEX	1		-0.010					ND	
S 126 1,2-Dichloroethene, Total	96		1.130					ND	
S 127 1,3-Dichloropropene, Total	75		6.750					ND	
S 128 Xylenes, Total	106		16.520					ND	

QC Flag Legend

Review Flags

U - Marked Undetected

Reagents:

vm50is_stk_A_00006

Amount Added: 2.00

Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX19\20200806-100740.b\U1916164.d

Injection Date: 06-Aug-2020 19:38:03

Instrument ID: A3UX19

Operator ID: 001904

Lims ID: MB 240-445619/1-A

Worklist Smp#: 10

Client ID:

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

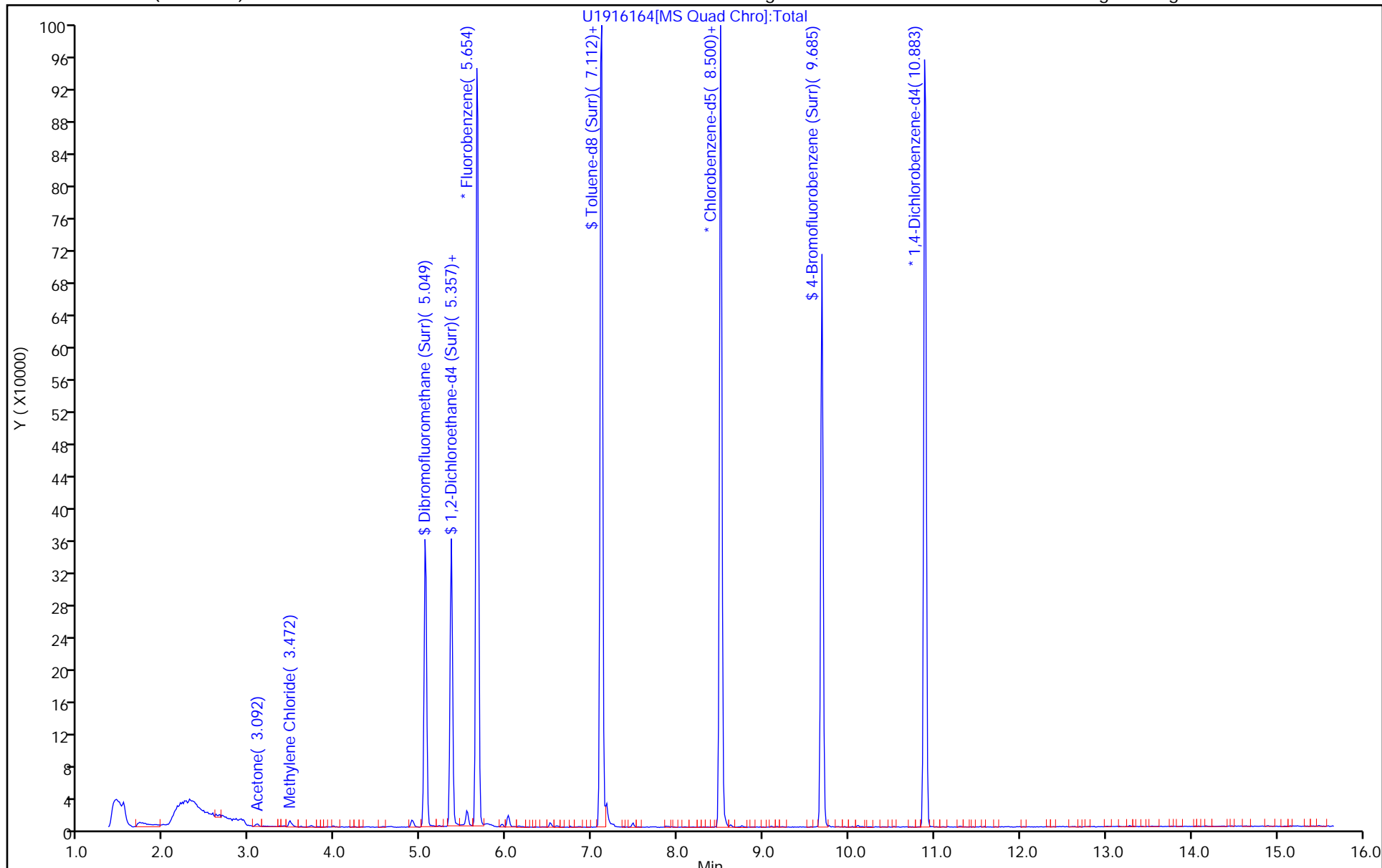
ALS Bottle#: 0

Method: 8260_19

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX19\20200806-100740.b\U1916164.d
 Lims ID: MB 240-445619/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 06-Aug-2020 19:38:03 ALS Bottle#: 0 Worklist Smp#: 10
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100740-010
 Operator ID: 001904 Instrument ID: A3UX19
 Method: \\chromfs\Canton\ChromData\A3UX19\20200806-100740.b\8260_19.m
 Limit Group: MSV 8260B ICAL
 Last Update: 06-Aug-2020 20:29:19 Calib Date: 09-Jun-2020 21:22:13
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX19\20200609-98977.b\U1914735.d
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1070

First Level Reviewer: laveyt Date: 06-Aug-2020 20:17:16

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	18.5	74.18
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	17.8	71.37
\$ 6 Toluene-d8 (Surr)	25.0	20.9	83.71
\$ 7 4-Bromofluorobenzene (Surr)	25.0	18.2	72.70

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LCS 240-445424/2-A
 Matrix: Solid Lab File ID: U1279495a.D
 Analysis Method: 8260B MI Date Collected: _____
 Sample wt/vol: 10.00(g) Date Analyzed: 08/04/2020 18:51
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Medium
 Analysis Batch No.: 445595 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	1060		40	16
123-91-1	1,4-Dioxane	20300		13000	1100
156-59-2	cis-1,2-Dichloroethene	838		40	9.0
127-18-4	Tetrachloroethene	1020		40	18
156-60-5	trans-1,2-Dichloroethene	1060		40	10
79-01-6	Trichloroethene	995		40	11
75-01-4	Vinyl chloride	1050		32	12

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	84		47-136
460-00-4	4-Bromofluorobenzene (Surr)	98		51-124
1868-53-7	Dibromofluoromethane (Surr)	80		49-122
2037-26-5	Toluene-d8 (Surr)	97		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279495a.D
 Lims ID: LCS 240-445424/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 04-Aug-2020 18:51:30 ALS Bottle#: 8 Worklist Smp#: 10
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-010
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 20:00:54 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1064

First Level Reviewer: laveyt

Date: 04-Aug-2020 20:01:30

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.083	5.095	-0.012	99	1167295	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	86	803421	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.971	-0.001	95	396353	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.527	4.539	-0.012	94	309293	25.0	20.0	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	97	398562	25.0	21.0	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1322265	25.0	24.3	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.846	8.858	-0.012	91	456196	25.0	24.5	
9 Dichlorodifluoromethane	85	1.380	1.404	-0.024	99	392872	20.0	21.5	
10 Chloromethane	50	1.569	1.605	-0.036	99	663337	20.0	22.4	
11 Butadiene	54	1.616	1.652	-0.036	91	472902	20.0	22.0	
12 Vinyl chloride	62	1.652	1.699	-0.047	97	456839	20.0	20.9	
14 Bromomethane	94	1.912	1.948	-0.036	90	241395	20.0	16.7	
15 Chloroethane	64	1.959	2.007	-0.048	100	290562	20.0	18.3	
16 Dichlorofluoromethane	67	2.149	2.184	-0.035	97	586929	20.0	17.7	
17 Trichlorofluoromethane	101	2.220	2.184	0.036	98	444054	20.0	17.4	
19 Ethyl ether	59	2.409	2.433	-0.024	93	321724	20.0	18.1	
20 Acrolein	56	2.527	2.551	-0.024	100	114910	100.0	75.2	
21 1,1-Dichloroethene	61	2.634	2.634	0.000	95	495773	20.0	21.1	
22 112TCTFE	101	2.634	2.670	-0.036	95	264298	20.0	19.2	
23 Acetone	43	2.681	2.693	-0.012	100	273044	40.0	41.8	
24 Iodomethane	142	2.788	2.764	0.024	98	345440	20.0	14.5	
25 Carbon disulfide	76	2.823	2.823	0.000	100	875319	20.0	18.5	
27 3-Chloro-1-propene	41	2.918	2.954	-0.036	90	604067	20.0	23.0	
28 Methyl acetate	43	2.965	2.977	-0.012	98	852523	40.0	47.6	
29 Methylene Chloride	49	3.036	3.060	-0.024	97	459257	20.0	21.4	
30 2-Methyl-2-propanol	59	3.190	3.167	0.023	99	557097	200.0	251.3	
31 Acrylonitrile	53	3.261	3.273	-0.012	99	1879868	200.0	202.8	
32 trans-1,2-Dichloroethene	61	3.261	3.285	-0.024	51	477564	20.0	21.2	
33 Methyl tert-butyl ether	73	3.285	3.297	-0.012	96	942004	20.0	18.2	
34 Hexane	57	3.498	3.522	-0.024	92	563659	20.0	22.6	
35 1,1-Dichloroethane	63	3.628	3.652	-0.024	96	599397	20.0	20.0	
36 Vinyl acetate	43	3.675	3.699	-0.024	97	791162	20.0	18.7	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
40 2,2-Dichloropropane	77	4.125	4.137	-0.012	58	307008	20.0	14.9	
41 cis-1,2-Dichloroethene	96	4.125	4.137	-0.012	83	352104	20.0	16.8	
42 2-Butanone (MEK)	72	4.149	4.149	-0.001	100	136416	40.0	37.0	
46 Chlorobromomethane	49	4.326	4.338	-0.012	96	298745	20.0	17.5	
47 Tetrahydrofuran	42	4.373	4.374	-0.001	90	401506	40.0	42.7	
48 Chloroform	83	4.397	4.409	-0.012	94	525607	20.0	17.7	
49 1,1,1-Trichloroethane	97	4.539	4.551	-0.012	99	446854	20.0	19.0	
50 Cyclohexane	84	4.586	4.598	-0.012	91	519523	20.0	18.6	
52 Carbon tetrachloride	117	4.681	4.693	-0.012	74	375833	20.0	19.6	
51 1,1-Dichloropropene	75	4.681	4.693	-0.012	94	465046	20.0	19.4	
53 Isobutyl alcohol	41	4.799	4.788	0.011	94	422473	500.0	448.7	
54 Benzene	78	4.858	4.871	-0.013	97	1366973	20.0	19.1	
55 1,2-Dichloroethane	62	4.870	4.882	-0.012	97	426988	20.0	18.3	
57 n-Heptane	57	5.060	5.084	-0.024	96	281844	20.0	22.4	
59 Trichloroethene	130	5.403	5.403	0.000	97	322417	20.0	19.9	
61 Methylcyclohexane	83	5.557	5.569	-0.012	90	557917	20.0	19.7	
62 1,2-Dichloropropane	63	5.592	5.604	-0.012	95	341445	20.0	22.1	
64 Dibromomethane	174	5.699	5.711	-0.012	97	196483	20.0	17.9	
65 1,4-Dioxane	88	5.710	5.711	-0.001	95	81790	400.0	405.2	
66 Dichlorobromomethane	83	5.829	5.829	0.000	99	393256	20.0	20.3	
68 2-Chloroethyl vinyl ether	63	6.089	6.089	0.000	92	274491	20.0	23.6	
69 cis-1,3-Dichloropropene	75	6.207	6.220	-0.013	95	533696	20.0	21.8	
70 4-Methyl-2-pentanone (MIBK)	43	6.349	6.350	-0.001	96	1048111	40.0	41.4	
71 Toluene	91	6.503	6.515	-0.012	99	1367831	20.0	20.5	
72 trans-1,3-Dichloropropene	75	6.704	6.705	-0.001	95	462941	20.0	21.4	
74 Ethyl methacrylate	69	6.775	6.776	-0.001	91	519140	20.0	23.8	
75 1,1,2-Trichloroethane	97	6.870	6.870	0.000	92	270731	20.0	20.7	
76 Tetrachloroethene	166	6.988	7.000	-0.012	97	325365	20.0	20.4	
77 1,3-Dichloropropane	76	7.024	7.024	0.000	91	530266	20.0	21.7	
78 2-Hexanone	43	7.083	7.095	-0.012	97	819270	40.0	46.9	
80 Chlorodibromomethane	129	7.225	7.225	0.000	91	270586	20.0	21.1	
81 Ethylene Dibromide	107	7.332	7.332	0.000	98	280920	20.0	20.8	
83 Chlorobenzene	112	7.781	7.781	0.000	94	838526	20.0	21.5	
84 1,1,1,2-Tetrachloroethane	131	7.852	7.852	0.000	94	274969	20.0	20.7	
85 Ethylbenzene	106	7.876	7.876	0.000	99	473128	20.0	22.1	
86 m-Xylene & p-Xylene	106	7.982	7.983	-0.001	98	599882	20.0	22.6	
87 o-Xylene	106	8.361	8.361	0.000	97	572606	20.0	21.0	
88 Styrene	104	8.373	8.373	0.000	96	981549	20.0	22.4	
89 Bromoform	173	8.550	8.551	-0.001	97	201368	20.0	22.8	
90 Isopropylbenzene	105	8.704	8.704	0.000	96	1507364	20.0	22.0	
92 Bromobenzene	156	9.000	9.000	0.000	94	340781	20.0	22.0	
93 1,1,2,2-Tetrachloroethane	83	9.000	9.000	0.000	83	442259	20.0	22.3	
94 1,2,3-Trichloropropane	110	9.036	9.036	0.000	85	147642	20.0	21.6	
95 trans-1,4-Dichloro-2-butene	53	9.047	9.048	-0.001	92	166264	20.0	28.7	
96 N-Propylbenzene	120	9.095	9.095	0.000	99	405131	20.0	24.0	
97 2-Chlorotoluene	126	9.178	9.190	-0.012	96	329803	20.0	22.2	
98 1,3,5-Trimethylbenzene	105	9.272	9.272	0.000	95	1187358	20.0	23.9	
99 4-Chlorotoluene	126	9.284	9.284	0.000	99	339336	20.0	22.2	
102 tert-Butylbenzene	119	9.580	9.580	0.000	92	1049715	20.0	24.1	
104 1,2,4-Trimethylbenzene	105	9.627	9.627	0.000	97	1202035	20.0	23.0	
105 sec-Butylbenzene	105	9.793	9.793	0.000	95	1490239	20.0	23.6	
106 1,3-Dichlorobenzene	146	9.911	9.911	0.000	98	640557	20.0	21.8	

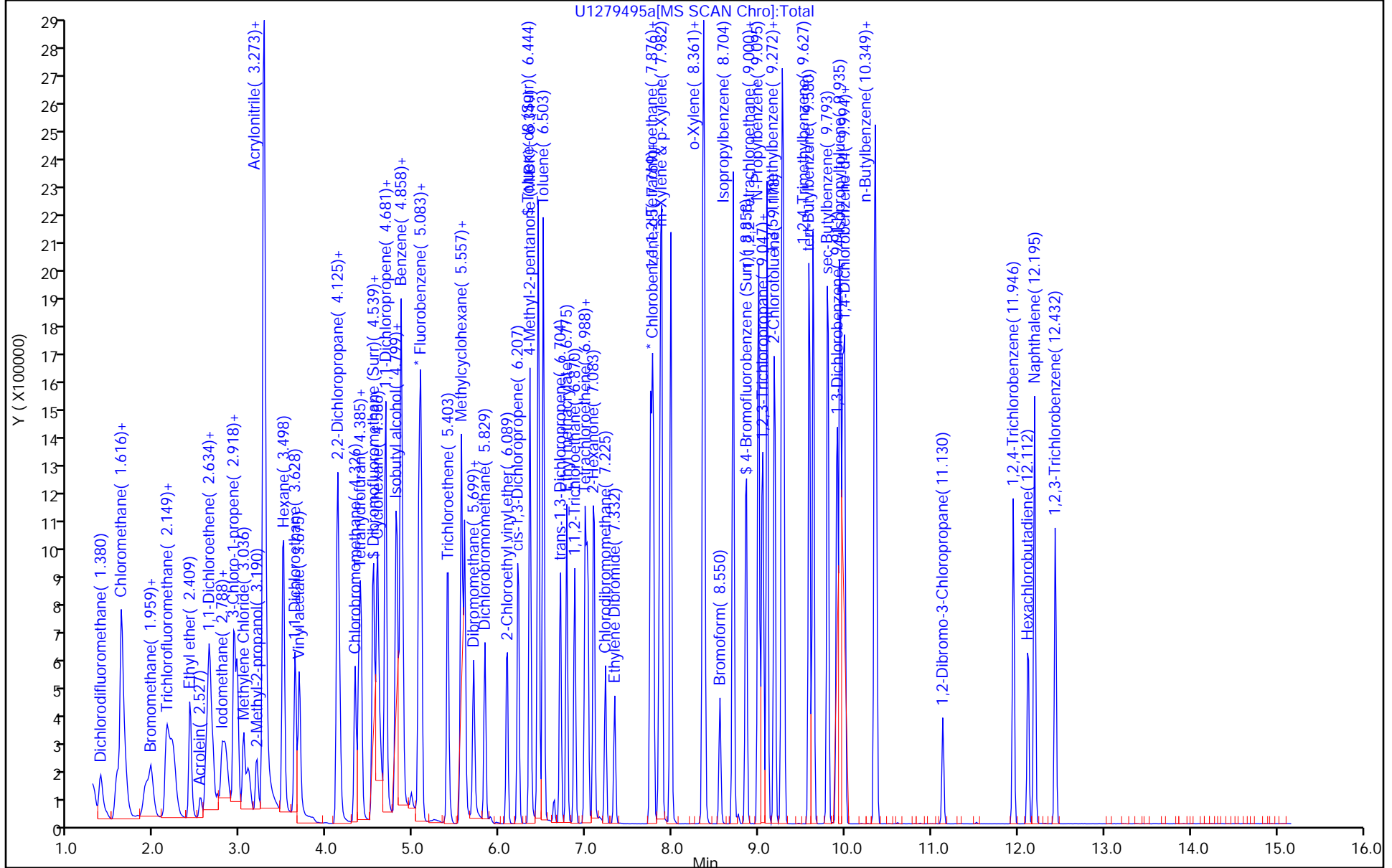
Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
107 4-Isopropyltoluene	119	9.935	9.947	-0.012	97	1273588	20.0	24.3	
108 1,4-Dichlorobenzene	146	9.994	9.994	0.000	96	652514	20.0	21.4	
111 n-Butylbenzene	91	10.337	10.337	0.000	97	1078798	20.0	24.5	
112 1,2-Dichlorobenzene	146	10.361	10.361	0.000	97	602637	20.0	20.7	
113 1,2-Dibromo-3-Chloropropane	157	11.130	11.130	0.000	84	108164	20.0	23.4	
115 1,2,4-Trichlorobenzene	180	11.946	11.947	-0.001	94	369353	20.0	23.0	
116 Hexachlorobutadiene	225	12.124	12.124	0.000	95	140263	20.0	23.5	
117 Naphthalene	128	12.195	12.195	0.000	97	1203921	20.0	22.6	
118 1,2,3-Trichlorobenzene	180	12.432	12.432	0.000	96	341685	20.0	23.1	
S 124 Trihalomethanes, Total	1				0		80.0	81.9	
S 125 Total BTEX	1				0		100.0	105.3	
S 128 Xylenes, Total	106				0		40.0	43.6	

Reagents:

vm50is_stk_a_00006

Amount Added: 2.00

Units: uL



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279495a.D
 Lims ID: LCS 240-445424/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 04-Aug-2020 18:51:30 ALS Bottle#: 8 Worklist Smp#: 10
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-010
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 20:00:54 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1064

First Level Reviewer: laveyt Date: 04-Aug-2020 20:01:30

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	20.0	79.85
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	21.0	84.08
\$ 6 Toluene-d8 (Surr)	25.0	24.3	97.33
\$ 7 4-Bromofluorobenzene (Surr)	25.0	24.5	98.08

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LCS 240-445438/2-A
 Matrix: Solid Lab File ID: UX989095.D
 Analysis Method: 8260B MI Date Collected: _____
 Sample wt/vol: 10.00(g) Date Analyzed: 08/04/2020 18:08
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Medium
 Analysis Batch No.: 445537 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	1190		40	16
123-91-1	1,4-Dioxane	23600		13000	1100
156-59-2	cis-1,2-Dichloroethene	1140		40	9.0
127-18-4	Tetrachloroethene	1130		40	18
156-60-5	trans-1,2-Dichloroethene	1140		40	10
79-01-6	Trichloroethene	1240		40	11
75-01-4	Vinyl chloride	1220		32	12

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	96		47-136
460-00-4	4-Bromofluorobenzene (Surr)	89		51-124
1868-53-7	Dibromofluoromethane (Surr)	107		49-122
2037-26-5	Toluene-d8 (Surr)	88		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989095.D
 Lims ID: LCS 240-445438/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 04-Aug-2020 18:08:30 ALS Bottle#: 24 Worklist Smp#: 24
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100652-024
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 08:31:28 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1061

First Level Reviewer: bosworth

Date: 05-Aug-2020 08:27:23

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.868	5.876	-0.008	99	1380378	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.566	8.574	-0.008	87	1277709	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.814	10.823	-0.009	92	757488	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	113	5.277	5.274	0.003	95	510988	25.0	26.8	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.572	5.570	0.002	100	617046	25.0	23.9	
\$ 6 Toluene-d8 (Surr)	98	7.253	7.250	0.003	93	1897992	25.0	21.9	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.678	9.688	-0.010	95	684785	25.0	22.2	
9 Dichlorodifluoromethane	85	1.762	1.772	-0.010	100	536435	20.0	34.4	
10 Chloromethane	50	1.987	1.996	-0.009	99	520605	20.0	21.7	
11 Vinyl chloride	62	2.105	2.115	-0.010	99	527816	20.0	24.3	
12 Butadiene	54	2.117	2.127	-0.010	95	532523	20.0	25.2	
13 Bromomethane	94	2.437	2.470	-0.033	92	384712	20.0	22.8	
15 Chloroethane	64	2.519	2.553	-0.033	100	394351	20.0	22.6	
16 Dichlorofluoromethane	67	2.744	2.754	-0.010	99	875290	20.0	21.5	
17 Trichlorofluoromethane	101	2.803	2.789	0.014	99	803592	20.0	28.9	
18 Ethyl ether	59	3.052	3.073	-0.021	93	462247	20.0	22.0	
21 Acrolein	56	3.170	3.191	-0.021	99	174958	100.0	49.2	
24 1,1-Dichloroethene	61	3.289	3.298	-0.009	99	678877	20.0	23.8	
22 1,1,2-Trichloro-1,2,2-trifluoro	101	3.300	3.333	-0.033	93	440978	20.0	30.9	
23 Acetone	58	3.336	3.333	0.003	99	84594	40.0	33.5	
25 Iodomethane	142	3.454	3.440	0.014	98	778447	20.0	27.2	
26 Carbon disulfide	76	3.513	3.511	0.002	100	1228183	20.0	21.6	
28 3-Chloro-1-propene	41	3.620	3.629	-0.009	88	786223	20.0	21.3	
29 Methyl acetate	43	3.644	3.641	0.003	98	1030234	40.0	38.5	
30 Methylene Chloride	49	3.726	3.736	-0.010	93	637696	20.0	21.9	
31 2-Methyl-2-propanol	59	3.857	3.830	0.027	99	330563	200.0	120.0	
32 Acrylonitrile	53	3.951	3.949	0.002	99	2836156	200.0	238.4	
33 Methyl tert-butyl ether	73	3.999	3.996	0.003	95	1447464	20.0	22.3	
34 trans-1,2-Dichloroethene	61	3.987	3.996	-0.009	98	658993	20.0	22.7	
35 Hexane	57	4.235	4.245	-0.010	94	566993	20.0	26.4	
36 1,1-Dichloroethane	63	4.365	4.375	-0.010	98	809645	20.0	21.0	
37 Vinyl acetate	43	4.401	4.398	0.003	97	1102921	20.0	24.7	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
41 2-Butanone (MEK)	72	4.874	4.872	0.002	97	139337	40.0	34.1	
43 cis-1,2-Dichloroethene	96	4.874	4.872	0.002	84	534413	20.0	22.9	
42 2,2-Dichloropropane	77	4.874	4.884	-0.010	86	481433	20.0	19.6	
47 Chlorobromomethane	49	5.075	5.073	0.002	96	411423	20.0	19.3	
48 Tetrahydrofuran	42	5.135	5.132	0.003	63	391005	40.0	33.3	
49 Chloroform	83	5.135	5.144	-0.009	95	808720	20.0	22.0	
50 1,1,1-Trichloroethane	97	5.312	5.321	-0.009	97	736892	20.0	23.9	
51 Cyclohexane	84	5.383	5.381	0.002	91	673078	20.0	25.8	
52 1,1-Dichloropropene	75	5.454	5.463	-0.009	93	643888	20.0	22.5	
53 Carbon tetrachloride	117	5.466	5.475	-0.009	99	646101	20.0	24.9	
54 Isobutyl alcohol	41	5.513	5.511	0.002	93	474855	500.0	443.1	
56 1,2-Dichloroethane	62	5.632	5.641	-0.009	59	661245	20.0	21.7	
55 Benzene	78	5.632	5.641	-0.009	96	1909871	20.0	22.8	
58 n-Heptane	71	5.845	5.854	-0.010	93	269453	20.0	27.7	
60 Trichloroethene	130	6.188	6.185	0.003	95	544929	20.0	24.9	
62 Methylcyclohexane	83	6.365	6.375	-0.009	91	610414	20.0	26.3	
63 1,2-Dichloropropane	63	6.377	6.375	0.003	91	452888	20.0	21.4	
66 Dibromomethane	174	6.483	6.481	0.002	92	386038	20.0	26.0	
65 1,4-Dioxane	88	6.483	6.481	0.002	90	113117	400.0	471.3	
67 Dichlorobromomethane	83	6.602	6.599	0.003	98	623642	20.0	21.9	
69 2-Chloroethyl vinyl ether	63	6.850	6.848	0.002	94	360853	20.0	22.9	
71 cis-1,3-Dichloropropene	75	6.992	7.002	-0.010	94	785996	20.0	22.3	
72 4-Methyl-2-pentanone (MIBK)	43	7.122	7.120	0.002	97	1143308	40.0	32.2	
73 Toluene	91	7.312	7.309	0.003	98	1958881	20.0	18.8	
74 trans-1,3-Dichloropropene	75	7.477	7.475	0.002	96	705379	20.0	17.1	
75 Ethyl methacrylate	69	7.548	7.546	0.002	90	727878	20.0	17.6	
76 1,1,2-Trichloroethane	97	7.655	7.652	0.003	92	433940	20.0	19.2	
77 1,3-Dichloropropane	76	7.809	7.806	0.003	91	771369	20.0	18.8	
78 Tetrachloroethene	166	7.821	7.818	0.003	90	550058	20.0	22.6	
80 2-Hexanone	43	7.868	7.865	0.003	96	985229	40.0	32.0	
82 Chlorodibromomethane	129	8.022	8.031	-0.009	90	489537	20.0	18.5	
83 Ethylene Dibromide	107	8.140	8.149	-0.009	99	465199	20.0	18.8	
85 Chlorobenzene	112	8.602	8.599	0.003	95	1278074	20.0	19.8	
86 1,1,1,2-Tetrachloroethane	131	8.673	8.670	0.003	94	494968	20.0	20.1	
87 Ethylbenzene	106	8.696	8.694	0.002	98	674030	20.0	19.5	
88 m-Xylene & p-Xylene	106	8.803	8.800	0.003	99	834667	20.0	19.6	
89 o-Xylene	106	9.181	9.179	0.002	97	845110	20.0	19.2	
90 Styrene	104	9.193	9.191	0.002	93	1423113	20.0	19.5	
91 Bromoform	173	9.371	9.380	-0.009	97	386167	20.0	20.1	
92 Isopropylbenzene	105	9.525	9.534	-0.010	96	2009041	20.0	19.8	
94 1,1,2,2-Tetrachloroethane	83	9.797	9.794	0.003	96	654874	20.0	17.1	
95 Bromobenzene	156	9.844	9.842	0.002	94	597646	20.0	19.6	
96 trans-1,4-Dichloro-2-butene	53	9.856	9.853	0.003	73	229667	20.0	16.1	
97 1,2,3-Trichloropropane	110	9.856	9.853	0.003	83	246303	20.0	18.3	
98 N-Propylbenzene	120	9.927	9.924	0.003	99	540507	20.0	18.4	
100 2-Chlorotoluene	126	10.021	10.031	-0.010	97	501802	20.0	18.6	
101 1,3,5-Trimethylbenzene	105	10.092	10.090	0.002	96	1576640	20.0	18.8	
102 4-Chlorotoluene	126	10.128	10.126	0.002	97	532935	20.0	18.7	
104 tert-Butylbenzene	119	10.424	10.421	0.003	90	1434797	20.0	19.2	
106 1,2,4-Trimethylbenzene	105	10.471	10.469	0.002	96	1658391	20.0	18.6	
107 sec-Butylbenzene	134	10.637	10.634	0.003	94	404482	20.0	19.8	
108 1,3-Dichlorobenzene	146	10.755	10.753	0.002	98	1021251	20.0	18.8	

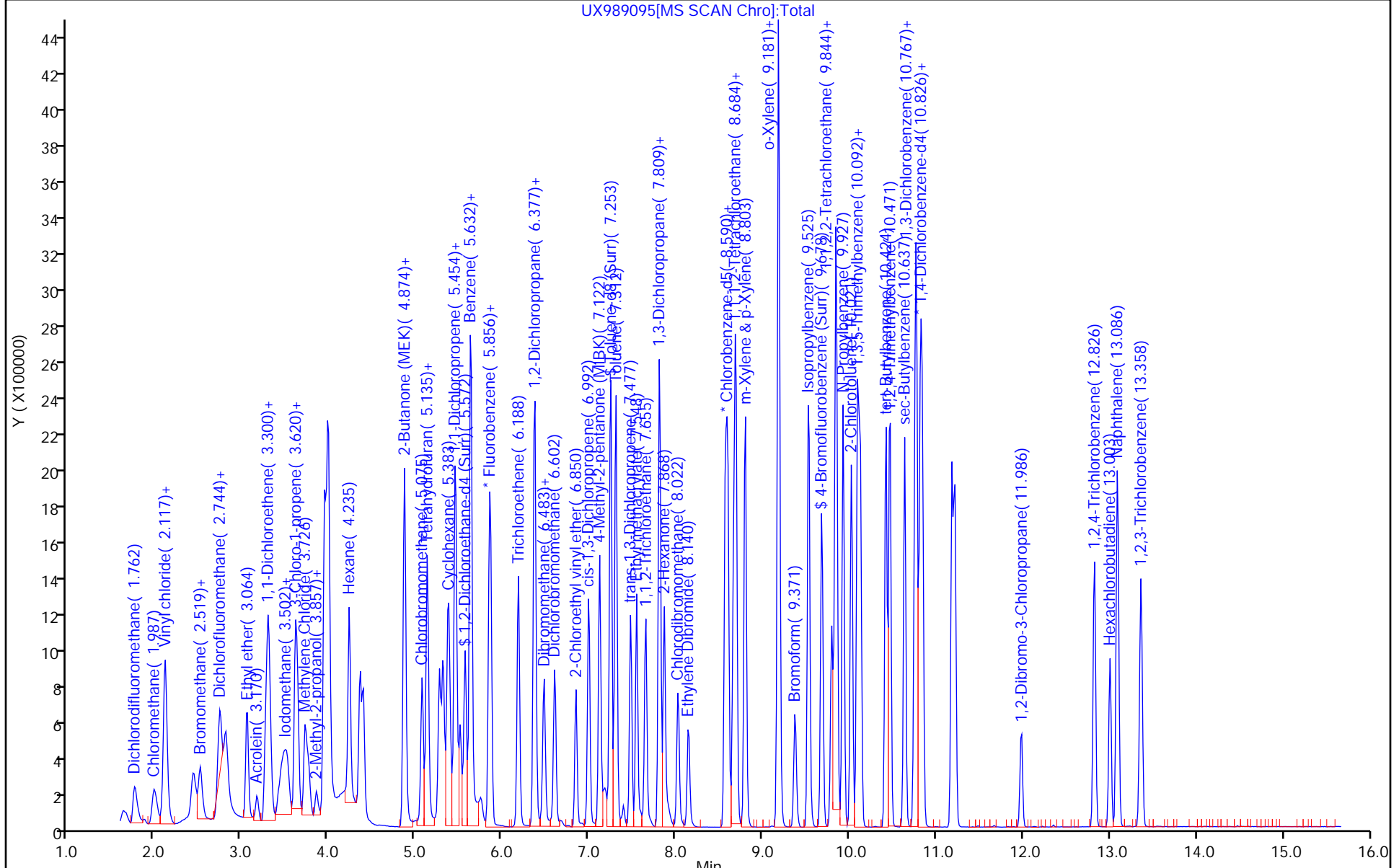
Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
109 4-Isopropyltoluene	119	10.779	10.776	0.003	97	1587298	20.0	19.3	
110 1,4-Dichlorobenzene	146	10.838	10.847	-0.009	96	1084648	20.0	19.2	
113 n-Butylbenzene	91	11.181	11.179	0.002	96	1214894	20.0	17.8	
114 1,2-Dichlorobenzene	146	11.217	11.214	0.003	98	1024119	20.0	18.9	
115 1,2-Dibromo-3-Chloropropane	157	11.986	11.983	0.003	89	200502	20.0	18.6	
117 1,2,4-Trichlorobenzene	180	12.826	12.823	0.003	94	662284	20.0	23.2	
118 Hexachlorobutadiene	225	13.003	13.001	0.002	94	251500	20.0	24.4	
119 Naphthalene	128	13.086	13.096	-0.010	97	2206525	20.0	21.9	
120 1,2,3-Trichlorobenzene	180	13.358	13.356	0.002	96	660015	20.0	24.6	
S 158 Total BTEX	1				0		100.0	100.0	
S 130 Trihalomethanes, Total	83				0		80.0	82.5	
S 131 Xylenes, Total	106				0		40.0	38.8	

Reagents:

vm100is_stk_A_00005

Amount Added: 1.00

Units: uL



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\UX989095.D
 Lims ID: LCS 240-445438/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 04-Aug-2020 18:08:30 ALS Bottle#: 24 Worklist Smp#: 24
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100652-024
 Operator ID: 001765 Instrument ID: A3UX9
 Method: \\chromfs\Canton\ChromData\A3UX9\20200804-100652.b\8260_9.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 08:31:28 Calib Date: 29-Jun-2020 15:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX9\20200629-99598.b\UX988371.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1061

First Level Reviewer: bosworthh

Date: 05-Aug-2020 08:27:23

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	26.8	107.07
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	23.9	95.66
\$ 6 Toluene-d8 (Surr)	25.0	21.9	87.68
\$ 7 4-Bromofluorobenzene (Surr)	25.0	22.2	88.66

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LCS 240-445619/2-A
 Matrix: Solid Lab File ID: U1916165.d
 Analysis Method: 8260B MI Date Collected: _____
 Sample wt/vol: 10.00(g) Date Analyzed: 08/06/2020 20:00
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Medium
 Analysis Batch No.: 446008 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	914		40	16
123-91-1	1,4-Dioxane	17900		13000	1100
156-59-2	cis-1,2-Dichloroethene	897		40	9.0
127-18-4	Tetrachloroethene	855		40	18
156-60-5	trans-1,2-Dichloroethene	960		40	10
79-01-6	Trichloroethene	825		40	11
75-01-4	Vinyl chloride	998		32	12

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	69		47-136
460-00-4	4-Bromofluorobenzene (Surr)	77		51-124
1868-53-7	Dibromofluoromethane (Surr)	74		49-122
2037-26-5	Toluene-d8 (Surr)	85		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX19\20200806-100740.b\U1916165.d
 Lims ID: LCS 240-445619/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 06-Aug-2020 20:00:32 ALS Bottle#: 0 Worklist Smp#: 11
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100740-011
 Operator ID: 001904 Instrument ID: A3UX19
 Method: \\chromfs\Canton\ChromData\A3UX19\20200806-100740.b\8260_19.m
 Limit Group: MSV 8260B ICAL
 Last Update: 06-Aug-2020 18:18:05 Calib Date: 09-Jun-2020 21:22:13
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX19\20200609-98977.b\U1914735.d
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1070

First Level Reviewer: laveyt Date: 06-Aug-2020 20:28:11

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.665	5.666	-0.001	99	992035	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.500	8.500	0.000	86	703466	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.895	10.883	0.012	94	373500	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	5.049	5.061	-0.012	94	247311	25.0	18.5	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	5.357	5.357	0.000	98	265807	25.0	17.3	
\$ 6 Toluene-d8 (Surr)	98	7.112	7.112	0.000	93	892494	25.0	21.2	
\$ 7 4-Bromofluorobenzene (Surr)	95	9.686	9.686	0.000	91	307016	25.0	19.3	
9 Dichlorodifluoromethane	85	1.610	1.610	0.000	99	299711	20.0	15.7	
10 Chloromethane	50	1.811	1.823	-0.012	99	276458	20.0	19.3	
12 Vinyl chloride	62	1.918	1.918	0.000	98	294926	20.0	20.0	
11 Butadiene	54	1.918	1.930	-0.012	89	284622	20.0	19.9	
13 Bromomethane	94	2.226	2.262	-0.036	91	186188	20.0	16.1	
15 Chloroethane	64	2.286	2.321	-0.035	100	180042	20.0	19.6	
16 Dichlorofluoromethane	67	2.499	2.535	-0.036	98	420914	20.0	18.5	
17 Trichlorofluoromethane	101	2.511	2.547	-0.036	97	373132	20.0	15.1	
18 Ethyl ether	59	2.808	2.819	-0.011	90	194908	20.0	21.8	
19 Acrolein	56	2.926	2.938	-0.012	98	56215	100.0	25.5	
20 1,1-Dichloroethene	61	3.021	3.033	-0.012	99	325592	20.0	18.3	
21 1,1,2-Trichloro-1,2,2-trifluoro	101	3.045	3.068	-0.023	93	227925	20.0	17.9	
22 Acetone	43	3.092	3.080	0.012	100	106451	40.0	27.4	
24 Iodomethane	142	3.175	3.187	-0.012	99	354442	20.0	15.4	
25 Carbon disulfide	76	3.234	3.246	-0.012	99	590590	20.0	15.8	
27 3-Chloro-1-propene	41	3.365	3.377	-0.012	91	297952	20.0	17.0	
28 Methyl acetate	43	3.389	3.389	0.000	97	416202	40.0	36.0	
29 Methylene Chloride	49	3.472	3.484	-0.012	89	277570	20.0	19.7	
30 2-Methyl-2-propanol	59	3.626	3.590	0.036	96	137569	200.0	102.4	
31 Acrylonitrile	53	3.709	3.709	0.000	98	934440	200.0	187.3	
32 trans-1,2-Dichloroethene	61	3.733	3.744	-0.011	99	322538	20.0	19.2	
33 Methyl tert-butyl ether	73	3.744	3.744	0.000	96	557160	20.0	16.2	
34 Hexane	57	3.982	3.993	-0.011	91	327586	20.0	18.7	
35 1,1-Dichloroethane	63	4.112	4.124	-0.012	96	389998	20.0	19.4	
36 Vinyl acetate	43	4.159	4.159	0.000	97	342206	20.0	14.9	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
41 cis-1,2-Dichloroethene	96	4.634	4.634	0.000	89	257245	20.0	17.9	
40 2-Butanone (MEK)	72	4.646	4.634	0.012	100	69008	40.0	29.5	
42 2,2-Dichloropropane	77	4.634	4.646	-0.012	86	216521	20.0	17.9	
46 Chlorobromomethane	49	4.847	4.847	0.000	92	174277	20.0	18.1	
47 Tetrahydrofuran	42	4.895	4.895	0.000	85	165316	40.0	31.6	
48 Chloroform	83	4.907	4.918	-0.011	93	405479	20.0	18.4	
49 1,1,1-Trichloroethane	97	5.084	5.096	-0.012	98	343198	20.0	16.6	
50 Cyclohexane	84	5.144	5.156	-0.012	88	351738	20.0	18.6	
51 1,1-Dichloropropene	75	5.227	5.239	-0.012	97	321532	20.0	18.4	
52 Carbon tetrachloride	117	5.239	5.239	0.000	96	315409	20.0	15.8	
53 Isobutyl alcohol	41	5.322	5.298	0.024	93	184350	500.0	338.4	
54 Benzene	78	5.416	5.416	0.000	96	921718	20.0	19.5	
55 1,2-Dichloroethane	62	5.428	5.428	0.000	98	298018	20.0	16.7	
57 n-Heptane	57	5.642	5.654	-0.012	88	165339	20.0	14.5	
59 Trichloroethene	130	5.998	5.998	0.000	98	258495	20.0	16.5	
61 Methylcyclohexane	83	6.175	6.175	0.000	91	389027	20.0	17.1	
62 1,2-Dichloropropane	63	6.199	6.199	0.000	97	216758	20.0	19.8	
65 1,4-Dioxane	88	6.318	6.306	0.012	92	45868	400.0	358.8	
64 Dibromomethane	174	6.306	6.306	0.000	93	160145	20.0	14.2	
66 Dichlorobromomethane	83	6.436	6.436	0.000	99	277606	20.0	16.1	
68 2-Chloroethyl vinyl ether	63	6.697	6.709	-0.012	92	142664	20.0	16.2	
69 cis-1,3-Dichloropropene	75	6.851	6.851	0.000	96	326669	20.0	17.0	
70 4-Methyl-2-pentanone (MIBK)	43	6.982	6.982	0.000	96	514462	40.0	32.4	
71 Toluene	91	7.172	7.172	0.000	98	954625	20.0	20.1	
72 trans-1,3-Dichloropropene	75	7.361	7.361	0.000	93	274442	20.0	16.2	
73 Ethyl methacrylate	69	7.444	7.444	0.000	87	283019	20.0	18.5	
74 1,1,2-Trichloroethane	97	7.539	7.539	0.000	91	199402	20.0	20.0	
75 Tetrachloroethene	166	7.705	7.705	0.000	96	259488	20.0	17.1	
76 1,3-Dichloropropane	76	7.705	7.705	0.000	89	342585	20.0	20.3	
77 2-Hexanone	43	7.776	7.776	0.000	95	404473	40.0	36.5	
79 Chlorodibromomethane	129	7.930	7.931	0.000	90	209764	20.0	16.6	
81 Ethylene Dibromide	107	8.049	8.049	0.000	97	211276	20.0	17.9	
83 Chlorobenzene	112	8.535	8.535	0.000	95	607321	20.0	18.7	
84 1,1,1,2-Tetrachloroethane	131	8.606	8.606	0.000	95	207826	20.0	17.7	
85 Ethylbenzene	106	8.642	8.642	0.000	98	320396	20.0	18.8	
86 m-Xylene & p-Xylene	106	8.749	8.749	0.000	99	401436	20.0	19.4	
87 o-Xylene	106	9.152	9.152	0.000	96	385128	20.0	19.6	
88 Styrene	104	9.164	9.164	0.000	93	637160	20.0	18.9	
89 Bromoform	173	9.354	9.354	0.000	97	149575	20.0	14.5	
90 Isopropylbenzene	105	9.531	9.531	0.000	96	1016306	20.0	19.2	
93 1,1,2,2-Tetrachloroethane	83	9.816	9.816	0.000	94	295415	20.0	20.5	
95 Bromobenzene	156	9.852	9.852	0.000	89	249071	20.0	17.3	
96 1,2,3-Trichloropropane	110	9.875	9.875	0.000	86	103282	20.0	18.9	
97 trans-1,4-Dichloro-2-butene	53	9.875	9.875	0.000	78	78822	20.0	15.4	
98 N-Propylbenzene	120	9.946	9.946	0.000	99	279270	20.0	19.3	
100 2-Chlorotoluene	126	10.041	10.041	0.000	96	238113	20.0	19.5	
101 1,3,5-Trimethylbenzene	105	10.136	10.136	0.000	95	814298	20.0	19.6	
102 4-Chlorotoluene	126	10.160	10.160	0.000	97	247940	20.0	18.8	
103 tert-Butylbenzene	119	10.480	10.480	0.000	91	699498	20.0	17.7	
105 1,2,4-Trimethylbenzene	105	10.528	10.528	0.000	95	829843	20.0	19.7	
106 sec-Butylbenzene	105	10.705	10.705	0.000	94	1005249	20.0	18.9	
107 1,3-Dichlorobenzene	146	10.824	10.824	0.000	98	465593	20.0	17.7	

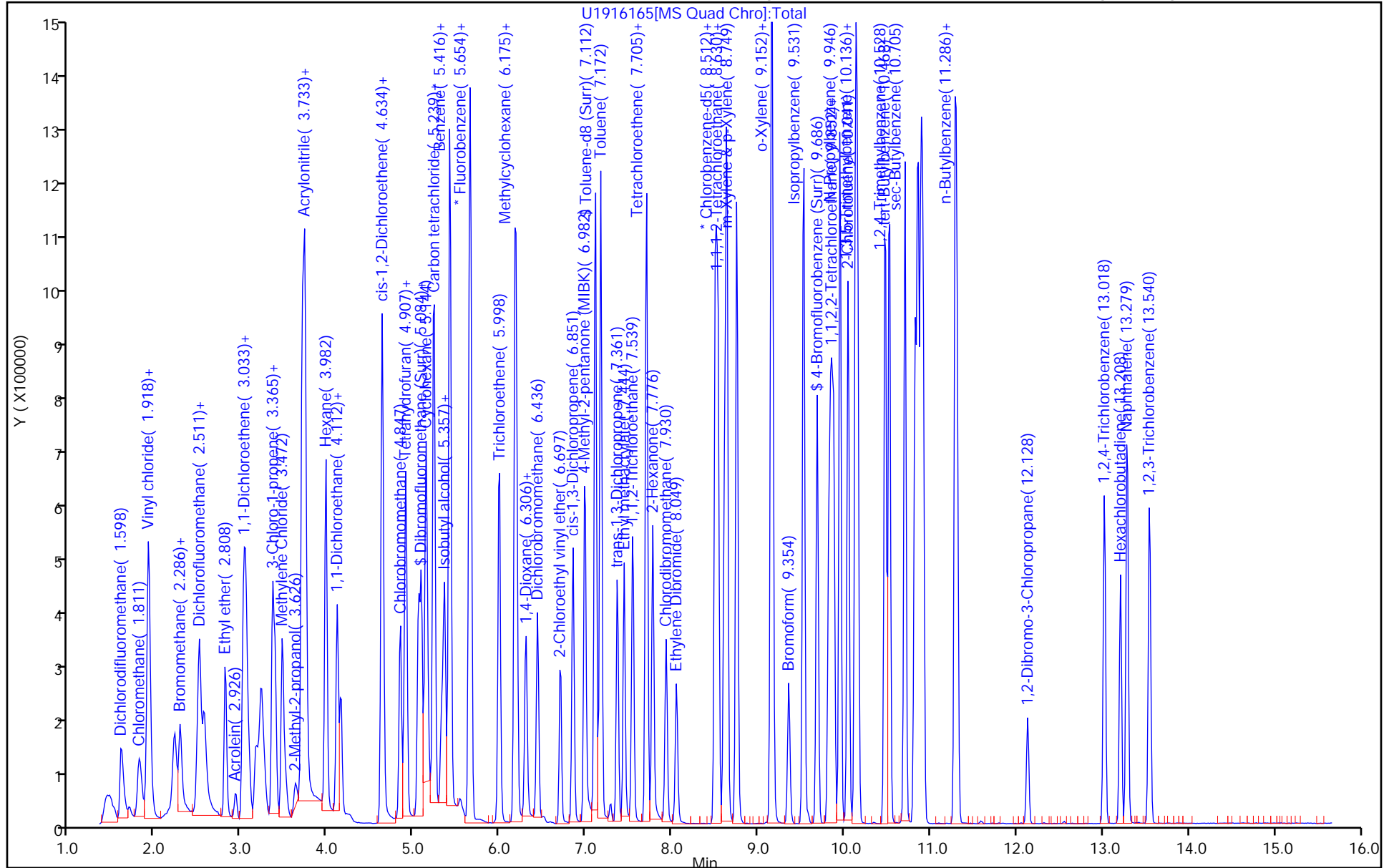
Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
108 4-Isopropyltoluene	119	10.860	10.860	0.000	97	857323	20.0	18.4	
109 1,4-Dichlorobenzene	146	10.919	10.919	0.000	95	475715	20.0	17.5	
112 n-Butylbenzene	91	11.286	11.287	0.000	98	703021	20.0	18.4	
113 1,2-Dichlorobenzene	146	11.310	11.310	0.000	98	447971	20.0	18.7	
114 1,2-Dibromo-3-Chloropropane	157	12.128	12.128	0.000	87	70456	20.0	15.4	
116 1,2,4-Trichlorobenzene	180	13.018	13.018	0.000	94	243325	20.0	15.2	
117 Hexachlorobutadiene	225	13.208	13.208	0.000	97	109991	20.0	13.4	
118 Naphthalene	128	13.279	13.279	0.000	97	731509	20.0	16.6	
119 1,2,3-Trichlorobenzene	180	13.540	13.540	0.000	95	240121	20.0	16.7	
S 125 Trihalomethanes, Total	1				0		80.0	65.7	
S 124 Total BTEX	1				0		100.0	97.4	
S 128 Xylenes, Total	106				0		40.0	38.9	

Reagents:

vm50is_stk_A_00006

Amount Added: 2.00

Units: uL



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX19\20200806-100740.b\U1916165.d
 Lims ID: LCS 240-445619/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 06-Aug-2020 20:00:32 ALS Bottle#: 0 Worklist Smp#: 11
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100740-011
 Operator ID: 001904 Instrument ID: A3UX19
 Method: \\chromfs\Canton\ChromData\A3UX19\20200806-100740.b\8260_19.m
 Limit Group: MSV 8260B ICAL
 Last Update: 06-Aug-2020 18:18:05 Calib Date: 09-Jun-2020 21:22:13
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX19\20200609-98977.b\U1914735.d
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1070

First Level Reviewer: laveyt

Date: 06-Aug-2020 20:28:11

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	18.5	74.08
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	17.3	69.33
\$ 6 Toluene-d8 (Surr)	25.0	21.2	84.63
\$ 7 4-Bromofluorobenzene (Surr)	25.0	19.3	77.37

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: 240-134182-B-28-A MS
 Matrix: Solid Lab File ID: U1279506a.D
 Analysis Method: 8260B MI Date Collected: _____
 Sample wt/vol: 9.915(g) Date Analyzed: 08/04/2020 22:57
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.6(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 2.6 Level: (low/med) Medium
 Analysis Batch No.: 445595 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	1100		45	18
123-91-1	1,4-Dioxane	31700		14000	1200
156-59-2	cis-1,2-Dichloroethene	926		45	10
127-18-4	Tetrachloroethene	1120		45	20
156-60-5	trans-1,2-Dichloroethene	1200		45	11
79-01-6	Trichloroethene	1120		45	12
75-01-4	Vinyl chloride	1220		36	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	88		47-136
460-00-4	4-Bromofluorobenzene (Surr)	102		51-124
1868-53-7	Dibromofluoromethane (Surr)	84		49-122
2037-26-5	Toluene-d8 (Surr)	100		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279506a.D
 Lims ID: 240-134182-B-28-A MS
 Client ID: SB-143 (3-4)_072820
 Sample Type: MS
 Inject. Date: 04-Aug-2020 22:57:30 ALS Bottle#: 19 Worklist Smp#: 21
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-021
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:07:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 15:47:12

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1060054	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	741525	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.971	-0.001	95	391344	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.527	4.539	-0.012	94	270539	23.6	19.2	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	97	347702	23.6	20.2	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1156515	23.6	23.1	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	95	402681	23.6	23.4	
12 Vinyl chloride	62	1.676	1.699	-0.023	97	430926	18.9	21.7	
21 1,1-Dichloroethene	61	2.658	2.634	0.024	95	418262	18.9	19.6	
32 trans-1,2-Dichloroethene	61	3.273	3.285	-0.012	95	434650	18.9	21.2	
41 cis-1,2-Dichloroethene	96	4.125	4.137	-0.012	83	313923	18.9	16.5	
59 Trichloroethene	130	5.403	5.403	0.000	97	293471	18.9	19.9	
65 1,4-Dioxane	88	5.722	5.711	0.011	95	103212	377.4	563.0	
76 Tetrachloroethene	166	6.989	7.000	-0.011	97	292104	18.9	19.8	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279506a.D

Injection Date: 04-Aug-2020 22:57:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-B-28-A MS

Worklist Smp#: 21

Client ID: SB-143 (3-4)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

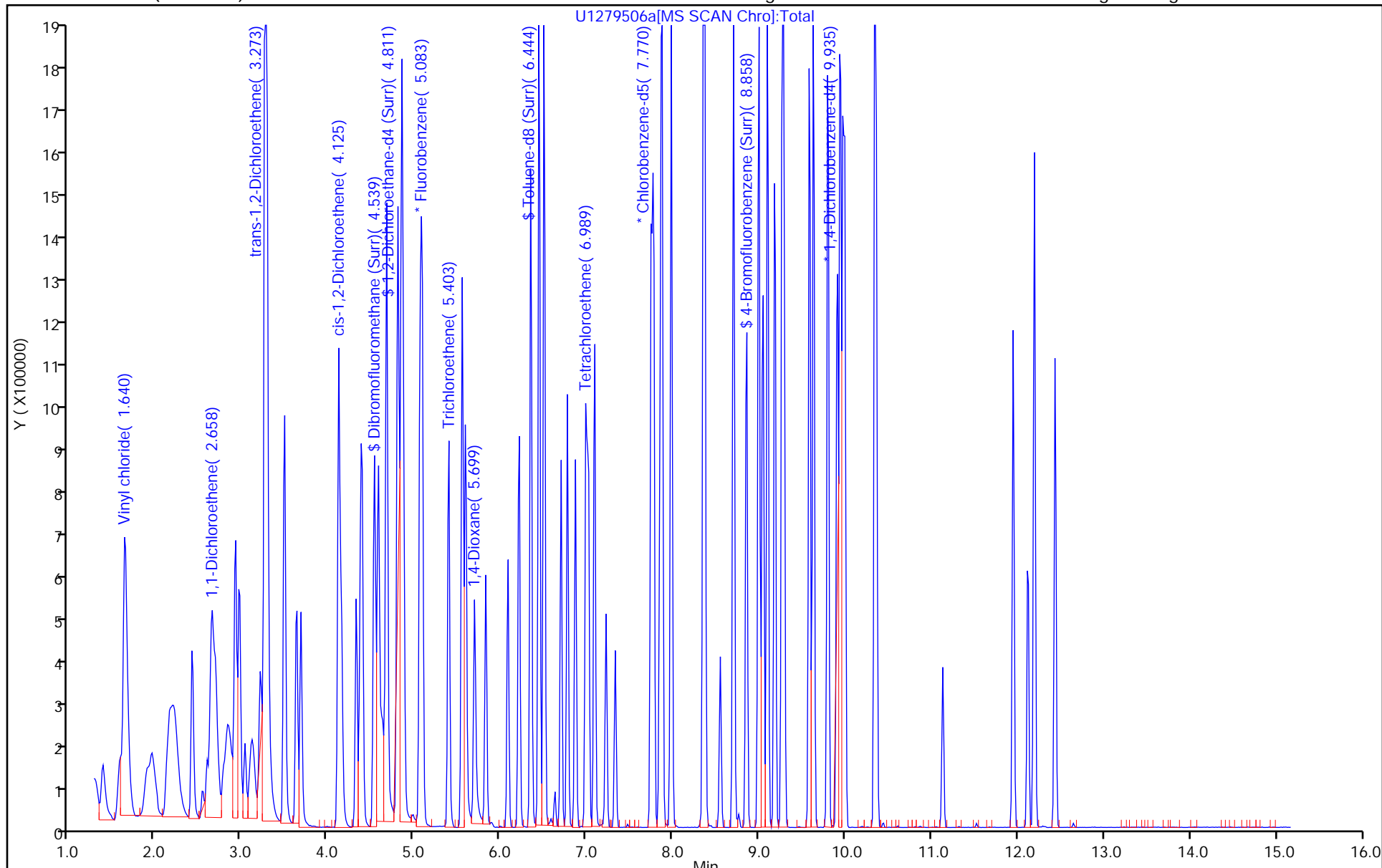
ALS Bottle#: 19

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279506a.D
 Lims ID: 240-134182-B-28-A MS
 Client ID: SB-143 (3-4)_072820
 Sample Type: MS
 Inject. Date: 04-Aug-2020 22:57:30 ALS Bottle#: 19 Worklist Smp#: 21
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-021
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:07:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 15:47:12

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	23.6	19.2	81.53
\$ 5 1,2-Dichloroethane-d4 (Surr)	23.6	20.2	85.61
\$ 6 Toluene-d8 (Surr)	23.6	23.1	97.77
\$ 7 4-Bromofluorobenzene (Surr)	23.6	23.4	99.43

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: 240-134182-C-28-A MSD
 Matrix: Solid Lab File ID: U1279507a.D
 Analysis Method: 8260B MI Date Collected: _____
 Sample wt/vol: 9.717(g) Date Analyzed: 08/04/2020 23:20
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.6(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 2.6 Level: (low/med) Medium
 Analysis Batch No.: 445595 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	1240		46	18
123-91-1	1,4-Dioxane	21600		14000	1300
156-59-2	cis-1,2-Dichloroethene	994		46	10
127-18-4	Tetrachloroethene	1210		46	21
156-60-5	trans-1,2-Dichloroethene	1280		46	11
79-01-6	Trichloroethene	1210		46	13
75-01-4	Vinyl chloride	1230		37	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	85		47-136
460-00-4	4-Bromofluorobenzene (Surr)	107		51-124
1868-53-7	Dibromofluoromethane (Surr)	86		49-122
2037-26-5	Toluene-d8 (Surr)	103		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279507a.D
 Lims ID: 240-134182-C-28-A MSD
 Client ID: SB-143 (3-4)_072820
 Sample Type: MSD
 Inject. Date: 04-Aug-2020 23:20:30 ALS Bottle#: 20 Worklist Smp#: 22
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-022
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:07:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 15:47:22

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1098106	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	766667	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.971	9.971	-0.001	93	392940	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.527	4.539	-0.012	94	288397	23.6	19.8	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	97	350887	23.6	19.7	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1226318	23.6	23.6	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	94	437562	23.6	24.6	
12 Vinyl chloride	62	1.664	1.699	-0.035	97	442090	18.9	21.5	
21 1,1-Dichloroethene	61	2.646	2.634	0.012	94	477275	18.9	21.6	
32 trans-1,2-Dichloroethene	61	3.273	3.285	-0.012	62	474220	18.9	22.4	
41 cis-1,2-Dichloroethene	96	4.125	4.137	-0.012	83	342414	18.9	17.3	
59 Trichloroethene	130	5.403	5.403	0.000	98	322322	18.9	21.1	
65 1,4-Dioxane	88	5.711	5.711	0.000	94	71644	377.4	377.3	
76 Tetrachloroethene	166	6.989	7.000	-0.011	98	320698	18.9	21.1	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279507a.D

Injection Date: 04-Aug-2020 23:20:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-C-28-A MSD

Worklist Smp#: 22

Client ID: SB-143 (3-4)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

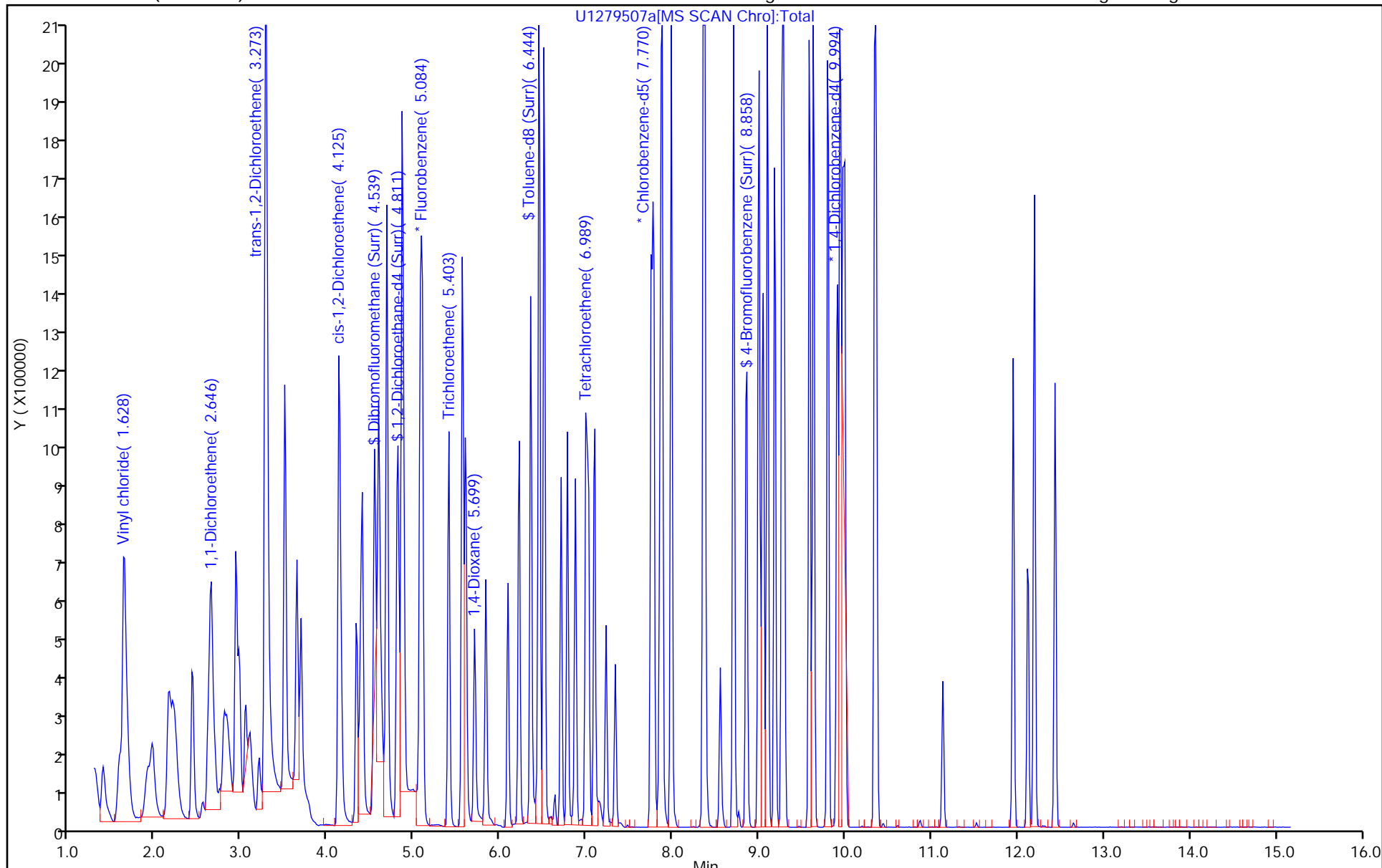
ALS Bottle#: 20

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279507a.D
 Lims ID: 240-134182-C-28-A MSD
 Client ID: SB-143 (3-4)_072820
 Sample Type: MSD
 Inject. Date: 04-Aug-2020 23:20:30 ALS Bottle#: 20 Worklist Smp#: 22
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-022
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:07:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 15:47:22

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	23.6	19.8	83.90
\$ 5 1,2-Dichloroethane-d4 (Surr)	23.6	19.7	83.40
\$ 6 Toluene-d8 (Surr)	23.6	23.6	100.27
\$ 7 4-Bromofluorobenzene (Surr)	23.6	24.6	104.50

GC/MS VOA ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Instrument ID: A3UX19 Start Date: 07/24/2018 17:22

Analysis Batch Number: 337765 End Date: 07/24/2018 21:10

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
BFB 240-337765/1		07/24/2018 17:22	1	bfb036.d	DB-624 0.18 (mm)
STD8260 240-337765/2 IC		07/24/2018 17:50	1	U1900783.d	DB-624 0.18 (mm)
STD8260 240-337765/3 IC		07/24/2018 18:13	1	U1900784.d	DB-624 0.18 (mm)
STD8260 240-337765/9 IC		07/24/2018 18:35	1	U1900790.d	DB-624 0.18 (mm)
ICIS 240-337765/10		07/24/2018 18:57	1	U1900791.d	DB-624 0.18 (mm)
STD8260 240-337765/11 IC		07/24/2018 19:20	1	U1900792.d	DB-624 0.18 (mm)
STD8260 240-337765/12 IC		07/24/2018 19:42	1	U1900793.d	DB-624 0.18 (mm)
STD8260 240-337765/13 IC		07/24/2018 20:04	1	U1900794.d	DB-624 0.18 (mm)
ICV 240-337765/14		07/24/2018 20:26	1		DB-624 0.18 (mm)
MRL 240-337765/15 MDLV		07/24/2018 20:48	1		DB-624 0.18 (mm)
MDLV 240-337765/16		07/24/2018 21:10	1		DB-624 0.18 (mm)

GC/MS VOA ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Instrument ID: A3UX19 Start Date: 07/25/2018 11:28Analysis Batch Number: 337916 End Date: 07/25/2018 16:21

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
BFB 240-337916/1		07/25/2018 11:28	1	bfb037.d	DB-624 0.18 (mm)
CCVIS 240-337916/3		07/25/2018 12:17	1		DB-624 0.18 (mm)
ZZZZZ		07/25/2018 12:39	1		DB-624 0.18 (mm)
STDA9 240-337916/8 IC		07/25/2018 13:24	1		DB-624 0.18 (mm)
STDA9 240-337916/9 IC		07/25/2018 13:46	1		DB-624 0.18 (mm)
STDA9 240-337916/10 IC		07/25/2018 14:08	1		DB-624 0.18 (mm)
STDA9 240-337916/11 IC		07/25/2018 14:30	1		DB-624 0.18 (mm)
STDA9 240-337916/12 IC		07/25/2018 14:52	1		DB-624 0.18 (mm)
STDA9 240-337916/13 IC		07/25/2018 15:15	1		DB-624 0.18 (mm)
ICV 240-337916/14		07/25/2018 15:37	1	U1900808.d	DB-624 0.18 (mm)
MRL 240-337916/15 MDLV		07/25/2018 15:59	1		DB-624 0.18 (mm)
ZZZZZ		07/25/2018 16:21	1		DB-624 0.18 (mm)

GC/MS VOA ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Instrument ID: A3UX19 Start Date: 08/27/2018 16:23

Analysis Batch Number: 342718 End Date: 08/27/2018 20:52

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
BFB 240-342718/1		08/27/2018 16:23	1	bfb058.d	DB-624 0.18 (mm)
CCV 240-342718/2		08/27/2018 16:46	1		DB-624 0.18 (mm)
STD8260 240-342718/7 IC		08/27/2018 17:09	1	U1901323.d	DB-624 0.18 (mm)
STD8260 240-342718/8 IC		08/27/2018 17:31	1	U1901324.d	DB-624 0.18 (mm)
STD8260 240-342718/9 IC		08/27/2018 17:53	1	U1901325.d	DB-624 0.18 (mm)
ICIS 240-342718/10		08/27/2018 18:16	1	U1901326.d	DB-624 0.18 (mm)
STD8260 240-342718/11 IC		08/27/2018 18:38	1	U1901327.d	DB-624 0.18 (mm)
STD8260 240-342718/12 IC		08/27/2018 19:01	1	U1901328.d	DB-624 0.18 (mm)
STD8260 240-342718/13 IC		08/27/2018 19:23	1	U1901329.d	DB-624 0.18 (mm)
ICV 240-342718/14		08/27/2018 19:45	1	U1901330.d	DB-624 0.18 (mm)
MRL 240-342718/15 MDLV		08/27/2018 20:07	1		DB-624 0.18 (mm)
MDLV 240-342718/16		08/27/2018 20:30	1		DB-624 0.18 (mm)
ZZZZZ		08/27/2018 20:52	1		DB-624 0.18 (mm)

GC/MS VOA ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.:

Instrument ID: A3UX9

Start Date: 06/29/2020 09:36

Analysis Batch Number: 440459

End Date: 06/29/2020 16:22

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
BFB 240-440459/2		06/29/2020 09:36	1	BFB1008.D	DB-624 0.18 (mm)
STD8260 240-440459/8 IC		06/29/2020 10:22	1	UX988356.D	DB-624 0.18 (mm)
STD8260 240-440459/9 IC		06/29/2020 10:44	1	UX988357.D	DB-624 0.18 (mm)
STD8260 240-440459/10 IC		06/29/2020 11:07	1	UX988358.D	DB-624 0.18 (mm)
ICIS 240-440459/11		06/29/2020 11:29	1	UX988359.D	DB-624 0.18 (mm)
STD8260 240-440459/12 IC		06/29/2020 11:52	1	UX988360.D	DB-624 0.18 (mm)
STD8260 240-440459/13 IC		06/29/2020 12:14	1	UX988361.D	DB-624 0.18 (mm)
STD8260 240-440459/14 IC		06/29/2020 12:37	1	UX988362.D	DB-624 0.18 (mm)
ICV 240-440459/15		06/29/2020 12:59	1	UX988363.D	DB-624 0.18 (mm)
STDA9 240-440459/18 IC		06/29/2020 14:06	1		DB-624 0.18 (mm)
STDA9 240-440459/19 IC		06/29/2020 14:29	1		DB-624 0.18 (mm)
STDA9 240-440459/20 IC		06/29/2020 14:51	1		DB-624 0.18 (mm)
STDA9 240-440459/21 IC		06/29/2020 15:14	1		DB-624 0.18 (mm)
STDA9 240-440459/22 IC		06/29/2020 15:36	1		DB-624 0.18 (mm)
STDA9 240-440459/23 IC		06/29/2020 15:59	1		DB-624 0.18 (mm)
ICV 240-440459/24		06/29/2020 16:22	1		DB-624 0.18 (mm)

GC/MS VOA ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Instrument ID: A3UX12 Start Date: 07/16/2020 16:09Analysis Batch Number: 442964 End Date: 07/16/2020 21:05

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
BFB 240-442964/1		07/16/2020 16:09	1	BFB4436a.D	DB-624 0.18 (mm)
STD8260 240-442964/9 IC		07/16/2020 17:43	1	U1279113.D	DB-624 0.18 (mm)
STD8260 240-442964/10 IC		07/16/2020 18:05	1	U1279114.D	DB-624 0.18 (mm)
STD8260 240-442964/11 IC		07/16/2020 18:27	1	U1279115.D	DB-624 0.18 (mm)
STD8260 240-442964/12 IC		07/16/2020 18:50	1	U1279116.D	DB-624 0.18 (mm)
ICIS 240-442964/13		07/16/2020 19:12	1	U1279117.D	DB-624 0.18 (mm)
STD8260 240-442964/14 IC		07/16/2020 19:35	1	U1279118.D	DB-624 0.18 (mm)
STD8260 240-442964/15 IC		07/16/2020 19:57	1	U1279119.D	DB-624 0.18 (mm)
STD8260 240-442964/16 IC		07/16/2020 20:20	1	U1279120.D	DB-624 0.18 (mm)
ICV 240-442964/17		07/16/2020 20:43	1	U1279121.D	DB-624 0.18 (mm)
MDLV 240-442964/18		07/16/2020 21:05	1		DB-624 0.18 (mm)

GC/MS VOA ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Instrument ID: A3UX9 Start Date: 08/04/2020 09:37

Analysis Batch Number: 445537 End Date: 08/04/2020 21:29

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
BFB 240-445537/1		08/04/2020 09:37	1	BFB1032.D	DB-624 0.18 (mm)
CCVIS 240-445537/3		08/04/2020 10:03	1	UX989074.D	DB-624 0.18 (mm)
CCV 240-445537/4		08/04/2020 10:26	1	UX989075.D	DB-624 0.18 (mm)
ZZZZZ		08/04/2020 10:48	1		DB-624 0.18 (mm)
MRL 240-445537/6 MDLV		08/04/2020 11:10	1		DB-624 0.18 (mm)
MRL 240-445537/7 MDLV		08/04/2020 11:33	1		DB-624 0.18 (mm)
ZZZZZ		08/04/2020 11:55	1		DB-624 0.18 (mm)
MRL 240-445537/9 MDLV		08/04/2020 12:18	1		DB-624 0.18 (mm)
ZZZZZ		08/04/2020 14:59	1		DB-624 0.18 (mm)
ZZZZZ		08/04/2020 15:21	1		DB-624 0.18 (mm)
ZZZZZ		08/04/2020 15:44	1		DB-624 0.18 (mm)
ZZZZZ		08/04/2020 16:06	1		DB-624 0.18 (mm)
ZZZZZ		08/04/2020 16:29	1		DB-624 0.18 (mm)
ZZZZZ		08/04/2020 16:51	1		DB-624 0.18 (mm)
MB 240-445438/1-A		08/04/2020 17:46	1	UX989094.D	DB-624 0.18 (mm)
LCS 240-445438/2-A		08/04/2020 18:08	1	UX989095.D	DB-624 0.18 (mm)
240-134119-8		08/04/2020 18:30	1	UX989096.D	DB-624 0.18 (mm)
240-134119-9		08/04/2020 18:52	1	UX989097.D	DB-624 0.18 (mm)
240-134119-10		08/04/2020 19:15	1	UX989098.D	DB-624 0.18 (mm)
240-134119-11		08/04/2020 19:37	1	UX989099.D	DB-624 0.18 (mm)
240-134119-12		08/04/2020 20:00	1	UX989100.D	DB-624 0.18 (mm)
240-134119-13		08/04/2020 20:22	1	UX989101.D	DB-624 0.18 (mm)
240-134119-14		08/04/2020 20:45	1	UX989102.D	DB-624 0.18 (mm)
240-134119-15		08/04/2020 21:07	1	UX989103.D	DB-624 0.18 (mm)
240-134119-16		08/04/2020 21:29	1	UX989104.D	DB-624 0.18 (mm)

GC/MS VOA ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Instrument ID: A3UX12 Start Date: 08/04/2020 15:54

Analysis Batch Number: 445595 End Date: 08/05/2020 03:50

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
BFB 240-445595/1		08/04/2020 15:54	1	BFB4451.D	DB-624 0.18 (mm)
CCV 240-445595/3		08/04/2020 16:16	1	U1279489.D	DB-624 0.18 (mm)
CCVIS 240-445595/4		08/04/2020 16:38	1	U1279490.D	DB-624 0.18 (mm)
MRL 240-445595/6 MDLV		08/04/2020 17:16	1		DB-624 0.18 (mm)
MRL 240-445595/7 MDLV		08/04/2020 17:39	1		DB-624 0.18 (mm)
ZZZZZ		08/04/2020 18:02	1		DB-624 0.18 (mm)
MB 240-445424/1-A		08/04/2020 18:24	1	U1279494a.D	DB-624 0.18 (mm)
LCS 240-445424/2-A		08/04/2020 18:51	1	U1279495a.D	DB-624 0.18 (mm)
ZZZZZ		08/04/2020 19:12	1		DB-624 0.18 (mm)
ZZZZZ		08/04/2020 19:35	1		DB-624 0.18 (mm)
ZZZZZ		08/04/2020 19:57	1		DB-624 0.18 (mm)
ZZZZZ		08/04/2020 20:20	1		DB-624 0.18 (mm)
ZZZZZ		08/04/2020 20:42	1		DB-624 0.18 (mm)
ZZZZZ		08/04/2020 21:05	1		DB-624 0.18 (mm)
ZZZZZ		08/04/2020 21:27	1		DB-624 0.18 (mm)
ZZZZZ		08/04/2020 21:49	1		DB-624 0.18 (mm)
ZZZZZ		08/04/2020 22:12	1		DB-624 0.18 (mm)
ZZZZZ		08/04/2020 22:35	1		DB-624 0.18 (mm)
240-134182-B-28-A MS		08/04/2020 22:57	1	U1279506a.D	DB-624 0.18 (mm)
240-134182-C-28-A MSD		08/04/2020 23:20	1	U1279507a.D	DB-624 0.18 (mm)
ZZZZZ		08/04/2020 23:43	1		DB-624 0.18 (mm)
ZZZZZ		08/05/2020 00:05	1		DB-624 0.18 (mm)
ZZZZZ		08/05/2020 00:28	1		DB-624 0.18 (mm)
ZZZZZ		08/05/2020 00:50	1		DB-624 0.18 (mm)
ZZZZZ		08/05/2020 01:13	1		DB-624 0.18 (mm)
240-134119-1		08/05/2020 01:35	1	U1279513.D	DB-624 0.18 (mm)
240-134119-2		08/05/2020 01:57	1	U1279514.D	DB-624 0.18 (mm)
240-134119-3		08/05/2020 02:20	1	U1279515.D	DB-624 0.18 (mm)
240-134119-4		08/05/2020 02:42	1	U1279516.D	DB-624 0.18 (mm)
240-134119-5		08/05/2020 03:05	1	U1279517.D	DB-624 0.18 (mm)
240-134119-6		08/05/2020 03:28	1	U1279518a.D	DB-624 0.18 (mm)
240-134119-7		08/05/2020 03:50	1	U1279519.D	DB-624 0.18 (mm)

GC/MS VOA ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Instrument ID: A3UX9 Start Date: 08/05/2020 09:07

Analysis Batch Number: 445702 End Date: 08/05/2020 20:39

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
BFB 240-445702/1		08/05/2020 09:07	1	BFB1033.D	DB-624 0.18 (mm)
CCVIS 240-445702/3		08/05/2020 09:34	1	UX989108.D	DB-624 0.18 (mm)
CCV 240-445702/4		08/05/2020 09:57	1	UX989109.D	DB-624 0.18 (mm)
MRL 240-445702/6 MDLV		08/05/2020 10:41	1		DB-624 0.18 (mm)
MRL 240-445702/7 MDLV		08/05/2020 11:03	1		DB-624 0.18 (mm)
ZZZZZ		08/05/2020 11:25	1		DB-624 0.18 (mm)
MRL 240-445702/9 MDLV		08/05/2020 11:48	1		DB-624 0.18 (mm)
ZZZZZ		08/05/2020 12:25	1		DB-624 0.18 (mm)
240-134119-18		08/05/2020 12:48	1	UX989116.D	DB-624 0.18 (mm)
240-134119-19		08/05/2020 13:10	1	UX989117.D	DB-624 0.18 (mm)
240-134119-20		08/05/2020 13:33	1	UX989118.D	DB-624 0.18 (mm)
240-134119-21		08/05/2020 13:55	1	UX989119.D	DB-624 0.18 (mm)
240-134119-22		08/05/2020 14:18	1	UX989120.D	DB-624 0.18 (mm)
240-134119-23		08/05/2020 14:40	1	UX989121.D	DB-624 0.18 (mm)
240-134119-24		08/05/2020 15:03	1	UX989122.D	DB-624 0.18 (mm)
240-134119-25		08/05/2020 15:25	1	UX989123.D	DB-624 0.18 (mm)
240-134119-27		08/05/2020 15:48	1	UX989124.D	DB-624 0.18 (mm)
ZZZZZ		08/05/2020 16:33	1		DB-624 0.18 (mm)
ZZZZZ		08/05/2020 16:56	1		DB-624 0.18 (mm)
240-134119-C-17-B MS		08/05/2020 17:18	1	UX989128.D	DB-624 0.18 (mm)
240-134119-C-17-C MSD		08/05/2020 17:40	1	UX989129.D	DB-624 0.18 (mm)
ZZZZZ		08/05/2020 18:25	1		DB-624 0.18 (mm)
ZZZZZ		08/05/2020 18:47	1		DB-624 0.18 (mm)
ZZZZZ		08/05/2020 19:10	1		DB-624 0.18 (mm)
ZZZZZ		08/05/2020 19:32	200		DB-624 0.18 (mm)
ZZZZZ		08/05/2020 19:54	200		DB-624 0.18 (mm)
ZZZZZ		08/05/2020 20:16	100		DB-624 0.18 (mm)
ZZZZZ		08/05/2020 20:39	100		DB-624 0.18 (mm)

GC/MS VOA ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Instrument ID: A3UX19 Start Date: 08/06/2020 17:23

Analysis Batch Number: 446008 End Date: 08/07/2020 03:27

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
BFB 240-446008/1		08/06/2020 17:23	1	bfb592.d	DB-624 0.18 (mm)
CCV 240-446008/3		08/06/2020 17:45	1	U1916159.d	DB-624 0.18 (mm)
CCVIS 240-446008/4		08/06/2020 18:08	1	U1916160.d	DB-624 0.18 (mm)
MRL 240-446008/7 MDLV		08/06/2020 18:30	1		DB-624 0.18 (mm)
MRL 240-446008/8 MDLV		08/06/2020 18:53	1		DB-624 0.18 (mm)
ZZZZZ		08/06/2020 19:15	1		DB-624 0.18 (mm)
MB 240-445619/1-A		08/06/2020 19:38	1	U1916164.d	DB-624 0.18 (mm)
LCS 240-445619/2-A		08/06/2020 20:00	1	U1916165.d	DB-624 0.18 (mm)
240-134119-30		08/06/2020 20:22	1	U1916166.d	DB-624 0.18 (mm)
240-134119-31		08/06/2020 20:45	1	U1916167.d	DB-624 0.18 (mm)
ZZZZZ		08/06/2020 21:52	1		DB-624 0.18 (mm)
ZZZZZ		08/06/2020 22:14	1		DB-624 0.18 (mm)
ZZZZZ		08/06/2020 22:36	1		DB-624 0.18 (mm)
ZZZZZ		08/06/2020 22:59	1		DB-624 0.18 (mm)
ZZZZZ		08/06/2020 23:21	1		DB-624 0.18 (mm)
ZZZZZ		08/06/2020 23:43	1		DB-624 0.18 (mm)
ZZZZZ		08/07/2020 00:06	1		DB-624 0.18 (mm)
ZZZZZ		08/07/2020 00:28	1		DB-624 0.18 (mm)
ZZZZZ		08/07/2020 00:50	1		DB-624 0.18 (mm)
ZZZZZ		08/07/2020 01:13	1		DB-624 0.18 (mm)
ZZZZZ		08/07/2020 01:35	1		DB-624 0.18 (mm)
ZZZZZ		08/07/2020 01:57	1		DB-624 0.18 (mm)
ZZZZZ		08/07/2020 02:20	1		DB-624 0.18 (mm)
ZZZZZ		08/07/2020 02:42	1		DB-624 0.18 (mm)
ZZZZZ		08/07/2020 03:05	1		DB-624 0.18 (mm)
ZZZZZ		08/07/2020 03:27	1		DB-624 0.18 (mm)

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Batch Number: 445424 Batch Start Date: 08/03/20 17:08 Batch Analyst: Mancine, Louis

Batch Method: 5030B Batch End Date: 08/03/20 19:46

Lab Sample ID	Client Sample ID	Method Chain	Basis	TareWeight	Vial&SampleWt	InitialAmount	FinalAmount	VMENCORESS 00569	VMENFASA 00589
MB 240-445424/1		5030B, 8260B MI				10.00 g	10.0 mL	5 uL	
LCS 240-445424/2		5030B, 8260B MI				10.00 g	10.0 mL	5 uL	200 uL
240-134182-B-28 MS		5030B, 8260B MI	T	+031.505 g	41.42 g	9.915 g	10.6 mL	5 uL	200 uL
240-134182-C-28 MSD		5030B, 8260B MI	T	+031.223 g	40.94 g	9.717 g	10.6 mL	5 uL	200 uL
240-134119-A-1	TMW-20-01 (0.5-1.0) 072720	5030B, 8260B MI	T	+031.343 g	40.30 g	8.957 g	10.0 mL	5 uL	
240-134119-A-2	TMW-20-01 (1-2) 07272020	5030B, 8260B MI	T	+031.171 g	41.06 g	9.889 g	10.0 mL	5 uL	
240-134119-A-3	TMW-20-01 (2-3) 07272020	5030B, 8260B MI	T	+031.221 g	40.69 g	9.469 g	10.0 mL	5 uL	
240-134119-A-4	TMW-20-01 (3-4) 07272020	5030B, 8260B MI	T	+031.385 g	41.18 g	9.795 g	10.0 mL	5 uL	
240-134119-A-5	TMW-20-01 (4-5) 07272020	5030B, 8260B MI	T	+031.379 g	41.17 g	9.791 g	10.0 mL	5 uL	
240-134119-A-6	TMW-20-01 (5-6) 07272020	5030B, 8260B MI	T	+031.246 g	40.75 g	9.504 g	10.0 mL	5 uL	
240-134119-A-7	TMW-20-01 (6-7) 07272020	5030B, 8260B MI	T	31.150 g	41.07 g	9.92 g	10.0 mL	5 uL	

Lab Sample ID	Client Sample ID	Method Chain	Basis	VMENFASG 00633	VMENFASP 00602				
MB 240-445424/1		5030B, 8260B MI							
LCS 240-445424/2		5030B, 8260B MI		200 uL	200 uL				
240-134182-B-28 MS		5030B, 8260B MI	T	200 uL	200 uL				
240-134182-C-28 MSD		5030B, 8260B MI	T	200 uL	200 uL				
240-134119-A-1	TMW-20-01 (0.5-1.0) 072720	5030B, 8260B MI	T						
240-134119-A-2	TMW-20-01 (1-2) 07272020	5030B, 8260B MI	T						
240-134119-A-3	TMW-20-01 (2-3) 07272020	5030B, 8260B MI	T						
240-134119-A-4	TMW-20-01 (3-4) 07272020	5030B, 8260B MI	T						

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Batch Number: 445424 Batch Start Date: 08/03/20 17:08 Batch Analyst: Mancine, Louis

Batch Method: 5030B Batch End Date: 08/03/20 19:46

Lab Sample ID	Client Sample ID	Method Chain	Basis	VMENFASG 00633	VMENFASP 00602				
240-134119-A-5	TMW-20-01 (4-5) 07272020	5030B, 8260B MI	T						
240-134119-A-6	TMW-20-01 (5-6) 07272020	5030B, 8260B MI	T						
240-134119-A-7	TMW-20-01 (6-7) 07272020	5030B, 8260B MI	T						

Batch Notes	
Balance ID	B035
Blank Matrix ID	195327
Pipette/Syringe/Dispenser ID	47398, 47398
Preservative ID	+221000000230446J+
Vial Lot Number	4771188

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Batch Number: 445438 Batch Start Date: 08/03/20 19:07 Batch Analyst: Mancine, Louis

Batch Method: 5030B Batch End Date: 08/03/20 22:10

Lab Sample ID	Client Sample ID	Method Chain	Basis	TareWeight	Vial&SampleWt	InitialAmount	FinalAmount	VMENCORESS 00569	VMENFASA 00590
MB 240-445438/1		5030B, 8260B MI				10.00 g	10.0 mL	5 uL	
LCS 240-445438/2		5030B, 8260B MI				10.00 g	10.0 mL	5 uL	200 uL
240-134119-A-8	SB-138 (0.5-1) 07272020	5030B, 8260B MI	T	+031.288 g	40.87 g	9.582 g	10.0 mL	5 uL	
240-134119-A-9	SB-138 (1-2) 072720	5030B, 8260B MI	T	+031.411 g	41.08 g	9.669 g	10.0 mL	5 uL	
240-134119-A-10	SB-138 (2-3) 072720	5030B, 8260B MI	T	+031.198 g	40.41 g	9.212 g	10.0 mL	5 uL	
240-134119-A-11	SB-138 (3-4) 072720	5030B, 8260B MI	T	+031.331 g	39.88 g	8.549 g	10.0 mL	5 uL	
240-134119-A-12	SB-138 (4-5) 072720	5030B, 8260B MI	T	+031.495 g	41.05 g	9.555 g	10.0 mL	5 uL	
240-134119-A-13	SB-139 (0.5-1) 072720	5030B, 8260B MI	T	+031.210 g	41.00 g	9.79 g	10.0 mL	5 uL	
240-134119-A-14	SB-139 (1-2) 072720	5030B, 8260B MI	T	31.362 g	41.13 g	9.768 g	10.0 mL	5 uL	
240-134119-A-15	SB-139 (2-3) 072720	5030B, 8260B MI	T	+031.277 g	40.90 g	9.623 g	10.0 mL	5 uL	
240-134119-A-16	SB-139 (3-4) 072720	5030B, 8260B MI	T	+031.031 g	40.02 g	8.989 g	10.0 mL	5 uL	
240-134119-A-18	SB-140 (0.5-1) 072720	5030B, 8260B MI	T	+031.170 g	40.82 g	9.65 g	10.0 mL	5 uL	
240-134119-A-19	SB-140 (1-2) 072720	5030B, 8260B MI	T	+031.445 g	41.55 g	10.105 g	10.0 mL	5 uL	
240-134119-A-20	SB-140 (2-3) 072720	5030B, 8260B MI	T	+031.196 g	41.27 g	10.074 g	10.0 mL	5 uL	
240-134119-A-21	SB-140 (3-4) 072720	5030B, 8260B MI	T	+031.389 g	40.98 g	9.591 g	10.0 mL	5 uL	
240-134119-A-22	SB-140 (5-6) 072720	5030B, 8260B MI	T	+031.178 g	40.66 g	9.482 g	10.0 mL	5 uL	
240-134119-A-23	SB-140 (6-7) 072720	5030B, 8260B MI	T	+031.192 g	40.54 g	9.348 g	10.0 mL	5 uL	
240-134119-A-24	SB-139 (5-6) 072720	5030B, 8260B MI	T	+031.284 g	41.29 g	10.006 g	10.0 mL	5 uL	
240-134119-A-25	SB-139 (6-7) 072720	5030B, 8260B MI	T	+031.168 g	40.73 g	9.562 g	10.0 mL	5 uL	
240-134119-A-27	SB-138 (6-7) 072720	5030B, 8260B MI	T	+031.062 g	41.16 g	10.098 g	10.0 mL	5 uL	
240-134119-C-17 MS		5030B, 8260B MI	T			10.28 g	10.6 mL	5 uL	200 uL

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Batch Number: 445438 Batch Start Date: 08/03/20 19:07 Batch Analyst: Mancine, Louis

Batch Method: 5030B Batch End Date: 08/03/20 22:10

Lab Sample ID	Client Sample ID	Method Chain	Basis	TareWeight	Vial&SampleWt	InitialAmount	FinalAmount	VMENCORESS 00569	VMENFASA 00590
240-134119-C-17 MSD		5030B, 8260B MI	T			10.30 g	10.6 mL	5 uL	200 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	VMENFASG 00633	VMENFASP 00603	AnalysisComment			
MB 240-445438/1		5030B, 8260B MI							
LCS 240-445438/2		5030B, 8260B MI		200 uL	200 uL				
240-134119-A-8	SB-138 (0.5-1) 07272020	5030B, 8260B MI	T						
240-134119-A-9	SB-138 (1-2) 072720	5030B, 8260B MI	T						
240-134119-A-10	SB-138 (2-3) 072720	5030B, 8260B MI	T						
240-134119-A-11	SB-138 (3-4) 072720	5030B, 8260B MI	T						
240-134119-A-12	SB-138 (4-5) 072720	5030B, 8260B MI	T						
240-134119-A-13	SB-139 (0.5-1) 072720	5030B, 8260B MI	T						
240-134119-A-14	SB-139 (1-2) 072720	5030B, 8260B MI	T						
240-134119-A-15	SB-139 (2-3) 072720	5030B, 8260B MI	T						
240-134119-A-16	SB-139 (3-4) 072720	5030B, 8260B MI	T						
240-134119-A-18	SB-140 (0.5-1) 072720	5030B, 8260B MI	T						
240-134119-A-19	SB-140 (1-2) 072720	5030B, 8260B MI	T						
240-134119-A-20	SB-140 (2-3) 072720	5030B, 8260B MI	T						
240-134119-A-21	SB-140 (3-4) 072720	5030B, 8260B MI	T						
240-134119-A-22	SB-140 (5-6) 072720	5030B, 8260B MI	T						
240-134119-A-23	SB-140 (6-7) 072720	5030B, 8260B MI	T						
240-134119-A-24	SB-139 (5-6) 072720	5030B, 8260B MI	T						

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Batch Number: 445438 Batch Start Date: 08/03/20 19:07 Batch Analyst: Mancine, Louis

Batch Method: 5030B Batch End Date: 08/03/20 22:10

Lab Sample ID	Client Sample ID	Method Chain	Basis	VMENFASG 00633	VMENFASP 00603	AnalysisComment			
240-134119-A-25	SB-139 (6-7) 072720	5030B, 8260B MI	T						
240-134119-A-27	SB-138 (6-7) 072720	5030B, 8260B MI	T						
240-134119-C-17 MS		5030B, 8260B MI	T	200 uL	200 uL	prepped from a bulk jar			
240-134119-C-17 MSD		5030B, 8260B MI	T	200 uL	200 uL	prepped from a bulk jar			

Batch Notes	
Balance ID	B035
Blank Matrix ID	195327
Pipette/Syringe/Dispenser ID	47398, 52443
Preservative ID	+221000000230446J+
Vial Lot Number	4771188

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Batch Number: 445619 Batch Start Date: 08/04/20 19:52 Batch Analyst: Mancine, Louis

Batch Method: 5030B Batch End Date: 08/04/20 23:37

Lab Sample ID	Client Sample ID	Method Chain	Basis	TareWeight	Vial&SampleWt	InitialAmount	FinalAmount	VMENCORESS 00569	VMENFASA 00590
MB 240-445619/1		5030B, 8260B MI				10.00 g	10.0 mL	5 uL	
LCS 240-445619/2		5030B, 8260B MI				10.00 g	10.0 mL	5 uL	200 uL
240-134119-A-30	DUP-01	5030B, 8260B MI	T	+031.408 g	41.14 g	9.732 g	10.0 mL	5 uL	
240-134119-A-31	DUP-02	5030B, 8260B MI	T	+030.984 g	41.06 g	10.076 g	10.0 mL	5 uL	

Lab Sample ID	Client Sample ID	Method Chain	Basis	VMENFASG 00634	VMENFASP 00603				
MB 240-445619/1		5030B, 8260B MI							
LCS 240-445619/2		5030B, 8260B MI		200 uL	200 uL				
240-134119-A-30	DUP-01	5030B, 8260B MI	T						
240-134119-A-31	DUP-02	5030B, 8260B MI	T						

Batch Notes	
Balance ID	B035
Blank Matrix ID	195327
Pipette/Syringe/Dispenser ID	52443, 47398
Preservative ID	+221000000230446J+
Vial Lot Number	4771188

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Method 8260B

Volatile Organic Compounds (GC/MS)
by Method 8260B

FORM II
GC/MS VOA SURROGATE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Matrix: Water Level: Low

GC Column (1): DB-624 ID: 0.18 (mm)

Client Sample ID	Lab Sample ID	DBFM #	DCA #	TOL #	BFB #
TMW-20-01 (3.5-8.5) 072720	240-134119-28	103	118	114	98
TRIP BLANK	240-134119-29	103	125	110	96
	MB 240-445248/7	104	126	117	95
	MB 240-445379/7	106	122	112	94
	LCS 240-445248/4	101	124	111	95
	LCS 240-445379/4	105	127	110	95
	240-134118-D-12 MS	103	123	109	96
	240-133764-G-4 MS	104	128	112	99
	240-134118-E-12 MSD	102	122	108	94
	240-133764-H-4 MSD	102	122	109	97

DBFM = Dibromofluoromethane (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)

QC LIMITS
78-129
75-130
69-122
47-134

Column to be used to flag recovery values

FORM II 8260B

FORM III
GC/MS VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: UXX8924.D

Lab ID: LCS 240-445248/4 Client ID: _____

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
1,1-Dichloroethene	10.0	9.68	97	73-129	
cis-1,2-Dichloroethene	10.0	9.70	97	75-124	
Tetrachloroethene	10.0	11.4	114	70-125	
trans-1,2-Dichloroethene	10.0	9.38	94	74-130	
Trichloroethene	10.0	9.05	90	71-121	
Vinyl chloride	10.0	12.1	121	61-134	

Column to be used to flag recovery and RPD values

FORM III
GC/MS VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: UXX8954.D

Lab ID: LCS 240-445379/4 Client ID: _____

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
1,1-Dichloroethene	10.0	9.38	94	73-129	
cis-1,2-Dichloroethene	10.0	9.02	90	75-124	
Tetrachloroethene	10.0	10.9	109	70-125	
trans-1,2-Dichloroethene	10.0	9.26	93	74-130	
Trichloroethene	10.0	8.49	85	71-121	
Vinyl chloride	10.0	12.0	120	61-134	

Column to be used to flag recovery and RPD values

FORM III
GC/MS VOA MATRIX SPIKE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: UXX8945.D

Lab ID: 240-134118-D-12 MS Client ID: _____

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC	QC LIMITS REC	#
Trichloroethene	10.0	1.0 U	8.69	87	56-124	
Vinyl chloride	10.0	1.0 U	12.4	124	49-136	

Column to be used to flag recovery and RPD values

FORM III
GC/MS VOA MATRIX SPIKE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: UXX8958.D

Lab ID: 240-133764-G-4 MS Client ID: _____

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC	QC LIMITS REC	#
1,1-Dichloroethene	10.0	1.0 U	10.6	106	64-132	
cis-1,2-Dichloroethene	10.0	1.0 U	9.61	96	68-121	
Tetrachloroethene	10.0	1.0 U	12.0	120	52-129	
trans-1,2-Dichloroethene	10.0	1.0 U	9.98	100	69-126	
Trichloroethene	10.0	1.0 U	8.99	90	56-124	
Vinyl chloride	10.0	1.0 U	13.3	133	49-136	

Column to be used to flag recovery and RPD values

FORM III
GC/MS VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: UXX8946.D

Lab ID: 240-134118-E-12 MSD Client ID: _____

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Trichloroethene	10.0	9.68	97	11	35	56-124	
Vinyl chloride	10.0	12.8	128	3	35	49-136	

Column to be used to flag recovery and RPD values

FORM III
GC/MS VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: UXX8959.D

Lab ID: 240-133764-H-4 MSD Client ID: _____

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
1,1-Dichloroethene	10.0	10.3	103	3	35	64-132	
cis-1,2-Dichloroethene	10.0	9.82	98	2	35	68-121	
Tetrachloroethene	10.0	11.9	119	1	35	52-129	
trans-1,2-Dichloroethene	10.0	10.3	103	3	35	69-126	
Trichloroethene	10.0	9.31	93	4	35	56-124	
Vinyl chloride	10.0	12.8	128	4	35	49-136	

Column to be used to flag recovery and RPD values

FORM IV
GC/MS VOA METHOD BLANK SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab File ID: UXX8927.D Lab Sample ID: MB 240-445248/7
 Matrix: Water Heated Purge: (Y/N) N
 Instrument ID: A3UX10 Date Analyzed: 08/01/2020 15:01
 GC Column: DB-624 ID: 0.18 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 240-445248/4	UXX8924.D	08/01/2020 13:47
	240-134118-D-12 MS	UXX8945.D	08/01/2020 22:29
	240-134118-E-12 MSD	UXX8946.D	08/01/2020 22:53
TMW-20-01 (3.5-8.5)_072720	240-134119-28	UXX8948.D	08/01/2020 23:43

FORM IV
GC/MS VOA METHOD BLANK SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab File ID: UXX8956.D Lab Sample ID: MB 240-445379/7
 Matrix: Water Heated Purge: (Y/N) N
 Instrument ID: A3UX10 Date Analyzed: 08/03/2020 16:25
 GC Column: DB-624 ID: 0.18 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 240-445379/4	UXX8954.D	08/03/2020 15:36
	240-133764-G-4 MS	UXX8958.D	08/03/2020 17:14
	240-133764-H-4 MSD	UXX8959.D	08/03/2020 17:39
TRIP BLANK	240-134119-29	UXX8974.D	08/03/2020 23:52

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab File ID: BFB1718.D BFB Injection Date: 01/15/2020
 Instrument ID: A3UX10 BFB Injection Time: 14:40
 Analysis Batch No.: 419116

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0 % of mass 95	23.2
75	30.0 - 60.0 % of mass 95	43.4
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0 % of mass 95	6.9
173	Less than 2.0 % of mass 174	0.1 (0.2) 1
174	50.0 - 120.00 % of mass 95	57.3
175	5.0 - 9.0 % of mass 174	3.9 (6.7) 1
176	95.0 - 101.0 % of mass 174	55.8 (97.3) 1
177	5.0 - 9.0 % of mass 176	3.8 (6.9) 2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	STD8260 240-419116/2	UXX5174.D	01/15/2020	15:09
	STD8260 240-419116/3	UXX5175.D	01/15/2020	15:34
	STD8260 240-419116/4	UXX5176.D	01/15/2020	16:00
	STD8260 240-419116/5	UXX5177.D	01/15/2020	16:25
	STD8260 240-419116/6	UXX5178.D	01/15/2020	16:50
	STD8260 240-419116/7	UXX5179.D	01/15/2020	17:15
	STD8260 240-419116/8	UXX5180.D	01/15/2020	17:40
	ICV 240-419116/9	UXX5181.D	01/15/2020	18:04
	ICV 240-419116/17	UXX5189.D	01/15/2020	21:24

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab File ID: BFB1910.D BFB Injection Date: 08/01/2020
 Instrument ID: A3UX10 BFB Injection Time: 12:09
 Analysis Batch No.: 445248

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0 % of mass 95	33.4
75	30.0 - 60.0 % of mass 95	54.3
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0 % of mass 95	7.2
173	Less than 2.0 % of mass 174	0.2 (0.4) 1
174	50.0 - 120.00 % of mass 95	50.4
175	5.0 - 9.0 % of mass 174	3.7 (7.3) 1
176	95.0 - 101.0 % of mass 174	48.6 (96.4) 1
177	5.0 - 9.0 % of mass 176	3.1 (6.5) 2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	CCV 240-445248/3	UXX8922.D	08/01/2020	12:57
	CCVIS 240-445248/2	UXX8923.D	08/01/2020	13:22
	LCS 240-445248/4	UXX8924.D	08/01/2020	13:47
	MB 240-445248/7	UXX8927.D	08/01/2020	15:01
	240-134118-D-12 MS	UXX8945.D	08/01/2020	22:29
	240-134118-E-12 MSD	UXX8946.D	08/01/2020	22:53
TMW-20-01 (3.5-8.5) 072720	240-134119-28	UXX8948.D	08/01/2020	23:43

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab File ID: BFB1913.D BFB Injection Date: 08/03/2020
 Instrument ID: A3UX10 BFB Injection Time: 13:28
 Analysis Batch No.: 445379

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0 % of mass 95	35.0
75	30.0 - 60.0 % of mass 95	55.3
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0 % of mass 95	6.7
173	Less than 2.0 % of mass 174	0.2 (0.3) 1
174	50.0 - 120.00 % of mass 95	52.3
175	5.0 - 9.0 % of mass 174	3.6 (6.8) 1
176	95.0 - 101.0 % of mass 174	50.0 (95.7) 1
177	5.0 - 9.0 % of mass 176	3.2 (6.5) 2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	CCVIS 240-445379/2	UXX8950.D	08/03/2020	13:55
	CCV 240-445379/3	UXX8951.D	08/03/2020	14:20
	LCS 240-445379/4	UXX8954.D	08/03/2020	15:36
	MB 240-445379/7	UXX8956.D	08/03/2020	16:25
	240-133764-G-4 MS	UXX8958.D	08/03/2020	17:14
	240-133764-H-4 MSD	UXX8959.D	08/03/2020	17:39
TRIP BLANK	240-134119-29	UXX8974.D	08/03/2020	23:52

FORM VIII
GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Sample No.: STD8260 240-419116/4 Date Analyzed: 01/15/2020 16:00
 Instrument ID: A3UX10 GC Column: DB-624 ID: 0.18 (mm)
 Lab File ID (Standard): UXX5176.D Heated Purge: (Y/N) N
 Calibration ID: 54865

	FB		CBNZd5		DCBd4	
	AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MID-POINT	402471	4.97	261526	7.65	107871	9.87
UPPER LIMIT	804942	5.47	523052	8.15	215742	10.37
LOWER LIMIT	201236	4.47	130763	7.15	53936	9.37
LAB SAMPLE ID	CLIENT SAMPLE ID					
ICV 240-419116/9	391338	4.97	251783	7.65	102138	9.87
ICV 240-419116/17	377866	4.98	240230	7.64	96745	9.86
CCVIS 240-445248/2	434300	4.97	250546	7.65	69593	9.87
CCVIS 240-445379/2	402245	4.96	227073	7.64	72107	9.87

FB = Fluorobenzene

CBNZd5 = Chlorobenzene-d5

DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area

RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Sample No.: CCVIS 240-445248/2 Date Analyzed: 08/01/2020 13:22
 Instrument ID: A3UX10 GC Column: DB-624 ID: 0.18 (mm)
 Lab File ID (Standard): UXX8923.D Heated Purge: (Y/N) N
 Calibration ID: 54867

	FB		CBNZd5		DCBd4		
	AREA #	RT #	AREA #	RT #	AREA #	RT #	
12/24 HOUR STD	434300	4.97	250546	7.65	69593	9.87	
UPPER LIMIT	868600	5.47	501092	8.15	139186	10.37	
LOWER LIMIT	217150	4.47	125273	7.15	34797	9.37	
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCV 240-445248/3	461477	4.97	247396	7.65	73274	9.87	
LCS 240-445248/4	458297	4.97	255386	7.65	69116	9.87	
MB 240-445248/7	432369	4.98	234808	7.64	67379	9.86	
240-134118-D-12 MS	394689	4.96	226547	7.64	65951	9.87	
240-134118-E-12 MSD	385684	4.97	219579	7.65	68368	9.87	
240-134119-28	TMW-20-01 (3.5-8.5) 072720	365824	4.97	203470	7.65	65174	9.87

FB = Fluorobenzene

CBNZd5 = Chlorobenzene-d5

DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area

RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Sample No.: CCVIS 240-445379/2 Date Analyzed: 08/03/2020 13:55
 Instrument ID: A3UX10 GC Column: DB-624 ID: 0.18 (mm)
 Lab File ID (Standard): UXX8950.D Heated Purge: (Y/N) N
 Calibration ID: 54867

	FB		CBNZd5		DCBd4		
	AREA #	RT #	AREA #	RT #	AREA #	RT #	
12/24 HOUR STD	402245	4.96	227073	7.64	72107	9.87	
UPPER LIMIT	804490	5.46	454146	8.14	144214	10.37	
LOWER LIMIT	201123	4.46	113537	7.14	36054	9.37	
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCV 240-445379/3		399474	4.96	228865	7.64	66831	9.86
LCS 240-445379/4		394923	4.97	228017	7.64	67226	9.87
MB 240-445379/7		389889	4.97	217213	7.65	65062	9.87
240-133764-G-4 MS		388330	4.98	218820	7.65	66417	9.87
240-133764-H-4 MSD		392363	4.97	223878	7.65	69105	9.87
240-134119-29	TRIP BLANK	343922	4.97	200593	7.65	61254	9.87

FB = Fluorobenzene
 CBNZd5 = Chlorobenzene-d5
 DCBd4 = 1,4-Dichlorobenzene-d4
 Area Limit = 50%-200% of internal standard area
 RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: TMW-20-01 Lab Sample ID: 240-134119-28
 (3.5-8.5) 072720
 Matrix: Water Lab File ID: UXX8948.D
 Analysis Method: 8260B Date Collected: 07/27/2020 16:52
 Sample wt/vol: 5 (mL) Date Analyzed: 08/01/2020 23:43
 Soil Aliquot Vol.: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 445248 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	1.0	U	1.0	0.46
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.38
127-18-4	Tetrachloroethene	1.0	U	1.0	0.33
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.43
79-01-6	Trichloroethene	1.0	U	1.0	0.36
75-01-4	Vinyl chloride	1.0	U	1.0	0.50

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	118		75-130
460-00-4	4-Bromofluorobenzene (Surr)	98		47-134
2037-26-5	Toluene-d8 (Surr)	114		69-122
1868-53-7	Dibromofluoromethane (Surr)	103		78-129

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\UXX8948.D
 Lims ID: 240-134119-B-28
 Client ID: TMW-20-01 (3.5-8.5)_072720
 Sample Type: Client
 Inject. Date: 01-Aug-2020 23:43:30 ALS Bottle#: 28 Worklist Smp#: 28
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100590-028
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 03-Aug-2020 11:44:52 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1044

First Level Reviewer: williamsla

Date: 03-Aug-2020 11:42:24

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.973	4.973	0.000	96	365824	10.0	
* 2 Chlorobenzene-d5	117	7.646	7.646	0.000	96	203470	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.870	9.870	0.000	93	65174	10.0	
\$ 4 Dibromofluoromethane (Surr)	113	4.405	4.406	-0.001	91	88438	10.3	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.689	4.690	-0.001	95	148462	11.8	
\$ 6 Toluene-d8 (Surr)	98	6.333	6.334	-0.001	97	355618	11.4	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.746	8.747	-0.001	72	96894	9.84	
11 Vinyl chloride	62		1.461				ND	
19 1,1-Dichloroethene	96		2.478				ND	
30 trans-1,2-Dichloroethene	96		3.140				ND	
40 cis-1,2-Dichloroethene	96		3.992				ND	
58 Trichloroethene	130		5.281				ND	
74 Tetrachloroethene	164		6.890				ND	

Reagents:

VM50IS_00084	Amount Added: 1.00	Units: uL	Run Reagent
vm50ss_stk_00085	Amount Added: 1.00	Units: uL	Run Reagent
vm40ml_vials_00015	Amount Added: 0.00	Units:	Run Reagent
vmDist_H2o_00177	Amount Added: 0.00	Units:	Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\UXX8948.D

Injection Date: 01-Aug-2020 23:43:30

Instrument ID: A3UX10

Operator ID: 001644

Lims ID: 240-134119-B-28

Lab Sample ID: 240-134119-28

Worklist Smp#: 28

Client ID: TMW-20-01 (3.5-8.5)_072720

Purge Vol: 5.000 mL

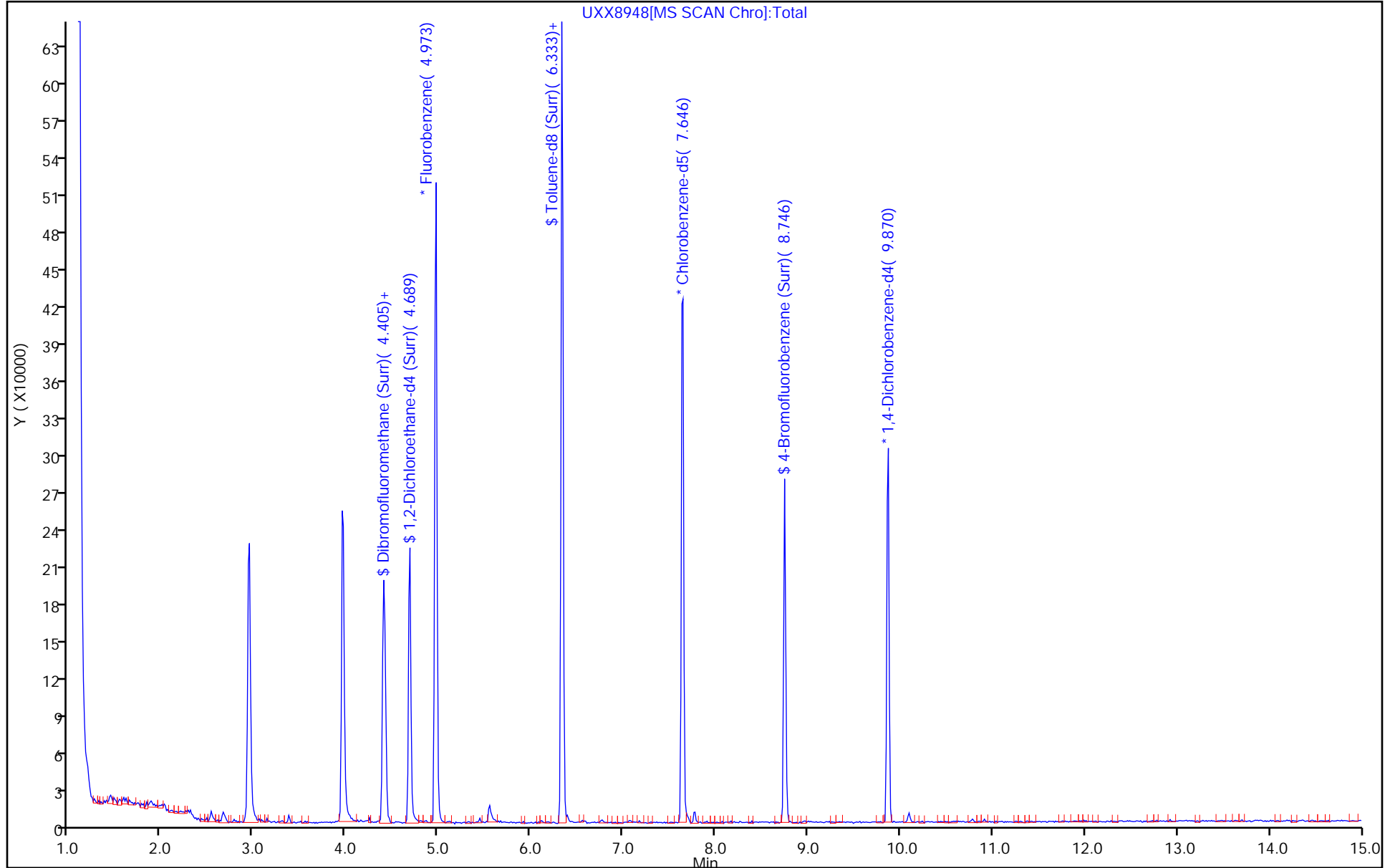
Dil. Factor: 1.0000

ALS Bottle#: 28

Method: 8260_10

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\UXX8948.D
 Lims ID: 240-134119-B-28
 Client ID: TMW-20-01 (3.5-8.5)_072720
 Sample Type: Client
 Inject. Date: 01-Aug-2020 23:43:30 ALS Bottle#: 28 Worklist Smp#: 28
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100590-028
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 03-Aug-2020 11:44:52 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1044

First Level Reviewer: williamsla

Date: 03-Aug-2020 11:42:24

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	10.0	10.3	103.43
\$ 5 1,2-Dichloroethane-d4 (Surr)	10.0	11.8	118.25
\$ 6 Toluene-d8 (Surr)	10.0	11.4	113.66
\$ 7 4-Bromofluorobenzene (Surr)	10.0	9.84	98.38

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: TRIP BLANK Lab Sample ID: 240-134119-29
 Matrix: Water Lab File ID: UXX8974.D
 Analysis Method: 8260B Date Collected: 07/27/2020 00:00
 Sample wt/vol: 5 (mL) Date Analyzed: 08/03/2020 23:52
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 445379 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	1.0	U	1.0	0.46
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.38
127-18-4	Tetrachloroethene	1.0	U	1.0	0.33
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.43
79-01-6	Trichloroethene	1.0	U	1.0	0.36
75-01-4	Vinyl chloride	1.0	U	1.0	0.50

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	125		75-130
460-00-4	4-Bromofluorobenzene (Surr)	96		47-134
2037-26-5	Toluene-d8 (Surr)	110		69-122
1868-53-7	Dibromofluoromethane (Surr)	103		78-129

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8974.D
 Lims ID: 240-134119-A-29
 Client ID: TRIP BLANK
 Sample Type: Client
 Inject. Date: 03-Aug-2020 23:52:30 ALS Bottle#: 25 Worklist Smp#: 25
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100621-025
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 10:20:14 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1067

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.974	4.964	0.010	96	343922	10.0	
* 2 Chlorobenzene-d5	117	7.647	7.638	0.009	95	200593	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.871	9.861	0.010	94	61254	10.0	
\$ 4 Dibromofluoromethane (Surr)	113	4.406	4.396	0.010	91	82955	10.3	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.690	4.680	0.010	94	147476	12.5	
\$ 6 Toluene-d8 (Surr)	98	6.334	6.336	-0.002	96	339219	11.0	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.747	8.749	-0.002	73	93116	9.59	
11 Vinyl chloride	62		1.451				ND	
19 1,1-Dichloroethene	96		2.480				ND	
30 trans-1,2-Dichloroethene	96		3.143				ND	
40 cis-1,2-Dichloroethene	96		3.994				ND	
58 Trichloroethene	130		5.283				ND	
74 Tetrachloroethene	164		6.892				ND	

Reagents:

VM50IS_00084 Amount Added: 1.00 Units: uL Run Reagent
 vm50ss_stk_00085 Amount Added: 1.00 Units: uL Run Reagent
 vm40ml_vials_00015 Amount Added: 0.00 Units: Run Reagent
 vmDist_H2o_00177 Amount Added: 0.00 Units: Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8974.D

Injection Date: 03-Aug-2020 23:52:30

Instrument ID: A3UX10

Operator ID: 001644

Lims ID: 240-134119-A-29

Lab Sample ID: 240-134119-29

Worklist Smp#: 25

Client ID: TRIP BLANK

Purge Vol: 5.000 mL

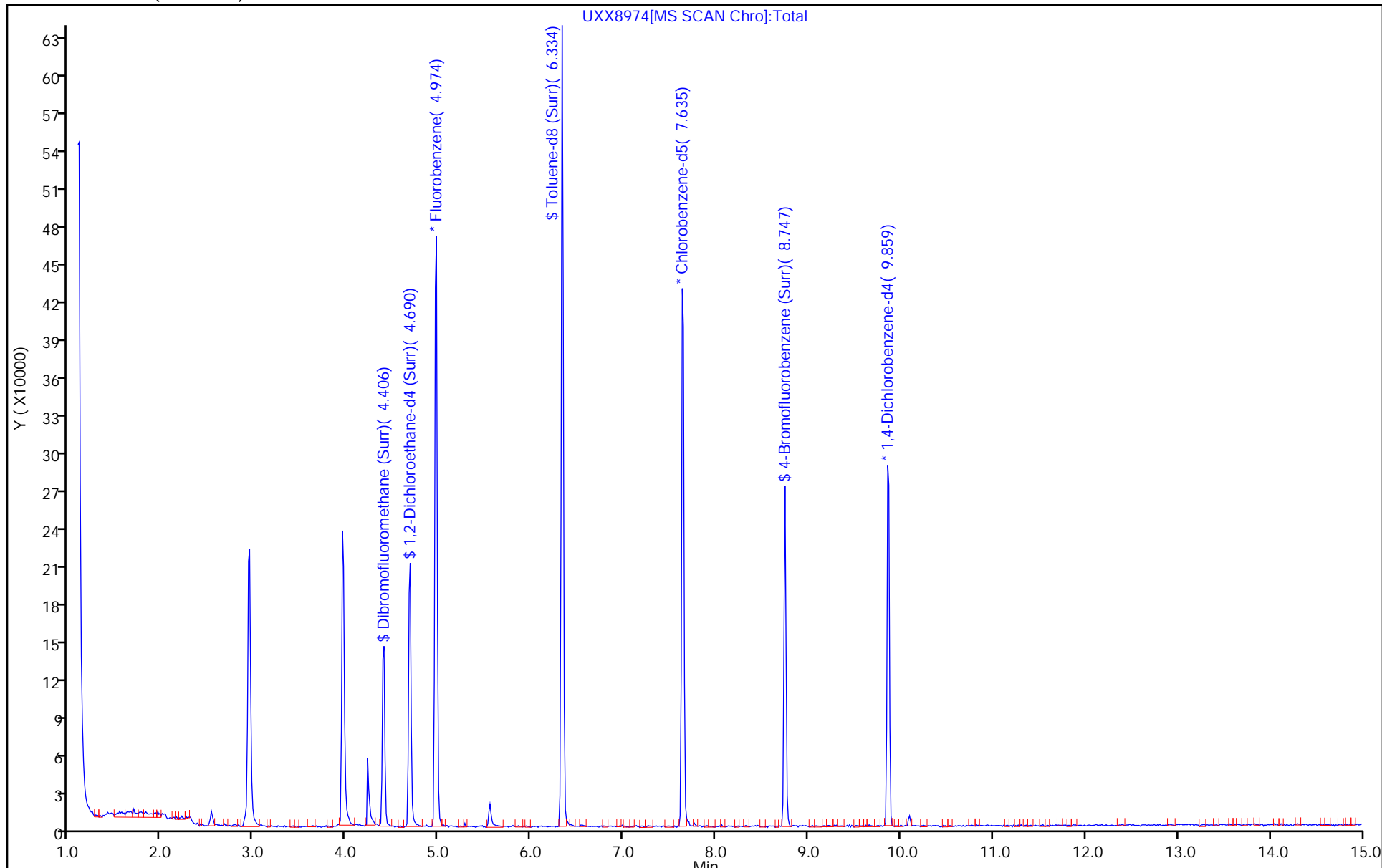
Dil. Factor: 1.0000

ALS Bottle#: 25

Method: 8260_10

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8974.D
 Lims ID: 240-134119-A-29
 Client ID: TRIP BLANK
 Sample Type: Client
 Inject. Date: 03-Aug-2020 23:52:30 ALS Bottle#: 25 Worklist Smp#: 25
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100621-025
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 10:20:14 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1067

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	10.0	10.3	103.19
\$ 5 1,2-Dichloroethane-d4 (Surr)	10.0	12.5	124.94
\$ 6 Toluene-d8 (Surr)	10.0	11.0	109.98
\$ 7 4-Bromofluorobenzene (Surr)	10.0	9.59	95.90

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 419116

SDG No.: _____

Instrument ID: A3UX10 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/15/2020 15:09 Calibration End Date: 01/15/2020 17:40 Calibration ID: 54865

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD8260 240-419116/8	UXX5180.D
Level 2	STD8260 240-419116/7	UXX5179.D
Level 3	STD8260 240-419116/6	UXX5178.D
Level 4	STD8260 240-419116/5	UXX5177.D
Level 5	STD8260 240-419116/4	UXX5176.D
Level 6	STD8260 240-419116/3	UXX5175.D
Level 7	STD8260 240-419116/2	UXX5174.D

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
Dichlorodifluoromethane	0.2231 0.2266	0.2138 0.2044	0.2139	0.2119	0.2226	Ave		0.2166			3.6		15.0				
Chloromethane	0.4313 0.4793	0.4329 0.4334	0.4357	0.4347	0.4526	Ave		0.4428		0.1000	4.0		15.0				
Vinyl chloride	0.3215 0.3396	0.3271 0.3129	0.3254	0.3364	0.3217	Ave		0.3264			2.8		15.0				
Butadiene	0.2674 0.1864	0.1841 0.1755	0.1807	0.2254	0.1903	Lin1	0.0770	0.1780						0.9950		0.9900	
Bromomethane	0.1746 0.1417	0.1731 0.1321	0.1551	0.1639	0.1480	Ave		0.1555			10.3		15.0				
Chloroethane	0.1620 0.1933	0.1633 0.1723	0.1652	0.1827	0.1852	Ave		0.1748			7.0		15.0				
Dichlorofluoromethane	0.5744 0.4160	0.4527 0.3593	0.4309	0.4469	0.4094	Ave		0.4414			15.0		15.0				
Trichlorofluoromethane	0.2205 0.2592	0.2133 0.2329	0.2353	0.2461	0.2357	Ave		0.2347			6.5		15.0				
Ethyl ether	0.2863 0.3072	0.3234 0.2892	0.3019	0.3276	0.3216	Ave		0.3082			5.4		15.0				
Acrolein	0.0532 0.0546	0.0659 0.0525	0.0620	0.0652	0.0592	Ave		0.0590			9.5		15.0				
1,1-Dichloroethene	0.2174 0.2346	0.2365 0.2259	0.2416	0.2436	0.2502	Ave		0.2357			4.7		15.0				
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0261 0.1129	0.0445 0.1141	0.0942	0.1061	0.1141	Lin1	-0.101	0.1182						0.9980		0.9900	
Acetone	0.2164 0.1260	0.1933 0.1199	0.1570	0.1459	0.1435	Lin1	0.2457	0.1201						0.9970		0.9900	
Iodomethane	0.2382 0.2814	0.2725 0.2959	0.2717	0.2857	0.2836	Ave		0.2756			6.7		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 419116

SDG No.: _____

Instrument ID: A3UX10 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/15/2020 15:09 Calibration End Date: 01/15/2020 17:40 Calibration ID: 54865

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
Carbon disulfide	0.7649 0.8227	0.8241 0.8044	0.8344	0.8601	0.8712	Ave		0.8260			4.3		15.0				
3-Chloro-1-propene	0.1921 0.2288	0.2026 0.2131	0.2224	0.2257	0.2104	Ave		0.2136			6.2		15.0				
Methyl acetate	0.3177 0.3494	0.3440 0.3435	0.3593	0.3871	0.3724	Ave		0.3533			6.3		15.0				
Methylene Chloride	0.2813 0.2925	0.2989 0.2814	0.2793	0.3043	0.2977	Ave		0.2908			3.5		15.0				
2-Methyl-2-propanol	0.0417 0.0403	0.0416 0.0380	0.0395	0.0424	0.0457	Ave		0.0413			5.9		15.0				
Acrylonitrile	0.1619 0.1691	0.1761 0.1662	0.1702	0.1812	0.1808	Ave		0.1722			4.3		15.0				
trans-1,2-Dichloroethene	0.2579 0.2766	0.2619 0.2768	0.2645	0.2926	0.2817	Ave		0.2732			4.5		15.0				
Methyl tert-butyl ether	0.7646 0.8157	0.7784 0.7766	0.7983	0.7932	0.8554	Ave		0.7975			3.8		15.0				
Hexane	0.0479 0.0540	0.0504 0.0530	0.0530	0.0550	0.0555	Ave		0.0527			5.1		15.0				
1,1-Dichloroethane	0.5806 0.6524	0.6629 0.6235	0.6496	0.6745	0.6735	Ave		0.6453		0.1000	5.2		15.0				
Vinyl acetate	0.4330 0.8220	0.5494 ++++	0.6411	0.7034	0.7697	Lin1	-0.497	0.8269						0.9980		0.9900	
2,2-Dichloropropane	0.0549 0.0607	0.0580 0.0582	0.0685	0.0639	0.0645	Ave		0.0612			7.6		15.0				
cis-1,2-Dichloroethene	0.2870 0.3049	0.3008 0.3094	0.2845	0.3160	0.3273	Ave		0.3043			5.0		15.0				
2-Butanone (MEK)	0.2117 0.2052	0.2465 0.1981	0.2190	0.2168	0.2331	Ave		0.2186			7.6		15.0				
Chlorobromomethane	0.1035 0.1315	0.1201 0.1313	0.1205	0.1287	0.1319	Ave		0.1239			8.3		15.0				
Tetrahydrofuran	0.1718 0.1403	0.1641 0.1323	0.1442	0.1607	0.1587	Ave		0.1532			9.4		15.0				
Chloroform	0.4329 0.4666	0.4946 0.4530	0.4790	0.4847	0.4973	Ave		0.4726			4.9		15.0				
1,1,1-Trichloroethane	0.2833 0.2915	0.3142 0.2816	0.3076	0.3062	0.3111	Ave		0.2994			4.5		15.0				
Cyclohexane	0.5332 0.5650	0.5502 0.5422	0.5899	0.5885	0.5987	Ave		0.5668			4.6		15.0				
1,1-Dichloropropene	0.3400 0.3704	0.3756 0.3647	0.3741	0.3789	0.3915	Ave		0.3707			4.3		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 419116

SDG No.: _____

Instrument ID: A3UX10 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/15/2020 15:09 Calibration End Date: 01/15/2020 17:40 Calibration ID: 54865

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
Carbon tetrachloride	0.1973 0.2491	0.2266 0.2381	0.2508	0.2592	0.2520	Ave		0.2390			8.9		15.0				
Isobutyl alcohol	0.0195 0.0212	0.0295 0.0209	0.0197	0.0224	0.0233	Lin1	0.0972	0.0212						0.9940		0.9900	
Benzene	1.1617 1.2333	1.2090 1.1865	1.2560	1.3184	1.2952	Ave		1.2372			4.6		15.0				
1,2-Dichloroethane	0.4567 0.4561	0.4396 0.4380	0.4391	0.4803	0.4743	Ave		0.4549			3.8		15.0				
n-Heptane	0.0334 0.0439	0.0389 0.0437	0.0393	0.0447	0.0485	Ave		0.0418			11.8		15.0				
Trichloroethene	0.2218 0.2537	0.2685 0.2593	0.2511	0.2722	0.2716	Ave		0.2569			6.9		15.0				
Methylcyclohexane	0.3242 0.3286	0.3040 0.3151	0.3410	0.3292	0.3503	Ave		0.3275			4.7		15.0				
1,2-Dichloropropane	0.3857 0.3769	0.3873 0.3695	0.3915	0.4040	0.4082	Ave		0.3890			3.5		15.0				
Dibromomethane	0.1477 0.1614	0.1532 0.1597	0.1604	0.1599	0.1659	Ave		0.1583			3.8		15.0				
1,4-Dioxane	++++ 0.0030	0.0021 0.0023	0.0017	0.0021	0.0034	Qua	-0.145	0.0043	-0.000002					0.9960		0.9900	
Dichlorobromomethane	0.3180 0.3532	0.3637 0.3463	0.3597	0.3678	0.3663	Ave		0.3536			4.9		15.0				
2-Chloroethyl vinyl ether	0.2444 0.2801	0.2845 0.2717	0.2829	0.3020	0.3002	Ave		0.2808			6.9		15.0				
cis-1,3-Dichloropropene	0.4266 0.4937	0.4789 0.4784	0.4829	0.5177	0.5104	Ave		0.4841			6.1		15.0				
4-Methyl-2-pentanone (MIBK)	0.4484 0.4254	0.4766 0.3767	0.4756	0.4819	0.4806	Ave		0.4522			8.7		15.0				
Toluene	1.7205 1.7966	1.8772 1.7992	1.8087	1.8914	1.9275	Ave		1.8316			3.9		15.0				
trans-1,3-Dichloropropene	0.5409 0.6732	0.6054 0.6739	0.6471	0.6622	0.6998	Ave		0.6432			8.4		15.0				
Ethyl methacrylate	0.6942 0.6834	0.6980 0.6595	0.6910	0.7715	0.7453	Ave		0.7061			5.5		15.0				
1,1,2-Trichloroethane	0.3803 0.3790	0.3855 0.3720	0.3770	0.4112	0.4116	Ave		0.3881			4.2		15.0				
Tetrachloroethene	0.1902 0.2161	0.2076 0.2215	0.2159	0.2171	0.2200	Ave		0.2126			5.1		15.0				
1,3-Dichloropropane	0.6545 0.7256	0.6722 0.7014	0.7096	0.7265	0.7546	Ave		0.7063			4.8		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 419116

SDG No.: _____

Instrument ID: A3UX10 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/15/2020 15:09 Calibration End Date: 01/15/2020 17:40 Calibration ID: 54865

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
2-Hexanone	0.4156 0.4438	0.4863 0.4087	0.4608	0.4840	0.4963	Ave		0.4565			7.7		15.0				
Chlorodibromomethane	0.3264 0.3370	0.3138 0.3376	0.3274	0.3457	0.3617	Ave		0.3357			4.6		15.0				
Ethylene Dibromide	0.3082 0.3424	0.3344 0.3602	0.3331	0.3592	0.3807	Ave		0.3454			6.8		15.0				
Chlorobenzene	0.9030 0.9827	0.9914 0.9576	0.9582	1.0016	1.0531	Ave		0.9782		0.3000	4.7		15.0				
1,1,1,2-Tetrachloroethane	0.2631 0.3177	0.3144 0.2830	0.3055	0.3189	0.3358	Ave		0.3055			8.1		15.0				
Ethylbenzene	0.5341 0.5466	0.5358 0.5226	0.5226	0.5630	0.5835	Ave		0.5440			4.1		15.0				
m-Xylene & p-Xylene	0.6363 0.6459	0.6398 0.6126	0.6348	0.6570	0.7016	Ave		0.6468			4.3		15.0				
o-Xylene	0.5449 0.6027	0.6347 0.5493	0.6147	0.6515	0.6426	Ave		0.6058			7.2		15.0				
Styrene	1.0759 1.0790	1.1060 1.0106	1.0637	1.1055	1.1451	Ave		1.0837			3.9		15.0				
Bromoform	0.1526 0.1820	0.1679 0.1742	0.1670	0.1984	0.2017	Ave		0.1777		0.1000	10.0		15.0				
Isopropylbenzene	1.4441 1.3701	1.4527 1.1836	1.4047	1.4639	1.5067	Ave		1.4037			7.6		15.0				
1,1,2,2-Tetrachloroethane	1.1743 1.2118	1.2388 1.1148	1.2107	1.2743	1.2387	Ave		1.2090		0.3000	4.3		15.0				
Bromobenzene	0.7291 0.7835	0.7638 0.8641	0.7334	0.7727	0.7708	Ave		0.7739			5.8		15.0				
1,2,3-Trichloropropane	0.2226 0.3309	0.3455 0.3203	0.3325	0.3615	0.3476	Ave		0.3230			14.3		15.0				
trans-1,4-Dichloro-2-butene	0.3793 0.5104	0.3885 0.6178	0.4568	0.4813	0.4924	Lin1	-0.350	0.5815						0.9900		0.9900	
N-Propylbenzene	0.8859 0.8798	0.8809 0.9040	0.8833	0.8972	0.9111	Ave		0.8917			1.4		15.0				
2-Chlorotoluene	0.7413 0.8067	0.8092 0.7983	0.8251	0.8399	0.8154	Ave		0.8051			3.9		15.0				
1,3,5-Trimethylbenzene	2.4943 2.6153	2.6057 2.4043	2.5768	2.8374	2.7364	Ave		2.6100			5.5		15.0				
4-Chlorotoluene	0.7566 0.8677	0.8065 0.8884	0.8728	0.9005	0.8737	Ave		0.8523			6.1		15.0				
tert-Butylbenzene	1.8958 1.8968	1.9891 1.7047	2.0520	2.0614	2.0184	Ave		1.9454			6.5		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 419116

SDG No.: _____

Instrument ID: A3UX10 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/15/2020 15:09 Calibration End Date: 01/15/2020 17:40 Calibration ID: 54865

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
1,2,4-Trimethylbenzene	2.8613 2.7170	2.8372 2.4453	2.8747	2.9402	2.9039	Ave		2.7971			6.1		15.0				
sec-Butylbenzene	2.7585 2.5997	2.7812 2.3235	2.8021	2.9453	2.8184	Ave		2.7184			7.4		15.0				
1,3-Dichlorobenzene	1.3127 1.4116	1.3949 1.3583	1.4331	1.4774	1.4006	Ave		1.3984			3.8		15.0				
4-Isopropyltoluene	2.1057 2.1201	2.2535 1.8288	2.3016	2.2939	2.2858	Ave		2.1699			7.9		15.0				
1,4-Dichlorobenzene	1.3016 1.4125	1.4017 1.4241	1.4605	1.4951	1.4599	Ave		1.4222			4.4		15.0				
n-Butylbenzene	2.1791 1.9468	2.1065 1.5980	2.1151	2.2093	2.1436	Ave		2.0426			10.4		15.0				
1,2-Dichlorobenzene	1.4293 1.3804	1.4162 1.1577	1.4359	1.4803	1.4604	Ave		1.3943			7.8		15.0				
1,2-Dibromo-3-Chloropropane	0.1480 0.1640	0.2203 0.1043	0.2126	0.2381	0.2136	Qua	-0.004	0.2353	-0.003283					0.9970		0.9900	
1,2,4-Trichlorobenzene	0.5926 0.4504	0.6437 ++++	0.6710	0.6843	0.6575	Ave		0.6166			14.2		15.0				
Hexachlorobutadiene	++++ 0.1124	0.1677 ++++	0.1560	0.1658	0.1535	Ave		0.1511			14.9		15.0				
Naphthalene	3.0521 ++++	3.3633 ++++	3.2929	3.4186	3.0306	Ave		3.2315			5.6		15.0				
1,2,3-Trichlorobenzene	0.6329 ++++	0.5701 ++++	0.6175	0.6528	0.5954	Ave		0.6137			5.2		15.0				
Dibromofluoromethane (Surr)	0.2409 0.2371	0.2333 0.2245	0.2361	0.2274	0.2369	Ave		0.2337			2.5		15.0				
1,2-Dichloroethane-d4 (Surr)	0.3531 0.3409	0.3476 0.3204	0.3544	0.3476	0.3384	Ave		0.3432			3.4		15.0				
Toluene-d8 (Surr)	1.7460 1.5195	1.5440 1.4667	1.5253	1.4774	1.4848	Ave		1.5377			6.2		15.0				
4-Bromofluorobenzene (Surr)	0.5136 0.4885	0.4963 0.4427	0.4843	0.4785	0.4845	Ave		0.4841			4.4		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 419116

SDG No.: _____

Instrument ID: A3UX10 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/15/2020 15:09 Calibration End Date: 01/15/2020 17:40 Calibration ID: 54865

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD8260 240-419116/8	UXX5180.D
Level 2	STD8260 240-419116/7	UXX5179.D
Level 3	STD8260 240-419116/6	UXX5178.D
Level 4	STD8260 240-419116/5	UXX5177.D
Level 5	STD8260 240-419116/4	UXX5176.D
Level 6	STD8260 240-419116/3	UXX5175.D
Level 7	STD8260 240-419116/2	UXX5174.D

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5
			LVL 6	LVL 7				LVL 6	LVL 7			
Dichlorodifluoromethane	FB	Ave	8588 184971	16579 348415	33680	41891	89573	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Chloromethane	FB	Ave	16600 391156	33571 738754	68617	85933	182157	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Vinyl chloride	FB	Ave	12374 277193	25364 533232	51236	66500	129471	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Butadiene	FB	Lin1	10294 152127	14274 299133	28448	44552	76586	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Bromomethane	FB	Ave	6719 115685	13424 225093	24430	32401	59557	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Chloroethane	FB	Ave	6234 157736	12664 293599	26016	36120	74548	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Dichlorofluoromethane	FB	Ave	22111 339518	35107 612424	67854	88338	164760	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Trichlorofluoromethane	FB	Ave	8487 211561	16539 396905	37050	48652	94875	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Ethyl ether	FB	Ave	11022 250763	25076 492860	47544	64767	129451	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Acrolein	FB	Ave	10247 222686	25566 447463	48809	64403	119223	5.00 100	10.0 200	20.0	25.0	50.0
1,1-Dichloroethene	FB	Ave	8368 191503	18341 384984	38047	48165	100715	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,1,2-Trichloro-1,2,2-trifluoroethane	FB	Lin1	1003 92141	3454 194447	14837	20968	45925	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Acetone	FB	Lin1	16660 205689	29985 408717	49433	57675	115530	2.00 40.0	4.00 80.0	8.00	10.0	20.0
Iodomethane	FB	Ave	9168 229631	21134 504270	42781	56486	114147	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Carbon disulfide	FB	Ave	29441 671488	63899 1371104	131388	170025	350621	1.00 20.0	2.00 40.0	4.00	5.00	10.0

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 419116

SDG No.: _____

Instrument ID: A3UX10 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/15/2020 15:09 Calibration End Date: 01/15/2020 17:40 Calibration ID: 54865

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
3-Chloro-1-propene	FB	Ave	7394 186739	15710 363226	35023	44624	84698	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Methyl acetate	FB	Ave	24455 570411	53355 1170999	113148	153053	299742	2.00 40.0	4.00 80.0	8.00	10.0	20.0
Methylene Chloride	FB	Ave	10827 238705	23178 479700	43982	60151	119814	1.00 20.0	2.00 40.0	4.00	5.00	10.0
2-Methyl-2-propanol	FB	Ave	16060 328526	32261 647317	62130	83819	183739	10.0 200	20.0 400	40.0	50.0	100
Acrylonitrile	FB	Ave	62326 1379901	136584 2832530	267966	358288	727779	10.0 200	20.0 400	40.0	50.0	100
trans-1,2-Dichloroethene	FB	Ave	9928 225779	20309 471758	41658	57846	113370	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Methyl tert-butyl ether	FB	Ave	29432 665746	60357 1323684	125702	156813	344262	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Hexane	FB	Ave	1843 44066	3912 90384	8352	10877	22347	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,1-Dichloroethane	FB	Ave	22348 532464	51406 1062752	102290	133331	271075	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Vinyl acetate	FB	Lin1	16668 670872	42604 +++++	100952	139049	309795	1.00 20.0	2.00 +++++	4.00	5.00	10.0
2,2-Dichloropropane	FB	Ave	2112 49556	4499 99183	10781	12641	25966	1.00 20.0	2.00 40.0	4.00	5.00	10.0
cis-1,2-Dichloroethene	FB	Ave	11048 248831	23327 527277	44803	62462	131741	1.00 20.0	2.00 40.0	4.00	5.00	10.0
2-Butanone (MEK)	FB	Ave	16294 334871	38232 675419	68978	85736	187669	2.00 40.0	4.00 80.0	8.00	10.0	20.0
Chlorobromomethane	FB	Ave	3985 107315	9314 223761	18971	25448	53066	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Tetrahydrofuran	FB	Ave	13222 229072	25452 451105	45424	63550	127746	2.00 40.0	4.00 80.0	8.00	10.0	20.0
Chloroform	FB	Ave	16664 380793	38353 772060	75432	95814	200134	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,1,1-Trichloroethane	FB	Ave	10906 237910	24363 479949	48446	60526	125222	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Cyclohexane	FB	Ave	20523 461154	42667 924168	92889	116343	240944	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,1-Dichloropropene	FB	Ave	13086 302315	29124 621625	58913	74907	157561	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Carbon tetrachloride	FB	Ave	7596 203301	17573 405876	39488	51250	101403	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Isobutyl alcohol	CBNZ d5	Lin1	12344 280839	37582 563013	51890	73630	152214	25.0 500	50.0 1000	100	125	250

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 419116

SDG No.: _____

Instrument ID: A3UX10 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/15/2020 15:09 Calibration End Date: 01/15/2020 17:40 Calibration ID: 54865

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
Benzene	FB	Ave	44716 1006535	93751 2022315	197778	260636	521274	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,2-Dichloroethane	FB	Ave	17578 372263	34090 746590	69151	94942	190893	1.00 20.0	2.00 40.0	4.00	5.00	10.0
n-Heptane	FB	Ave	1287 35822	3016 74422	6183	8836	19537	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Trichloroethene	FB	Ave	8538 207059	20817 441948	39540	53807	109296	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Methylcyclohexane	FB	Ave	12478 268151	23572 537031	53694	65075	141004	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,2-Dichloropropane	FB	Ave	14848 307572	30035 629714	61647	79871	164272	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Dibromomethane	FB	Ave	5684 131742	11876 272179	25254	31602	66754	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,4-Dioxane	FB	Qua	++++ 49426	3204 78837	5481	8358	27049	++++ 400	40.0 800	80.0	100	200
Dichlorobromomethane	FB	Ave	12241 288240	28201 590156	56640	72710	147444	1.00 20.0	2.00 40.0	4.00	5.00	10.0
2-Chloroethyl vinyl ether	FB	Ave	18817 457211	44119 926284	89098	119394	241641	2.00 40.0	4.00 80.0	8.00	10.0	20.0
cis-1,3-Dichloropropene	FB	Ave	16420 402901	37132 815403	76037	102349	205433	1.00 20.0	2.00 40.0	4.00	5.00	10.0
4-Methyl-2-pentanone (MIBK)	FB	Ave	34518 694450	73911 1284192	149794	190519	386894	2.00 40.0	4.00 80.0	8.00	10.0	20.0
Toluene	CBNZ d5	Ave	43545 952043	95639 1934151	190560	248868	504086	1.00 20.0	2.00 40.0	4.00	5.00	10.0
trans-1,3-Dichloropropene	CBNZ d5	Ave	13691 356734	30847 724427	68179	87136	183024	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Ethyl methacrylate	CBNZ d5	Ave	17569 362159	35561 708973	72802	101519	194915	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,1,2-Trichloroethane	CBNZ d5	Ave	9626 200859	19641 399922	39718	54109	107654	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Tetrachloroethene	CBNZ d5	Ave	4815 114500	10579 238119	22751	28561	57524	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,3-Dichloropropane	CBNZ d5	Ave	16566 384481	34250 753983	74760	95599	197340	1.00 20.0	2.00 40.0	4.00	5.00	10.0
2-Hexanone	CBNZ d5	Ave	21037 470395	49553 878609	97100	127375	259574	2.00 40.0	4.00 80.0	8.00	10.0	20.0
Chlorodibromomethane	CBNZ d5	Ave	8260 178566	15988 362910	34500	45488	94601	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Ethylene Dibromide	CBNZ d5	Ave	7801 181419	17038 387178	35096	47261	99558	1.00 20.0	2.00 40.0	4.00	5.00	10.0

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 419116

SDG No.: _____

Instrument ID: A3UX10 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/15/2020 15:09 Calibration End Date: 01/15/2020 17:40 Calibration ID: 54865

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
Chlorobenzene	CBNZ d5	Ave	22854 520761	50513 1029417	100955	131794	275411	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,1,1,2-Tetrachloroethane	CBNZ d5	Ave	6659 168350	16020 304231	32187	41967	87822	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Ethylbenzene	CBNZ d5	Ave	13519 289622	27299 561828	55060	74081	152603	1.00 20.0	2.00 40.0	4.00	5.00	10.0
m-Xylene & p-Xylene	CBNZ d5	Ave	16104 342261	32596 658521	66882	86448	183493	1.00 20.0	2.00 40.0	4.00	5.00	10.0
o-Xylene	CBNZ d5	Ave	13792 319375	32337 590509	64763	85719	168052	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Styrene	CBNZ d5	Ave	27230 571751	56348 1086333	112067	145465	299470	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Bromoform	CBNZ d5	Ave	3862 96445	8554 187221	17599	26105	52762	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Isopropylbenzene	CBNZ d5	Ave	36550 726047	74013 1272350	148004	192618	394049	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,1,2,2-Tetrachloroethane	DCBd 4	Ave	11743 251928	25562 397452	49998	67486	133615	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Bromobenzene	DCBd 4	Ave	7291 162882	15762 308073	30286	40920	83151	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,2,3-Trichloropropane	DCBd 4	Ave	2226 68790	7129 114214	13733	19146	37501	1.00 20.0	2.00 40.0	4.00	5.00	10.0
trans-1,4-Dichloro-2-butene	DCBd 4	Lin1	3793 106104	8016 220280	18866	25489	53115	1.00 20.0	2.00 40.0	4.00	5.00	10.0
N-Propylbenzene	DCBd 4	Ave	8859 182904	18177 322291	36476	47514	98281	1.00 20.0	2.00 40.0	4.00	5.00	10.0
2-Chlorotoluene	DCBd 4	Ave	7413 167723	16698 284610	34073	44478	87963	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,3,5-Trimethylbenzene	DCBd 4	Ave	24944 543712	53769 857216	106414	150264	295183	1.00 20.0	2.00 40.0	4.00	5.00	10.0
4-Chlorotoluene	DCBd 4	Ave	7566 180386	16643 316754	36045	47687	94251	1.00 20.0	2.00 40.0	4.00	5.00	10.0
tert-Butylbenzene	DCBd 4	Ave	18959 394340	41045 607771	84741	109170	217722	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,2,4-Trimethylbenzene	DCBd 4	Ave	28614 564871	58546 871849	118715	155708	313247	1.00 20.0	2.00 40.0	4.00	5.00	10.0
sec-Butylbenzene	DCBd 4	Ave	27586 540475	57391 828401	115720	155977	304021	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,3-Dichlorobenzene	DCBd 4	Ave	13128 293479	28783 484300	59183	78243	151080	1.00 20.0	2.00 40.0	4.00	5.00	10.0
4-Isopropyltoluene	DCBd 4	Ave	21058 440776	46502 652029	95048	121479	246570	1.00 20.0	2.00 40.0	4.00	5.00	10.0

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 419116

SDG No.: _____

Instrument ID: A3UX10 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/15/2020 15:09 Calibration End Date: 01/15/2020 17:40 Calibration ID: 54865

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
1,4-Dichlorobenzene	DCBd 4	Ave	13017 293656	28924 507740	60314	79180	157477	1.00 20.0	2.00 40.0	4.00	5.00	10.0
n-Butylbenzene	DCBd 4	Ave	21792 404747	43467 569737	87348	117002	231231	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,2-Dichlorobenzene	DCBd 4	Ave	14294 286985	29223 412773	59299	78394	157537	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,2-Dibromo-3-Chloropropane	DCBd 4	Qua	1480 34090	4546 37189	8781	12607	23044	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,2,4-Trichlorobenzene	DCBd 4	Ave	5926 93635	13282 ++++	27711	36240	70921	1.00 20.0	2.00 ++++	4.00	5.00	10.0
Hexachlorobutadiene	DCBd 4	Ave	++++ 23374	3460 ++++	6441	8782	16555	++++ 20.0	2.00 ++++	4.00	5.00	10.0
Naphthalene	DCBd 4	Ave	30522 ++++	69402 ++++	135986	181044	326917	1.00 ++++	2.00 ++++	4.00	5.00	10.0
1,2,3-Trichlorobenzene	DCBd 4	Ave	6329 ++++	11763 ++++	25501	34569	64230	1.00 ++++	2.00 ++++	4.00	5.00	10.0
Dibromofluoromethane (Surr)	FB	Ave	9272 193471	18094 382594	37185	44962	95327	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,2-Dichloroethane-d4 (Surr)	FB	Ave	13590 278242	26957 546102	55814	68712	136206	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Toluene-d8 (Surr)	CBNZ d5	Ave	44192 805170	78667 1576678	160706	194389	388305	1.00 20.0	2.00 40.0	4.00	5.00	10.0
4-Bromofluorobenzene (Surr)	CBNZ d5	Ave	12999 258874	25288 475939	51023	62957	126701	1.00 20.0	2.00 40.0	4.00	5.00	10.0

Curve Type Legend:

Ave = Average ISTD
Lin1 = Linear 1/conc ISTD
Qua = Quadratic ISTD

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5174.D
 Lims ID: STD8260 L7
 Client ID:
 Sample Type: IC Calib Level: 7
 Inject. Date: 15-Jan-2020 15:09:30 ALS Bottle#: 1 Worklist Smp#: 2
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0094937-002
 Operator ID: 001644 Instrument ID: A3UX10
 Sublist: chrom-8260_10*sub82
 Method: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 20-Jan-2020 17:01:47 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0309

First Level Reviewer: williamsla

Date: 20-Jan-2020 17:01:47

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.976	4.972	0.004	98	426105	10.0	10.0	
* 2 Chlorobenzene-d5	117	7.638	7.646	-0.008	89	268745	10.0	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.861	9.869	-0.008	95	89134	10.0	10.0	
\$ 4 Dibromofluoromethane (Surr	113	4.408	4.408	0.000	92	382594	40.0	38.4	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	4.692	4.691	0.001	96	546102	40.0	37.3	
\$ 6 Toluene-d8 (Surr)	98	6.336	6.336	0.000	94	1576678	40.0	38.2	
\$ 7 4-Bromofluorobenzene (Surr	95	8.749	8.749	0.000	79	475939	40.0	36.6	
9 Dichlorodifluoromethane	85	1.250	1.249	0.001	99	348415	40.0	37.7	
10 Chloromethane	50	1.404	1.391	0.013	99	738754	40.0	39.1	
11 Vinyl chloride	62	1.487	1.486	0.001	98	533232	40.0	38.3	
12 Butadiene	54	1.510	1.510	0.000	94	299133	40.0	39.0	
13 Bromomethane	94	1.759	1.758	0.001	90	225093	40.0	34.0	
14 Chloroethane	64	1.853	1.841	0.012	98	293599	40.0	39.4	
15 Dichlorofluoromethane	67	2.019	2.018	0.001	98	612424	40.0	32.6	
16 Trichlorofluoromethane	101	2.054	2.042	0.012	98	396905	40.0	39.7	
17 Ethyl ether	59	2.291	2.290	0.001	98	492860	40.0	37.5	
18 Acrolein	56	2.409	2.409	0.000	99	447463	200.0	178.1	
19 1,1-Dichloroethene	96	2.492	2.491	0.001	92	384984	40.0	38.3	
20 1,1,2-Trichloro-1,2,2-trif	151	2.528	2.515	0.013	96	194447	40.0	39.5	
21 Acetone	43	2.539	2.539	0.000	100	408717	80.0	77.8	
22 Iodomethane	142	2.646	2.621	0.025	97	504270	40.0	42.9	
24 Carbon disulfide	76	2.693	2.681	0.012	100	1371104	40.0	39.0	
26 3-Chloro-1-propene	76	2.812	2.811	0.001	91	363226	40.0	39.9	
27 Methyl acetate	43	2.835	2.834	0.001	99	1170999	80.0	77.8	
28 Methylene Chloride	84	2.918	2.917	0.001	98	479700	40.0	38.7	
29 2-Methyl-2-propanol	59	3.024	3.024	0.000	98	647317	400.0	367.9	
31 Acrylonitrile	53	3.131	3.130	0.001	100	2832530	400.0	386.0	
30 trans-1,2-Dichloroethene	96	3.143	3.154	-0.011	91	471758	40.0	40.5	
32 Methyl tert-butyl ether	73	3.155	3.154	0.001	98	1323684	40.0	39.0	
33 Hexane	86	3.379	3.378	0.001	93	90384	40.0	40.2	
34 1,1-Dichloroethane	63	3.509	3.509	0.000	96	1062752	40.0	38.7	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
35 Vinyl acetate	43		3.556				ND	ND	U
39 2,2-Dichloropropane	97	3.994	4.005	-0.011	51	99183	40.0	38.0	
40 cis-1,2-Dichloroethene	96	3.994	4.005	-0.011	88	527277	40.0	40.7	
41 2-Butanone (MEK)	43	4.018	4.017	0.001	99	675419	80.0	72.5	
45 Chlorobromomethane	128	4.207	4.206	0.001	92	223761	40.0	42.4	
46 Tetrahydrofuran	42	4.243	4.242	0.001	93	451105	80.0	69.1	
47 Chloroform	83	4.266	4.266	0.000	98	772060	40.0	38.3	
48 1,1,1-Trichloroethane	97	4.420	4.419	0.001	96	479949	40.0	37.6	
49 Cyclohexane	56	4.467	4.467	0.000	91	924168	40.0	38.3	
50 1,1-Dichloropropene	75	4.562	4.561	0.001	92	621625	40.0	39.3	
51 Carbon tetrachloride	117	4.562	4.561	0.001	72	405876	40.0	39.9	
52 Isobutyl alcohol	41	4.669	4.668	0.001	96	563013	1000.0	984.5	
53 Benzene	78	4.740	4.739	0.001	98	2022315	40.0	38.4	
54 1,2-Dichloroethane	62	4.751	4.751	0.000	96	746590	40.0	38.5	
56 n-Heptane	100	4.964	4.963	0.001	97	74422	40.0	41.8	
58 Trichloroethene	130	5.284	5.283	0.001	96	441948	40.0	40.4	
60 Methylcyclohexane	83	5.449	5.448	0.001	98	537031	40.0	38.5	
61 1,2-Dichloropropane	63	5.473	5.472	0.001	97	629714	40.0	38.0	
63 Dibromomethane	93	5.579	5.579	0.000	89	272179	40.0	40.4	
64 1,4-Dioxane	88	5.591	5.590	0.001	97	78837	800.0	799.6	
65 Dichlorobromomethane	83	5.709	5.709	0.000	98	590156	40.0	39.2	
67 2-Chloroethyl vinyl ether	63	5.970	5.969	0.001	91	926284	80.0	77.4	
68 cis-1,3-Dichloropropene	75	6.100	6.099	0.001	92	815403	40.0	39.5	
69 4-Methyl-2-pentanone (MIBK)	43	6.242	6.241	0.001	97	1284192	80.0	66.7	
70 Toluene	91	6.396	6.395	0.001	97	1934151	40.0	39.3	
71 trans-1,3-Dichloropropene	75	6.585	6.596	-0.011	97	724427	40.0	41.9	
72 Ethyl methacrylate	69	6.668	6.667	0.001	95	708973	40.0	37.4	
73 1,1,2-Trichloroethane	97	6.750	6.761	-0.011	93	399922	40.0	38.3	
74 Tetrachloroethene	164	6.892	6.892	0.000	95	238119	40.0	41.7	
75 1,3-Dichloropropane	76	6.904	6.903	0.001	99	753983	40.0	39.7	
76 2-Hexanone	43	6.975	6.986	-0.011	98	878609	80.0	71.6	
78 Chlorodibromomethane	129	7.117	7.116	0.001	91	362910	40.0	40.2	
80 Ethylene Dibromide	107	7.212	7.223	-0.011	97	387178	40.0	41.7	
82 Chlorobenzene	112	7.673	7.672	0.001	93	1029417	40.0	39.2	
83 1,1,1,2-Tetrachloroethane	131	7.744	7.743	0.001	96	304231	40.0	37.1	
84 Ethylbenzene	106	7.768	7.767	0.001	99	561828	40.0	38.4	
85 m-Xylene & p-Xylene	106	7.874	7.873	0.001	99	658521	40.0	37.9	
86 o-Xylene	106	8.253	8.252	0.001	98	590509	40.0	36.3	
87 Styrene	104	8.264	8.264	0.000	94	1086333	40.0	37.3	
88 Bromoform	173	8.442	8.441	0.001	95	187221	40.0	39.2	
89 Isopropylbenzene	105	8.596	8.607	-0.011	97	1272350	40.0	33.7	
93 Bromobenzene	156	8.891	8.891	0.000	96	308073	40.0	44.7	
92 1,1,2,2-Tetrachloroethane	83	8.891	8.891	0.000	75	397452	40.0	36.9	
94 1,2,3-Trichloropropane	110	8.927	8.926	0.001	86	114214	40.0	39.7	
95 trans-1,4-Dichloro-2-buten	53	8.939	8.938	0.001	81	220280	40.0	43.1	
96 N-Propylbenzene	120	8.998	8.997	0.001	100	322291	40.0	40.5	
97 2-Chlorotoluene	126	9.081	9.080	0.001	96	284610	40.0	39.7	
98 1,3,5-Trimethylbenzene	105	9.163	9.163	0.000	93	857216	40.0	36.8	
99 4-Chlorotoluene	126	9.187	9.186	0.001	98	316754	40.0	41.7	
100 tert-Butylbenzene	119	9.483	9.482	0.001	94	607771	40.0	35.0	
102 1,2,4-Trimethylbenzene	105	9.530	9.529	0.001	97	871849	40.0	35.0	
103 sec-Butylbenzene	105	9.696	9.695	0.001	95	828401	40.0	34.2	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
104 1,3-Dichlorobenzene	146	9.802	9.801	0.001	96	484300	40.0	38.9	
105 4-Isopropyltoluene	119	9.838	9.837	0.001	97	652029	40.0	33.7	
106 1,4-Dichlorobenzene	146	9.885	9.884	0.001	92	507740	40.0	40.1	
109 n-Butylbenzene	91	10.240	10.239	0.001	98	569737	40.0	31.3	
110 1,2-Dichlorobenzene	146	10.252	10.251	0.001	94	412773	40.0	33.2	
111 1,2-Dibromo-3-Chloropropan	157	11.021	11.020	0.000	75	37189	40.0	32.4	
113 1,2,4-Trichlorobenzene	180		11.836				ND	ND	U
114 Hexachlorobutadiene	225		12.013				ND	ND	U
115 Naphthalene	128		12.084				ND	ND	U
116 1,2,3-Trichlorobenzene	180		12.321				ND	ND	U
S 128 1,2-Dichloroethene, Total	96				0			81.2	
S 129 1,3-Dichloropropene, Total	75				0			81.4	
S 130 Xylenes, Total	106				0		80.0	74.2	
S 156 Total BTEX	1				0		200.0	190.2	
S 131 Trihalomethanes, Total	1				0		160.0	157.0	

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

Review Flags

U - Marked Undetected

Reagents:

VMRPRIMW_00369	Amount Added: 32.00	Units: uL
VMFASAW_00312	Amount Added: 32.00	Units: uL
VM50IS_00080	Amount Added: 1.00	Units: uL
VMRGAS_00323	Amount Added: 32.00	Units: uL
vm50ss_00387	Amount Added: 32.00	Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5174.D

Injection Date: 15-Jan-2020 15:09:30

Instrument ID: A3UX10

Operator ID: 001644

Lims ID: STD8260 L7

Worklist Smp#: 2

Client ID:

Purge Vol: 5.000 mL

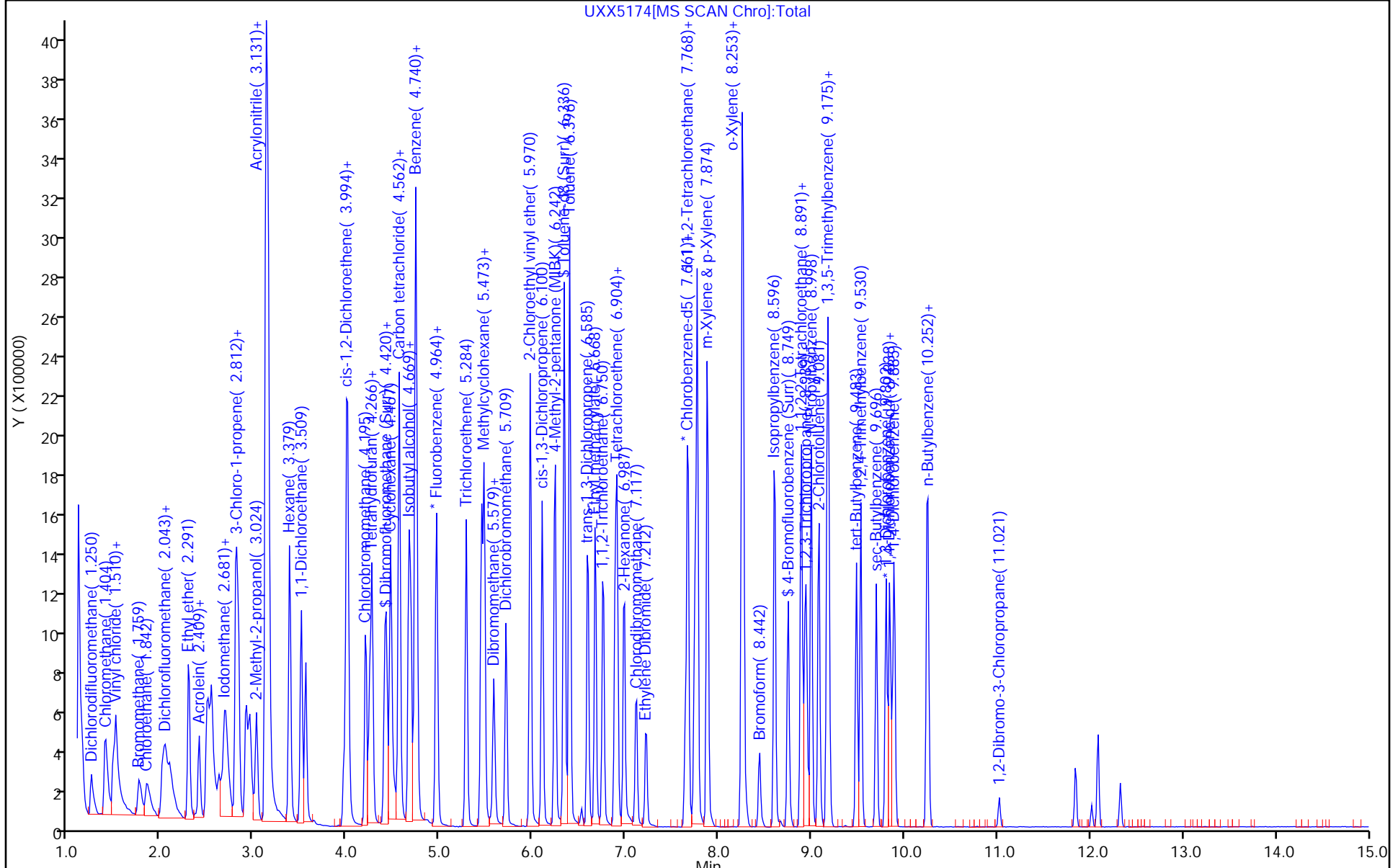
Dil. Factor: 1.0000

ALS Bottle#: 1

Method: 8260_10

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5174.D

Injection Date: 15-Jan-2020 15:09:30

Instrument ID: A3UX10

Lims ID: STD8260 L7

Client ID:

Operator ID: 001644

ALS Bottle#: 1

Worklist Smp#: 2

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

Method: 8260_10

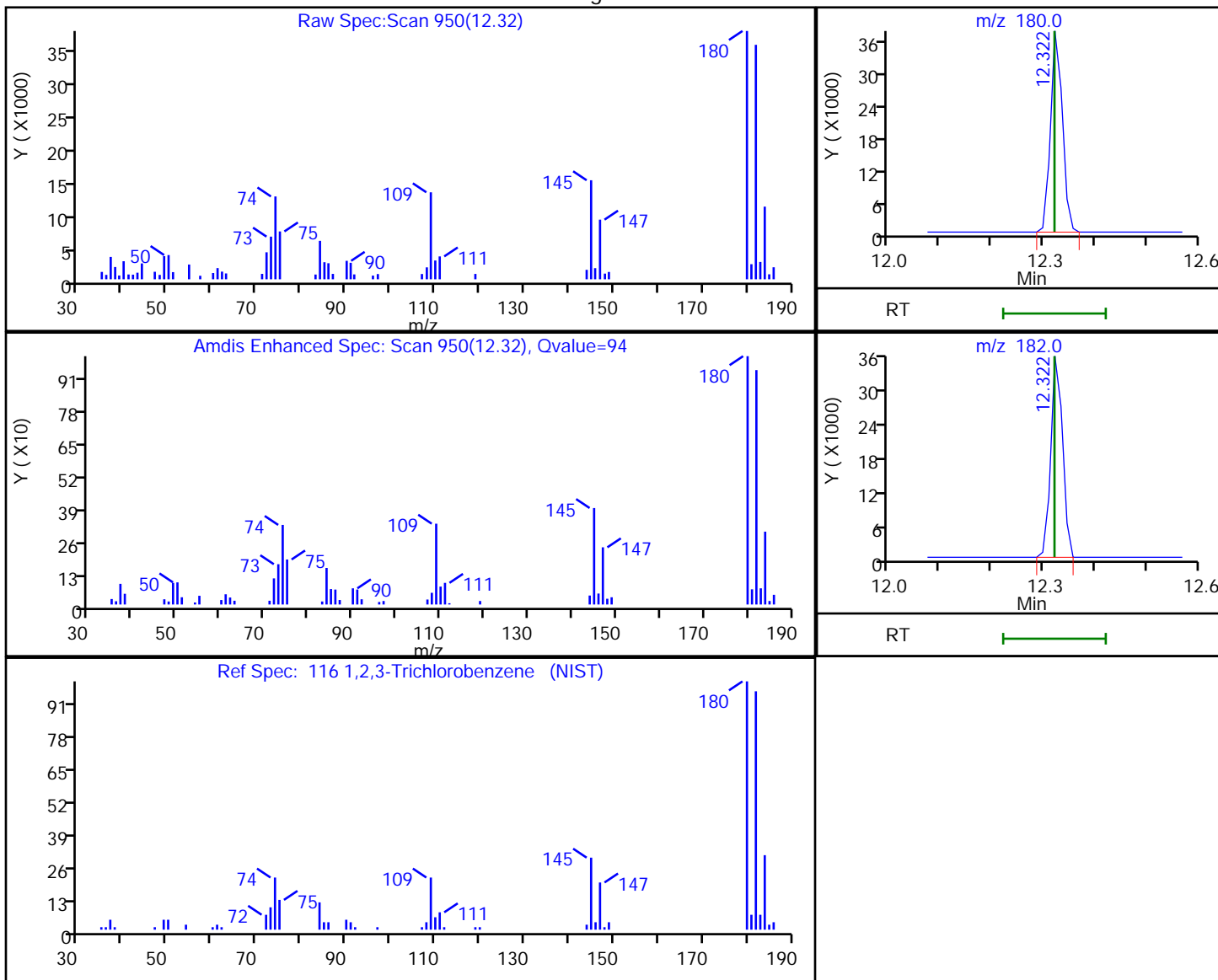
Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

116 1,2,3-Trichlorobenzene, CAS: 87-61-6

Processing Results



RT	Mass	Response	Amount
12.32	180.00	60418	13.207226
12.32	182.00	56546	

Reviewer: williamsa, 20-Jan-2020 15:37:29

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5174.D

Injection Date: 15-Jan-2020 15:09:30

Instrument ID: A3UX10

Lims ID: STD8260 L7

Client ID:

Operator ID: 001644

ALS Bottle#: 1

Worklist Smp#: 2

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

Method: 8260_10

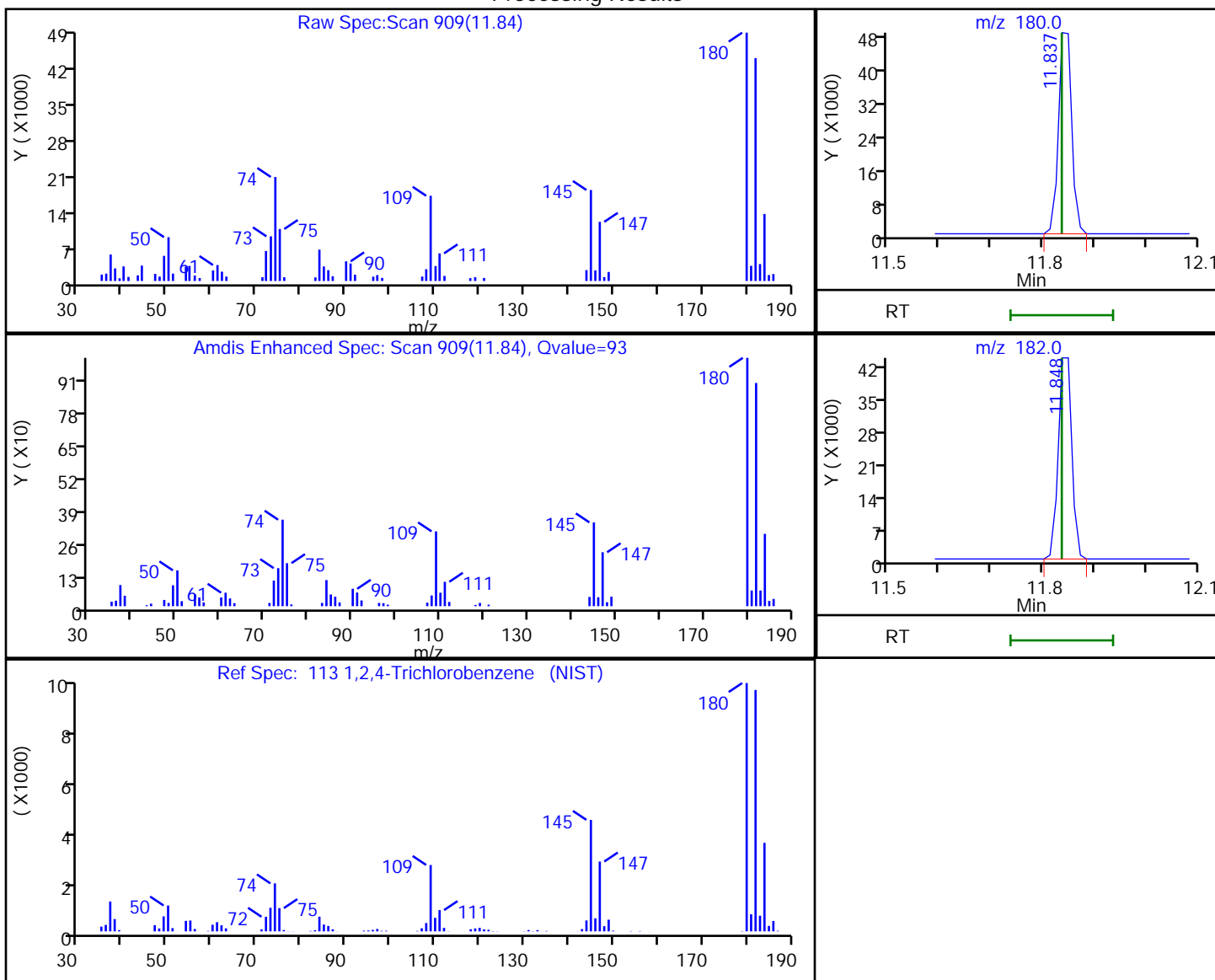
Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

113 1,2,4-Trichlorobenzene, CAS: 120-82-1

Processing Results



RT	Mass	Response	Amount
11.84	180.00	87122	21.282434
11.85	182.00	79970	

Reviewer: williamsla, 20-Jan-2020 16:44:14

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5174.D

Injection Date: 15-Jan-2020 15:09:30

Instrument ID: A3UX10

Lims ID: STD8260 L7

Client ID:

Operator ID: 001644

ALS Bottle#: 1

Worklist Smp#: 2

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

Method: 8260_10

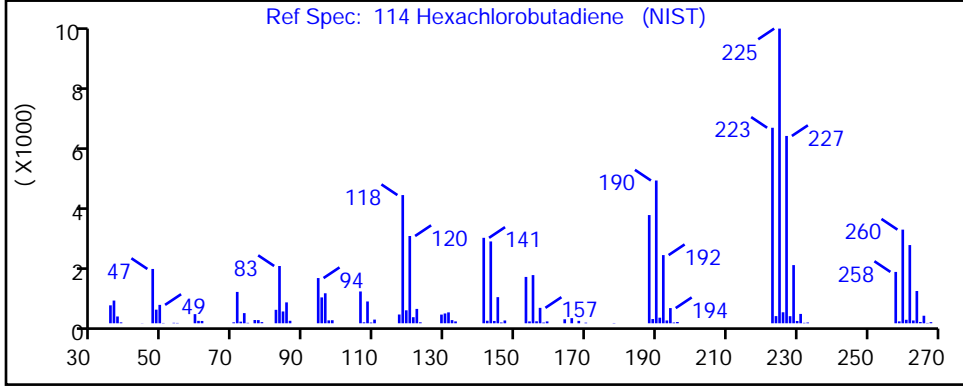
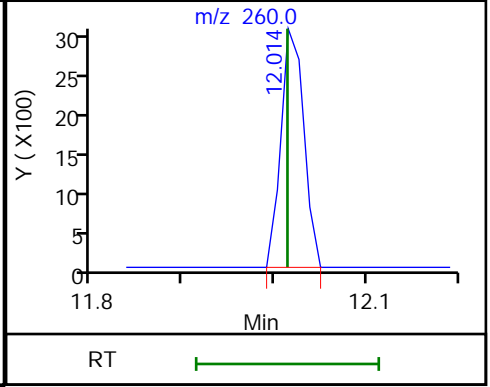
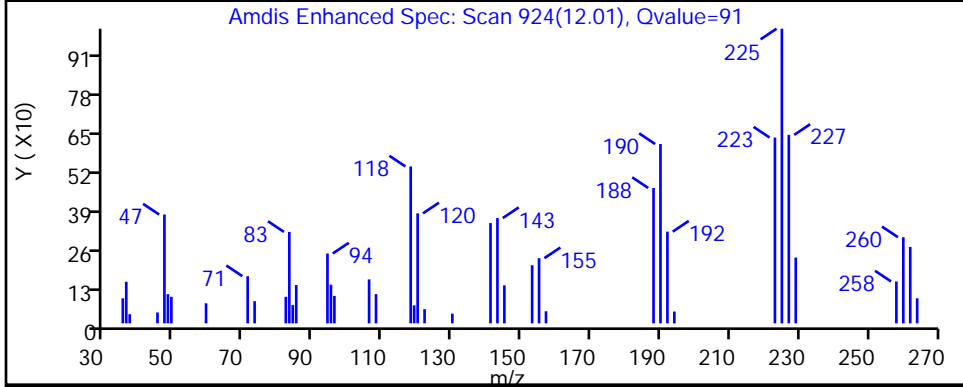
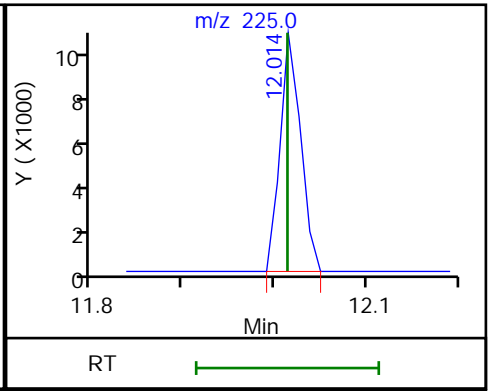
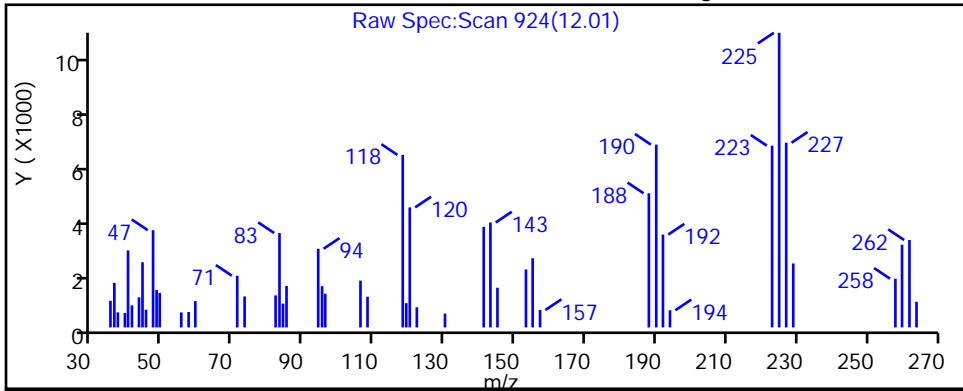
Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

114 Hexachlorobutadiene, CAS: 87-68-3

Processing Results



RT	Mass	Response	Amount
12.01	225.00	16641	13.966535
12.01	260.00	5218	

Reviewer: williamsa, 20-Jan-2020 15:51:31

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

Euofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5174.D

Injection Date: 15-Jan-2020 15:09:30

Instrument ID: A3UX10

Lims ID: STD8260 L7

Client ID:

Operator ID: 001644

ALS Bottle#: 1

Worklist Smp#: 2

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

Method: 8260_10

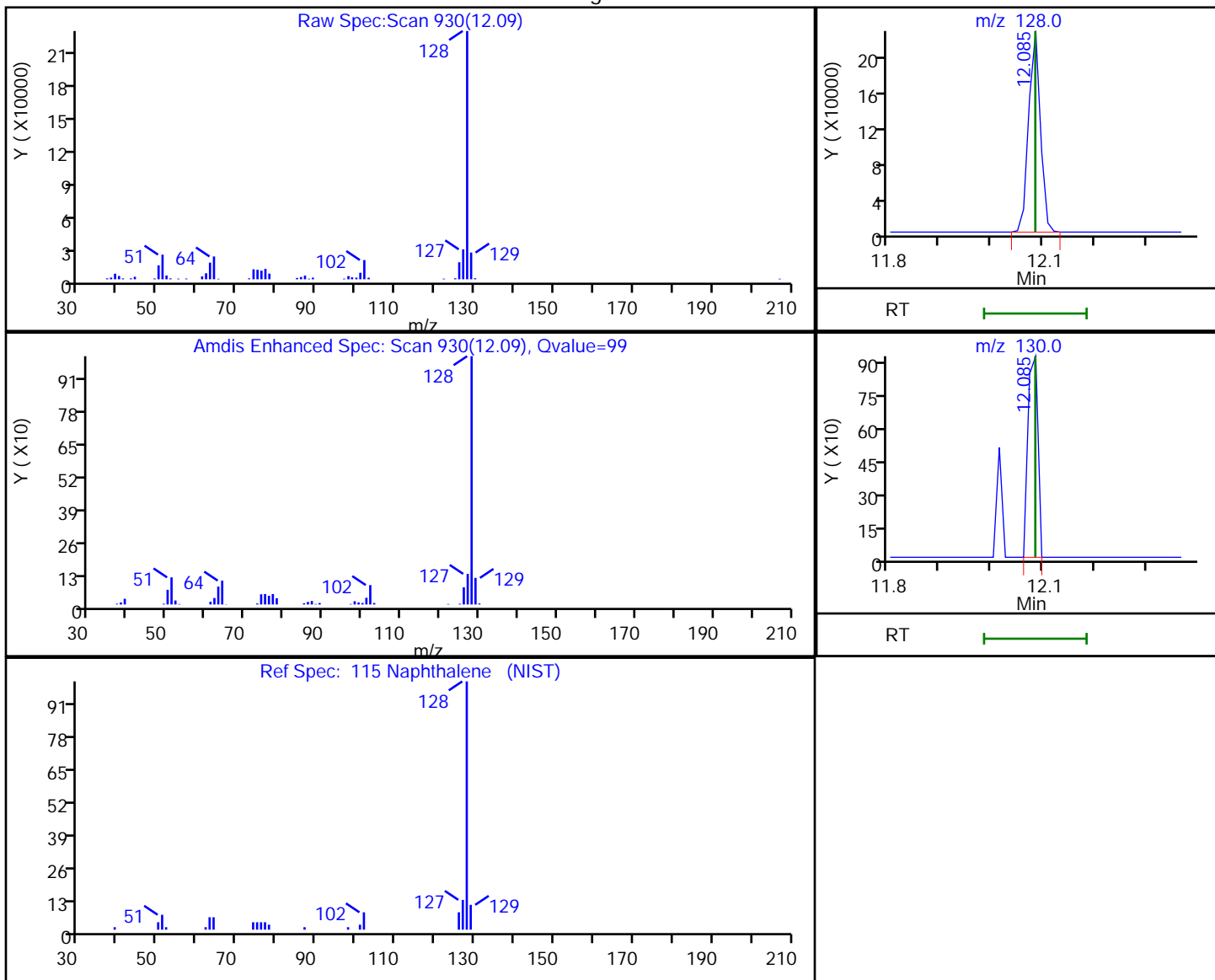
Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

115 Naphthalene, CAS: 91-20-3

Processing Results



RT	Mass	Response	Amount
12.09	128.00	351805	14.522046
12.09	130.00	1251	

Reviewer: williamsa, 20-Jan-2020 15:37:26

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5174.D

Injection Date: 15-Jan-2020 15:09:30

Instrument ID: A3UX10

Lims ID: STD8260 L7

Client ID:

Operator ID: 001644

ALS Bottle#: 1

Worklist Smp#: 2

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

Method: 8260_10

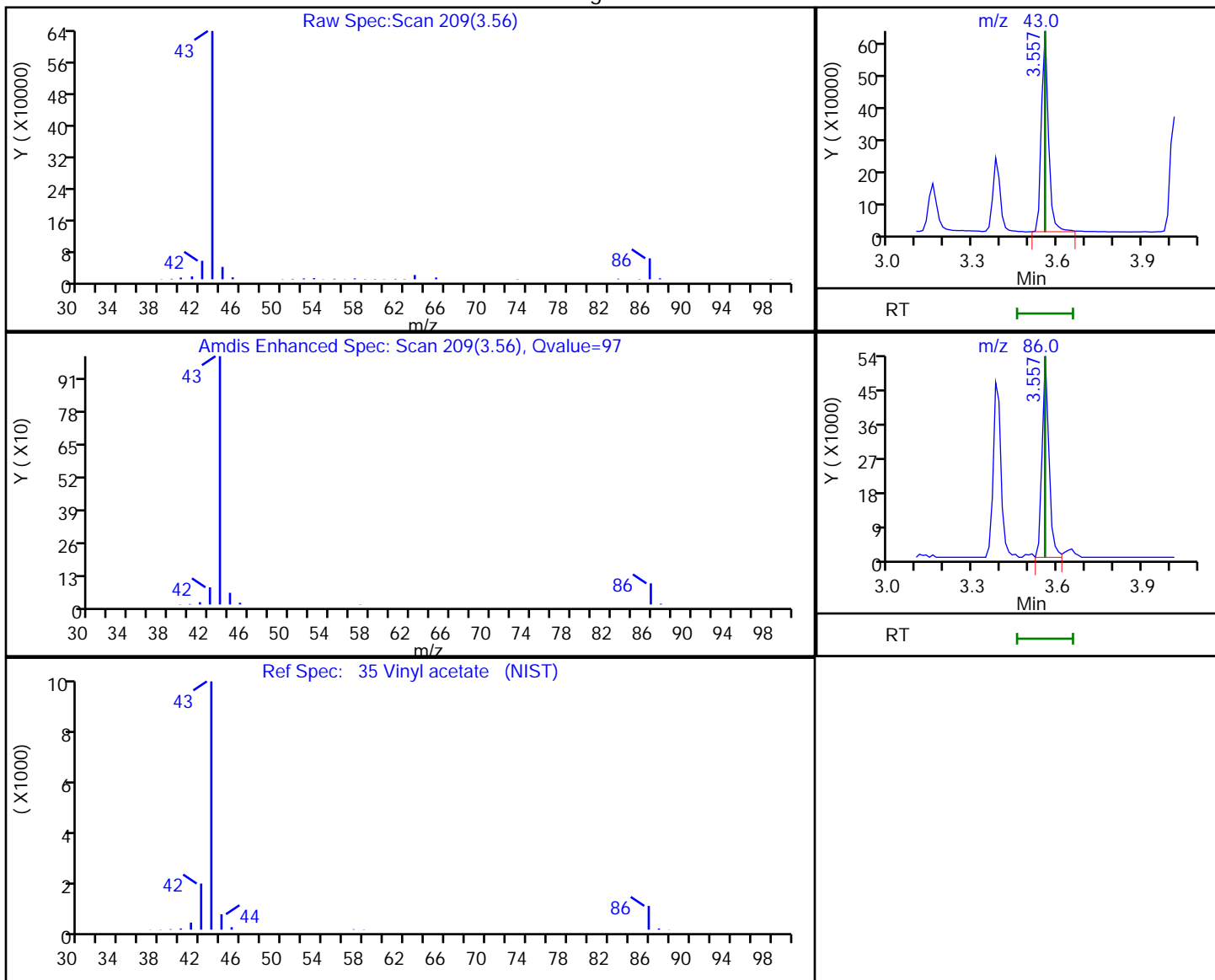
Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

35 Vinyl acetate, CAS: 108-05-4

Processing Results



RT	Mass	Response	Amount
3.56	43.00	1112947	39.993189
3.56	86.00	91366	

Reviewer: williamsla, 20-Jan-2020 15:50:53

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5175.D
 Lims ID: STD8260 L6
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 15-Jan-2020 15:34:30 ALS Bottle#: 2 Worklist Smp#: 3
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0094937-003
 Operator ID: 001644 Instrument ID: A3UX10
 Sublist: chrom-8260_10*sub82
 Method: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 20-Jan-2020 17:08:45 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0309

First Level Reviewer: williamsla

Date: 20-Jan-2020 16:42:08

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.973	4.972	0.001	98	408078	10.0	10.0	
* 2 Chlorobenzene-d5	117	7.635	7.646	-0.011	93	264953	10.0	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.870	9.869	0.001	96	103950	10.0	10.0	
\$ 4 Dibromofluoromethane (Surr	113	4.406	4.408	-0.002	93	193471	20.0	20.3	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	4.690	4.691	-0.001	97	278242	20.0	19.9	
\$ 6 Toluene-d8 (Surr)	98	6.334	6.336	-0.002	94	805170	20.0	19.8	
\$ 7 4-Bromofluorobenzene (Surr	95	8.747	8.749	-0.002	78	258874	20.0	20.2	
9 Dichlorodifluoromethane	85	1.247	1.249	-0.002	99	184971	20.0	20.9	
10 Chloromethane	50	1.401	1.391	0.010	99	391156	20.0	21.6	
11 Vinyl chloride	62	1.484	1.486	-0.002	98	277193	20.0	20.8	
12 Butadiene	54	1.519	1.510	0.009	95	152127	20.0	20.5	
13 Bromomethane	94	1.768	1.758	0.010	89	115685	20.0	18.2	
14 Chloroethane	64	1.851	1.841	0.010	99	157736	20.0	22.1	
15 Dichlorofluoromethane	67	2.016	2.018	-0.002	98	339518	20.0	18.9	
16 Trichlorofluoromethane	101	2.052	2.042	0.010	99	211561	20.0	22.1	
17 Ethyl ether	59	2.300	2.290	0.010	98	250763	20.0	19.9	
18 Acrolein	56	2.407	2.409	-0.002	99	222686	100.0	92.6	
19 1,1-Dichloroethene	96	2.489	2.491	-0.002	92	191503	20.0	19.9	
20 1,1,2-Trichloro-1,2,2-trif	151	2.525	2.515	0.010	97	92141	20.0	20.0	
21 Acetone	43	2.549	2.539	0.010	100	205689	40.0	39.9	
22 Iodomethane	142	2.620	2.621	-0.001	97	229631	20.0	20.4	
24 Carbon disulfide	76	2.691	2.681	0.009	100	671488	20.0	19.9	
26 3-Chloro-1-propene	76	2.809	2.811	-0.002	90	186739	20.0	21.4	
27 Methyl acetate	43	2.832	2.834	-0.002	99	570411	40.0	39.6	
28 Methylene Chloride	84	2.915	2.917	-0.002	97	238705	20.0	20.1	
29 2-Methyl-2-propanol	59	3.022	3.024	-0.002	98	328526	200.0	195.0	
31 Acrylonitrile	53	3.128	3.130	-0.002	99	1379901	200.0	196.3	
30 trans-1,2-Dichloroethene	96	3.152	3.154	-0.002	90	225779	20.0	20.3	
32 Methyl tert-butyl ether	73	3.152	3.154	-0.002	98	665746	20.0	20.5	
33 Hexane	86	3.388	3.378	0.010	91	44066	20.0	20.5	
34 1,1-Dichloroethane	63	3.507	3.509	-0.002	96	532464	20.0	20.2	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
35 Vinyl acetate	43	3.554	3.556	-0.002	97	670872	20.0	20.5	
39 2,2-Dichloropropane	97	4.003	4.005	-0.002	76	49556	20.0	19.8	
40 cis-1,2-Dichloroethene	96	4.003	4.005	-0.002	88	248831	20.0	20.0	
41 2-Butanone (MEK)	43	4.015	4.017	-0.002	99	334871	40.0	37.5	
45 Chlorobromomethane	128	4.205	4.206	-0.001	90	107315	20.0	21.2	
46 Tetrahydrofuran	42	4.240	4.242	-0.002	93	229072	40.0	36.6	
47 Chloroform	83	4.264	4.266	-0.002	97	380793	20.0	19.7	
48 1,1,1-Trichloroethane	97	4.429	4.419	0.010	95	237910	20.0	19.5	
49 Cyclohexane	56	4.465	4.467	-0.002	91	461154	20.0	19.9	
50 1,1-Dichloropropene	75	4.559	4.561	-0.002	91	302315	20.0	20.0	
51 Carbon tetrachloride	117	4.559	4.561	-0.002	74	203301	20.0	20.8	
52 Isobutyl alcohol	41	4.666	4.668	-0.002	95	280839	500.0	495.9	
53 Benzene	78	4.737	4.739	-0.002	98	1006535	20.0	19.9	
54 1,2-Dichloroethane	62	4.749	4.751	-0.002	97	372263	20.0	20.1	
56 n-Heptane	100	4.962	4.963	-0.001	96	35822	20.0	21.0	
58 Trichloroethene	130	5.281	5.283	-0.002	96	207059	20.0	19.8	
60 Methylcyclohexane	83	5.447	5.448	-0.001	98	268151	20.0	20.1	
61 1,2-Dichloropropane	63	5.470	5.472	-0.002	96	307572	20.0	19.4	
63 Dibromomethane	93	5.577	5.579	-0.002	90	131742	20.0	20.4	
64 1,4-Dioxane	88	5.588	5.590	-0.002	95	49426	400.0	397.7	
65 Dichlorobromomethane	83	5.707	5.709	-0.002	98	288240	20.0	20.0	
67 2-Chloroethyl vinyl ether	63	5.967	5.969	-0.002	91	457211	40.0	39.9	
68 cis-1,3-Dichloropropene	75	6.097	6.099	-0.002	91	402901	20.0	20.4	
69 4-Methyl-2-pentanone (MIBK)	43	6.239	6.241	-0.002	97	694450	40.0	37.6	
70 Toluene	91	6.393	6.395	-0.002	97	952043	20.0	19.6	
71 trans-1,3-Dichloropropene	75	6.594	6.596	-0.002	97	356734	20.0	20.9	
72 Ethyl methacrylate	69	6.677	6.667	0.010	95	362159	20.0	19.4	
73 1,1,2-Trichloroethane	97	6.760	6.761	-0.001	93	200859	20.0	19.5	
74 Tetrachloroethene	164	6.890	6.892	-0.002	92	114500	20.0	20.3	
75 1,3-Dichloropropane	76	6.901	6.903	-0.002	97	384481	20.0	20.5	
76 2-Hexanone	43	6.984	6.986	-0.002	97	470395	40.0	38.9	
78 Chlorodibromomethane	129	7.114	7.116	-0.002	90	178566	20.0	20.1	
80 Ethylene Dibromide	107	7.221	7.223	-0.002	98	181419	20.0	19.8	
82 Chlorobenzene	112	7.670	7.672	-0.002	91	520761	20.0	20.1	
83 1,1,1,2-Tetrachloroethane	131	7.741	7.743	-0.002	96	168350	20.0	20.8	
84 Ethylbenzene	106	7.765	7.767	-0.002	99	289622	20.0	20.1	
85 m-Xylene & p-Xylene	106	7.883	7.873	0.010	99	342261	20.0	20.0	
86 o-Xylene	106	8.250	8.252	-0.002	97	319375	20.0	19.9	
87 Styrene	104	8.262	8.264	-0.002	93	571751	20.0	19.9	
88 Bromoform	173	8.439	8.441	-0.002	93	96445	20.0	20.5	
89 Isopropylbenzene	105	8.605	8.607	-0.002	96	726047	20.0	19.5	
93 Bromobenzene	156	8.889	8.891	-0.002	95	162882	20.0	20.2	
92 1,1,2,2-Tetrachloroethane	83	8.889	8.891	-0.002	77	251928	20.0	20.0	
94 1,2,3-Trichloropropane	110	8.924	8.926	-0.002	86	68790	20.0	20.5	
95 trans-1,4-Dichloro-2-buten	53	8.948	8.938	0.010	88	106104	20.0	18.2	
96 N-Propylbenzene	120	8.995	8.997	-0.002	100	182904	20.0	19.7	
97 2-Chlorotoluene	126	9.078	9.080	-0.002	95	167723	20.0	20.0	
98 1,3,5-Trimethylbenzene	105	9.161	9.163	-0.002	94	543712	20.0	20.0	
99 4-Chlorotoluene	126	9.184	9.186	-0.002	99	180386	20.0	20.4	
100 tert-Butylbenzene	119	9.480	9.482	-0.002	95	394340	20.0	19.5	
102 1,2,4-Trimethylbenzene	105	9.527	9.529	-0.002	96	564871	20.0	19.4	
103 sec-Butylbenzene	105	9.693	9.695	-0.002	95	540475	20.0	19.1	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
104 1,3-Dichlorobenzene	146	9.799	9.801	-0.002	96	293479	20.0	20.2	
105 4-Isopropyltoluene	119	9.835	9.837	-0.002	97	440776	20.0	19.5	
106 1,4-Dichlorobenzene	146	9.894	9.884	0.010	93	293656	20.0	19.9	
109 n-Butylbenzene	91	10.237	10.239	-0.002	98	404747	20.0	19.1	
110 1,2-Dichlorobenzene	146	10.249	10.251	-0.002	93	286985	20.0	19.8	
111 1,2-Dibromo-3-Chloropropan	157	11.018	11.020	-0.002	74	34090	20.0	19.0	
113 1,2,4-Trichlorobenzene	180	11.846	11.836	0.010	93	93635	20.0	14.6	
114 Hexachlorobutadiene	225	12.011	12.013	-0.002	90	23374	20.0	14.9	
115 Naphthalene	128		12.084				ND	ND	U
116 1,2,3-Trichlorobenzene	180		12.321				ND	ND	U
S 128 1,2-Dichloroethene, Total	96				0			40.3	
S 129 1,3-Dichloropropene, Total	75				0			41.3	
S 130 Xylenes, Total	106				0		40.0	39.9	
S 156 Total BTEX	1				0		100.0	99.5	
S 131 Trihalomethanes, Total	1				0		80.0	80.3	

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

Review Flags

U - Marked Undetected

Reagents:

VMRPRIMW_00369	Amount Added: 16.00	Units: uL
VMFASAW_00312	Amount Added: 16.00	Units: uL
VM50IS_00080	Amount Added: 1.00	Units: uL
VMRGAS_00323	Amount Added: 16.00	Units: uL
vm50ss_00387	Amount Added: 16.00	Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5175.D

Injection Date: 15-Jan-2020 15:34:30

Instrument ID: A3UX10

Operator ID: 001644

Lims ID: STD8260 L6

Worklist Smp#: 3

Client ID:

Purge Vol: 5.000 mL

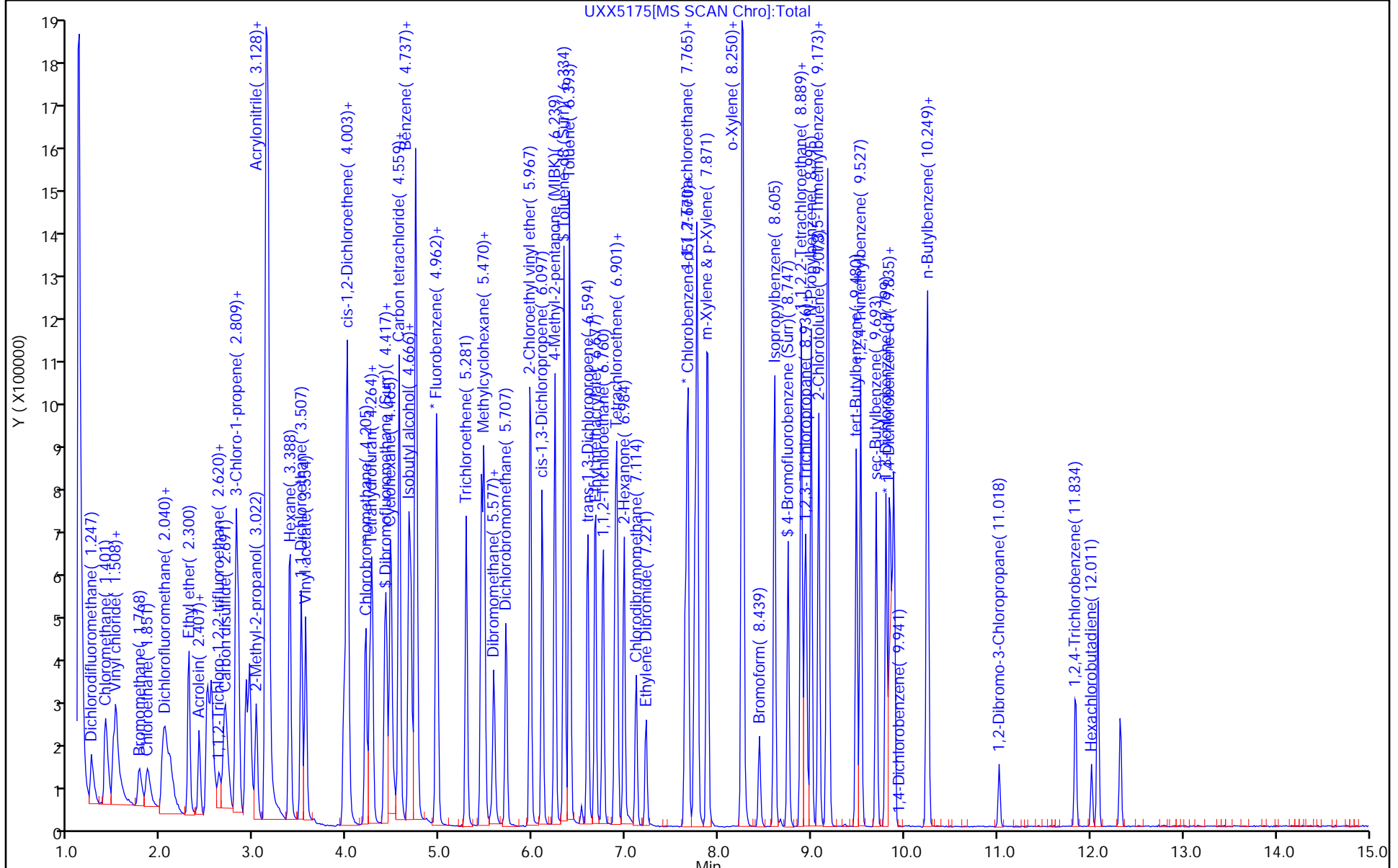
Dil. Factor: 1.0000

ALS Bottle#: 2

Method: 8260_10

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5175.D

Injection Date: 15-Jan-2020 15:34:30

Instrument ID: A3UX10

Lims ID: STD8260 L6

Client ID:

Operator ID: 001644

ALS Bottle#: 2

Worklist Smp#: 3

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

Method: 8260_10

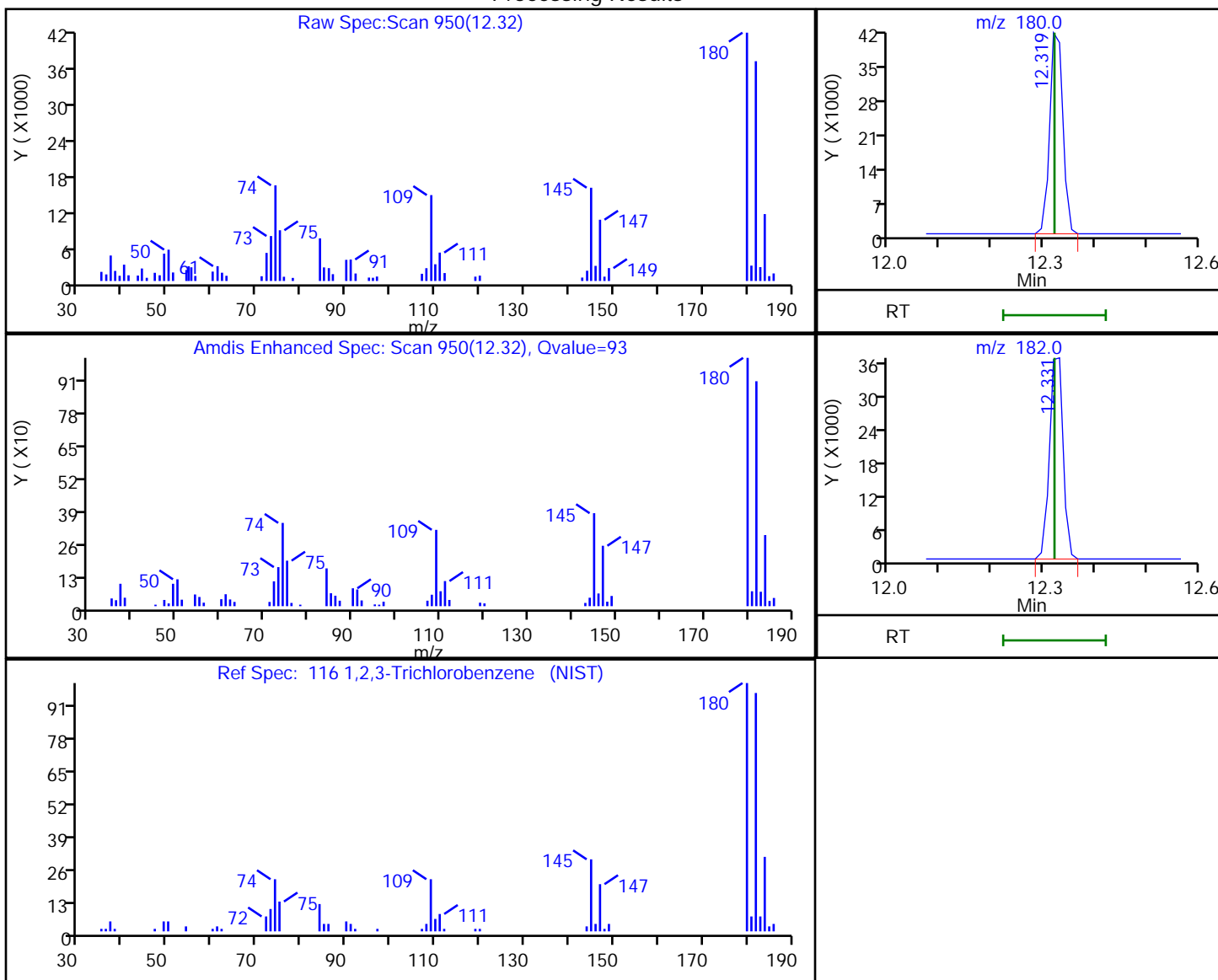
Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

116 1,2,3-Trichlorobenzene, CAS: 87-61-6

Processing Results



RT	Mass	Response	Amount
12.32	180.00	73707	15.139043
12.33	182.00	68027	

Reviewer: williamsla, 20-Jan-2020 15:37:46

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5175.D

Injection Date: 15-Jan-2020 15:34:30

Instrument ID: A3UX10

Lims ID: STD8260 L6

Client ID:

Operator ID: 001644

ALS Bottle#: 2

Worklist Smp#: 3

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

Method: 8260_10

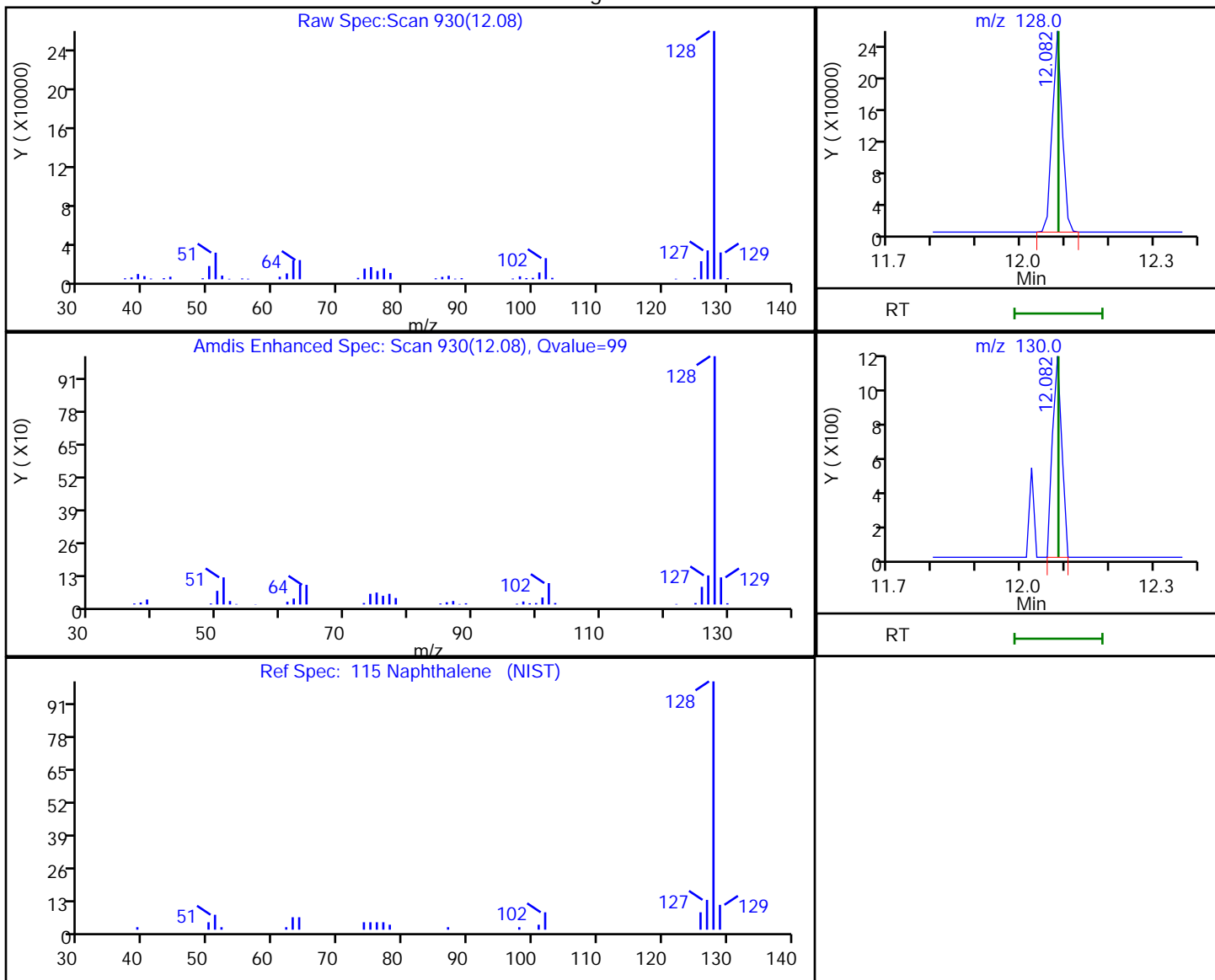
Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

115 Naphthalene, CAS: 91-20-3

Processing Results



RT	Mass	Response	Amount
12.08	128.00	391053	16.421916
12.08	130.00	1711	

Reviewer: williamsla, 20-Jan-2020 15:37:44

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5176.D
 Lims ID: STD8260 L5
 Client ID:
 Sample Type: ICIS Calib Level: 5
 Inject. Date: 15-Jan-2020 16:00:30 ALS Bottle#: 3 Worklist Smp#: 4
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0094937-004
 Operator ID: 001644 Instrument ID: A3UX10
 Sublist: chrom-8260_10*sub82
 Method: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 20-Jan-2020 16:51:21 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0309

First Level Reviewer: williamsla

Date: 20-Jan-2020 15:46:15

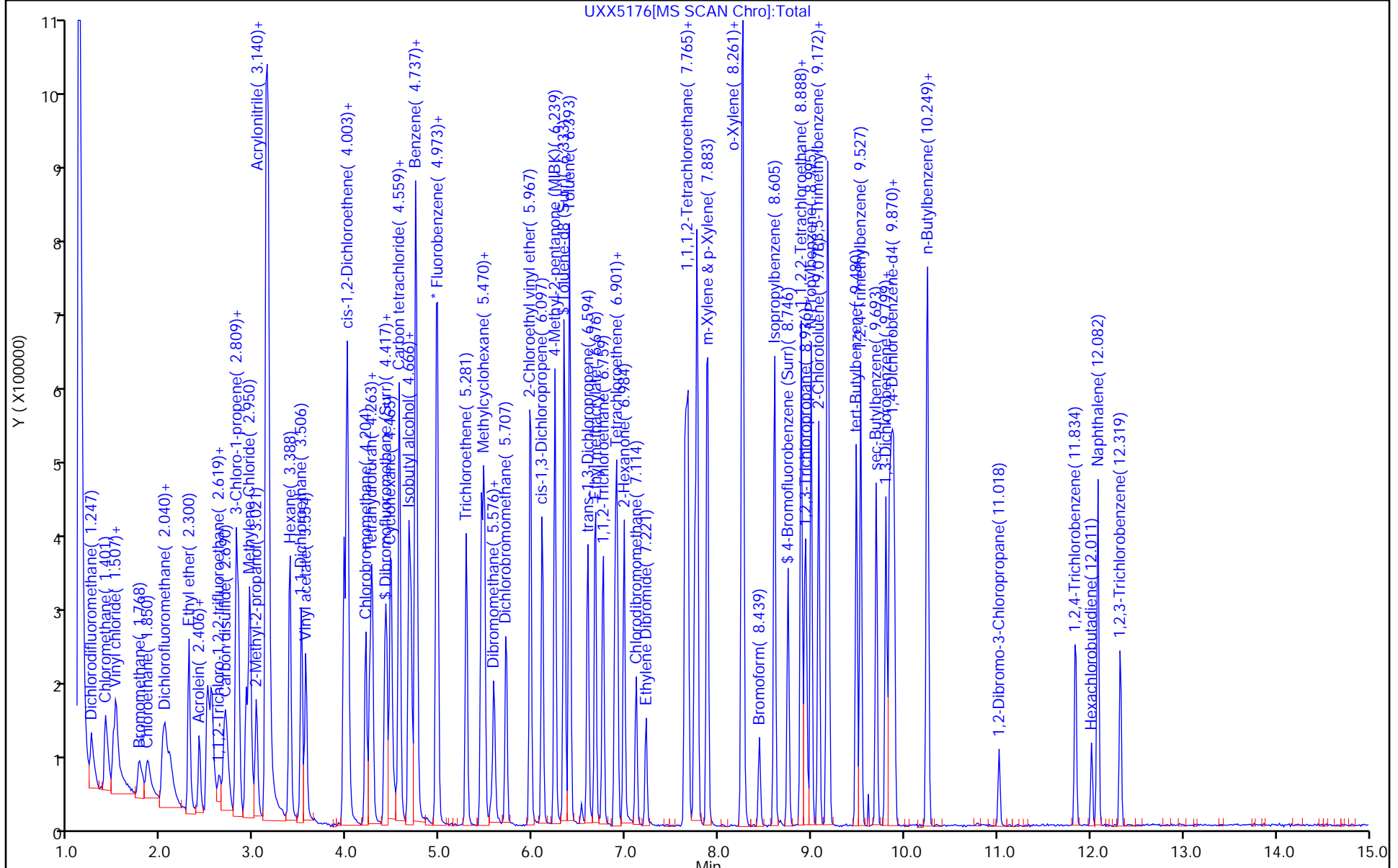
Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.973	4.973	0.000	96	402471	10.0	10.0	
* 2 Chlorobenzene-d5	117	7.646	7.646	0.000	89	261526	10.0	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.870	9.870	0.000	96	107871	10.0	10.0	
\$ 4 Dibromofluoromethane (Surr	113	4.405	4.405	0.000	92	95327	10.0	10.1	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	4.689	4.689	0.000	97	136206	10.0	9.86	
\$ 6 Toluene-d8 (Surr)	98	6.333	6.333	0.000	95	388305	10.0	9.66	
\$ 7 4-Bromofluorobenzene (Surr	95	8.746	8.746	0.000	78	126701	10.0	10.0	
9 Dichlorodifluoromethane	85	1.247	1.247	0.000	99	89573	10.0	10.3	
10 Chloromethane	50	1.401	1.401	0.000	99	182157	10.0	10.2	
11 Vinyl chloride	62	1.484	1.484	0.000	98	129471	10.0	9.86	
12 Butadiene	54	1.519	1.519	0.000	95	76586	10.0	10.3	
13 Bromomethane	94	1.768	1.768	0.000	91	59557	10.0	9.52	
14 Chloroethane	64	1.850	1.850	0.000	98	74548	10.0	10.6	
15 Dichlorofluoromethane	67	2.028	2.028	0.000	99	164760	10.0	9.27	
16 Trichlorofluoromethane	101	2.052	2.052	0.000	99	94875	10.0	10.0	
17 Ethyl ether	59	2.300	2.300	0.000	98	129451	10.0	10.4	
18 Acrolein	56	2.406	2.406	0.000	99	119223	50.0	50.3	
19 1,1-Dichloroethene	96	2.501	2.501	0.000	94	100715	10.0	10.6	
20 1,1,2-Trichloro-1,2,2-trif	151	2.525	2.525	0.000	93	45925	10.0	10.5	
21 Acetone	43	2.548	2.548	0.000	100	115530	20.0	21.8	
22 Iodomethane	142	2.631	2.631	0.000	96	114147	10.0	10.3	
24 Carbon disulfide	76	2.690	2.690	0.000	100	350621	10.0	10.5	
26 3-Chloro-1-propene	76	2.809	2.809	0.000	91	84698	10.0	9.85	
27 Methyl acetate	43	2.832	2.832	0.000	99	299742	20.0	21.1	
28 Methylene Chloride	84	2.915	2.915	0.000	97	119814	10.0	10.2	
29 2-Methyl-2-propanol	59	3.021	3.021	0.000	98	183739	100.0	110.6	
31 Acrylonitrile	53	3.128	3.128	0.000	99	727779	100.0	105.0	
30 trans-1,2-Dichloroethene	96	3.152	3.152	0.000	91	113370	10.0	10.3	
32 Methyl tert-butyl ether	73	3.152	3.152	0.000	98	344262	10.0	10.7	
33 Hexane	86	3.388	3.388	0.000	92	22347	10.0	10.5	
34 1,1-Dichloroethane	63	3.506	3.506	0.000	96	271075	10.0	10.4	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
35 Vinyl acetate	43	3.554	3.554	0.000	97	309795	10.0	9.91	
39 2,2-Dichloropropane	97	4.003	4.003	0.000	50	25966	10.0	10.5	
40 cis-1,2-Dichloroethene	96	4.003	4.003	0.000	87	131741	10.0	10.8	
41 2-Butanone (MEK)	43	4.015	4.015	0.000	99	187669	20.0	21.3	
45 Chlorobromomethane	128	4.204	4.204	0.000	87	53066	10.0	10.6	
46 Tetrahydrofuran	42	4.240	4.240	0.000	93	127746	20.0	20.7	
47 Chloroform	83	4.275	4.275	0.000	98	200134	10.0	10.5	
48 1,1,1-Trichloroethane	97	4.429	4.429	0.000	96	125222	10.0	10.4	
49 Cyclohexane	56	4.465	4.465	0.000	91	240944	10.0	10.6	
50 1,1-Dichloropropene	75	4.559	4.559	0.000	90	157561	10.0	10.6	
51 Carbon tetrachloride	117	4.559	4.559	0.000	73	101403	10.0	10.5	
52 Isobutyl alcohol	41	4.666	4.666	0.000	95	152214	250.0	270.2	
53 Benzene	78	4.737	4.737	0.000	98	521274	10.0	10.5	
54 1,2-Dichloroethane	62	4.748	4.748	0.000	96	190893	10.0	10.4	
56 n-Heptane	100	4.961	4.961	0.000	96	19537	10.0	11.6	
58 Trichloroethene	130	5.281	5.281	0.000	95	109296	10.0	10.6	
60 Methylcyclohexane	83	5.446	5.446	0.000	97	141004	10.0	10.7	
61 1,2-Dichloropropane	63	5.470	5.470	0.000	97	164272	10.0	10.5	
63 Dibromomethane	93	5.576	5.576	0.000	90	66754	10.0	10.5	
64 1,4-Dioxane	88	5.588	5.588	0.000	98	27049	200.0	213.4	
65 Dichlorobromomethane	83	5.707	5.707	0.000	97	147444	10.0	10.4	
67 2-Chloroethyl vinyl ether	63	5.967	5.967	0.000	91	241641	20.0	21.4	
68 cis-1,3-Dichloropropene	75	6.097	6.097	0.000	91	205433	10.0	10.5	
69 4-Methyl-2-pentanone (MIBK)	43	6.239	6.239	0.000	97	386894	20.0	21.3	
70 Toluene	91	6.393	6.393	0.000	97	504086	10.0	10.5	
71 trans-1,3-Dichloropropene	75	6.594	6.594	0.000	97	183024	10.0	10.9	
72 Ethyl methacrylate	69	6.676	6.676	0.000	94	194915	10.0	10.6	
73 1,1,2-Trichloroethane	97	6.759	6.759	0.000	93	107654	10.0	10.6	
74 Tetrachloroethene	164	6.889	6.889	0.000	91	57524	10.0	10.3	
75 1,3-Dichloropropane	76	6.901	6.901	0.000	98	197340	10.0	10.7	
76 2-Hexanone	43	6.984	6.984	0.000	96	259574	20.0	21.7	
78 Chlorodibromomethane	129	7.114	7.114	0.000	91	94601	10.0	10.8	
80 Ethylene Dibromide	107	7.221	7.221	0.000	97	99558	10.0	11.0	
82 Chlorobenzene	112	7.670	7.670	0.000	91	275411	10.0	10.8	
83 1,1,1,2-Tetrachloroethane	131	7.741	7.741	0.000	96	87822	10.0	11.0	
84 Ethylbenzene	106	7.765	7.765	0.000	99	152603	10.0	10.7	
85 m-Xylene & p-Xylene	106	7.883	7.883	0.000	99	183493	10.0	10.8	
86 o-Xylene	106	8.250	8.250	0.000	96	168052	10.0	10.6	
87 Styrene	104	8.261	8.261	0.000	94	299470	10.0	10.6	
88 Bromoform	173	8.439	8.439	0.000	93	52762	10.0	11.4	
89 Isopropylbenzene	105	8.605	8.605	0.000	96	394049	10.0	10.7	
93 Bromobenzene	156	8.888	8.888	0.000	94	83151	10.0	9.96	
92 1,1,2,2-Tetrachloroethane	83	8.888	8.888	0.000	78	133615	10.0	10.2	
94 1,2,3-Trichloropropane	110	8.924	8.924	0.000	85	37501	10.0	10.8	
95 trans-1,4-Dichloro-2-buten	53	8.948	8.948	0.000	88	53115	10.0	9.07	
96 N-Propylbenzene	120	8.995	8.995	0.000	100	98281	10.0	10.2	
97 2-Chlorotoluene	126	9.078	9.078	0.000	95	87963	10.0	10.1	
98 1,3,5-Trimethylbenzene	105	9.172	9.172	0.000	94	295183	10.0	10.5	
99 4-Chlorotoluene	126	9.184	9.184	0.000	98	94251	10.0	10.3	
100 tert-Butylbenzene	119	9.480	9.480	0.000	95	217722	10.0	10.4	
102 1,2,4-Trimethylbenzene	105	9.527	9.527	0.000	96	313247	10.0	10.4	
103 sec-Butylbenzene	105	9.693	9.693	0.000	94	304021	10.0	10.4	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
104 1,3-Dichlorobenzene	146	9.799	9.799	0.000	94	151080	10.0	10.0	
105 4-Isopropyltoluene	119	9.835	9.835	0.000	97	246570	10.0	10.5	
106 1,4-Dichlorobenzene	146	9.882	9.882	0.000	94	157477	10.0	10.3	
109 n-Butylbenzene	91	10.237	10.237	0.000	99	231231	10.0	10.5	
110 1,2-Dichlorobenzene	146	10.249	10.249	0.000	92	157537	10.0	10.5	
111 1,2-Dibromo-3-Chloropropan	157	11.018	11.018	0.000	74	23044	10.0	10.7	
113 1,2,4-Trichlorobenzene	180	11.846	11.846	0.000	92	70921	10.0	10.7	
114 Hexachlorobutadiene	225	12.011	12.011	0.000	87	16555	10.0	10.2	
115 Naphthalene	128	12.082	12.082	0.000	99	326917	10.0	9.38	
116 1,2,3-Trichlorobenzene	180	12.319	12.319	0.000	92	64230	10.0	9.70	
S 130 Xylenes, Total	106				0		20.0	21.5	
S 156 Total BTEX	1				0		50.0	53.2	
S 131 Trihalomethanes, Total	1				0		40.0	43.0	

Reagents:

VMRPRIMW_00369	Amount Added: 8.00	Units: uL
VMFASAW_00312	Amount Added: 8.00	Units: uL
VM50IS_00080	Amount Added: 1.00	Units: uL
VMRGAS_00323	Amount Added: 8.00	Units: uL
vm50ss_00387	Amount Added: 8.00	Units: uL



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5177.D
 Lims ID: STD8260 L4
 Client ID:
 Sample Type: IC Calib Level: 4
 Inject. Date: 15-Jan-2020 16:25:30 ALS Bottle#: 4 Worklist Smp#: 5
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0094937-005
 Operator ID: 001644 Instrument ID: A3UX10
 Sublist: chrom-8260_10*sub82
 Method: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 20-Jan-2020 16:51:30 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0309

First Level Reviewer: williamsla

Date: 20-Jan-2020 13:35:30

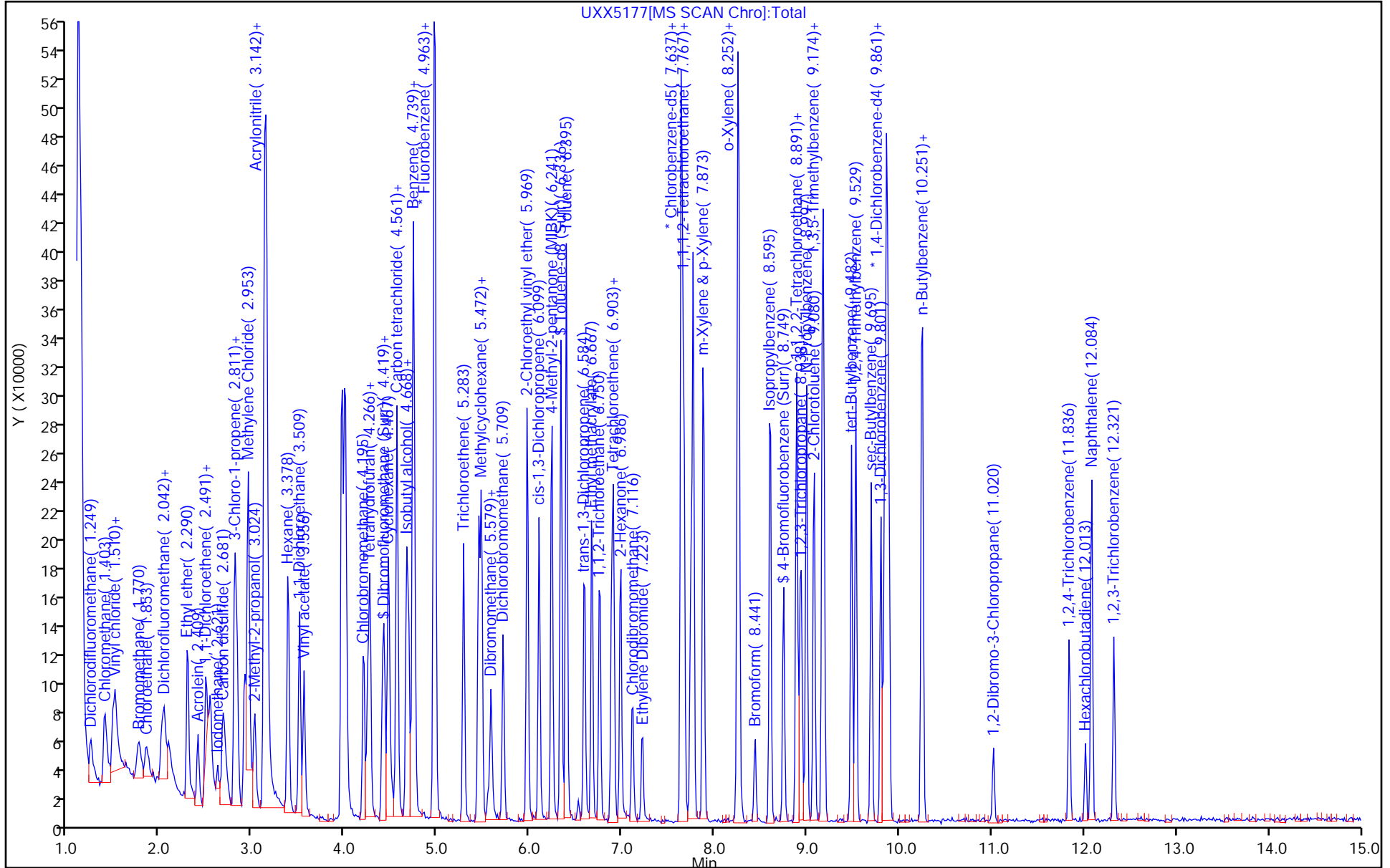
Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.975	4.975	0.000	98	395375	10.0	10.0	
* 2 Chlorobenzene-d5	117	7.637	7.637	0.000	91	263159	10.0	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.861	9.861	0.000	97	105917	10.0	10.0	
\$ 4 Dibromofluoromethane (Surr	113	4.408	4.408	0.000	92	44962	5.00	4.87	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	4.691	4.691	0.000	96	68712	5.00	5.06	
\$ 6 Toluene-d8 (Surr)	98	6.336	6.336	0.000	94	194389	5.00	4.80	
\$ 7 4-Bromofluorobenzene (Surr	95	8.749	8.749	0.000	79	62957	5.00	4.94	
9 Dichlorodifluoromethane	85	1.249	1.249	0.000	98	41891	5.00	4.89	
10 Chloromethane	50	1.391	1.391	0.000	98	85933	5.00	4.91	
11 Vinyl chloride	62	1.486	1.486	0.000	98	66500	5.00	5.15	
12 Butadiene	54	1.510	1.510	0.000	92	44552	5.00	5.90	
13 Bromomethane	94	1.758	1.758	0.000	88	32401	5.00	5.27	
14 Chloroethane	64	1.841	1.841	0.000	98	36120	5.00	5.22	
15 Dichlorofluoromethane	67	2.018	2.018	0.000	98	88338	5.00	5.06	
16 Trichlorofluoromethane	101	2.042	2.042	0.000	95	48652	5.00	5.24	
17 Ethyl ether	59	2.290	2.290	0.000	98	64767	5.00	5.32	
18 Acrolein	56	2.409	2.409	0.000	99	64403	25.0	27.6	
19 1,1-Dichloroethene	96	2.491	2.491	0.000	93	48165	5.00	5.17	
20 1,1,2-Trichloro-1,2,2-trif	151	2.515	2.515	0.000	41	20968	5.00	5.34	
21 Acetone	43	2.539	2.539	0.000	100	57675	10.0	10.1	
22 Iodomethane	142	2.621	2.621	0.000	96	56486	5.00	5.18	
24 Carbon disulfide	76	2.681	2.681	0.000	99	170025	5.00	5.21	
26 3-Chloro-1-propene	76	2.811	2.811	0.000	91	44624	5.00	5.28	
27 Methyl acetate	43	2.834	2.834	0.000	99	153053	10.0	11.0	
28 Methylene Chloride	84	2.917	2.917	0.000	96	60151	5.00	5.23	
29 2-Methyl-2-propanol	59	3.024	3.024	0.000	98	83819	50.0	51.3	
31 Acrylonitrile	53	3.130	3.130	0.000	100	358288	50.0	52.6	
30 trans-1,2-Dichloroethene	96	3.154	3.154	0.000	88	57846	5.00	5.36	
32 Methyl tert-butyl ether	73	3.154	3.154	0.000	97	156813	5.00	4.97	
33 Hexane	86	3.378	3.378	0.000	91	10877	5.00	5.22	
34 1,1-Dichloroethane	63	3.509	3.509	0.000	96	133331	5.00	5.23	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
35 Vinyl acetate	43	3.556	3.556	0.000	97	139049	5.00	4.85	
39 2,2-Dichloropropane	97	4.005	4.005	0.000	50	12641	5.00	5.22	
40 cis-1,2-Dichloroethene	96	4.005	4.005	0.000	88	62462	5.00	5.19	
41 2-Butanone (MEK)	43	4.017	4.017	0.000	99	85736	10.0	9.92	
45 Chlorobromomethane	128	4.206	4.206	0.000	86	25448	5.00	5.19	
46 Tetrahydrofuran	42	4.242	4.242	0.000	93	63550	10.0	10.5	
47 Chloroform	83	4.266	4.266	0.000	98	95814	5.00	5.13	
48 1,1,1-Trichloroethane	97	4.419	4.419	0.000	95	60526	5.00	5.11	
49 Cyclohexane	56	4.467	4.467	0.000	92	116343	5.00	5.19	
51 Carbon tetrachloride	117	4.561	4.561	0.000	75	51250	5.00	5.42	
50 1,1-Dichloropropene	75	4.561	4.561	0.000	88	74907	5.00	5.11	
52 Isobutyl alcohol	41	4.668	4.668	0.000	94	73630	125.0	127.5	
53 Benzene	78	4.739	4.739	0.000	98	260636	5.00	5.33	
54 1,2-Dichloroethane	62	4.751	4.751	0.000	95	94942	5.00	5.28	
56 n-Heptane	100	4.963	4.963	0.000	96	8836	5.00	5.35	
58 Trichloroethene	130	5.283	5.283	0.000	95	53807	5.00	5.30	
60 Methylcyclohexane	83	5.448	5.448	0.000	96	65075	5.00	5.03	
61 1,2-Dichloropropane	63	5.472	5.472	0.000	96	79871	5.00	5.19	
63 Dibromomethane	93	5.579	5.579	0.000	89	31602	5.00	5.05	
64 1,4-Dioxane	88	5.590	5.590	0.000	89	8358	100.0	86.6	
65 Dichlorobromomethane	83	5.709	5.709	0.000	97	72710	5.00	5.20	
67 2-Chloroethyl vinyl ether	63	5.969	5.969	0.000	91	119394	10.0	10.8	
68 cis-1,3-Dichloropropene	75	6.099	6.099	0.000	92	102349	5.00	5.35	
69 4-Methyl-2-pentanone (MIBK)	43	6.241	6.241	0.000	97	190519	10.0	10.7	
70 Toluene	91	6.395	6.395	0.000	98	248868	5.00	5.16	
71 trans-1,3-Dichloropropene	75	6.596	6.596	0.000	97	87136	5.00	5.15	
72 Ethyl methacrylate	69	6.667	6.667	0.000	93	101519	5.00	5.46	
73 1,1,2-Trichloroethane	97	6.761	6.761	0.000	91	54109	5.00	5.30	
74 Tetrachloroethene	164	6.892	6.892	0.000	93	28561	5.00	5.10	
75 1,3-Dichloropropane	76	6.903	6.903	0.000	97	95599	5.00	5.14	
76 2-Hexanone	43	6.986	6.986	0.000	97	127375	10.0	10.6	
78 Chlorodibromomethane	129	7.116	7.116	0.000	89	45488	5.00	5.15	
80 Ethylene Dibromide	107	7.223	7.223	0.000	96	47261	5.00	5.20	
82 Chlorobenzene	112	7.672	7.672	0.000	91	131794	5.00	5.12	
83 1,1,1,2-Tetrachloroethane	131	7.743	7.743	0.000	96	41967	5.00	5.22	
84 Ethylbenzene	106	7.767	7.767	0.000	99	74081	5.00	5.17	
85 m-Xylene & p-Xylene	106	7.873	7.873	0.000	98	86448	5.00	5.08	
86 o-Xylene	106	8.252	8.252	0.000	98	85719	5.00	5.38	
87 Styrene	104	8.264	8.264	0.000	94	145465	5.00	5.10	
88 Bromoform	173	8.441	8.441	0.000	92	26105	5.00	5.58	
89 Isopropylbenzene	105	8.607	8.607	0.000	96	192618	5.00	5.21	
92 1,1,2,2-Tetrachloroethane	83	8.891	8.891	0.000	79	67486	5.00	5.27	
93 Bromobenzene	156	8.891	8.891	0.000	94	40920	5.00	4.99	
94 1,2,3-Trichloropropane	110	8.926	8.926	0.000	86	19146	5.00	5.60	
95 trans-1,4-Dichloro-2-buten	53	8.938	8.938	0.000	87	25489	5.00	4.74	
96 N-Propylbenzene	120	8.997	8.997	0.000	100	47514	5.00	5.03	
97 2-Chlorotoluene	126	9.080	9.080	0.000	95	44478	5.00	5.22	
98 1,3,5-Trimethylbenzene	105	9.163	9.163	0.000	93	150264	5.00	5.44	
99 4-Chlorotoluene	126	9.186	9.186	0.000	98	47687	5.00	5.28	
100 tert-Butylbenzene	119	9.482	9.482	0.000	94	109170	5.00	5.30	
102 1,2,4-Trimethylbenzene	105	9.529	9.529	0.000	97	155708	5.00	5.26	
103 sec-Butylbenzene	105	9.695	9.695	0.000	95	155977	5.00	5.42	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
104 1,3-Dichlorobenzene	146	9.801	9.801	0.000	96	78243	5.00	5.28	
105 4-Isopropyltoluene	119	9.837	9.837	0.000	96	121479	5.00	5.29	
106 1,4-Dichlorobenzene	146	9.884	9.884	0.000	93	79180	5.00	5.26	
109 n-Butylbenzene	91	10.239	10.239	0.000	99	117002	5.00	5.41	
110 1,2-Dichlorobenzene	146	10.251	10.251	0.000	92	78394	5.00	5.31	
111 1,2-Dibromo-3-Chloropropan	157	11.020	11.020	0.000	74	12607	5.00	5.50	
113 1,2,4-Trichlorobenzene	180	11.836	11.836	0.000	93	36240	5.00	5.55	
114 Hexachlorobutadiene	225	12.013	12.013	0.000	88	8782	5.00	5.49	
115 Naphthalene	128	12.084	12.084	0.000	99	181044	5.00	5.29	
116 1,2,3-Trichlorobenzene	180	12.321	12.321	0.000	94	34569	5.00	5.32	
S 128 1,2-Dichloroethene, Total	96				0			10.5	
S 129 1,3-Dichloropropene, Total	75				0			10.5	
S 130 Xylenes, Total	106				0		10.0	10.5	
S 156 Total BTEX	1				0		25.0	26.1	
S 131 Trihalomethanes, Total	1				0		20.0	21.1	

Reagents:

VMRPRIMW_00369	Amount Added: 4.00	Units: uL
VMFASAW_00312	Amount Added: 4.00	Units: uL
VM50IS_00080	Amount Added: 1.00	Units: uL
VMRGAS_00323	Amount Added: 4.00	Units: uL
vm50ss_00387	Amount Added: 4.00	Units: uL



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5178.D
 Lims ID: STD8260 L3
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 15-Jan-2020 16:50:30 ALS Bottle#: 5 Worklist Smp#: 6
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0094937-006
 Operator ID: 001644 Instrument ID: A3UX10
 Sublist: chrom-8260_10*sub82
 Method: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 20-Jan-2020 16:51:39 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0309

First Level Reviewer: williamsla

Date: 20-Jan-2020 15:36:18

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.974	4.975	-0.001	97	393679	10.0	10.0	
* 2 Chlorobenzene-d5	117	7.636	7.637	-0.001	90	263400	10.0	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.859	9.861	-0.001	97	103243	10.0	10.0	
\$ 4 Dibromofluoromethane (Surr	113	4.406	4.408	-0.002	92	37185	4.00	4.04	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	4.690	4.691	-0.001	95	55814	4.00	4.13	
\$ 6 Toluene-d8 (Surr)	98	6.335	6.336	-0.001	95	160706	4.00	3.97	
\$ 7 4-Bromofluorobenzene (Surr	95	8.748	8.749	-0.001	79	51023	4.00	4.00	
9 Dichlorodifluoromethane	85	1.248	1.249	-0.001	98	33680	4.00	3.95	
10 Chloromethane	50	1.402	1.391	0.011	99	68617	4.00	3.94	
11 Vinyl chloride	62	1.485	1.486	-0.001	97	51236	4.00	3.99	
12 Butadiene	54	1.520	1.510	0.010	92	28448	4.00	3.63	
13 Bromomethane	94	1.769	1.758	0.011	92	24430	4.00	3.99	
14 Chloroethane	64	1.852	1.841	0.011	97	26016	4.00	3.78	
15 Dichlorofluoromethane	67	2.017	2.018	-0.001	98	67854	4.00	3.91	
16 Trichlorofluoromethane	101	2.053	2.042	0.011	97	37050	4.00	4.01	
17 Ethyl ether	59	2.301	2.290	0.011	99	47544	4.00	3.92	
18 Acrolein	56	2.407	2.409	-0.002	98	48809	20.0	21.0	
19 1,1-Dichloroethene	96	2.490	2.491	-0.001	94	38047	4.00	4.10	
20 1,1,2-Trichloro-1,2,2-trif	151	2.514	2.515	-0.001	45	14837	4.00	4.05	
21 Acetone	43	2.549	2.539	0.010	99	49433	8.00	8.41	
22 Iodomethane	142	2.632	2.621	0.011	97	42781	4.00	3.94	
24 Carbon disulfide	76	2.680	2.681	-0.001	99	131388	4.00	4.04	
26 3-Chloro-1-propene	76	2.810	2.811	-0.001	91	35023	4.00	4.16	
27 Methyl acetate	43	2.833	2.834	-0.001	99	113148	8.00	8.13	
28 Methylene Chloride	84	2.916	2.917	-0.001	97	43982	4.00	3.84	
29 2-Methyl-2-propanol	59	3.023	3.024	-0.001	98	62130	40.0	38.2	
31 Acrylonitrile	53	3.129	3.130	-0.001	99	267966	40.0	39.5	
30 trans-1,2-Dichloroethene	96	3.153	3.154	-0.001	88	41658	4.00	3.87	
32 Methyl tert-butyl ether	73	3.153	3.154	-0.001	97	125702	4.00	4.00	
33 Hexane	86	3.389	3.378	0.011	92	8352	4.00	4.03	
34 1,1-Dichloroethane	63	3.508	3.509	-0.001	95	102290	4.00	4.03	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
35 Vinyl acetate	43	3.555	3.556	-0.001	96	100952	4.00	3.70	
39 2,2-Dichloropropane	97	4.004	4.005	-0.001	61	10781	4.00	4.47	
40 cis-1,2-Dichloroethene	96	4.004	4.005	-0.001	89	44803	4.00	3.74	
41 2-Butanone (MEK)	43	4.016	4.017	-0.001	98	68978	8.00	8.01	
45 Chlorobromomethane	128	4.205	4.206	-0.001	86	18971	4.00	3.89	
46 Tetrahydrofuran	42	4.241	4.242	-0.001	95	45424	8.00	7.53	
47 Chloroform	83	4.265	4.266	-0.001	97	75432	4.00	4.05	
48 1,1,1-Trichloroethane	97	4.430	4.419	0.011	95	48446	4.00	4.11	
49 Cyclohexane	56	4.466	4.467	-0.001	91	92889	4.00	4.16	
50 1,1-Dichloropropene	75	4.560	4.561	-0.001	90	58913	4.00	4.04	
51 Carbon tetrachloride	117	4.560	4.561	-0.001	73	39488	4.00	4.20	
52 Isobutyl alcohol	41	4.667	4.668	-0.001	96	51890	100.0	88.4	
53 Benzene	78	4.738	4.739	-0.001	97	197778	4.00	4.06	
54 1,2-Dichloroethane	62	4.750	4.751	-0.001	95	69151	4.00	3.86	
56 n-Heptane	100	4.962	4.963	-0.001	96	6183	4.00	3.76	
58 Trichloroethene	130	5.282	5.283	-0.001	93	39540	4.00	3.91	
60 Methylcyclohexane	83	5.447	5.448	-0.001	96	53694	4.00	4.16	
61 1,2-Dichloropropane	63	5.471	5.472	-0.001	96	61647	4.00	4.03	
63 Dibromomethane	93	5.578	5.579	-0.001	83	25254	4.00	4.05	
64 1,4-Dioxane	88	5.601	5.590	0.011	81	5481	80.0	68.4	
65 Dichlorobromomethane	83	5.708	5.709	-0.001	98	56640	4.00	4.07	
67 2-Chloroethyl vinyl ether	63	5.968	5.969	-0.001	92	89098	8.00	8.06	
68 cis-1,3-Dichloropropene	75	6.098	6.099	-0.001	91	76037	4.00	3.99	
69 4-Methyl-2-pentanone (MIBK)	43	6.240	6.241	-0.001	97	149794	8.00	8.41	
70 Toluene	91	6.394	6.395	-0.001	96	190560	4.00	3.95	
71 trans-1,3-Dichloropropene	75	6.595	6.596	-0.001	98	68179	4.00	4.02	
72 Ethyl methacrylate	69	6.678	6.667	0.011	95	72802	4.00	3.91	
73 1,1,2-Trichloroethane	97	6.760	6.761	-0.001	93	39718	4.00	3.89	
74 Tetrachloroethene	164	6.890	6.892	-0.002	92	22751	4.00	4.06	
75 1,3-Dichloropropane	76	6.902	6.903	-0.001	97	74760	4.00	4.02	
76 2-Hexanone	43	6.985	6.986	-0.001	97	97100	8.00	8.08	
78 Chlorodibromomethane	129	7.115	7.116	-0.001	89	34500	4.00	3.90	
80 Ethylene Dibromide	107	7.222	7.223	-0.001	99	35096	4.00	3.86	
82 Chlorobenzene	112	7.671	7.672	-0.001	90	100955	4.00	3.92	
83 1,1,1,2-Tetrachloroethane	131	7.742	7.743	-0.001	96	32187	4.00	4.00	
84 Ethylbenzene	106	7.766	7.767	-0.001	99	55060	4.00	3.84	
85 m-Xylene & p-Xylene	106	7.872	7.873	-0.001	99	66882	4.00	3.93	
86 o-Xylene	106	8.251	8.252	-0.001	98	64763	4.00	4.06	
87 Styrene	104	8.263	8.264	-0.001	94	112067	4.00	3.93	
88 Bromoform	173	8.440	8.441	-0.001	90	17599	4.00	3.76	
89 Isopropylbenzene	105	8.606	8.607	-0.001	96	148004	4.00	4.00	
93 Bromobenzene	156	8.890	8.891	-0.001	95	30286	4.00	3.79	
92 1,1,2,2-Tetrachloroethane	83	8.890	8.891	-0.001	78	49998	4.00	4.01	
94 1,2,3-Trichloropropane	110	8.925	8.926	-0.001	86	13733	4.00	4.12	
95 trans-1,4-Dichloro-2-buten	53	8.949	8.938	0.011	90	18866	4.00	3.74	
96 N-Propylbenzene	120	8.996	8.997	-0.001	100	36476	4.00	3.96	
97 2-Chlorotoluene	126	9.079	9.080	-0.001	95	34073	4.00	4.10	
98 1,3,5-Trimethylbenzene	105	9.162	9.163	-0.001	94	106414	4.00	3.95	
99 4-Chlorotoluene	126	9.185	9.186	-0.001	99	36045	4.00	4.10	
100 tert-Butylbenzene	119	9.481	9.482	-0.001	95	84741	4.00	4.22	
102 1,2,4-Trimethylbenzene	105	9.528	9.529	-0.001	96	118715	4.00	4.11	
103 sec-Butylbenzene	105	9.694	9.695	-0.001	95	115720	4.00	4.12	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
104 1,3-Dichlorobenzene	146	9.800	9.801	-0.001	95	59183	4.00	4.10	
105 4-Isopropyltoluene	119	9.836	9.837	-0.001	97	95048	4.00	4.24	
106 1,4-Dichlorobenzene	146	9.883	9.884	-0.001	94	60314	4.00	4.11	
109 n-Butylbenzene	91	10.238	10.239	-0.001	98	87348	4.00	4.14	
110 1,2-Dichlorobenzene	146	10.250	10.251	-0.001	93	59299	4.00	4.12	
111 1,2-Dibromo-3-Chloropropan	157	11.019	11.020	-0.001	75	8781	4.00	3.84	
113 1,2,4-Trichlorobenzene	180	11.847	11.836	0.011	89	27711	4.00	4.35	
114 Hexachlorobutadiene	225	12.012	12.013	-0.001	83	6441	4.00	4.13	
115 Naphthalene	128	12.083	12.084	-0.001	99	135986	4.00	4.08	
116 1,2,3-Trichlorobenzene	180	12.320	12.321	-0.001	93	25501	4.00	4.02	
S 128 1,2-Dichloroethene, Total	96				0			7.61	
S 129 1,3-Dichloropropene, Total	75				0			8.01	
S 130 Xylenes, Total	106				0		8.00	7.98	
S 156 Total BTEX	1				0		20.0	19.8	
S 131 Trihalomethanes, Total	1				0		16.0	15.8	

Reagents:

VMRPRIMW_00369	Amount Added: 3.20	Units: uL
VMFASAW_00312	Amount Added: 3.20	Units: uL
VM50IS_00080	Amount Added: 1.00	Units: uL
VMRGAS_00323	Amount Added: 3.20	Units: uL
vm50ss_00387	Amount Added: 3.20	Units: uL

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5178.D

Injection Date: 15-Jan-2020 16:50:30

Instrument ID: A3UX10

Operator ID: 001644

Lims ID: STD8260 L3

Worklist Smp#: 6

Client ID:

Purge Vol: 5.000 mL

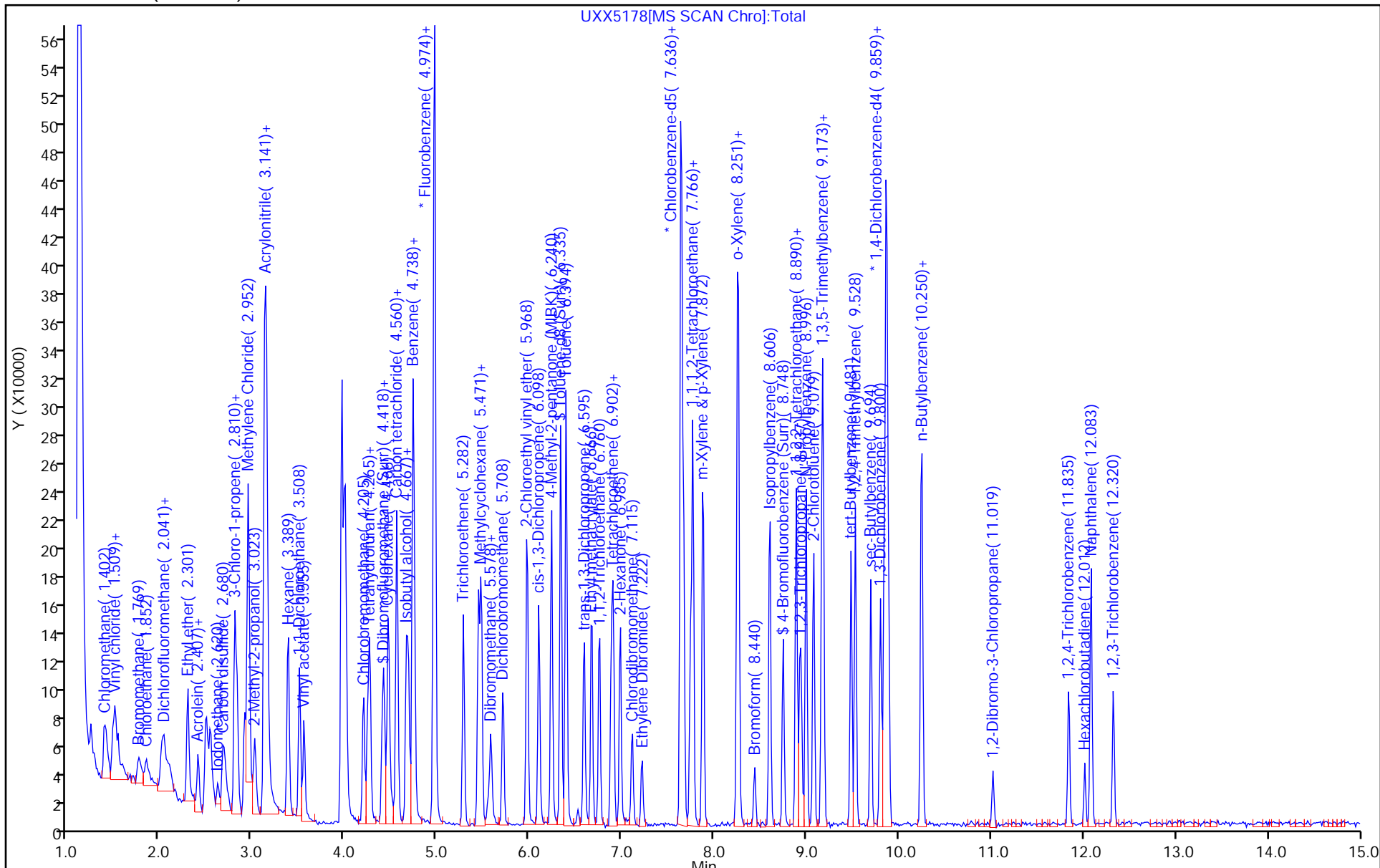
Dil. Factor: 1.0000

ALS Bottle#: 5

Method: 8260_10

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5179.D
 Lims ID: STD8260 L2
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 15-Jan-2020 17:15:30 ALS Bottle#: 6 Worklist Smp#: 7
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0094937-007
 Operator ID: 001644 Instrument ID: A3UX10
 Sublist: chrom-8260_10*sub82
 Method: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 20-Jan-2020 16:51:46 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0309

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.976	4.975	0.001	98	387711	10.0	10.0	
* 2 Chlorobenzene-d5	117	7.637	7.637	0.000	91	254745	10.0	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.861	9.861	0.001	97	103175	10.0	10.0	
\$ 4 Dibromofluoromethane (Surr	113	4.408	4.408	0.000	89	18094	2.00	2.00	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	4.692	4.691	0.001	94	26957	2.00	2.03	
\$ 6 Toluene-d8 (Surr)	98	6.336	6.336	0.000	96	78667	2.00	2.01	
\$ 7 4-Bromofluorobenzene (Surr	95	8.749	8.749	0.000	78	25288	2.00	2.05	
9 Dichlorodifluoromethane	85	1.250	1.249	0.001	98	16579	2.00	1.97	
10 Chloromethane	50	1.392	1.391	0.001	99	33571	2.00	1.96	
11 Vinyl chloride	62	1.487	1.486	0.001	97	25364	2.00	2.00	
12 Butadiene	54	1.510	1.510	0.000	91	14274	2.00	1.64	
13 Bromomethane	94	1.770	1.758	0.012	87	13424	2.00	2.23	
14 Chloroethane	64	1.853	1.841	0.012	98	12664	2.00	1.87	
15 Dichlorofluoromethane	67	2.019	2.018	0.001	96	35107	2.00	2.05	
16 Trichlorofluoromethane	101	2.043	2.042	0.001	92	16539	2.00	1.82	
17 Ethyl ether	59	2.303	2.290	0.013	92	25076	2.00	2.10	
18 Acrolein	56	2.409	2.409	0.000	94	25566	10.0	11.2	
19 1,1-Dichloroethene	96	2.492	2.491	0.001	94	18341	2.00	2.01	
20 1,1,2-Trichloro-1,2,2-trif	151	2.516	2.515	0.001	42	3454	2.00	1.61	
21 Acetone	43	2.539	2.539	0.000	99	29985	4.00	4.39	
22 Iodomethane	142	2.622	2.621	0.001	95	21134	2.00	1.98	
24 Carbon disulfide	76	2.693	2.681	0.012	100	63899	2.00	2.00	
26 3-Chloro-1-propene	76	2.811	2.811	0.000	91	15710	2.00	1.90	
27 Methyl acetate	43	2.835	2.834	0.001	99	53355	4.00	3.89	
28 Methylene Chloride	84	2.918	2.917	0.001	98	23178	2.00	2.06	
29 2-Methyl-2-propanol	59	3.024	3.024	0.000	99	32261	20.0	20.1	
31 Acrylonitrile	53	3.131	3.130	0.001	99	136584	20.0	20.5	
30 trans-1,2-Dichloroethene	96	3.143	3.154	-0.011	90	20309	2.00	1.92	
32 Methyl tert-butyl ether	73	3.154	3.154	0.000	97	60357	2.00	1.95	
33 Hexane	86	3.379	3.378	0.001	89	3912	2.00	1.91	
34 1,1-Dichloroethane	63	3.509	3.509	0.000	96	51406	2.00	2.05	
35 Vinyl acetate	43	3.557	3.556	0.001	96	42604	2.00	1.93	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
39 2,2-Dichloropropane	97	4.006	4.005	0.001	40	4499	2.00	1.89	
40 cis-1,2-Dichloroethene	96	4.006	4.005	0.001	87	23327	2.00	1.98	
41 2-Butanone (MEK)	43	4.018	4.017	0.001	99	38232	4.00	4.51	
45 Chlorobromomethane	128	4.207	4.206	0.001	87	9314	2.00	1.94	
46 Tetrahydrofuran	42	4.243	4.242	0.001	90	25452	4.00	4.29	
47 Chloroform	83	4.266	4.266	0.000	95	38353	2.00	2.09	
48 1,1,1-Trichloroethane	97	4.420	4.419	0.001	94	24363	2.00	2.10	
49 Cyclohexane	56	4.467	4.467	0.000	90	42667	2.00	1.94	
51 Carbon tetrachloride	117	4.562	4.561	0.001	68	17573	2.00	1.90	
50 1,1-Dichloropropene	75	4.562	4.561	0.001	90	29124	2.00	2.03	
52 Isobutyl alcohol	41	4.668	4.668	0.000	97	37582	50.0	65.1	
53 Benzene	78	4.739	4.739	0.000	97	93751	2.00	1.95	
54 1,2-Dichloroethane	62	4.751	4.751	0.000	97	34090	2.00	1.93	
56 n-Heptane	100	4.964	4.963	0.001	91	3016	2.00	1.86	
58 Trichloroethene	130	5.284	5.283	0.001	94	20817	2.00	2.09	
60 Methylcyclohexane	83	5.449	5.448	0.001	94	23572	2.00	1.86	
61 1,2-Dichloropropane	63	5.473	5.472	0.001	96	30035	2.00	1.99	
63 Dibromomethane	93	5.579	5.579	0.000	88	11876	2.00	1.94	
64 1,4-Dioxane	88	5.591	5.590	0.001	40	3204	40.0	54.4	
65 Dichlorobromomethane	83	5.709	5.709	0.000	97	28201	2.00	2.06	
67 2-Chloroethyl vinyl ether	63	5.970	5.969	0.001	90	44119	4.00	4.05	
68 cis-1,3-Dichloropropene	75	6.100	6.099	0.001	91	37132	2.00	1.98	
69 4-Methyl-2-pentanone (MIBK)	43	6.242	6.241	0.001	97	73911	4.00	4.22	
70 Toluene	91	6.395	6.395	0.000	96	95639	2.00	2.05	
71 trans-1,3-Dichloropropene	75	6.585	6.596	-0.011	97	30847	2.00	1.88	
72 Ethyl methacrylate	69	6.667	6.667	0.000	95	35561	2.00	1.98	
73 1,1,2-Trichloroethane	97	6.750	6.761	-0.011	92	19641	2.00	1.99	
74 Tetrachloroethene	164	6.880	6.892	-0.012	89	10579	2.00	1.95	
75 1,3-Dichloropropane	76	6.904	6.903	0.001	98	34250	2.00	1.90	
76 2-Hexanone	43	6.975	6.986	-0.011	95	49553	4.00	4.26	
78 Chlorodibromomethane	129	7.117	7.116	0.001	89	15988	2.00	1.87	
80 Ethylene Dibromide	107	7.212	7.223	-0.011	99	17038	2.00	1.94	
82 Chlorobenzene	112	7.673	7.672	0.001	91	50513	2.00	2.03	
83 1,1,1,2-Tetrachloroethane	131	7.744	7.743	0.001	94	16020	2.00	2.06	
84 Ethylbenzene	106	7.768	7.767	0.001	98	27299	2.00	1.97	
85 m-Xylene & p-Xylene	106	7.874	7.873	0.001	98	32596	2.00	1.98	
86 o-Xylene	106	8.253	8.252	0.000	97	32337	2.00	2.10	
87 Styrene	104	8.264	8.264	0.000	95	56348	2.00	2.04	
88 Bromoform	173	8.442	8.441	0.001	78	8554	2.00	1.89	
89 Isopropylbenzene	105	8.596	8.607	-0.011	96	74013	2.00	2.07	
92 1,1,2,2-Tetrachloroethane	83	8.891	8.891	0.000	78	25562	2.00	2.05	
93 Bromobenzene	156	8.891	8.891	0.000	94	15762	2.00	1.97	
94 1,2,3-Trichloropropane	110	8.927	8.926	0.001	86	7129	2.00	2.14	
95 trans-1,4-Dichloro-2-buten	53	8.939	8.938	0.001	71	8016	2.00	1.94	
96 N-Propylbenzene	120	8.998	8.997	0.001	99	18177	2.00	1.98	
97 2-Chlorotoluene	126	9.080	9.080	0.000	95	16698	2.00	2.01	
98 1,3,5-Trimethylbenzene	105	9.163	9.163	0.000	95	53769	2.00	2.00	
99 4-Chlorotoluene	126	9.187	9.186	0.001	99	16643	2.00	1.89	
100 tert-Butylbenzene	119	9.483	9.482	0.001	93	41045	2.00	2.04	
102 1,2,4-Trimethylbenzene	105	9.530	9.529	0.001	97	58546	2.00	2.03	
103 sec-Butylbenzene	105	9.696	9.695	0.001	94	57391	2.00	2.05	
104 1,3-Dichlorobenzene	146	9.802	9.801	0.001	94	28783	2.00	1.99	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
105 4-Isopropyltoluene	119	9.838	9.837	0.001	98	46502	2.00	2.08	
106 1,4-Dichlorobenzene	146	9.885	9.884	0.001	91	28924	2.00	1.97	
109 n-Butylbenzene	91	10.240	10.239	0.001	98	43467	2.00	2.06	
110 1,2-Dichlorobenzene	146	10.252	10.251	0.001	92	29223	2.00	2.03	
111 1,2-Dibromo-3-Chloropropan	157	11.020	11.020	0.000	72	4546	2.00	1.94	
113 1,2,4-Trichlorobenzene	180	11.837	11.836	0.001	92	13282	2.00	2.09	
114 Hexachlorobutadiene	225	12.014	12.013	0.001	87	3460	2.00	2.22	
115 Naphthalene	128	12.085	12.084	0.001	99	69402	2.00	2.08	
116 1,2,3-Trichlorobenzene	180	12.322	12.321	0.001	91	11763	2.00	1.86	
S 128 1,2-Dichloroethene, Total	96				0			3.90	
S 129 1,3-Dichloropropene, Total	75				0			3.86	
S 130 Xylenes, Total	106				0		4.00	4.07	
S 156 Total BTEX	1				0		10.0	10.0	
S 131 Trihalomethanes, Total	1				0		8.00	7.91	

Reagents:

VMRPRIMW_00369	Amount Added: 1.60	Units: uL
VMFASAW_00312	Amount Added: 1.60	Units: uL
VM50IS_00080	Amount Added: 1.00	Units: uL
VMRGAS_00323	Amount Added: 1.60	Units: uL
vm50ss_00387	Amount Added: 1.60	Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5179.D

Injection Date: 15-Jan-2020 17:15:30

Instrument ID: A3UX10

Operator ID: 001644

Lims ID: STD8260 L2

Worklist Smp#: 7

Client ID:

Purge Vol: 5.000 mL

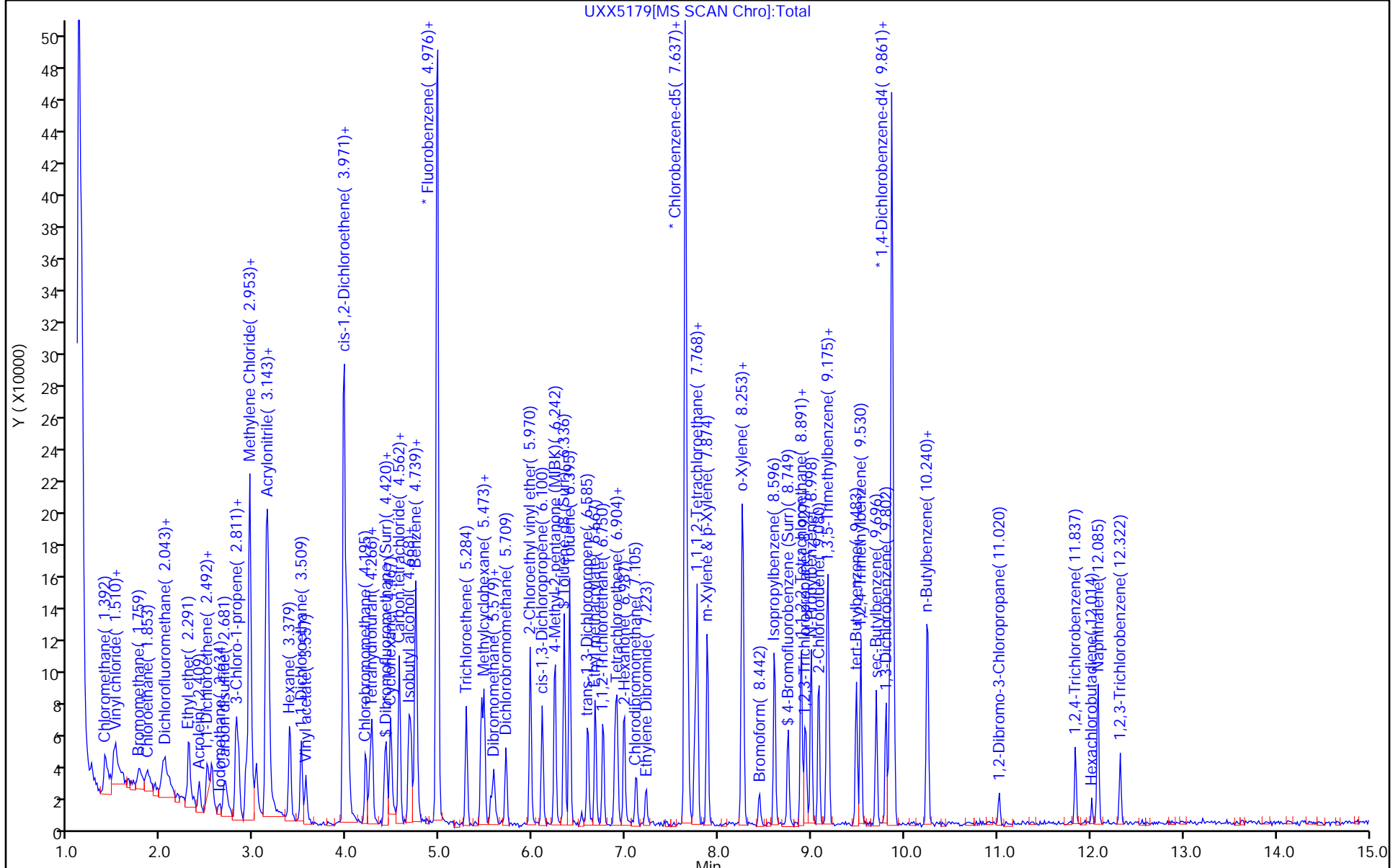
Dil. Factor: 1.0000

ALS Bottle#: 6

Method: 8260_10

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5180.D
 Lims ID: STD8260 L1
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 15-Jan-2020 17:40:30 ALS Bottle#: 7 Worklist Smp#: 8
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0094937-008
 Operator ID: 001644 Instrument ID: A3UX10
 Sublist: chrom-8260_10*sub82
 Method: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 20-Jan-2020 17:05:45 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0309

First Level Reviewer: williamsla

Date: 16-Jan-2020 10:14:44

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.973	4.972	0.001	98	384916	10.0	10.0	
* 2 Chlorobenzene-d5	117	7.647	7.646	0.001	90	253100	10.0	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.870	9.869	0.001	97	100004	10.0	10.0	
\$ 4 Dibromofluoromethane (Surr	113	4.406	4.408	-0.002	89	9272	1.00	1.03	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	4.689	4.691	-0.002	89	13590	1.00	1.03	
\$ 6 Toluene-d8 (Surr)	98	6.334	6.336	-0.002	95	44192	1.00	1.14	
\$ 7 4-Bromofluorobenzene (Surr	95	8.747	8.749	-0.002	77	12999	1.00	1.06	
9 Dichlorodifluoromethane	85	1.247	1.249	-0.002	93	8588	1.00	1.03	
10 Chloromethane	50	1.401	1.391	0.010	96	16600	1.00	0.9738	
11 Vinyl chloride	62	1.496	1.486	0.010	95	12374	1.00	0.9850	
12 Butadiene	54	1.508	1.510	-0.002	59	10294	1.00	1.07	
13 Bromomethane	94	1.768	1.758	0.010	82	6719	1.00	1.12	
14 Chloroethane	64	1.851	1.841	0.010	89	6234	1.00	0.9263	
15 Dichlorofluoromethane	67	2.028	2.018	0.010	76	22111	1.00	1.30	
16 Trichlorofluoromethane	101	2.064	2.042	0.022	90	8487	1.00	0.9394	
17 Ethyl ether	59	2.300	2.290	0.010	96	11022	1.00	0.9291	
18 Acrolein	56	2.407	2.409	-0.002	97	10247	5.00	4.52	
19 1,1-Dichloroethene	96	2.489	2.491	-0.002	90	8368	1.00	0.9223	
20 1,1,2-Trichloro-1,2,2-trif	151	2.513	2.515	-0.002	40	1003	1.00	1.08	
21 Acetone	43	2.548	2.539	0.009	97	16660	2.00	1.56	
22 Iodomethane	142	2.619	2.621	-0.002	93	9168	1.00	0.8643	
24 Carbon disulfide	76	2.690	2.681	0.009	99	29441	1.00	0.9260	
26 3-Chloro-1-propene	76	2.809	2.811	-0.002	91	7394	1.00	0.8993	
27 Methyl acetate	43	2.832	2.834	-0.002	99	24455	2.00	1.80	
28 Methylene Chloride	84	2.915	2.917	-0.002	92	10827	1.00	0.9674	
29 2-Methyl-2-propanol	59	3.022	3.024	-0.002	99	16060	10.0	10.1	
31 Acrylonitrile	53	3.128	3.130	-0.002	100	62326	10.0	9.40	
30 trans-1,2-Dichloroethene	96	3.152	3.154	-0.002	90	9928	1.00	0.9442	
32 Methyl tert-butyl ether	73	3.152	3.154	-0.002	98	29432	1.00	0.9588	
33 Hexane	86	3.388	3.378	0.010	92	1843	1.00	0.9085	
34 1,1-Dichloroethane	63	3.507	3.509	-0.002	95	22348	1.00	0.8997	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
35 Vinyl acetate	43	3.554	3.556	-0.002	96	16668	1.00	1.12	
40 cis-1,2-Dichloroethene	96	4.003	4.005	-0.002	84	11048	1.00	0.9433	
39 2,2-Dichloropropane	97	4.003	4.005	-0.002	61	2112	1.00	0.8959	
41 2-Butanone (MEK)	43	4.015	4.017	-0.002	82	16294	2.00	1.94	
45 Chlorobromomethane	128	4.204	4.206	-0.002	88	3985	1.00	0.8354	
46 Tetrahydrofuran	42	4.252	4.242	0.010	93	13222	2.00	2.24	
47 Chloroform	83	4.275	4.266	0.009	95	16664	1.00	0.9161	
48 1,1,1-Trichloroethane	97	4.429	4.419	0.010	91	10906	1.00	0.9464	
49 Cyclohexane	56	4.465	4.467	-0.002	93	20523	1.00	0.9407	
51 Carbon tetrachloride	117	4.571	4.561	0.010	80	7596	1.00	0.8256	
50 1,1-Dichloropropene	75	4.559	4.561	-0.002	87	13086	1.00	0.9170	
52 Isobutyl alcohol	41	4.666	4.668	-0.002	96	12344	25.0	18.4	
53 Benzene	78	4.737	4.739	-0.002	98	44716	1.00	0.9390	
54 1,2-Dichloroethane	62	4.760	4.751	0.009	95	17578	1.00	1.00	
56 n-Heptane	100	4.961	4.963	-0.002	33	1287	1.00	0.8005	
58 Trichloroethene	130	5.281	5.283	-0.002	92	8538	1.00	0.8635	
60 Methylcyclohexane	83	5.446	5.448	-0.002	87	12478	1.00	0.9899	
61 1,2-Dichloropropane	63	5.482	5.472	0.010	93	14848	1.00	0.99	
63 Dibromomethane	93	5.577	5.579	-0.002	85	5684	1.00	0.9329	
64 1,4-Dioxane	88		5.590				ND	ND	U
65 Dichlorobromomethane	83	5.707	5.709	-0.002	95	12241	1.00	0.8995	
67 2-Chloroethyl vinyl ether	63	5.967	5.969	-0.002	89	18817	2.00	1.74	
68 cis-1,3-Dichloropropene	75	6.097	6.099	-0.002	89	16420	1.00	0.8812	
69 4-Methyl-2-pentanone (MIBK)	43	6.239	6.241	-0.002	97	34518	2.00	1.98	
70 Toluene	91	6.393	6.395	-0.002	98	43545	1.00	0.9393	
71 trans-1,3-Dichloropropene	75	6.594	6.596	-0.002	96	13691	1.00	0.8410	
72 Ethyl methacrylate	69	6.677	6.667	0.010	93	17569	1.00	0.9830	
73 1,1,2-Trichloroethane	97	6.759	6.761	-0.002	91	9626	1.00	0.9799	
74 Tetrachloroethene	164	6.890	6.892	-0.002	89	4815	1.00	0.8947	
75 1,3-Dichloropropane	76	6.901	6.903	-0.002	97	16566	1.00	0.9266	
76 2-Hexanone	43	6.984	6.986	-0.002	94	21037	2.00	1.82	
78 Chlorodibromomethane	129	7.114	7.116	-0.002	86	8260	1.00	0.9723	
80 Ethylene Dibromide	107	7.221	7.223	-0.002	93	7801	1.00	0.8922	
82 Chlorobenzene	112	7.670	7.672	-0.002	88	22854	1.00	0.9230	
83 1,1,1,2-Tetrachloroethane	131	7.741	7.743	-0.002	90	6659	1.00	0.8612	
84 Ethylbenzene	106	7.765	7.767	-0.002	98	13519	1.00	0.9818	
85 m-Xylene & p-Xylene	106	7.883	7.873	0.010	99	16104	1.00	0.9836	
86 o-Xylene	106	8.250	8.252	-0.002	97	13792	1.00	0.8996	
87 Styrene	104	8.262	8.264	-0.002	94	27230	1.00	0.99	
88 Bromoform	173	8.439	8.441	-0.002	91	3862	1.00	0.8587	
89 Isopropylbenzene	105	8.605	8.607	-0.002	96	36550	1.00	1.03	
93 Bromobenzene	156	8.889	8.891	-0.002	91	7291	1.00	0.9421	
92 1,1,2,2-Tetrachloroethane	83	8.889	8.891	-0.002	72	11743	1.00	0.9712	
94 1,2,3-Trichloropropane	110	8.924	8.926	-0.002	28	2226	1.00	0.6891	
95 trans-1,4-Dichloro-2-buten	53	8.936	8.938	-0.002	67	3793	1.00	1.25	
96 N-Propylbenzene	120	8.995	8.997	-0.002	99	8859	1.00	0.99	
97 2-Chlorotoluene	126	9.078	9.080	-0.002	95	7413	1.00	0.9207	
98 1,3,5-Trimethylbenzene	105	9.161	9.163	-0.002	96	24944	1.00	0.9557	
99 4-Chlorotoluene	126	9.184	9.186	-0.002	97	7566	1.00	0.8877	
100 tert-Butylbenzene	119	9.480	9.482	-0.002	95	18959	1.00	0.9745	
102 1,2,4-Trimethylbenzene	105	9.527	9.529	-0.002	95	28614	1.00	1.02	
103 sec-Butylbenzene	105	9.693	9.695	-0.002	94	27586	1.00	1.01	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
104 1,3-Dichlorobenzene	146	9.799	9.801	-0.002	90	13128	1.00	0.9388	
105 4-Isopropyltoluene	119	9.835	9.837	-0.002	95	21058	1.00	0.9704	
106 1,4-Dichlorobenzene	146	9.882	9.884	-0.002	91	13017	1.00	0.9152	
109 n-Butylbenzene	91	10.237	10.239	-0.002	97	21792	1.00	1.07	
110 1,2-Dichlorobenzene	146	10.249	10.251	-0.002	92	14294	1.00	1.03	
111 1,2-Dibromo-3-Chloropropan	157	11.018	11.020	-0.002	65	1480	1.00	0.6524	
113 1,2,4-Trichlorobenzene	180	11.846	11.836	0.010	87	5926	1.00	0.9611	
114 Hexachlorobutadiene	225		12.013				ND	ND	
115 Naphthalene	128	12.082	12.084	-0.002	98	30522	1.00	0.9445	
116 1,2,3-Trichlorobenzene	180	12.331	12.321	0.010	89	6329	1.00	1.03	
S 128 1,2-Dichloroethene, Total	96				0			1.89	
S 129 1,3-Dichloropropene, Total	75				0			1.72	
S 130 Xylenes, Total	106				0		2.00	1.88	
S 156 Total BTEX	1				0		5.00	4.74	
S 131 Trihalomethanes, Total	1				0		4.00	3.65	

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

Review Flags

U - Marked Undetected

Reagents:

VMRPRIMW_00369	Amount Added: 0.80	Units: uL
VMFASAW_00312	Amount Added: 0.80	Units: uL
VM50IS_00080	Amount Added: 1.00	Units: uL
VMRGAS_00323	Amount Added: 0.80	Units: uL
vm50ss_00387	Amount Added: 0.80	Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5180.D

Injection Date: 15-Jan-2020 17:40:30

Instrument ID: A3UX10

Operator ID: 001644

Lims ID: STD8260 L1

Worklist Smp#: 8

Client ID:

Purge Vol: 5.000 mL

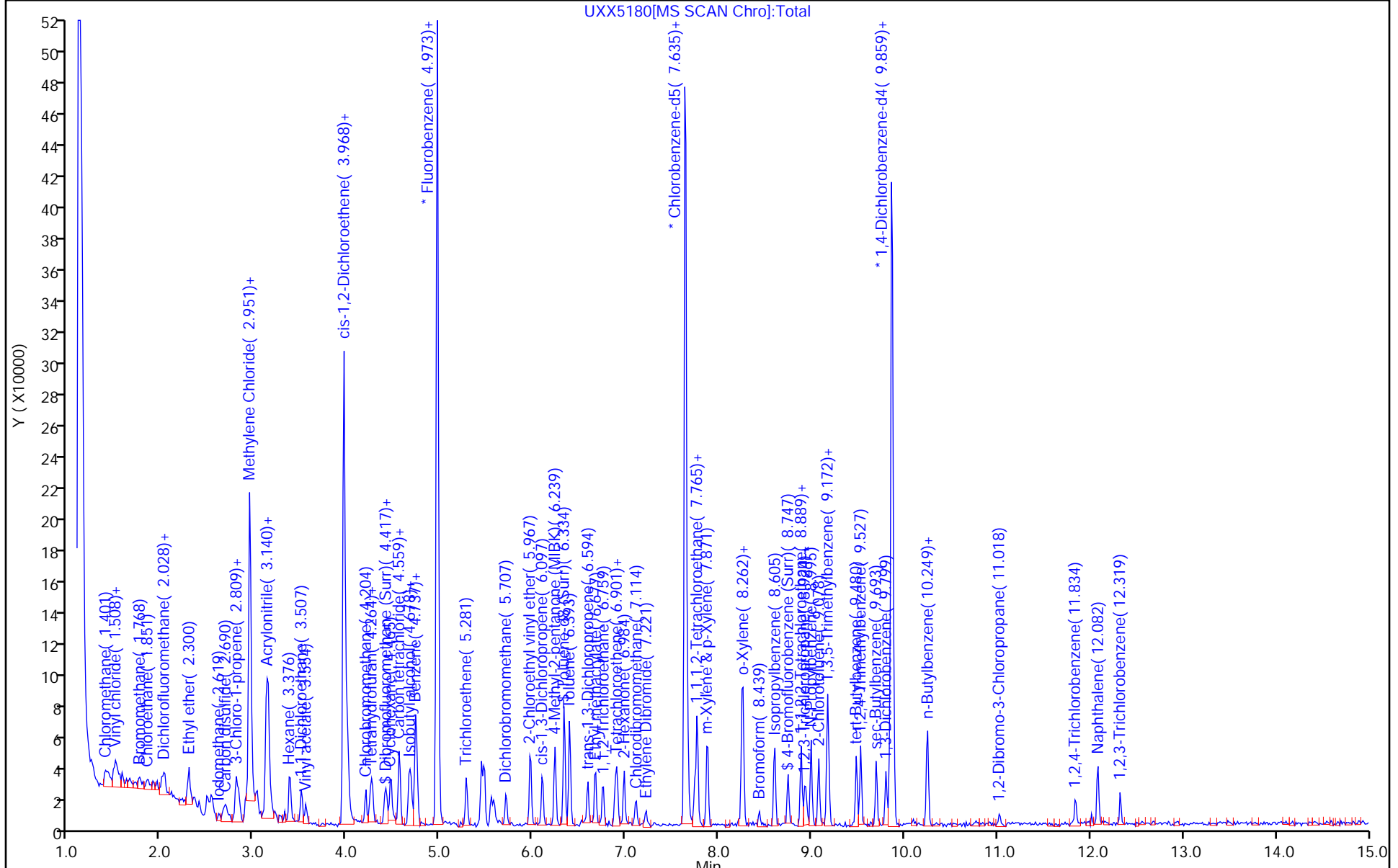
Dil. Factor: 1.0000

ALS Bottle#: 7

Method: 8260_10

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5180.D

Injection Date: 15-Jan-2020 17:40:30

Instrument ID: A3UX10

Lims ID: STD8260 L1

Client ID:

Operator ID: 001644

ALS Bottle#: 7

Worklist Smp#: 8

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

Method: 8260_10

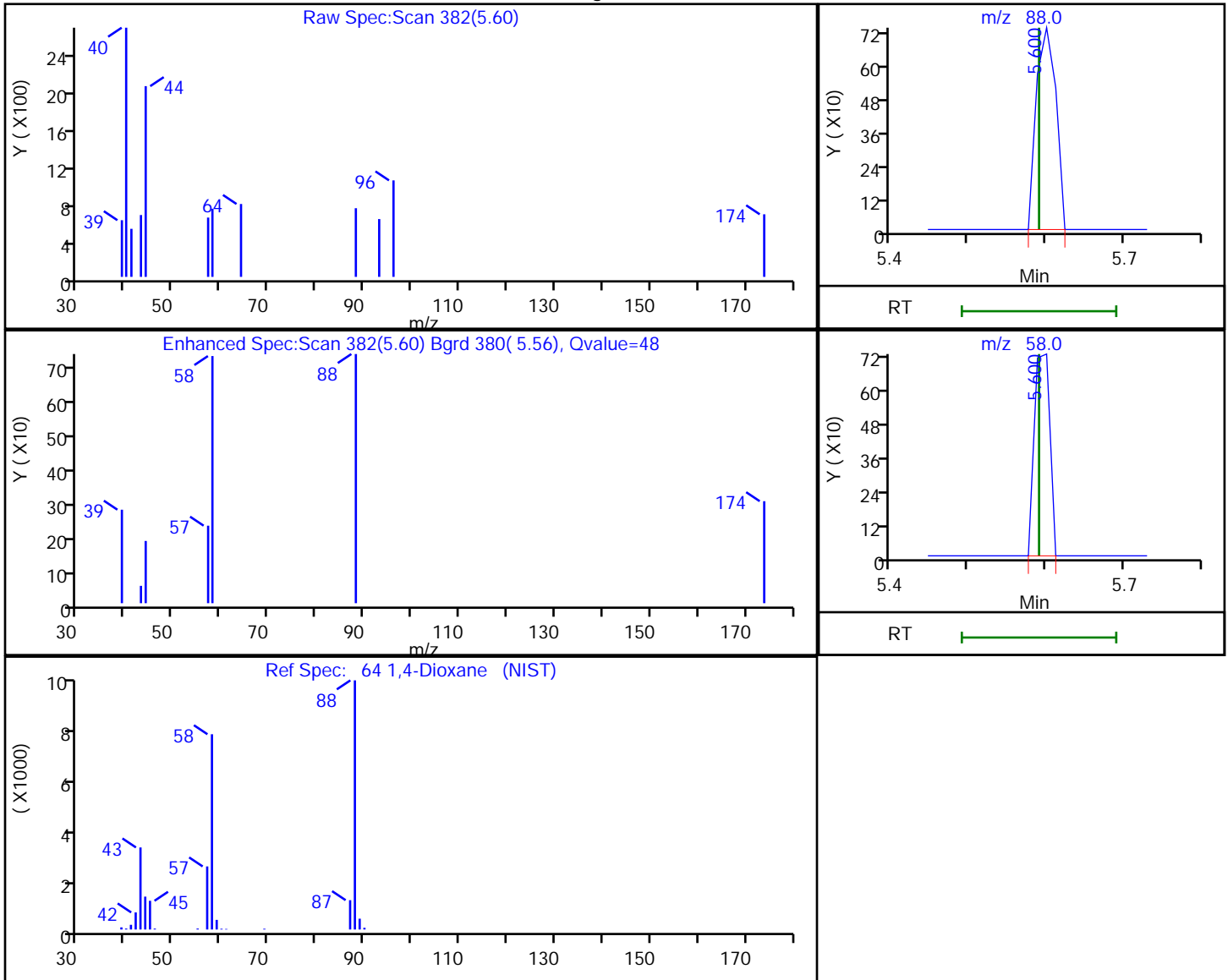
Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

64 1,4-Dioxane, CAS: 123-91-1

Processing Results



RT	Mass	Response	Amount
5.60	88.00	1287	34.766912
5.60	58.00	1022	

Reviewer: williamsla, 20-Jan-2020 16:43:21

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: ICV 240-419116/9 Calibration Date: 01/15/2020 18:04
 Instrument ID: A3UX10 Calib Start Date: 01/15/2020 15:09
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 01/15/2020 17:40
 Lab File ID: UXX5181.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.2166	0.1995		0.00921	0.0100	-7.9	50.0
Chloromethane	Ave	0.4428	0.4326	0.1000	0.00977	0.0100	-2.3	50.0
Vinyl chloride	Ave	0.3264	0.3234		0.00991	0.0100	-0.9	20.0
Butadiene	Lin1		0.1908		0.0103	0.0100	2.8	50.0
Bromomethane	Ave	0.1555	0.1436		0.00924	0.0100	-7.6	50.0
Chloroethane	Ave	0.1748	0.1707		0.00976	0.0100	-2.4	50.0
Dichlorofluoromethane	Ave	0.4414	0.4340		0.00983	0.0100	-1.7	50.0
Trichlorofluoromethane	Ave	0.2347	0.2386		0.0102	0.0100	1.6	50.0
Ethyl ether	Ave	0.3082	0.3119		0.0101	0.0100	1.2	50.0
Acrolein	Ave	0.0590	0.0554		0.0470	0.0500	-6.1	50.0
1,1-Dichloroethene	Ave	0.2357	0.2396		0.0102	0.0100	1.6	20.0
1,1,2-Trichloro-1,2,2-trifluoroethane	Lin1		0.1057		0.00980	0.0100	-2.0	50.0
Acetone	Lin1		0.1261		0.0189	0.0200	-5.3	50.0
Iodomethane	Ave	0.2756	0.2852		0.0103	0.0100	3.5	50.0
Carbon disulfide	Ave	0.8260	0.8473		0.0103	0.0100	2.6	50.0
3-Chloro-1-propene	Ave	0.2136	0.2316		0.0108	0.0100	8.4	50.0
Methyl acetate	Ave	0.3533	0.3580		0.0203	0.0200	1.3	50.0
Methylene Chloride	Ave	0.2908	0.2958		0.0102	0.0100	1.7	50.0
2-Methyl-2-propanol	Ave	0.0413	0.0404		0.0977	0.100	-2.3	50.0
Acrylonitrile	Ave	0.1722	0.1675		0.0973	0.100	-2.7	50.0
Methyl tert-butyl ether	Ave	0.7975	0.8002		0.0100	0.0100	0.3	50.0
trans-1,2-Dichloroethene	Ave	0.2732	0.2816		0.0103	0.0100	3.1	50.0
Hexane	Ave	0.0527	0.0544		0.0103	0.0100	3.2	20.0
1,1-Dichloroethane	Ave	0.6453	0.6693	0.1000	0.0104	0.0100	3.7	50.0
Vinyl acetate	Lin1		0.6686		0.00869	0.0100	-13.1	50.0
2,2-Dichloropropane	Ave	0.0612	0.0602		0.00983	0.0100	-1.7	50.0
cis-1,2-Dichloroethene	Ave	0.3043	0.3130		0.0103	0.0100	2.9	50.0
2-Butanone (MEK)	Ave	0.2186	0.1982		0.0181	0.0200	-9.4	50.0
Chlorobromomethane	Ave	0.1239	0.1240		0.0100	0.0100	0.0	50.0
Tetrahydrofuran	Ave	0.1532	0.1379		0.0180	0.0200	-9.9	50.0
Chloroform	Ave	0.4726	0.4588		0.00971	0.0100	-2.9	20.0
1,1,1-Trichloroethane	Ave	0.2994	0.3068		0.0102	0.0100	2.5	50.0
Cyclohexane	Ave	0.5668	0.5620		0.00991	0.0100	-0.9	50.0
1,1-Dichloropropene	Ave	0.3707	0.3656		0.00986	0.0100	-1.4	50.0
Carbon tetrachloride	Ave	0.2390	0.2462		0.0103	0.0100	3.0	50.0
Isobutyl alcohol	Lin1		0.0218		0.253	0.250	1.1	50.0
Benzene	Ave	1.237	1.231		0.00995	0.0100	-0.5	50.0
1,2-Dichloroethane	Ave	0.4549	0.4515		0.00992	0.0100	-0.8	50.0
n-Heptane	Ave	0.0418	0.0390		0.00934	0.0100	-6.6	50.0
Trichloroethene	Ave	0.2569	0.2532		0.00986	0.0100	-1.4	50.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: ICV 240-419116/9 Calibration Date: 01/15/2020 18:04
 Instrument ID: A3UX10 Calib Start Date: 01/15/2020 15:09
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 01/15/2020 17:40
 Lab File ID: UXX5181.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Methylcyclohexane	Ave	0.3275	0.3273		0.00999	0.0100	-0.0	50.0
1,2-Dichloropropane	Ave	0.3890	0.3954		0.0102	0.0100	1.7	20.0
Dibromomethane	Ave	0.1583	0.1640		0.0104	0.0100	3.6	50.0
1,4-Dioxane	Qua		0.0021		0.140	0.200	-30.1	50.0
Dichlorobromomethane	Ave	0.3536	0.3595		0.0102	0.0100	1.7	50.0
2-Chloroethyl vinyl ether	Ave	0.2808	0.2842		0.0101	0.0100	1.2	50.0
cis-1,3-Dichloropropene	Ave	0.4841	0.4930		0.0102	0.0100	1.8	50.0
4-Methyl-2-pentanone (MIBK)	Ave	0.4522	0.4292		0.0190	0.0200	-5.1	50.0
Toluene	Ave	1.832	1.849		0.0101	0.0100	0.9	20.0
trans-1,3-Dichloropropene	Ave	0.6432	0.6327		0.00984	0.0100	-1.6	50.0
Ethyl methacrylate	Ave	0.7061	0.7214		0.0102	0.0100	2.2	50.0
1,1,2-Trichloroethane	Ave	0.3881	0.3848		0.00992	0.0100	-0.8	50.0
Tetrachloroethene	Ave	0.2126	0.2099		0.00987	0.0100	-1.3	50.0
1,3-Dichloropropane	Ave	0.7063	0.7204		0.0102	0.0100	2.0	50.0
2-Hexanone	Ave	0.4565	0.4434		0.0194	0.0200	-2.9	50.0
Chlorodibromomethane	Ave	0.3357	0.3450		0.0103	0.0100	2.8	50.0
Ethylene Dibromide	Ave	0.3454	0.3525		0.0102	0.0100	2.0	50.0
Chlorobenzene	Ave	0.9782	0.996	0.3000	0.0102	0.0100	1.8	50.0
1,1,1,2-Tetrachloroethane	Ave	0.3055	0.3183		0.0104	0.0100	4.2	50.0
Ethylbenzene	Ave	0.5440	0.5438		0.0100	0.0100	-0.0	20.0
m-Xylene & p-Xylene	Ave	0.6468	0.6456		0.00998	0.0100	-0.2	50.0
o-Xylene	Ave	0.6058	0.6435		0.0106	0.0100	6.2	50.0
Styrene	Ave	1.084	1.104		0.0102	0.0100	1.8	50.0
Bromoform	Ave	0.1777	0.1798	0.1000	0.0101	0.0100	1.2	50.0
Isopropylbenzene	Ave	1.404	1.412		0.0101	0.0100	0.6	50.0
1,1,2,2-Tetrachloroethane	Ave	1.209	1.188	0.3000	0.00983	0.0100	-1.7	50.0
Bromobenzene	Ave	0.7739	0.7459		0.00964	0.0100	-3.6	50.0
1,2,3-Trichloropropane	Ave	0.3230	0.3332		0.0103	0.0100	3.1	50.0
trans-1,4-Dichloro-2-butene	Lin1		0.4687		0.00866	0.0100	-13.4	50.0
N-Propylbenzene	Ave	0.8917	0.9129		0.0102	0.0100	2.4	50.0
2-Chlorotoluene	Ave	0.8051	0.7696		0.00956	0.0100	-4.4	50.0
1,3,5-Trimethylbenzene	Ave	2.610	2.665		0.0102	0.0100	2.1	50.0
4-Chlorotoluene	Ave	0.8523	0.8373		0.00982	0.0100	-1.8	50.0
tert-Butylbenzene	Ave	1.945	1.967		0.0101	0.0100	1.1	50.0
1,2,4-Trimethylbenzene	Ave	2.797	2.805		0.0100	0.0100	0.3	50.0
sec-Butylbenzene	Ave	2.718	2.775		0.0102	0.0100	2.1	50.0
1,3-Dichlorobenzene	Ave	1.398	1.375		0.00983	0.0100	-1.7	50.0
4-Isopropyltoluene	Ave	2.170	2.233		0.0103	0.0100	2.9	50.0
1,4-Dichlorobenzene	Ave	1.422	1.414		0.00994	0.0100	-0.6	50.0
n-Butylbenzene	Ave	2.043	2.092		0.0102	0.0100	2.4	50.0
1,2-Dichlorobenzene	Ave	1.394	1.391		0.00997	0.0100	-0.3	50.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: ICV 240-419116/9 Calibration Date: 01/15/2020 18:04
 Instrument ID: A3UX10 Calib Start Date: 01/15/2020 15:09
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 01/15/2020 17:40
 Lab File ID: UXX5181.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,2-Dibromo-3-Chloropropane	Qua		0.2035		0.0101	0.0100	0.9	50.0
1,2,4-Trichlorobenzene	Ave	0.6166	0.6303		0.0102	0.0100	2.2	50.0
Hexachlorobutadiene	Ave	0.1511	0.1382		0.00915	0.0100	-8.5	50.0
Naphthalene	Ave	3.231	2.958		0.00915	0.0100	-8.5	50.0
1,2,3-Trichlorobenzene	Ave	0.6137	0.5666		0.00923	0.0100	-7.7	50.0
Dibromofluoromethane (Surr)	Ave	0.2337	0.2180		0.00933	0.0100	-6.7	50.0
1,2-Dichloroethane-d4 (Surr)	Ave	0.3432	0.3363		0.00980	0.0100	-2.0	50.0
Toluene-d8 (Surr)	Ave	1.538	1.501		0.00976	0.0100	-2.4	50.0
4-Bromofluorobenzene (Surr)	Ave	0.4841	0.4796		0.00991	0.0100	-0.9	50.0

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5181.D
 Lims ID: ICV
 Client ID:
 Sample Type: ICV
 Inject. Date: 15-Jan-2020 18:04:30 ALS Bottle#: 8 Worklist Smp#: 9
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0094937-009
 Operator ID: 001644 Instrument ID: A3UX10
 Sublist: chrom-8260_10*sub63
 Method: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 20-Jan-2020 16:51:51 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0309

First Level Reviewer: williamsla

Date: 16-Jan-2020 10:42:41

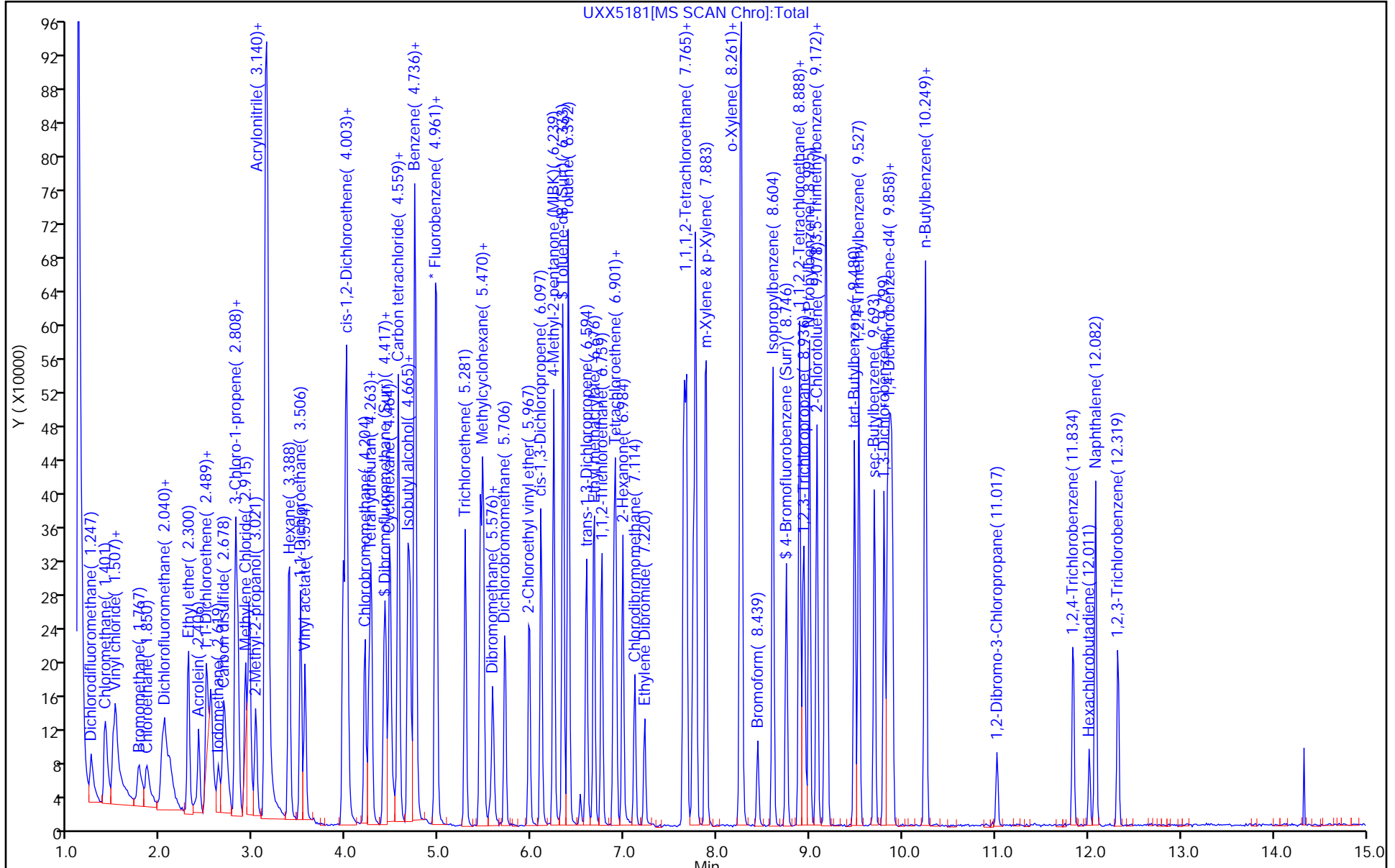
Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.973	4.975	-0.002	97	391338	10.0	10.0	
* 2 Chlorobenzene-d5	117	7.646	7.637	0.009	89	251783	10.0	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.870	9.861	0.010	97	102138	10.0	10.0	
\$ 4 Dibromofluoromethane (Surr	113	4.405	4.408	-0.003	91	85313	10.0	9.33	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	4.689	4.691	-0.002	97	131624	10.0	9.80	
\$ 6 Toluene-d8 (Surr)	98	6.333	6.336	-0.003	94	377905	10.0	9.76	
\$ 7 4-Bromofluorobenzene (Surr	95	8.746	8.749	-0.003	77	120761	10.0	9.91	
9 Dichlorodifluoromethane	85	1.247	1.249	-0.002	98	78076	10.0	9.21	
10 Chloromethane	50	1.401	1.391	0.010	99	169301	10.0	9.77	
11 Vinyl chloride	62	1.484	1.486	-0.002	98	126568	10.0	9.91	
12 Butadiene	54	1.519	1.510	0.009	95	74656	10.0	10.3	
13 Bromomethane	94	1.767	1.758	0.009	91	56209	10.0	9.24	
14 Chloroethane	64	1.850	1.841	0.009	97	66794	10.0	9.76	
15 Dichlorofluoromethane	67	2.016	2.018	-0.002	99	169824	10.0	9.83	
16 Trichlorofluoromethane	101	2.051	2.042	0.009	96	93352	10.0	10.2	
17 Ethyl ether	59	2.300	2.290	0.010	98	122065	10.0	10.1	
18 Acrolein	56	2.406	2.409	-0.003	99	108363	50.0	47.0	
19 1,1-Dichloroethene	96	2.489	2.491	-0.002	92	93746	10.0	10.2	
20 1,1,2-Trichloro-1,2,2-trif	151	2.525	2.515	0.009	94	41369	10.0	9.80	
21 Acetone	43	2.548	2.539	0.009	99	98683	20.0	18.9	
22 Iodomethane	142	2.619	2.621	-0.002	97	111608	10.0	10.3	
24 Carbon disulfide	76	2.678	2.681	-0.003	100	331565	10.0	10.3	
26 3-Chloro-1-propene	76	2.808	2.811	-0.003	90	90644	10.0	10.8	
27 Methyl acetate	43	2.832	2.834	-0.002	99	280177	20.0	20.3	
28 Methylene Chloride	84	2.915	2.917	-0.002	97	115767	10.0	10.2	
29 2-Methyl-2-propanol	59	3.021	3.024	-0.003	99	157943	100.0	97.7	
31 Acrylonitrile	53	3.128	3.130	-0.002	100	655620	100.0	97.3	
30 trans-1,2-Dichloroethene	96	3.151	3.154	-0.003	91	110197	10.0	10.3	
32 Methyl tert-butyl ether	73	3.151	3.154	-0.003	98	313135	10.0	10.0	
33 Hexane	86	3.388	3.378	0.010	92	21293	10.0	10.3	
34 1,1-Dichloroethane	63	3.506	3.509	-0.003	96	261924	10.0	10.4	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
35 Vinyl acetate	43	3.554	3.556	-0.002	97	261660	10.0	8.69	
39 2,2-Dichloropropane	97	4.003	4.005	-0.002	50	23570	10.0	9.83	
40 cis-1,2-Dichloroethene	96	4.003	4.005	-0.002	87	122491	10.0	10.3	
41 2-Butanone (MEK)	43	4.015	4.017	-0.002	99	155088	20.0	18.1	
45 Chlorobromomethane	128	4.204	4.206	-0.002	88	48515	10.0	10.0	
46 Tetrahydrofuran	42	4.240	4.242	-0.002	94	107959	20.0	18.0	
47 Chloroform	83	4.263	4.266	-0.003	98	179562	10.0	9.71	
48 1,1,1-Trichloroethane	97	4.429	4.419	0.010	96	120079	10.0	10.2	
49 Cyclohexane	56	4.464	4.467	-0.003	91	219922	10.0	9.91	
51 Carbon tetrachloride	117	4.559	4.561	-0.002	75	96328	10.0	10.3	
50 1,1-Dichloropropene	75	4.559	4.561	-0.002	89	143053	10.0	9.86	
52 Isobutyl alcohol	41	4.665	4.668	-0.003	94	137209	250.0	252.7	
53 Benzene	78	4.736	4.739	-0.003	98	481646	10.0	9.95	
54 1,2-Dichloroethane	62	4.748	4.751	-0.003	96	176675	10.0	9.92	
56 n-Heptane	100	4.961	4.963	-0.002	96	15262	10.0	9.34	
58 Trichloroethene	130	5.281	5.283	-0.002	94	99093	10.0	9.86	
60 Methylcyclohexane	83	5.446	5.448	-0.002	97	128071	10.0	10.0	
61 1,2-Dichloropropane	63	5.470	5.472	-0.002	97	154750	10.0	10.2	
63 Dibromomethane	93	5.576	5.579	-0.003	88	64180	10.0	10.4	
64 1,4-Dioxane	88	5.588	5.590	-0.002	91	16196	200.0	139.9	
65 Dichlorobromomethane	83	5.706	5.709	-0.003	97	140667	10.0	10.2	
67 2-Chloroethyl vinyl ether	63	5.978	5.969	0.009	91	111225	10.0	10.1	
68 cis-1,3-Dichloropropene	75	6.097	6.099	-0.002	91	192919	10.0	10.2	
69 4-Methyl-2-pentanone (MIBK)	43	6.239	6.241	-0.002	97	335921	20.0	19.0	
70 Toluene	91	6.392	6.395	-0.003	97	465480	10.0	10.1	
71 trans-1,3-Dichloropropene	75	6.594	6.596	-0.002	98	159306	10.0	9.84	
72 Ethyl methacrylate	69	6.676	6.667	0.009	94	181646	10.0	10.2	
73 1,1,2-Trichloroethane	97	6.759	6.761	-0.002	93	96891	10.0	9.92	
74 Tetrachloroethene	164	6.889	6.892	-0.003	89	52853	10.0	9.87	
75 1,3-Dichloropropane	76	6.901	6.903	-0.002	98	181394	10.0	10.2	
76 2-Hexanone	43	6.984	6.986	-0.002	96	223277	20.0	19.4	
78 Chlorodibromomethane	129	7.114	7.116	-0.002	90	86860	10.0	10.3	
80 Ethylene Dibromide	107	7.220	7.223	-0.003	99	88748	10.0	10.2	
82 Chlorobenzene	112	7.670	7.672	-0.002	90	250811	10.0	10.2	
83 1,1,1,2-Tetrachloroethane	131	7.741	7.743	-0.002	96	80153	10.0	10.4	
84 Ethylbenzene	106	7.765	7.767	-0.002	99	136923	10.0	10.0	
85 m-Xylene & p-Xylene	106	7.883	7.873	0.010	99	162550	10.0	9.98	
86 o-Xylene	106	8.250	8.252	-0.002	97	162027	10.0	10.6	
87 Styrene	104	8.261	8.264	-0.003	91	277866	10.0	10.2	
88 Bromoform	173	8.439	8.441	-0.002	92	45272	10.0	10.1	
89 Isopropylbenzene	105	8.604	8.607	-0.003	97	355399	10.0	10.1	
92 1,1,2,2-Tetrachloroethane	83	8.888	8.891	-0.003	79	121382	10.0	9.83	
93 Bromobenzene	156	8.888	8.891	-0.003	94	76181	10.0	9.64	
94 1,2,3-Trichloropropane	110	8.924	8.926	-0.002	84	34029	10.0	10.3	
95 trans-1,4-Dichloro-2-buten	53	8.947	8.938	0.009	83	47870	10.0	8.66	
96 N-Propylbenzene	120	8.995	8.997	-0.002	99	93243	10.0	10.2	
97 2-Chlorotoluene	126	9.078	9.080	-0.002	94	78601	10.0	9.56	
98 1,3,5-Trimethylbenzene	105	9.172	9.163	0.009	94	272178	10.0	10.2	
99 4-Chlorotoluene	126	9.184	9.186	-0.002	99	85523	10.0	9.82	
100 tert-Butylbenzene	119	9.480	9.482	-0.002	94	200889	10.0	10.1	
102 1,2,4-Trimethylbenzene	105	9.527	9.529	-0.002	96	286458	10.0	10.0	
103 sec-Butylbenzene	105	9.693	9.695	-0.002	95	283436	10.0	10.2	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
104 1,3-Dichlorobenzene	146	9.799	9.801	-0.002	95	140447	10.0	9.83	
105 4-Isopropyltoluene	119	9.835	9.837	-0.002	97	228096	10.0	10.3	
106 1,4-Dichlorobenzene	146	9.894	9.884	0.010	92	144406	10.0	9.94	
109 n-Butylbenzene	91	10.237	10.239	-0.002	98	213641	10.0	10.2	
110 1,2-Dichlorobenzene	146	10.249	10.251	-0.002	93	142053	10.0	9.97	
111 1,2-Dibromo-3-Chloropropan	157	11.017	11.020	-0.003	70	20788	10.0	10.1	
113 1,2,4-Trichlorobenzene	180	11.845	11.836	0.009	92	64377	10.0	10.2	
114 Hexachlorobutadiene	225	12.011	12.013	-0.002	89	14113	10.0	9.15	
115 Naphthalene	128	12.082	12.084	-0.002	99	302116	10.0	9.15	
116 1,2,3-Trichlorobenzene	180	12.319	12.321	-0.002	93	57872	10.0	9.23	
S 130 Xylenes, Total	106				0		20.0	20.6	
S 156 Total BTEX	1				0		50.0	50.6	
S 131 Trihalomethanes, Total	1				0		40.0	40.3	

Reagents:

VMFASPW_00334	Amount Added: 8.00	Units: uL
VMFASGW_00343	Amount Added: 8.00	Units: uL
VMAROLISTDW_00328	Amount Added: 8.00	Units: uL
VM50IS_00080	Amount Added: 1.00	Units: uL
vm50ss_00387	Amount Added: 8.00	Units: uL



FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: CCVIS 240-445248/2 Calibration Date: 08/01/2020 13:22
 Instrument ID: A3UX10 Calib Start Date: 01/15/2020 15:09
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 01/15/2020 17:40
 Lab File ID: UXX8923.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.2166	0.2848		0.0131	0.0100	31.5	50.0
Chloromethane	Ave	0.4428	0.3859	0.1000	0.00871	0.0100	-12.9	50.0
Vinyl chloride	Ave	0.3264	0.3779		0.0116	0.0100	15.8	20.0
Butadiene	Lin1		0.5443		0.0301	0.0100	201.4*	50.0
Bromomethane	Ave	0.1555	0.1128		0.00726	0.0100	-27.4	50.0
Chloroethane	Ave	0.1748	0.1853		0.0106	0.0100	6.0	50.0
Dichlorofluoromethane	Ave	0.4414	0.3541		0.00802	0.0100	-19.8	50.0
Trichlorofluoromethane	Ave	0.2347	0.3267		0.0139	0.0100	39.2	50.0
Ethyl ether	Ave	0.3082	0.3506		0.0114	0.0100	13.8	50.0
Acrolein	Ave	0.0590	0.0324		0.0274	0.0500	-45.1	50.0
1,1-Dichloroethene	Ave	0.2357	0.2263		0.00960	0.0100	-4.0	20.0
1,1,2-Trichloro-1,2,2-trifluoroethane	Lin1		0.1379		0.0125	0.0100	25.2	50.0
Acetone	Lin1		0.1288		0.0194	0.0200	-3.0	50.0
Iodomethane	Ave	0.2756	0.1948		0.00707	0.0100	-29.3	50.0
Carbon disulfide	Ave	0.8260	0.7488		0.00907	0.0100	-9.3	50.0
3-Chloro-1-propene	Ave	0.2136	0.1879		0.00880	0.0100	-12.0	50.0
Methyl acetate	Ave	0.3533	0.3675		0.0208	0.0200	4.0	50.0
Methylene Chloride	Ave	0.2908	0.2557		0.00879	0.0100	-12.1	50.0
2-Methyl-2-propanol	Ave	0.0413	0.0480		0.116	0.100	16.1	50.0
Acrylonitrile	Ave	0.1722	0.1590		0.0923	0.100	-7.7	50.0
trans-1,2-Dichloroethene	Ave	0.2732	0.2549		0.00933	0.0100	-6.7	50.0
Methyl tert-butyl ether	Ave	0.7975	0.9332		0.0117	0.0100	17.0	50.0
Hexane	Ave	0.0527	0.0699		0.0133	0.0100	32.6*	20.0
1,1-Dichloroethane	Ave	0.6453	0.6995	0.1000	0.0108	0.0100	8.4	50.0
Vinyl acetate	Lin1		1.049		0.0133	0.0100	32.9	50.0
2,2-Dichloropropane	Ave	0.0612	0.0994		0.0162	0.0100	62.2*	50.0
cis-1,2-Dichloroethene	Ave	0.3043	0.2763		0.00908	0.0100	-9.2	50.0
2-Butanone (MEK)	Ave	0.2186	0.2290		0.0209	0.0200	4.7	50.0
Chlorobromomethane	Ave	0.1239	0.1045		0.00844	0.0100	-15.6	50.0
Tetrahydrofuran	Ave	0.1532	0.1479		0.0193	0.0200	-3.4	50.0
Chloroform	Ave	0.4726	0.5110		0.0108	0.0100	8.1	20.0
1,1,1-Trichloroethane	Ave	0.2994	0.4597		0.0154	0.0100	53.5*	50.0
Cyclohexane	Ave	0.5668	0.7788		0.0137	0.0100	37.4	50.0
1,1-Dichloropropene	Ave	0.3707	0.4099		0.0111	0.0100	10.6	50.0
Carbon tetrachloride	Ave	0.2390	0.3734		0.0156	0.0100	56.2*	50.0
Isobutyl alcohol	Lin1		0.0249		0.290	0.250	15.9	50.0
Benzene	Ave	1.237	1.133		0.00916	0.0100	-8.4	50.0
1,2-Dichloroethane	Ave	0.4549	0.5691		0.0125	0.0100	25.1	50.0
n-Heptane	Ave	0.0418	0.0648		0.0155	0.0100	55.1*	50.0
Trichloroethene	Ave	0.2569	0.2265		0.00882	0.0100	-11.8	50.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: CCVIS 240-445248/2 Calibration Date: 08/01/2020 13:22
 Instrument ID: A3UX10 Calib Start Date: 01/15/2020 15:09
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 01/15/2020 17:40
 Lab File ID: UXX8923.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Methylcyclohexane	Ave	0.3275	0.4145		0.0127	0.0100	26.6	50.0
1,2-Dichloropropane	Ave	0.3890	0.3933		0.0101	0.0100	1.1	20.0
Dibromomethane	Ave	0.1583	0.1510		0.00954	0.0100	-4.6	50.0
1,4-Dioxane	Qua		0.0018		0.126	0.200	-37.0	50.0
Dichlorobromomethane	Ave	0.3536	0.3829		0.0108	0.0100	8.3	50.0
2-Chloroethyl vinyl ether	Ave	0.2808	0.2682		0.0191	0.0200	-4.5	50.0
cis-1,3-Dichloropropene	Ave	0.4841	0.4480		0.00925	0.0100	-7.5	50.0
4-Methyl-2-pentanone (MIBK)	Ave	0.4522	0.4681		0.0207	0.0200	3.5	50.0
Toluene	Ave	1.832	1.861		0.0102	0.0100	1.6	20.0
trans-1,3-Dichloropropene	Ave	0.6432	0.6937		0.0108	0.0100	7.8	50.0
Ethyl methacrylate	Ave	0.7061	0.6930		0.00981	0.0100	-1.9	50.0
1,1,2-Trichloroethane	Ave	0.3881	0.3569		0.00920	0.0100	-8.0	50.0
Tetrachloroethene	Ave	0.2126	0.2319		0.0109	0.0100	9.1	50.0
1,3-Dichloropropane	Ave	0.7063	0.7461		0.0106	0.0100	5.6	50.0
2-Hexanone	Ave	0.4565	0.5423		0.0238	0.0200	18.8	50.0
Chlorodibromomethane	Ave	0.3357	0.3546		0.0106	0.0100	5.6	50.0
Ethylene Dibromide	Ave	0.3454	0.3271		0.00947	0.0100	-5.3	50.0
Chlorobenzene	Ave	0.9782	0.9293	0.3000	0.00950	0.0100	-5.0	50.0
1,1,1,2-Tetrachloroethane	Ave	0.3055	0.3411		0.0112	0.0100	11.7	50.0
Ethylbenzene	Ave	0.5440	0.5364		0.00986	0.0100	-1.4	20.0
m-Xylene & p-Xylene	Ave	0.6468	0.6353		0.00982	0.0100	-1.8	50.0
o-Xylene	Ave	0.6058	0.5788		0.00956	0.0100	-4.4	50.0
Styrene	Ave	1.084	0.9384		0.00866	0.0100	-13.4	50.0
Bromoform	Ave	0.1777	0.1372	0.1000	0.00772	0.0100	-22.8	50.0
Isopropylbenzene	Ave	1.404	1.484		0.0106	0.0100	5.7	50.0
1,1,2,2-Tetrachloroethane	Ave	1.209	1.462	0.3000	0.0121	0.0100	21.0	50.0
Bromobenzene	Ave	0.7739	0.8215		0.0106	0.0100	6.2	50.0
1,2,3-Trichloropropane	Ave	0.3230	0.4130		0.0128	0.0100	27.9	50.0
trans-1,4-Dichloro-2-butene	Lin1		0.6145		0.0112	0.0100	11.7	50.0
N-Propylbenzene	Ave	0.8917	1.223		0.0137	0.0100	37.2	50.0
2-Chlorotoluene	Ave	0.8051	0.9525		0.0118	0.0100	18.3	50.0
1,3,5-Trimethylbenzene	Ave	2.610	3.831		0.0147	0.0100	46.8	50.0
4-Chlorotoluene	Ave	0.8523	0.9384		0.0110	0.0100	10.1	50.0
tert-Butylbenzene	Ave	1.945	3.051		0.0157	0.0100	56.8*	50.0
1,2,4-Trimethylbenzene	Ave	2.797	3.568		0.0128	0.0100	27.5	50.0
sec-Butylbenzene	Ave	2.718	4.379		0.0161	0.0100	61.1*	50.0
1,3-Dichlorobenzene	Ave	1.398	1.438		0.0103	0.0100	2.8	50.0
4-Isopropyltoluene	Ave	2.170	3.390		0.0156	0.0100	56.2*	50.0
1,4-Dichlorobenzene	Ave	1.422	1.501		0.0106	0.0100	5.6	50.0
n-Butylbenzene	Ave	2.043	2.953		0.0145	0.0100	44.6	50.0
1,2-Dichlorobenzene	Ave	1.394	1.442		0.0103	0.0100	3.4	50.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: CCVIS 240-445248/2 Calibration Date: 08/01/2020 13:22
 Instrument ID: A3UX10 Calib Start Date: 01/15/2020 15:09
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 01/15/2020 17:40
 Lab File ID: UXX8923.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,2-Dibromo-3-Chloropropane	Qua		0.2063		0.0103	0.0100	2.5	50.0
1,2,4-Trichlorobenzene	Ave	0.6166	0.8210		0.0133	0.0100	33.2	50.0
Hexachlorobutadiene	Ave	0.1511	0.3062		0.0203	0.0100	102.6*	50.0
Naphthalene	Ave	3.231	2.472		0.00765	0.0100	-23.5	50.0
1,2,3-Trichlorobenzene	Ave	0.6137	0.8207		0.0134	0.0100	33.7	50.0
Dibromofluoromethane (Surr)	Ave	0.2337	0.2413		0.0103	0.0100	3.2	50.0
1,2-Dichloroethane-d4 (Surr)	Ave	0.3432	0.4182		0.0122	0.0100	21.9	50.0
Toluene-d8 (Surr)	Ave	1.538	1.727		0.0112	0.0100	12.3	50.0
4-Bromofluorobenzene (Surr)	Ave	0.4841	0.4530		0.00936	0.0100	-6.4	50.0

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\UXX8923.D
 Lims ID: CCVIS L4 8260
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 01-Aug-2020 13:22:30 ALS Bottle#: 3 Worklist Smp#: 2
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100590-002
 Operator ID: 001644 Instrument ID: A3UX10
 Sublist: chrom-8260_10*sub82
 Method: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 03-Aug-2020 11:44:47 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1044

First Level Reviewer: williamsla

Date: 01-Aug-2020 14:48:13

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.974	4.974	0.000	94	434300	10.0	10.0	
* 2 Chlorobenzene-d5	117	7.647	7.647	0.000	94	250546	10.0	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.871	9.871	0.000	92	69593	10.0	10.0	
\$ 4 Dibromofluoromethane (Surr)	113	4.406	4.406	0.000	91	104783	10.0	10.3	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.690	4.690	0.000	96	181641	10.0	12.2	
\$ 6 Toluene-d8 (Surr)	98	6.334	6.334	0.000	96	432790	10.0	11.2	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.747	8.747	0.000	73	113505	10.0	9.36	
9 Dichlorodifluoromethane	85	1.224	1.224	0.000	98	123697	10.0	13.1	
10 Chloromethane	50	1.366	1.366	0.000	99	167574	10.0	8.71	
11 Vinyl chloride	62	1.461	1.461	0.000	98	164101	10.0	11.6	
12 Butadiene	54	1.484	1.484	0.000	96	236395	10.0	30.1	
13 Bromomethane	94	1.721	1.721	0.000	92	49002	10.0	7.26	
14 Chloroethane	64	1.815	1.815	0.000	96	80489	10.0	10.6	
15 Dichlorofluoromethane	67	1.981	1.981	0.000	98	153787	10.0	8.02	
16 Trichlorofluoromethane	101	2.028	2.028	0.000	99	141864	10.0	13.9	
17 Ethyl ether	59	2.289	2.289	0.000	96	152257	10.0	11.4	
18 Acrolein	56	2.407	2.407	0.000	99	70245	50.0	27.4	
19 1,1-Dichloroethene	96	2.478	2.478	0.000	88	98280	10.0	9.60	
20 1,1,2-Trichloro-1,2,2-trifluoro	151	2.490	2.490	0.000	96	59876	10.0	12.5	
21 Acetone	43	2.537	2.537	0.000	99	111902	20.0	19.4	
22 Iodomethane	142	2.608	2.608	0.000	98	84600	10.0	7.07	
24 Carbon disulfide	76	2.667	2.667	0.000	99	325215	10.0	9.07	
26 3-Chloro-1-propene	76	2.797	2.797	0.000	86	81613	10.0	8.80	
27 Methyl acetate	43	2.821	2.821	0.000	100	319174	20.0	20.8	
28 Methylene Chloride	84	2.904	2.904	0.000	90	111027	10.0	8.79	
29 2-Methyl-2-propanol	59	3.022	3.022	0.000	97	208273	100.0	116.1	
31 Acrylonitrile	53	3.128	3.128	0.000	97	690686	100.0	92.3	
30 trans-1,2-Dichloroethene	96	3.140	3.140	0.000	87	110689	10.0	9.33	
32 Methyl tert-butyl ether	73	3.152	3.152	0.000	95	405273	10.0	11.7	
33 Hexane	86	3.377	3.377	0.000	93	30352	10.0	13.3	
34 1,1-Dichloroethane	63	3.507	3.507	0.000	97	303784	10.0	10.8	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
35 Vinyl acetate	43	3.554	3.554	0.000	97	455547	10.0	13.3	
39 2,2-Dichloropropane	97	3.992	3.992	0.000	77	43149	10.0	16.2	
40 cis-1,2-Dichloroethene	96	3.992	3.992	0.000	92	120012	10.0	9.08	
41 2-Butanone (MEK)	43	4.016	4.016	0.000	97	198876	20.0	20.9	
45 Chlorobromomethane	128	4.193	4.193	0.000	83	45401	10.0	8.44	
46 Tetrahydrofuran	42	4.240	4.240	0.000	91	128478	20.0	19.3	
47 Chloroform	83	4.264	4.264	0.000	98	221940	10.0	10.8	
48 1,1,1-Trichloroethane	97	4.418	4.418	0.000	94	199625	10.0	15.4	
49 Cyclohexane	56	4.465	4.465	0.000	90	338210	10.0	13.7	
51 Carbon tetrachloride	117	4.560	4.560	0.000	85	162168	10.0	15.6	
50 1,1-Dichloropropene	75	4.560	4.560	0.000	84	178035	10.0	11.1	
52 Isobutyl alcohol	41	4.666	4.666	0.000	93	156213	250.0	289.8	
53 Benzene	78	4.737	4.737	0.000	94	491945	10.0	9.16	
54 1,2-Dichloroethane	62	4.749	4.749	0.000	96	247139	10.0	12.5	
56 n-Heptane	100	4.962	4.962	0.000	92	28138	10.0	15.5	
58 Trichloroethene	130	5.281	5.281	0.000	87	98351	10.0	8.82	
60 Methylcyclohexane	83	5.447	5.447	0.000	93	180001	10.0	12.7	
61 1,2-Dichloropropane	63	5.470	5.470	0.000	94	170808	10.0	10.1	
63 Dibromomethane	93	5.577	5.577	0.000	83	65573	10.0	9.54	
64 1,4-Dioxane	88	5.589	5.589	0.000	84	15722	200.0	125.9	
65 Dichlorobromomethane	83	5.707	5.707	0.000	95	166283	10.0	10.8	
67 2-Chloroethyl vinyl ether	63	5.967	5.967	0.000	91	232934	20.0	19.1	
68 cis-1,3-Dichloropropene	75	6.097	6.097	0.000	86	194543	10.0	9.25	
69 4-Methyl-2-pentanone (MIBK)	43	6.239	6.239	0.000	97	406575	20.0	20.7	
70 Toluene	91	6.393	6.393	0.000	96	466208	10.0	10.2	
71 trans-1,3-Dichloropropene	75	6.594	6.594	0.000	95	173790	10.0	10.8	
72 Ethyl methacrylate	69	6.677	6.677	0.000	93	173625	10.0	9.81	
73 1,1,2-Trichloroethane	97	6.760	6.760	0.000	94	89415	10.0	9.20	
74 Tetrachloroethene	164	6.890	6.890	0.000	83	58100	10.0	10.9	
75 1,3-Dichloropropane	76	6.902	6.902	0.000	95	186942	10.0	10.6	
76 2-Hexanone	43	6.985	6.985	0.000	97	271751	20.0	23.8	
78 Chlorodibromomethane	129	7.115	7.115	0.000	88	88836	10.0	10.6	
80 Ethylene Dibromide	107	7.221	7.221	0.000	98	81944	10.0	9.47	
82 Chlorobenzene	112	7.671	7.671	0.000	87	232842	10.0	9.50	
83 1,1,1,2-Tetrachloroethane	131	7.742	7.742	0.000	90	85470	10.0	11.2	
84 Ethylbenzene	106	7.765	7.765	0.000	99	134380	10.0	9.86	
85 m-Xylene & p-Xylene	106	7.883	7.883	0.000	97	159177	10.0	9.82	
86 o-Xylene	106	8.250	8.250	0.000	97	145022	10.0	9.56	
87 Styrene	104	8.262	8.262	0.000	84	235100	10.0	8.66	
88 Bromoform	173	8.439	8.439	0.000	86	34385	10.0	7.72	
89 Isopropylbenzene	105	8.605	8.605	0.000	97	371747	10.0	10.6	
92 1,1,2,2-Tetrachloroethane	83	8.889	8.889	0.000	79	101777	10.0	12.1	
93 Bromobenzene	156	8.889	8.889	0.000	88	57171	10.0	10.6	
94 1,2,3-Trichloropropane	110	8.936	8.936	0.000	88	28743	10.0	12.8	
95 trans-1,4-Dichloro-2-butene	53	8.948	8.948	0.000	71	42767	10.0	11.2	
96 N-Propylbenzene	120	8.995	8.995	0.000	99	85142	10.0	13.7	
97 2-Chlorotoluene	126	9.078	9.078	0.000	93	66289	10.0	11.8	
98 1,3,5-Trimethylbenzene	105	9.173	9.173	0.000	92	266615	10.0	14.7	
99 4-Chlorotoluene	126	9.185	9.185	0.000	98	65304	10.0	11.0	
100 tert-Butylbenzene	119	9.480	9.480	0.000	92	212323	10.0	15.7	
102 1,2,4-Trimethylbenzene	105	9.528	9.528	0.000	96	248278	10.0	12.8	
103 sec-Butylbenzene	105	9.693	9.693	0.000	97	304780	10.0	16.1	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
104 1,3-Dichlorobenzene	146	9.800	9.800	0.000	88	100076	10.0	10.3	
105 4-Isopropyltoluene	119	9.847	9.847	0.000	97	235905	10.0	15.6	
106 1,4-Dichlorobenzene	146	9.894	9.894	0.000	92	104481	10.0	10.6	
109 n-Butylbenzene	91	10.237	10.237	0.000	98	205539	10.0	14.5	
110 1,2-Dichlorobenzene	146	10.249	10.249	0.000	89	100369	10.0	10.3	
111 1,2-Dibromo-3-Chloropropane	157	11.018	11.018	0.000	62	14354	10.0	10.3	
113 1,2,4-Trichlorobenzene	180	11.846	11.846	0.000	92	57137	10.0	13.3	
114 Hexachlorobutadiene	225	12.012	12.012	0.000	82	21306	10.0	20.3	E
115 Naphthalene	128	12.083	12.083	0.000	97	172039	10.0	7.65	
116 1,2,3-Trichlorobenzene	180	12.319	12.319	0.000	93	57116	10.0	13.4	E
S 130 Xylenes, Total	106				0		20.0	19.4	
S 156 Total BTEX	1				0		50.0	48.6	
S 131 Trihalomethanes, Total	1				0		40.0	39.9	

QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount

Reagents:

VMRPRIMW_00397	Amount Added: 8.00	Units: uL	
VMAROLISTDW_00354	Amount Added: 8.00	Units: uL	
VMRGAS_00349	Amount Added: 8.00	Units: uL	
VM50IS_00084	Amount Added: 1.00	Units: uL	Run Reagent
vm50ss_stk_00085	Amount Added: 1.00	Units: uL	Run Reagent
vm40ml_vials_00015	Amount Added: 0.00	Units:	Run Reagent
vmDist_H2o_00177	Amount Added: 0.00	Units:	Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\UXX8923.D

Injection Date: 01-Aug-2020 13:22:30

Instrument ID: A3UX10

Operator ID: 001644

Lims ID: CCVIS L4 8260

Worklist Smp#: 2

Client ID:

Purge Vol: 5.000 mL

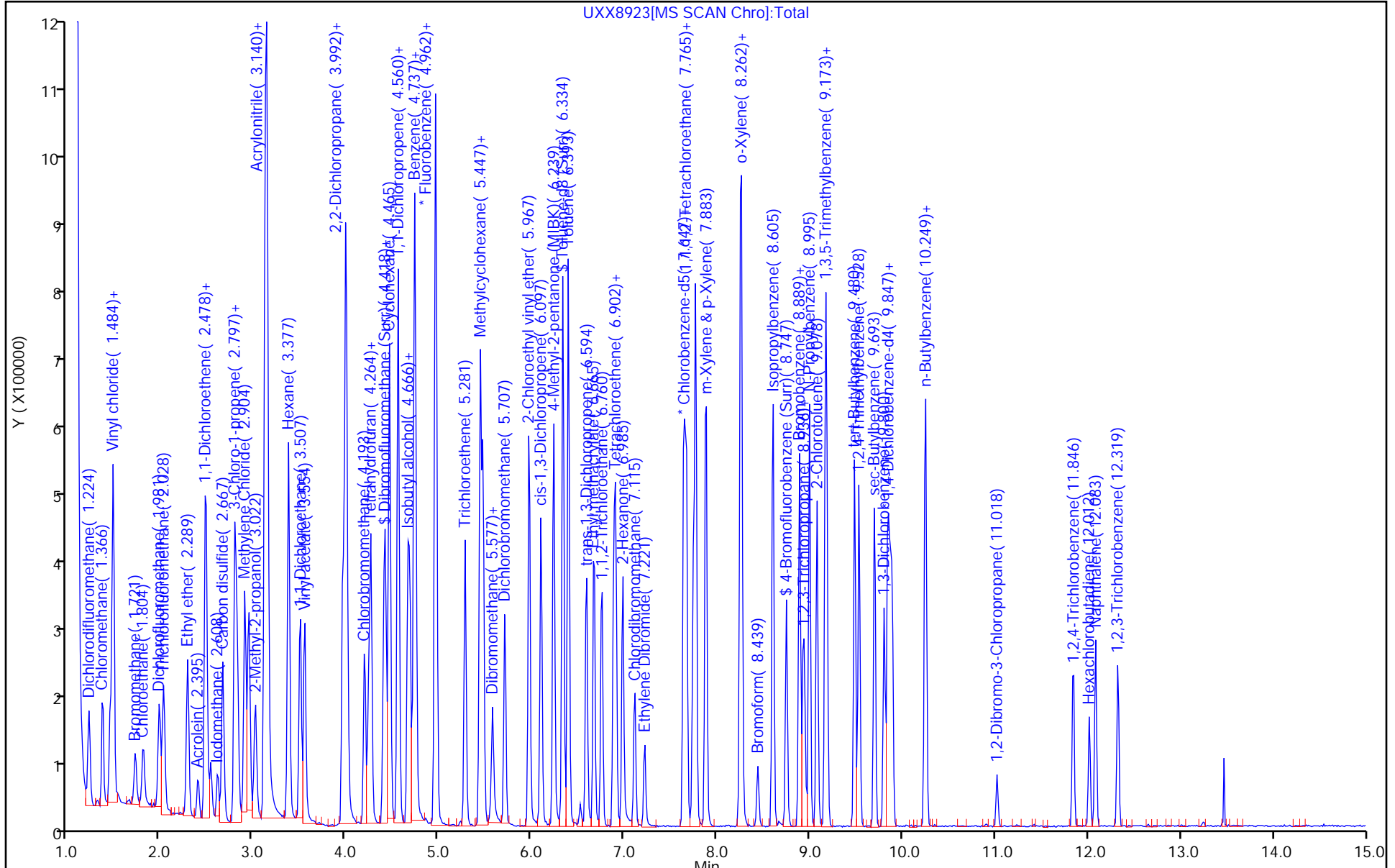
Dil. Factor: 1.0000

ALS Bottle#: 3

Method: 8260_10

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: CCVIS 240-445379/2 Calibration Date: 08/03/2020 13:55
 Instrument ID: A3UX10 Calib Start Date: 01/15/2020 15:09
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 01/15/2020 17:40
 Lab File ID: UXX8950.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.2166	0.2801		0.0129	0.0100	29.3	50.0
Chloromethane	Ave	0.4428	0.4113	0.1000	0.00929	0.0100	-7.1	50.0
Vinyl chloride	Ave	0.3264	0.3437		0.0105	0.0100	5.3	20.0
Butadiene	Lin1		0.6022		0.0334	0.0100	234.0*	50.0
Bromomethane	Ave	0.1555	0.0999		0.00643	0.0100	-35.7	50.0
Chloroethane	Ave	0.1748	0.1470		0.00840	0.0100	-16.0	50.0
Dichlorofluoromethane	Ave	0.4414	0.3220		0.00730	0.0100	-27.0	50.0
Trichlorofluoromethane	Ave	0.2347	0.3756		0.0160	0.0100	60.0*	50.0
Ethyl ether	Ave	0.3082	0.3392		0.0110	0.0100	10.1	50.0
Acrolein	Ave	0.0590	0.0387		0.0328	0.0500	-34.4	50.0
1,1-Dichloroethene	Ave	0.2357	0.2118		0.00899	0.0100	-10.1	20.0
1,1,2-Trichloro-1,2,2-trifluoroethane	Lin1		0.1555		0.0140	0.0100	40.1	50.0
Acetone	Lin1		0.1160		0.0173	0.0200	-13.7	50.0
Iodomethane	Ave	0.2756	0.1301		0.00472	0.0100	-52.8*	50.0
Carbon disulfide	Ave	0.8260	0.5994		0.00726	0.0100	-27.4	50.0
3-Chloro-1-propene	Ave	0.2136	0.1901		0.00890	0.0100	-11.0	50.0
Methyl acetate	Ave	0.3533	0.3087		0.0175	0.0200	-12.6	50.0
Methylene Chloride	Ave	0.2908	0.1899		0.00653	0.0100	-34.7	50.0
2-Methyl-2-propanol	Ave	0.0413	0.0432		0.105	0.100	4.5	50.0
Acrylonitrile	Ave	0.1722	0.1363		0.0791	0.100	-20.9	50.0
Methyl tert-butyl ether	Ave	0.7975	0.8534		0.0107	0.0100	7.0	50.0
trans-1,2-Dichloroethene	Ave	0.2732	0.2412		0.00883	0.0100	-11.7	50.0
Hexane	Ave	0.0527	0.0774		0.0147	0.0100	46.8*	20.0
1,1-Dichloroethane	Ave	0.6453	0.6710	0.1000	0.0104	0.0100	4.0	50.0
Vinyl acetate	Lin1		0.8808		0.0113	0.0100	12.5	50.0
2,2-Dichloropropane	Ave	0.0612	0.0931		0.0152	0.0100	52.1*	50.0
cis-1,2-Dichloroethene	Ave	0.3043	0.2654		0.00872	0.0100	-12.8	50.0
2-Butanone (MEK)	Ave	0.2186	0.1834		0.0168	0.0200	-16.1	50.0
Chlorobromomethane	Ave	0.1239	0.1032		0.00833	0.0100	-16.7	50.0
Tetrahydrofuran	Ave	0.1532	0.1286		0.0168	0.0200	-16.1	50.0
Chloroform	Ave	0.4726	0.4836		0.0102	0.0100	2.3	20.0
1,1,1-Trichloroethane	Ave	0.2994	0.4277		0.0143	0.0100	42.9	50.0
Cyclohexane	Ave	0.5668	0.8159		0.0144	0.0100	43.9	50.0
1,1-Dichloropropene	Ave	0.3707	0.3896		0.0105	0.0100	5.1	50.0
Carbon tetrachloride	Ave	0.2390	0.3675		0.0154	0.0100	53.7*	50.0
Isobutyl alcohol	Lin1		0.0217		0.251	0.250	0.4	50.0
Benzene	Ave	1.237	1.062		0.00859	0.0100	-14.1	50.0
1,2-Dichloroethane	Ave	0.4549	0.5273		0.0116	0.0100	15.9	50.0
n-Heptane	Ave	0.0418	0.0749		0.0179	0.0100	79.3*	50.0
Trichloroethene	Ave	0.2569	0.2197		0.00855	0.0100	-14.5	50.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: CCVIS 240-445379/2 Calibration Date: 08/03/2020 13:55
 Instrument ID: A3UX10 Calib Start Date: 01/15/2020 15:09
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 01/15/2020 17:40
 Lab File ID: UXX8950.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Methylcyclohexane	Ave	0.3275	0.4562		0.0139	0.0100	39.3	50.0
1,2-Dichloropropane	Ave	0.3890	0.3558		0.00915	0.0100	-8.5	20.0
Dibromomethane	Ave	0.1583	0.1294		0.00818	0.0100	-18.2	50.0
1,4-Dioxane	Qua		0.0018		0.125	0.200	-37.3	50.0
Dichlorobromomethane	Ave	0.3536	0.3563		0.0101	0.0100	0.8	50.0
2-Chloroethyl vinyl ether	Ave	0.2808	0.2317		0.0165	0.0200	-17.5	50.0
cis-1,3-Dichloropropene	Ave	0.4841	0.4103		0.00848	0.0100	-15.2	50.0
4-Methyl-2-pentanone (MIBK)	Ave	0.4522	0.3996		0.0177	0.0200	-11.6	50.0
Toluene	Ave	1.832	1.796		0.00981	0.0100	-1.9	20.0
trans-1,3-Dichloropropene	Ave	0.6432	0.6385		0.00993	0.0100	-0.7	50.0
Ethyl methacrylate	Ave	0.7061	0.6041		0.00856	0.0100	-14.4	50.0
1,1,2-Trichloroethane	Ave	0.3881	0.3411		0.00879	0.0100	-12.1	50.0
Tetrachloroethene	Ave	0.2126	0.2294		0.0108	0.0100	7.9	50.0
1,3-Dichloropropane	Ave	0.7063	0.6666		0.00944	0.0100	-5.6	50.0
2-Hexanone	Ave	0.4565	0.4404		0.0193	0.0200	-3.5	50.0
Chlorodibromomethane	Ave	0.3357	0.3386		0.0101	0.0100	0.9	50.0
Ethylene Dibromide	Ave	0.3454	0.2975		0.00861	0.0100	-13.9	50.0
Chlorobenzene	Ave	0.9782	0.9072	0.3000	0.00927	0.0100	-7.3	50.0
1,1,1,2-Tetrachloroethane	Ave	0.3055	0.3267		0.0107	0.0100	6.9	50.0
Ethylbenzene	Ave	0.5440	0.5024		0.00923	0.0100	-7.7	20.0
m-Xylene & p-Xylene	Ave	0.6468	0.6015		0.00930	0.0100	-7.0	50.0
o-Xylene	Ave	0.6058	0.5475		0.00904	0.0100	-9.6	50.0
Styrene	Ave	1.084	0.8908		0.00822	0.0100	-17.8	50.0
Bromoform	Ave	0.1777	0.1275	0.1000	0.00718	0.0100	-28.2	50.0
Isopropylbenzene	Ave	1.404	1.385		0.00987	0.0100	-1.3	50.0
1,1,2,2-Tetrachloroethane	Ave	1.209	1.049	0.3000	0.00868	0.0100	-13.2	50.0
Bromobenzene	Ave	0.7739	0.7116		0.00920	0.0100	-8.0	50.0
1,2,3-Trichloropropane	Ave	0.3230	0.3024		0.00936	0.0100	-6.4	50.0
trans-1,4-Dichloro-2-butene	Lin1		0.4241		0.00789	0.0100	-21.1	50.0
N-Propylbenzene	Ave	0.8917	1.059		0.0119	0.0100	18.7	50.0
2-Chlorotoluene	Ave	0.8051	0.8367		0.0104	0.0100	3.9	50.0
1,3,5-Trimethylbenzene	Ave	2.610	3.196		0.0122	0.0100	22.5	50.0
4-Chlorotoluene	Ave	0.8523	0.8352		0.00980	0.0100	-2.0	50.0
tert-Butylbenzene	Ave	1.945	2.637		0.0136	0.0100	35.5	50.0
1,2,4-Trimethylbenzene	Ave	2.797	3.053		0.0109	0.0100	9.2	50.0
sec-Butylbenzene	Ave	2.718	3.849		0.0142	0.0100	41.6	50.0
1,3-Dichlorobenzene	Ave	1.398	1.247		0.00892	0.0100	-10.8	50.0
4-Isopropyltoluene	Ave	2.170	2.846		0.0131	0.0100	31.2	50.0
1,4-Dichlorobenzene	Ave	1.422	1.339		0.00941	0.0100	-5.9	50.0
n-Butylbenzene	Ave	2.043	2.695		0.0132	0.0100	31.9	50.0
1,2-Dichlorobenzene	Ave	1.394	1.288		0.00923	0.0100	-7.7	50.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: CCVIS 240-445379/2 Calibration Date: 08/03/2020 13:55
 Instrument ID: A3UX10 Calib Start Date: 01/15/2020 15:09
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 01/15/2020 17:40
 Lab File ID: UXX8950.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,2-Dibromo-3-Chloropropane	Qua		0.1618		0.00773	0.0100	-22.7	50.0
1,2,4-Trichlorobenzene	Ave	0.6166	0.7344		0.0119	0.0100	19.1	50.0
Hexachlorobutadiene	Ave	0.1511	0.2773		0.0184	0.0100	83.6*	50.0
Naphthalene	Ave	3.231	2.225		0.00688	0.0100	-31.2	50.0
1,2,3-Trichlorobenzene	Ave	0.6137	0.6998		0.0114	0.0100	14.0	50.0
Dibromofluoromethane (Surr)	Ave	0.2337	0.2498		0.0107	0.0100	6.9	50.0
1,2-Dichloroethane-d4 (Surr)	Ave	0.3432	0.4264		0.0124	0.0100	24.2	50.0
Toluene-d8 (Surr)	Ave	1.538	1.731		0.0113	0.0100	12.6	50.0
4-Bromofluorobenzene (Surr)	Ave	0.4841	0.4782		0.00988	0.0100	-1.2	50.0

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8950.D
 Lims ID: CCVIS L4 8260
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 03-Aug-2020 13:55:30 ALS Bottle#: 1 Worklist Smp#: 2
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100621-002
 Operator ID: 001644 Instrument ID: A3UX10
 Sublist: chrom-8260_10*sub82
 Method: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 10:20:09 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1067

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.964	4.964	0.000	96	402245	10.0	10.0	
* 2 Chlorobenzene-d5	117	7.637	7.637	0.000	94	227073	10.0	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.873	9.873	0.000	94	72107	10.0	10.0	
\$ 4 Dibromofluoromethane (Surr)	113	4.396	4.396	0.000	90	100463	10.0	10.7	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.680	4.680	0.000	96	171502	10.0	12.4	
\$ 6 Toluene-d8 (Surr)	98	6.336	6.336	0.000	96	393159	10.0	11.3	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.749	8.749	0.000	73	108588	10.0	9.88	
9 Dichlorodifluoromethane	85	1.226	1.226	0.000	98	112659	10.0	12.9	
10 Chloromethane	50	1.368	1.368	0.000	100	165439	10.0	9.29	
11 Vinyl chloride	62	1.451	1.451	0.000	97	138260	10.0	10.5	
12 Butadiene	54	1.487	1.487	0.000	97	242243	10.0	33.4	
13 Bromomethane	94	1.723	1.723	0.000	92	40194	10.0	6.43	
14 Chloroethane	64	1.818	1.818	0.000	96	59110	10.0	8.40	
15 Dichlorofluoromethane	67	1.983	1.983	0.000	98	129528	10.0	7.30	
16 Trichlorofluoromethane	101	2.031	2.031	0.000	98	151078	10.0	16.0	
17 Ethyl ether	59	2.291	2.291	0.000	96	136455	10.0	11.0	
18 Acrolein	56	2.397	2.397	0.000	98	77782	50.0	32.8	
19 1,1-Dichloroethene	96	2.480	2.480	0.000	88	85205	10.0	8.99	
20 1,1,2-Trichloro-1,2,2-trifluoro	151	2.492	2.492	0.000	95	62556	10.0	14.0	
21 Acetone	43	2.539	2.539	0.000	99	93279	20.0	17.3	
22 Iodomethane	142	2.610	2.610	0.000	97	52324	10.0	4.72	
24 Carbon disulfide	76	2.669	2.669	0.000	99	241090	10.0	7.26	
26 3-Chloro-1-propene	76	2.799	2.799	0.000	87	76456	10.0	8.90	
27 Methyl acetate	43	2.823	2.823	0.000	100	248324	20.0	17.5	
28 Methylene Chloride	84	2.906	2.906	0.000	89	76390	10.0	6.53	
29 2-Methyl-2-propanol	59	3.012	3.012	0.000	98	173601	100.0	104.5	
31 Acrylonitrile	53	3.119	3.119	0.000	97	548244	100.0	79.1	
30 trans-1,2-Dichloroethene	96	3.143	3.143	0.000	84	97030	10.0	8.83	
32 Methyl tert-butyl ether	73	3.143	3.143	0.000	95	343260	10.0	10.7	
33 Hexane	86	3.379	3.379	0.000	93	31131	10.0	14.7	
34 1,1-Dichloroethane	63	3.497	3.497	0.000	97	269913	10.0	10.4	
35 Vinyl acetate	43	3.545	3.545	0.000	97	354284	10.0	11.3	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
39 2,2-Dichloropropane	97	3.994	3.994	0.000	75	37464	10.0	15.2	
40 cis-1,2-Dichloroethene	96	3.994	3.994	0.000	92	106739	10.0	8.72	
41 2-Butanone (MEK)	43	4.006	4.006	0.000	97	147561	20.0	16.8	
45 Chlorobromomethane	128	4.195	4.195	0.000	83	41511	10.0	8.33	
46 Tetrahydrofuran	42	4.243	4.243	0.000	92	103439	20.0	16.8	
47 Chloroform	83	4.266	4.266	0.000	98	194508	10.0	10.2	
48 1,1,1-Trichloroethane	97	4.420	4.420	0.000	93	172033	10.0	14.3	
49 Cyclohexane	56	4.467	4.467	0.000	90	328190	10.0	14.4	
50 1,1-Dichloropropene	75	4.562	4.562	0.000	84	156721	10.0	10.5	
51 Carbon tetrachloride	117	4.562	4.562	0.000	84	147803	10.0	15.4	
52 Isobutyl alcohol	41	4.657	4.657	0.000	94	122934	250.0	251.0	
53 Benzene	78	4.739	4.739	0.000	95	427297	10.0	8.59	
54 1,2-Dichloroethane	62	4.751	4.751	0.000	97	212109	10.0	11.6	
56 n-Heptane	100	4.964	4.964	0.000	96	30131	10.0	17.9	
58 Trichloroethene	130	5.283	5.283	0.000	88	88377	10.0	8.55	
60 Methylcyclohexane	83	5.449	5.449	0.000	93	183495	10.0	13.9	
61 1,2-Dichloropropane	63	5.473	5.473	0.000	92	143112	10.0	9.15	
63 Dibromomethane	93	5.579	5.579	0.000	85	52061	10.0	8.18	
64 1,4-Dioxane	88	5.591	5.591	0.000	84	14473	200.0	125.3	
65 Dichlorobromomethane	83	5.709	5.709	0.000	95	143329	10.0	10.1	
67 2-Chloroethyl vinyl ether	63	5.970	5.970	0.000	91	186380	20.0	16.5	
68 cis-1,3-Dichloropropene	75	6.100	6.100	0.000	86	165045	10.0	8.48	
69 4-Methyl-2-pentanone (MIBK)	43	6.242	6.242	0.000	98	321461	20.0	17.7	
70 Toluene	91	6.395	6.395	0.000	96	407908	10.0	9.81	
71 trans-1,3-Dichloropropene	75	6.596	6.596	0.000	98	144989	10.0	9.93	
72 Ethyl methacrylate	69	6.667	6.667	0.000	92	137174	10.0	8.56	
73 1,1,2-Trichloroethane	97	6.750	6.750	0.000	93	77448	10.0	8.79	
74 Tetrachloroethene	164	6.892	6.892	0.000	89	52095	10.0	10.8	
75 1,3-Dichloropropane	76	6.904	6.904	0.000	95	151364	10.0	9.44	
76 2-Hexanone	43	6.987	6.987	0.000	97	200011	20.0	19.3	
78 Chlorodibromomethane	129	7.117	7.117	0.000	87	76887	10.0	10.1	
80 Ethylene Dibromide	107	7.223	7.223	0.000	96	67564	10.0	8.61	
82 Chlorobenzene	112	7.673	7.673	0.000	89	205993	10.0	9.27	
83 1,1,1,2-Tetrachloroethane	131	7.744	7.744	0.000	91	74186	10.0	10.7	
84 Ethylbenzene	106	7.767	7.767	0.000	99	114082	10.0	9.23	
85 m-Xylene & p-Xylene	106	7.874	7.874	0.000	96	136573	10.0	9.30	
86 o-Xylene	106	8.252	8.252	0.000	98	124330	10.0	9.04	
87 Styrene	104	8.264	8.264	0.000	90	202281	10.0	8.22	
88 Bromoform	173	8.442	8.442	0.000	87	28959	10.0	7.18	
89 Isopropylbenzene	105	8.607	8.607	0.000	98	314504	10.0	9.87	
92 1,1,2,2-Tetrachloroethane	83	8.891	8.891	0.000	74	75670	10.0	8.68	
93 Bromobenzene	156	8.891	8.891	0.000	90	51312	10.0	9.20	
94 1,2,3-Trichloropropane	110	8.927	8.927	0.000	89	21805	10.0	9.36	
95 trans-1,4-Dichloro-2-butene	53	8.938	8.938	0.000	79	30580	10.0	7.89	
96 N-Propylbenzene	120	8.998	8.998	0.000	99	76333	10.0	11.9	
97 2-Chlorotoluene	126	9.080	9.080	0.000	93	60331	10.0	10.4	
98 1,3,5-Trimethylbenzene	105	9.163	9.163	0.000	93	230478	10.0	12.2	
99 4-Chlorotoluene	126	9.187	9.187	0.000	99	60224	10.0	9.80	
100 tert-Butylbenzene	119	9.483	9.483	0.000	93	190146	10.0	13.6	
102 1,2,4-Trimethylbenzene	105	9.530	9.530	0.000	96	220166	10.0	10.9	
103 sec-Butylbenzene	105	9.696	9.696	0.000	97	277546	10.0	14.2	
104 1,3-Dichlorobenzene	146	9.802	9.802	0.000	90	89896	10.0	8.92	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
105 4-Isopropyltoluene	119	9.837	9.837	0.000	97	205236	10.0	13.1	
106 1,4-Dichlorobenzene	146	9.885	9.885	0.000	91	96524	10.0	9.41	
109 n-Butylbenzene	91	10.240	10.240	0.000	99	194331	10.0	13.2	
110 1,2-Dichlorobenzene	146	10.251	10.251	0.000	86	92841	10.0	9.23	
111 1,2-Dibromo-3-Chloropropane	157	11.020	11.020	0.000	65	11665	10.0	7.73	
113 1,2,4-Trichlorobenzene	180	11.848	11.848	0.000	90	52953	10.0	11.9	
114 Hexachlorobutadiene	225	12.014	12.014	0.000	83	19996	10.0	18.4	
115 Naphthalene	128	12.085	12.085	0.000	98	160429	10.0	6.88	
116 1,2,3-Trichlorobenzene	180	12.321	12.321	0.000	87	50458	10.0	11.4	E
S 130 Xylenes, Total	106				0		20.0	18.3	
S 156 Total BTEX	1				0		50.0	46.0	
S 131 Trihalomethanes, Total	1				0		40.0	37.6	

QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount

Reagents:

VMRPRIMW_00397	Amount Added: 8.00	Units: uL	
VMAROLISTDW_00355	Amount Added: 8.00	Units: uL	
VMRGAS_00349	Amount Added: 8.00	Units: uL	
VM50IS_00084	Amount Added: 1.00	Units: uL	Run Reagent
vm50ss_stk_00085	Amount Added: 1.00	Units: uL	Run Reagent
vm40ml_vials_00015	Amount Added: 0.00	Units:	Run Reagent
vmDist_H2o_00177	Amount Added: 0.00	Units:	Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromf\Canton\ChromData\A3UX10\20200803-100621.b\UXX8950.D

Injection Date: 03-Aug-2020 13:55:30

Instrument ID: A3UX10

Operator ID: 001644

Lims ID: CCVIS L4 8260

Worklist Smp#: 2

Client ID:

Purge Vol: 5.000 mL

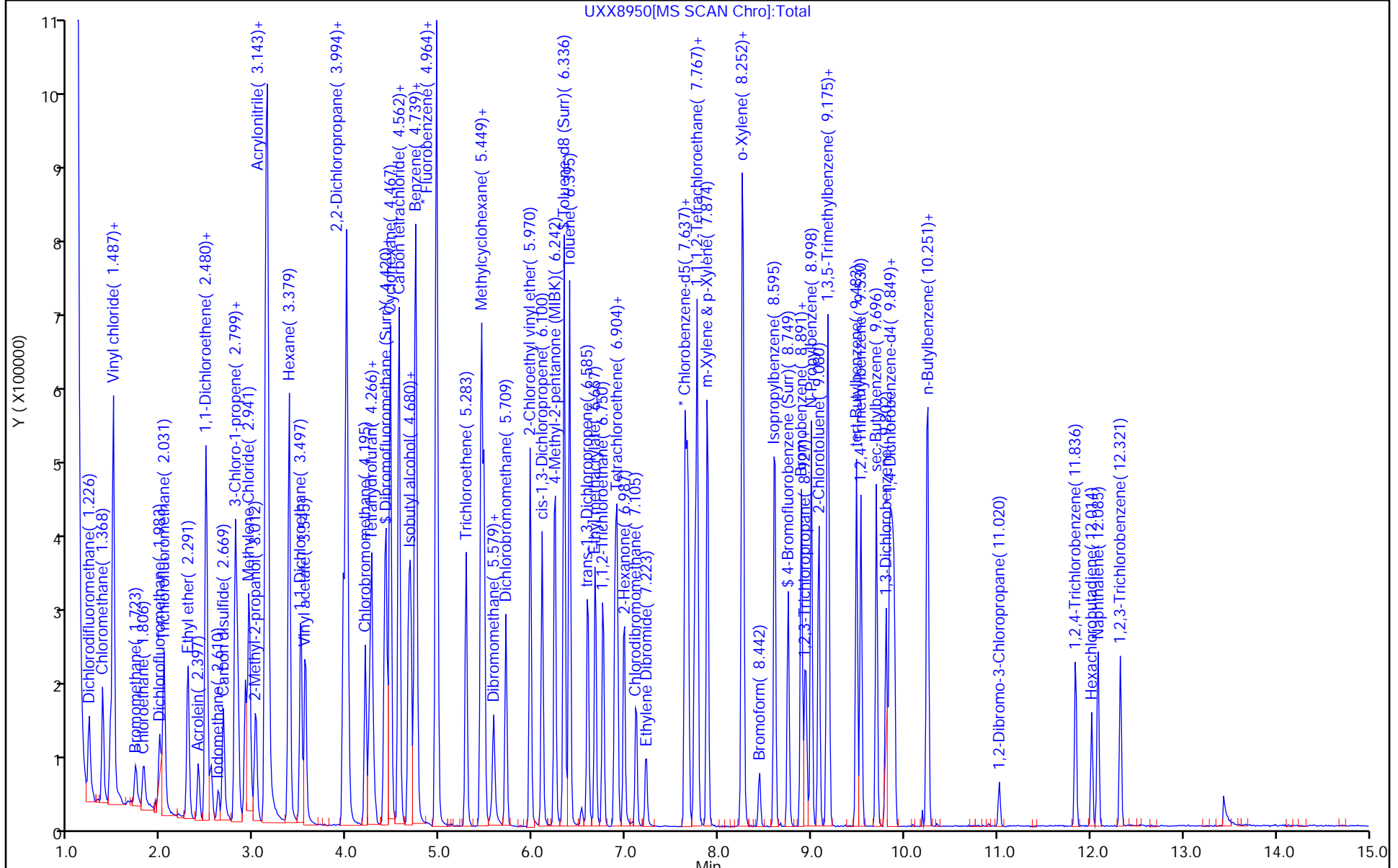
Dil. Factor: 1.0000

ALS Bottle#: 1

Method: 8260_10

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\BFB1718.D
 Lims ID: BFB
 Client ID:
 Sample Type: BFB
 Inject. Date: 15-Jan-2020 14:40:30 ALS Bottle#: 20 Worklist Smp#: 1
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: 240-0094937-001
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 20-Jan-2020 16:50:49 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0309

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 8 BFB	95	3.326	3.326	0.000	0	681278	NR	NR	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

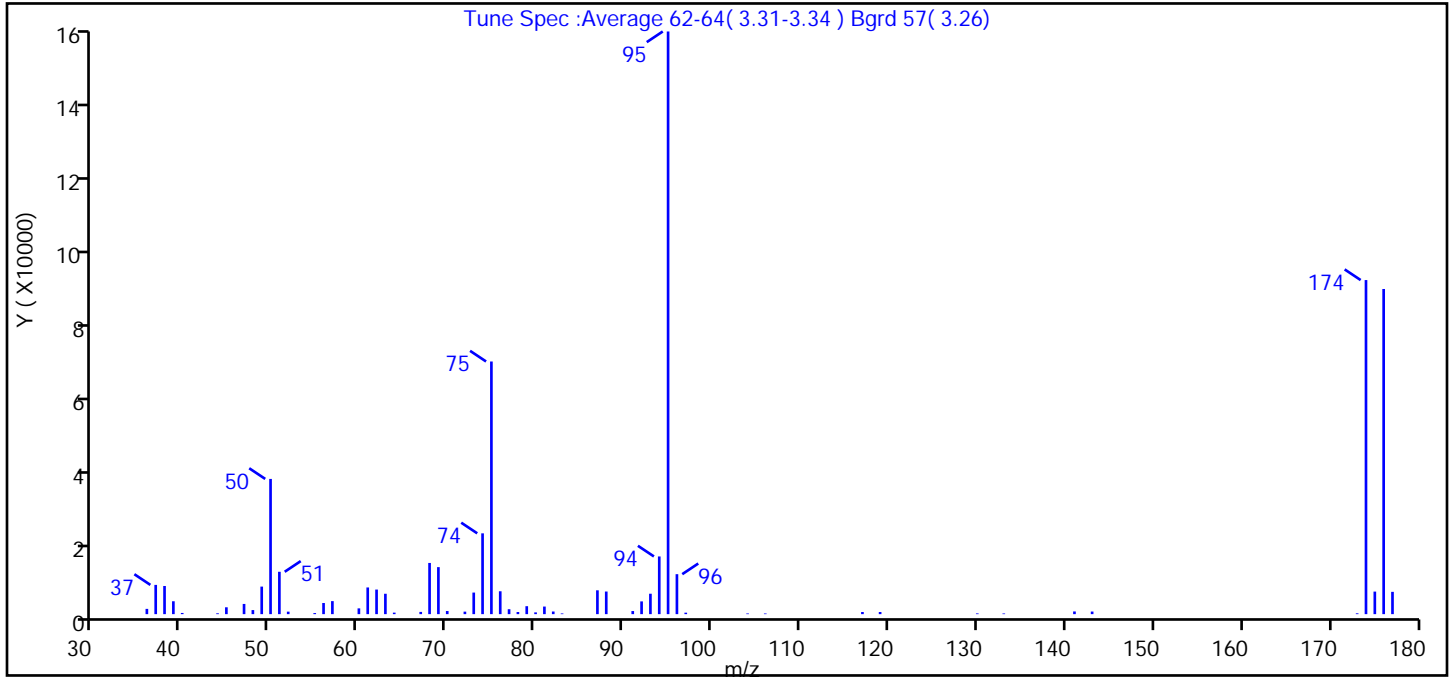
Reagents:

vmbfb_00024 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\BFB1718.D
 Injection Date: 15-Jan-2020 14:40:30 Instrument ID: A3UX10
 Lims ID: BFB
 Client ID:
 Operator ID: 001644 ALS Bottle#: 20 Worklist Smp#: 1
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Method: 8260_10 Limit Group: MSV 8260B ICAL
 Tune Method: BFB Method 8260

\$ 8 BFB



m/z	Ion Abundance Criteria	% Relative Abundance
95	Base peak, 100% relative abundance	100.0
50	15 to 40% of m/z 95	23.2
75	30 to 60% of m/z 95	43.4
96	5 to 9% of m/z 95	6.9
173	Less than 2% of m/z 174	0.1 (0.2)
174	50 to 120% of m/z 95	57.3
175	5 to 9% of m/z 174	3.9 (6.7)
176	Greater than 95% but less than 101% of m/z 174	55.8 (97.3)
177	5 to 9% of m/z 176	3.8 (6.9)

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\BFB1718.D\8260_10.rsl\spectra.d
 Injection Date: 15-Jan-2020 14:40:30
 Spectrum: Tune Spec :Average 62-64(3.31-3.34) Bgrd 57(3.26)
 Base Peak: 95.00
 Minimum % Base Peak: 0
 Number of Points: 59

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1411	57.00	3489	77.00	1320	97.00	394
37.00	7839	60.00	1548	78.00	571	104.00	184
38.00	7546	61.00	7152	79.00	2131	106.00	177
39.00	3454	62.00	6590	80.00	472	117.00	571
40.00	318	63.00	5463	81.00	2034	119.00	573
44.00	227	64.00	406	82.00	706	130.00	199
45.00	1839	67.00	599	83.00	188	133.00	183
47.00	2735	68.00	13720	87.00	6389	141.00	721
48.00	1091	69.00	12599	88.00	6062	143.00	697
49.00	7382	70.00	834	91.00	828	173.00	222
50.00	36240	72.00	671	92.00	3417	174.00	89536
51.00	11354	73.00	5782	93.00	5472	175.00	6043
52.00	667	74.00	21656	94.00	15461	176.00	87144
55.00	289	75.00	67712	95.00	156160	177.00	5975
56.00	2984	76.00	6130	96.00	10712		

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\BFB1718.D

Injection Date: 15-Jan-2020 14:40:30

Instrument ID: A3UX10

Operator ID: 001644

Lims ID: BFB

Worklist Smp#: 1

Client ID:

Injection Vol: 5.0 mL

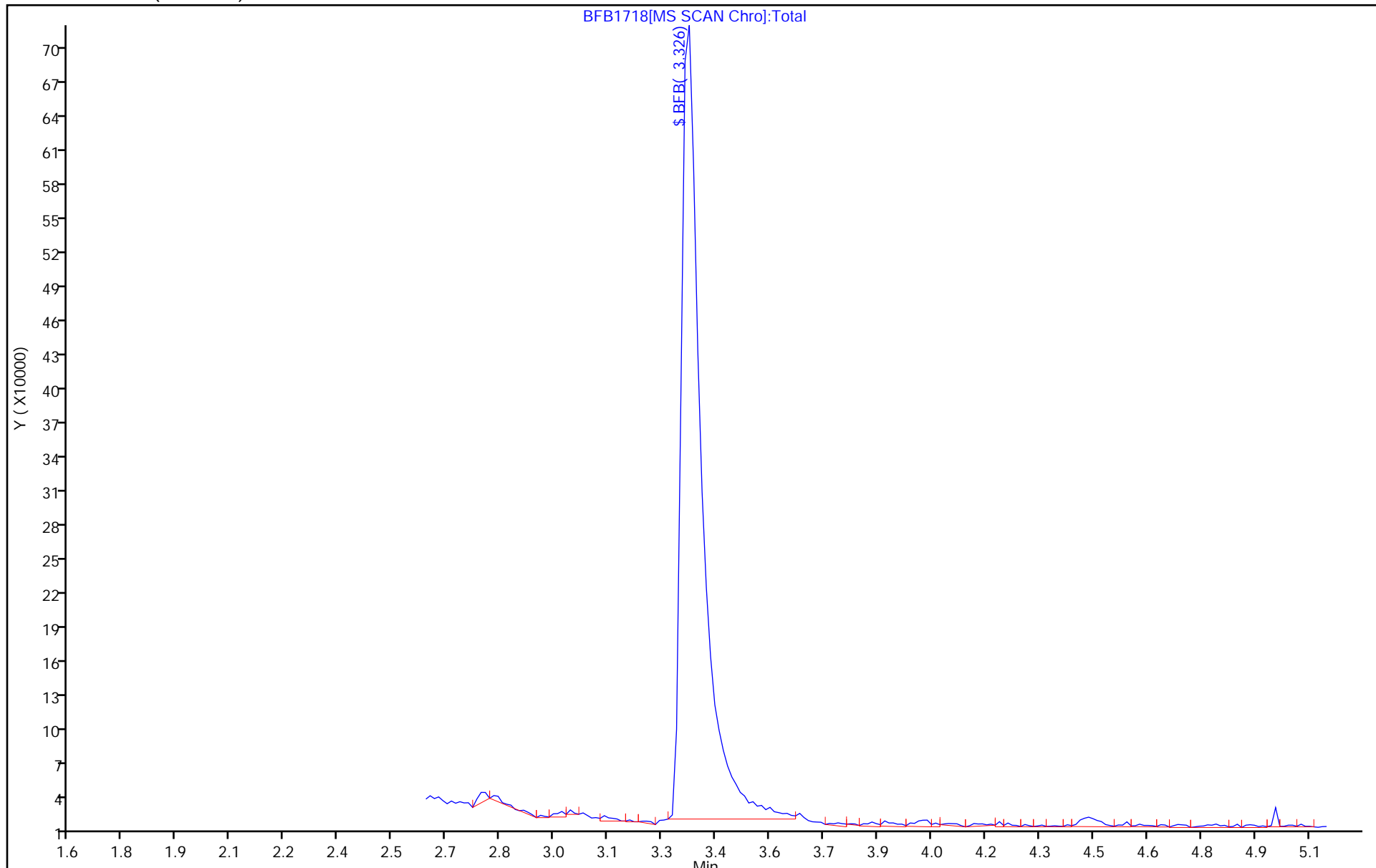
Dil. Factor: 1.0000

ALS Bottle#: 20

Method: 8260_10

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\BFB1910.D
 Lims ID: BFB
 Client ID:
 Sample Type: BFB
 Inject. Date: 01-Aug-2020 12:09:30 ALS Bottle#: 1 Worklist Smp#: 1
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: 240-0100590-001
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 03-Aug-2020 11:44:46 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1044

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 8 BFB	95	3.209	3.209	0.000	0	388582	NR	NR	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

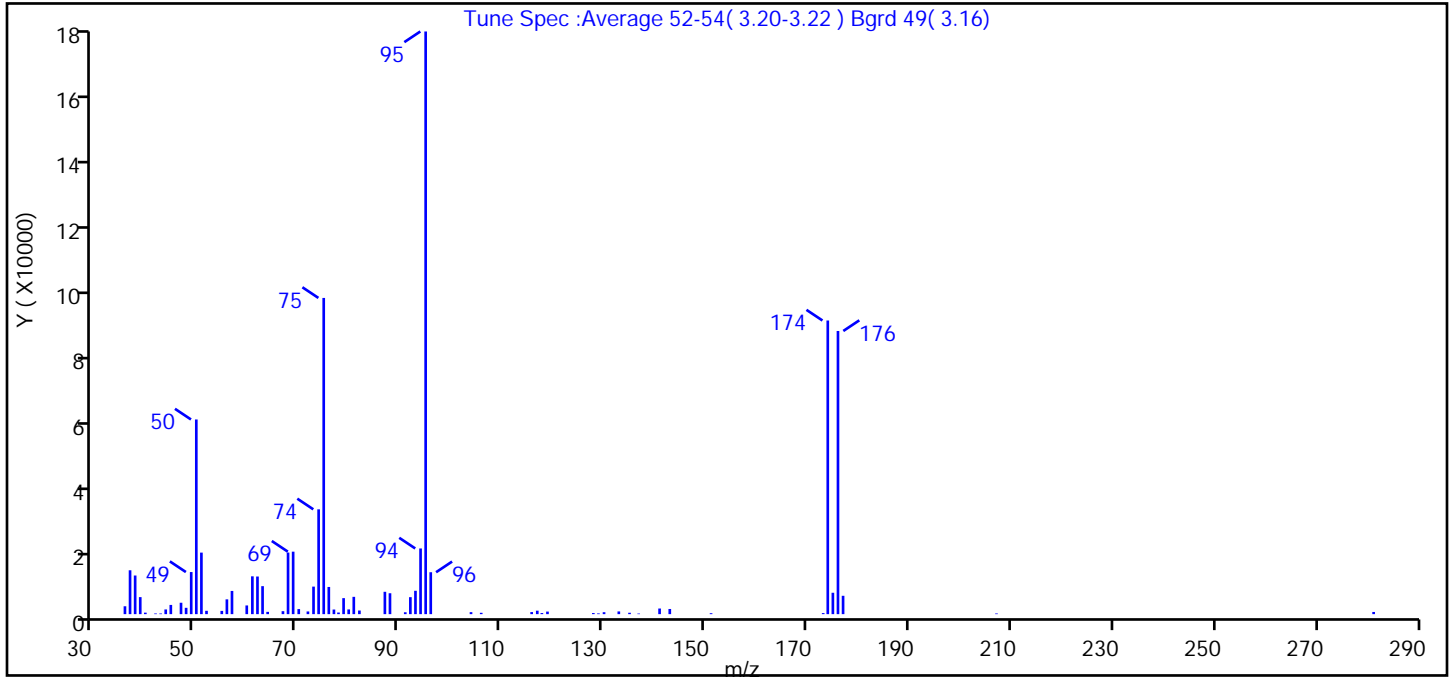
Reagents:

VMBFB_00025 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\BFB1910.D
 Injection Date: 01-Aug-2020 12:09:30 Instrument ID: A3UX10
 Lims ID: BFB
 Client ID:
 Operator ID: 001644 ALS Bottle#: 1 Worklist Smp#: 1
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Method: 8260_10 Limit Group: MSV 8260B ICAL
 Tune Method: BFB Method 8260

\$ 8 BFB



m/z	Ion Abundance Criteria	% Relative Abundance
95	Base peak, 100% relative abundance	100.0
50	15 to 40% of m/z 95	33.4
75	30 to 60% of m/z 95	54.3
96	5 to 9% of m/z 95	7.2
173	Less than 2% of m/z 174	0.2 (0.4)
174	50 to 120% of m/z 95	50.4
175	5 to 9% of m/z 174	3.7 (7.3)
176	Greater than 95% but less than 101% of m/z 174	48.6 (96.4)
177	5 to 9% of m/z 176	3.1 (6.5)

Data File: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\BFB1910.D\8260_10.rsl\spectra.d
Injection Date: 01-Aug-2020 12:09:30
Spectrum: Tune Spec :Average 52-54(3.20-3.22) Bgrd 49(3.16)
Base Peak: 95.10
Minimum % Base Peak: 0
Number of Points: 68

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	2344	57.00	6900	79.00	4760	119.00	759
37.00	13048	60.00	2587	80.00	1403	128.00	325
38.00	11491	61.00	11248	81.00	5148	129.00	219
39.00	5064	62.00	11194	82.00	1077	130.00	575
40.00	445	63.00	8324	87.00	6646	133.00	805
42.00	200	64.00	680	88.00	6216	135.00	413
43.00	191	67.00	880	91.00	558	137.00	177
44.00	1397	68.00	18320	92.00	5048	141.00	1670
45.00	2742	69.00	18584	93.00	6948	143.00	1535
47.00	3391	70.00	1505	94.00	19536	151.00	279
48.00	1883	72.00	798	95.00	173312	173.00	314
49.00	12521	73.00	8190	96.00	12467	174.00	87344
50.00	57904	74.00	31176	104.00	592	175.00	6362
51.00	18304	75.00	94056	106.00	403	176.00	84224
52.00	992	76.00	8085	116.00	617	177.00	5458
55.00	963	77.00	1373	117.00	1028	207.00	200
56.00	4402	78.00	480	118.00	328	281.00	648

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\BFB1910.D

Injection Date: 01-Aug-2020 12:09:30

Instrument ID: A3UX10

Operator ID: 001644

Lims ID: BFB

Worklist Smp#: 1

Client ID:

Injection Vol: 5.0 mL

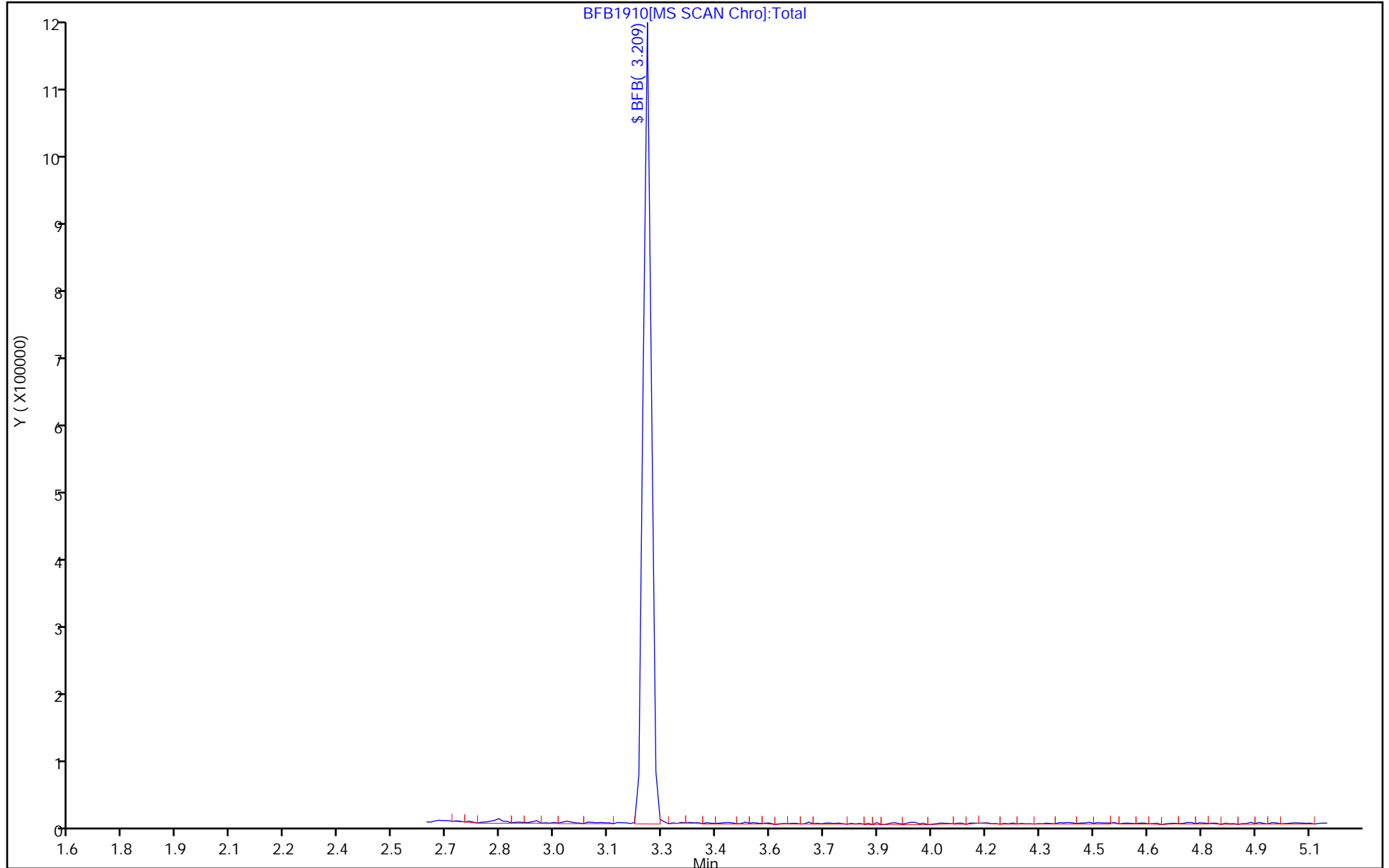
Dil. Factor: 1.0000

ALS Bottle#: 1

Method: 8260_10

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\BFB1913.D
 Lims ID: BFB
 Client ID:
 Sample Type: BFB
 Inject. Date: 03-Aug-2020 13:28:30 ALS Bottle#: 1 Worklist Smp#: 1
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: 240-0100621-001
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 10:20:06 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1067

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 8 BFB	95	3.209	3.209	0.000	0	243351	NR	NR	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

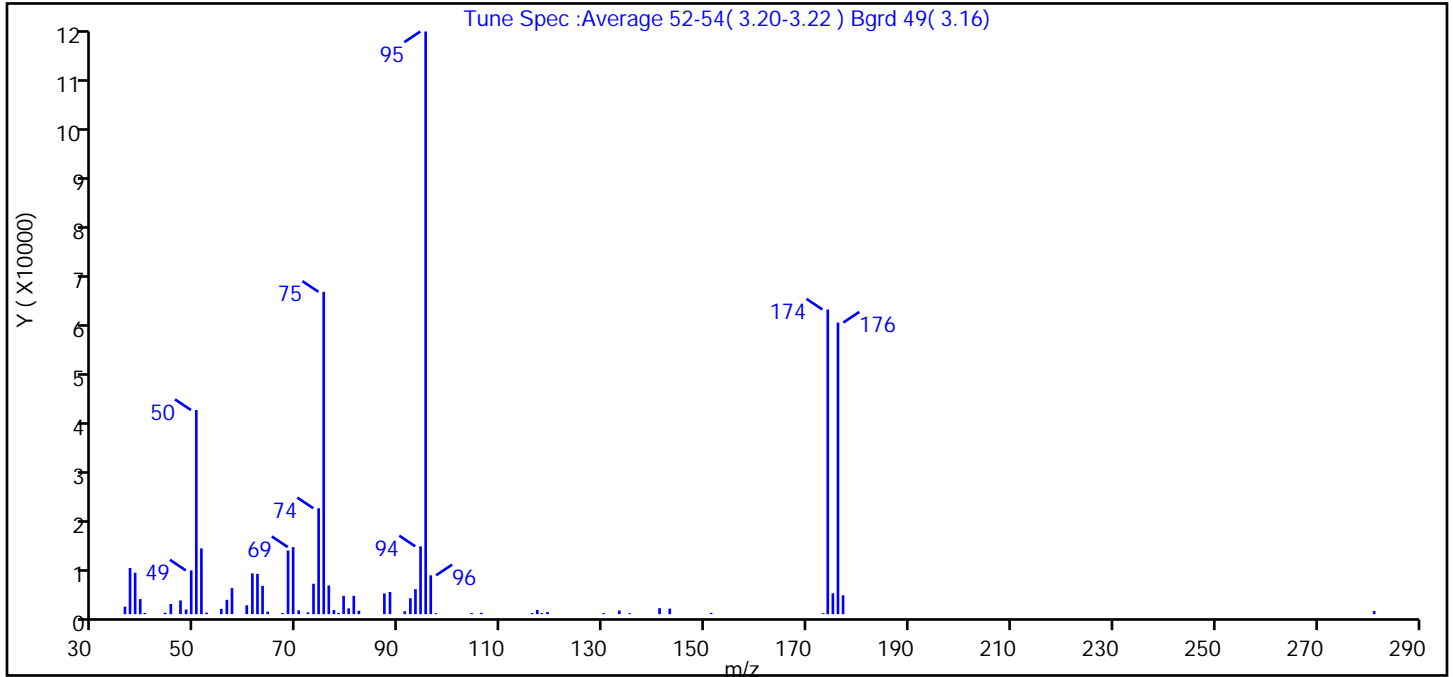
Reagents:

VMBFB_00025 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\BFB1913.D
 Injection Date: 03-Aug-2020 13:28:30 Instrument ID: A3UX10
 Lims ID: BFB
 Client ID:
 Operator ID: 001644 ALS Bottle#: 1 Worklist Smp#: 1
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Method: 8260_10 Limit Group: MSV 8260B ICAL
 Tune Method: BFB Method 8260

\$ 8 BFB



m/z	Ion Abundance Criteria	% Relative Abundance
95	Base peak, 100% relative abundance	100.0
50	15 to 40% of m/z 95	35.0
75	30 to 60% of m/z 95	55.3
96	5 to 9% of m/z 95	6.7
173	Less than 2% of m/z 174	0.2 (0.3)
174	50 to 120% of m/z 95	52.3
175	5 to 9% of m/z 174	3.6 (6.8)
176	Greater than 95% but less than 101% of m/z 174	50.0 (95.7)
177	5 to 9% of m/z 176	3.2 (6.5)

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\BFB1913.D\8260_10.rslt\spectra.d
Injection Date: 03-Aug-2020 13:28:30
Spectrum: Tune Spec :Average 52-54(3.20-3.22) Bgrd 49(3.16)
Base Peak: 95.10
Minimum % Base Peak: 0
Number of Points: 63

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1425	60.00	1684	79.00	3472	117.00	793
37.00	8746	61.00	7721	80.00	1085	118.00	210
38.00	7856	62.00	7633	81.00	3479	119.00	403
39.00	2849	63.00	5354	82.00	635	130.00	195
40.00	246	64.00	471	87.00	3908	133.00	688
44.00	269	67.00	211	88.00	4194	135.00	175
45.00	1943	68.00	12069	91.00	549	141.00	1144
47.00	2595	69.00	12703	92.00	3014	143.00	1052
48.00	884	70.00	713	93.00	4724	151.00	251
49.00	8279	72.00	351	94.00	12851	173.00	178
50.00	38672	73.00	5763	95.00	110392	174.00	57712
51.00	12449	74.00	20064	96.00	7356	175.00	3939
52.00	292	75.00	61072	97.00	176	176.00	55240
55.00	1001	76.00	5431	104.00	204	177.00	3568
56.00	2712	77.00	769	106.00	272	281.00	574
57.00	4924	78.00	247	116.00	215		

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\BFB1913.D

Injection Date: 03-Aug-2020 13:28:30

Instrument ID: A3UX10

Operator ID: 001644

Lims ID: BFB

Worklist Smp#: 1

Client ID:

Injection Vol: 5.0 mL

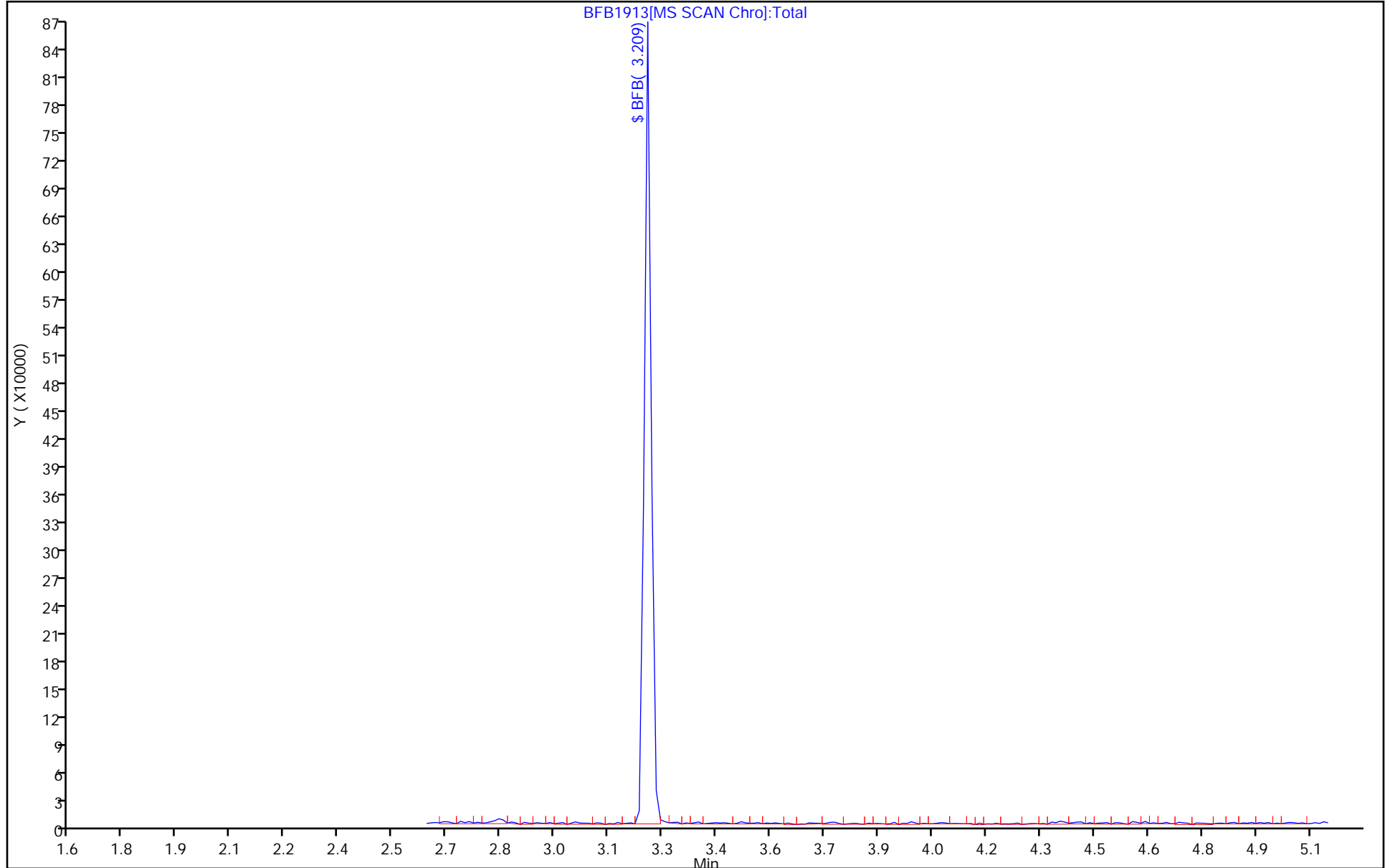
Dil. Factor: 1.0000

ALS Bottle#: 1

Method: 8260_10

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 240-445248/7
 Matrix: Water Lab File ID: UXX8927.D
 Analysis Method: 8260B Date Collected: _____
 Sample wt/vol: 5 (mL) Date Analyzed: 08/01/2020 15:01
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 445248 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	1.0	U	1.0	0.46
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.38
127-18-4	Tetrachloroethene	1.0	U	1.0	0.33
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.43
79-01-6	Trichloroethene	1.0	U	1.0	0.36
75-01-4	Vinyl chloride	1.0	U	1.0	0.50

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	126		75-130
460-00-4	4-Bromofluorobenzene (Surr)	95		47-134
2037-26-5	Toluene-d8 (Surr)	117		69-122
1868-53-7	Dibromofluoromethane (Surr)	104		78-129

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\UXX8927.D
 Lims ID: MB
 Client ID:
 Sample Type: MB
 Inject. Date: 01-Aug-2020 15:01:30 ALS Bottle#: 7 Worklist Smp#: 7
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100590-007
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 03-Aug-2020 11:44:52 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1044

First Level Reviewer: williamsla

Date: 01-Aug-2020 15:39:04

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.976	4.973	0.003	96	432369	10.0	10.0	
* 2 Chlorobenzene-d5	117	7.637	7.646	-0.009	96	234808	10.0	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.861	9.870	-0.009	92	67379	10.0	10.0	
\$ 4 Dibromofluoromethane (Surr)	113	4.408	4.406	0.002	91	104868	10.0	10.4	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.692	4.690	0.002	94	187050	10.0	12.6	
\$ 6 Toluene-d8 (Surr)	98	6.336	6.334	0.002	97	424044	10.0	11.7	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.749	8.747	0.002	74	107421	10.0	9.45	
9 Dichlorodifluoromethane	85		1.224					ND	
10 Chloromethane	50		1.366					ND	
11 Vinyl chloride	62		1.461					ND	
12 Butadiene	54		1.484					ND	
13 Bromomethane	94		1.721					ND	
14 Chloroethane	64		1.815					ND	
15 Dichlorofluoromethane	67		1.981					ND	
16 Trichlorofluoromethane	101		2.028					ND	
17 Ethyl ether	59		2.289					ND	
18 Acrolein	56		2.407					ND	U
19 1,1-Dichloroethene	96		2.478					ND	
20 1,1,2-Trichloro-1,2,2-trifluoro	151		2.490					ND	
21 Acetone	43	2.539	2.537	0.002	99	13632		0.5796	
22 Iodomethane	142		2.608					ND	
24 Carbon disulfide	76		2.667					ND	U
25 Acetonitrile	41		2.785					ND	U
26 3-Chloro-1-propene	76		2.797					ND	
27 Methyl acetate	43		2.821					ND	
120 Propene oxide	58		2.856					ND	
28 Methylene Chloride	84	2.906	2.904	0.002	89	3412		0.2714	
29 2-Methyl-2-propanol	59		3.022					ND	
23 Methylal	45		3.057					ND	
31 Acrylonitrile	53		3.128					ND	
30 trans-1,2-Dichloroethene	96		3.140					ND	
32 Methyl tert-butyl ether	73		3.152					ND	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
33 Hexane	86		3.377					ND	
34 1,1-Dichloroethane	63		3.507					ND	
35 Vinyl acetate	43		3.554					ND	
36 Isopropyl ether	87		3.565					ND	
37 2-Chloro-1,3-butadiene	53		3.577					ND	
38 Tert-butyl ethyl ether	59		3.873					ND	
42 Ethyl acetate	43		3.873					ND	U
39 2,2-Dichloropropane	97		3.992					ND	
40 cis-1,2-Dichloroethene	96		3.992					ND	
41 2-Butanone (MEK)	43		4.016					ND	
43 Propionitrile	54		4.062					ND	U
44 Methacrylonitrile	41		4.192					ND	
45 Chlorobromomethane	128		4.193					ND	
46 Tetrahydrofuran	42		4.240					ND	
47 Chloroform	83		4.264					ND	
48 1,1,1-Trichloroethane	97		4.418					ND	
49 Cyclohexane	56		4.465					ND	
51 Carbon tetrachloride	117		4.560					ND	
50 1,1-Dichloropropene	75		4.560					ND	
52 Isobutyl alcohol	41		4.666					ND	
53 Benzene	78		4.737					ND	
54 1,2-Dichloroethane	62		4.749					ND	
158 Isooctane	57		4.796					ND	
55 Tert-amyl methyl ether	73		4.831					ND	
56 n-Heptane	100		4.962					ND	
57 n-Butanol	56		5.221					ND	
58 Trichloroethene	130		5.281					ND	
59 Ethyl acrylate	55		5.375					ND	
60 Methylcyclohexane	83		5.447					ND	
61 1,2-Dichloropropane	63		5.470					ND	
62 Methyl methacrylate	41		5.576					ND	
63 Dibromomethane	93		5.577					ND	
64 1,4-Dioxane	88		5.589					ND	
65 Dichlorobromomethane	83		5.707					ND	
66 2-Nitropropane	41		5.907					ND	
67 2-Chloroethyl vinyl ether	63		5.967					ND	
68 cis-1,3-Dichloropropene	75		6.097					ND	
69 4-Methyl-2-pentanone (MIBK)	43		6.239					ND	
70 Toluene	91		6.393					ND	
71 trans-1,3-Dichloropropene	75		6.594					ND	
72 Ethyl methacrylate	69		6.677					ND	
73 1,1,2-Trichloroethane	97		6.760					ND	
74 Tetrachloroethene	164		6.890					ND	
75 1,3-Dichloropropane	76		6.902					ND	
76 2-Hexanone	43		6.985					ND	
77 n-Butyl acetate	56		7.102					ND	
78 Chlorodibromomethane	129		7.115					ND	
80 Ethylene Dibromide	107		7.221					ND	
81 1-Chlorohexane	91		7.646					ND	
82 Chlorobenzene	112		7.671					ND	
79 Tetrahydrothiophene	60		7.696					ND	
83 1,1,1,2-Tetrachloroethane	131		7.742					ND	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
84 Ethylbenzene	106		7.765					ND	
85 m-Xylene & p-Xylene	106		7.883					ND	
86 o-Xylene	106		8.250					ND	
87 Styrene	104		8.262					ND	
88 Bromoform	173		8.439					ND	
89 Isopropylbenzene	105		8.605					ND	
91 Cyclohexanone	55		8.687					ND	
92 1,1,2,2-Tetrachloroethane	83		8.889					ND	
93 Bromobenzene	156		8.889					ND	
94 1,2,3-Trichloropropane	110		8.936					ND	
95 trans-1,4-Dichloro-2-butene	53		8.948					ND	
96 N-Propylbenzene	120		8.995					ND	
97 2-Chlorotoluene	126		9.078					ND	
98 1,3,5-Trimethylbenzene	105		9.173					ND	
99 4-Chlorotoluene	126		9.185					ND	
90 1,4-Dichlorobutane	55		9.294					ND	
100 tert-Butylbenzene	119		9.480					ND	
101 Pentachloroethane	167		9.503					ND	
102 1,2,4-Trimethylbenzene	105		9.528					ND	
126 3-Ethyltoluene	105		9.662					ND	
103 sec-Butylbenzene	105		9.693					ND	
104 1,3-Dichlorobenzene	146		9.800					ND	
105 4-Isopropyltoluene	119		9.847					ND	
106 1,4-Dichlorobenzene	146		9.894					ND	
107 1,2,3-Trimethylbenzene	105		9.941					ND	
119 2-Ethyltoluene	105		9.946					ND	
108 Benzyl chloride	126		10.024					ND	
109 n-Butylbenzene	91		10.237					ND	
110 1,2-Dichlorobenzene	146		10.249					ND	
111 1,2-Dibromo-3-Chloropropane	157		11.018					ND	
112 1,3,5-Trichlorobenzene	180		11.230					ND	
113 1,2,4-Trichlorobenzene	180		11.846					ND	
114 Hexachlorobutadiene	225		12.012					ND	
115 Naphthalene	128		12.083					ND	
116 1,2,3-Trichlorobenzene	180		12.319					ND	
117 2-Methylnaphthalene	142		13.241					ND	
157 1-Methylnaphthalene	142		13.454					ND	
122 Epichlorohydrin	1		0.000					ND	
124 Ethylene oxide	1		0.000					ND	
118 1,3-Diethylbenzene TIC	1		0.000					ND	
S 128 1,2-Dichloroethene, Total	96		1.140					ND	
S 129 1,3-Dichloropropene, Total	75		6.760					ND	
S 130 Xylenes, Total	106		16.530					ND	
S 156 Total BTEX	1		0.000					ND	
S 131 Trihalomethanes, Total	1		0.000					ND	

QC Flag Legend

Review Flags

U - Marked Undetected

Reagents:

VM50IS_00084	Amount Added: 1.00	Units: uL	Run Reagent
vm50ss_stk_00085	Amount Added: 1.00	Units: uL	Run Reagent
vm40ml_vials_00015	Amount Added: 0.00	Units:	Run Reagent
vmDist_H2o_00177	Amount Added: 0.00	Units:	Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\UXX8927.D

Injection Date: 01-Aug-2020 15:01:30

Instrument ID: A3UX10

Operator ID: 001644

Lims ID: MB

Worklist Smp#: 7

Client ID:

Purge Vol: 5.000 mL

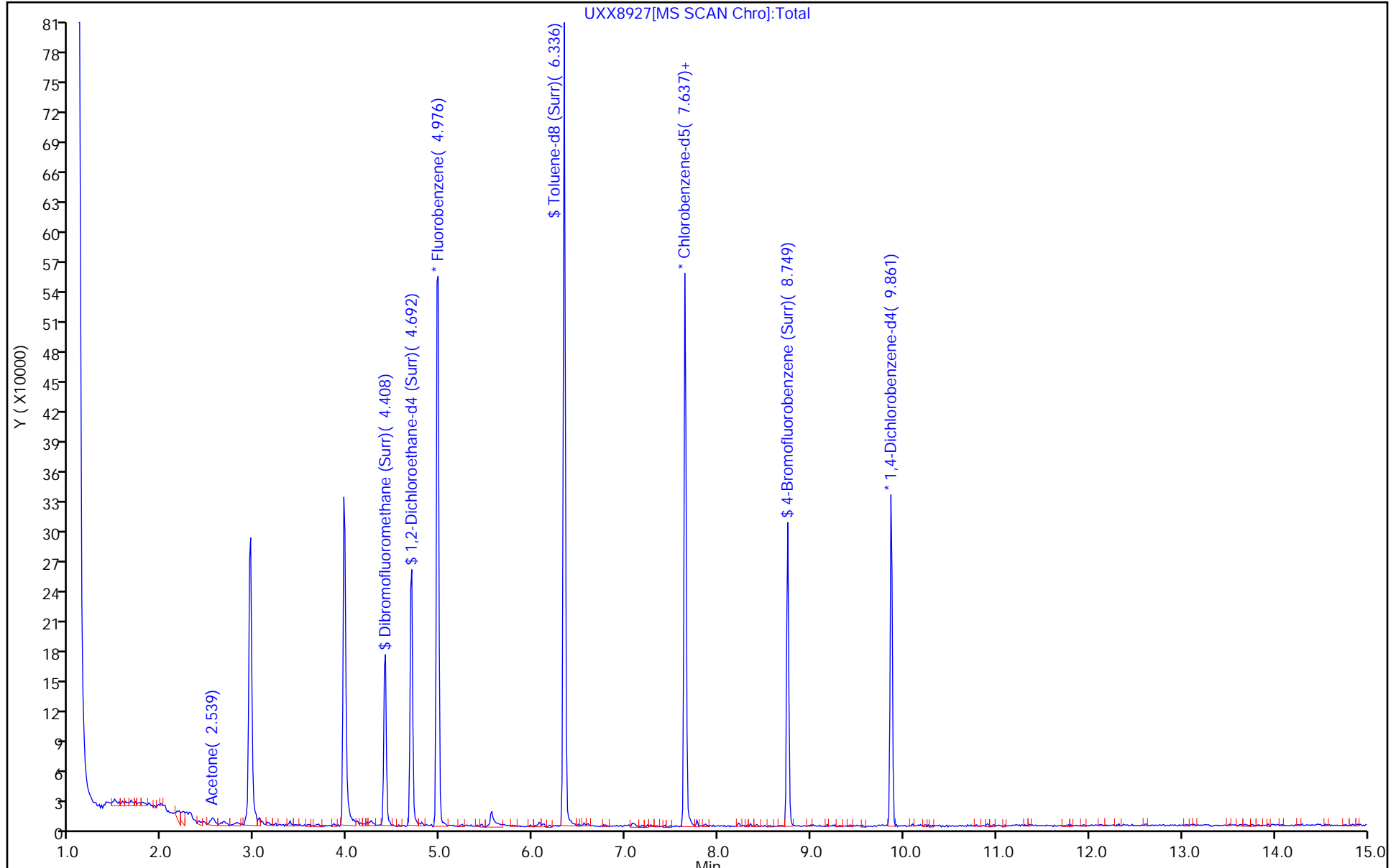
Dil. Factor: 1.0000

ALS Bottle#: 7

Method: 8260_10

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\UXX8927.D
 Lims ID: MB
 Client ID:
 Sample Type: MB
 Inject. Date: 01-Aug-2020 15:01:30 ALS Bottle#: 7 Worklist Smp#: 7
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100590-007
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 03-Aug-2020 11:44:52 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1044

First Level Reviewer: williamsla

Date: 01-Aug-2020 15:39:04

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	10.0	10.4	103.77
\$ 5 1,2-Dichloroethane-d4 (Surr)	10.0	12.6	126.05
\$ 6 Toluene-d8 (Surr)	10.0	11.7	117.45
\$ 7 4-Bromofluorobenzene (Surr)	10.0	9.45	94.51

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 240-445379/7
 Matrix: Water Lab File ID: UXX8956.D
 Analysis Method: 8260B Date Collected: _____
 Sample wt/vol: 5 (mL) Date Analyzed: 08/03/2020 16:25
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 445379 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	1.0	U	1.0	0.46
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.38
127-18-4	Tetrachloroethene	1.0	U	1.0	0.33
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.43
79-01-6	Trichloroethene	1.0	U	1.0	0.36
75-01-4	Vinyl chloride	1.0	U	1.0	0.50

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	122		75-130
460-00-4	4-Bromofluorobenzene (Surr)	94		47-134
2037-26-5	Toluene-d8 (Surr)	112		69-122
1868-53-7	Dibromofluoromethane (Surr)	106		78-129

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8956.D
 Lims ID: MB
 Client ID:
 Sample Type: MB
 Inject. Date: 03-Aug-2020 16:25:30 ALS Bottle#: 7 Worklist Smp#: 7
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100621-007
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 10:20:14 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1067

First Level Reviewer: williamsla Date: 03-Aug-2020 17:05:42

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.974	4.964	0.010	96	389889	10.0	10.0	
* 2 Chlorobenzene-d5	117	7.647	7.638	0.009	96	217213	10.0	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.871	9.861	0.010	95	65062	10.0	10.0	
\$ 4 Dibromofluoromethane (Surr)	113	4.406	4.396	0.010	90	96159	10.0	10.6	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.690	4.680	0.010	94	163291	10.0	12.2	
\$ 6 Toluene-d8 (Surr)	98	6.334	6.336	-0.002	96	373435	10.0	11.2	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.747	8.749	-0.002	73	99155	10.0	9.43	
9 Dichlorodifluoromethane	85		1.226					ND	
10 Chloromethane	50		1.368					ND	
11 Vinyl chloride	62		1.451					ND	
12 Butadiene	54		1.487					ND	
13 Bromomethane	94		1.723					ND	
14 Chloroethane	64		1.818					ND	
15 Dichlorofluoromethane	67		1.983					ND	
16 Trichlorofluoromethane	101		2.031					ND	
17 Ethyl ether	59		2.291					ND	
18 Acrolein	56		2.397					ND	
19 1,1-Dichloroethene	96		2.480					ND	
20 1,1,2-Trichloro-1,2,2-trifluoro	151		2.492					ND	
21 Acetone	43		2.539					ND	
22 Iodomethane	142		2.610					ND	
24 Carbon disulfide	76		2.669					ND	U
25 Acetonitrile	41		2.788					ND	
26 3-Chloro-1-propene	76		2.799					ND	
27 Methyl acetate	43		2.823					ND	
120 Propene oxide	58		2.856					ND	
28 Methylene Chloride	84		2.906					ND	
29 2-Methyl-2-propanol	59		3.012					ND	
23 Methylal	45		3.057					ND	
31 Acrylonitrile	53		3.119					ND	
30 trans-1,2-Dichloroethene	96		3.143					ND	
32 Methyl tert-butyl ether	73		3.143					ND	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
33 Hexane	86		3.379					ND	
34 1,1-Dichloroethane	63		3.497					ND	
35 Vinyl acetate	43		3.545					ND	
36 Isopropyl ether	87		3.569					ND	
37 2-Chloro-1,3-butadiene	53		3.581					ND	
42 Ethyl acetate	43		3.876					ND	U
38 Tert-butyl ethyl ether	59		3.876					ND	
39 2,2-Dichloropropane	97		3.994					ND	
40 cis-1,2-Dichloroethene	96		3.994					ND	
41 2-Butanone (MEK)	43		4.006					ND	
43 Propionitrile	54		4.065					ND	
45 Chlorobromomethane	128		4.195					ND	
44 Methacrylonitrile	41		4.196					ND	
46 Tetrahydrofuran	42		4.243					ND	
47 Chloroform	83		4.266					ND	
48 1,1,1-Trichloroethane	97		4.420					ND	
49 Cyclohexane	56		4.467					ND	
50 1,1-Dichloropropene	75		4.562					ND	
51 Carbon tetrachloride	117		4.562					ND	
52 Isobutyl alcohol	41		4.657					ND	
53 Benzene	78		4.739					ND	
54 1,2-Dichloroethane	62		4.751					ND	
158 Isooctane	57		4.799					ND	
55 Tert-amyl methyl ether	73		4.834					ND	
56 n-Heptane	100		4.964					ND	
57 n-Butanol	56		5.225					ND	
58 Trichloroethene	130		5.283					ND	
59 Ethyl acrylate	55		5.378					ND	
60 Methylcyclohexane	83		5.449					ND	
61 1,2-Dichloropropane	63		5.473					ND	
62 Methyl methacrylate	41		5.568					ND	
63 Dibromomethane	93		5.579					ND	
64 1,4-Dioxane	88		5.591					ND	
65 Dichlorobromomethane	83		5.709					ND	
66 2-Nitropropane	41		5.911					ND	
67 2-Chloroethyl vinyl ether	63		5.970					ND	
68 cis-1,3-Dichloropropene	75		6.100					ND	
69 4-Methyl-2-pentanone (MIBK)	43		6.242					ND	
70 Toluene	91		6.395					ND	
71 trans-1,3-Dichloropropene	75		6.596					ND	
72 Ethyl methacrylate	69		6.667					ND	
73 1,1,2-Trichloroethane	97		6.750					ND	
74 Tetrachloroethene	164		6.892					ND	
75 1,3-Dichloropropane	76		6.904					ND	
76 2-Hexanone	43		6.987					ND	
77 n-Butyl acetate	56		7.094					ND	
78 Chlorodibromomethane	129		7.117					ND	
80 Ethylene Dibromide	107		7.223					ND	
81 1-Chlorohexane	91		7.650					ND	
82 Chlorobenzene	112		7.673					ND	
79 Tetrahydrothiophene	60		7.696					ND	
83 1,1,1,2-Tetrachloroethane	131		7.744					ND	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
84 Ethylbenzene	106		7.767					ND	
85 m-Xylene & p-Xylene	106		7.874					ND	
86 o-Xylene	106		8.252					ND	
87 Styrene	104		8.264					ND	
88 Bromoform	173		8.442					ND	
89 Isopropylbenzene	105		8.607					ND	
91 Cyclohexanone	55		8.690					ND	
92 1,1,2,2-Tetrachloroethane	83		8.891					ND	
93 Bromobenzene	156		8.891					ND	
94 1,2,3-Trichloropropane	110		8.927					ND	
95 trans-1,4-Dichloro-2-butene	53		8.938					ND	
96 N-Propylbenzene	120		8.998					ND	
97 2-Chlorotoluene	126		9.080					ND	
98 1,3,5-Trimethylbenzene	105		9.163					ND	
99 4-Chlorotoluene	126		9.187					ND	
90 1,4-Dichlorobutane	55		9.294					ND	
100 tert-Butylbenzene	119		9.483					ND	
101 Pentachloroethane	167		9.507					ND	
102 1,2,4-Trimethylbenzene	105		9.530					ND	
126 3-Ethyltoluene	105		9.662					ND	
103 sec-Butylbenzene	105		9.696					ND	
104 1,3-Dichlorobenzene	146		9.802					ND	
105 4-Isopropyltoluene	119		9.837					ND	
106 1,4-Dichlorobenzene	146		9.885					ND	
107 1,2,3-Trimethylbenzene	105		9.944					ND	
119 2-Ethyltoluene	105		9.946					ND	
108 Benzyl chloride	126		10.027					ND	
109 n-Butylbenzene	91		10.240					ND	
110 1,2-Dichlorobenzene	146		10.251					ND	
111 1,2-Dibromo-3-Chloropropane	157		11.020					ND	
112 1,3,5-Trichlorobenzene	180		11.234					ND	
113 1,2,4-Trichlorobenzene	180		11.848					ND	
114 Hexachlorobutadiene	225		12.014					ND	
115 Naphthalene	128		12.085					ND	
116 1,2,3-Trichlorobenzene	180		12.321					ND	
117 2-Methylnaphthalene	142		13.244					ND	
157 1-Methylnaphthalene	142		13.457					ND	
122 Epichlorohydrin	1		0.000					ND	
124 Ethylene oxide	1		0.000					ND	
118 1,3-Diethylbenzene TIC	1		0.000					ND	
S 128 1,2-Dichloroethene, Total	96		1.140					ND	
S 129 1,3-Dichloropropene, Total	75		6.760					ND	
S 130 Xylenes, Total	106		16.530					ND	
S 156 Total BTEX	1		0.000					ND	
S 131 Trihalomethanes, Total	1		0.000					ND	

QC Flag Legend

Review Flags

U - Marked Undetected

Reagents:

VM50IS_00084	Amount Added: 1.00	Units: uL	Run Reagent
vm50ss_stk_00085	Amount Added: 1.00	Units: uL	Run Reagent
vm40ml_vials_00015	Amount Added: 0.00	Units:	Run Reagent
vmDist_H2o_00177	Amount Added: 0.00	Units:	Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8956.D

Injection Date: 03-Aug-2020 16:25:30

Instrument ID: A3UX10

Operator ID: 001644

Lims ID: MB

Worklist Smp#: 7

Client ID:

Purge Vol: 5.000 mL

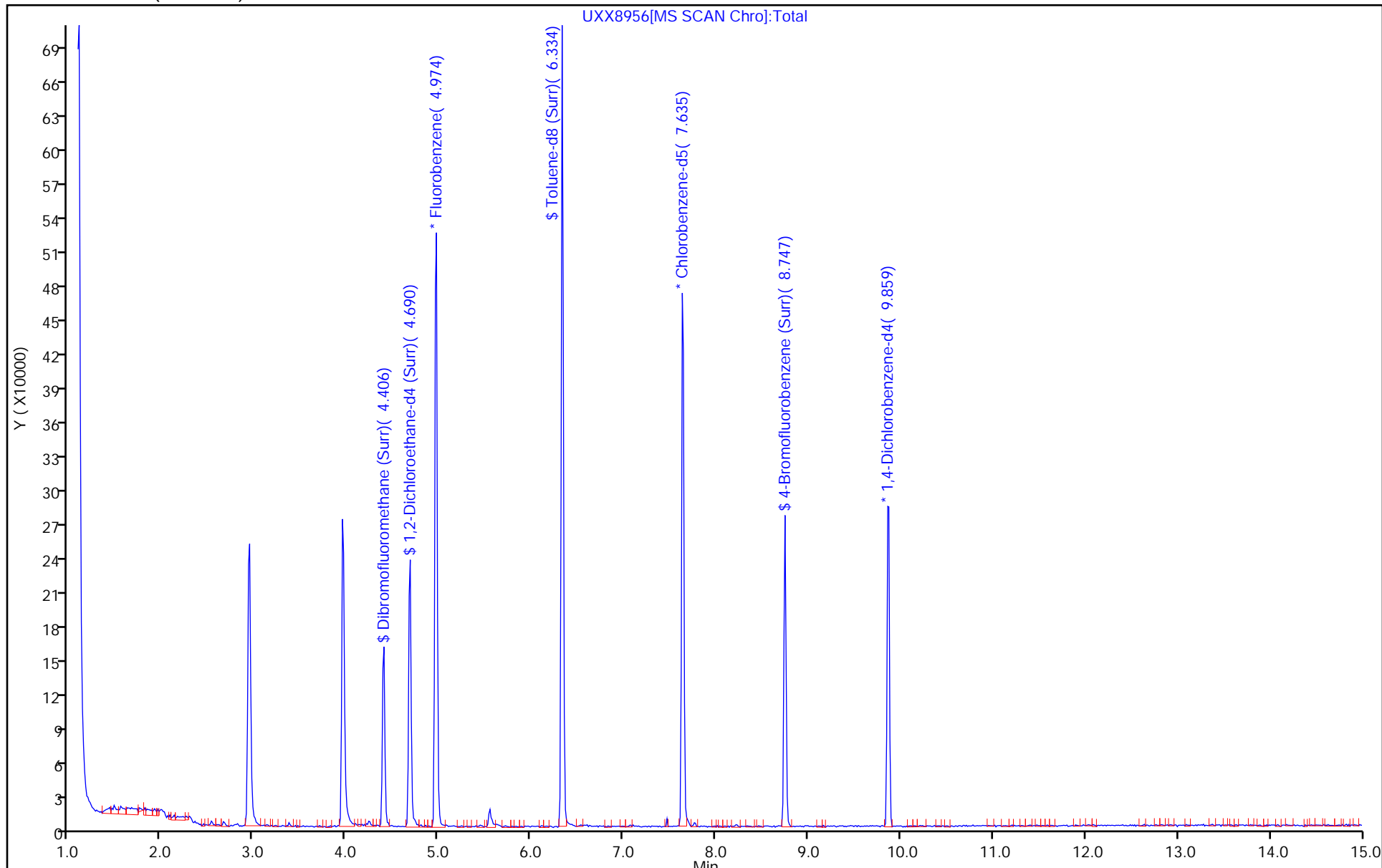
Dil. Factor: 1.0000

ALS Bottle#: 7

Method: 8260_10

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8956.D
 Lims ID: MB
 Client ID:
 Sample Type: MB
 Inject. Date: 03-Aug-2020 16:25:30 ALS Bottle#: 7 Worklist Smp#: 7
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100621-007
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 10:20:14 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1067

First Level Reviewer: williamsla

Date: 03-Aug-2020 17:05:42

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	10.0	10.6	105.52
\$ 5 1,2-Dichloroethane-d4 (Surr)	10.0	12.2	122.03
\$ 6 Toluene-d8 (Surr)	10.0	11.2	111.81
\$ 7 4-Bromofluorobenzene (Surr)	10.0	9.43	94.30

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LCS 240-445248/4
 Matrix: Water Lab File ID: UXX8924.D
 Analysis Method: 8260B Date Collected: _____
 Sample wt/vol: 5 (mL) Date Analyzed: 08/01/2020 13:47
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 445248 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	9.68		1.0	0.46
156-59-2	cis-1,2-Dichloroethene	9.70		1.0	0.38
127-18-4	Tetrachloroethene	11.4		1.0	0.33
156-60-5	trans-1,2-Dichloroethene	9.38		1.0	0.43
79-01-6	Trichloroethene	9.05		1.0	0.36
75-01-4	Vinyl chloride	12.1		1.0	0.50

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	124		75-130
460-00-4	4-Bromofluorobenzene (Surr)	95		47-134
2037-26-5	Toluene-d8 (Surr)	111		69-122
1868-53-7	Dibromofluoromethane (Surr)	101		78-129

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\UXX8924.D
 Lims ID: LCS
 Client ID:
 Sample Type: LCS
 Inject. Date: 01-Aug-2020 13:47:30 ALS Bottle#: 4 Worklist Smp#: 4
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100590-004
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 03-Aug-2020 11:44:52 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1044

First Level Reviewer: williamsla

Date: 01-Aug-2020 14:10:12

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.974	4.973	0.001	94	458297	10.0	10.0	
* 2 Chlorobenzene-d5	117	7.647	7.646	0.001	95	255386	10.0	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.871	9.870	0.001	93	69116	10.0	10.0	
\$ 4 Dibromofluoromethane (Surr)	113	4.406	4.406	0.000	90	108091	10.0	10.1	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.690	4.690	0.000	98	195043	10.0	12.4	
\$ 6 Toluene-d8 (Surr)	98	6.334	6.334	0.000	96	434835	10.0	11.1	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.747	8.747	0.000	72	117574	10.0	9.51	
9 Dichlorodifluoromethane	85	1.224	1.224	0.000	98	112861	10.0	11.4	
10 Chloromethane	50	1.378	1.366	0.012	99	194743	10.0	9.60	
11 Vinyl chloride	62	1.461	1.461	0.000	99	180756	10.0	12.1	
12 Butadiene	54	1.484	1.484	0.000	96	250652	10.0	30.3	
13 Bromomethane	94	1.733	1.721	0.012	94	57801	10.0	8.11	
14 Chloroethane	64	1.815	1.815	0.000	95	92769	10.0	11.6	
15 Dichlorofluoromethane	67	1.993	1.981	0.012	98	186037	10.0	9.20	
16 Trichlorofluoromethane	101	2.040	2.028	0.012	98	156031	10.0	14.5	
17 Ethyl ether	59	2.289	2.289	0.000	95	175356	10.0	12.4	
18 Acrolein	56	2.407	2.407	0.000	98	73483	50.0	27.2	
19 1,1-Dichloroethene	96	2.490	2.478	0.012	88	104569	10.0	9.68	
20 1,1,2-Trichloro-1,2,2-trifluoro	151	2.490	2.490	0.000	96	65088	10.0	12.9	
21 Acetone	43	2.537	2.537	0.000	100	104435	20.0	16.9	
22 Iodomethane	142	2.620	2.608	0.012	97	94286	10.0	7.47	
24 Carbon disulfide	76	2.667	2.667	0.000	98	353161	10.0	9.33	
26 3-Chloro-1-propene	76	2.809	2.797	0.012	87	87594	10.0	8.95	
27 Methyl acetate	43	2.833	2.821	0.012	100	342503	20.0	21.2	
28 Methylene Chloride	84	2.916	2.904	0.012	90	123422	10.0	9.26	
29 2-Methyl-2-propanol	59	3.022	3.022	0.000	97	219661	100.0	116.1	
31 Acrylonitrile	53	3.128	3.128	0.000	98	717235	100.0	90.9	
30 trans-1,2-Dichloroethene	96	3.140	3.140	0.000	88	117453	10.0	9.38	
32 Methyl tert-butyl ether	73	3.152	3.152	0.000	96	439674	10.0	12.0	
33 Hexane	86	3.377	3.377	0.000	93	34635	10.0	14.3	
34 1,1-Dichloroethane	63	3.507	3.507	0.000	97	327953	10.0	11.1	
35 Vinyl acetate	43	3.554	3.554	0.000	96	425136	10.0	11.8	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
39 2,2-Dichloropropane	97	4.004	3.992	0.012	70	47907	10.0	17.1	
40 cis-1,2-Dichloroethene	96	4.004	3.992	0.012	92	135310	10.0	9.70	
41 2-Butanone (MEK)	43	4.016	4.016	0.000	97	187040	20.0	18.7	
45 Chlorobromomethane	128	4.205	4.193	0.012	83	47424	10.0	8.35	
46 Tetrahydrofuran	42	4.240	4.240	0.000	91	130684	20.0	18.6	
47 Chloroform	83	4.264	4.264	0.000	98	239386	10.0	11.1	
48 1,1,1-Trichloroethane	97	4.418	4.418	0.000	93	214634	10.0	15.6	
49 Cyclohexane	56	4.465	4.465	0.000	90	361587	10.0	13.9	
51 Carbon tetrachloride	117	4.560	4.560	0.000	83	169995	10.0	15.5	
50 1,1-Dichloropropene	75	4.560	4.560	0.000	83	190189	10.0	11.2	
52 Isobutyl alcohol	41	4.666	4.666	0.000	95	160873	250.0	292.8	
53 Benzene	78	4.737	4.737	0.000	95	526057	10.0	9.28	
54 1,2-Dichloroethane	62	4.749	4.749	0.000	96	265177	10.0	12.7	
56 n-Heptane	100	4.962	4.962	0.000	96	31198	10.0	16.3	
58 Trichloroethene	130	5.281	5.281	0.000	88	106527	10.0	9.05	
60 Methylcyclohexane	83	5.447	5.447	0.000	93	199002	10.0	13.3	
61 1,2-Dichloropropane	63	5.470	5.470	0.000	95	183130	10.0	10.3	
63 Dibromomethane	93	5.577	5.577	0.000	82	70087	10.0	9.66	
64 1,4-Dioxane	88	5.601	5.589	0.012	86	18753	200.0	138.6	
65 Dichlorobromomethane	83	5.707	5.707	0.000	96	182141	10.0	11.2	
67 2-Chloroethyl vinyl ether	63	5.967	5.967	0.000	91	125107	10.0	9.72	
68 cis-1,3-Dichloropropene	75	6.097	6.097	0.000	85	211075	10.0	9.51	
69 4-Methyl-2-pentanone (MIBK)	43	6.239	6.239	0.000	98	409649	20.0	19.8	
70 Toluene	91	6.393	6.393	0.000	96	498188	10.0	10.7	
71 trans-1,3-Dichloropropene	75	6.594	6.594	0.000	97	175440	10.0	10.7	
72 Ethyl methacrylate	69	6.677	6.677	0.000	92	179879	10.0	9.97	
73 1,1,2-Trichloroethane	97	6.760	6.760	0.000	94	99066	10.0	10.0	
74 Tetrachloroethene	164	6.890	6.890	0.000	84	62165	10.0	11.4	
75 1,3-Dichloropropane	76	6.902	6.902	0.000	95	191697	10.0	10.6	
76 2-Hexanone	43	6.985	6.985	0.001	98	261596	20.0	22.4	
78 Chlorodibromomethane	129	7.115	7.115	0.000	87	93365	10.0	10.9	
80 Ethylene Dibromide	107	7.221	7.221	0.000	98	84962	10.0	9.63	
82 Chlorobenzene	112	7.671	7.671	0.000	86	249462	10.0	9.99	
83 1,1,1,2-Tetrachloroethane	131	7.742	7.742	0.000	91	89269	10.0	11.4	
84 Ethylbenzene	106	7.765	7.765	0.000	99	142088	10.0	10.2	
85 m-Xylene & p-Xylene	106	7.884	7.883	0.001	97	167543	10.0	10.1	
86 o-Xylene	106	8.250	8.250	0.000	96	161121	10.0	10.4	
87 Styrene	104	8.262	8.262	0.000	83	249518	10.0	9.02	
88 Bromoform	173	8.439	8.439	0.000	85	37449	10.0	8.25	
89 Isopropylbenzene	105	8.605	8.605	0.000	97	402154	10.0	11.2	
92 1,1,2,2-Tetrachloroethane	83	8.889	8.889	0.000	78	106256	10.0	12.7	
93 Bromobenzene	156	8.889	8.889	0.000	89	62714	10.0	11.7	
94 1,2,3-Trichloropropane	110	8.936	8.936	0.000	87	29936	10.0	13.4	
95 trans-1,4-Dichloro-2-butene	53	8.948	8.948	0.000	82	42882	10.0	11.3	
96 N-Propylbenzene	120	8.995	8.995	0.000	99	90765	10.0	14.7	
97 2-Chlorotoluene	126	9.078	9.078	0.000	92	70538	10.0	12.7	
98 1,3,5-Trimethylbenzene	105	9.173	9.173	0.000	92	274432	10.0	15.2	
99 4-Chlorotoluene	126	9.185	9.185	0.000	97	67651	10.0	11.5	
100 tert-Butylbenzene	119	9.480	9.480	0.000	92	220217	10.0	16.4	
102 1,2,4-Trimethylbenzene	105	9.528	9.528	0.000	96	257636	10.0	13.3	
103 sec-Butylbenzene	105	9.693	9.693	0.000	97	320369	10.0	17.1	
104 1,3-Dichlorobenzene	146	9.800	9.800	0.000	89	101426	10.0	10.5	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
105 4-Isopropyltoluene	119	9.847	9.847	0.000	97	238284	10.0	15.9	
106 1,4-Dichlorobenzene	146	9.894	9.894	0.000	84	107009	10.0	10.9	
109 n-Butylbenzene	91	10.237	10.237	0.000	97	212882	10.0	15.1	
110 1,2-Dichlorobenzene	146	10.249	10.249	0.000	87	103920	10.0	10.8	
111 1,2-Dibromo-3-Chloropropane	157	11.018	11.018	0.000	65	14662	10.0	10.6	
113 1,2,4-Trichlorobenzene	180	11.846	11.846	0.000	91	59520	10.0	14.0	
114 Hexachlorobutadiene	225	12.012	12.012	0.000	84	23533	10.0	22.5	E
115 Naphthalene	128	12.083	12.083	0.000	97	193624	10.0	8.67	
116 1,2,3-Trichlorobenzene	180	12.319	12.319	0.000	88	60449	10.0	14.3	E
S 130 Xylenes, Total	106				0		20.0	20.6	
S 156 Total BTEX	1				0		50.0	50.7	
S 131 Trihalomethanes, Total	1				0		40.0	41.4	

QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount

Reagents:

VMFASPW_00360	Amount Added: 8.00	Units: uL	
VMFASAW_00338	Amount Added: 8.00	Units: uL	
VMFASGW_00369	Amount Added: 8.00	Units: uL	
VM50IS_00084	Amount Added: 1.00	Units: uL	Run Reagent
vm50ss_stk_00085	Amount Added: 1.00	Units: uL	Run Reagent
vm40ml_vials_00015	Amount Added: 0.00	Units:	Run Reagent
vmDist_H2o_00177	Amount Added: 0.00	Units:	Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\UXX8924.D

Injection Date: 01-Aug-2020 13:47:30

Instrument ID: A3UX10

Operator ID: 001644

Lims ID: LCS

Worklist Smp#: 4

Client ID:

Purge Vol: 5.000 mL

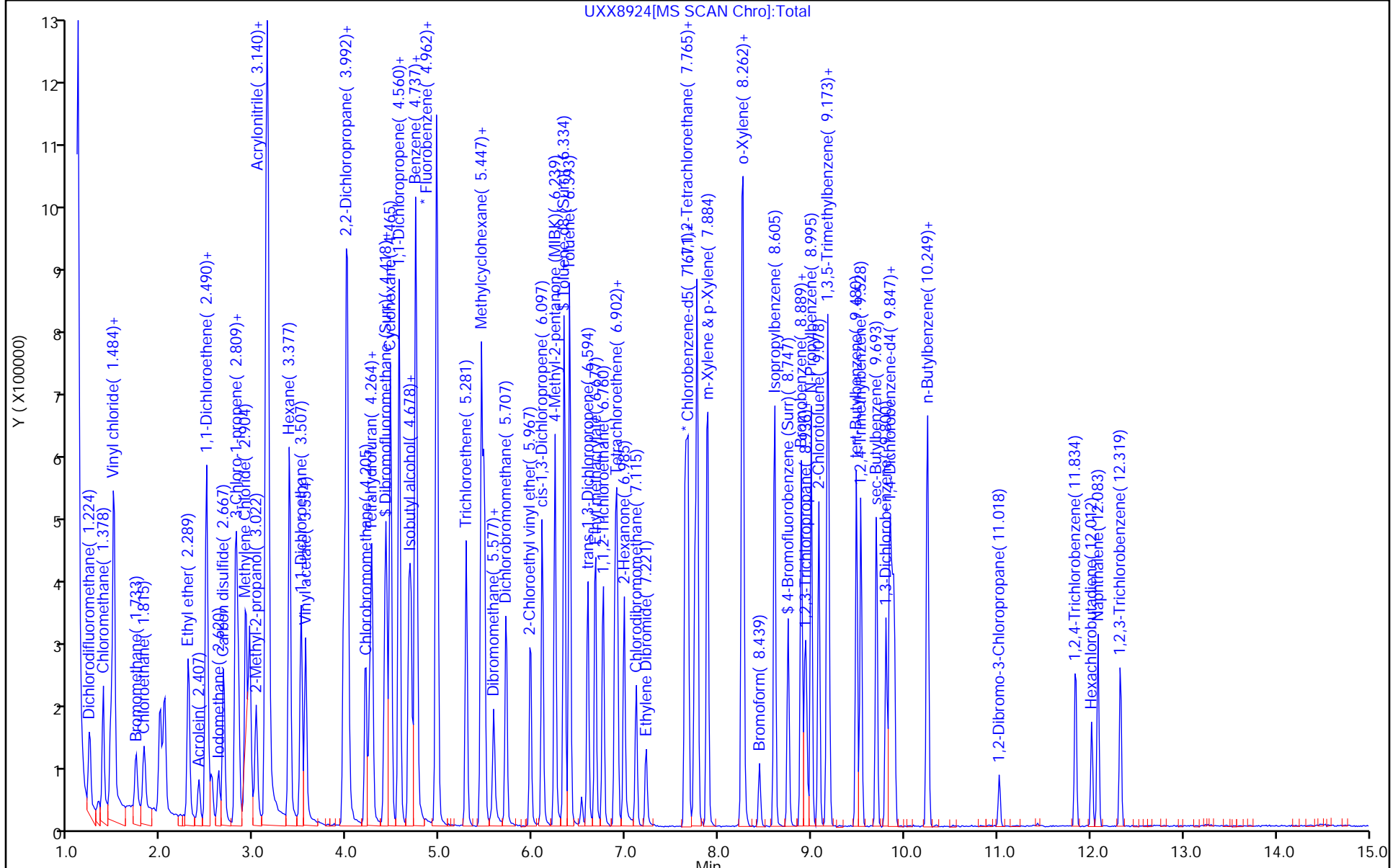
Dil. Factor: 1.0000

ALS Bottle#: 4

Method: 8260_10

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\UXX8924.D
 Lims ID: LCS
 Client ID:
 Sample Type: LCS
 Inject. Date: 01-Aug-2020 13:47:30 ALS Bottle#: 4 Worklist Smp#: 4
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100590-004
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 03-Aug-2020 11:44:52 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1044

First Level Reviewer: williamsla

Date: 01-Aug-2020 14:10:12

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	10.0	10.1	100.90
\$ 5 1,2-Dichloroethane-d4 (Surr)	10.0	12.4	124.00
\$ 6 Toluene-d8 (Surr)	10.0	11.1	110.73
\$ 7 4-Bromofluorobenzene (Surr)	10.0	9.51	95.11

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LCS 240-445379/4
 Matrix: Water Lab File ID: UXX8954.D
 Analysis Method: 8260B Date Collected: _____
 Sample wt/vol: 5 (mL) Date Analyzed: 08/03/2020 15:36
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 445379 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	9.38		1.0	0.46
156-59-2	cis-1,2-Dichloroethene	9.02		1.0	0.38
127-18-4	Tetrachloroethene	10.9		1.0	0.33
156-60-5	trans-1,2-Dichloroethene	9.26		1.0	0.43
79-01-6	Trichloroethene	8.49		1.0	0.36
75-01-4	Vinyl chloride	12.0		1.0	0.50

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	127		75-130
460-00-4	4-Bromofluorobenzene (Surr)	95		47-134
2037-26-5	Toluene-d8 (Surr)	110		69-122
1868-53-7	Dibromofluoromethane (Surr)	105		78-129

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8954.D
 Lims ID: LCS
 Client ID:
 Sample Type: LCS
 Inject. Date: 03-Aug-2020 15:36:30 ALS Bottle#: 5 Worklist Smp#: 4
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100621-004
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 10:20:14 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1067

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.974	4.964	0.010	95	394923	10.0	10.0	
* 2 Chlorobenzene-d5	117	7.636	7.638	-0.002	95	228017	10.0	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.871	9.861	0.010	92	67226	10.0	10.0	
\$ 4 Dibromofluoromethane (Surr)	113	4.395	4.396	-0.001	90	96631	10.0	10.5	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.679	4.680	-0.001	95	171725	10.0	12.7	
\$ 6 Toluene-d8 (Surr)	98	6.335	6.336	-0.001	96	384875	10.0	11.0	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.748	8.749	-0.001	73	104467	10.0	9.46	
9 Dichlorodifluoromethane	85	1.225	1.226	-0.001	98	117894	10.0	13.8	
10 Chloromethane	50	1.367	1.368	-0.001	100	181994	10.0	10.4	
11 Vinyl chloride	62	1.450	1.451	-0.001	97	155018	10.0	12.0	
12 Butadiene	54	1.485	1.487	-0.001	95	260607	10.0	36.6	
13 Bromomethane	94	1.722	1.723	-0.001	93	43899	10.0	7.15	
14 Chloroethane	64	1.804	1.818	-0.014	97	64879	10.0	9.40	
15 Dichlorofluoromethane	67	1.982	1.983	-0.001	97	154838	10.0	8.88	
16 Trichlorofluoromethane	101	2.029	2.031	-0.002	99	155781	10.0	16.8	
17 Ethyl ether	59	2.289	2.291	-0.002	96	140862	10.0	11.6	
18 Acrolein	56	2.396	2.397	-0.001	99	53726	50.0	23.1	
19 1,1-Dichloroethene	96	2.479	2.480	-0.001	89	87302	10.0	9.38	
20 1,1,2-Trichloro-1,2,2-trifluoro	151	2.490	2.492	-0.002	96	51075	10.0	11.8	
21 Acetone	43	2.538	2.539	-0.001	99	87525	20.0	16.4	
22 Iodomethane	142	2.609	2.610	-0.001	97	56865	10.0	5.23	
24 Carbon disulfide	76	2.668	2.669	-0.001	98	225067	10.0	6.90	
26 3-Chloro-1-propene	76	2.798	2.799	-0.001	86	82001	10.0	9.72	
27 Methyl acetate	43	2.822	2.823	-0.001	99	253120	20.0	18.1	
28 Methylene Chloride	84	2.904	2.906	-0.002	90	83665	10.0	7.29	
29 2-Methyl-2-propanol	59	3.011	3.012	-0.001	97	181636	100.0	111.4	
31 Acrylonitrile	53	3.117	3.119	-0.002	99	541516	100.0	79.6	
30 trans-1,2-Dichloroethene	96	3.141	3.143	-0.001	87	99903	10.0	9.26	
32 Methyl tert-butyl ether	73	3.141	3.143	-0.001	96	347743	10.0	11.0	
33 Hexane	86	3.378	3.379	-0.001	93	25880	10.0	12.4	
34 1,1-Dichloroethane	63	3.496	3.497	-0.001	97	265404	10.0	10.4	
35 Vinyl acetate	43	3.555	3.545	0.010	97	321822	10.0	10.5	
39 2,2-Dichloropropane	97	3.993	3.994	-0.001	76	38424	10.0	15.9	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
40 cis-1,2-Dichloroethene	96	3.993	3.994	-0.001	92	108364	10.0	9.02	
41 2-Butanone (MEK)	43	4.016	4.006	0.010	97	147402	20.0	17.1	
45 Chlorobromomethane	128	4.194	4.195	-0.001	82	35392	10.0	7.23	
46 Tetrahydrofuran	42	4.241	4.243	-0.002	91	101266	20.0	16.7	
47 Chloroform	83	4.265	4.266	-0.001	97	193988	10.0	10.4	
48 1,1,1-Trichloroethane	97	4.418	4.420	-0.002	93	177990	10.0	15.1	
49 Cyclohexane	56	4.466	4.467	-0.001	90	288638	10.0	12.9	
50 1,1-Dichloropropene	75	4.560	4.562	-0.002	82	148677	10.0	10.2	
51 Carbon tetrachloride	117	4.560	4.562	-0.002	85	140382	10.0	14.9	
52 Isobutyl alcohol	41	4.667	4.657	0.010	95	128206	250.0	260.9	
53 Benzene	78	4.738	4.739	-0.001	95	423931	10.0	8.68	
54 1,2-Dichloroethane	62	4.750	4.751	-0.001	97	220905	10.0	12.3	
56 n-Heptane	100	4.963	4.964	-0.001	95	26331	10.0	16.0	
58 Trichloroethene	130	5.282	5.283	-0.001	88	86105	10.0	8.49	
60 Methylcyclohexane	83	5.448	5.449	-0.001	92	160083	10.0	12.4	
61 1,2-Dichloropropane	63	5.471	5.473	-0.002	93	150673	10.0	9.81	
63 Dibromomethane	93	5.578	5.579	-0.001	83	57923	10.0	9.27	
64 1,4-Dioxane	88	5.601	5.591	0.010	95	12448	200.0	113.5	
65 Dichlorobromomethane	83	5.708	5.709	-0.001	95	145181	10.0	10.4	
67 2-Chloroethyl vinyl ether	63	5.968	5.970	-0.002	91	92746	10.0	8.36	
68 cis-1,3-Dichloropropene	75	6.098	6.100	-0.002	86	165313	10.0	8.65	
69 4-Methyl-2-pentanone (MIBK)	43	6.240	6.242	-0.002	98	316548	20.0	17.7	
70 Toluene	91	6.394	6.395	-0.001	96	408145	10.0	9.77	
71 trans-1,3-Dichloropropene	75	6.595	6.596	-0.001	95	135433	10.0	9.23	
72 Ethyl methacrylate	69	6.666	6.667	-0.001	91	137981	10.0	8.57	
73 1,1,2-Trichloroethane	97	6.761	6.750	0.011	93	77600	10.0	8.77	
74 Tetrachloroethene	164	6.891	6.892	-0.001	85	52971	10.0	10.9	
75 1,3-Dichloropropane	76	6.902	6.904	-0.002	94	151840	10.0	9.43	
76 2-Hexanone	43	6.985	6.987	-0.002	97	196999	20.0	18.9	
78 Chlorodibromomethane	129	7.115	7.117	-0.002	89	74857	10.0	9.78	
80 Ethylene Dibromide	107	7.222	7.223	-0.001	98	66711	10.0	8.47	
82 Chlorobenzene	112	7.671	7.673	-0.002	87	205548	10.0	9.22	
83 1,1,1,2-Tetrachloroethane	131	7.742	7.744	-0.002	89	73977	10.0	10.6	
84 Ethylbenzene	106	7.766	7.767	-0.001	99	118272	10.0	9.53	
85 m-Xylene & p-Xylene	106	7.872	7.874	-0.002	96	132629	10.0	8.99	
86 o-Xylene	106	8.251	8.252	-0.001	99	122944	10.0	8.90	
87 Styrene	104	8.263	8.264	-0.001	90	204067	10.0	8.26	
88 Bromoform	173	8.440	8.442	-0.002	89	28911	10.0	7.14	
89 Isopropylbenzene	105	8.606	8.607	-0.001	98	325406	10.0	10.2	
92 1,1,2,2-Tetrachloroethane	83	8.890	8.891	-0.001	75	79418	10.0	9.77	
93 Bromobenzene	156	8.890	8.891	-0.001	89	51376	10.0	9.87	
94 1,2,3-Trichloropropane	110	8.925	8.927	-0.002	90	22861	10.0	10.5	
95 trans-1,4-Dichloro-2-butene	53	8.949	8.938	0.011	71	23880	10.0	6.71	
96 N-Propylbenzene	120	8.996	8.998	-0.002	99	73211	10.0	12.2	
97 2-Chlorotoluene	126	9.079	9.080	-0.001	92	59274	10.0	11.0	
98 1,3,5-Trimethylbenzene	105	9.162	9.163	-0.001	92	226617	10.0	12.9	
99 4-Chlorotoluene	126	9.185	9.187	-0.002	98	57507	10.0	10.0	
100 tert-Butylbenzene	119	9.481	9.483	-0.002	93	185333	10.0	14.2	
102 1,2,4-Trimethylbenzene	105	9.528	9.530	-0.002	95	224433	10.0	11.9	
103 sec-Butylbenzene	105	9.694	9.696	-0.002	97	263342	10.0	14.4	
104 1,3-Dichlorobenzene	146	9.800	9.802	-0.002	88	90156	10.0	9.59	
105 4-Isopropyltoluene	119	9.836	9.837	-0.001	96	204176	10.0	14.0	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
106 1,4-Dichlorobenzene	146	9.895	9.885	0.010	84	94063	10.0	9.84	
109 n-Butylbenzene	91	10.238	10.240	-0.002	99	192364	10.0	14.0	
110 1,2-Dichlorobenzene	146	10.250	10.251	-0.001	87	87733	10.0	9.36	
111 1,2-Dibromo-3-Chloropropane	157	11.019	11.020	-0.001	63	11287	10.0	8.06	
113 1,2,4-Trichlorobenzene	180	11.847	11.848	-0.001	89	53747	10.0	13.0	
114 Hexachlorobutadiene	225	12.012	12.014	-0.002	84	22034	10.0	21.7	E
115 Naphthalene	128	12.083	12.085	-0.002	97	164417	10.0	7.57	
116 1,2,3-Trichlorobenzene	180	12.320	12.321	-0.001	85	49890	10.0	12.1	E
S 130 Xylenes, Total	106				0		20.0	17.9	
S 156 Total BTEX	1				0		50.0	45.9	
S 131 Trihalomethanes, Total	1				0		40.0	37.7	

QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount

Reagents:

VMFASPW_00360	Amount Added: 8.00	Units: uL	
VMFASAW_00338	Amount Added: 8.00	Units: uL	
VMFASGW_00370	Amount Added: 8.00	Units: uL	
VM50IS_00084	Amount Added: 1.00	Units: uL	Run Reagent
vm50ss_stk_00085	Amount Added: 1.00	Units: uL	Run Reagent
vm40ml_vials_00015	Amount Added: 0.00	Units:	Run Reagent
vmDist_H2o_00177	Amount Added: 0.00	Units:	Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8954.D

Injection Date: 03-Aug-2020 15:36:30

Instrument ID: A3UX10

Operator ID: 001644

Lims ID: LCS

Worklist Smp#: 4

Client ID:

Purge Vol: 5.000 mL

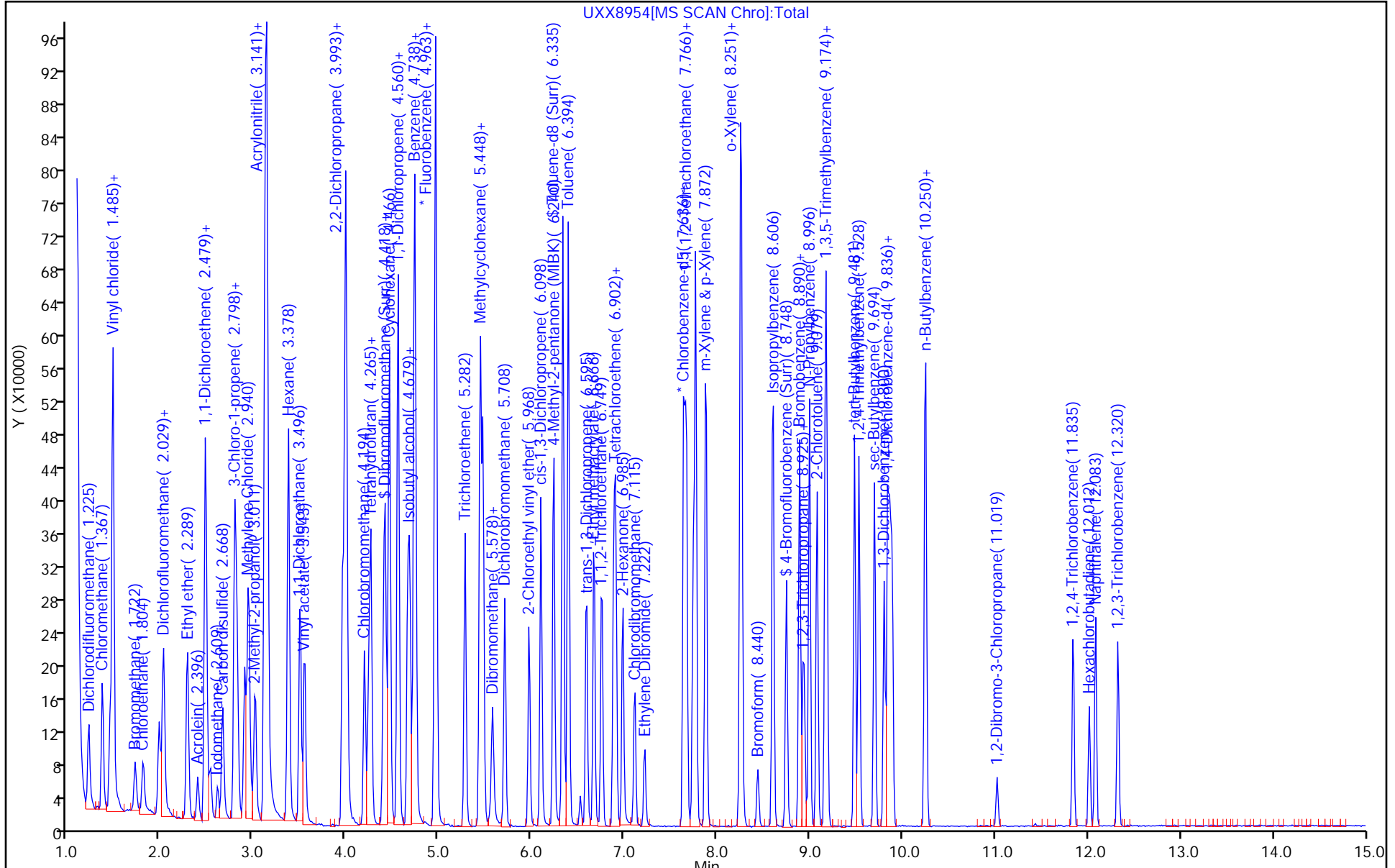
Dil. Factor: 1.0000

ALS Bottle#: 5

Method: 8260_10

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8954.D
 Lims ID: LCS
 Client ID:
 Sample Type: LCS
 Inject. Date: 03-Aug-2020 15:36:30 ALS Bottle#: 5 Worklist Smp#: 4
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100621-004
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 10:20:14 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1067

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	10.0	10.5	104.68
\$ 5 1,2-Dichloroethane-d4 (Surr)	10.0	12.7	126.70
\$ 6 Toluene-d8 (Surr)	10.0	11.0	109.77
\$ 7 4-Bromofluorobenzene (Surr)	10.0	9.46	94.65

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: 240-134118-D-12 MS
 Matrix: Water Lab File ID: UXX8945.D
 Analysis Method: 8260B Date Collected: _____
 Sample wt/vol: 5 (mL) Date Analyzed: 08/01/2020 22:29
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 445248 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	8.69		1.0	0.36
75-01-4	Vinyl chloride	12.4		1.0	0.50

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	123		75-130
460-00-4	4-Bromofluorobenzene (Surr)	96		47-134
2037-26-5	Toluene-d8 (Surr)	109		69-122
1868-53-7	Dibromofluoromethane (Surr)	103		78-129

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\UXX8945.D
 Lims ID: 240-134118-D-12 MS
 Client ID: GW-11213535-072820-55-MR-012
 Sample Type: MS
 Inject. Date: 01-Aug-2020 22:29:30 ALS Bottle#: 25 Worklist Smp#: 25
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100590-025
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 03-Aug-2020 11:44:52 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1044

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.964	4.973	-0.009	97	394689	10.0	10.0	
* 2 Chlorobenzene-d5	117	7.637	7.646	-0.009	95	226547	10.0	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.873	9.870	0.003	93	65951	10.0	10.0	
\$ 4 Dibromofluoromethane (Surr)	113	4.396	4.406	-0.010	90	94788	10.0	10.3	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.680	4.690	-0.010	96	167138	10.0	12.3	
\$ 6 Toluene-d8 (Surr)	98	6.336	6.334	0.002	96	380051	10.0	10.9	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.749	8.747	0.002	72	105444	10.0	9.62	
11 Vinyl chloride	62	1.451	1.461	-0.010	98	159886	10.0	12.4	
58 Trichloroethene	130	5.283	5.281	0.002	89	88089	10.0	8.69	

Reagents:

VMFASPW_00360	Amount Added: 8.00	Units: uL	
VMFASAW_00338	Amount Added: 8.00	Units: uL	
VMFASGW_00369	Amount Added: 8.00	Units: uL	
VM50IS_00084	Amount Added: 1.00	Units: uL	Run Reagent
vm50ss_stk_00085	Amount Added: 1.00	Units: uL	Run Reagent
vm40ml_vials_00015	Amount Added: 0.00	Units:	Run Reagent
vmDist_H2o_00177	Amount Added: 0.00	Units:	Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\UXX8945.D

Injection Date: 01-Aug-2020 22:29:30

Instrument ID: A3UX10

Operator ID: 001644

Lims ID: 240-134118-D-12 MS

Worklist Smp#: 25

Client ID: GW-11213535-072820-55-MR-012

Purge Vol: 5.000 mL

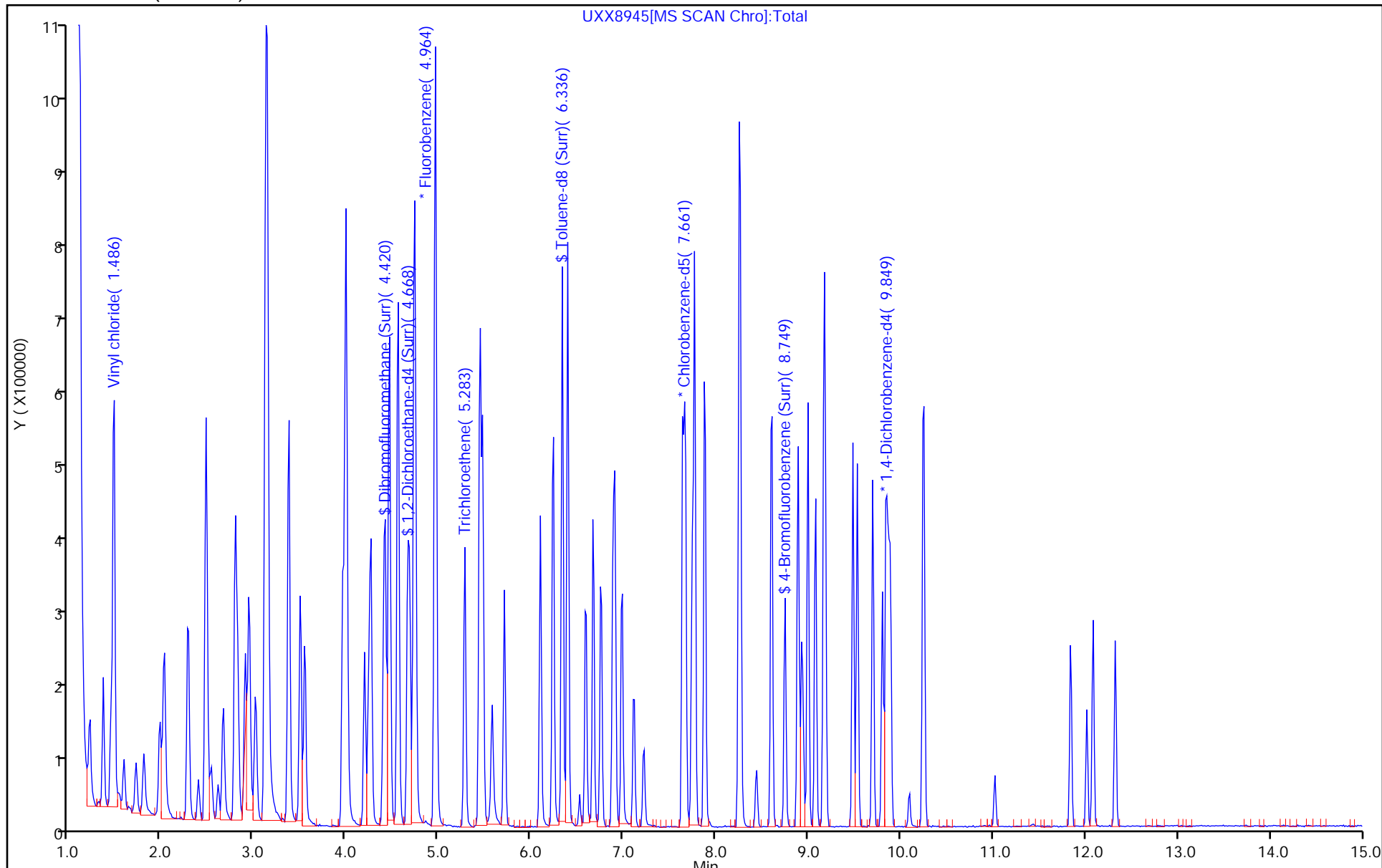
Dil. Factor: 1.0000

ALS Bottle#: 25

Method: 8260_10

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\UXX8945.D
 Lims ID: 240-134118-D-12 MS
 Client ID: GW-11213535-072820-55-MR-012
 Sample Type: MS
 Inject. Date: 01-Aug-2020 22:29:30 ALS Bottle#: 25 Worklist Smp#: 25
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100590-025
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 03-Aug-2020 11:44:52 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1044

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	10.0	10.3	102.75
\$ 5 1,2-Dichloroethane-d4 (Surr)	10.0	12.3	123.38
\$ 6 Toluene-d8 (Surr)	10.0	10.9	109.10
\$ 7 4-Bromofluorobenzene (Surr)	10.0	9.62	96.15

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: 240-133764-G-4 MS
 Matrix: Water Lab File ID: UXX8958.D
 Analysis Method: 8260B Date Collected: _____
 Sample wt/vol: 5 (mL) Date Analyzed: 08/03/2020 17:14
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 445379 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	10.6		1.0	0.46
156-59-2	cis-1,2-Dichloroethene	9.61		1.0	0.38
127-18-4	Tetrachloroethene	12.0		1.0	0.33
156-60-5	trans-1,2-Dichloroethene	9.98		1.0	0.43
79-01-6	Trichloroethene	8.99		1.0	0.36
75-01-4	Vinyl chloride	13.3		1.0	0.50

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	128		75-130
460-00-4	4-Bromofluorobenzene (Surr)	99		47-134
2037-26-5	Toluene-d8 (Surr)	112		69-122
1868-53-7	Dibromofluoromethane (Surr)	104		78-129

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8958.D
 Lims ID: 240-133764-G-4 MS
 Client ID: ISMW-07-06223,24,25
 Sample Type: MS
 Inject. Date: 03-Aug-2020 17:14:30 ALS Bottle#: 9 Worklist Smp#: 9
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100621-009
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 10:20:14 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1067

First Level Reviewer: williamsla Date: 03-Aug-2020 17:48:46

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.975	4.964	0.011	97	388330	10.0	10.0	
* 2 Chlorobenzene-d5	117	7.648	7.638	0.010	95	218820	10.0	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.872	9.861	0.011	94	66417	10.0	10.0	
\$ 4 Dibromofluoromethane (Surr)	113	4.407	4.396	0.011	90	94464	10.0	10.4	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.691	4.680	0.011	95	170636	10.0	12.8	
\$ 6 Toluene-d8 (Surr)	98	6.335	6.336	-0.001	96	378313	10.0	11.2	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.748	8.749	-0.001	72	104543	10.0	9.87	
9 Dichlorodifluoromethane	85	1.225	1.226	-0.001	98	148043	10.0	17.6	
10 Chloromethane	50	1.367	1.368	-0.001	99	182261	10.0	10.6	
11 Vinyl chloride	62	1.462	1.451	0.011	97	168312	10.0	13.3	
13 Bromomethane	94	1.722	1.723	-0.001	92	43749	10.0	7.24	
14 Chloroethane	64	1.817	1.818	-0.001	95	71194	10.0	10.5	
16 Trichlorofluoromethane	101	2.029	2.031	-0.002	99	182081	10.0	20.0	
18 Acrolein	56	2.408	2.397	0.011	100	54036	50.0	23.6	
19 1,1-Dichloroethene	96	2.479	2.480	-0.001	90	97004	10.0	10.6	
21 Acetone	43	2.538	2.539	-0.001	98	96141	20.0	18.6	
22 Iodomethane	142	2.621	2.610	0.011	97	59723	10.0	5.58	
24 Carbon disulfide	76	2.668	2.669	-0.001	99	255655	10.0	7.97	
25 Acetonitrile	41	2.798	2.788	0.010	70	293466		157.0	
26 3-Chloro-1-propene	76		2.799				ND	ND	
28 Methylene Chloride	84	2.905	2.906	-0.001	90	79130	10.0	7.01	
31 Acrylonitrile	53	3.118	3.119	-0.001	97	571123	100.0	85.4	
30 trans-1,2-Dichloroethene	96	3.141	3.143	-0.001	84	105882	10.0	9.98	
34 1,1-Dichloroethane	63	3.508	3.497	0.011	97	285150	10.0	11.4	
35 Vinyl acetate	43	3.555	3.545	0.010	97	352982	10.0	11.6	
37 2-Chloro-1,3-butadiene	53		3.581					ND	
40 cis-1,2-Dichloroethene	96	3.993	3.994	-0.001	92	113574	10.0	9.61	
41 2-Butanone (MEK)	43	4.017	4.006	0.011	97	150970	20.0	17.8	
43 Propionitrile	54		4.065					ND	
44 Methacrylonitrile	41		4.196					ND	
47 Chloroform	83	4.265	4.266	-0.001	97	201847	10.0	11.0	
48 1,1,1-Trichloroethane	97	4.419	4.420	-0.001	92	186706	10.0	16.1	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
51 Carbon tetrachloride	117	4.561	4.562	-0.001	86	154274	10.0	16.6	
52 Isobutyl alcohol	41	4.667	4.657	0.010	94	126845	250.0	269.1	
53 Benzene	78	4.738	4.739	-0.001	94	810900	10.0	16.9	
54 1,2-Dichloroethane	62	4.750	4.751	-0.001	96	228116	10.0	12.9	
58 Trichloroethene	130	5.282	5.283	-0.001	90	89639	10.0	8.99	
61 1,2-Dichloropropane	63	5.472	5.473	-0.001	92	153457	10.0	10.2	
62 Methyl methacrylate	41		5.568						ND
63 Dibromomethane	93	5.578	5.579	-0.001	84	57997	10.0	9.44	
64 1,4-Dioxane	88	5.590	5.591	-0.001	84	13406	200.0	121.4	
65 Dichlorobromomethane	83	5.708	5.709	-0.001	96	153752	10.0	11.2	
68 cis-1,3-Dichloropropene	75	6.098	6.100	-0.002	86	169776	10.0	9.03	
69 4-Methyl-2-pentanone (MIBK)	43	6.240	6.242	-0.002	97	330964	20.0	18.8	
70 Toluene	91	6.394	6.395	-0.001	95	427554	10.0	10.7	
71 trans-1,3-Dichloropropene	75	6.595	6.596	-0.001	96	141543	10.0	10.1	
72 Ethyl methacrylate	69	6.666	6.667	-0.001	90	144800	10.0	9.37	
73 1,1,2-Trichloroethane	97	6.761	6.750	0.011	93	78853	10.0	9.28	
74 Tetrachloroethene	164	6.891	6.892	-0.001	84	55890	10.0	12.0	
76 2-Hexanone	43	6.986	6.987	-0.001	97	211988	20.0	21.2	
78 Chlorodibromomethane	129	7.116	7.117	-0.001	88	76914	10.0	10.5	
80 Ethylene Dibromide	107	7.222	7.223	-0.001	98	68316	10.0	9.04	
82 Chlorobenzene	112	7.672	7.673	-0.001	87	213484	10.0	9.97	
83 1,1,1,2-Tetrachloroethane	131	7.743	7.744	-0.001	89	76773	10.0	11.5	
84 Ethylbenzene	106	7.766	7.767	-0.001	99	122772	10.0	10.3	
85 m-Xylene & p-Xylene	106	7.885	7.874	0.011	98	143593	10.0	10.1	
86 o-Xylene	106	8.251	8.252	-0.001	98	130753	10.0	9.86	
87 Styrene	104	8.263	8.264	-0.001	87	211823	10.0	8.93	
88 Bromoform	173	8.441	8.442	-0.001	89	30041	10.0	7.73	
92 1,1,2,2-Tetrachloroethane	83	8.890	8.891	-0.001	74	82488	10.0	10.3	
94 1,2,3-Trichloropropane	110	8.926	8.927	-0.001	90	23082	10.0	10.8	
95 trans-1,4-Dichloro-2-butene	53	8.949	8.938	0.011	70	26208	10.0	7.39	
111 1,2-Dibromo-3-Chloropropane	157	11.019	11.020	-0.001	64	11543	10.0	8.39	
S 130 Xylenes, Total	106				0		20.0	20.0	

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

Reagents:

VMFASPW_00360	Amount Added: 8.00	Units: uL	
VMFASAW_00338	Amount Added: 8.00	Units: uL	
VMFASGW_00370	Amount Added: 8.00	Units: uL	
VM50IS_00084	Amount Added: 1.00	Units: uL	Run Reagent
vm50ss_stk_00085	Amount Added: 1.00	Units: uL	Run Reagent
vm40ml_vials_00015	Amount Added: 0.00	Units:	Run Reagent
vmDist_H2o_00177	Amount Added: 0.00	Units:	Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8958.D

Injection Date: 03-Aug-2020 17:14:30

Instrument ID: A3UX10

Operator ID: 001644

Lims ID: 240-133764-G-4 MS

Worklist Smp#: 9

Client ID: ISMW-07-06223,24,25

Purge Vol: 5.000 mL

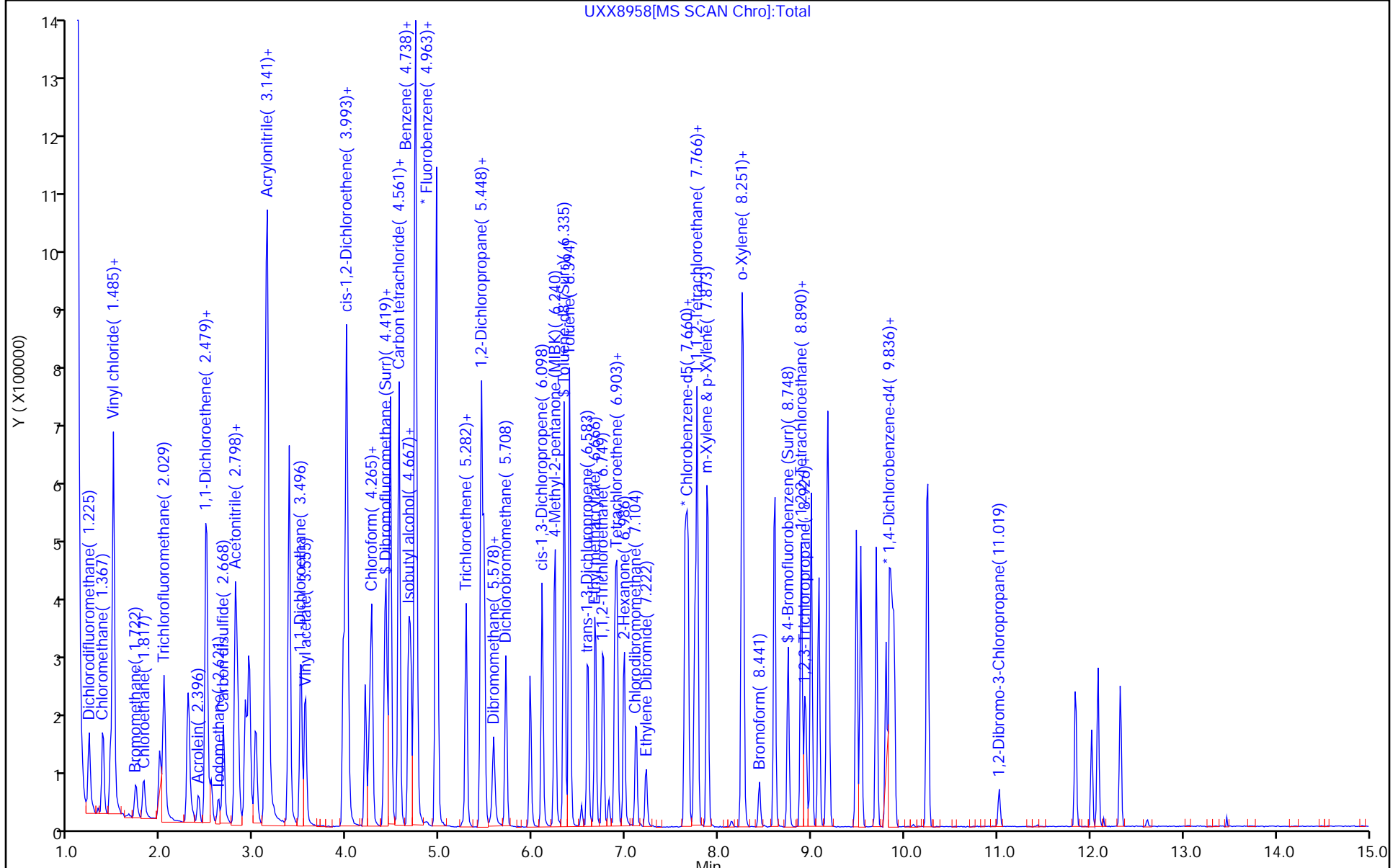
Dil. Factor: 1.0000

ALS Bottle#: 9

Method: 8260_10

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8958.D
 Lims ID: 240-133764-G-4 MS
 Client ID: ISMW-07-06223,24,25
 Sample Type: MS
 Inject. Date: 03-Aug-2020 17:14:30 ALS Bottle#: 9 Worklist Smp#: 9
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100621-009
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 10:20:14 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1067

First Level Reviewer: williamsla

Date: 03-Aug-2020 17:48:46

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	10.0	10.4	104.07
\$ 5 1,2-Dichloroethane-d4 (Surr)	10.0	12.8	128.03
\$ 6 Toluene-d8 (Surr)	10.0	11.2	112.44
\$ 7 4-Bromofluorobenzene (Surr)	10.0	9.87	98.70

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: 240-134118-E-12 MSD
 Matrix: Water Lab File ID: UXX8946.D
 Analysis Method: 8260B Date Collected: _____
 Sample wt/vol: 5 (mL) Date Analyzed: 08/01/2020 22:53
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 445248 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	9.68		1.0	0.36
75-01-4	Vinyl chloride	12.8		1.0	0.50

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	122		75-130
460-00-4	4-Bromofluorobenzene (Surr)	94		47-134
2037-26-5	Toluene-d8 (Surr)	108		69-122
1868-53-7	Dibromofluoromethane (Surr)	102		78-129

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\UXX8946.D
 Lims ID: 240-134118-E-12 MSD
 Client ID: GW-11213535-072820-55-MR-012
 Sample Type: MSD
 Inject. Date: 01-Aug-2020 22:53:30 ALS Bottle#: 26 Worklist Smp#: 26
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100590-026
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 03-Aug-2020 11:44:52 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1044

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.973	4.973	0.000	95	385684	10.0	10.0	
* 2 Chlorobenzene-d5	117	7.646	7.646	0.000	95	219579	10.0	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.870	9.870	0.000	93	68368	10.0	10.0	
\$ 4 Dibromofluoromethane (Surr)	113	4.405	4.406	-0.001	90	91800	10.0	10.2	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.689	4.690	-0.001	96	161953	10.0	12.2	
\$ 6 Toluene-d8 (Surr)	98	6.333	6.334	-0.001	97	365921	10.0	10.8	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.746	8.747	-0.001	73	100078	10.0	9.42	
11 Vinyl chloride	62	1.460	1.461	-0.001	97	161316	10.0	12.8	
58 Trichloroethene	130	5.281	5.281	0.000	87	95926	10.0	9.68	

Reagents:

VMFASAW_00338	Amount Added: 8.00	Units: uL	
VMFASGW_00369	Amount Added: 8.00	Units: uL	
VMFASPW_00360	Amount Added: 8.00	Units: uL	
VM50IS_00084	Amount Added: 1.00	Units: uL	Run Reagent
vm50ss_stk_00085	Amount Added: 1.00	Units: uL	Run Reagent
vm40ml_vials_00015	Amount Added: 0.00	Units:	Run Reagent
vmDist_H2o_00177	Amount Added: 0.00	Units:	Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\UXX8946.D

Injection Date: 01-Aug-2020 22:53:30

Instrument ID: A3UX10

Operator ID: 001644

Lims ID: 240-134118-E-12 MSD

Worklist Smp#: 26

Client ID: GW-11213535-072820-55-MR-012

Purge Vol: 5.000 mL

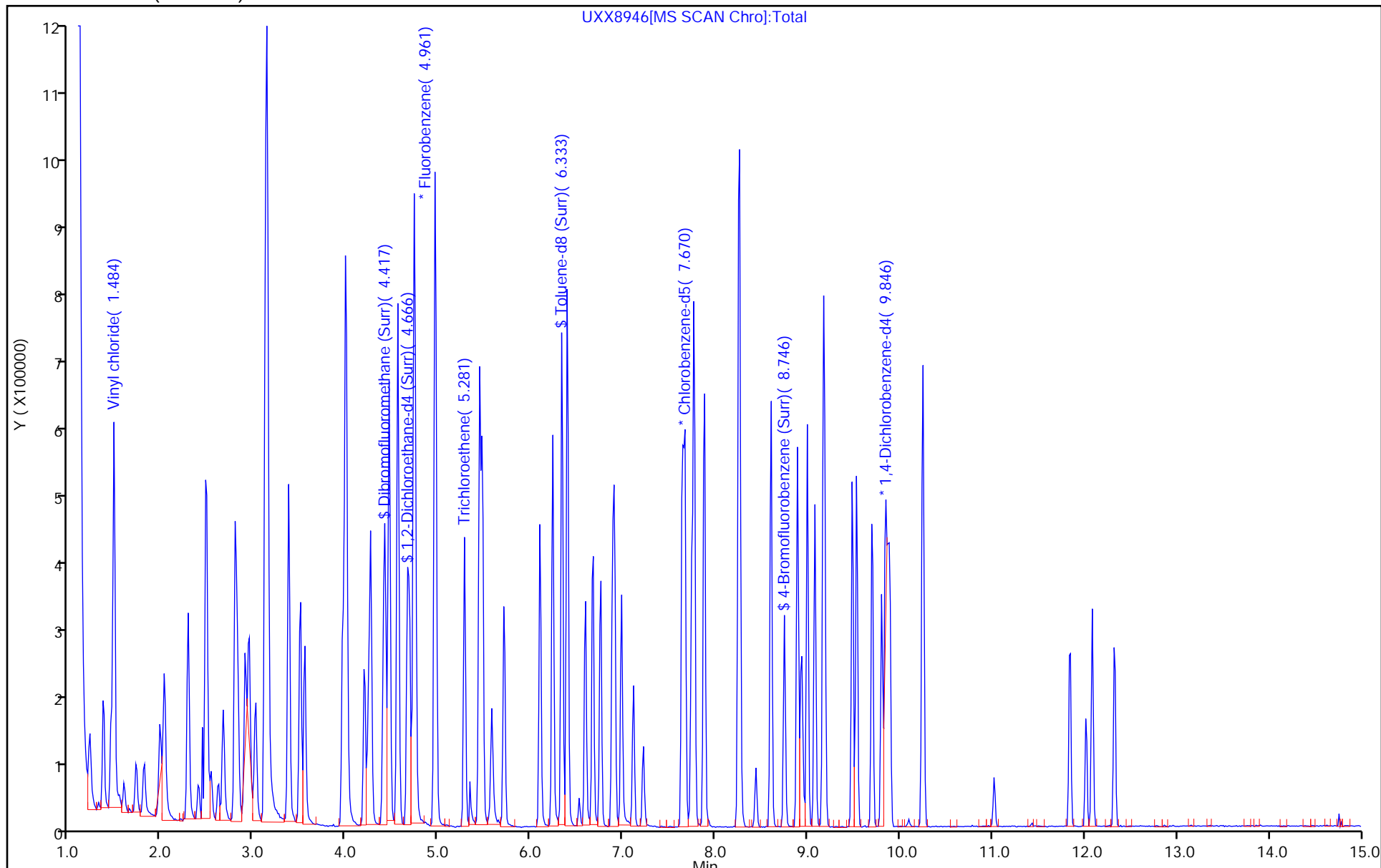
Dil. Factor: 1.0000

ALS Bottle#: 26

Method: 8260_10

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\UXX8946.D
 Lims ID: 240-134118-E-12 MSD
 Client ID: GW-11213535-072820-55-MR-012
 Sample Type: MSD
 Inject. Date: 01-Aug-2020 22:53:30 ALS Bottle#: 26 Worklist Smp#: 26
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100590-026
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200801-100590.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 03-Aug-2020 11:44:52 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1044

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	10.0	10.2	101.83
\$ 5 1,2-Dichloroethane-d4 (Surr)	10.0	12.2	122.35
\$ 6 Toluene-d8 (Surr)	10.0	10.8	108.38
\$ 7 4-Bromofluorobenzene (Surr)	10.0	9.42	94.16

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: 240-133764-H-4 MSD
 Matrix: Water Lab File ID: UXX8959.D
 Analysis Method: 8260B Date Collected: _____
 Sample wt/vol: 5 (mL) Date Analyzed: 08/03/2020 17:39
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 445379 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	10.3		1.0	0.46
156-59-2	cis-1,2-Dichloroethene	9.82		1.0	0.38
127-18-4	Tetrachloroethene	11.9		1.0	0.33
156-60-5	trans-1,2-Dichloroethene	10.3		1.0	0.43
79-01-6	Trichloroethene	9.31		1.0	0.36
75-01-4	Vinyl chloride	12.8		1.0	0.50

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	122		75-130
460-00-4	4-Bromofluorobenzene (Surr)	97		47-134
2037-26-5	Toluene-d8 (Surr)	109		69-122
1868-53-7	Dibromofluoromethane (Surr)	102		78-129

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8959.D
 Lims ID: 240-133764-H-4 MSD
 Client ID: ISMW-07-06223,24,25
 Sample Type: MSD
 Inject. Date: 03-Aug-2020 17:39:30 ALS Bottle#: 10 Worklist Smp#: 10
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100621-010
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 10:20:14 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1067

First Level Reviewer: williamsla Date: 03-Aug-2020 18:01:26

Compound	Sig	RT (min.)	Exp RT (min.)	Diff RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.973	4.964	0.009	97	392363	10.0	10.0	
* 2 Chlorobenzene-d5	117	7.646	7.638	0.008	94	223878	10.0	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.870	9.861	0.009	93	69105	10.0	10.0	
\$ 4 Dibromofluoromethane (Surr)	113	4.405	4.396	0.009	91	93667	10.0	10.2	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.689	4.680	0.009	95	163915	10.0	12.2	
\$ 6 Toluene-d8 (Surr)	98	6.333	6.336	-0.003	96	376092	10.0	10.9	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.746	8.749	-0.003	72	105330	10.0	9.72	
9 Dichlorodifluoromethane	85	1.223	1.226	-0.003	98	131433	10.0	15.5	
10 Chloromethane	50	1.365	1.368	-0.003	99	181672	10.0	10.5	
11 Vinyl chloride	62	1.448	1.451	-0.003	98	163772	10.0	12.8	
13 Bromomethane	94	1.720	1.723	-0.003	92	43525	10.0	7.13	
14 Chloroethane	64	1.803	1.818	-0.015	96	70341	10.0	10.3	
16 Trichlorofluoromethane	101	2.027	2.031	-0.004	99	175149	10.0	19.0	
18 Acrolein	56	2.394	2.397	-0.003	98	50195	50.0	21.7	
19 1,1-Dichloroethene	96	2.477	2.480	-0.003	88	95471	10.0	10.3	
21 Acetone	43	2.536	2.539	-0.003	99	88285	20.0	16.7	
22 Iodomethane	142	2.607	2.610	-0.003	97	67481	10.0	6.24	
24 Carbon disulfide	76	2.666	2.669	-0.003	98	254228	10.0	7.84	
25 Acetonitrile	41		2.788					ND	U
26 3-Chloro-1-propene	76	2.796	2.799	-0.003	86	92406	10.0	11.0	
28 Methylene Chloride	84	2.903	2.906	-0.003	91	88313	10.0	7.74	
31 Acrylonitrile	53	3.116	3.119	-0.003	98	562286	100.0	83.2	
30 trans-1,2-Dichloroethene	96	3.139	3.143	-0.003	86	110424	10.0	10.3	
34 1,1-Dichloroethane	63	3.494	3.497	-0.003	97	291196	10.0	11.5	
35 Vinyl acetate	43	3.553	3.545	0.008	96	357780	10.0	11.6	
37 2-Chloro-1,3-butadiene	53		3.581					ND	
40 cis-1,2-Dichloroethene	96	3.991	3.994	-0.003	92	117220	10.0	9.82	
41 2-Butanone (MEK)	43	4.014	4.006	0.008	97	159897	20.0	18.6	
43 Propionitrile	54		4.065					ND	
44 Methacrylonitrile	41		4.196					ND	
47 Chloroform	83	4.263	4.266	-0.003	98	211485	10.0	11.4	
48 1,1,1-Trichloroethane	97	4.417	4.420	-0.003	93	187482	10.0	16.0	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
51 Carbon tetrachloride	117	4.559	4.562	-0.003	85	155186	10.0	16.5	
52 Isobutyl alcohol	41	4.665	4.657	0.008	94	141664	250.0	294.2	
53 Benzene	78	4.736	4.739	-0.003	95	860976	10.0	17.7	
54 1,2-Dichloroethane	62	4.748	4.751	-0.003	96	238971	10.0	13.4	
58 Trichloroethene	130	5.280	5.283	-0.003	89	93878	10.0	9.31	
61 1,2-Dichloropropane	63	5.469	5.473	-0.004	96	156303	10.0	10.2	
62 Methyl methacrylate	41		5.568						ND
63 Dibromomethane	93	5.576	5.579	-0.003	83	58644	10.0	9.44	
64 1,4-Dioxane	88	5.600	5.591	0.009	85	16730	200.0	143.3	
65 Dichlorobromomethane	83	5.706	5.709	-0.003	96	158771	10.0	11.4	
68 cis-1,3-Dichloropropene	75	6.096	6.100	-0.004	85	178726	10.0	9.41	
69 4-Methyl-2-pentanone (MIBK)	43	6.238	6.242	-0.004	98	340414	20.0	19.2	
70 Toluene	91	6.392	6.395	-0.003	96	437581	10.0	10.7	
71 trans-1,3-Dichloropropene	75	6.593	6.596	-0.003	95	145197	10.0	10.1	
72 Ethyl methacrylate	69	6.676	6.667	0.009	91	148932	10.0	9.42	
73 1,1,2-Trichloroethane	97	6.759	6.750	0.009	94	82909	10.0	9.54	
74 Tetrachloroethene	164	6.889	6.892	-0.003	81	56488	10.0	11.9	
76 2-Hexanone	43	6.983	6.987	-0.004	98	219829	20.0	21.5	
78 Chlorodibromomethane	129	7.114	7.117	-0.003	87	80449	10.0	10.7	
80 Ethylene Dibromide	107	7.220	7.223	-0.003	98	67627	10.0	8.74	
82 Chlorobenzene	112	7.670	7.673	-0.003	86	222058	10.0	10.1	
83 1,1,1,2-Tetrachloroethane	131	7.740	7.744	-0.004	91	79917	10.0	11.7	
84 Ethylbenzene	106	7.764	7.767	-0.003	98	124773	10.0	10.2	
85 m-Xylene & p-Xylene	106	7.882	7.874	0.008	97	145924	10.0	10.1	
86 o-Xylene	106	8.249	8.252	-0.003	96	136640	10.0	10.1	
87 Styrene	104	8.261	8.264	-0.003	84	222365	10.0	9.17	
88 Bromoform	173	8.438	8.442	-0.004	88	30265	10.0	7.61	
92 1,1,2,2-Tetrachloroethane	83	8.888	8.891	-0.003	75	86278	10.0	10.3	
94 1,2,3-Trichloropropane	110	8.935	8.927	0.008	86	25206	10.0	11.3	
95 trans-1,4-Dichloro-2-butene	53	8.947	8.938	0.009	67	25563	10.0	6.96	
111 1,2-Dibromo-3-Chloropropane	157	11.017	11.020	-0.003	64	13180	10.0	9.34	
S 130 Xylenes, Total	106				0		20.0	20.2	

QC Flag Legend

Review Flags

U - Marked Undetected

Reagents:

VMFASAW_00338	Amount Added: 8.00	Units: uL	
VMFASGW_00370	Amount Added: 8.00	Units: uL	
VMFASPW_00360	Amount Added: 8.00	Units: uL	
VM50IS_00084	Amount Added: 1.00	Units: uL	Run Reagent
vm50ss_stk_00085	Amount Added: 1.00	Units: uL	Run Reagent
vm40ml_vials_00015	Amount Added: 0.00	Units:	Run Reagent
vmDist_H2o_00177	Amount Added: 0.00	Units:	Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8959.D

Injection Date: 03-Aug-2020 17:39:30

Instrument ID: A3UX10

Operator ID: 001644

Lims ID: 240-133764-H-4 MSD

Worklist Smp#: 10

Client ID: ISMW-07-06223,24,25

Purge Vol: 5.000 mL

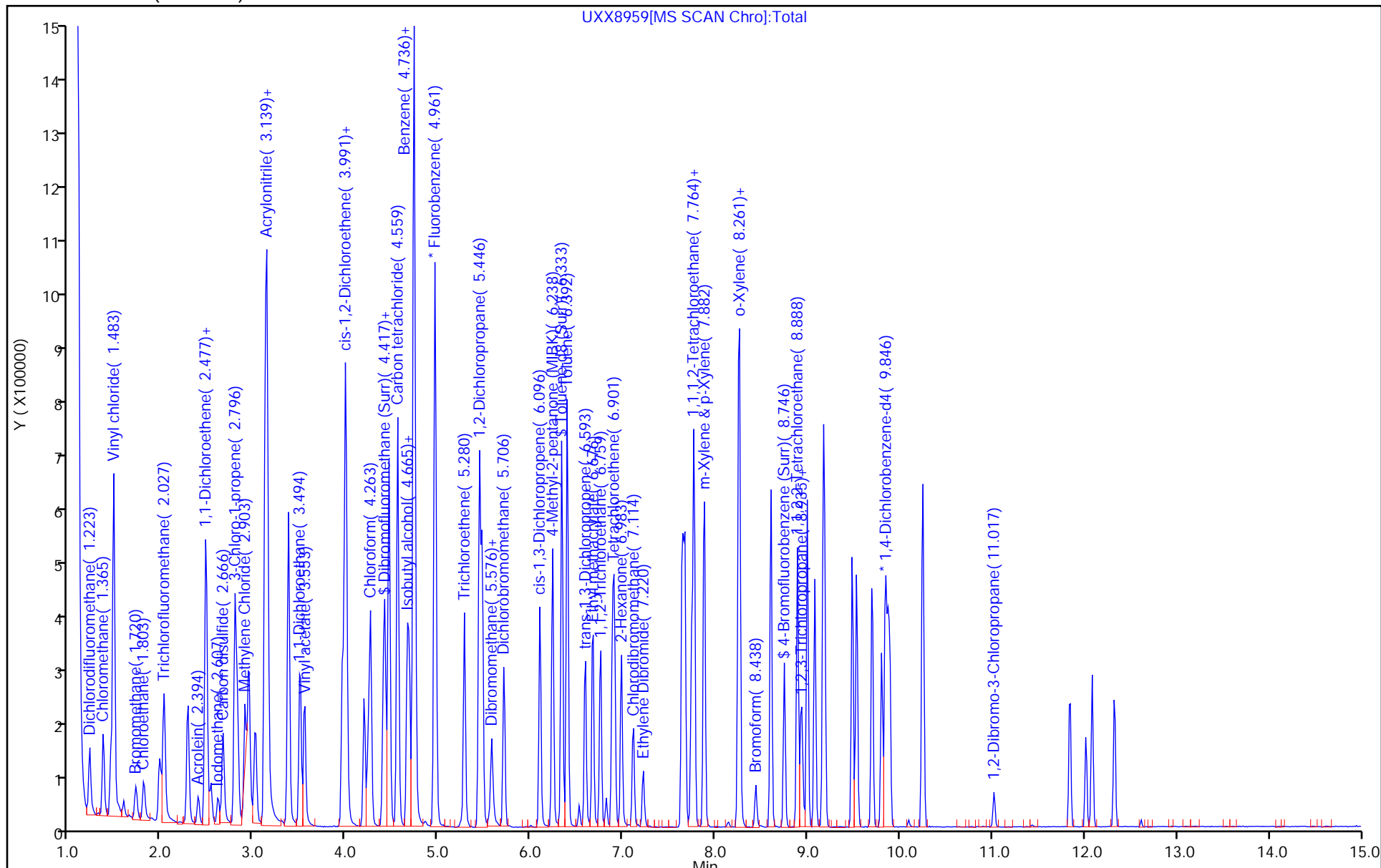
Dil. Factor: 1.0000

ALS Bottle#: 10

Method: 8260_10

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8959.D
 Lims ID: 240-133764-H-4 MSD
 Client ID: ISMW-07-06223,24,25
 Sample Type: MSD
 Inject. Date: 03-Aug-2020 17:39:30 ALS Bottle#: 10 Worklist Smp#: 10
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100621-010
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 10:20:14 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1067

First Level Reviewer: williamsla Date: 03-Aug-2020 18:01:26

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	10.0	10.2	102.13
\$ 5 1,2-Dichloroethane-d4 (Surr)	10.0	12.2	121.72
\$ 6 Toluene-d8 (Surr)	10.0	10.9	109.25
\$ 7 4-Bromofluorobenzene (Surr)	10.0	9.72	97.19

GC/MS VOA ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Instrument ID: A3UX10 Start Date: 01/15/2020 14:40

Analysis Batch Number: 419116 End Date: 01/15/2020 21:24

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
BFB 240-419116/1		01/15/2020 14:40	1	BFB1718.D	DB-624 0.18 (mm)
STD8260 240-419116/2 IC		01/15/2020 15:09	1	UXX5174.D	DB-624 0.18 (mm)
STD8260 240-419116/3 IC		01/15/2020 15:34	1	UXX5175.D	DB-624 0.18 (mm)
STD8260 240-419116/4 ICIS		01/15/2020 16:00	1	UXX5176.D	DB-624 0.18 (mm)
STD8260 240-419116/5 IC		01/15/2020 16:25	1	UXX5177.D	DB-624 0.18 (mm)
STD8260 240-419116/6 IC		01/15/2020 16:50	1	UXX5178.D	DB-624 0.18 (mm)
STD8260 240-419116/7 IC		01/15/2020 17:15	1	UXX5179.D	DB-624 0.18 (mm)
STD8260 240-419116/8 IC		01/15/2020 17:40	1	UXX5180.D	DB-624 0.18 (mm)
ICV 240-419116/9		01/15/2020 18:04	1	UXX5181.D	DB-624 0.18 (mm)
STDA9 240-419116/10 IC		01/15/2020 18:29	1		DB-624 0.18 (mm)
STDA9 240-419116/11 IC		01/15/2020 18:54	1		DB-624 0.18 (mm)
STDA9 240-419116/12 IC		01/15/2020 19:19	1		DB-624 0.18 (mm)
STDA9 240-419116/13 IC		01/15/2020 19:44	1		DB-624 0.18 (mm)
STDA9 240-419116/14 IC		01/15/2020 20:09	1		DB-624 0.18 (mm)
STDA9 240-419116/15 IC		01/15/2020 20:34	1		DB-624 0.18 (mm)
STDA9 240-419116/16 IC		01/15/2020 20:59	1		DB-624 0.18 (mm)
ICV 240-419116/17		01/15/2020 21:24	1	UXX5189.D	DB-624 0.18 (mm)

GC/MS VOA ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Instrument ID: A3UX10 Start Date: 08/01/2020 12:09

Analysis Batch Number: 445248 End Date: 08/01/2020 23:43

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
BFB 240-445248/1		08/01/2020 12:09	1	BFB1910.D	DB-624 0.18 (mm)
CCV 240-445248/3		08/01/2020 12:57	1	UXX8922.D	DB-624 0.18 (mm)
CCVIS 240-445248/2		08/01/2020 13:22	1	UXX8923.D	DB-624 0.18 (mm)
LCS 240-445248/4		08/01/2020 13:47	1	UXX8924.D	DB-624 0.18 (mm)
MRL 240-445248/5 MDLV		08/01/2020 14:11	1		DB-624 0.18 (mm)
MRL 240-445248/6 MDLV		08/01/2020 14:36	1		DB-624 0.18 (mm)
MB 240-445248/7		08/01/2020 15:01	1	UXX8927.D	DB-624 0.18 (mm)
ZZZZZ		08/01/2020 15:27	500		DB-624 0.18 (mm)
ZZZZZ		08/01/2020 15:52	1		DB-624 0.18 (mm)
ZZZZZ		08/01/2020 16:17	1		DB-624 0.18 (mm)
ZZZZZ		08/01/2020 16:42	1		DB-624 0.18 (mm)
ZZZZZ		08/01/2020 17:07	1		DB-624 0.18 (mm)
ZZZZZ		08/01/2020 17:32	1		DB-624 0.18 (mm)
ZZZZZ		08/01/2020 17:57	1		DB-624 0.18 (mm)
ZZZZZ		08/01/2020 18:22	1		DB-624 0.18 (mm)
ZZZZZ		08/01/2020 18:47	1		DB-624 0.18 (mm)
ZZZZZ		08/01/2020 19:11	1		DB-624 0.18 (mm)
ZZZZZ		08/01/2020 19:37	1		DB-624 0.18 (mm)
ZZZZZ		08/01/2020 20:26	1		DB-624 0.18 (mm)
ZZZZZ		08/01/2020 20:50	1		DB-624 0.18 (mm)
ZZZZZ		08/01/2020 21:15	1		DB-624 0.18 (mm)
ZZZZZ		08/01/2020 21:39	1		DB-624 0.18 (mm)
ZZZZZ		08/01/2020 22:04	1		DB-624 0.18 (mm)
240-134118-D-12 MS		08/01/2020 22:29	1	UXX8945.D	DB-624 0.18 (mm)
240-134118-E-12 MSD		08/01/2020 22:53	1	UXX8946.D	DB-624 0.18 (mm)
ZZZZZ		08/01/2020 23:18	1		DB-624 0.18 (mm)
240-134119-28		08/01/2020 23:43	1	UXX8948.D	DB-624 0.18 (mm)

GC/MS VOA ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, CantonJob No.: 240-134119-1

SDG No.: _____

Instrument ID: A3UX10Start Date: 08/03/2020 13:28Analysis Batch Number: 445379End Date: 08/04/2020 00:42

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
BFB 240-445379/1		08/03/2020 13:28	1	BFB1913.D	DB-624 0.18 (mm)
CCVIS 240-445379/2		08/03/2020 13:55	1	UXX8950.D	DB-624 0.18 (mm)
CCV 240-445379/3		08/03/2020 14:20	1	UXX8951.D	DB-624 0.18 (mm)
MRL 240-445379/5 MDLV		08/03/2020 15:10	1		DB-624 0.18 (mm)
LCS 240-445379/4		08/03/2020 15:36	1	UXX8954.D	DB-624 0.18 (mm)
MRL 240-445379/6 MDLV		08/03/2020 16:00	1		DB-624 0.18 (mm)
MB 240-445379/7		08/03/2020 16:25	1	UXX8956.D	DB-624 0.18 (mm)
ZZZZZ		08/03/2020 16:49	1		DB-624 0.18 (mm)
240-133764-G-4 MS		08/03/2020 17:14	1	UXX8958.D	DB-624 0.18 (mm)
240-133764-H-4 MSD		08/03/2020 17:39	1	UXX8959.D	DB-624 0.18 (mm)
ZZZZZ		08/03/2020 18:04	1		DB-624 0.18 (mm)
ZZZZZ		08/03/2020 18:29	1		DB-624 0.18 (mm)
ZZZZZ		08/03/2020 18:54	1		DB-624 0.18 (mm)
ZZZZZ		08/03/2020 19:19	1		DB-624 0.18 (mm)
ZZZZZ		08/03/2020 19:43	1		DB-624 0.18 (mm)
ZZZZZ		08/03/2020 20:08	1		DB-624 0.18 (mm)
ZZZZZ		08/03/2020 20:33	1		DB-624 0.18 (mm)
ZZZZZ		08/03/2020 20:57	1		DB-624 0.18 (mm)
ZZZZZ		08/03/2020 21:23	1		DB-624 0.18 (mm)
ZZZZZ		08/03/2020 22:12	1		DB-624 0.18 (mm)
ZZZZZ		08/03/2020 22:37	1		DB-624 0.18 (mm)
ZZZZZ		08/03/2020 23:02	1		DB-624 0.18 (mm)
240-134119-29		08/03/2020 23:52	1	UXX8974.D	DB-624 0.18 (mm)
ZZZZZ		08/04/2020 00:17	1		DB-624 0.18 (mm)
ZZZZZ		08/04/2020 00:42	1		DB-624 0.18 (mm)

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Batch Number: 419116 Batch Start Date: 01/15/20 14:40 Batch Analyst: Williams, Larry

Batch Method: 8260B Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	VM50IS 00080	vm50ss 00387	VMAROLISTDW 00328	vmbfb 00024
BFB 240-419116/1		8260B		5 mL	5 mL				1 uL
STD8260 240-419116/2 IC		8260B		5 mL	5 mL	1 uL	32 uL		
STD8260 240-419116/3 IC		8260B		5 mL	5 mL	1 uL	16 uL		
STD8260 240-419116/4 ICIS		8260B		5 mL	5 mL	1 uL	8 uL		
STD8260 240-419116/5 IC		8260B		5 mL	5 mL	1 uL	4 uL		
STD8260 240-419116/6 IC		8260B		5 mL	5 mL	1 uL	3.2 uL		
STD8260 240-419116/7 IC		8260B		5 mL	5 mL	1 uL	1.6 uL		
STD8260 240-419116/8 IC		8260B		5 mL	5 mL	1 uL	0.8 uL		
ICV 240-419116/9		8260B		5 mL	5 mL	1 uL	8 uL	8 uL	
ICV 240-419116/17		8260B		5 mL	5 mL	1 uL			

Lab Sample ID	Client Sample ID	Method Chain	Basis	VMFASA9W 00261	VMFASAW 00312	VMFASGW 00343	VMFASPW 00334	VMRGAS 00323	VMRPRIMW 00369
BFB 240-419116/1		8260B							
STD8260 240-419116/2 IC		8260B			32 uL			32 uL	32 uL
STD8260 240-419116/3 IC		8260B			16 uL			16 uL	16 uL
STD8260 240-419116/4 ICIS		8260B			8 uL			8 uL	8 uL
STD8260 240-419116/5 IC		8260B			4 uL			4 uL	4 uL
STD8260 240-419116/6 IC		8260B			3.2 uL			3.2 uL	3.2 uL
STD8260 240-419116/7 IC		8260B			1.6 uL			1.6 uL	1.6 uL
STD8260 240-419116/8 IC		8260B			0.8 uL			0.8 uL	0.8 uL

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Batch Number: 419116 Batch Start Date: 01/15/20 14:40 Batch Analyst: Williams, Larry

Batch Method: 8260B Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	VMFASA9W 00261	VMFASAW 00312	VMFASGW 00343	VMFASPW 00334	VMRGAS 00323	VMRPRIMW 00369
ICV 240-419116/9		8260B				8 uL	8 uL		
ICV 240-419116/17		8260B		8 uL					

Batch Notes	
pH Indicator ID	HC861525

Basis	Basis Description

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Batch Number: 445248 Batch Start Date: 08/01/20 12:09 Batch Analyst: Williams, Larry

Batch Method: 8260B Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Initial pH	VM50IS 00084	vm50ss_stk 00085	VMAROLISTDW 00354
BFB 240-445248/1		8260B		5 mL	5 mL				
CCVIS 240-445248/2		8260B		5 mL	5 mL		1 uL	1 uL	8 uL
CCV 240-445248/3		8260B		5 mL	5 mL		1 uL		
LCS 240-445248/4		8260B		5 mL	5 mL		1 uL	1 uL	
MB 240-445248/7		8260B		5 mL	5 mL		1 uL	1 uL	
240-134118-D-12 MS	GW-11213535-0728 20-55-MR-012	8260B	T	5 mL	5 mL	<2 SU	1 uL	1 uL	
240-134118-E-12 MSD	GW-11213535-0728 20-55-MR-012	8260B	T	5 mL	5 mL	<2 SU	1 uL	1 uL	
240-134119-B-28	TMW-20-01 (3.5-8.5) 072720	8260B	T	5 mL	5 mL	<2 SU	1 uL	1 uL	

Lab Sample ID	Client Sample ID	Method Chain	Basis	VMBFB 00025	VMFASAW 00338	VMFASGW 00369	VMFASPW 00360	VMRA9W 00355	VMRGAS 00349
BFB 240-445248/1		8260B		1 uL					
CCVIS 240-445248/2		8260B							8 uL
CCV 240-445248/3		8260B						8 uL	
LCS 240-445248/4		8260B			8 uL	8 uL	8 uL		
MB 240-445248/7		8260B							
240-134118-D-12 MS	GW-11213535-0728 20-55-MR-012	8260B	T		8 uL	8 uL	8 uL		
240-134118-E-12 MSD	GW-11213535-0728 20-55-MR-012	8260B	T		8 uL	8 uL	8 uL		
240-134119-B-28	TMW-20-01 (3.5-8.5) 072720	8260B	T						

Lab Sample ID	Client Sample ID	Method Chain	Basis	VMRPRIMW 00397					
BFB 240-445248/1		8260B							
CCVIS 240-445248/2		8260B		8 uL					

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Batch Number: 445248 Batch Start Date: 08/01/20 12:09 Batch Analyst: Williams, Larry

Batch Method: 8260B Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	VMRPRIMW 00397					
CCV 240-445248/3		8260B							
LCS 240-445248/4		8260B							
MB 240-445248/7		8260B							
240-134118-D-12 MS	GW-11213535-0728 20-55-MR-012	8260B	T						
240-134118-E-12 MSD	GW-11213535-0728 20-55-MR-012	8260B	T						
240-134119-B-28	TMW-20-01 (3.5-8.5) 072720	8260B	T						

Batch Notes	
pH Indicator ID	HC861525

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Batch Number: 445379 Batch Start Date: 08/03/20 13:28 Batch Analyst: Williams, Larry

Batch Method: 8260B Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Initial pH	VM50IS 00084	vm50ss_stk 00085	VMAROLISTDW 00355
BFB 240-445379/1		8260B		5 mL	5 mL				
CCVIS 240-445379/2		8260B		5 mL	5 mL		1 uL	1 uL	8 uL
CCV 240-445379/3		8260B		5 mL	5 mL		1 uL		
LCS 240-445379/4		8260B		5 mL	5 mL		1 uL	1 uL	
MB 240-445379/7		8260B		5 mL	5 mL		1 uL	1 uL	
240-133764-G-4 MS	ISMW-07-06223,24 ,25	8260B	T	5 mL	5 mL	<2 SU	1 uL	1 uL	
240-133764-H-4 MSD	ISMW-07-06223,24 ,25	8260B	T	5 mL	5 mL	<2 SU	1 uL	1 uL	
240-134119-A-29	TRIP BLANK	8260B	T	5 mL	5 mL	<2 SU	1 uL	1 uL	

Lab Sample ID	Client Sample ID	Method Chain	Basis	VMBFB 00025	VMFASAW 00338	VMFASGW 00370	VMFASPW 00360	VMRA9W 00355	VMRGAS 00349
BFB 240-445379/1		8260B		1 uL					
CCVIS 240-445379/2		8260B							8 uL
CCV 240-445379/3		8260B						8 uL	
LCS 240-445379/4		8260B			8 uL	8 uL	8 uL		
MB 240-445379/7		8260B							
240-133764-G-4 MS	ISMW-07-06223,24 ,25	8260B	T		8 uL	8 uL	8 uL		
240-133764-H-4 MSD	ISMW-07-06223,24 ,25	8260B	T		8 uL	8 uL	8 uL		
240-134119-A-29	TRIP BLANK	8260B	T						

Lab Sample ID	Client Sample ID	Method Chain	Basis	VMRPRIMW 00397					
BFB 240-445379/1		8260B							
CCVIS 240-445379/2		8260B		8 uL					
CCV 240-445379/3		8260B							

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Batch Number: 445379 Batch Start Date: 08/03/20 13:28 Batch Analyst: Williams, Larry

Batch Method: 8260B Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	VMRPRIMW 00397					
LCS 240-445379/4		8260B							
MB 240-445379/7		8260B							
240-133764-G-4 MS	ISMW-07-06223,24 ,25	8260B	T						
240-133764-H-4 MSD	ISMW-07-06223,24 ,25	8260B	T						
240-134119-A-29	TRIP BLANK	8260B	T						

Batch Notes	
pH Indicator ID	HC861525

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Method 8260B SIM

Volatile Organic Compounds (GC/MS
SIM) by Method 8260B

FORM II
GC/MS VOA SURROGATE RECOVERY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.: _____

Matrix: Water

Level: Low

GC Column (1): ZB-624 ID: 0.53 (mm)

Client Sample ID	Lab Sample ID	DCA #
TMW-20-01 (3.5-8.5) 072720	240-134119-28	85
	MB 240-445137/5	82
	LCS 240-445137/4	82
	240-134235-C-2 MS	87
	240-134235-C-2 MSD	85

DCA = 1,2-Dichloroethane-d4 (Surr)

QC LIMITS
70-133

Column to be used to flag recovery values

FORM II 8260B SIM

FORM III
GC/MS VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: X21082.D

Lab ID: LCS 240-445137/4 Client ID: _____

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
1,4-Dioxane	10.0	12.0	120	80-135	

Column to be used to flag recovery and RPD values

FORM III
GC/MS VOA MATRIX SPIKE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: X21092.D

Lab ID: 240-134235-C-2 MS Client ID: _____

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC	QC LIMITS REC	#
1,4-Dioxane	20.0	33	56.5	116	46-170	

Column to be used to flag recovery and RPD values

FORM III
GC/MS VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: X21093.D
 Lab ID: 240-134235-C-2 MSD Client ID: _____

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
1,4-Dioxane	20.0	58.9	127	4	26	46-170	

Column to be used to flag recovery and RPD values
 FORM III 8260B SIM

FORM IV
GC/MS VOA METHOD BLANK SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab File ID: X21083.D Lab Sample ID: MB 240-445137/5
 Matrix: Water Heated Purge: (Y/N) Y
 Instrument ID: A3UX2 Date Analyzed: 07/31/2020 13:43
 GC Column: ZB-624 ID: 0.53 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 240-445137/4	X21082.D	07/31/2020 13:18
	240-134235-C-2 MS	X21092.D	07/31/2020 17:27
	240-134235-C-2 MSD	X21093.D	07/31/2020 17:51
TMW-20-01 (3.5-8.5)_072720	240-134119-28	X21097.D	07/31/2020 19:30

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab File ID: BFBX2567.D BFB Injection Date: 02/25/2020
 Instrument ID: A3UX2 BFB Injection Time: 16:03
 Analysis Batch No.: 424238

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0 % of mass 95	34.9
75	30.0 - 60.0 % of mass 95	56.1
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0 % of mass 95	6.2
173	Less than 2.0 % of mass 174	0.0 (0.0) 1
174	50.0 - 120.00 % of mass 95	80.4
175	5.0 - 9.0 % of mass 174	7.2 (8.9) 1
176	95.0 - 101.0 % of mass 174	79.8 (99.3) 1
177	5.0 - 9.0 % of mass 176	5.1 (6.3) 2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	IC 240-424238/3	X29300.D	02/25/2020	16:49
	IC 240-424238/4	X29301.D	02/25/2020	17:15
	IC 240-424238/5	X29302.D	02/25/2020	17:40
	ICIS 240-424238/6	X29303.D	02/25/2020	18:06
	IC 240-424238/7	X29304.D	02/25/2020	18:32
	IC 240-424238/8	X29305.D	02/25/2020	18:58
	IC 240-424238/9	X29306.D	02/25/2020	19:24
	ICV 240-424238/11	X29308.D	02/25/2020	20:15

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab File ID: BFBX2651.D BFB Injection Date: 07/31/2020
 Instrument ID: A3UX2 BFB Injection Time: 12:09
 Analysis Batch No.: 445137

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15.0 - 40.0 % of mass 95	24.2	
75	30.0 - 60.0 % of mass 95	47.3	
95	Base Peak, 100% relative abundance	100.0	
96	5.0 - 9.0 % of mass 95	6.6	
173	Less than 2.0 % of mass 174	0.0	(0.0) 1
174	50.0 - 120.00 % of mass 95	85.1	
175	5.0 - 9.0 % of mass 174	6.1	(7.1) 1
176	95.0 - 101.0 % of mass 174	81.9	(96.2) 1
177	5.0 - 9.0 % of mass 176	5.3	(6.4) 2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	CCVIS 240-445137/3	X21081.D	07/31/2020	12:53
	LCS 240-445137/4	X21082.D	07/31/2020	13:18
	MB 240-445137/5	X21083.D	07/31/2020	13:43
	240-134235-C-2 MS	X21092.D	07/31/2020	17:27
	240-134235-C-2 MSD	X21093.D	07/31/2020	17:51
TMW-20-01 (3.5-8.5) 072720	240-134119-28	X21097.D	07/31/2020	19:30

FORM VIII
GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Sample No.: ICIS 240-424238/6 Date Analyzed: 02/25/2020 18:06
 Instrument ID: A3UX2 GC Column: ZB-624 ID: 0.53 (mm)
 Lab File ID (Standard): X29303.D Heated Purge: (Y/N) Y
 Calibration ID: 55819

	FB		14DD8		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
INITIAL CALIBRATION MID-POINT	7706070	4.51	163826	5.81		
UPPER LIMIT	15412140	5.01	327652	6.31		
LOWER LIMIT	3853035	4.01	81913	5.31		
LAB SAMPLE ID	CLIENT SAMPLE ID					
ICV 240-424238/11		7639619	4.51	165520	5.81	
CCVIS 240-445137/3		7802348	4.50	158535	5.80	

FB = Fluorobenzene
 14DD8 = 1,4-Dioxane (IS)

Area Limit = 50%-200% of internal standard area
 RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Sample No.: CCVIS 240-445137/3 Date Analyzed: 07/31/2020 12:53
 Instrument ID: A3UX2 GC Column: ZB-624 ID: 0.53 (mm)
 Lab File ID (Standard): X21081.D Heated Purge: (Y/N) Y
 Calibration ID: 55819

	FB		14DD8		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	7802348	4.50	158535	5.80		
UPPER LIMIT	15604696	5.00	317070	6.30		
LOWER LIMIT	3901174	4.00	79268	5.30		
LAB SAMPLE ID	CLIENT SAMPLE ID					
LCS 240-445137/4		7557837	4.51	157765	5.81	
MB 240-445137/5		7622076	4.51	158669	5.81	
240-134235-C-2 MS		7666165	4.50	170129	5.80	
240-134235-C-2 MSD		7072357	4.50	151926	5.80	
240-134119-28	TMW-20-01 (3.5-8.5) 072720	6883467	4.50	149863	5.81	

FB = Fluorobenzene
 14DD8 = 1,4-Dioxane (IS)

Area Limit = 50%-200% of internal standard area
 RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
SDG No.: _____
Client Sample ID: TMW-20-01 Lab Sample ID: 240-134119-28
(3.5-8.5) 072720
Matrix: Water Lab File ID: X21097.D
Analysis Method: 8260B SIM Date Collected: 07/27/2020 16:52
Sample wt/vol: 15 (mL) Date Analyzed: 07/31/2020 19:30
Soil Aliquot Vol.: _____ Dilution Factor: 1
Soil Extract Vol.: _____ GC Column: ZB-624 ID: 0.53 (mm)
% Moisture: _____ Level: (low/med) Low
Analysis Batch No.: 445137 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	2.0	U	2.0	0.86

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	85		70-133

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21097.D
 Lims ID: 240-134119-C-28
 Client ID: TMW-20-01 (3.5-8.5)_072720
 Sample Type: Client
 Inject. Date: 31-Jul-2020 19:30:30 ALS Bottle#: 18 Worklist Smp#: 20
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Sample Info: 240-134119-c-28
 Misc. Info.: 240-0100568-020
 Operator ID: 402279 Instrument ID: A3UX2
 Method: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 03-Aug-2020 11:30:42 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1008

First Level Reviewer: macenczaks Date: 03-Aug-2020 10:41:31

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	3.943	3.941	0.002	100	2012001	8.47	
* 7 Fluorobenzene	96	4.497	4.497	0.000	100	6883467	10.0	
* 9 Dioxane-d8 (IS)	96	5.805	5.799	0.006	98	149863	200.0	

Reagents:

vm40ml_vials_00014 Amount Added: 0.00 Units: Run Reagent
 vm150is_00174 Amount Added: 1.00 Units: uL Run Reagent
 vmDist_H2o_00177 Amount Added: 0.00 Units: Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21097.D

Injection Date: 31-Jul-2020 19:30:30

Instrument ID: A3UX2

Operator ID: 402279

Lims ID: 240-134119-C-28

Lab Sample ID: 240-134119-28

Worklist Smp#: 20

Client ID: TMW-20-01 (3.5-8.5)_072720

Purge Vol: 15.000 mL

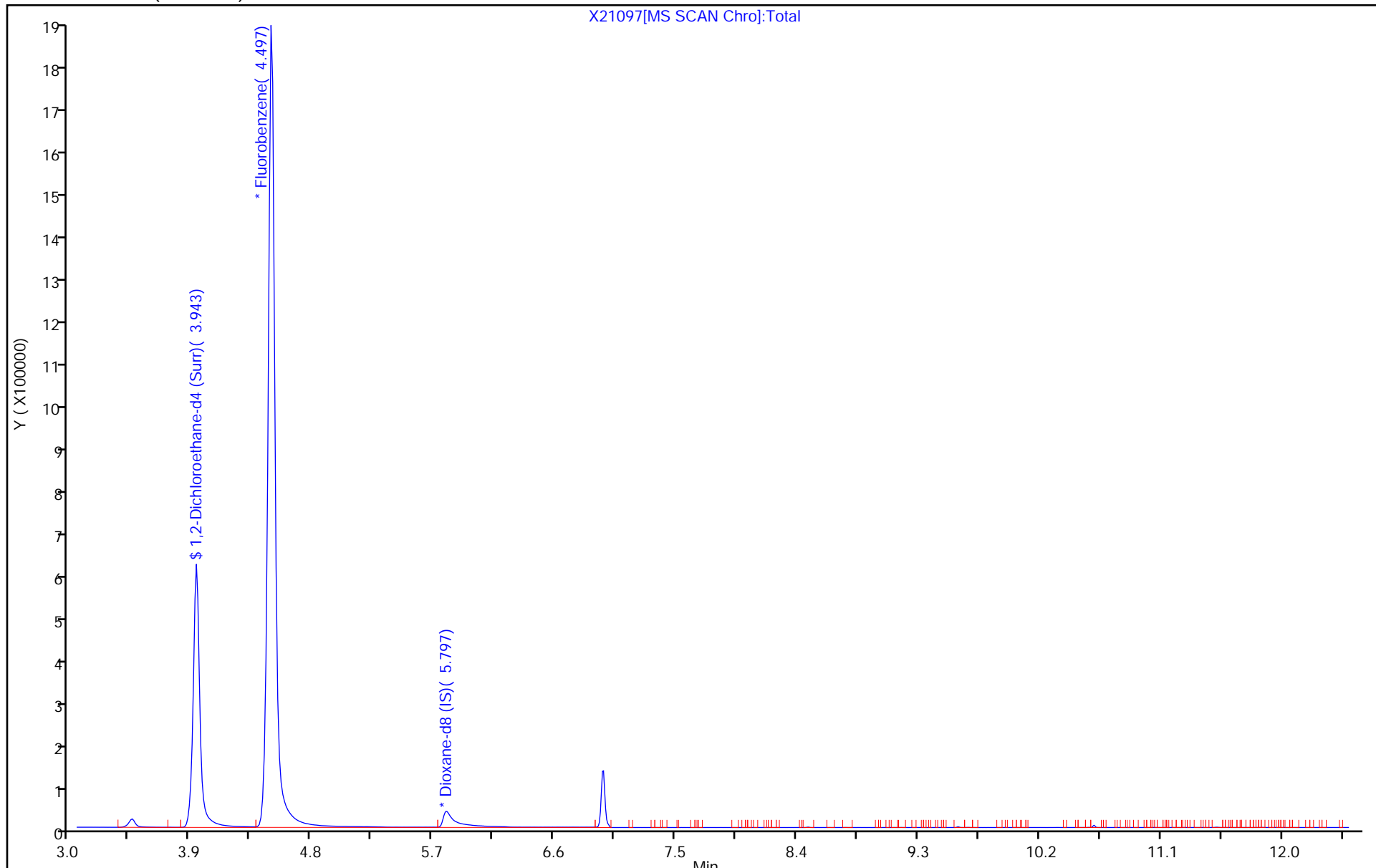
Dil. Factor: 1.0000

ALS Bottle#: 18

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21097.D
 Lims ID: 240-134119-C-28
 Client ID: TMW-20-01 (3.5-8.5)_072720
 Sample Type: Client
 Inject. Date: 31-Jul-2020 19:30:30 ALS Bottle#: 18 Worklist Smp#: 20
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Sample Info: 240-134119-c-28
 Misc. Info.: 240-0100568-020
 Operator ID: 402279 Instrument ID: A3UX2
 Method: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 03-Aug-2020 11:30:42 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1008

First Level Reviewer: macenczaks Date: 03-Aug-2020 10:41:31

Compound	Amount Added	Amount Recovered	% Rec.
\$ 5 1,2-Dichloroethane-d4 (Surr)	10.0	8.47	84.69

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 424238

SDG No.: _____

Instrument ID: A3UX2 GC Column: ZB-624 ID: 0.53 (mm) Heated Purge: (Y/N) Y

Calibration Start Date: 02/25/2020 16:49 Calibration End Date: 02/25/2020 19:24 Calibration ID: 55819

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 240-424238/9	X29306.D
Level 2	IC 240-424238/8	X29305.D
Level 3	IC 240-424238/7	X29304.D
Level 4	ICIS 240-424238/6	X29303.D
Level 5	IC 240-424238/5	X29302.D
Level 6	IC 240-424238/4	X29301.D
Level 7	IC 240-424238/3	X29300.D

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
1,4-Dioxane	0.8534 1.1297	0.9392 1.2260	1.0453	1.1581	1.1610	Lin1	-0.975	1.1966						0.9990		0.9900	
1,2-Dichloroethane-d4 (Surr)	0.3342 0.3678	0.3259 0.3525	0.3413	0.3588	0.3499	Ave		0.3451			4.2		35.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1 Analy Batch No.: 424238

SDG No.: _____

Instrument ID: A3UX2 GC Column: ZB-624 ID: 0.53 (mm) Heated Purge: (Y/N) Y

Calibration Start Date: 02/25/2020 16:49 Calibration End Date: 02/25/2020 19:24 Calibration ID: 55819

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 240-424238/9	X29306.D
Level 2	IC 240-424238/8	X29305.D
Level 3	IC 240-424238/7	X29304.D
Level 4	ICIS 240-424238/6	X29303.D
Level 5	IC 240-424238/5	X29302.D
Level 6	IC 240-424238/4	X29301.D
Level 7	IC 240-424238/3	X29300.D

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5
			LVL 6	LVL 7				LVL 6	LVL 7			
1,4-Dioxane	14DD 8	Lin1	1380 93584	3789 214778	8189	18972	46289	2.00 100	5.00 200	10.0	20.0	50.0
1,2-Dichloroethane-d4 (Surr)	FB	Ave	252979 14203789	633205 27877543	1295930	2764586	7098479	1.00 50.0	2.50 100	5.00	10.0	25.0

Curve Type Legend:

Ave = Average ISTD
Lin1 = Linear 1/conc ISTD

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29300.D
 Lims ID: IC
 Client ID:
 Sample Type: IC Calib Level: 8
 Inject. Date: 25-Feb-2020 16:49:30 ALS Bottle#: 2 Worklist Smp#: 3
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Sample Info: ic
 Misc. Info.: 240-0096076-003
 Operator ID: 002808 Instrument ID: A3UX2
 Sublist: chrom-8260SIM_X2*sub2
 Method: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 26-Feb-2020 09:16:48 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0337

First Level Reviewer: macenczaks Date: 25-Feb-2020 17:20:00

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 5 1,2-Dichloroethane-d4 (Sur	65	3.945	3.955	-0.010	100	27877543	100.0	102.1	
* 7 Fluorobenzene	96	4.497	4.510	-0.013	100	7908003	10.0	10.0	
* 9 Dioxane-d8 (IS)	96	5.805	5.813	-0.008	98	175184	200.0	200.0	
8 1,4-Dioxane	88	5.875	5.875	0.000	97	214778	200.0	205.7	

Reagents:

vmdioxanew_00200 Amount Added: 30.00 Units: uL
 vm50ss_00391 Amount Added: 30.00 Units: uL
 vm150is_00164 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29300.D

Injection Date: 25-Feb-2020 16:49:30

Instrument ID: A3UX2

Operator ID: 002808

Lims ID: IC

Worklist Smp#: 3

Client ID:

Purge Vol: 15.000 mL

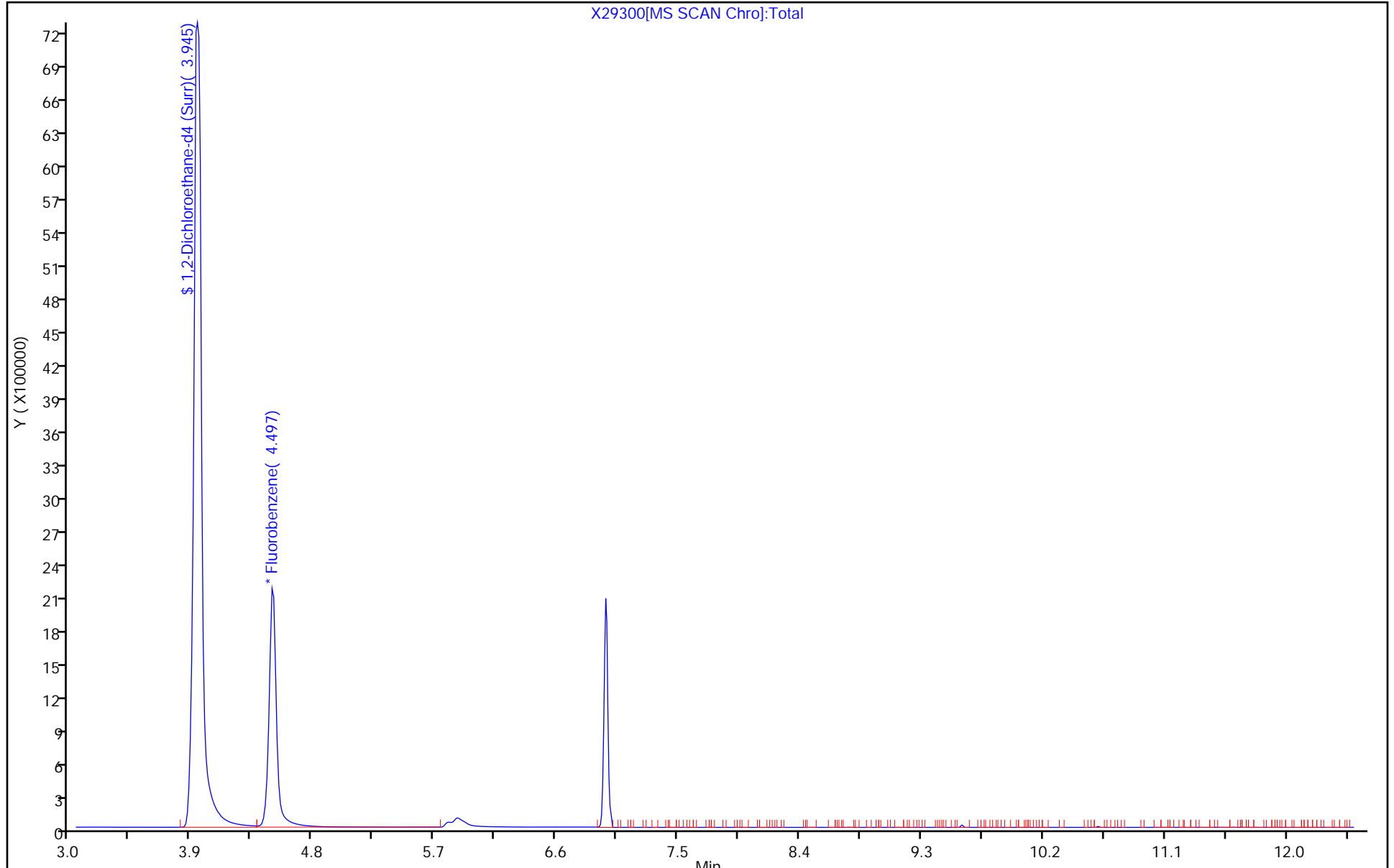
Dil. Factor: 1.0000

ALS Bottle#: 2

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29301.D
 Lims ID: IC
 Client ID:
 Sample Type: IC Calib Level: 7
 Inject. Date: 25-Feb-2020 17:15:30 ALS Bottle#: 3 Worklist Smp#: 4
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Sample Info: ic
 Misc. Info.: 240-0096076-004
 Operator ID: 002808 Instrument ID: A3UX2
 Sublist: chrom-8260SIM_X2*sub2
 Method: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 26-Feb-2020 09:16:49 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0337

First Level Reviewer: macenczaks Date: 26-Feb-2020 08:58:24

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 5 1,2-Dichloroethane-d4 (Sur	65	3.945	3.955	-0.010	100	14203789	50.0	53.3	
* 7 Fluorobenzene	96	4.509	4.510	-0.001	100	7723637	10.0	10.0	
* 9 Dioxane-d8 (IS)	96	5.806	5.813	-0.007	99	165679	200.0	200.0	
8 1,4-Dioxane	88	5.876	5.875	0.001	97	93584	100.0	95.2	

Reagents:

vmdioxanew_00200 Amount Added: 15.00 Units: uL
 vm50ss_00391 Amount Added: 15.00 Units: uL
 vm150is_00164 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29301.D

Injection Date: 25-Feb-2020 17:15:30

Instrument ID: A3UX2

Operator ID: 002808

Lims ID: IC

Worklist Smp#: 4

Client ID:

Purge Vol: 15.000 mL

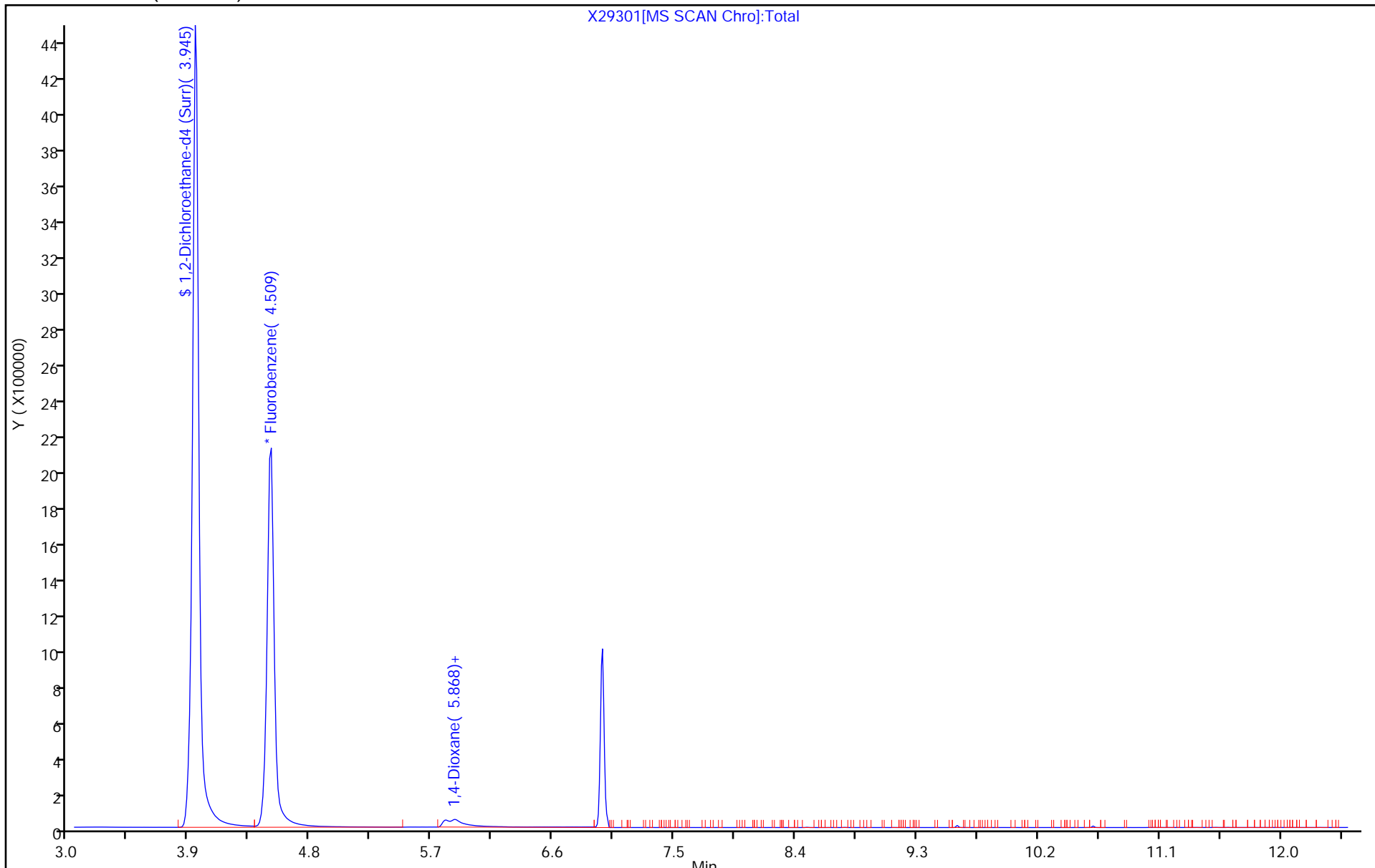
Dil. Factor: 1.0000

ALS Bottle#: 3

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29302.D
 Lims ID: IC
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 25-Feb-2020 17:40:30 ALS Bottle#: 4 Worklist Smp#: 5
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Sample Info: ic
 Misc. Info.: 240-0096076-005
 Operator ID: 002808 Instrument ID: A3UX2
 Sublist: chrom-8260SIM_X2*sub2
 Method: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 26-Feb-2020 09:16:50 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0337

First Level Reviewer: macenczaks Date: 26-Feb-2020 08:58:12

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 5 1,2-Dichloroethane-d4 (Sur	65	3.944	3.955	-0.011	100	7098479	25.0	25.3	
* 7 Fluorobenzene	96	4.497	4.510	-0.013	100	8115003	10.0	10.0	
* 9 Dioxane-d8 (IS)	96	5.805	5.813	-0.008	98	159484	200.0	200.0	
8 1,4-Dioxane	88	5.875	5.875	0.000	98	46289	50.0	49.3	M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

vmdioxanew_00200 Amount Added: 7.50 Units: uL
 vm50ss_00391 Amount Added: 7.50 Units: uL
 vm150is_00164 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29302.D

Injection Date: 25-Feb-2020 17:40:30

Instrument ID: A3UX2

Operator ID: 002808

Lims ID: IC

Worklist Smp#: 5

Client ID:

Purge Vol: 15.000 mL

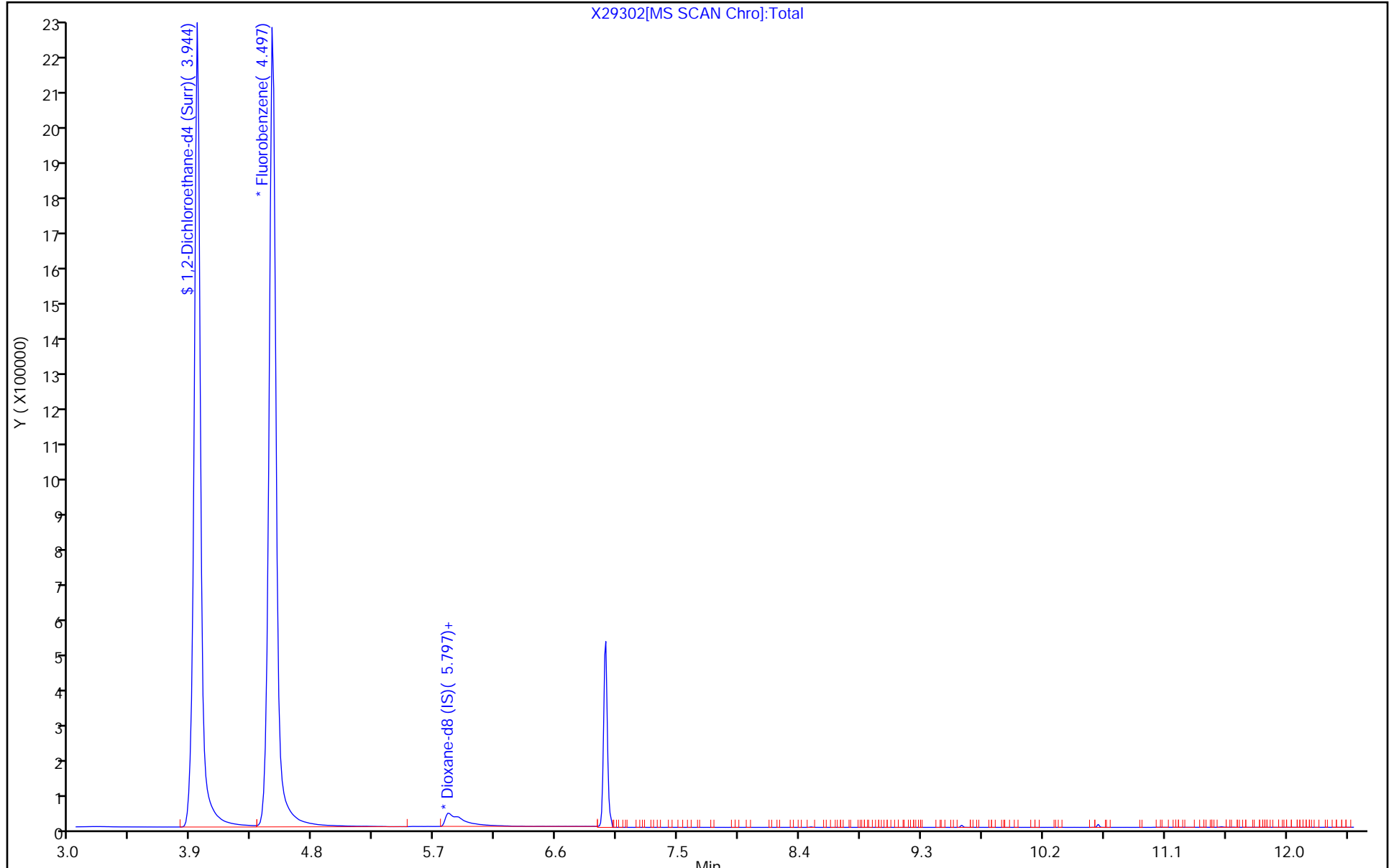
Dil. Factor: 1.0000

ALS Bottle#: 4

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton

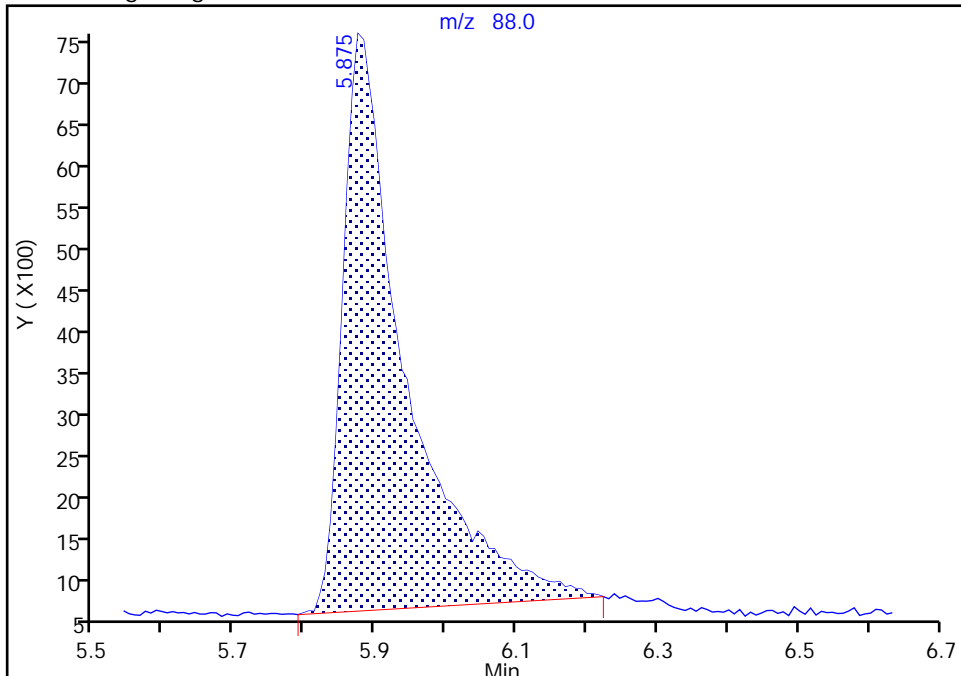
Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29302.D
Injection Date: 25-Feb-2020 17:40:30 Instrument ID: A3UX2
Lims ID: IC
Client ID:
Operator ID: 002808 ALS Bottle#: 4 Worklist Smp#: 5
Purge Vol: 15.000 mL Dil. Factor: 1.0000
Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

8 1,4-Dioxane, CAS: 123-91-1

Signal: 1

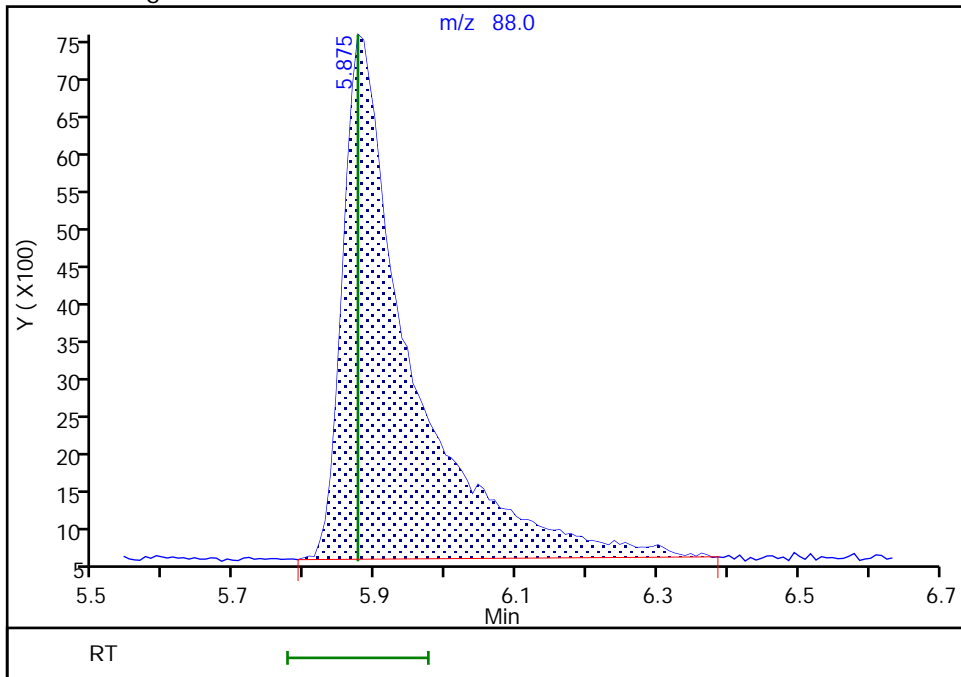
RT: 5.87
Area: 42856
Amount: 50.656456
Amount Units: ug/l

Processing Integration Results



RT: 5.87
Area: 46289
Amount: 49.328212
Amount Units: ug/l

Manual Integration Results



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29303.D
 Lims ID: ICIS
 Client ID:
 Sample Type: ICIS Calib Level: 5
 Inject. Date: 25-Feb-2020 18:06:30 ALS Bottle#: 5 Worklist Smp#: 6
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Sample Info: icis
 Misc. Info.: 240-0096076-006
 Operator ID: 002808 Instrument ID: A3UX2
 Sublist: chrom-8260SIM_X2*sub2
 Method: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 26-Feb-2020 09:16:51 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0337

First Level Reviewer: macenczaks Date: 26-Feb-2020 08:57:46

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 5 1,2-Dichloroethane-d4 (Sur	65	3.955	3.955	0.000	100	2764586	10.0	10.4	
* 7 Fluorobenzene	96	4.510	4.510	0.000	100	7706070	10.0	10.0	
* 9 Dioxane-d8 (IS)	96	5.813	5.813	0.000	98	163826	200.0	200.0	
8 1,4-Dioxane	88	5.875	5.875	0.000	82	18972	20.0	20.2	M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

vmdioxanew_00200 Amount Added: 3.00 Units: uL
 vm50ss_00391 Amount Added: 3.00 Units: uL
 vm150is_00164 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29303.D

Injection Date: 25-Feb-2020 18:06:30

Instrument ID: A3UX2

Operator ID: 002808

Lims ID: ICIS

Worklist Smp#: 6

Client ID:

Purge Vol: 15.000 mL

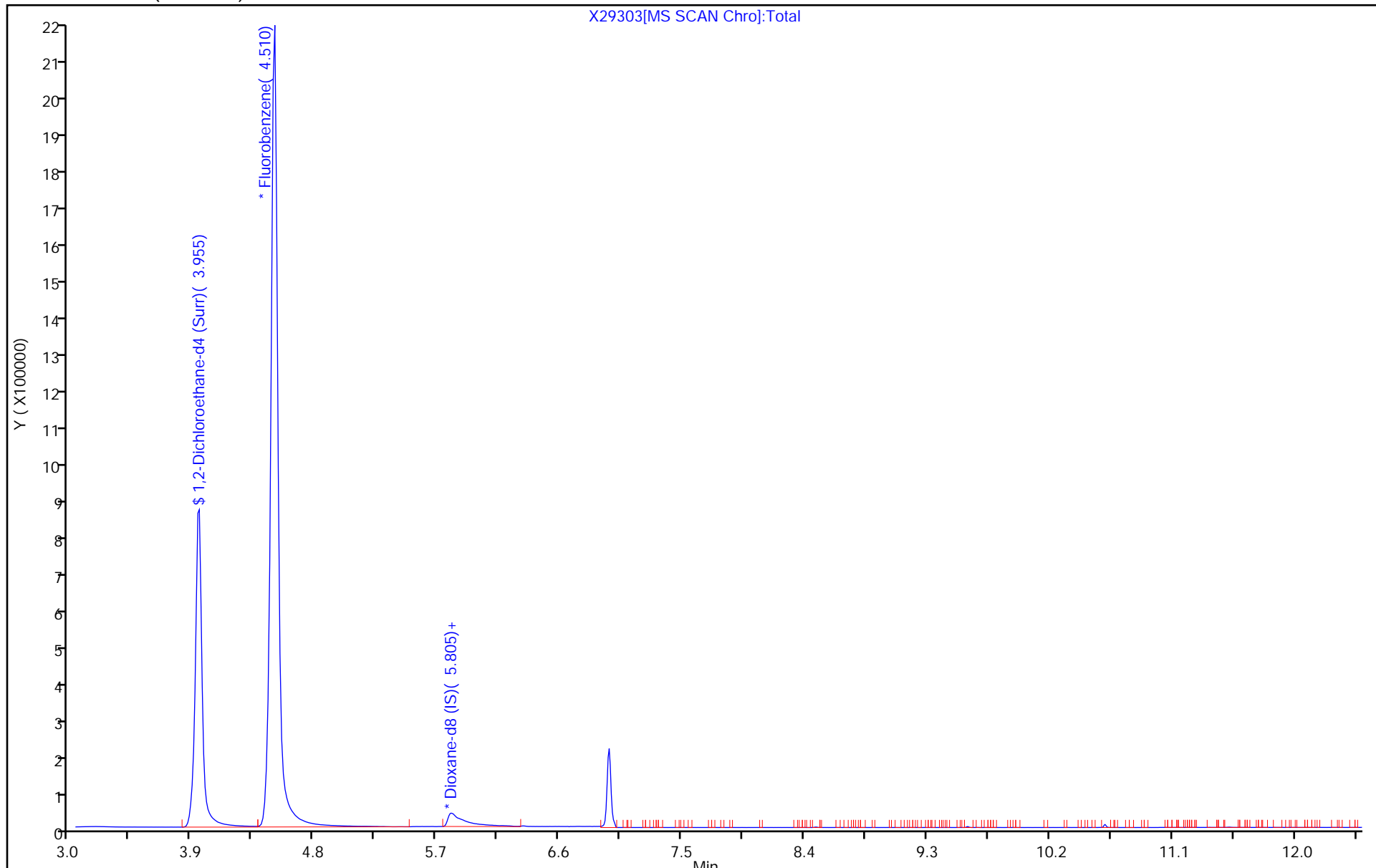
Dil. Factor: 1.0000

ALS Bottle#: 5

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton

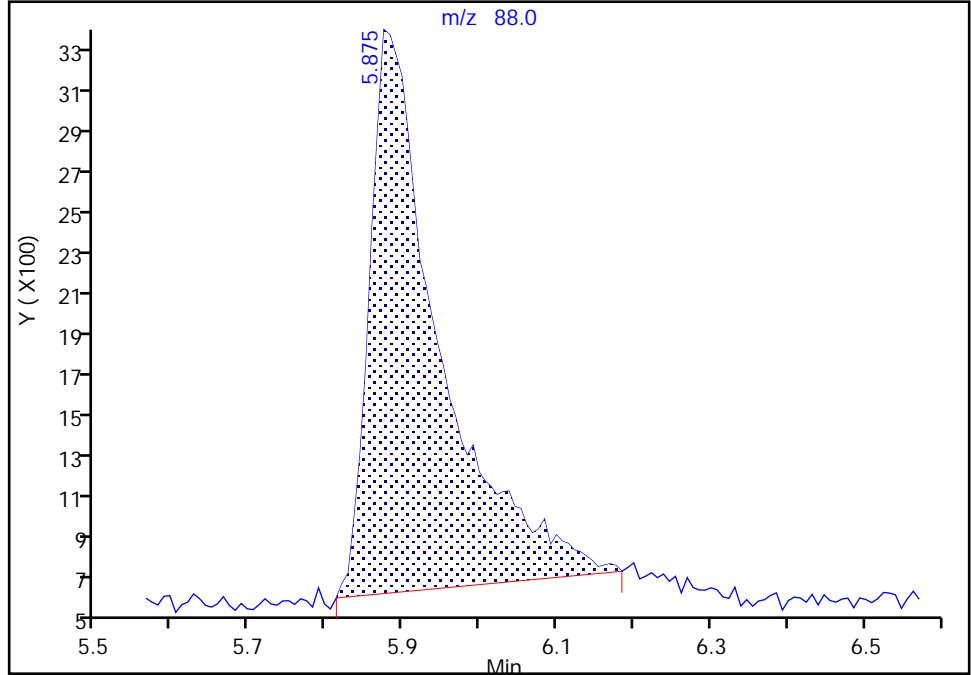
Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29303.D
Injection Date: 25-Feb-2020 18:06:30 Instrument ID: A3UX2
Lims ID: ICIS
Client ID:
Operator ID: 002808 ALS Bottle#: 5 Worklist Smp#: 6
Purge Vol: 15.000 mL Dil. Factor: 1.0000
Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

8 1,4-Dioxane, CAS: 123-91-1

Signal: 1

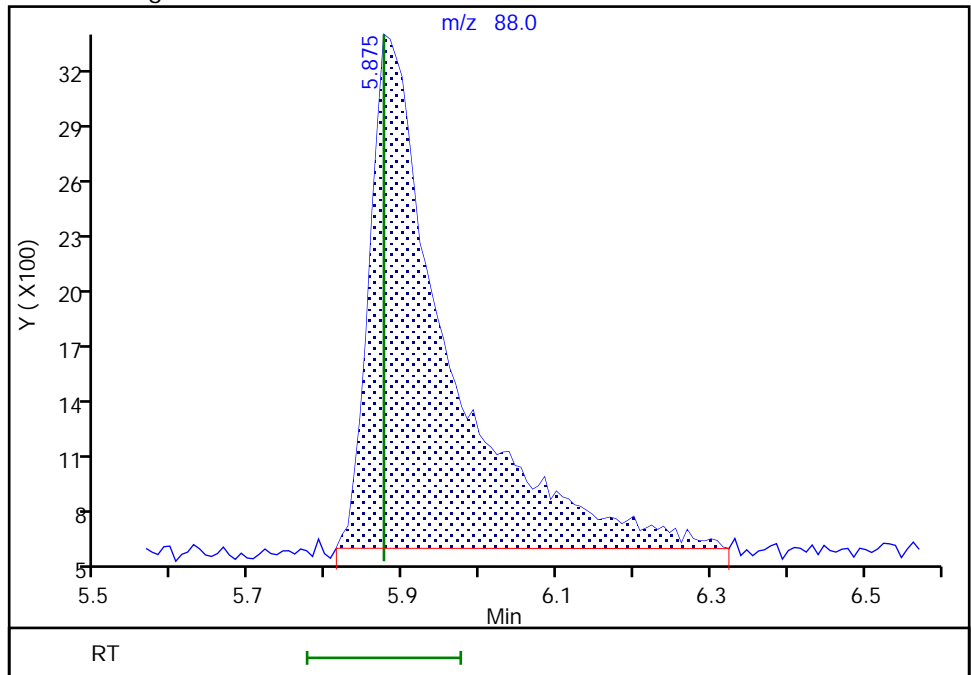
RT: 5.87
Area: 16882
Amount: 19.765443
Amount Units: ug/l

Processing Integration Results



RT: 5.87
Area: 18972
Amount: 20.171719
Amount Units: ug/l

Manual Integration Results



Reviewer: macenczaks, 26-Feb-2020 08:57:41
Audit Action: Manually Integrated

Audit Reason: Poor chromatography

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29304.D
 Lims ID: IC
 Client ID:
 Sample Type: IC Calib Level: 4
 Inject. Date: 25-Feb-2020 18:32:30 ALS Bottle#: 6 Worklist Smp#: 7
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Sample Info: ic
 Misc. Info.: 240-0096076-007
 Operator ID: 002808 Instrument ID: A3UX2
 Sublist: chrom-8260SIM_X2*sub2
 Method: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 26-Feb-2020 09:16:54 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0337

First Level Reviewer: macenczaks Date: 26-Feb-2020 08:57:24

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 5 1,2-Dichloroethane-d4 (Sur	65	3.954	3.955	-0.001	100	1295930	5.00	4.94	
* 7 Fluorobenzene	96	4.510	4.510	0.000	100	7595189	10.0	10.0	
* 9 Dioxane-d8 (IS)	96	5.806	5.813	-0.007	99	156682	200.0	200.0	
8 1,4-Dioxane	88	5.883	5.875	0.008	96	8189	10.0	9.55	M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

vmdioxanew_00200 Amount Added: 1.50 Units: uL
 vm50ss_00391 Amount Added: 1.50 Units: uL
 vm150is_00164 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29304.D

Injection Date: 25-Feb-2020 18:32:30

Instrument ID: A3UX2

Operator ID: 002808

Lims ID: IC

Worklist Smp#: 7

Client ID:

Purge Vol: 15.000 mL

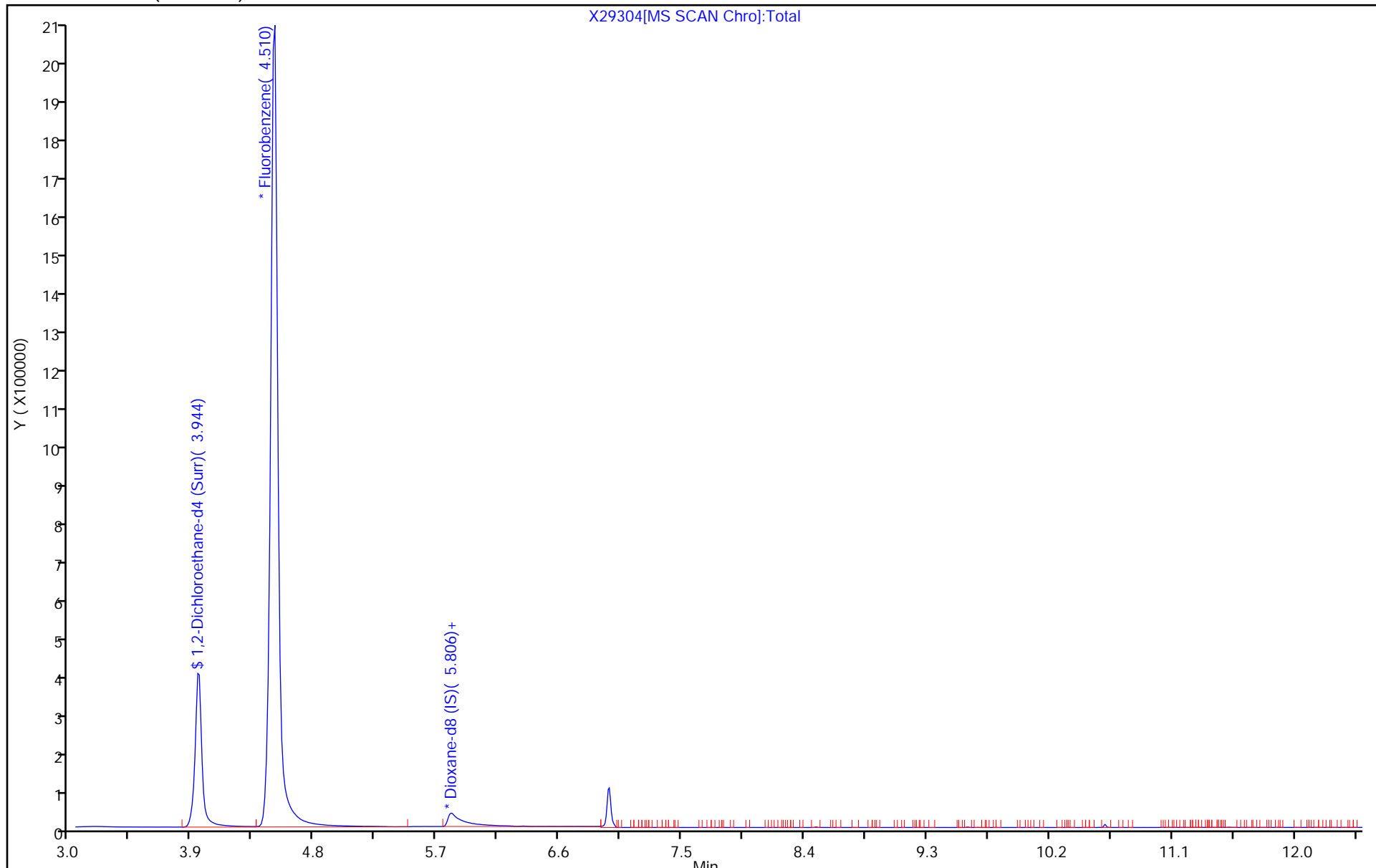
Dil. Factor: 1.0000

ALS Bottle#: 6

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton

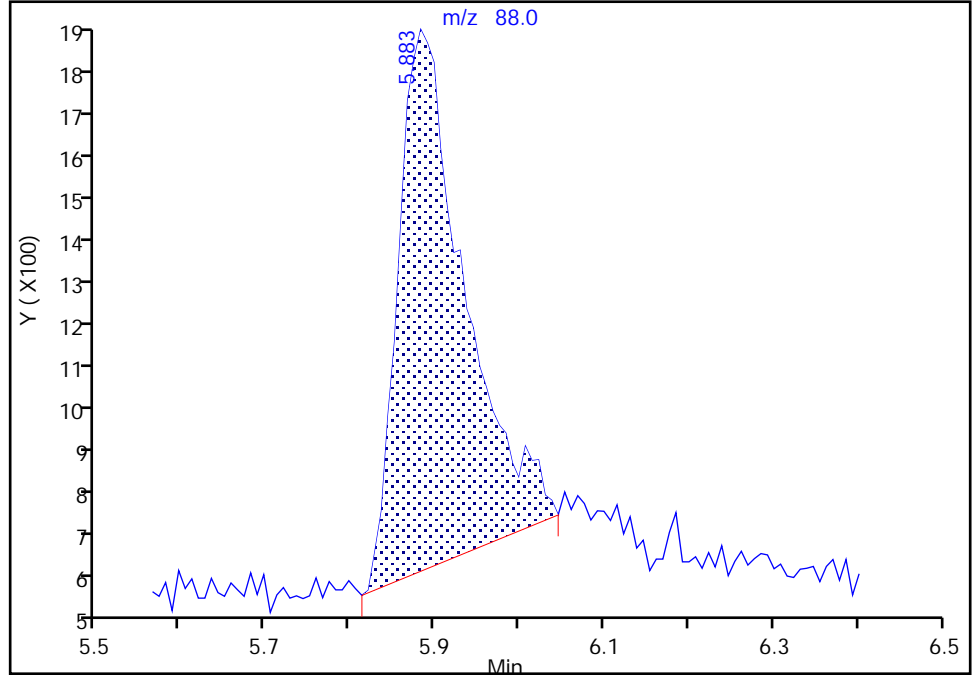
Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29304.D
Injection Date: 25-Feb-2020 18:32:30 Instrument ID: A3UX2
Lims ID: IC
Client ID:
Operator ID: 002808 ALS Bottle#: 6 Worklist Smp#: 7
Purge Vol: 15.000 mL Dil. Factor: 1.0000
Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

8 1,4-Dioxane, CAS: 123-91-1

Signal: 1

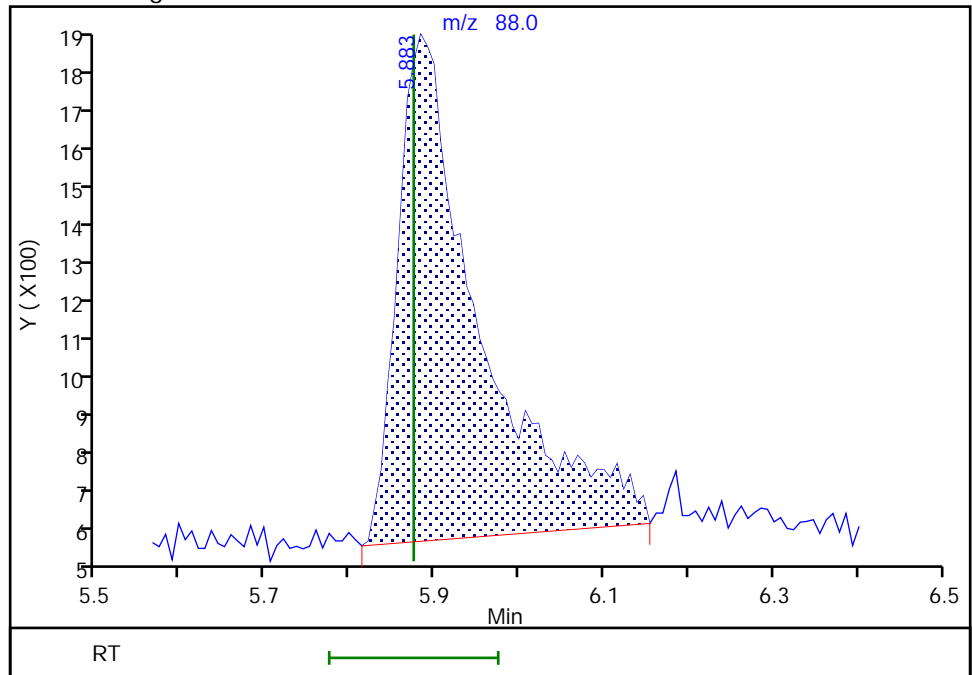
RT: 5.88
Area: 6424
Amount: 8.114625
Amount Units: ug/l

Processing Integration Results



RT: 5.88
Area: 8189
Amount: 9.551098
Amount Units: ug/l

Manual Integration Results



Reviewer: macenczaks, 26-Feb-2020 08:57:17
Audit Action: Manually Integrated

Audit Reason: Poor chromatography

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29305.D
 Lims ID: IC
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 25-Feb-2020 18:58:30 ALS Bottle#: 7 Worklist Smp#: 8
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Sample Info: ic
 Misc. Info.: 240-0096076-008
 Operator ID: 002808 Instrument ID: A3UX2
 Sublist: chrom-8260SIM_X2*sub2
 Method: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 26-Feb-2020 09:16:56 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0337

First Level Reviewer: macenczaks Date: 26-Feb-2020 08:57:00

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 5 1,2-Dichloroethane-d4 (Sur	65	3.943	3.955	-0.012	100	633205	2.50	2.36	
* 7 Fluorobenzene	96	4.497	4.510	-0.013	100	7770614	10.0	10.0	
* 9 Dioxane-d8 (IS)	96	5.805	5.813	-0.008	99	161372	200.0	200.0	
8 1,4-Dioxane	88	5.874	5.875	-0.001	84	3789	5.00	4.74	M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

vmdioxanew_00200 Amount Added: 0.75 Units: uL
 vm50ss_00391 Amount Added: 0.75 Units: uL
 vm150is_00164 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29305.D

Injection Date: 25-Feb-2020 18:58:30

Instrument ID: A3UX2

Operator ID: 002808

Lims ID: IC

Worklist Smp#: 8

Client ID:

Purge Vol: 15.000 mL

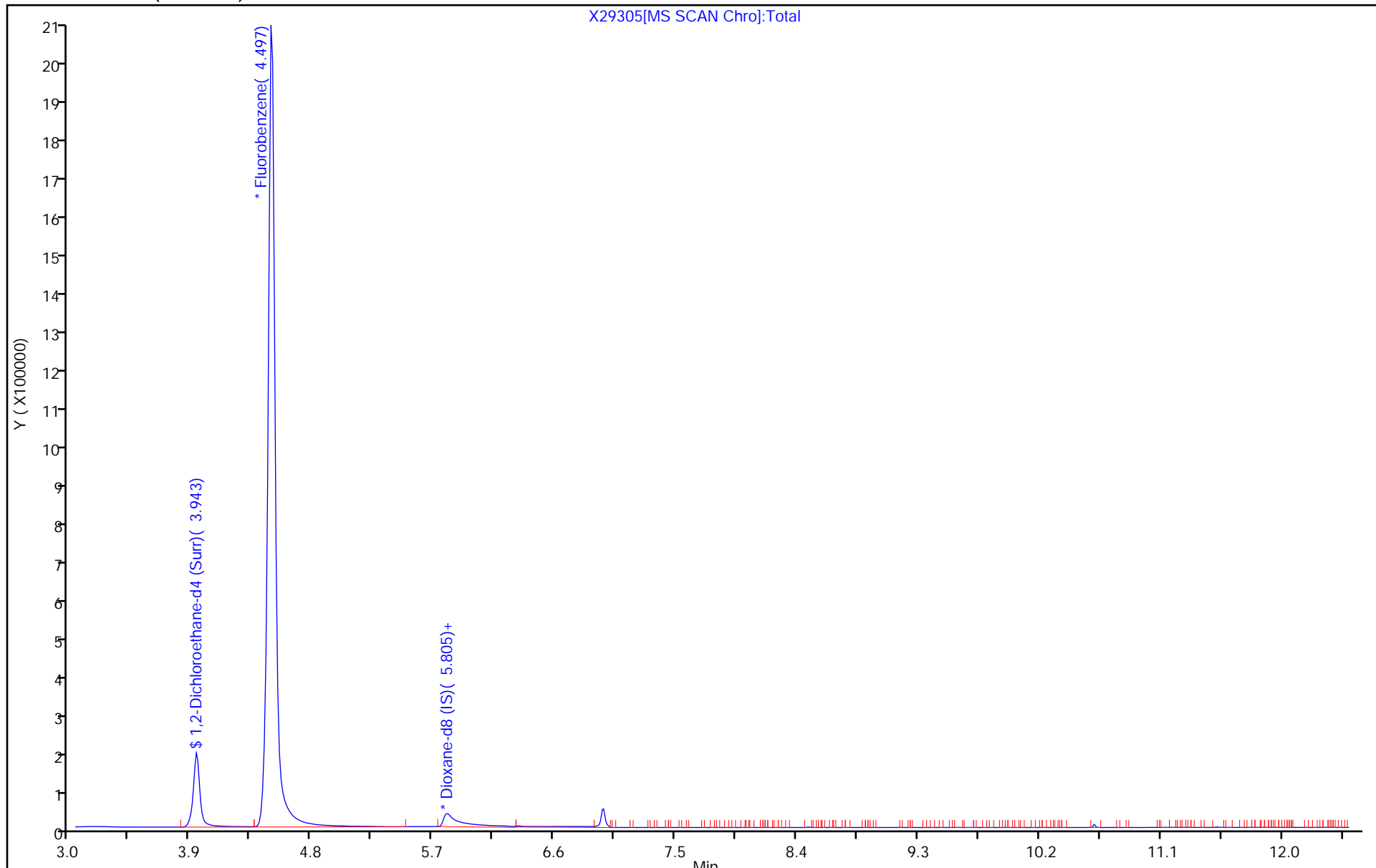
Dil. Factor: 1.0000

ALS Bottle#: 7

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton

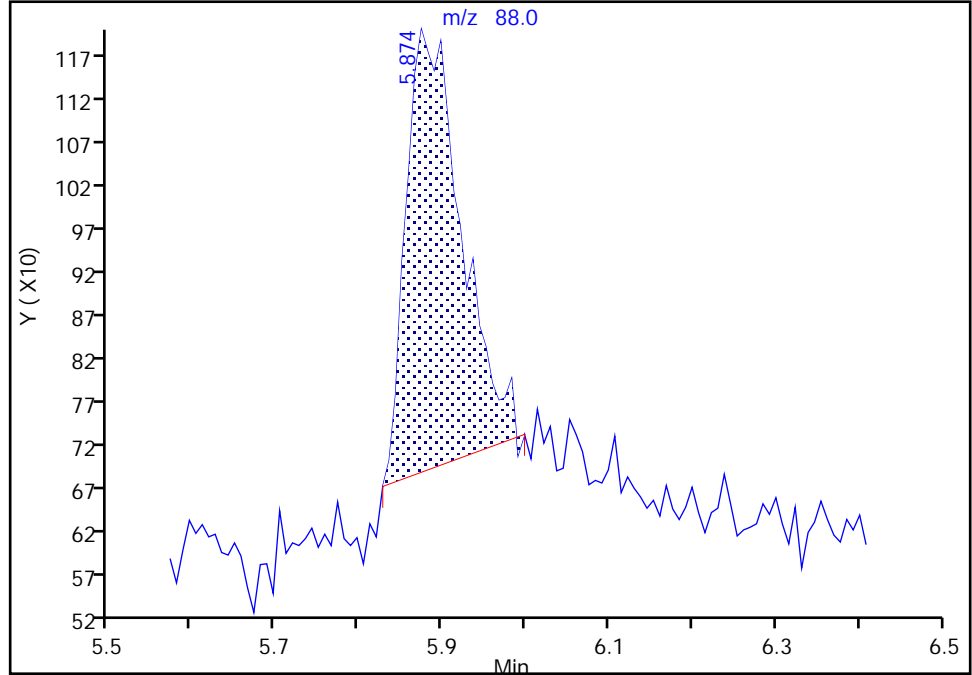
Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29305.D
Injection Date: 25-Feb-2020 18:58:30 Instrument ID: A3UX2
Lims ID: IC
Client ID:
Operator ID: 002808 ALS Bottle#: 7 Worklist Smp#: 8
Purge Vol: 15.000 mL Dil. Factor: 1.0000
Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

8 1,4-Dioxane, CAS: 123-91-1

Signal: 1

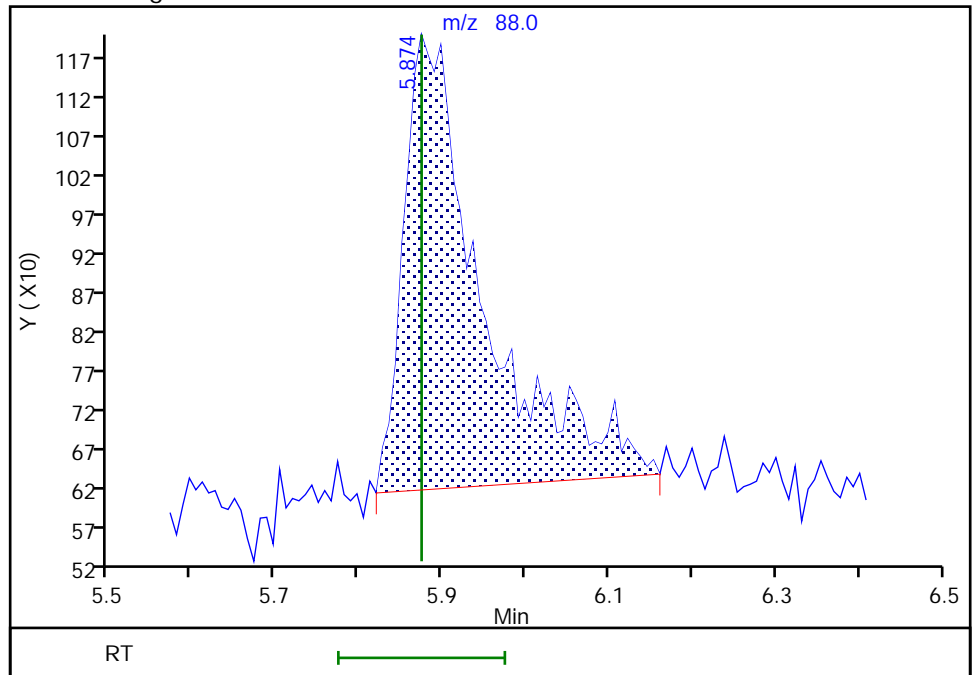
RT: 5.87
Area: 2320
Amount: 2.999810
Amount Units: ug/l

Processing Integration Results



RT: 5.87
Area: 3789
Amount: 4.739747
Amount Units: ug/l

Manual Integration Results



Reviewer: macenczaks, 26-Feb-2020 08:56:55
Audit Action: Manually Integrated

Audit Reason: Poor chromatography

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29306.D
 Lims ID: IC
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 25-Feb-2020 19:24:30 ALS Bottle#: 8 Worklist Smp#: 9
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Sample Info: ic
 Misc. Info.: 240-0096076-009
 Operator ID: 002808 Instrument ID: A3UX2
 Sublist: chrom-8260SIM_X2*sub2
 Method: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 26-Feb-2020 09:16:57 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0337

First Level Reviewer: macenczaks Date: 26-Feb-2020 08:56:30

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 5 1,2-Dichloroethane-d4 (Sur	65	3.953	3.955	-0.002	100	252979	1.00	0.9683	
* 7 Fluorobenzene	96	4.510	4.510	0.000	100	7570065	10.0	10.0	
* 9 Dioxane-d8 (IS)	96	5.813	5.813	0.000	99	161702	200.0	200.0	
8 1,4-Dioxane	88	5.898	5.875	0.023	79	1380	2.00	2.24	M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

vmdioxanew_00200 Amount Added: 0.30 Units: uL
 vm50ss_00391 Amount Added: 0.30 Units: uL
 vm150is_00164 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29306.D

Injection Date: 25-Feb-2020 19:24:30

Instrument ID: A3UX2

Operator ID: 002808

Lims ID: IC

Worklist Smp#: 9

Client ID:

Purge Vol: 15.000 mL

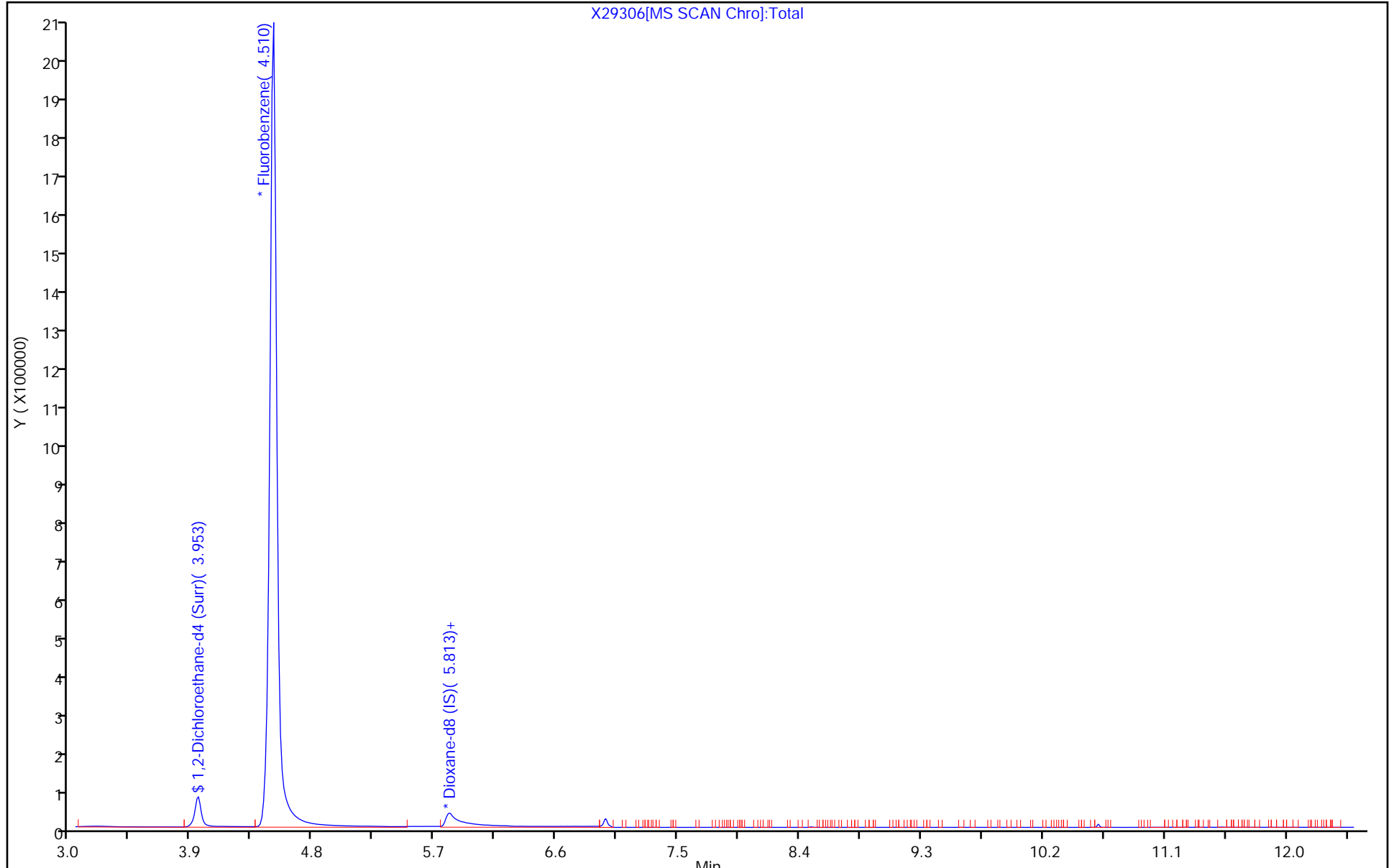
Dil. Factor: 1.0000

ALS Bottle#: 8

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton

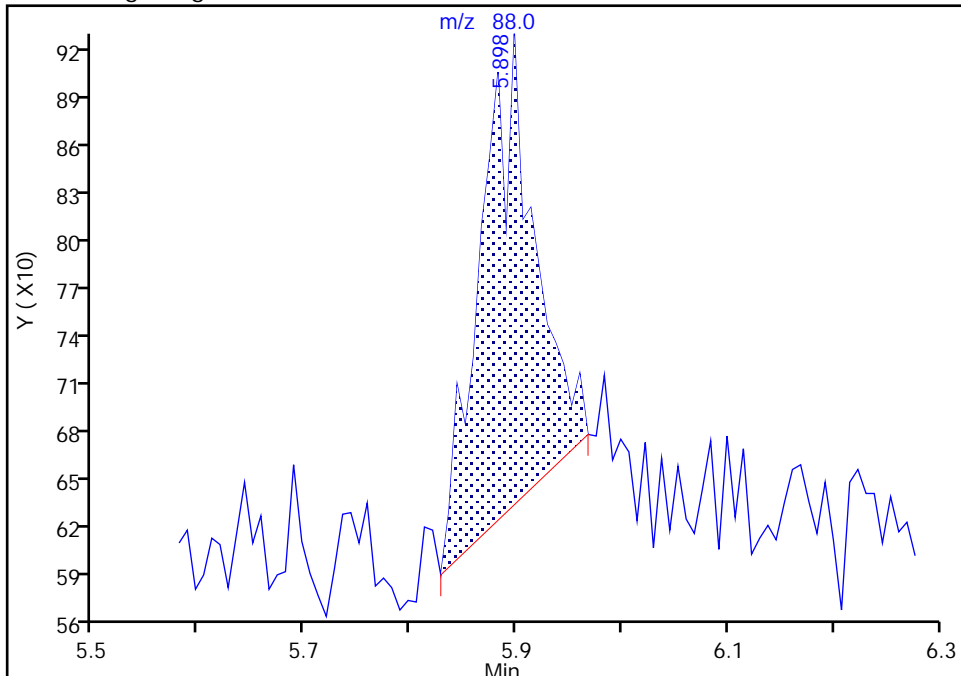
Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29306.D
Injection Date: 25-Feb-2020 19:24:30 Instrument ID: A3UX2
Lims ID: IC
Client ID:
Operator ID: 002808 ALS Bottle#: 8 Worklist Smp#: 9
Purge Vol: 15.000 mL Dil. Factor: 1.0000
Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

8 1,4-Dioxane, CAS: 123-91-1

Signal: 1

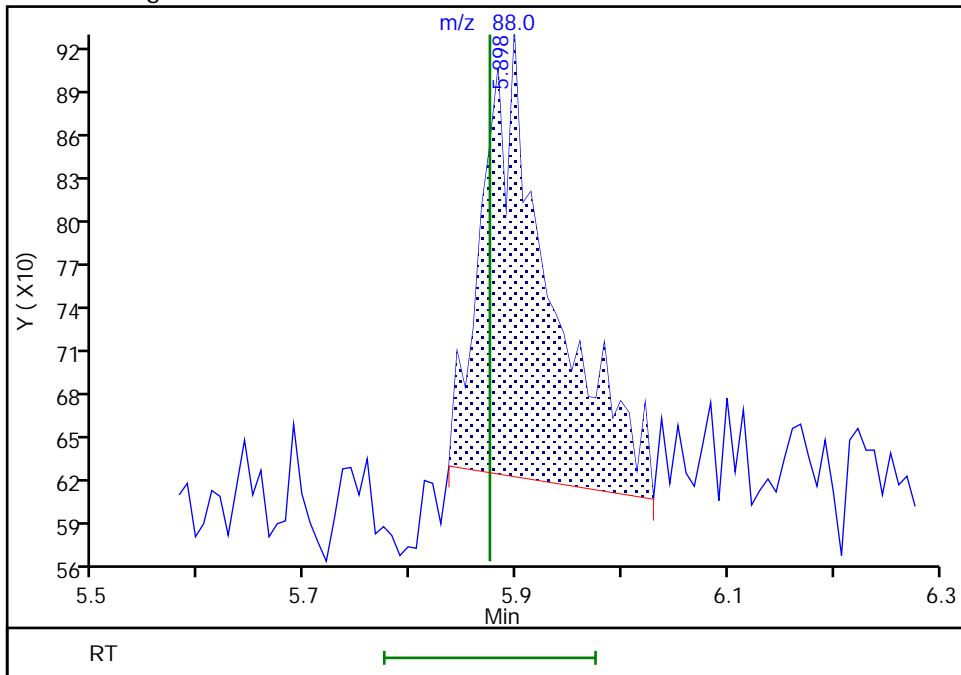
RT: 5.90
Area: 1067
Amount: 1.417739
Amount Units: ug/l

Processing Integration Results



RT: 5.90
Area: 1380
Amount: 2.241623
Amount Units: ug/l

Manual Integration Results



Reviewer: macenczaks, 26-Feb-2020 08:56:18
Audit Action: Manually Integrated

Audit Reason: Poor chromatography

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: ICV 240-424238/11 Calibration Date: 02/25/2020 20:15
 Instrument ID: A3UX2 Calib Start Date: 02/25/2020 16:49
 GC Column: ZB-624 ID: 0.53 (mm) Calib End Date: 02/25/2020 19:24
 Lab File ID: X29308.D Conc. Units: ng/uL Heated Purge: (Y/N) Y

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,4-Dioxane	Lin1		1.048		0.00957	0.0100	-4.3	
1,2-Dichloroethane-d4 (Surr)	Ave	0.3451	0.3666		0.0106	0.0100	6.2	

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29308.D
 Lims ID: ICV
 Client ID:
 Sample Type: ICV
 Inject. Date: 25-Feb-2020 20:15:30 ALS Bottle#: 10 Worklist Smp#: 11
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Sample Info: icv
 Misc. Info.: 240-0096076-011
 Operator ID: 002808 Instrument ID: A3UX2
 Sublist:

Method: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 26-Feb-2020 09:16:57 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0337

First Level Reviewer: macenczaks Date: 26-Feb-2020 09:03:44

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 5 1,2-Dichloroethane-d4 (Sur	65	3.954	3.955	-0.001	100	2800470	10.0	10.6	
* 7 Fluorobenzene	96	4.510	4.510	0.000	100	7639619	10.0	10.0	
* 9 Dioxane-d8 (IS)	96	5.806	5.813	-0.007	98	165520	200.0	200.0	
8 1,4-Dioxane	88	5.883	5.875	0.008	98	8674	10.0	9.57	M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

vmdiox_spike_00213	Amount Added: 3.00	Units: uL	
vmDist_H2o_00162	Amount Added: 0.00	Units:	Run Reagent
vm40ml_vials_00014	Amount Added: 0.00	Units:	Run Reagent
vm150is_00164	Amount Added: 1.00	Units: uL	Run Reagent
vm50ss_00391	Amount Added: 3.00	Units: uL	Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29308.D

Injection Date: 25-Feb-2020 20:15:30

Instrument ID: A3UX2

Operator ID: 002808

Lims ID: ICV

Worklist Smp#: 11

Client ID:

Purge Vol: 15.000 mL

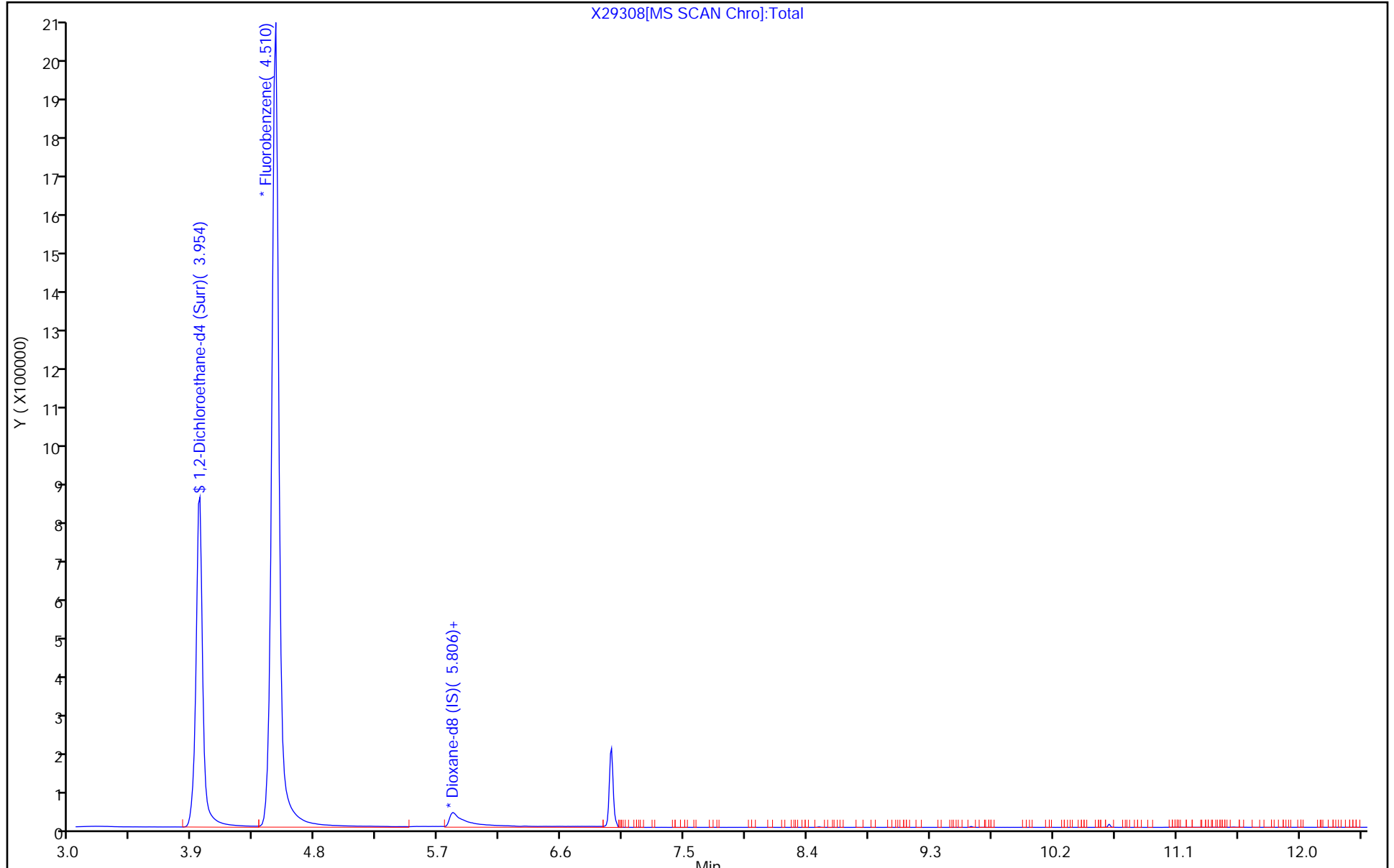
Dil. Factor: 1.0000

ALS Bottle#: 10

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton

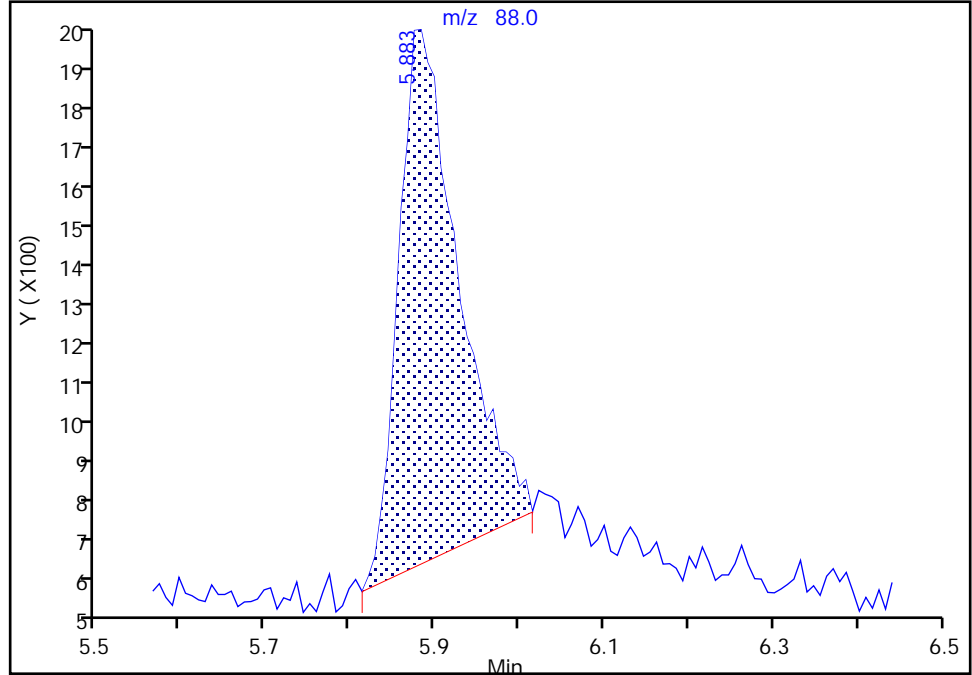
Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29308.D
Injection Date: 25-Feb-2020 20:15:30 Instrument ID: A3UX2
Lims ID: ICV
Client ID:
Operator ID: 002808 ALS Bottle#: 10 Worklist Smp#: 11
Purge Vol: 15.000 mL Dil. Factor: 1.0000
Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

8 1,4-Dioxane, CAS: 123-91-1

Signal: 1

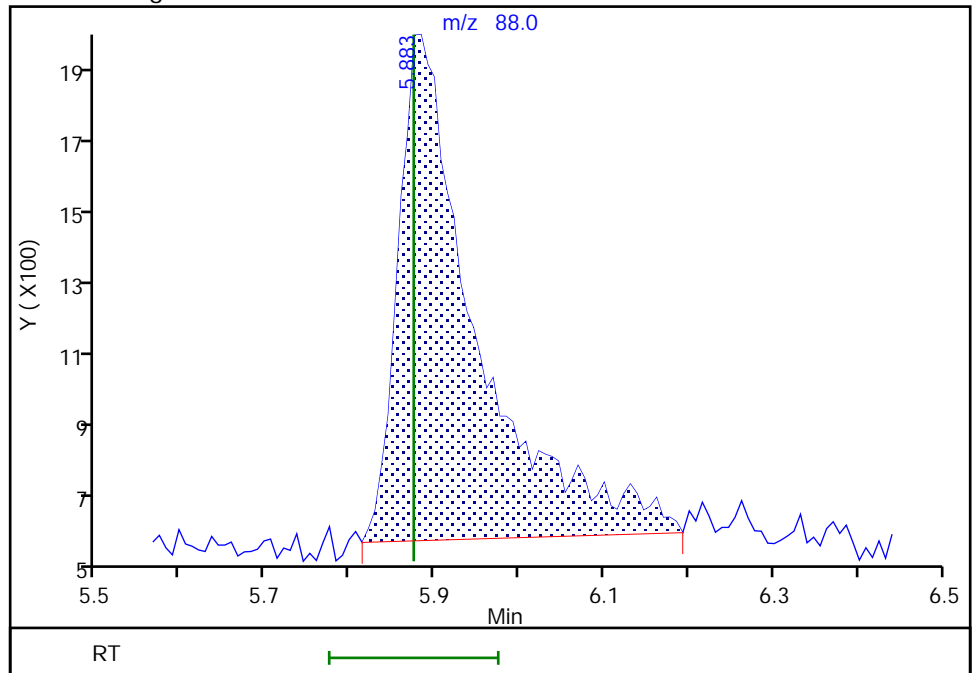
RT: 5.88
Area: 6342
Amount: 7.219486
Amount Units: ug/l

Processing Integration Results



RT: 5.88
Area: 8674
Amount: 9.574406
Amount Units: ug/l

Manual Integration Results



Reviewer: macenczaks, 26-Feb-2020 09:03:38
Audit Action: Manually Integrated

Audit Reason: Poor chromatography

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Lab Sample ID: CCVIS 240-445137/3 Calibration Date: 07/31/2020 12:53
 Instrument ID: A3UX2 Calib Start Date: 02/25/2020 16:49
 GC Column: ZB-624 ID: 0.53 (mm) Calib End Date: 02/25/2020 19:24
 Lab File ID: X21081.D Conc. Units: ng/uL Heated Purge: (Y/N) Y

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,4-Dioxane	Lin1		1.264		0.0219	0.0200	9.7	35.0
1,2-Dichloroethane-d4 (Surr)	Ave	0.3451	0.2789		0.00808	0.0100	-19.2	35.0

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21081.D
 Lims ID: CCVIS
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 31-Jul-2020 12:53:30 ALS Bottle#: 2 Worklist Smp#: 3
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Sample Info: ccvis
 Misc. Info.: 240-0100568-003
 Operator ID: 402279 Instrument ID: A3UX2
 Sublist: chrom-8260SIM_X2*sub2
 Method: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 03-Aug-2020 11:30:42 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1008

First Level Reviewer: macenczaks Date: 31-Jul-2020 13:11:40

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	3.941	3.941	0.000	100	2176253	10.0	8.08	
* 7 Fluorobenzene	96	4.497	4.497	0.000	100	7802348	10.0	10.0	
* 9 Dioxane-d8 (IS)	96	5.799	5.799	0.000	98	158535	200.0	200.0	M
8 1,4-Dioxane	88	5.876	5.876	0.000	88	20035	20.0	21.9	M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

vmdioxanew_00219	Amount Added: 3.00	Units: uL	
vm40ml_vials_00014	Amount Added: 0.00	Units:	Run Reagent
vm150is_00174	Amount Added: 1.00	Units: uL	Run Reagent
vmDist_H2o_00177	Amount Added: 0.00	Units:	Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21081.D

Injection Date: 31-Jul-2020 12:53:30

Instrument ID: A3UX2

Operator ID: 402279

Lims ID: CCVIS

Worklist Smp#: 3

Client ID:

Purge Vol: 15.000 mL

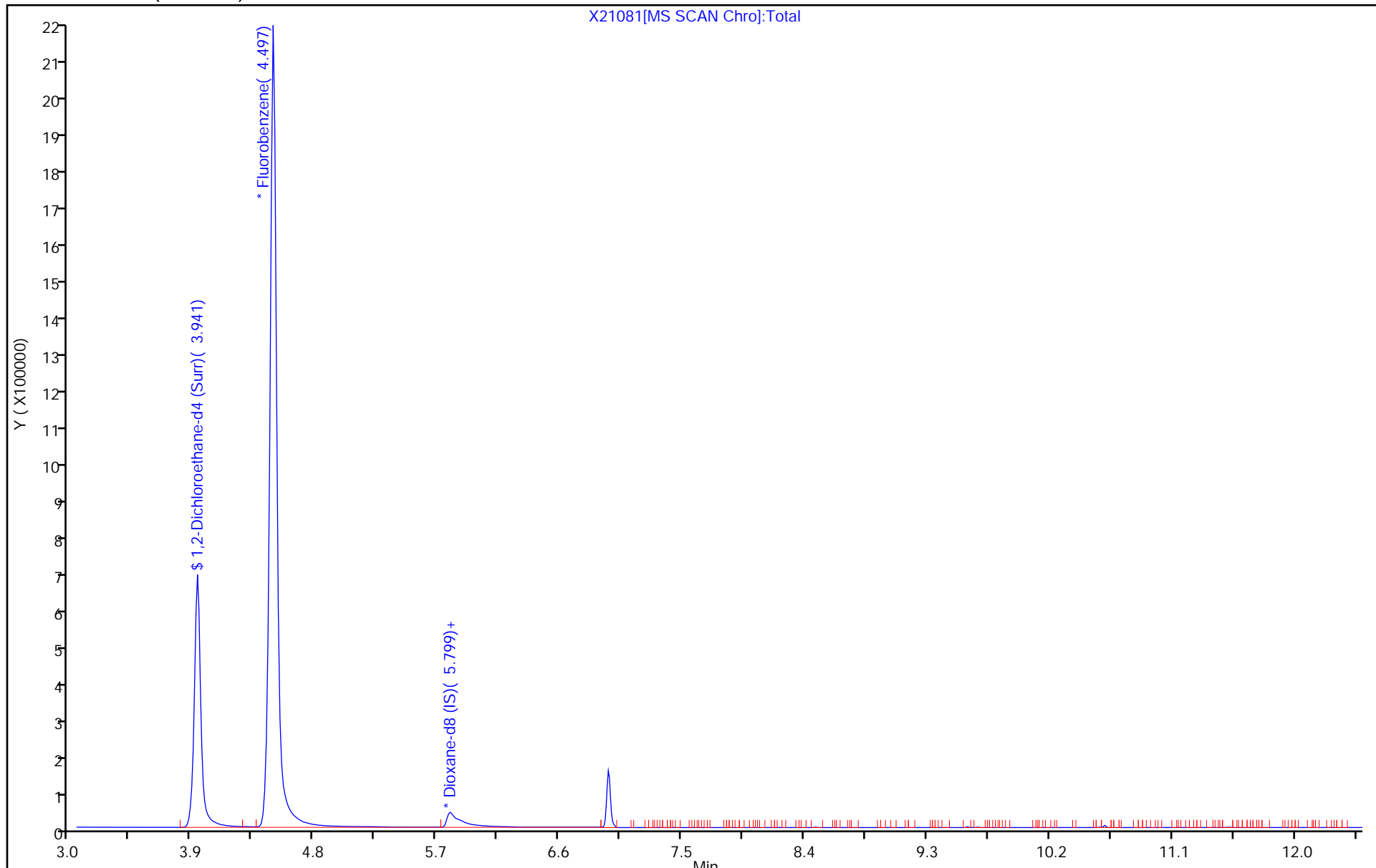
Dil. Factor: 1.0000

ALS Bottle#: 2

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



X21081[MS SCAN Chro]:Total

Eurofins TestAmerica, Canton

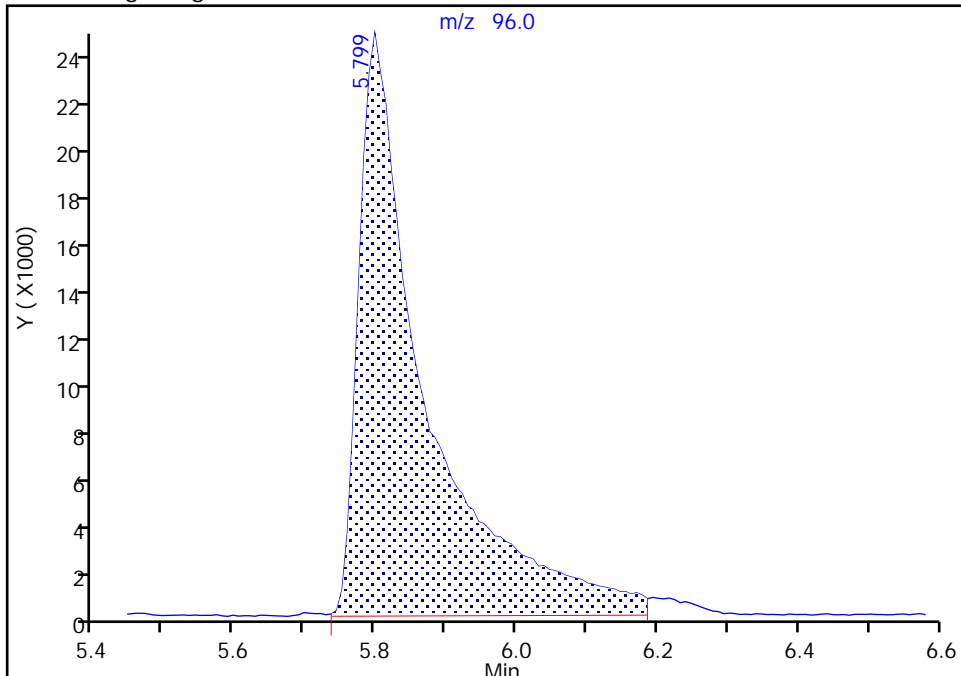
Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21081.D
Injection Date: 31-Jul-2020 12:53:30 Instrument ID: A3UX2
Lims ID: CCVIS
Client ID:
Operator ID: 402279 ALS Bottle#: 2 Worklist Smp#: 3
Purge Vol: 15.000 mL Dil. Factor: 1.0000
Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

* 9 Dioxane-d8 (IS), CAS: 17647-74-4

Signal: 1

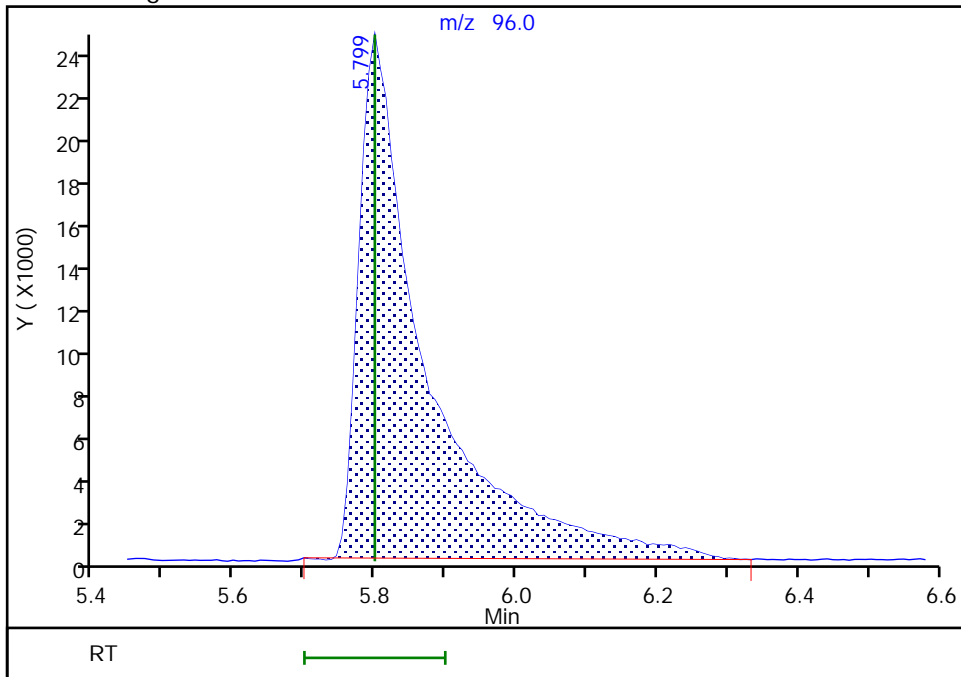
RT: 5.80
Area: 158459
Amount: 200.0000
Amount Units: ug/l

Processing Integration Results



RT: 5.80
Area: 158535
Amount: 200.0000
Amount Units: ug/l

Manual Integration Results



Reviewer: macenczaks, 31-Jul-2020 13:11:27
Audit Action: Manually Integrated

Audit Reason: Poor chromatography

Eurofins TestAmerica, Canton

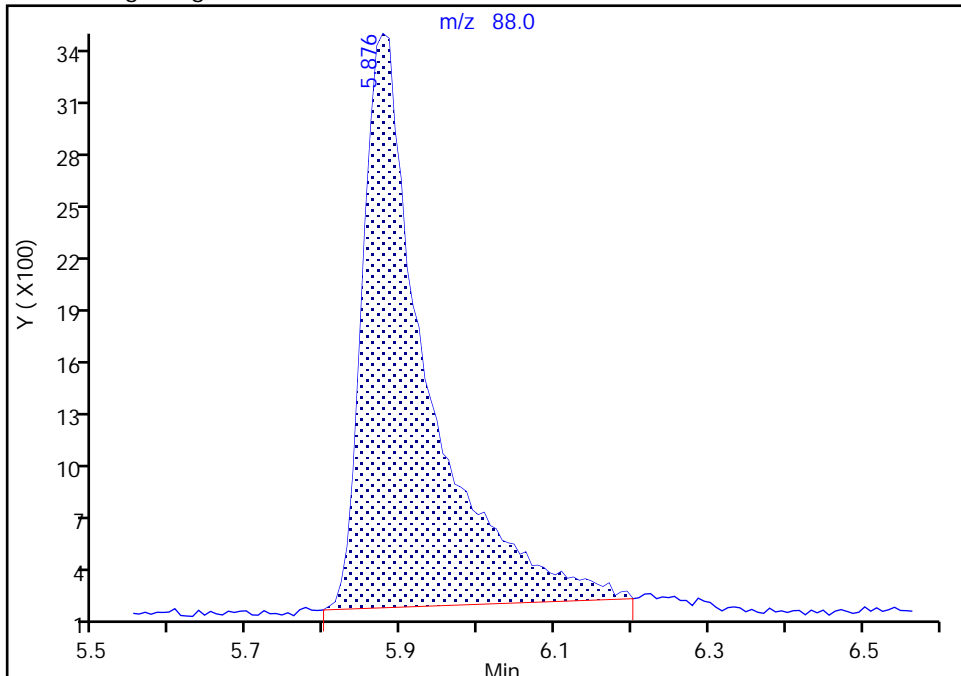
Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21081.D
Injection Date: 31-Jul-2020 12:53:30 Instrument ID: A3UX2
Lims ID: CCVIS
Client ID:
Operator ID: 402279 ALS Bottle#: 2 Worklist Smp#: 3
Purge Vol: 15.000 mL Dil. Factor: 1.0000
Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

8 1,4-Dioxane, CAS: 123-91-1

Signal: 1

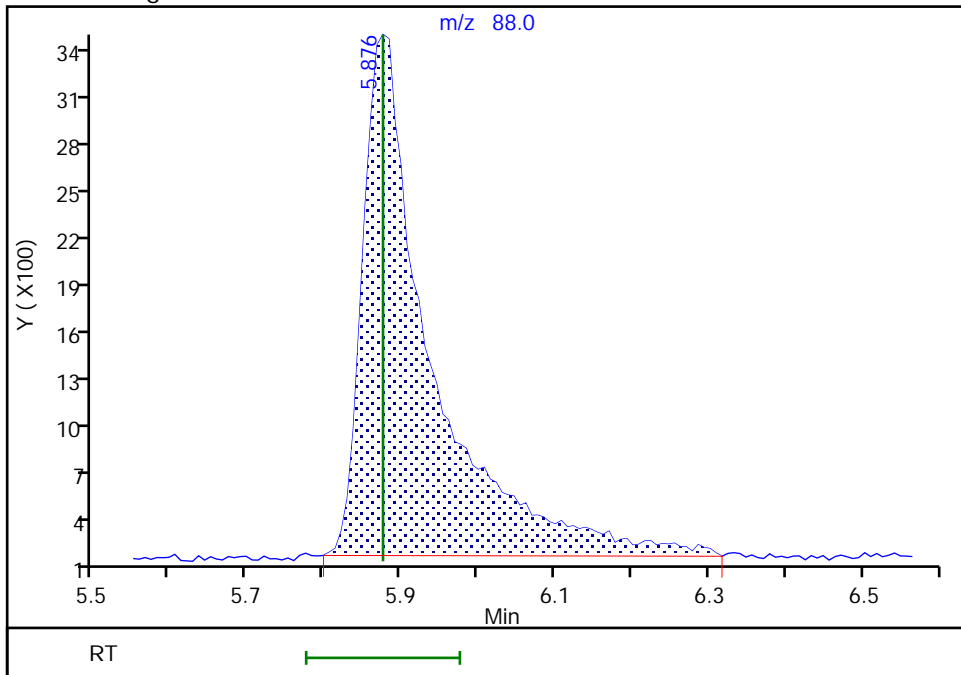
RT: 5.88
Area: 18797
Amount: 20.633225
Amount Units: ug/l

Processing Integration Results



RT: 5.88
Area: 20035
Amount: 21.938474
Amount Units: ug/l

Manual Integration Results



Reviewer: macenczaks, 31-Jul-2020 13:11:36
Audit Action: Manually Integrated

Audit Reason: Poor chromatography

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\BFBX2567.D
 Lims ID: BFB
 Client ID:
 Sample Type: BFB
 Inject. Date: 25-Feb-2020 16:03:30 ALS Bottle#: 1 Worklist Smp#: 16
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: BFB
 Misc. Info.: 240-0096076-016
 Operator ID: 002808 Instrument ID: A3UX2
 Method: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 26-Feb-2020 09:16:45 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0337

First Level Reviewer: macenczaks Date: 25-Feb-2020 16:13:14

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
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\$ 3 BFB	95	2.618	2.618	0.000	0	1281	NR	NR	a
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QC Flag Legend

Processing Flags

NR - Missing Quant Standard

Review Flags

a - User Assigned ID

Reagents:

vmbfb_00024 Amount Added: 1.00 Units: uL

Euofins TestAmerica, Canton

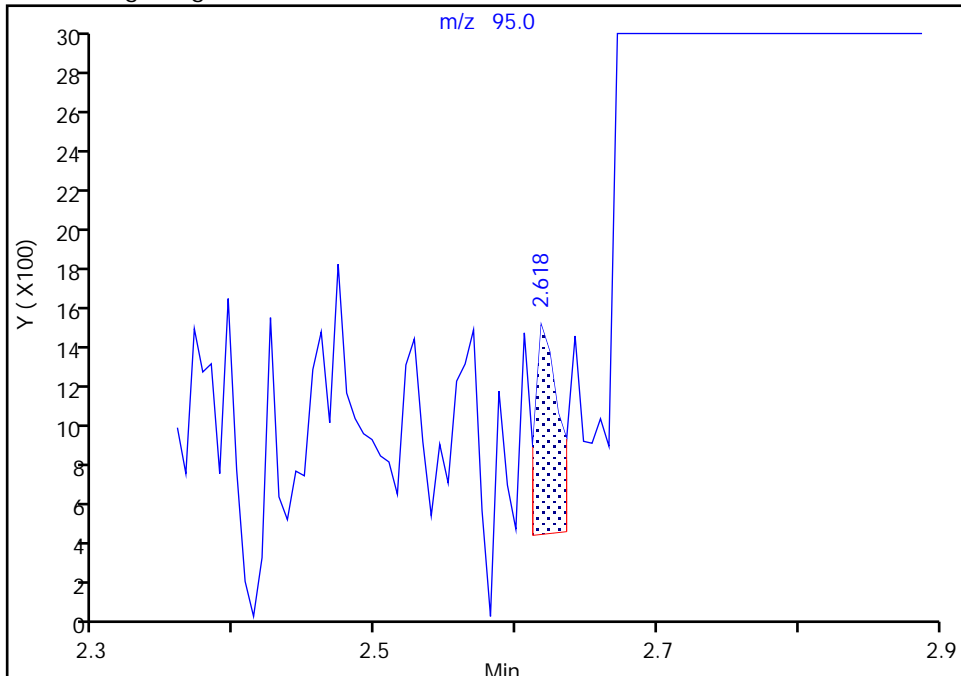
Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\BFBX2567.D
Injection Date: 25-Feb-2020 16:03:30 Instrument ID: A3UX2
Lims ID: BFB
Client ID:
Operator ID: 002808 ALS Bottle#: 1 Worklist Smp#: 16
Injection Vol: 5.0 mL Dil. Factor: 1.0000
Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

\$ 3 BFB, CAS: 460-00-4

Signal: 1

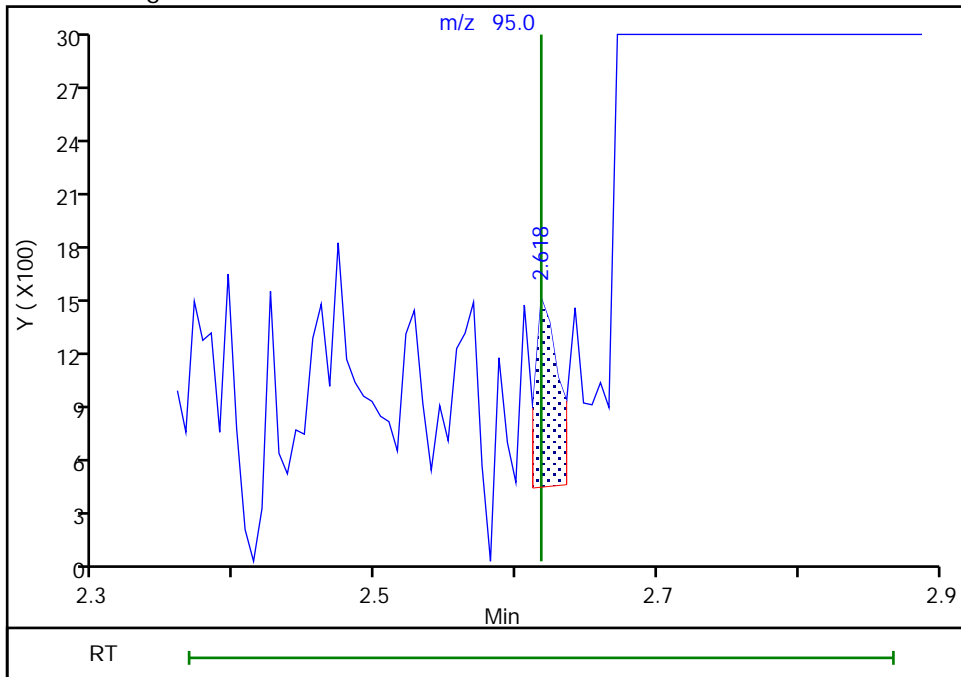
RT: 2.62
Area: 1281
Amount: 0
Amount Units: ug/l

Processing Integration Results



RT: 2.62
Area: 1281
Amount: 0
Amount Units: ug/l

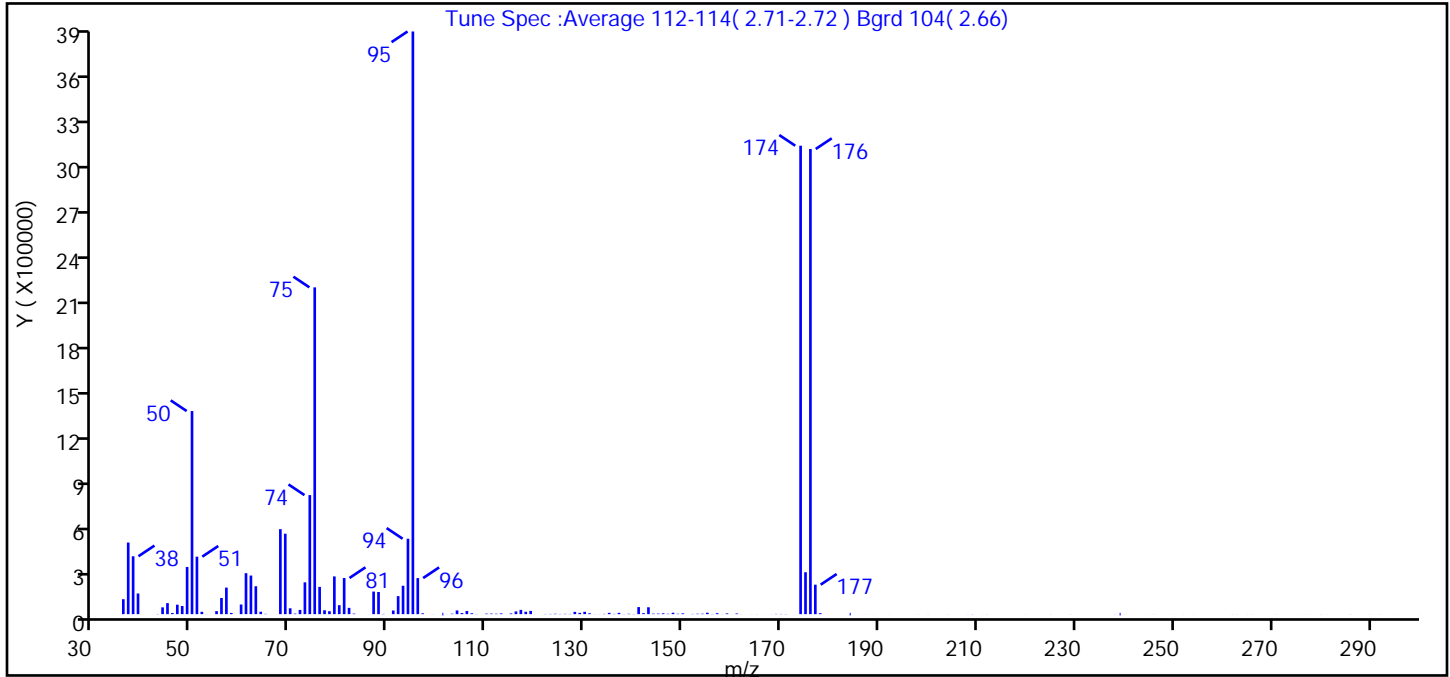
Manual Integration Results



Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\BFBX2567.D
 Injection Date: 25-Feb-2020 16:03:30 Instrument ID: A3UX2
 Lims ID: BFB
 Client ID:
 Operator ID: 002808 ALS Bottle#: 1 Worklist Smp#: 16
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
 Tune Method: BFB Method 8260

\$ 3 BFB



m/z	Ion Abundance Criteria	% Relative Abundance
95	Base peak, 100% relative abundance	100.0
50	15 to 40% of m/z 95	34.9
75	30 to 60% of m/z 95	56.1
96	5 to 9% of m/z 95	6.2
173	Less than 2% of m/z 174	0.0 (0.0)
174	50 to 120% of m/z 95	80.4
175	5 to 9% of m/z 174	7.2 (8.9)
176	Greater than 95% but less than 101% of m/z 174	79.8 (99.3)
177	5 to 9% of m/z 176	5.1 (6.3)

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\BFBX2567.D\8260SIM_X2.rsl\spectra.d
Injection Date: 25-Feb-2020 16:03:30
Spectrum: Tune Spec :Average 112-114(2.71-2.72) Bgrd 104(2.66)
Base Peak: 95.00
Minimum % Base Peak: 0
Number of Points: 189

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	98664	94.00	497472	147.00	2448	220.00	278
37.00	472512	95.00	3844096	148.00	9123	224.00	86
38.00	381824	96.00	238016	149.00	2492	225.00	384
39.00	136320	97.00	5526	150.00	5282	229.00	374
43.00	1088	99.00	543	151.00	55	230.00	40
44.00	44856	101.00	2	152.00	1406	233.00	41
45.00	72720	102.00	380	153.00	2666	238.00	452
46.00	7304	103.00	3013	154.00	2942	239.00	1
47.00	62360	104.00	24456	155.00	9364	240.00	395
48.00	53632	105.00	7306	156.00	1007	244.00	151
49.00	311232	106.00	20672	157.00	6391	245.00	119
50.00	1339904	107.00	5840	158.00	501	246.00	415
51.00	379200	108.00	784	159.00	4769	248.00	14
52.00	15450	110.00	3449	161.00	4204	249.00	205
53.00	522	111.00	3781	162.00	294	250.00	155
55.00	19896	112.00	2814	163.00	87	252.00	314
56.00	106576	113.00	4870	164.00	375	254.00	203
57.00	175104	115.00	4820	165.00	414	256.00	184
58.00	7875	116.00	17952	166.00	128	260.00	141
60.00	63488	117.00	28112	167.00	73	262.00	411
61.00	270272	118.00	15866	168.00	340	263.00	256
62.00	254656	119.00	21464	169.00	1431	265.00	321
63.00	184064	120.00	346	170.00	1283	266.00	254
64.00	15902	122.00	1099	171.00	989	267.00	85
65.00	1898	123.00	1492	174.00	3090432	269.00	124
66.00	167	124.00	2614	175.00	276416	271.00	339
68.00	560640	125.00	1214	176.00	3068928	272.00	107
69.00	530688	126.00	1983	177.00	194432	273.00	18
70.00	38520	127.00	1481	178.00	6262	274.00	188
71.00	3507	128.00	14868	179.00	92	276.00	228
72.00	27880	129.00	8496	183.00	174	277.00	218
73.00	209856	130.00	15435	184.00	13	278.00	105
74.00	785408	131.00	5762	186.00	164	280.00	436

Report Date: 26-Feb-2020 09:16:46

Chrom Revision: 2.3 19-Feb-2020 16:45:46

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\BFBX2567.D\8260SIM_X2.rsl\spectra.d

Injection Date: 25-Feb-2020 16:03:30

Spectrum: Tune Spec :Average 112-114(2.71-2.72) Bgrd 104(2.66)

Base Peak: 95.00

Minimum % Base Peak: 0

Number of Points: 189

m/z	Y	m/z	Y	m/z	Y	m/z	Y
75.00	2156032	132.00	590	187.00	311	281.00	162
76.00	179712	133.00	344	188.00	127	285.00	42
77.00	25720	134.00	1457	189.00	217	286.00	449
78.00	19312	135.00	8473	192.00	237	288.00	70
79.00	248832	136.00	1432	198.00	316	289.00	72
80.00	59216	137.00	8509	200.00	341	290.00	298
81.00	238528	138.00	796	202.00	46	292.00	301
82.00	41432	139.00	2465	204.00	469	293.00	130
83.00	3543	140.00	1063	208.00	334	295.00	177
87.00	148864	141.00	46560	209.00	679	296.00	49
88.00	145984	142.00	6613	211.00	211	297.00	105
89.00	1549	143.00	45320	212.00	474	300.00	230
91.00	24080	144.00	3203	215.00	95		
92.00	118920	145.00	3555	216.00	68		
93.00	187264	146.00	5472	218.00	31		

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\BFBX2567.D

Injection Date: 25-Feb-2020 16:03:30

Instrument ID: A3UX2

Operator ID: 002808

Lims ID: BFB

Worklist Smp#: 16

Client ID:

Injection Vol: 5.0 mL

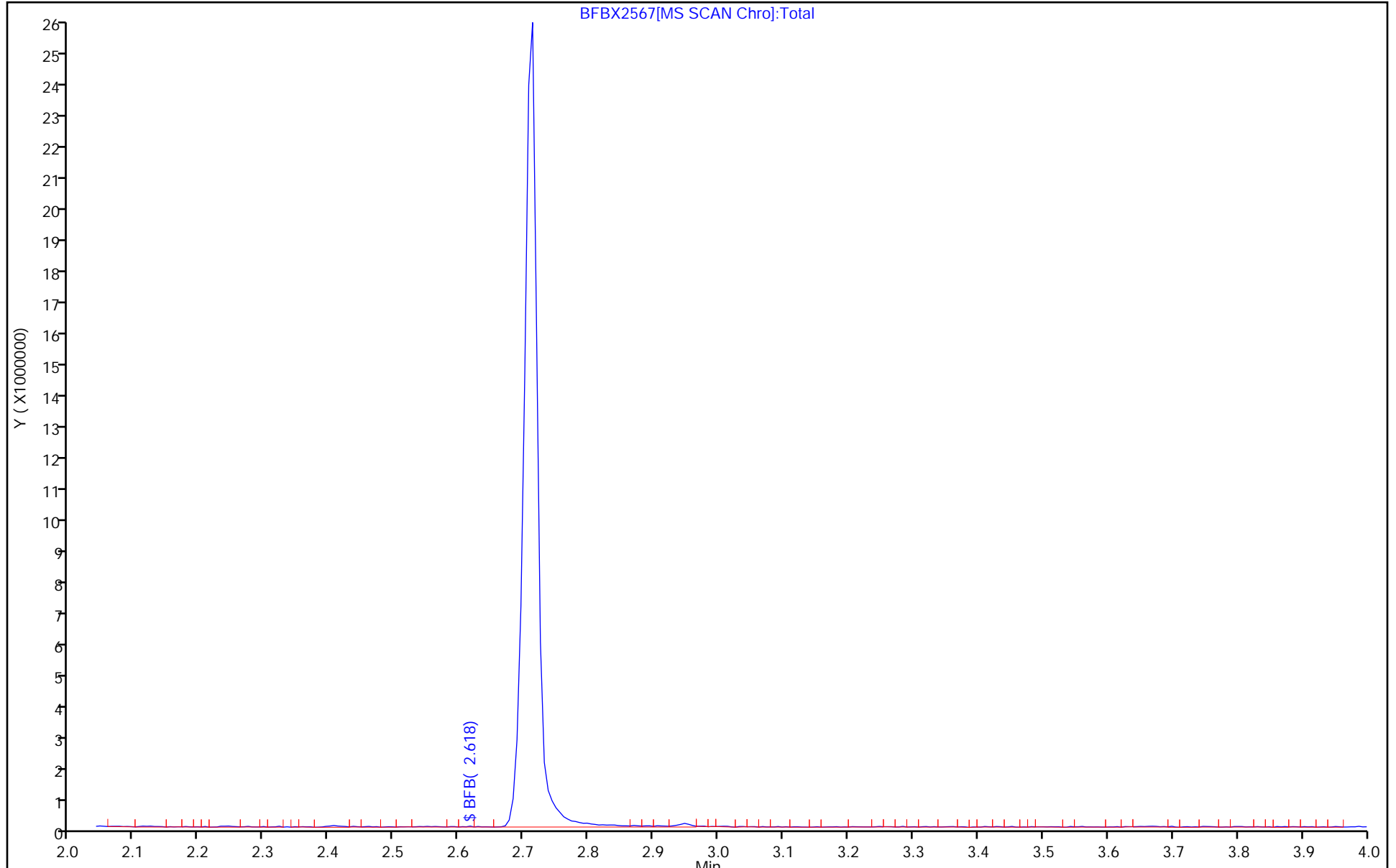
Dil. Factor: 1.0000

ALS Bottle#: 1

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\BFBX2651.D
 Lims ID: bfb
 Client ID:
 Sample Type: BFB
 Inject. Date: 31-Jul-2020 12:09:30 ALS Bottle#: 1 Worklist Smp#: 8
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: BFB
 Misc. Info.: 240-0100568-008
 Operator ID: 402279 Instrument ID: A3UX2
 Method: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 03-Aug-2020 11:30:40 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1008

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
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\$ 3 BFB	95	2.710	2.710	0.000	0	4866216	NR	NR	
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QC Flag Legend

Processing Flags

NR - Missing Quant Standard

Reagents:

vmbfb_00025

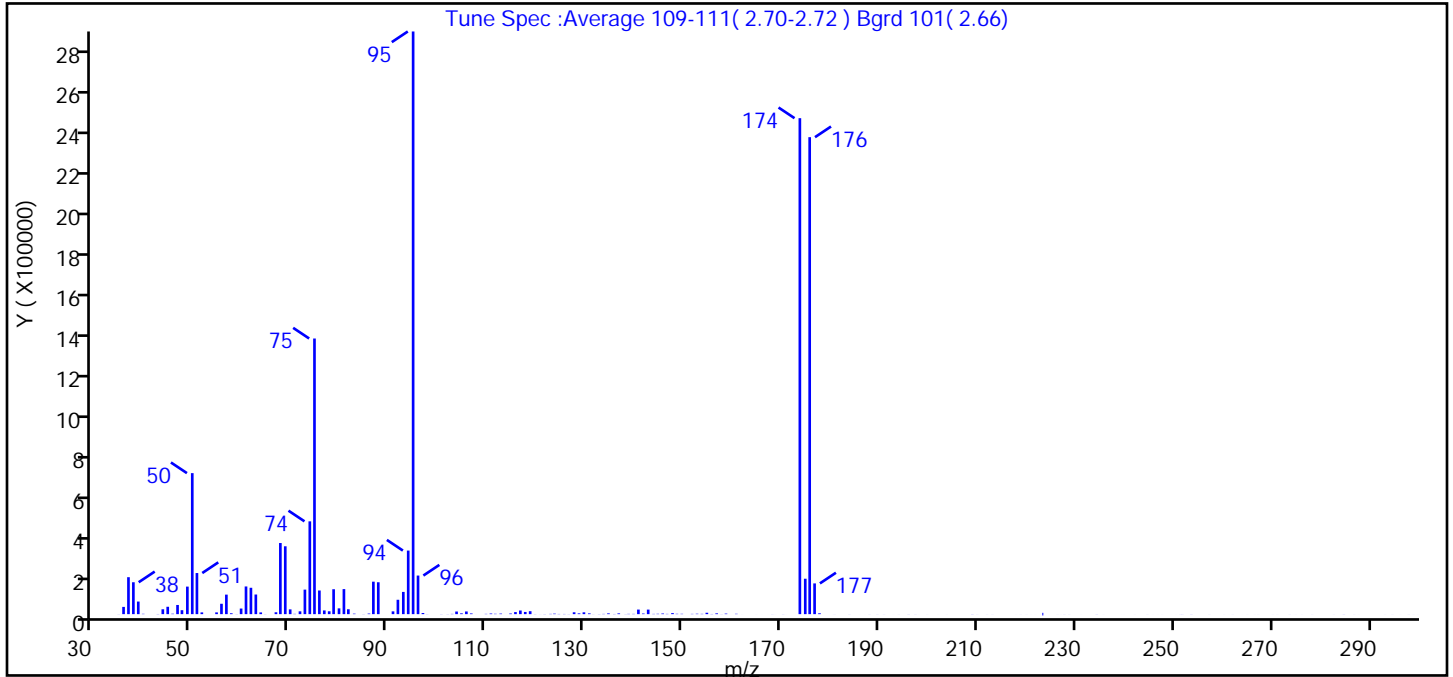
Amount Added: 1.00

Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\BFBX2651.D
 Injection Date: 31-Jul-2020 12:09:30 Instrument ID: A3UX2
 Lims ID: bfb
 Client ID:
 Operator ID: 402279 ALS Bottle#: 1 Worklist Smp#: 8
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
 Tune Method: BFB Method 8260

\$ 3 BFB



m/z	Ion Abundance Criteria	% Relative Abundance
95	Base peak, 100% relative abundance	100.0
50	15 to 40% of m/z 95	24.2
75	30 to 60% of m/z 95	47.3
96	5 to 9% of m/z 95	6.6
173	Less than 2% of m/z 174	0.0 (0.0)
174	50 to 120% of m/z 95	85.1
175	5 to 9% of m/z 174	6.1 (7.1)
176	Greater than 95% but less than 101% of m/z 174	81.9 (96.2)
177	5 to 9% of m/z 176	5.3 (6.4)

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\BFBX2651.D\8260SIM_X2.rslt\spectra.d
Injection Date: 31-Jul-2020 12:09:30
Spectrum: Tune Spec :Average 109-111(2.70-2.72) Bgrd 101(2.66)
Base Peak: 95.05
Minimum % Base Peak: 0
Number of Points: 202

m/z	Y	m/z	Y	m/z	Y	m/z	Y
35.00	383	93.00	108416	148.00	5003	226.00	152
36.00	35344	94.00	310080	149.00	1644	227.00	94
37.00	180224	95.00	2842112	150.00	1623	228.00	234
38.00	155584	96.00	188224	152.00	1261	229.00	178
39.00	61424	97.00	5487	153.00	2009	231.00	70
40.00	1588	98.00	420	154.00	1392	233.00	19
43.00	758	101.00	470	155.00	6787	234.00	392
44.00	23792	102.00	434	156.00	817	236.00	74
45.00	35968	103.00	1207	157.00	3790	236.00	54
46.00	2059	104.00	12789	158.00	323	239.00	51
47.00	44720	105.00	3958	159.00	2647	240.00	61
48.00	19288	106.00	13055	161.00	1653	242.00	108
49.00	134336	107.00	3434	162.00	86	245.00	68
50.00	687808	108.00	87	165.00	107	245.00	120
51.00	200512	110.00	1327	166.00	62	246.00	67
52.00	8555	111.00	3101	167.00	60	247.00	71
53.00	29	112.00	1739	168.00	286	248.00	87
55.00	8578	113.00	2706	169.00	93	250.00	51
56.00	50584	115.00	3043	170.00	348	250.00	63
57.00	95232	116.00	10052	171.00	68	251.00	203
58.00	4297	117.00	17704	174.00	2419200	252.00	272
59.00	413	118.00	10722	175.00	172736	254.00	247
60.00	27352	119.00	14313	176.00	2326528	254.00	135
61.00	135040	120.00	469	177.00	149952	257.00	157
62.00	128616	121.00	179	178.00	4112	260.00	113
63.00	95776	122.00	548	181.00	74	261.00	51
64.00	8410	123.00	1226	181.00	181	262.00	156
65.00	427	124.00	2435	184.00	263	264.00	51
67.00	9134	125.00	938	186.00	60	265.00	109
68.00	346944	126.00	901	187.00	62	267.00	78
69.00	331008	127.00	432	188.00	219	267.00	117
70.00	23232	128.00	9044	190.00	246	270.00	137
71.00	1330	129.00	3790	191.00	229	271.00	118

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\BFBX2651.D\8260SIM_X2.rslt\spectra.d

Injection Date: 31-Jul-2020 12:09:30

Spectrum: Tune Spec :Average 109-111(2.70-2.72) Bgrd 101(2.66)

Base Peak: 95.05

Minimum % Base Peak: 0

Number of Points: 202

m/z	Y	m/z	Y	m/z	Y	m/z	Y
72.00	13718	130.00	8880	193.00	68	274.00	183
73.00	119664	131.00	3674	194.00	160	274.00	57
74.00	452672	132.00	316	196.00	327	275.00	103
75.00	1344512	133.00	543	197.00	246	276.00	104
76.00	115376	134.00	1144	198.00	64	278.00	165
77.00	18072	135.00	3820	200.00	136	283.00	156
78.00	13991	136.00	795	202.00	69	284.00	50
79.00	121520	137.00	3763	204.00	113	285.00	373
80.00	28200	138.00	448	209.00	484	287.00	164
81.00	122168	139.00	1287	210.00	177	288.00	94
82.00	23856	140.00	1241	212.00	177	293.00	118
83.00	2395	141.00	22280	213.00	175	295.00	153
85.00	455	142.00	3025	218.00	83	296.00	71
86.00	2872	143.00	22144	219.00	152	298.00	170
87.00	158400	144.00	1205	220.00	151	299.00	134
88.00	155520	145.00	1717	221.00	69	300.00	88
91.00	13581	146.00	3095	222.00	63		
92.00	70120	147.00	1255	223.00	5		

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\BFBX2651.D

Injection Date: 31-Jul-2020 12:09:30

Instrument ID: A3UX2

Operator ID: 402279

Lims ID: bfb

Worklist Smp#: 8

Client ID:

Injection Vol: 5.0 mL

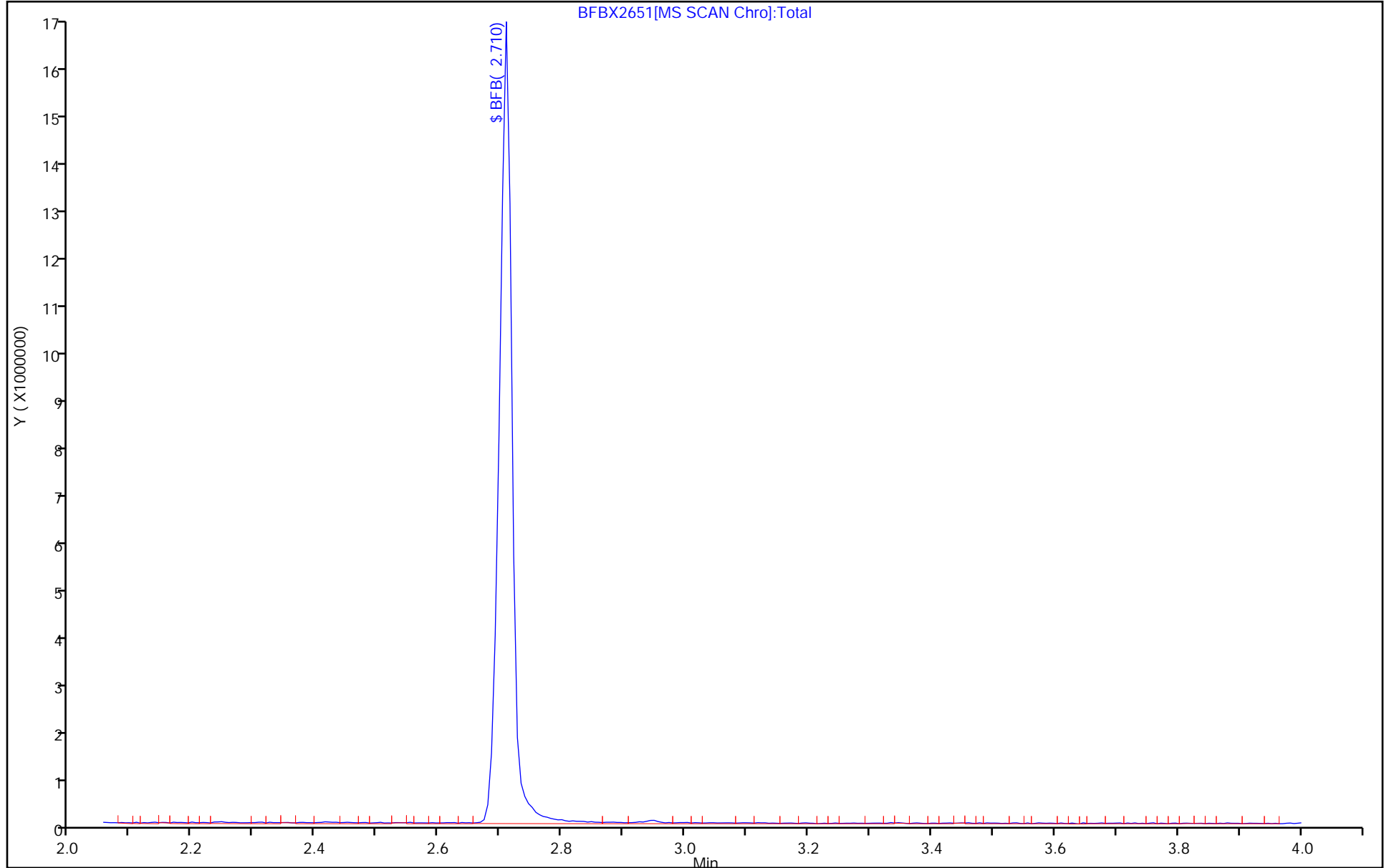
Dil. Factor: 1.0000

ALS Bottle#: 1

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 240-445137/5
 Matrix: Water Lab File ID: X21083.D
 Analysis Method: 8260B SIM Date Collected: _____
 Sample wt/vol: 15 (mL) Date Analyzed: 07/31/2020 13:43
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: ZB-624 ID: 0.53 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 445137 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	2.0	U	2.0	0.86

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	82		70-133

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21083.D
 Lims ID: MB
 Client ID:
 Sample Type: MB
 Inject. Date: 31-Jul-2020 13:43:30 ALS Bottle#: 4 Worklist Smp#: 5
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Sample Info: mb
 Misc. Info.: 240-0100568-005
 Operator ID: 402279 Instrument ID: A3UX2
 Method: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 03-Aug-2020 11:30:42 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1008

First Level Reviewer: macenczaks Date: 31-Jul-2020 14:06:13

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	3.954	3.941	0.013	100	2165282	10.0	8.23	
* 7 Fluorobenzene	96	4.510	4.497	0.013	100	7622076	10.0	10.0	
* 9 Dioxane-d8 (IS)	96	5.806	5.799	0.007	97	158669	200.0	200.0	

Reagents:

vm40ml_vials_00014 Amount Added: 0.00 Units: Run Reagent
 vm150is_00174 Amount Added: 1.00 Units: uL Run Reagent
 vmDist_H2o_00177 Amount Added: 0.00 Units: Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21083.D

Injection Date: 31-Jul-2020 13:43:30

Instrument ID: A3UX2

Operator ID: 402279

Lims ID: MB

Worklist Smp#: 5

Client ID:

Purge Vol: 15.000 mL

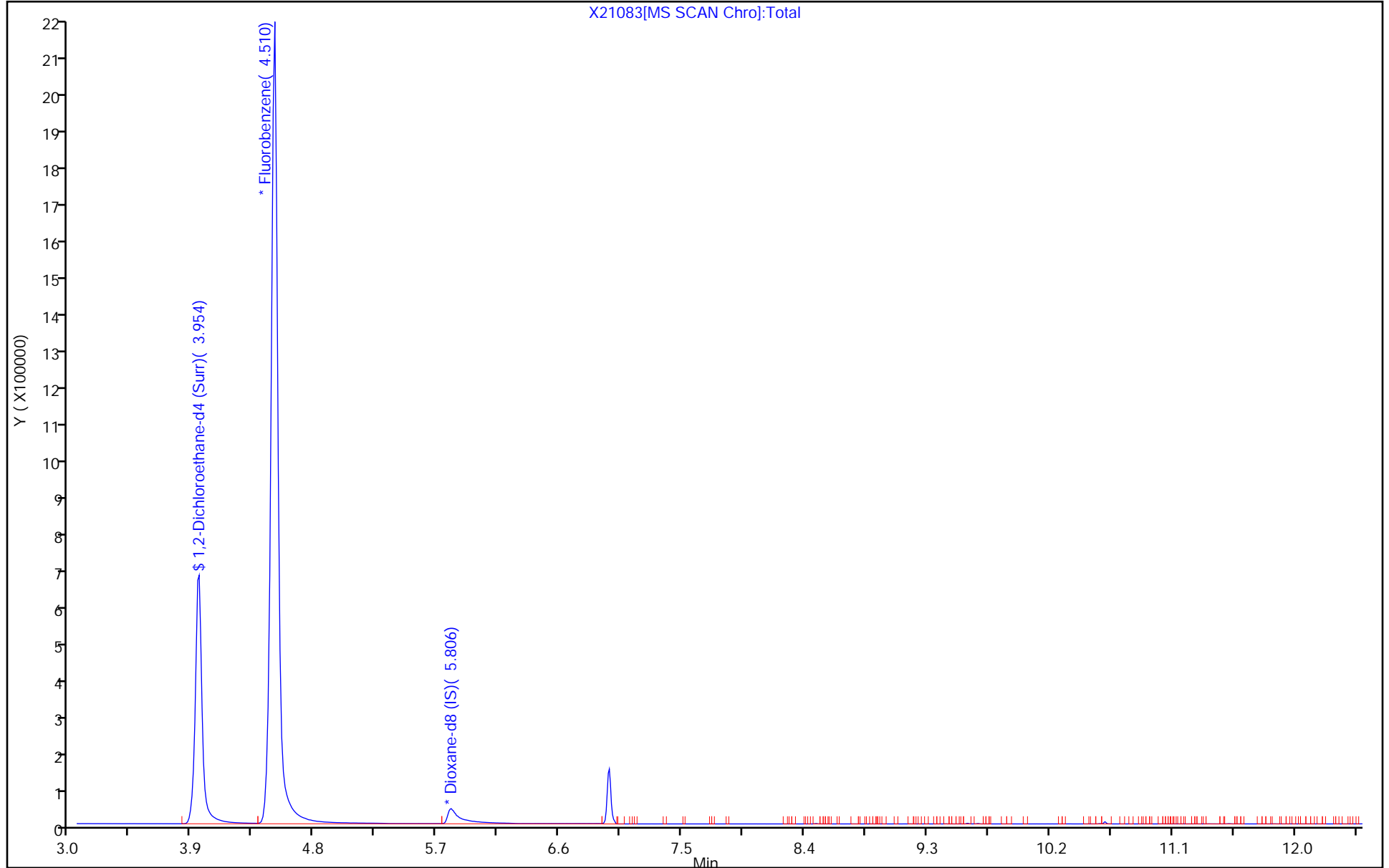
Dil. Factor: 1.0000

ALS Bottle#: 4

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21083.D
 Lims ID: MB
 Client ID:
 Sample Type: MB
 Inject. Date: 31-Jul-2020 13:43:30 ALS Bottle#: 4 Worklist Smp#: 5
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Sample Info: mb
 Misc. Info.: 240-0100568-005
 Operator ID: 402279 Instrument ID: A3UX2
 Method: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 03-Aug-2020 11:30:42 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1008

First Level Reviewer: macenczaks Date: 31-Jul-2020 14:06:13

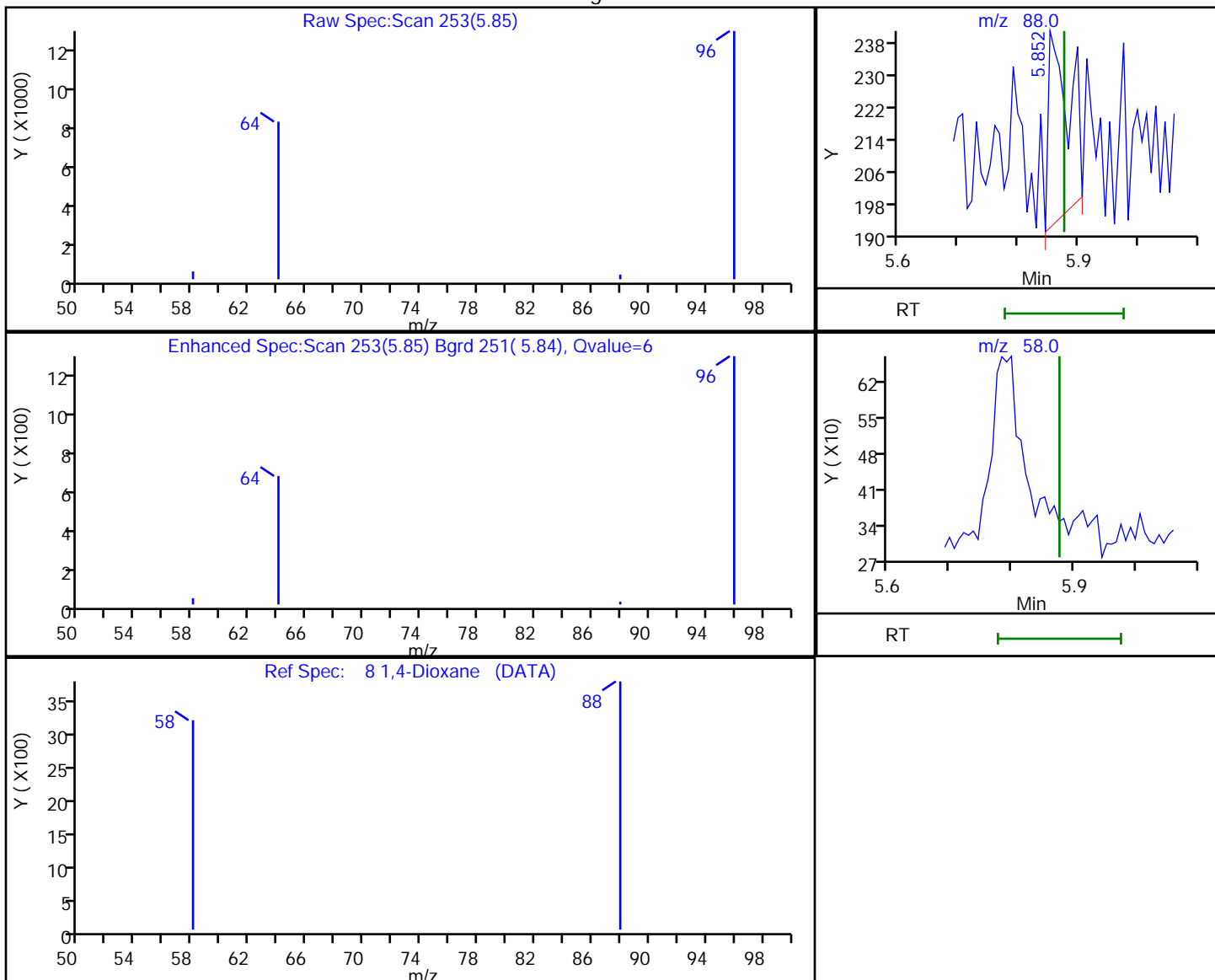
Compound	Amount Added	Amount Recovered	% Rec.
\$ 5 1,2-Dichloroethane-d4 (Surr)	10.0	8.23	82.31

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21083.D
Injection Date: 31-Jul-2020 13:43:30 Instrument ID: A3UX2
Lims ID: MB
Client ID:
Operator ID: 402279 ALS Bottle#: 4 Worklist Smp#: 5
Purge Vol: 15.000 mL Dil. Factor: 1.0000
Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

8 1,4-Dioxane, CAS: 123-91-1

Processing Results



RT	Mass	Response	Amount
5.85	88.00	114	0.935247
5.88	58.00	0	

Reviewer: macenczaks, 31-Jul-2020 14:06:08

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LCS 240-445137/4
 Matrix: Water Lab File ID: X21082.D
 Analysis Method: 8260B SIM Date Collected: _____
 Sample wt/vol: 15 (mL) Date Analyzed: 07/31/2020 13:18
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: ZB-624 ID: 0.53 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 445137 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	12.0		2.0	0.86

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	82		70-133

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21082.D
 Lims ID: LCS
 Client ID:
 Sample Type: LCS
 Inject. Date: 31-Jul-2020 13:18:30 ALS Bottle#: 3 Worklist Smp#: 4
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Sample Info: lcs
 Misc. Info.: 240-0100568-004
 Operator ID: 402279 Instrument ID: A3UX2
 Method: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 03-Aug-2020 11:30:42 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1008

First Level Reviewer: macenczaks Date: 31-Jul-2020 13:39:18

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	3.952	3.941	0.011	100	2139939	10.0	8.20	
* 7 Fluorobenzene	96	4.510	4.497	0.013	100	7557837	10.0	10.0	
* 9 Dioxane-d8 (IS)	96	5.805	5.799	0.006	98	157765	200.0	200.0	M
8 1,4-Dioxane	88	5.882	5.876	0.006	81	10597	10.0	12.0	M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

vmDiox_spike_00231	Amount Added: 3.00	Units: uL	
vm40ml_vials_00014	Amount Added: 0.00	Units:	Run Reagent
vm150is_00174	Amount Added: 1.00	Units: uL	Run Reagent
vmDist_H2o_00177	Amount Added: 0.00	Units:	Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21082.D

Injection Date: 31-Jul-2020 13:18:30

Instrument ID: A3UX2

Operator ID: 402279

Lims ID: LCS

Worklist Smp#: 4

Client ID:

Purge Vol: 15.000 mL

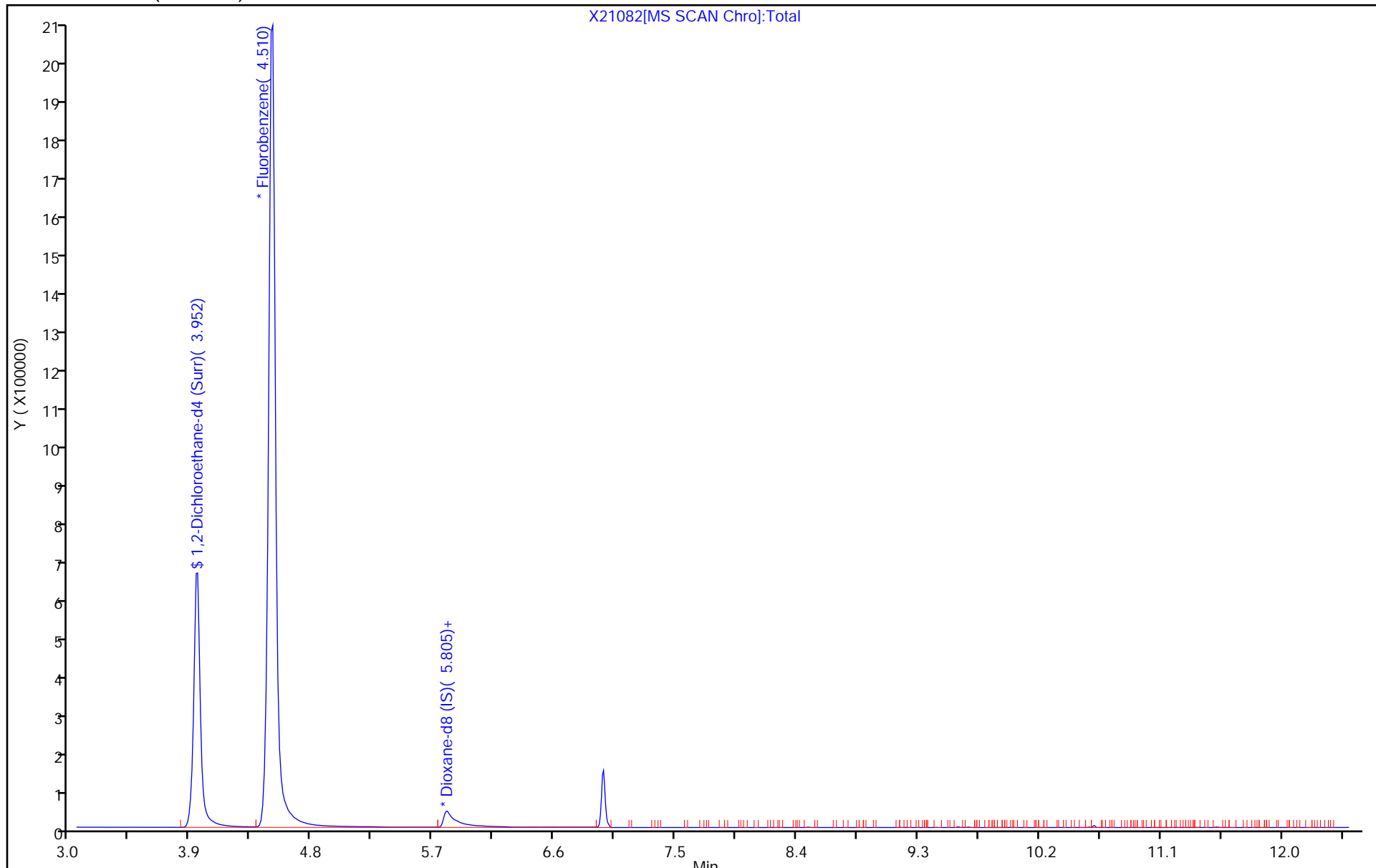
Dil. Factor: 1.0000

ALS Bottle#: 3

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21082.D
 Lims ID: LCS
 Client ID:
 Sample Type: LCS
 Inject. Date: 31-Jul-2020 13:18:30 ALS Bottle#: 3 Worklist Smp#: 4
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Sample Info: lcs
 Misc. Info.: 240-0100568-004
 Operator ID: 402279 Instrument ID: A3UX2
 Method: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 03-Aug-2020 11:30:42 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1008

First Level Reviewer: macenczaks Date: 31-Jul-2020 13:39:18

Compound	Amount Added	Amount Recovered	% Rec.
\$ 5 1,2-Dichloroethane-d4 (Surr)	10.0	8.20	82.04

Eurofins TestAmerica, Canton

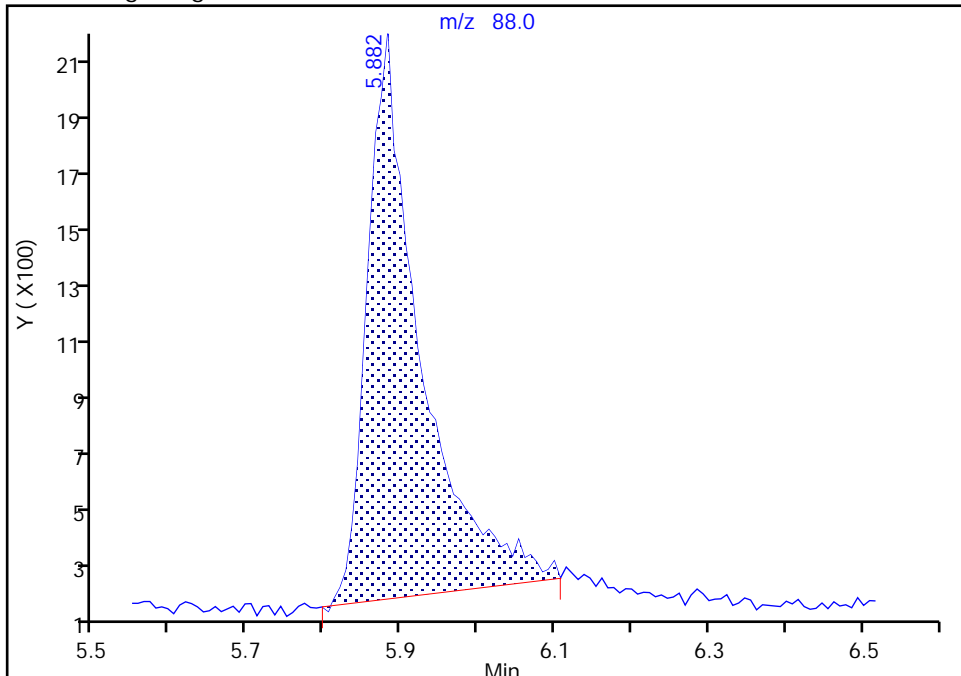
Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21082.D
Injection Date: 31-Jul-2020 13:18:30 Instrument ID: A3UX2
Lims ID: LCS
Client ID:
Operator ID: 402279 ALS Bottle#: 3 Worklist Smp#: 4
Purge Vol: 15.000 mL Dil. Factor: 1.0000
Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

8 1,4-Dioxane, CAS: 123-91-1

Signal: 1

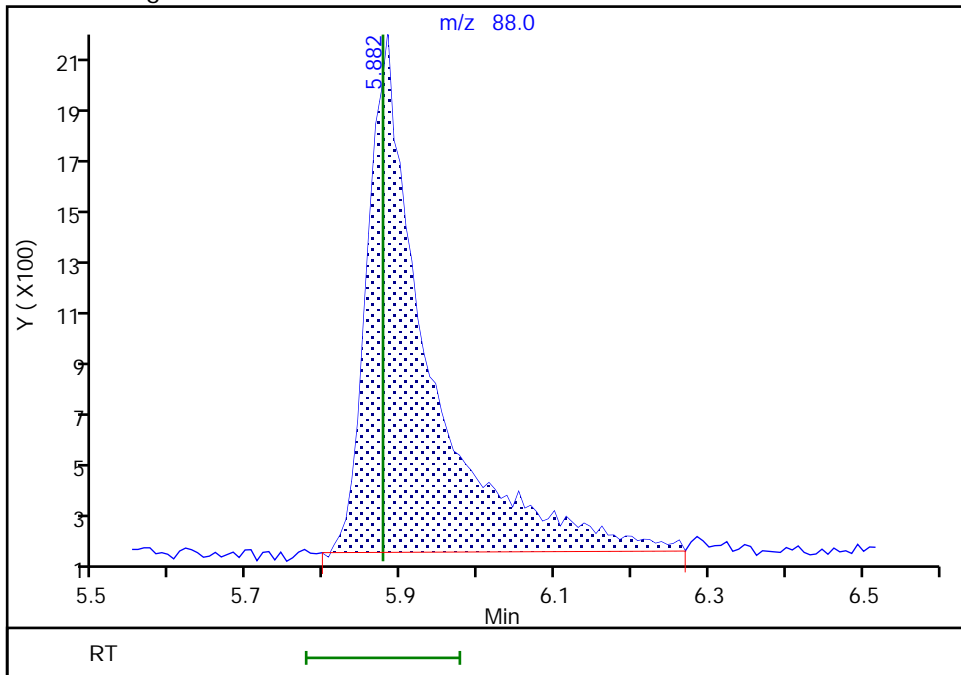
RT: 5.88
Area: 9149
Amount: 10.508217
Amount Units: ug/l

Processing Integration Results



RT: 5.88
Area: 10597
Amount: 12.042324
Amount Units: ug/l

Manual Integration Results



Reviewer: macenczaks, 31-Jul-2020 13:39:13
Audit Action: Manually Integrated

Audit Reason: Poor chromatography

Eurofins TestAmerica, Canton

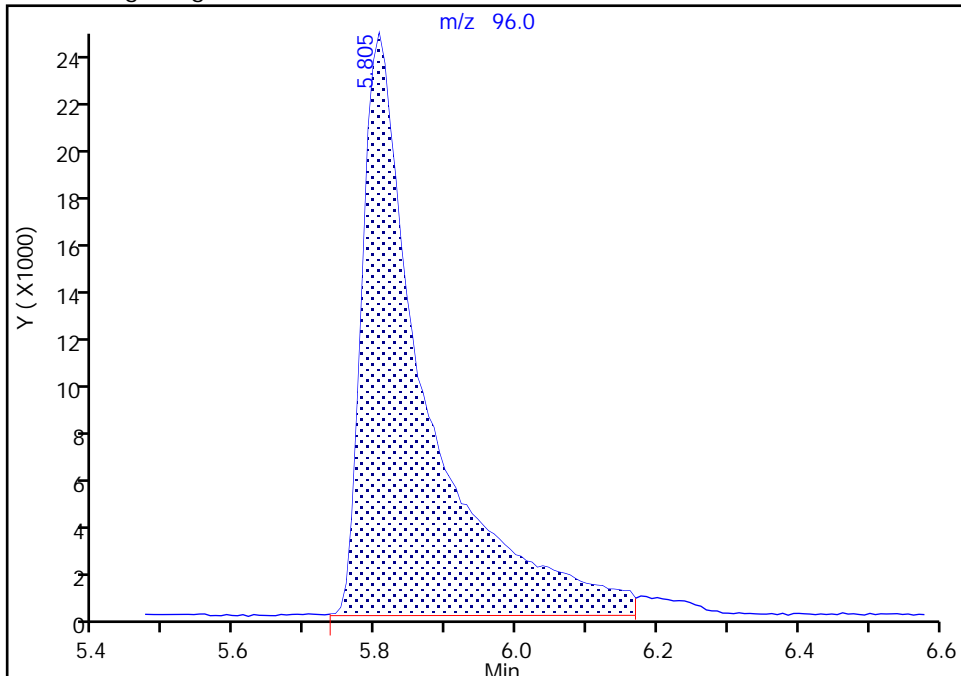
Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21082.D
Injection Date: 31-Jul-2020 13:18:30 Instrument ID: A3UX2
Lims ID: LCS
Client ID:
Operator ID: 402279 ALS Bottle#: 3 Worklist Smp#: 4
Purge Vol: 15.000 mL Dil. Factor: 1.0000
Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

* 9 Dioxane-d8 (IS), CAS: 17647-74-4

Signal: 1

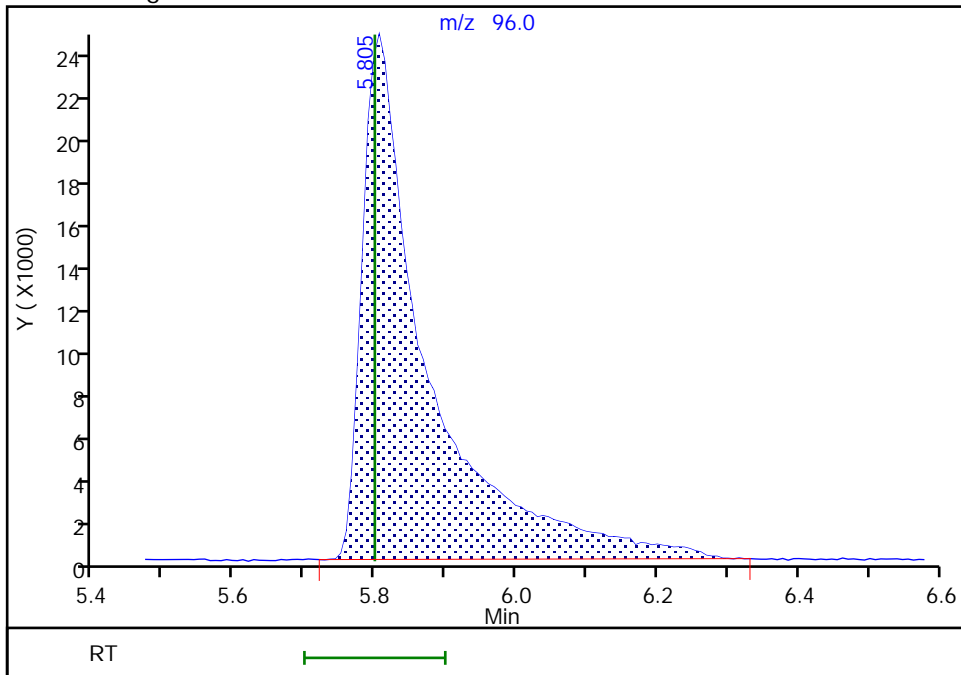
RT: 5.80
Area: 155956
Amount: 200.0000
Amount Units: ug/l

Processing Integration Results



RT: 5.80
Area: 157765
Amount: 200.0000
Amount Units: ug/l

Manual Integration Results



Reviewer: macenczaks, 31-Jul-2020 13:39:01
Audit Action: Manually Integrated

Audit Reason: Poor chromatography

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: 240-134235-C-2 MS
 Matrix: Water Lab File ID: X21092.D
 Analysis Method: 8260B SIM Date Collected: _____
 Sample wt/vol: 15 (mL) Date Analyzed: 07/31/2020 17:27
 Soil Aliquot Vol: _____ Dilution Factor: 2
 Soil Extract Vol.: _____ GC Column: ZB-624 ID: 0.53 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 445137 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	56.5		4.0	1.7

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	87		70-133

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21092.D
 Lims ID: 240-134235-C-2 MS
 Client ID: GP-33S
 Sample Type: MS
 Inject. Date: 31-Jul-2020 17:27:30 ALS Bottle#: 13 Worklist Smp#: 15
 Purge Vol: 15.000 mL Dil. Factor: 2.0000
 Sample Info: 240-134235-c-2 ms
 Misc. Info.: 240-0100568-015
 Operator ID: 402279 Instrument ID: A3UX2
 Method: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 03-Aug-2020 11:30:42 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1008

First Level Reviewer: macenczaks Date: 03-Aug-2020 10:38:27

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	3.944	3.941	0.003	100	2301441	10.0	8.70	
* 7 Fluorobenzene	96	4.497	4.497	0.000	100	7666165	10.0	10.0	
* 9 Dioxane-d8 (IS)	96	5.797	5.799	-0.002	99	170129	200.0	200.0	M
8 1,4-Dioxane	88	5.882	5.876	0.006	87	27946	10.0	28.3	M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

vmDiox_spike_00231	Amount Added: 3.00	Units: uL	
vm40ml_vials_00014	Amount Added: 0.00	Units:	Run Reagent
vm150is_00174	Amount Added: 1.00	Units: uL	Run Reagent
vmDist_H2o_00177	Amount Added: 0.00	Units:	Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21092.D

Injection Date: 31-Jul-2020 17:27:30

Instrument ID: A3UX2

Operator ID: 402279

Lims ID: 240-134235-C-2 MS

Worklist Smp#: 15

Client ID: GP-33S

Purge Vol: 15.000 mL

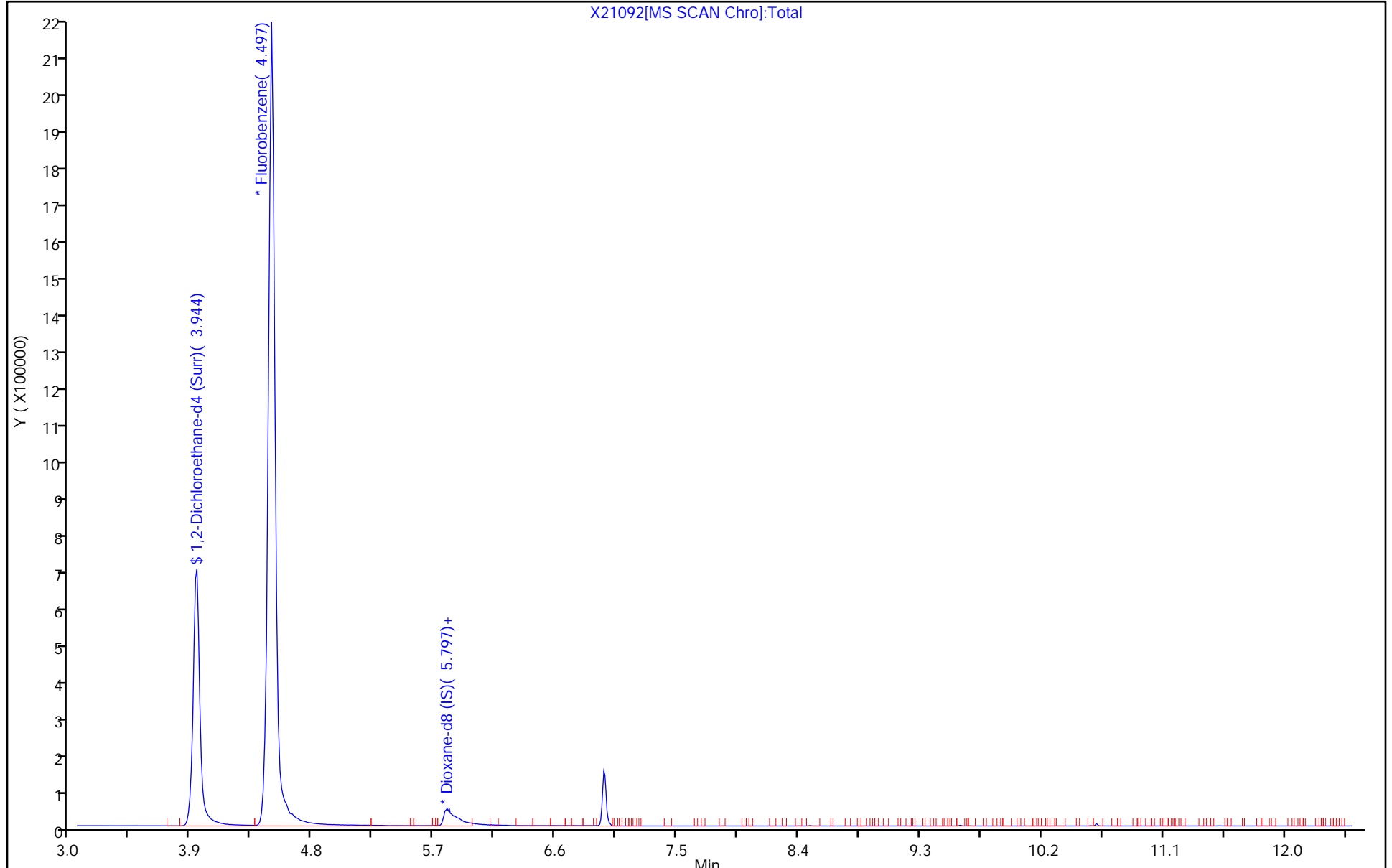
Dil. Factor: 2.0000

ALS Bottle#: 13

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



X21092[MS SCAN Chro]:Total

Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21092.D
 Lims ID: 240-134235-C-2 MS
 Client ID: GP-33S
 Sample Type: MS
 Inject. Date: 31-Jul-2020 17:27:30 ALS Bottle#: 13 Worklist Smp#: 15
 Purge Vol: 15.000 mL Dil. Factor: 2.0000
 Sample Info: 240-134235-c-2 ms
 Misc. Info.: 240-0100568-015
 Operator ID: 402279 Instrument ID: A3UX2
 Method: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 03-Aug-2020 11:30:42 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1008

First Level Reviewer: macenczaks Date: 03-Aug-2020 10:38:27

Compound	Amount Added	Amount Recovered	% Rec.
\$ 5 1,2-Dichloroethane-d4 (Surr)	10.0	8.70	86.98

Eurofins TestAmerica, Canton

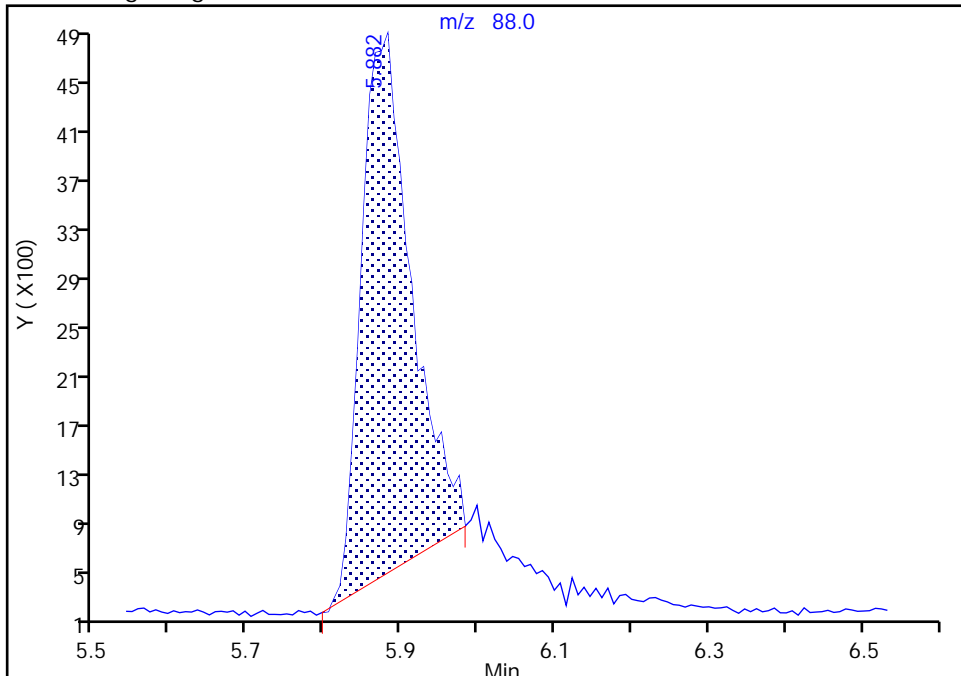
Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21092.D
Injection Date: 31-Jul-2020 17:27:30 Instrument ID: A3UX2
Lims ID: 240-134235-C-2 MS
Client ID: GP-33S
Operator ID: 402279 ALS Bottle#: 13 Worklist Smp#: 15
Purge Vol: 15.000 mL Dil. Factor: 2.0000
Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

8 1,4-Dioxane, CAS: 123-91-1

Signal: 1

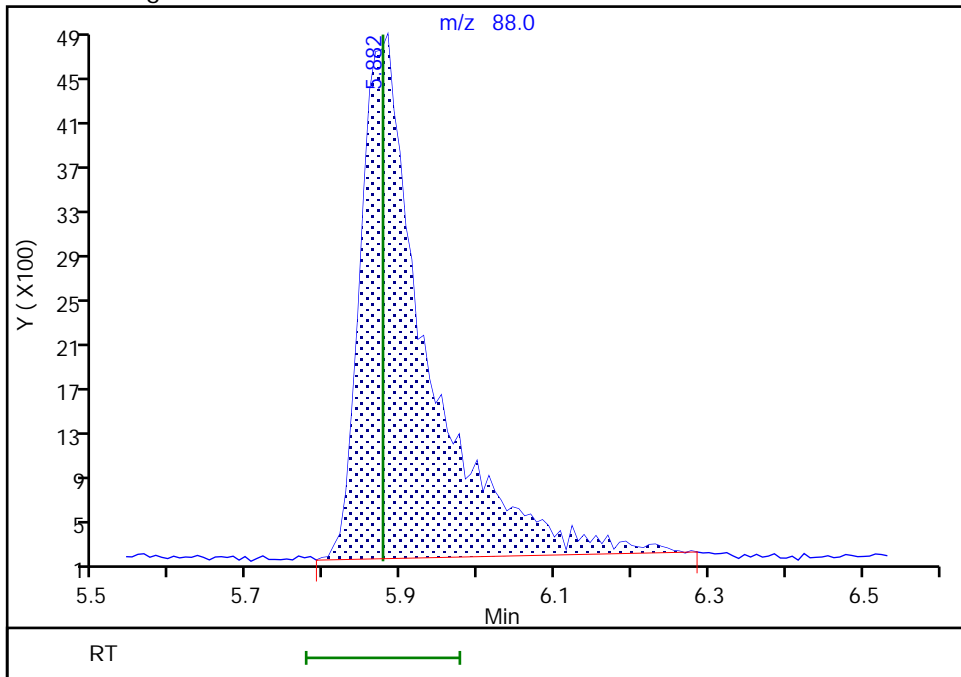
RT: 5.88
Area: 19679
Amount: 20.149197
Amount Units: ug/l

Processing Integration Results



RT: 5.88
Area: 27946
Amount: 28.271282
Amount Units: ug/l

Manual Integration Results



Reviewer: macenczaks, 03-Aug-2020 10:38:19
Audit Action: Manually Integrated

Audit Reason: Poor chromatography

Eurofins TestAmerica, Canton

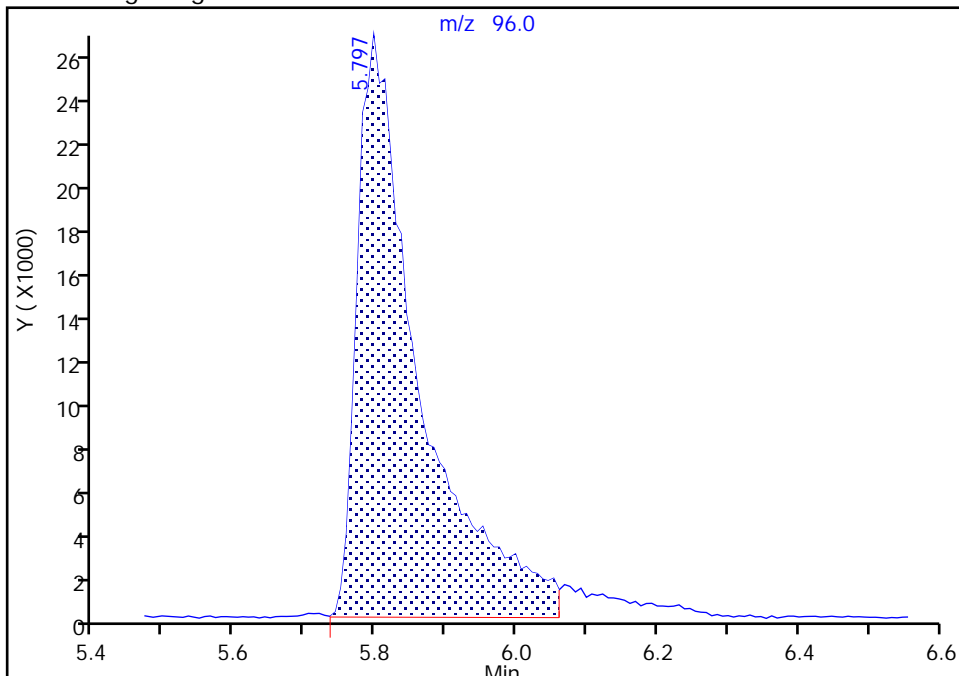
Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21092.D
Injection Date: 31-Jul-2020 17:27:30 Instrument ID: A3UX2
Lims ID: 240-134235-C-2 MS
Client ID: GP-33S
Operator ID: 402279 ALS Bottle#: 13 Worklist Smp#: 15
Purge Vol: 15.000 mL Dil. Factor: 2.0000
Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

* 9 Dioxane-d8 (IS), CAS: 17647-74-4

Signal: 1

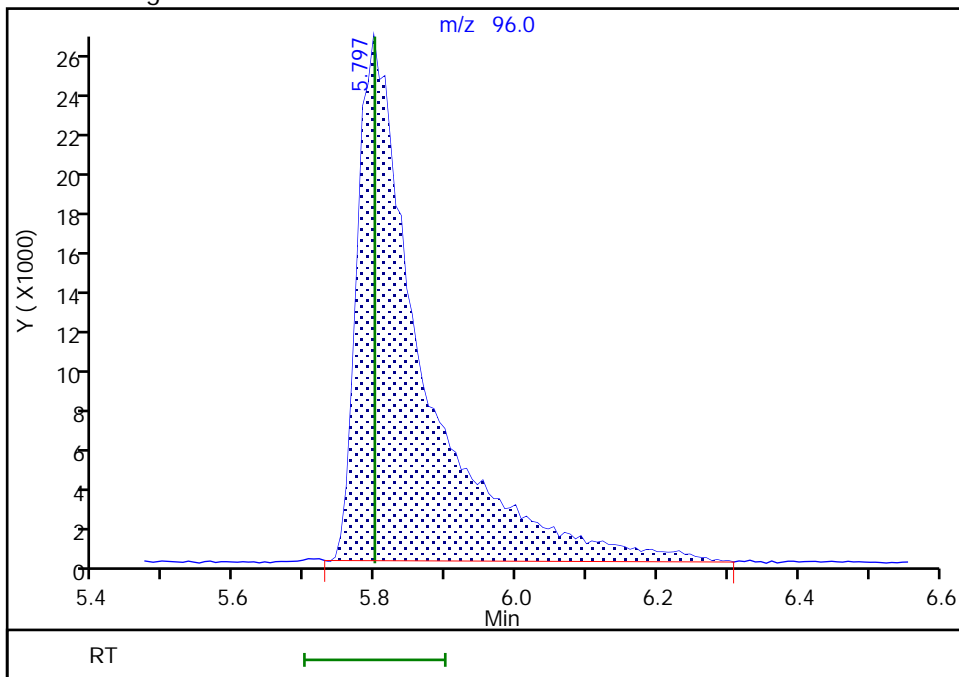
RT: 5.80
Area: 162465
Amount: 200.0000
Amount Units: ug/l

Processing Integration Results



RT: 5.80
Area: 170129
Amount: 200.0000
Amount Units: ug/l

Manual Integration Results



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: 240-134235-C-2 MSD
 Matrix: Water Lab File ID: X21093.D
 Analysis Method: 8260B SIM Date Collected: _____
 Sample wt/vol: 15 (mL) Date Analyzed: 07/31/2020 17:51
 Soil Aliquot Vol: _____ Dilution Factor: 2
 Soil Extract Vol.: _____ GC Column: ZB-624 ID: 0.53 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 445137 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	58.9		4.0	1.7

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	85		70-133

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21093.D
 Lims ID: 240-134235-C-2 MSD
 Client ID: GP-33S
 Sample Type: MSD
 Inject. Date: 31-Jul-2020 17:51:30 ALS Bottle#: 14 Worklist Smp#: 16
 Purge Vol: 15.000 mL Dil. Factor: 2.0000
 Sample Info: 240-134235-c-2 msd
 Misc. Info.: 240-0100568-016
 Operator ID: 402279 Instrument ID: A3UX2
 Method: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 03-Aug-2020 11:30:42 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1008

First Level Reviewer: macenczaks Date: 03-Aug-2020 10:39:06

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	3.944	3.941	0.003	100	2082329	10.0	8.53	
* 7 Fluorobenzene	96	4.497	4.497	0.000	100	7072357	10.0	10.0	
* 9 Dioxane-d8 (IS)	96	5.798	5.799	-0.001	100	151926	200.0	200.0	M
8 1,4-Dioxane	88	5.875	5.876	-0.001	87	26015	10.0	29.4	M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

vmDiox_spike_00231	Amount Added: 3.00	Units: uL	
vm40ml_vials_00014	Amount Added: 0.00	Units:	Run Reagent
vm150is_00174	Amount Added: 1.00	Units: uL	Run Reagent
vmDist_H2o_00177	Amount Added: 0.00	Units:	Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21093.D

Injection Date: 31-Jul-2020 17:51:30

Instrument ID: A3UX2

Operator ID: 402279

Lims ID: 240-134235-C-2 MSD

Worklist Smp#: 16

Client ID: GP-33S

Purge Vol: 15.000 mL

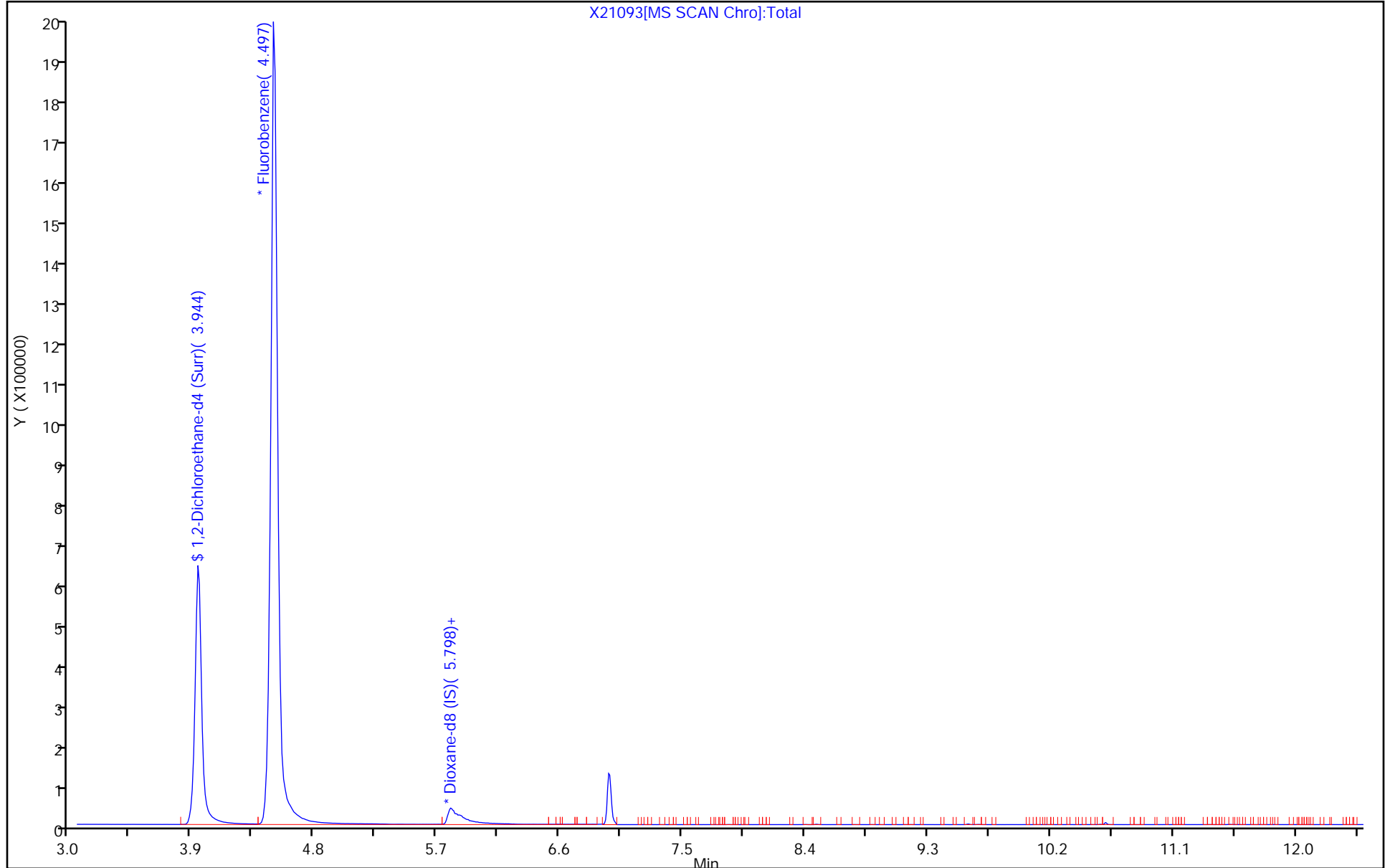
Dil. Factor: 2.0000

ALS Bottle#: 14

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21093.D
 Lims ID: 240-134235-C-2 MSD
 Client ID: GP-33S
 Sample Type: MSD
 Inject. Date: 31-Jul-2020 17:51:30 ALS Bottle#: 14 Worklist Smp#: 16
 Purge Vol: 15.000 mL Dil. Factor: 2.0000
 Sample Info: 240-134235-c-2 msd
 Misc. Info.: 240-0100568-016
 Operator ID: 402279 Instrument ID: A3UX2
 Method: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 03-Aug-2020 11:30:42 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1008

First Level Reviewer: macenczaks Date: 03-Aug-2020 10:39:06

Compound	Amount Added	Amount Recovered	% Rec.
\$ 5 1,2-Dichloroethane-d4 (Surr)	10.0	8.53	85.31

Eurofins TestAmerica, Canton

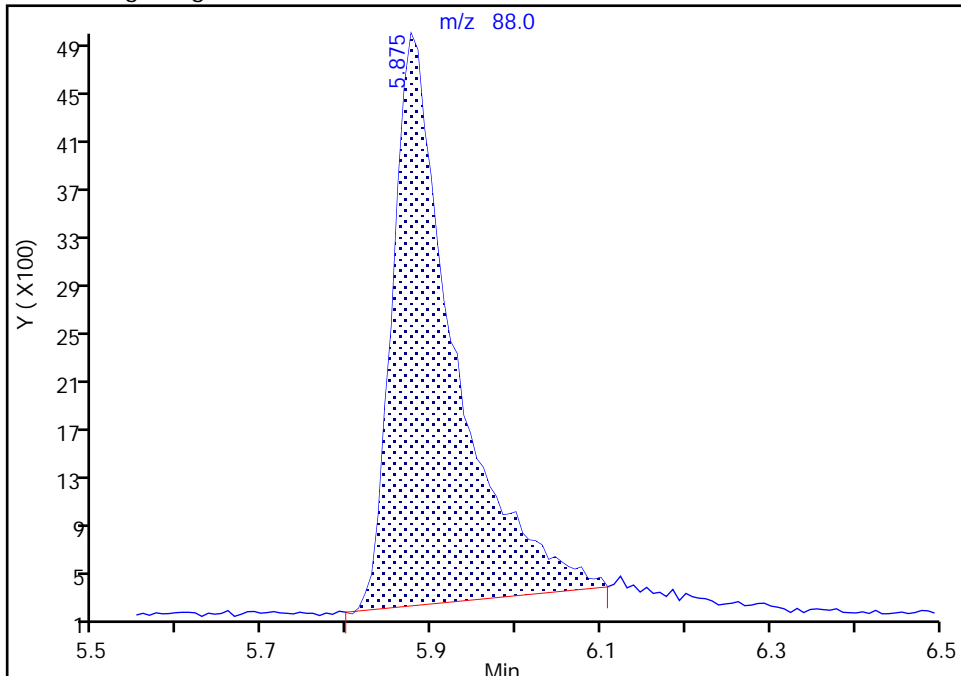
Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21093.D
Injection Date: 31-Jul-2020 17:51:30 Instrument ID: A3UX2
Lims ID: 240-134235-C-2 MSD
Client ID: GP-33S
Operator ID: 402279 ALS Bottle#: 14 Worklist Smp#: 16
Purge Vol: 15.000 mL Dil. Factor: 2.0000
Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

8 1,4-Dioxane, CAS: 123-91-1

Signal: 1

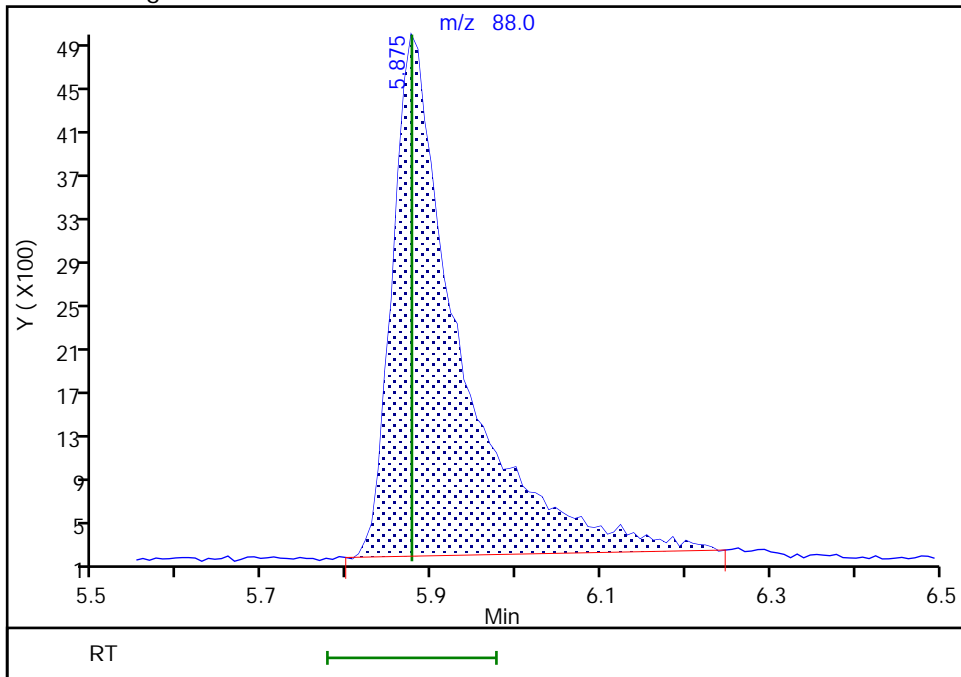
RT: 5.88
Area: 23695
Amount: 26.884047
Amount Units: ug/l

Processing Integration Results



RT: 5.88
Area: 26015
Amount: 29.436477
Amount Units: ug/l

Manual Integration Results



Reviewer: macenczaks, 03-Aug-2020 10:39:02
Audit Action: Manually Integrated

Audit Reason: Poor chromatography

Eurofins TestAmerica, Canton

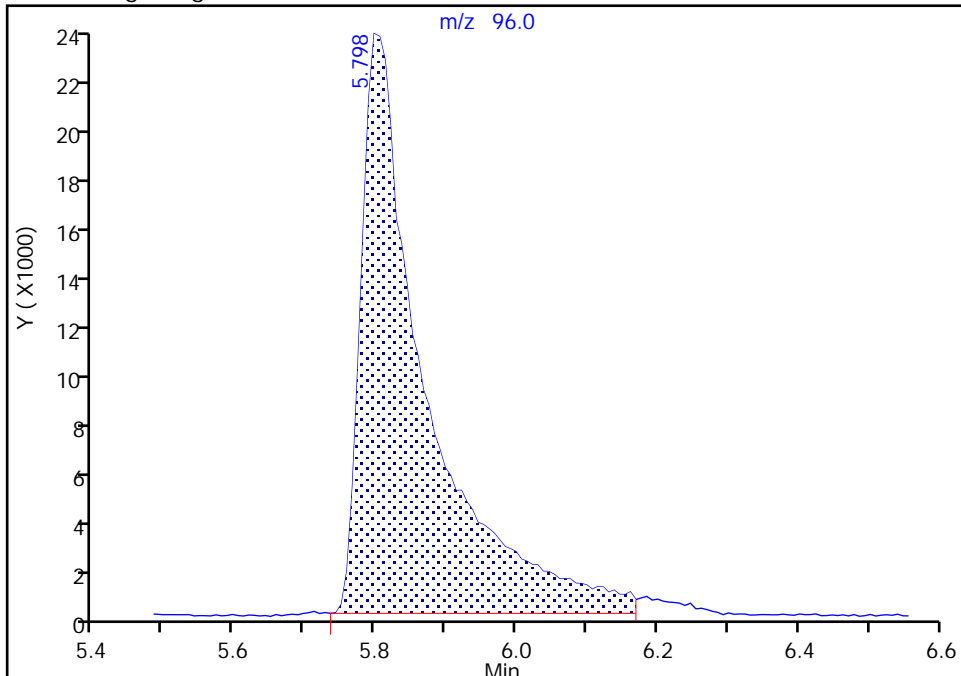
Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21093.D
Injection Date: 31-Jul-2020 17:51:30 Instrument ID: A3UX2
Lims ID: 240-134235-C-2 MSD
Client ID: GP-33S
Operator ID: 402279 ALS Bottle#: 14 Worklist Smp#: 16
Purge Vol: 15.000 mL Dil. Factor: 2.0000
Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

* 9 Dioxane-d8 (IS), CAS: 17647-74-4

Signal: 1

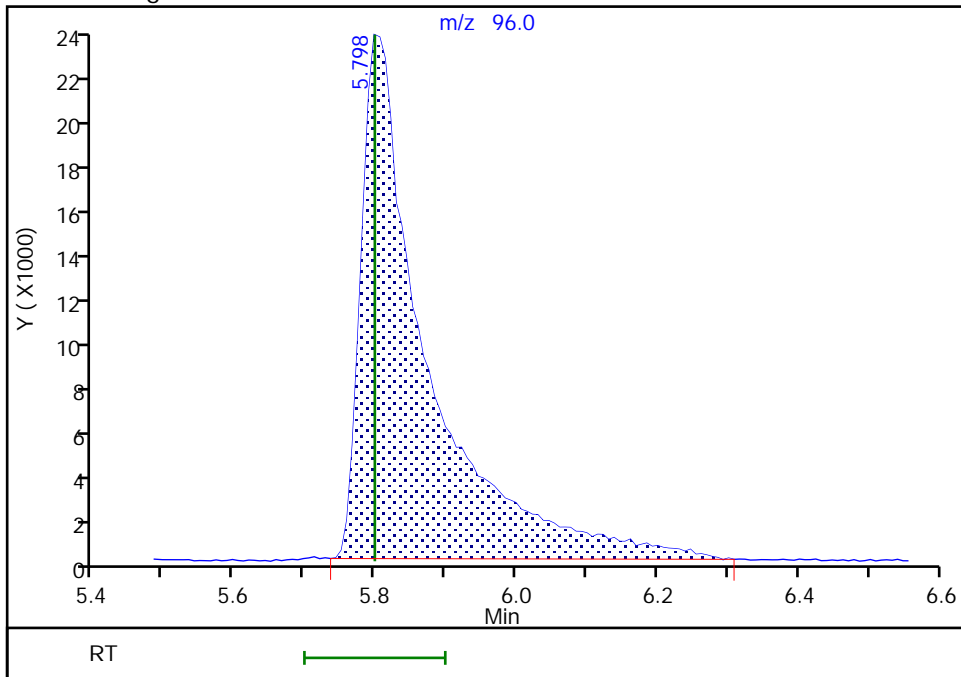
RT: 5.80
Area: 148741
Amount: 200.0000
Amount Units: ug/l

Processing Integration Results



RT: 5.80
Area: 151926
Amount: 200.0000
Amount Units: ug/l

Manual Integration Results



Reviewer: macenczaks, 03-Aug-2020 10:38:54
Audit Action: Manually Integrated

Audit Reason: Poor chromatography

GC/MS VOA ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Instrument ID: A3UX2 Start Date: 02/25/2020 16:03

Analysis Batch Number: 424238 End Date: 02/26/2020 03:59

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
BFB 240-424238/16		02/25/2020 16:03	1	BFBX2567.D	ZB-624 0.53 (mm)
IC 240-424238/3		02/25/2020 16:49	1	X29300.D	ZB-624 0.53 (mm)
IC 240-424238/4		02/25/2020 17:15	1	X29301.D	ZB-624 0.53 (mm)
IC 240-424238/5		02/25/2020 17:40	1	X29302.D	ZB-624 0.53 (mm)
ICIS 240-424238/6		02/25/2020 18:06	1	X29303.D	ZB-624 0.53 (mm)
IC 240-424238/7		02/25/2020 18:32	1	X29304.D	ZB-624 0.53 (mm)
IC 240-424238/8		02/25/2020 18:58	1	X29305.D	ZB-624 0.53 (mm)
IC 240-424238/9		02/25/2020 19:24	1	X29306.D	ZB-624 0.53 (mm)
ICV 240-424238/11		02/25/2020 20:15	1	X29308.D	ZB-624 0.53 (mm)
ZZZZZ		02/25/2020 20:41	1		ZB-624 0.53 (mm)
ZZZZZ		02/25/2020 21:07	1		ZB-624 0.53 (mm)
ZZZZZ		02/25/2020 21:32	1		ZB-624 0.53 (mm)
ZZZZZ		02/25/2020 21:58	1		ZB-624 0.53 (mm)
ZZZZZ		02/25/2020 22:24	10		ZB-624 0.53 (mm)
ZZZZZ		02/25/2020 22:50	10		ZB-624 0.53 (mm)
ZZZZZ		02/25/2020 23:15	3		ZB-624 0.53 (mm)
ZZZZZ		02/25/2020 23:41	5		ZB-624 0.53 (mm)
ZZZZZ		02/26/2020 00:07	5		ZB-624 0.53 (mm)
ZZZZZ		02/26/2020 00:33	30		ZB-624 0.53 (mm)
ZZZZZ		02/26/2020 00:59	3		ZB-624 0.53 (mm)
ZZZZZ		02/26/2020 01:24	1		ZB-624 0.53 (mm)
ZZZZZ		02/26/2020 01:51	1		ZB-624 0.53 (mm)
ZZZZZ		02/26/2020 02:16	1		ZB-624 0.53 (mm)
ZZZZZ		02/26/2020 02:42	1		ZB-624 0.53 (mm)
ZZZZZ		02/26/2020 03:08	1		ZB-624 0.53 (mm)
ZZZZZ		02/26/2020 03:34	1		ZB-624 0.53 (mm)
ZZZZZ		02/26/2020 03:59	1		ZB-624 0.53 (mm)

GC/MS VOA ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Instrument ID: A3UX2 Start Date: 07/31/2020 12:09

Analysis Batch Number: 445137 End Date: 07/31/2020 20:20

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
BFB 240-445137/8		07/31/2020 12:09	1	BFBX2651.D	ZB-624 0.53 (mm)
CCVIS 240-445137/3		07/31/2020 12:53	1	X21081.D	ZB-624 0.53 (mm)
LCS 240-445137/4		07/31/2020 13:18	1	X21082.D	ZB-624 0.53 (mm)
MB 240-445137/5		07/31/2020 13:43	1	X21083.D	ZB-624 0.53 (mm)
ZZZZZ		07/31/2020 14:08	1		ZB-624 0.53 (mm)
ZZZZZ		07/31/2020 14:33	1		ZB-624 0.53 (mm)
ZZZZZ		07/31/2020 14:58	1		ZB-624 0.53 (mm)
ZZZZZ		07/31/2020 15:23	1		ZB-624 0.53 (mm)
ZZZZZ		07/31/2020 16:13	2		ZB-624 0.53 (mm)
ZZZZZ		07/31/2020 17:02	2		ZB-624 0.53 (mm)
240-134235-C-2 MS		07/31/2020 17:27	2	X21092.D	ZB-624 0.53 (mm)
240-134235-C-2 MSD		07/31/2020 17:51	2	X21093.D	ZB-624 0.53 (mm)
ZZZZZ		07/31/2020 18:41	1		ZB-624 0.53 (mm)
ZZZZZ		07/31/2020 19:06	1		ZB-624 0.53 (mm)
240-134119-28		07/31/2020 19:30	1	X21097.D	ZB-624 0.53 (mm)
ZZZZZ		07/31/2020 20:20	1		ZB-624 0.53 (mm)

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Batch Number: 424238 Batch Start Date: 02/25/20 16:03 Batch Analyst: Macenczak, Steven

Batch Method: 8260B SIM Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	vm150is 00164	vm50ss 00391	vmbfb 00024	vmDiox_spike 00213
IC 240-424238/3		8260B SIM		15 mL	15 mL	1 uL	30 uL		
IC 240-424238/4		8260B SIM		15 mL	15 mL	1 uL	15 uL		
IC 240-424238/5		8260B SIM		15 mL	15 mL	1 uL	7.5 uL		
ICIS 240-424238/6		8260B SIM		15 mL	15 mL	1 uL	3 uL		
IC 240-424238/7		8260B SIM		15 mL	15 mL	1 uL	1.5 uL		
IC 240-424238/8		8260B SIM		15 mL	15 mL	1 uL	0.75 uL		
IC 240-424238/9		8260B SIM		15 mL	15 mL	1 uL	0.3 uL		
ICV 240-424238/11		8260B SIM		15 mL	15 mL	1 uL	3 uL		3 uL
BFB 240-424238/16		8260B SIM		5 mL	5 mL			1 uL	

Lab Sample ID	Client Sample ID	Method Chain	Basis	vmDioxanew 00200					
IC 240-424238/3		8260B SIM		30 uL					
IC 240-424238/4		8260B SIM		15 uL					
IC 240-424238/5		8260B SIM		7.5 uL					
ICIS 240-424238/6		8260B SIM		3 uL					
IC 240-424238/7		8260B SIM		1.5 uL					
IC 240-424238/8		8260B SIM		0.75 uL					
IC 240-424238/9		8260B SIM		0.3 uL					
ICV 240-424238/11		8260B SIM							
BFB 240-424238/16		8260B SIM							

Batch Notes	
pH Indicator ID	HC998308

Basis	Basis Description

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Batch Number: 445137 Batch Start Date: 07/31/20 12:09 Batch Analyst: Macenczak, Steven

Batch Method: 8260B SIM Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Initial pH	vm150is 00174	vmbfb 00025	vmdiox_spike 00231
CCVIS 240-445137/3		8260B SIM		15 mL	15 mL		1 uL		
LCS 240-445137/4		8260B SIM		15 mL	15 mL		1 uL		3 uL
MB 240-445137/5		8260B SIM		15 mL	15 mL		1 uL		
BFB 240-445137/8		8260B SIM		5 mL	5 mL			1 uL	
240-134235-C-2 MS	GP-33S	8260B SIM	T	15 mL	15 mL	<2 SU	1 uL		3 uL
240-134235-C-2 MSD	GP-33S	8260B SIM	T	15 mL	15 mL	<2 SU	1 uL		3 uL
240-134119-C-28	TMW-20-01 (3.5-8.5) 072720	8260B SIM	T	15 mL	15 mL	<2 SU	1 uL		

Lab Sample ID	Client Sample ID	Method Chain	Basis	vmdioxanew 00219					
CCVIS 240-445137/3		8260B SIM		3 uL					
LCS 240-445137/4		8260B SIM							
MB 240-445137/5		8260B SIM							
BFB 240-445137/8		8260B SIM							
240-134235-C-2 MS	GP-33S	8260B SIM	T						
240-134235-C-2 MSD	GP-33S	8260B SIM	T						
240-134119-C-28	TMW-20-01 (3.5-8.5) 072720	8260B SIM	T						

Batch Notes	
pH Indicator ID	HC911298

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY

COVER PAGE
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Canton

Job Number: 240-134119-1

SDG No.:

Project: Ford LTP

Client Sample ID	Lab Sample ID
TMW-20-01 (0.5-1.0) 072720	240-134119-1
TMW-20-01 (1-2) 07272020	240-134119-2
TMW-20-01 (2-3) 07272020	240-134119-3
TMW-20-01 (3-4) 07272020	240-134119-4
TMW-20-01 (4-5) 07272020	240-134119-5
TMW-20-01 (5-6) 07272020	240-134119-6
TMW-20-01 (6-7) 07272020	240-134119-7
SB-138 (0.5-1) 07272020	240-134119-8
SB-138 (1-2) 072720	240-134119-9
SB-138 (2-3) 072720	240-134119-10
SB-138 (3-4) 072720	240-134119-11
SB-138 (4-5) 072720	240-134119-12
SB-139 (0.5-1) 072720	240-134119-13
SB-139 (1-2) 072720	240-134119-14
SB-139 (2-3) 072720	240-134119-15
SB-139 (3-4) 072720	240-134119-16
SB-140 (0.5-1) 072720	240-134119-18
SB-140 (1-2) 072720	240-134119-19
SB-140 (2-3) 072720	240-134119-20
SB-140 (3-4) 072720	240-134119-21
SB-140 (5-6) 072720	240-134119-22
SB-140 (6-7) 072720	240-134119-23
SB-139 (5-6) 072720	240-134119-24
SB-139 (6-7) 072720	240-134119-25
SB-138 (6-7) 072720	240-134119-27
DUP-01	240-134119-30
DUP-02	240-134119-31

Comments:

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Canton

Job Number: 240-134119-1

SDG Number: _____

Matrix: Solid

Instrument ID: NOEQUIP

Method: Moisture

RL Date: 01/28/2010 09:24

Analyte	Wavelength/ Mass	RL (%)	
Percent Moisture		0.1	
Percent Solids		0.1	

9-IN
CALIBRATION BLANK DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Canton Job Number: 240-134119-1
SDG Number: _____
Matrix: Solid Instrument ID: NOEQUIP
Method: Moisture XRL Date: 01/28/2010 09:24

Analyte	Wavelength/ Mass	XRL (mg/L)	
Percent Moisture		10	
Percent Solids		10	

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.:

Instrument ID: NOEQUIP

Analysis Method: Moisture

Start Date: 07/30/2020 09:22

End Date: 07/30/2020 10:10

Lab Sample Id	D/F	Type	Time	Analytes																						
				% S	Moist																					
ZZZZZZ			09:22																							
ZZZZZZ			09:22																							
ZZZZZZ			09:22																							
ZZZZZZ			09:22																							
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13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Instrument ID: NOEQUIP Analysis Method: Moisture

Start Date: 07/30/2020 09:22 End Date: 07/30/2020 10:10

Lab Sample Id	D/F	Type	Time	Analytes																							
				% S	Moist																						
ZZZZZZ			09:22																								
ZZZZZZ			09:22																								
ZZZZZZ			09:22																								
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13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134119-1

SDG No.: _____

Instrument ID: NOEQUIP

Analysis Method: Moisture

Start Date: 07/30/2020 09:22

End Date: 07/30/2020 10:10

Lab Sample Id	D/F	Type	Time	Analytes																			
				% S	Moist																		
ZZZZZZ			09:56																				
ZZZZZZ			09:56																				
ZZZZZZ			09:56																				
ZZZZZZ			09:56																				
ZZZZZZ			09:56																				
ZZZZZZ			09:56																				
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ZZZZZZ			09:56																				
ZZZZZZ			09:56																				
240-134119-1	1	T	09:56	X	X																		
240-134119-2	1	T	09:56	X	X																		
240-134119-3	1	T	09:56	X	X																		
240-134119-4	1	T	09:56	X	X																		
240-134119-5 DU	1	T	09:56	X	X																		
240-134119-5	1	T	09:56	X	X																		
240-134119-6	1	T	09:56	X	X																		
240-134119-7	1	T	09:56	X	X																		
240-134119-8	1	T	09:56	X	X																		
240-134119-9	1	T	09:56	X	X																		
240-134119-10	1	T	09:56	X	X																		
240-134119-11	1	T	09:56	X	X																		
240-134119-12	1	T	09:56	X	X																		
240-134119-13	1	T	09:56	X	X																		
240-134119-14 DU	1	T	09:56	X	X																		
240-134119-14	1	T	09:56	X	X																		
240-134119-15	1	T	09:56	X	X																		
240-134119-16	1	T	09:56	X	X																		
ZZZZZZ			09:56																				
240-134119-18	1	T	09:56	X	X																		
240-134119-19	1	T	09:56	X	X																		
240-134119-20	1	T	09:56	X	X																		
240-134119-21	1	T	09:56	X	X																		
240-134119-22	1	T	09:56	X	X																		
240-134119-23 DU	1	T	10:10	X	X																		
240-134119-23	1	T	10:10	X	X																		
240-134119-24	1	T	10:10	X	X																		
240-134119-25	1	T	10:10	X	X																		
ZZZZZZ			10:10																				
240-134119-27	1	T	10:10	X	X																		

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Instrument ID: NOEQUIP Analysis Method: Moisture

Start Date: 07/30/2020 09:22 End Date: 07/30/2020 10:10

Lab Sample Id	D/F	Type	Time	Analytes																											
				% S	M o i s t																										
240-134119-30	1	T	10:10	X	X																										
240-134119-31	1	T	10:10	X	X																										
ZZZZZZ			10:10																												
ZZZZZZ			10:10																												
ZZZZZZ			10:10																												
ZZZZZZ			10:10																												
ZZZZZZ			10:10																												
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Prep Types: _____
T = Total/NA

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Batch Number: 444900 Batch Start Date: 07/30/20 09:22 Batch Analyst: Loeb, Brendan W

Batch Method: Moisture Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	DishWeight	SampleMassWet	SampleMassDry			
240-134119-B-1	TMW-20-01 (0.5-1.0) 072720	Moisture	T	4.2916 g	15.5007 g	14.0199 g			
240-134119-B-2	TMW-20-01 (1-2) 07272020	Moisture	T	4.2916 g	15.9276 g	14.1707 g			
240-134119-B-3	TMW-20-01 (2-3) 07272020	Moisture	T	4.2916 g	22.6062 g	18.3638 g			
240-134119-B-4	TMW-20-01 (3-4) 07272020	Moisture	T	4.2916 g	22.3228 g	16.8687 g			
240-134119-B-5 DU	TMW-20-01 (4-5) 07272020	Moisture	T	4.2916 g	8.9594 g	8.3709 g			
240-134119-B-5	TMW-20-01 (4-5) 07272020	Moisture	T	4.2916 g	10.5602 g	9.7719 g			
240-134119-B-6	TMW-20-01 (5-6) 07272020	Moisture	T	4.2916 g	17.5918 g	15.6425 g			
240-134119-B-7	TMW-20-01 (6-7) 07272020	Moisture	T	4.2916 g	14.9916 g	13.9604 g			
240-134119-B-8	SB-138 (0.5-1) 07272020	Moisture	T	4.2916 g	11.3349 g	10.0382 g			
240-134119-B-9	SB-138 (1-2) 072720	Moisture	T	4.2916 g	15.1070 g	14.2882 g			
240-134119-B-10	SB-138 (2-3) 072720	Moisture	T	4.2916 g	13.5672 g	12.1327 g			
240-134119-B-11	SB-138 (3-4) 072720	Moisture	T	4.2916 g	13.8349 g	12.8892 g			
240-134119-B-12	SB-138 (4-5) 072720	Moisture	T	4.2916 g	17.2574 g	14.9970 g			
240-134119-B-13	SB-139 (0.5-1) 072720	Moisture	T	4.2916 g	16.2013 g	14.5274 g			
240-134119-B-14 DU	SB-139 (1-2) 072720	Moisture	T	4.2916 g	8.6861 g	8.1347 g			
240-134119-B-14	SB-139 (1-2) 072720	Moisture	T	4.2916 g	8.2296 g	7.7479 g			
240-134119-B-15	SB-139 (2-3) 072720	Moisture	T	4.2916 g	13.5226 g	11.7959 g			
240-134119-B-16	SB-139 (3-4) 072720	Moisture	T	4.2916 g	12.2594 g	11.3832 g			
240-134119-B-18	SB-140 (0.5-1) 072720	Moisture	T	4.2916 g	11.4723 g	10.2604 g			
240-134119-B-19	SB-140 (1-2) 072720	Moisture	T	4.2916 g	11.7702 g	11.2922 g			
240-134119-B-20	SB-140 (2-3) 072720	Moisture	T	4.2916 g	17.5683 g	15.8444 g			

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Moisture

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134119-1

SDG No.: _____

Batch Number: 444900 Batch Start Date: 07/30/20 09:22 Batch Analyst: Loeb, Brendan W

Batch Method: Moisture Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	DishWeight	SampleMassWet	SampleMassDry			
240-134119-B-21	SB-140 (3-4) 072720	Moisture	T	4.2916 g	16.5163 g	15.8650 g			
240-134119-B-22	SB-140 (5-6) 072720	Moisture	T	4.2916 g	14.0349 g	13.2948 g			
240-134119-B-23 DU	SB-140 (6-7) 072720	Moisture	T	4.2916 g	10.8612 g	10.0303 g			
240-134119-B-23	SB-140 (6-7) 072720	Moisture	T	4.2916 g	11.3773 g	10.4510 g			
240-134119-B-24	SB-139 (5-6) 072720	Moisture	T	4.2916 g	14.5516 g	13.2906 g			
240-134119-B-25	SB-139 (6-7) 072720	Moisture	T	4.2916 g	17.2534 g	15.1463 g			
240-134119-B-27	SB-138 (6-7) 072720	Moisture	T	4.2916 g	15.2531 g	14.0370 g			
240-134119-B-30	DUP-01	Moisture	T	4.2916 g	14.8778 g	13.9170 g			
240-134119-B-31	DUP-02	Moisture	T	4.2916 g	16.8579 g	14.8402 g			

Batch Notes	
Balance ID	B047
Date samples were placed in the oven	07/30/2020
Oven Temp In	104.5 Degrees C
Time samples were place in the oven	11:25
Date samples were removed from oven	07/31/2020
Oven Temp Out	104.3 Degrees C
Time Samples were removed from oven	08:20
Oven ID	002
Thermometer ID	Tempguard Box C #6
Temperature - Start - Uncorrected	104.2 Degrees C

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Moisture

Shipping and Receiving Documents

MICHIGAN
190

Chain of Custody Record

376186



Environment Testin
TestAmerica

Address:

Regulatory Program: DW NPDES RCRA Other:

TAL-8210

Client Contact
Company Name: **ARCADES**
Address: **28550 CABOT DRIVE #500**
City/State/Zip: **NOVI MI 48377**
Phone:
Fax:
Project Name: **FORD LTP**
Site: **LEVONIA MI**
PO #: **30050315.303.01**

Project Manager: **KRIS HUNESKY**
Tel/Email: **269-579-5402**
Analysis Turnaround Time
 CALENDAR DAYS WORKING DAYS
TAT if different from below
 2 weeks STANDARD
 1 week TAX
 2 days
 1 day

Site Contact: **IAN DROST** Date: **7/27/2020**
Lab Contact: **USEPA METHOD B26C** Carrier:
Filtered Sample (Y/N) **PERFORM MS/MSD (Y/N)**

Sampler: **1** of **3** COCs
For Lab Use Only:
Walk-in Client:
Lab Sampling:
Job / SDG No.:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes
TMW-20-01(0.5-1)-072720	7/27/20	1005	G	S	2	(1) 40ML MECH (1) 10E ZAR
TMW-20-01(1-2)-072720	7/27/20	1010	G	S	2	" "
TMW-20-01(2-3)-072720	7/27/20	1040	G	S	2	" "
TMW-20-01(3-4)-072720	7/27/20	1104	G	S	2	" "
TMW-20-01(4-5)-072720	7/27/20	1107	G	S	2	" "
TMW-20-01(5-6)-072720	7/27/20	1110	G	S	2	" "
TMW-20-01(6-7)-072720	7/27/20	1130	G	S	2	" "
SB-138(0.5-1)-072720	7/27/20	1223	G	S	2	" "
SB-138(1-2)-072720	7/27/20	1230	G	S	2	" "
SB-138(2-3)-072720	7/27/20	1239	G	S	2	" "
SB-138(3-4)-072720	7/27/20	1249	G	S	2	" "
SB-138(4-5)-072720	7/27/20	1251	G	S	2	" "



Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH (6=Other) **MECH**

Possible Hazard Identification: Please list any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
 Non-Hazard Flammable Skin Irritant Poison B Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal by Lab Archive for _____ Months

Special Instructions/QC Requirements & Comments: **ANALYZE FOR: PCE, TCE, 1,1-DCE, 1,1-DCE, 1,2-DCE, TRANS-1,2-DCE, VC, 1,4-DIOXANE, LEVEL IV REPORTING. SUMMIT ALL RESULTS THROUGH CADEMA AT SEM.TOMPAH.CADEMA.COM. #E20372B**

Custody Seal No.: Yes No
 Relinquished by: **Christina Johnson** Company: **ARCADES** Date/Time: **7/28/20 07:30**
 Relinquished by: **for 2** Company: **EUROFINS** Date/Time: **7-29-20 9:20**
 Relinquished by: **for 2** Company: **EUROFINS** Date/Time: **7-29-20 9:20**

MICHIGAN
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Chain of Custody Record 376187 

Environment Test
TestAmerica

TAL-821C

Address:

Regulatory Program: DW NPDES RCRA Other:

Client Contact
 Company Name: **ARCADIS**
 Address: **28550 CABOT DRIVE**
 City/State/Zip: **NOVI MI 48377**
 Phone: _____
 Fax: _____
 Project Name: **FORD LTP**
 Site: **LIVONIA MI**
 PO# **30050315, 303.01**

Project Manager: **KRIS HINESKY**
 Tel/Email: **269-579-5402**
 Analysis Turnaround Time
 CALENDAR DAYS WORKING DAYS
 TAT if different from Below
 2 weeks **STANDARD**
 1 week **TAT**
 2 days
 1 day

Site Contact: **IAN DRIST** Date: **7/27/20**
 Lab Contact: _____
 Carrier: _____
 COC No: **2** of **3** COCs
 Sampler: _____
 For Lab Use Only:
 Walk-in Client: _____
 Lab Sampling: _____
 Job / SDG No: _____

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes
SB-139(0.5-1)-072720	07/27/20	1310	G	S	2	(1)-40mL MeqH (1)-402.75
SB-139(1-2)-072720	07/27/20	1313	G	S	2	" "
SB-139(2-3)-072720	07/27/20	1316	G	S	2	" "
SB-139(3-4)-072720	07/27/20	1320	G	S	2	" "
SB-139(4-5)-072720	07/27/20	1325	G	S	2	" "
SB-140(0.5-1)-072720	07/27/20	1333	G	S	2	" "
SB-140(1-2)-072720	07/27/20	1337	G	S	2	" "
SB-140(2-3)-072720	07/27/20	1450	G	S	2	" "
SB-140(3-4)-072720	07/27/20	1455	G	S	2	" "
SB-140(5-6)-072720	07/27/20	1506	G	S	2	" "
SB-140(6-7)-072720	07/27/20	1509	G	S	2	" "
SB-139(5-6)-072720	07/27/20	1517	G	S	2	" "

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal by Lab Archive for _____ Months
 Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other: **MRODH**
 Possible Hazard Identification: _____
 Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
 Non-Hazard Flammable Skin Irritant Poison B Unknown

Special Instructions/QC Requirements & Comments: **ANALYZE FOR: PCE/TCE; 1,1-DCE; 1,2-DCE; VC; 1,4-Dioxane**
LEVEL III REPORTING. SUBMIT ALL RESULTS THROUGH CADENA @ JIM.TO.MALIA@CADENA.COM #E203728

Custody Seal No.: _____
 Relinquished by: *[Signature]* Date/Time: **7/28/20 0730**
 Relinquished by: *[Signature]* Date/Time: **7/28/20 0740**
 Relinquished by: *[Signature]* Date/Time: _____

Company: **ARCADIS**
 Company: **eurofins**
 Company: **eurofins**

Received by: *[Signature]* Date/Time: **7/29/20 0730**
 Received by: *[Signature]* Date/Time: **7/29/20 0730**
 Received in Laboratory by: *[Signature]* Date/Time: **7/29/20 0730**

MICHIGAN
190

Chain of Custody Record

376184



Environment Testin
TestAmerica

TAL-8210

Address:

Regulatory Program: DW NPDES RCRA Other:

Client Contact
Company Name: ARCADIS
Address: 28550 CABOT DRIVE
City/State/Zip: NOVI MI / 48377
Phone:
Fax:
Project Name: FORO LTP
Site: LIVONIA MI
PO #: 30050315.303.01

Project Manager: KRIS HINESKY
Tel/Email: 249-579-5402
Analysis Turnaround Time
 CALENDAR DAYS WORKING DAYS
TAT if different from Below
 2 weeks
 1 week
 2 days
 1 day

Site Contact: JAN DRAST
Lab Contact:
Carrier: 7/27/2020
COC No: 3 of 3 COCS
Sampler:
For Lab Use Only:
Walk-in Client:
Lab Sampling:
Job / SDG No.:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Method	Sample Specific Notes
5B-139(6-7)-072720	7/27/20	1519	G	S	2	N	N	USEPH METHOD 8260	(1)-40mL MeOH, (1)402
5B-138(5-6)-072720	7/27/20	1525	G	S	2	N	N	USEPH METHOD 8260	" "
5B-138(6-7)-072720	7/27/20	1530	G	S	2	N	N	USEPH METHOD 8260	" "
TMM-20-01(3.5-8.5)-072720	7/27/20	1652	G	GW	6	N	N	USEPH METHOD 8260	3 VIALS FOR 8260 USEPH 3 VIALS FOR 8260
TRIP BLANK	7/27/20	-	G	GW	3	N	N	USEPH METHOD 8260	3 TRIP BLANKS
OUP-01	7/27/20	-	G	S	2	N	N	USEPH METHOD 8260	(1)-40mL MeOH, (1)402
OUP-02	7/27/20	-	G	S	2	N	N	USEPH METHOD 8260	" "

Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other, MECH
Possible Hazard Identification: Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
 Non-Hazard Flammable Skin Irritant Poison B Unknown

Special Instructions/QC Requirements & Comments: ANALYZE FOR: PCE, TCE, 1,1-DCE, CIS-1,2-DCE, TRANS-1,2-DCE, VC5, 1,4-DIOXANE, LEVEL IV REPORTING. SUBMIT ALL RESULTS THROUGH CADEVA @ JEM.TOMALIA@CADEVA.COM # E20372E
Cooler Temp. (°C): Obs'd: _____ Cor'd: _____
Therm ID No.: _____
Return to Client: Disposal by Lab: Archive for: _____ Months

Relinquished by: *Charla Wu* Company: ARCADIS Date/Time: 7/28/20 0730
Relinquished by: *Wu* Company: EUROFIN Date/Time: 7/28/20 0740
Relinquished by: _____ Company: _____ Date/Time: _____

Eurofins TestAmerica Canton Sample Receipt Form/Narrative

Login # : 134119


Canton Facility

Client Arcadis Site Name _____
 Cooler Received on 7-29-20 Opened on 7-29-20
 FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Cooler unpacked by [Signature]

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # TV Foam Box Client Cooler Box Other _____
 Packing material used: Bubble Wrap Foam Plastic Bag None Other _____
 COOLANT: Wet Ice Blife Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN #IR-11 (CF +0.9 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 2 Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
 If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC911298
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? Yes No NA  ← Larger than this.
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # NA Yes No
16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: _____

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

Login #: 134119

Eurofins TestAmerica Canton Sample Receipt Multiple Cooler Form

Cooler Description (Circle)				IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)
(TA)	Client	Box	Other	IR-10 IR-11	1.5	2.9	Wet Ice Blue Ice Dry Ice Water None
(TA)	Client	Box	Other	IR-10 IR-11	1.2	2.1	Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA	Client	Box	Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None

See Temperature Excursion Form

6/22/2017

Mr. Troy Stevens
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #: MI001386.0001.00002
Workorder #: 1706379

Dear Mr. Troy Stevens

The following report includes the data for the above referenced project for sample(s) received on 6/20/2017 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,




Ausha Scott
Project Manager

WORK ORDER #: 1706379

Work Order Summary

CLIENT:	Mr. Troy Stevens Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-324-5050	P.O. #	MI001386.0001.00002
FAX:		PROJECT #	MI001386.0001.00002 Ford LTP
DATE RECEIVED:	06/20/2017	CONTACT:	Ausha Scott
DATE COMPLETED:	06/22/2017		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SVMP-17-2 (061617)	TO-15	4.5 "Hg	15 psi
02A	SVMP-18-3 (061617)	TO-15	5.5 "Hg	15 psi
03A	SVMP-19-3 (061617)	TO-15	4.5 "Hg	15 psi
04A	SVMP-16-2 (061617)	TO-15	4.5 "Hg	15 psi
05A	SVMP-13-2 (061617)	TO-15	5.5 "Hg	15 psi
06A	SVMP-15-2 (061617)	TO-15	4.0 "Hg	15 psi
07A	SVMP-14-2 (061617)	TO-15	4.5 "Hg	15 psi
08A	Lab Blank	TO-15	NA	NA
09A	CCV	TO-15	NA	NA
10A	LCS	TO-15	NA	NA
10AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 06/22/17

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1706379

Seven 1 Liter Summa Canister samples were received on June 20, 2017. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

Summary of Detected Compounds

EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SVMP-17-2 (061617)

Lab ID#: 1706379-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	1.2	3.4	6.4	18

Client Sample ID: SVMP-18-3 (061617)

Lab ID#: 1706379-02A

No Detections Were Found.

Client Sample ID: SVMP-19-3 (061617)

Lab ID#: 1706379-03A

No Detections Were Found.

Client Sample ID: SVMP-16-2 (061617)

Lab ID#: 1706379-04A

No Detections Were Found.

Client Sample ID: SVMP-13-2 (061617)

Lab ID#: 1706379-05A

No Detections Were Found.

Client Sample ID: SVMP-15-2 (061617)

Lab ID#: 1706379-06A

No Detections Were Found.

Client Sample ID: SVMP-14-2 (061617)

Lab ID#: 1706379-07A

No Detections Were Found.



Air Toxics

Client Sample ID: SVMP-17-2 (061617)

Lab ID#: 1706379-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062120	Date of Collection:	6/16/17 1:24:00 PM	
Dil. Factor:	2.38	Date of Analysis:	6/21/17 10:29 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
Trichloroethene	1.2	3.4	6.4	18

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
4-Bromofluorobenzene	111	70-130
1,2-Dichloroethane-d4	90	70-130



Air Toxics

Client Sample ID: SVMP-18-3 (061617)

Lab ID#: 1706379-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062110	Date of Collection:	6/16/17 3:07:00 PM	
Dil. Factor:	2.47	Date of Analysis:	6/21/17 04:17 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.2	Not Detected
Trichloroethene	1.2	Not Detected	6.6	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
4-Bromofluorobenzene	114	70-130
1,2-Dichloroethane-d4	94	70-130



Air Toxics

Client Sample ID: SVMP-19-3 (061617)

Lab ID#: 1706379-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062111	Date of Collection:	6/16/17 4:21:00 PM	
Dil. Factor:	2.38	Date of Analysis:	6/21/17 04:43 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
4-Bromofluorobenzene	113	70-130
1,2-Dichloroethane-d4	89	70-130



Air Toxics

Client Sample ID: SVMP-16-2 (061617)

Lab ID#: 1706379-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062112	Date of Collection:	6/16/17 10:37:00 AM	
Dil. Factor:	2.38	Date of Analysis:	6/21/17 05:10 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	93	70-130
4-Bromofluorobenzene	111	70-130
1,2-Dichloroethane-d4	92	70-130



Air Toxics

Client Sample ID: SVMP-13-2 (061617)

Lab ID#: 1706379-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062113	Date of Collection:	6/16/17 3:43:00 PM	
Dil. Factor:	2.47	Date of Analysis:	6/21/17 05:36 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.2	Not Detected
Trichloroethene	1.2	Not Detected	6.6	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
4-Bromofluorobenzene	110	70-130
1,2-Dichloroethane-d4	94	70-130



Air Toxics

Client Sample ID: SVMP-15-2 (061617)

Lab ID#: 1706379-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062114	Date of Collection:	6/16/17 12:30:00 PM	
Dil. Factor:	2.33	Date of Analysis:	6/21/17 06:03 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	108	70-130
4-Bromofluorobenzene	111	70-130
1,2-Dichloroethane-d4	86	70-130



Air Toxics

Client Sample ID: SVMP-14-2 (061617)

Lab ID#: 1706379-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062115	Date of Collection:	6/16/17 2:25:00 PM	
Dil. Factor:	2.38	Date of Analysis:	6/21/17 06:29 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
4-Bromofluorobenzene	108	70-130
1,2-Dichloroethane-d4	93	70-130

Client Sample ID: Lab Blank

Lab ID#: 1706379-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062109	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	6/21/17 03:02 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
4-Bromofluorobenzene	112	70-130
1,2-Dichloroethane-d4	94	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1706379-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062102	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/21/17 09:12 AM

Compound	%Recovery
Vinyl Chloride	97
Trichloroethene	100

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
4-Bromofluorobenzene	117	70-130
1,2-Dichloroethane-d4	96	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 1706379-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062103	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/21/17 09:37 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	99	70-130
Trichloroethene	98	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
4-Bromofluorobenzene	115	70-130
1,2-Dichloroethane-d4	98	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1706379-10AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062104	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/21/17 10:02 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	99	70-130
Trichloroethene	98	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
4-Bromofluorobenzene	115	70-130
1,2-Dichloroethane-d4	96	70-130

9/27/2017
Mr. Gustan Taylor
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #: MI001386.0001.00002
Workorder #: 1709439

Dear Mr. Gustan Taylor

The following report includes the data for the above referenced project for sample(s) received on 9/21/2017 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1709439

Work Order Summary

CLIENT:	Mr. Gustan Taylor Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	248.994.2294	P.O. #	MI001386.0001_AT_WA08
FAX:		PROJECT #	MI001386.0001.00002 Ford LTP
DATE RECEIVED:	09/21/2017	CONTACT:	Ausha Scott
DATE COMPLETED:	09/27/2017		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SVMP-22-3(091817)	TO-15	5.0 "Hg	15 psi
02A	SVMP-23-3(091817)	TO-15	4.0 "Hg	15 psi
03A	SVMP-24-4(091817)	TO-15	4.0 "Hg	15 psi
04A	SVMP-18-3(091817)	TO-15	4.0 "Hg	15 psi
05A	SVMP-19-3(091817)	TO-15	6.5 "Hg	15 psi
06A	SVMP-20-3(091917)	TO-15	5.0 "Hg	15 psi
07A	SVMP-16-2(091917)	TO-15	3.5 "Hg	15 psi
08A	SVMP-14-2(091917)	TO-15	3.5 "Hg	15 psi
09A	SVMP-21-2(091917)	TO-15	4.0 "Hg	15 psi
10A	SVMP-17-2(091917)	TO-15	5.0 "Hg	15 psi
11A	SVMP-15-2(091917)	TO-15	4.5 "Hg	15 psi
12A	SVMP-13-2(091917)	TO-15	4.0 "Hg	15 psi
13A	SVMP-12-3.5(091917)	TO-15	5.0 "Hg	15 psi
14A	SVMP-10-3(092017)	TO-15	5.0 "Hg	15 psi
15A	SVMP-8-3.5(092017)	TO-15	4.5 "Hg	15 psi
16A	SVMP-6-4.5(092017)	TO-15	4.0 "Hg	15 psi
17A	SVMP-4-3.5(092017)	TO-15	5.5 "Hg	15 psi
18A	SVMP-1-7(092017)	TO-15	5.0 "Hg	15 psi
19A	SVMP-1-3.5(092017)	TO-15	6.0 "Hg	15 psi
20A	SVMP-9-4(092017)	TO-15	5.5 "Hg	15 psi
21A	SVMP-7-3.5(092017)	TO-15	5.0 "Hg	15 psi
22A	SVMP-5-4.5(092017)	TO-15	5.0 "Hg	15 psi
23A	SVMP-2-8.5(092017)	TO-15	7.0 "Hg	15 psi

Continued on next page

WORK ORDER #: 1709439

Work Order Summary

CLIENT:	Mr. Gustan Taylor Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	248.994.2294	P.O. #	MI001386.0001_AT_WA08
FAX:		PROJECT #	MI001386.0001.00002 Ford LTP
DATE RECEIVED:	09/21/2017	CONTACT:	Ausha Scott
DATE COMPLETED:	09/27/2017		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
24A	SVMP-2-4.5(092017)	TO-15	7.0 "Hg	15 psi
25A	Lab Blank	TO-15	NA	NA
25B	Lab Blank	TO-15	NA	NA
26A	CCV	TO-15	NA	NA
26B	CCV	TO-15	NA	NA
27A	LCS	TO-15	NA	NA
27AA	LCSD	TO-15	NA	NA
27B	LCS	TO-15	NA	NA
27BB	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 09/27/17

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.
 Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1709439

Twenty-four 1 Liter Summa Canister samples were received on September 21, 2017. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

Summary of Detected Compounds EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SVMP-22-3(091817)

Lab ID#: 1709439-01A

No Detections Were Found.

Client Sample ID: SVMP-23-3(091817)

Lab ID#: 1709439-02A

No Detections Were Found.

Client Sample ID: SVMP-24-4(091817)

Lab ID#: 1709439-03A

No Detections Were Found.

Client Sample ID: SVMP-18-3(091817)

Lab ID#: 1709439-04A

No Detections Were Found.

Client Sample ID: SVMP-19-3(091817)

Lab ID#: 1709439-05A

No Detections Were Found.

Client Sample ID: SVMP-20-3(091917)

Lab ID#: 1709439-06A

No Detections Were Found.

Client Sample ID: SVMP-16-2(091917)

Lab ID#: 1709439-07A

No Detections Were Found.

Client Sample ID: SVMP-14-2(091917)

Lab ID#: 1709439-08A

No Detections Were Found.

Client Sample ID: SVMP-21-2(091917)

Lab ID#: 1709439-09A

Summary of Detected Compounds EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SVMP-21-2(091917)

Lab ID#: 1709439-09A

No Detections Were Found.

Client Sample ID: SVMP-17-2(091917)

Lab ID#: 1709439-10A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	1.2	4.2	6.5	22

Client Sample ID: SVMP-15-2(091917)

Lab ID#: 1709439-11A

No Detections Were Found.

Client Sample ID: SVMP-13-2(091917)

Lab ID#: 1709439-12A

No Detections Were Found.

Client Sample ID: SVMP-12-3.5(091917)

Lab ID#: 1709439-13A

No Detections Were Found.

Client Sample ID: SVMP-10-3(092017)

Lab ID#: 1709439-14A

No Detections Were Found.

Client Sample ID: SVMP-8-3.5(092017)

Lab ID#: 1709439-15A

No Detections Were Found.

Client Sample ID: SVMP-6-4.5(092017)

Lab ID#: 1709439-16A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
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Summary of Detected Compounds EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SVMP-6-4.5(092017)

Lab ID#: 1709439-16A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	1.2	2.0	4.6	8.0
Tetrachloroethene	1.2	3.6	7.9	24

Client Sample ID: SVMP-4-3.5(092017)

Lab ID#: 1709439-17A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	1.2	1.2 J	8.4	8.3 J

Client Sample ID: SVMP-1-7(092017)

Lab ID#: 1709439-18A

No Detections Were Found.

Client Sample ID: SVMP-1-3.5(092017)

Lab ID#: 1709439-19A

No Detections Were Found.

Client Sample ID: SVMP-9-4(092017)

Lab ID#: 1709439-20A

No Detections Were Found.

Client Sample ID: SVMP-7-3.5(092017)

Lab ID#: 1709439-21A

No Detections Were Found.

Client Sample ID: SVMP-5-4.5(092017)

Lab ID#: 1709439-22A

No Detections Were Found.

**Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN**

Client Sample ID: SVMP-2-8.5(092017)

Lab ID#: 1709439-23A

No Detections Were Found.

Client Sample ID: SVMP-2-4.5(092017)

Lab ID#: 1709439-24A

No Detections Were Found.



Air Toxics

Client Sample ID: SVMP-22-3(091817)

Lab ID#: 1709439-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3092509	Date of Collection:	9/18/17 9:39:00 AM
Dil. Factor:	2.42	Date of Analysis:	9/25/17 08:18 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.5	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrachloroethene	1.2	Not Detected	8.2	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	100	70-130



Air Toxics

Client Sample ID: SVMP-23-3(091817)

Lab ID#: 1709439-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3092510	Date of Collection:	9/18/17 12:58:00 PM
Dil. Factor:	2.33	Date of Analysis:	9/25/17 08:44 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrachloroethene	1.2	Not Detected	7.9	Not Detected
1,4-Dioxane	4.7	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	101	70-130



Air Toxics

Client Sample ID: SVMP-24-4(091817)

Lab ID#: 1709439-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3092511	Date of Collection:	9/18/17 2:04:00 PM
Dil. Factor:	2.33	Date of Analysis:	9/25/17 09:11 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrachloroethene	1.2	Not Detected	7.9	Not Detected
1,4-Dioxane	4.7	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	91	70-130
4-Bromofluorobenzene	100	70-130



Air Toxics

Client Sample ID: SVMP-18-3(091817)

Lab ID#: 1709439-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3092512	Date of Collection:	9/18/17 3:20:00 PM
Dil. Factor:	2.33	Date of Analysis:	9/25/17 09:37 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrachloroethene	1.2	Not Detected	7.9	Not Detected
1,4-Dioxane	4.7	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	103	70-130



Air Toxics

Client Sample ID: SVMP-19-3(091817)

Lab ID#: 1709439-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3092513	Date of Collection:	9/18/17 4:26:00 PM
Dil. Factor:	2.58	Date of Analysis:	9/25/17 10:03 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.3	Not Detected	3.3	Not Detected
1,1-Dichloroethene	1.3	Not Detected	5.1	Not Detected
cis-1,2-Dichloroethene	1.3	Not Detected	5.1	Not Detected
Trichloroethene	1.3	Not Detected	6.9	Not Detected
trans-1,2-Dichloroethene	1.3	Not Detected	5.1	Not Detected
Tetrachloroethene	1.3	Not Detected	8.8	Not Detected
1,4-Dioxane	5.2	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	96	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	101	70-130



Air Toxics

Client Sample ID: SVMP-20-3(091917)

Lab ID#: 1709439-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3092514	Date of Collection:	9/19/17 9:14:00 AM
Dil. Factor:	2.42	Date of Analysis:	9/25/17 11:25 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.5	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrachloroethene	1.2	Not Detected	8.2	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	99	70-130



Air Toxics

Client Sample ID: SVMP-16-2(091917)

Lab ID#: 1709439-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3092515	Date of Collection:	9/19/17 10:33:00 AM
Dil. Factor:	2.29	Date of Analysis:	9/25/17 11:51 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.5	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Trichloroethene	1.1	Not Detected	6.2	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Tetrachloroethene	1.1	Not Detected	7.8	Not Detected
1,4-Dioxane	4.6	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	101	70-130



Air Toxics

Client Sample ID: SVMP-14-2(091917)

Lab ID#: 1709439-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3092516	Date of Collection:	9/19/17 11:41:00 AM
Dil. Factor:	2.29	Date of Analysis:	9/26/17 12:18 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.5	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Trichloroethene	1.1	Not Detected	6.2	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Tetrachloroethene	1.1	Not Detected	7.8	Not Detected
1,4-Dioxane	4.6	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	91	70-130
4-Bromofluorobenzene	101	70-130



Air Toxics

Client Sample ID: SVMP-21-2(091917)

Lab ID#: 1709439-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3092517	Date of Collection:	9/19/17 9:20:00 AM
Dil. Factor:	2.33	Date of Analysis:	9/26/17 12:44 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrachloroethene	1.2	Not Detected	7.9	Not Detected
1,4-Dioxane	4.7	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	90	70-130
4-Bromofluorobenzene	100	70-130



Air Toxics

Client Sample ID: SVMP-17-2(091917)

Lab ID#: 1709439-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3092518	Date of Collection:	9/19/17 10:13:00 AM
Dil. Factor:	2.42	Date of Analysis:	9/26/17 01:10 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	4.2	6.5	22
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrachloroethene	1.2	Not Detected	8.2	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	102	70-130



Air Toxics

Client Sample ID: SVMP-15-2(091917)

Lab ID#: 1709439-11A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3092519	Date of Collection: 9/19/17 11:07:00 AM
Dil. Factor:	2.38	Date of Analysis: 9/26/17 01:36 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.1	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	90	70-130
4-Bromofluorobenzene	101	70-130



Air Toxics

Client Sample ID: SVMP-13-2(091917)

Lab ID#: 1709439-12A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3092520	Date of Collection:	9/19/17 12:23:00 PM
Dil. Factor:	2.33	Date of Analysis:	9/26/17 02:02 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrachloroethene	1.2	Not Detected	7.9	Not Detected
1,4-Dioxane	4.7	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	101	70-130



Air Toxics

Client Sample ID: SVMP-12-3.5(091917)

Lab ID#: 1709439-13A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3092521	Date of Collection:	9/19/17 1:13:00 PM
Dil. Factor:	2.42	Date of Analysis:	9/26/17 02:28 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.5	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrachloroethene	1.2	Not Detected	8.2	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	99	70-130



Air Toxics

Client Sample ID: SVMP-10-3(092017)

Lab ID#: 1709439-14A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3092522	Date of Collection:	9/20/17 8:55:00 AM
Dil. Factor:	2.42	Date of Analysis:	9/26/17 02:54 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.5	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrachloroethene	1.2	Not Detected	8.2	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	99	70-130



Air Toxics

Client Sample ID: SVMP-8-3.5(092017)

Lab ID#: 1709439-15A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3092523	Date of Collection:	9/20/17 9:55:00 AM
Dil. Factor:	2.38	Date of Analysis:	9/26/17 03:20 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.1	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	99	70-130



Air Toxics

Client Sample ID: SVMP-6-4.5(092017)

Lab ID#: 1709439-16A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3092524	Date of Collection:	9/20/17 10:48:00 AM
Dil. Factor:	2.33	Date of Analysis:	9/26/17 03:47 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	2.0	4.6	8.0
Trichloroethene	1.2	Not Detected	6.3	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrachloroethene	1.2	3.6	7.9	24
1,4-Dioxane	4.7	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	91	70-130
4-Bromofluorobenzene	99	70-130



Air Toxics

Client Sample ID: SVMP-4-3.5(092017)

Lab ID#: 1709439-17A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p092519	Date of Collection:	9/20/17 12:08:00 PM
Dil. Factor:	2.47	Date of Analysis:	9/25/17 11:45 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.2	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Trichloroethene	1.2	Not Detected	6.6	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Tetrachloroethene	1.2	1.2 J	8.4	8.3 J
1,4-Dioxane	4.9	Not Detected	18	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	103	70-130
4-Bromofluorobenzene	102	70-130



Air Toxics

Client Sample ID: SVMP-1-7(092017)

Lab ID#: 1709439-18A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p092520	Date of Collection:	9/20/17 1:05:00 PM
Dil. Factor:	2.42	Date of Analysis:	9/26/17 12:11 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.5	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrachloroethene	1.2	Not Detected	8.2	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	102	70-130



Air Toxics

Client Sample ID: SVMP-1-3.5(092017)

Lab ID#: 1709439-19A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p092521	Date of Collection:	9/20/17 1:48:00 PM
Dil. Factor:	2.52	Date of Analysis:	9/26/17 12:37 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.3	Not Detected	3.2	Not Detected
1,1-Dichloroethene	1.3	Not Detected	5.0	Not Detected
cis-1,2-Dichloroethene	1.3	Not Detected	5.0	Not Detected
Trichloroethene	1.3	Not Detected	6.8	Not Detected
trans-1,2-Dichloroethene	1.3	Not Detected	5.0	Not Detected
Tetrachloroethene	1.3	Not Detected	8.5	Not Detected
1,4-Dioxane	5.0	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	104	70-130



Air Toxics

Client Sample ID: SVMP-9-4(092017)

Lab ID#: 1709439-20A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p092522	Date of Collection:	9/20/17 8:50:00 AM
Dil. Factor:	2.47	Date of Analysis:	9/26/17 01:04 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.2	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Trichloroethene	1.2	Not Detected	6.6	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Tetrachloroethene	1.2	Not Detected	8.4	Not Detected
1,4-Dioxane	4.9	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	103	70-130



Air Toxics

Client Sample ID: SVMP-7-3.5(092017)

Lab ID#: 1709439-21A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p092523	Date of Collection:	9/20/17 9:59:00 AM
Dil. Factor:	2.42	Date of Analysis:	9/26/17 01:30 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.5	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrachloroethene	1.2	Not Detected	8.2	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	102	70-130



Air Toxics

Client Sample ID: SVMP-5-4.5(092017)

Lab ID#: 1709439-22A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p092524	Date of Collection:	9/20/17 11:26:00 AM
Dil. Factor:	2.42	Date of Analysis:	9/26/17 01:56 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.5	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrachloroethene	1.2	Not Detected	8.2	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	103	70-130
4-Bromofluorobenzene	102	70-130



Air Toxics

Client Sample ID: SVMP-2-8.5(092017)

Lab ID#: 1709439-23A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p092525	Date of Collection:	9/20/17 1:04:00 PM
Dil. Factor:	2.64	Date of Analysis:	9/26/17 02:22 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.3	Not Detected	3.4	Not Detected
1,1-Dichloroethene	1.3	Not Detected	5.2	Not Detected
cis-1,2-Dichloroethene	1.3	Not Detected	5.2	Not Detected
Trichloroethene	1.3	Not Detected	7.1	Not Detected
trans-1,2-Dichloroethene	1.3	Not Detected	5.2	Not Detected
Tetrachloroethene	1.3	Not Detected	9.0	Not Detected
1,4-Dioxane	5.3	Not Detected	19	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	103	70-130
4-Bromofluorobenzene	105	70-130



Air Toxics

Client Sample ID: SVMP-2-4.5(092017)

Lab ID#: 1709439-24A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p092526	Date of Collection:	9/20/17 1:47:00 PM
Dil. Factor:	2.64	Date of Analysis:	9/26/17 02:48 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.3	Not Detected	3.4	Not Detected
1,1-Dichloroethene	1.3	Not Detected	5.2	Not Detected
cis-1,2-Dichloroethene	1.3	Not Detected	5.2	Not Detected
Trichloroethene	1.3	Not Detected	7.1	Not Detected
trans-1,2-Dichloroethene	1.3	Not Detected	5.2	Not Detected
Tetrachloroethene	1.3	Not Detected	9.0	Not Detected
1,4-Dioxane	5.3	Not Detected	19	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	105	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1709439-25A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p092507	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	9/25/17 12:17 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	97	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1709439-25B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3092505	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/25/17 09:53 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	88	70-130
4-Bromofluorobenzene	99	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1709439-26A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p092502	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/25/17 08:07 AM

Compound	%Recovery
Vinyl Chloride	124
1,1-Dichloroethene	83
cis-1,2-Dichloroethene	88
Trichloroethene	98
trans-1,2-Dichloroethene	88
Tetrachloroethene	109
1,4-Dioxane	110

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	104	70-130
4-Bromofluorobenzene	106	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1709439-26B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3092502	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/25/17 08:37 AM

Compound	%Recovery
Vinyl Chloride	85
1,1-Dichloroethene	84
cis-1,2-Dichloroethene	80
Trichloroethene	94
trans-1,2-Dichloroethene	98
Tetrachloroethene	96
1,4-Dioxane	92

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	85	70-130
4-Bromofluorobenzene	102	70-130

Client Sample ID: LCS

Lab ID#: 1709439-27A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p092503	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/25/17 08:32 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	118	70-130
1,1-Dichloroethene	85	70-130
cis-1,2-Dichloroethene	99	70-130
Trichloroethene	101	70-130
trans-1,2-Dichloroethene	80	70-130
Tetrachloroethene	112	70-130
1,4-Dioxane	101	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	104	70-130

Client Sample ID: LCSD

Lab ID#: 1709439-27AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p092504	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/25/17 08:57 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	118	70-130
1,1-Dichloroethene	85	70-130
cis-1,2-Dichloroethene	100	70-130
Trichloroethene	100	70-130
trans-1,2-Dichloroethene	80	70-130
Tetrachloroethene	109	70-130
1,4-Dioxane	102	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	103	70-130
4-Bromofluorobenzene	105	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 1709439-27B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3092503	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/25/17 09:02 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	95	70-130
1,1-Dichloroethene	91	70-130
cis-1,2-Dichloroethene	92	70-130
Trichloroethene	101	70-130
trans-1,2-Dichloroethene	92	70-130
Tetrachloroethene	101	70-130
1,4-Dioxane	96	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	86	70-130
4-Bromofluorobenzene	102	70-130

Client Sample ID: LCSD

Lab ID#: 1709439-27BB

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3092504	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/25/17 09:27 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	92	70-130
1,1-Dichloroethene	89	70-130
cis-1,2-Dichloroethene	91	70-130
Trichloroethene	102	70-130
trans-1,2-Dichloroethene	88	70-130
Tetrachloroethene	101	70-130
1,4-Dioxane	95	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	87	70-130
4-Bromofluorobenzene	102	70-130

12/4/2017

Mr. Gustan Taylor
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: FORD LTP
Project #: MI001386.0001.00002
Workorder #: 1711413R1

Dear Mr. Gustan Taylor

The following report includes the data for the above referenced project for sample(s) received on 11/22/2017 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1711413R1

Work Order Summary

CLIENT: Mr. Gustan Taylor
 Arcadis U.S., Inc.
 28550 Cabot Dr.
 Suite 500
 Novi, MI 48377

BILL TO: Accounts Payable
 Arcadis U.S., Inc.
 630 Plaza Drive
 Suite 600
 Highlands Ranch, CO 80129

PHONE: 248.994.2294

P.O. # MI001386.0001_AT_WA08

FAX:

PROJECT # MI001386.0001.00002 FORD LTP

DATE RECEIVED: 11/22/2017

CONTACT: Ausha Scott

DATE COMPLETED: 12/02/2017

DATE REISSUED: 12/04/2017

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SVMP-22-3(111717)	TO-15	5.3 "Hg	15.3 psi
02A	SVMP-23-3(111717)	TO-15	2.4 "Hg	14.6 psi
03A	SVMP-24-4(111717)	TO-15	2.4 "Hg	15.2 psi
04A	SVMP-19-3(111717)	TO-15	2.4 "Hg	14.9 psi
05A	SVMP-18-3(111717)	TO-15	2.2 "Hg	14.8 psi
06A	SVMP-1S-3.5(111717)	TO-15	1 "Hg	15.1 psi
07A	SVMP-1D-7(111717)	TO-15	4.9 "Hg	15 psi
08A	SVMP-2S-4.5(111717)	TO-15	3.5 "Hg	15 psi
09A	SVMP-2D-8.5(111717)	TO-15	4.1 "Hg	15 psi
10A	SVMP-3S-3.5(111717)	TO-15	0.6 "Hg	14.7 psi
11A	SVMP-3D-7(111717)	TO-15	2 "Hg	15.2 psi
12A	SVMP-21-2(112017)	TO-15	3.7 "Hg	15.2 psi
13A	SVMP-16-2(112017)	TO-15	2 "Hg	15.3 psi
14A	SVMP-4-3.5(112017)	TO-15	5.5 "Hg	15.1 psi
15A	SVMP-5-4.5(112017)	TO-15	3.7 "Hg	15 psi
16A	SVMP-6-4.5(112017)	TO-15	3.3 "Hg	14.9 psi
17A	SVMP-7-3.5(112017)	TO-15	4.5 "Hg	15 psi
18A	SVMP-8-3.5(112017)	TO-15	3.7 "Hg	15.2 psi
19A	SVMP-9-4(112017)	TO-15	3.3 "Hg	15.1 psi
20A	Lab Blank	TO-15	NA	NA
20B	Lab Blank	TO-15	NA	NA
21A	CCV	TO-15	NA	NA
21B	CCV	TO-15	NA	NA

Continued on next page

WORK ORDER #: 1711413R1

Work Order Summary

CLIENT: Mr. Gustan Taylor
 Arcadis U.S., Inc.
 28550 Cabot Dr.
 Suite 500
 Novi, MI 48377

BILL TO: Accounts Payable
 Arcadis U.S., Inc.
 630 Plaza Drive
 Suite 600
 Highlands Ranch, CO 80129

PHONE: 248.994.2294

P.O. # MI001386.0001_AT_WA08

FAX:

PROJECT # MI001386.0001.00002 FORD LTP

DATE RECEIVED: 11/22/2017

CONTACT: Ausha Scott

DATE COMPLETED: 12/02/2017

DATE REISSUED: 12/04/2017

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
22A	LCS	TO-15	NA	NA
22AA	LCSD	TO-15	NA	NA
22B	LCS	TO-15	NA	NA
22BB	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 12/04/17

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1711413R1

Nineteen 1 Liter Summa Canister samples were received on November 22, 2017. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

The Chain of Custody (COC) information for samples SVMP-3D-7(111717), SVMP-8- (112017) and SVMP-9- (112017) did not match the entries on the sample tags with regard to sample identification. Therefore the information on the COC was used to process and report the samples.

The work order was reissued on December 4, 2017 to change identification of sample SVMP-8-3.5(112017) and SVMP-9-4(112017) per the revised Chain of Custody (COC) provided by the client.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

Summary of Detected Compounds EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SVMP-22-3(111717)

Lab ID#: 1711413R1-01A
No Detections Were Found.

Client Sample ID: SVMP-23-3(111717)

Lab ID#: 1711413R1-02A
No Detections Were Found.

Client Sample ID: SVMP-24-4(111717)

Lab ID#: 1711413R1-03A
No Detections Were Found.

Client Sample ID: SVMP-19-3(111717)

Lab ID#: 1711413R1-04A
No Detections Were Found.

Client Sample ID: SVMP-18-3(111717)

Lab ID#: 1711413R1-05A
No Detections Were Found.

Client Sample ID: SVMP-1S-3.5(111717)

Lab ID#: 1711413R1-06A
No Detections Were Found.

Client Sample ID: SVMP-1D-7(111717)

Lab ID#: 1711413R1-07A
No Detections Were Found.

Client Sample ID: SVMP-2S-4.5(111717)

Lab ID#: 1711413R1-08A
No Detections Were Found.

Client Sample ID: SVMP-2D-8.5(111717)

Lab ID#: 1711413R1-09A

**Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN**

Client Sample ID: SVMP-2D-8.5(111717)

Lab ID#: 1711413R1-09A
No Detections Were Found.

Client Sample ID: SVMP-3S-3.5(111717)

Lab ID#: 1711413R1-10A
No Detections Were Found.

Client Sample ID: SVMP-3D-7(111717)

Lab ID#: 1711413R1-11A
No Detections Were Found.

Client Sample ID: SVMP-21-2(112017)

Lab ID#: 1711413R1-12A
No Detections Were Found.

Client Sample ID: SVMP-16-2(112017)

Lab ID#: 1711413R1-13A
No Detections Were Found.

Client Sample ID: SVMP-4-3.5(112017)

Lab ID#: 1711413R1-14A
No Detections Were Found.

Client Sample ID: SVMP-5-4.5(112017)

Lab ID#: 1711413R1-15A
No Detections Were Found.

Client Sample ID: SVMP-6-4.5(112017)

Lab ID#: 1711413R1-16A
No Detections Were Found.

Client Sample ID: SVMP-7-3.5(112017)

Lab ID#: 1711413R1-17A

**Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN**

Client Sample ID: SVMP-7-3.5(112017)

Lab ID#: 1711413R1-17A
No Detections Were Found.

Client Sample ID: SVMP-8-3.5(112017)

Lab ID#: 1711413R1-18A
No Detections Were Found.

Client Sample ID: SVMP-9-4(112017)

Lab ID#: 1711413R1-19A
No Detections Were Found.



Air Toxics

Client Sample ID: SVMP-22-3(111717)

Lab ID#: 1711413R1-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17112722	Date of Collection:	11/17/17 11:24:00 A
Dil. Factor:	2.48	Date of Analysis:	11/28/17 12:52 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.2	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Trichloroethene	1.2	Not Detected	6.7	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Tetrachloroethene	1.2	Not Detected	8.4	Not Detected
1,4-Dioxane	5.0	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	94	70-130
4-Bromofluorobenzene	106	70-130



Client Sample ID: SVMP-23-3(111717)

Lab ID#: 1711413R1-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17112723	Date of Collection:	11/17/17 12:18:00 P
Dil. Factor:	2.17	Date of Analysis:	11/28/17 01:21 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.8	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.3	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.3	Not Detected
Trichloroethene	1.1	Not Detected	5.8	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.3	Not Detected
Tetrachloroethene	1.1	Not Detected	7.4	Not Detected
1,4-Dioxane	4.3	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	95	70-130
4-Bromofluorobenzene	103	70-130



Air Toxics

Client Sample ID: SVMP-24-4(111717)

Lab ID#: 1711413R1-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17112724	Date of Collection:	11/17/17 1:37:00 PM
Dil. Factor:	2.21	Date of Analysis:	11/28/17 01:57 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.8	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Trichloroethene	1.1	Not Detected	5.9	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrachloroethene	1.1	Not Detected	7.5	Not Detected
1,4-Dioxane	4.4	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	96	70-130
4-Bromofluorobenzene	105	70-130



Air Toxics

Client Sample ID: SVMP-19-3(111717)

Lab ID#: 1711413R1-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17112725	Date of Collection:	11/17/17 3:03:00 PM
Dil. Factor:	2.19	Date of Analysis:	11/28/17 02:29 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.8	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.3	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.3	Not Detected
Trichloroethene	1.1	Not Detected	5.9	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.3	Not Detected
Tetrachloroethene	1.1	Not Detected	7.4	Not Detected
1,4-Dioxane	4.4	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	100	70-130



Air Toxics

Client Sample ID: SVMP-18-3(111717)

Lab ID#: 1711413R1-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17112726	Date of Collection:	11/17/17 4:00:00 PM
Dil. Factor:	2.16	Date of Analysis:	11/28/17 03:02 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.8	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.3	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.3	Not Detected
Trichloroethene	1.1	Not Detected	5.8	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.3	Not Detected
Tetrachloroethene	1.1	Not Detected	7.3	Not Detected
1,4-Dioxane	4.3	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	96	70-130



Client Sample ID: SVMP-1S-3.5(111717)

Lab ID#: 1711413R1-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17112727	Date of Collection: 11/17/17 10:15:00 A
Dil. Factor:	2.10	Date of Analysis: 11/28/17 03:31 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.0	Not Detected	2.7	Not Detected
1,1-Dichloroethene	1.0	Not Detected	4.2	Not Detected
cis-1,2-Dichloroethene	1.0	Not Detected	4.2	Not Detected
Trichloroethene	1.0	Not Detected	5.6	Not Detected
trans-1,2-Dichloroethene	1.0	Not Detected	4.2	Not Detected
Tetrachloroethene	1.0	Not Detected	7.1	Not Detected
1,4-Dioxane	4.2	Not Detected	15	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	84	70-130
4-Bromofluorobenzene	96	70-130



Air Toxics

Client Sample ID: SVMP-ID-7(111717)

Lab ID#: 1711413R1-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17112728	Date of Collection:	11/17/17 11:15:00 A
Dil. Factor:	2.41	Date of Analysis:	11/28/17 04:00 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.5	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrachloroethene	1.2	Not Detected	8.2	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	96	70-130



Air Toxics

Client Sample ID: SVMP-2S-4.5(111717)

Lab ID#: 1711413R1-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17112806	Date of Collection:	11/17/17 12:10:00 P
Dil. Factor:	2.29	Date of Analysis:	11/28/17 02:29 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.5	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Trichloroethene	1.1	Not Detected	6.2	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Tetrachloroethene	1.1	Not Detected	7.8	Not Detected
1,4-Dioxane	4.6	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	97	70-130



Air Toxics

Client Sample ID: SVMP-2D-8.5(111717)

Lab ID#: 1711413R1-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17112807	Date of Collection:	11/17/17 1:10:00 PM
Dil. Factor:	2.34	Date of Analysis:	11/28/17 02:58 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrachloroethene	1.2	Not Detected	7.9	Not Detected
1,4-Dioxane	4.7	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	95	70-130



Air Toxics

Client Sample ID: SVMP-3S-3.5(111717)

Lab ID#: 1711413R1-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17112808	Date of Collection:	11/17/17 3:50:00 PM
Dil. Factor:	2.04	Date of Analysis:	11/28/17 03:26 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.0	Not Detected	2.6	Not Detected
1,1-Dichloroethene	1.0	Not Detected	4.0	Not Detected
cis-1,2-Dichloroethene	1.0	Not Detected	4.0	Not Detected
Trichloroethene	1.0	Not Detected	5.5	Not Detected
trans-1,2-Dichloroethene	1.0	Not Detected	4.0	Not Detected
Tetrachloroethene	1.0	Not Detected	6.9	Not Detected
1,4-Dioxane	4.1	Not Detected	15	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	99	70-130



Client Sample ID: SVMP-3D-7(111717)

Lab ID#: 1711413R1-11A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17112809	Date of Collection: 11/17/17 4:40:00 PM
Dil. Factor:	2.18	Date of Analysis: 11/28/17 03:56 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.8	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.3	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.3	Not Detected
Trichloroethene	1.1	Not Detected	5.8	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.3	Not Detected
Tetrachloroethene	1.1	Not Detected	7.4	Not Detected
1,4-Dioxane	4.4	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	97	70-130



Air Toxics

Client Sample ID: SVMP-21-2(112017)

Lab ID#: 1711413R1-12A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17112810	Date of Collection:	11/20/17 11:32:00 A
Dil. Factor:	2.32	Date of Analysis:	11/28/17 04:26 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Trichloroethene	1.2	Not Detected	6.2	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrachloroethene	1.2	Not Detected	7.9	Not Detected
1,4-Dioxane	4.6	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	95	70-130
4-Bromofluorobenzene	98	70-130



Air Toxics

Client Sample ID: SVMP-16-2(112017)

Lab ID#: 1711413R1-13A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17112811	Date of Collection:	11/20/17 2:02:00 PM
Dil. Factor:	2.19	Date of Analysis:	11/28/17 05:02 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.8	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.3	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.3	Not Detected
Trichloroethene	1.1	Not Detected	5.9	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.3	Not Detected
Tetrachloroethene	1.1	Not Detected	7.4	Not Detected
1,4-Dioxane	4.4	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	90	70-130



Air Toxics

Client Sample ID: SVMP-4-3.5(112017)

Lab ID#: 1711413R1-14A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17112812	Date of Collection:	11/20/17 10:55:00 A
Dil. Factor:	2.48	Date of Analysis:	11/28/17 05:46 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.2	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Trichloroethene	1.2	Not Detected	6.7	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Tetrachloroethene	1.2	Not Detected	8.4	Not Detected
1,4-Dioxane	5.0	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	93	70-130



Air Toxics

Client Sample ID: SVMP-5-4.5(112017)

Lab ID#: 1711413R1-15A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17112813	Date of Collection:	11/20/17 11:55:00 A
Dil. Factor:	2.30	Date of Analysis:	11/28/17 06:17 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Trichloroethene	1.2	Not Detected	6.2	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrachloroethene	1.2	Not Detected	7.8	Not Detected
1,4-Dioxane	4.6	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	88	70-130



Client Sample ID: SVMP-6-4.5(112017)

Lab ID#: 1711413R1-16A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17112814	Date of Collection: 11/20/17 1:05:00 PM
Dil. Factor:	2.26	Date of Analysis: 11/28/17 06:51 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.5	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Trichloroethene	1.1	Not Detected	6.1	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Tetrachloroethene	1.1	Not Detected	7.7	Not Detected
1,4-Dioxane	4.5	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	92	70-130



Air Toxics

Client Sample ID: SVMP-7-3.5(112017)

Lab ID#: 1711413R1-17A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17112815	Date of Collection:	11/20/17 2:20:00 PM
Dil. Factor:	2.38	Date of Analysis:	11/28/17 09:11 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.1	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	102	70-130
4-Bromofluorobenzene	91	70-130



Air Toxics

Client Sample ID: SVMP-8-3.5(112017)

Lab ID#: 1711413R1-18A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17112816	Date of Collection:	11/20/17 3:20:00 PM
Dil. Factor:	2.32	Date of Analysis:	11/28/17 09:40 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Trichloroethene	1.2	Not Detected	6.2	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrachloroethene	1.2	Not Detected	7.9	Not Detected
1,4-Dioxane	4.6	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	92	70-130



Air Toxics

Client Sample ID: SVMP-9-4(112017)

Lab ID#: 1711413R1-19A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17112817	Date of Collection:	11/20/17 4:10:00 PM
Dil. Factor:	2.28	Date of Analysis:	11/28/17 10:09 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.5	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Trichloroethene	1.1	Not Detected	6.1	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Tetrachloroethene	1.1	Not Detected	7.7	Not Detected
1,4-Dioxane	4.6	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	94	70-130



Client Sample ID: Lab Blank

Lab ID#: 1711413R1-20A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17112706	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	11/27/17 01:44 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	97	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1711413R1-20B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17112805	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	11/28/17 12:40 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	93	70-130

Client Sample ID: CCV

Lab ID#: 1711413R1-21A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17112702	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/27/17 11:23 AM

Compound	%Recovery
Vinyl Chloride	103
1,1-Dichloroethene	100
cis-1,2-Dichloroethene	99
Trichloroethene	97
trans-1,2-Dichloroethene	100
Tetrachloroethene	98
1,4-Dioxane	100

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	103	70-130
4-Bromofluorobenzene	101	70-130

Client Sample ID: CCV

Lab ID#: 1711413R1-21B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17112802	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/28/17 11:16 AM

Compound	%Recovery
Vinyl Chloride	111
1,1-Dichloroethene	101
cis-1,2-Dichloroethene	103
Trichloroethene	96
trans-1,2-Dichloroethene	102
Tetrachloroethene	99
1,4-Dioxane	98

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	100	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 1711413R1-22A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17112703	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/27/17 11:50 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	95	70-130
1,1-Dichloroethene	90	70-130
cis-1,2-Dichloroethene	99	70-130
Trichloroethene	84	70-130
trans-1,2-Dichloroethene	78	70-130
Tetrachloroethene	88	70-130
1,4-Dioxane	88	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	103	70-130
4-Bromofluorobenzene	101	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1711413R1-22AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17112704	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/27/17 12:17 PM

Compound	%Recovery	Method Limits
Vinyl Chloride	96	70-130
1,1-Dichloroethene	94	70-130
cis-1,2-Dichloroethene	106	70-130
Trichloroethene	89	70-130
trans-1,2-Dichloroethene	81	70-130
Tetrachloroethene	92	70-130
1,4-Dioxane	92	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	105	70-130
4-Bromofluorobenzene	100	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 1711413R1-22B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17112803	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/28/17 11:43 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	102	70-130
1,1-Dichloroethene	88	70-130
cis-1,2-Dichloroethene	97	70-130
Trichloroethene	87	70-130
trans-1,2-Dichloroethene	76	70-130
Tetrachloroethene	92	70-130
1,4-Dioxane	88	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	101	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1711413R1-22BB

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17112804	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/28/17 12:10 PM

Compound	%Recovery	Method Limits
Vinyl Chloride	99	70-130
1,1-Dichloroethene	87	70-130
cis-1,2-Dichloroethene	97	70-130
Trichloroethene	87	70-130
trans-1,2-Dichloroethene	76	70-130
Tetrachloroethene	90	70-130
1,4-Dioxane	90	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	100	70-130

3/5/2018
Mr. Gustan Taylor
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name:
Project #: MII001386.0001.00002
Workorder #: 1802458

Dear Mr. Gustan Taylor

The following report includes the data for the above referenced project for sample(s) received on 2/22/2018 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1802458

Work Order Summary

CLIENT:	Mr. Gustan Taylor Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	248.994.2294	P.O. #	MI001386.0001_AT_WA08
FAX:		PROJECT #	MII001386.0001.00002
DATE RECEIVED:	02/22/2018	CONTACT:	Ausha Scott
DATE COMPLETED:	03/05/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SVMP-01S-3.5 (021918)	TO-15	3.5 "Hg	15.2 psi
02A	SVMP-01D-7.0 (021918)	TO-15	3.3 "Hg	14.8 psi
03A	SVMP-07-3.5 (021918)	TO-15	3.5 "Hg	14.7 psi
04A	SVMP-19-3 (022018)	TO-15	0.6 "Hg	15.4 psi
05A	SVMP-18-3 (022018)	TO-15	3.5 "Hg	15.1 psi
06A	SVMP-23-3 (022018)	TO-15	1.6 "Hg	14.8 psi
07A	SVMP-24-4 (022118)	TO-15	5.3 "Hg	14.2 psi
08A	SVMP-06-4.5 (022118)	TO-15	3.9 "Hg	14.8 psi
09A	SVMP-05-4.5 (022118)	TO-15	1.4 "Hg	14.9 psi
10A	SVMP-04-3.5 (022118)	TO-15	4.9 "Hg	14.7 psi
11A	Lab Blank	TO-15	NA	NA
12A	CCV	TO-15	NA	NA
13A	LCS	TO-15	NA	NA
13AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 03/05/18

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1802458

Ten 1 Liter Summa Canister samples were received on February 22, 2018. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There was a difference (greater than or equal to 5.0" Hg) between the measured canister receipt vacuum and that which was reported on the Chain of Custody (COC) for sample SVMP-19-3 (022018). A leak test indicated that the valve was functioning properly.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue



Air Toxics

Summary of Detected Compounds EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SVMP-01S-3.5 (021918)

Lab ID#: 1802458-01A

No Detections Were Found.

Client Sample ID: SVMP-01D-7.0 (021918)

Lab ID#: 1802458-02A

No Detections Were Found.

Client Sample ID: SVMP-07-3.5 (021918)

Lab ID#: 1802458-03A

No Detections Were Found.

Client Sample ID: SVMP-19-3 (022018)

Lab ID#: 1802458-04A

No Detections Were Found.

Client Sample ID: SVMP-18-3 (022018)

Lab ID#: 1802458-05A

No Detections Were Found.

Client Sample ID: SVMP-23-3 (022018)

Lab ID#: 1802458-06A

No Detections Were Found.

Client Sample ID: SVMP-24-4 (022118)

Lab ID#: 1802458-07A

No Detections Were Found.

Client Sample ID: SVMP-06-4.5 (022118)

Lab ID#: 1802458-08A

No Detections Were Found.

Client Sample ID: SVMP-05-4.5 (022118)

Lab ID#: 1802458-09A

**Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN**

Client Sample ID: SVMP-05-4.5 (022118)

Lab ID#: 1802458-09A

No Detections Were Found.

Client Sample ID: SVMP-04-3.5 (022118)

Lab ID#: 1802458-10A

No Detections Were Found.



Air Toxics

Client Sample ID: SVMP-01S-3.5 (021918)

Lab ID#: 1802458-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022317	Date of Collection:	2/19/18 9:40:00 AM
Dil. Factor:	2.30	Date of Analysis:	2/23/18 09:57 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Trichloroethene	1.2	Not Detected	6.2	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrachloroethene	1.2	Not Detected	7.8	Not Detected
1,4-Dioxane	4.6	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	103	70-130



Air Toxics

Client Sample ID: SVMP-01D-7.0 (021918)

Lab ID#: 1802458-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022318	Date of Collection:	2/19/18 10:32:00 AM
Dil. Factor:	2.25	Date of Analysis:	2/23/18 10:23 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.5	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Trichloroethene	1.1	Not Detected	6.0	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Tetrachloroethene	1.1	Not Detected	7.6	Not Detected
1,4-Dioxane	4.5	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	94	70-130



Air Toxics

Client Sample ID: SVMP-07-3.5 (021918)

Lab ID#: 1802458-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022319	Date of Collection:	2/19/18 12:25:00 PM
Dil. Factor:	2.26	Date of Analysis:	2/23/18 10:50 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.5	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Trichloroethene	1.1	Not Detected	6.1	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Tetrachloroethene	1.1	Not Detected	7.7	Not Detected
1,4-Dioxane	4.5	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	88	70-130
4-Bromofluorobenzene	96	70-130



Air Toxics

Client Sample ID: SVMP-19-3 (022018)

Lab ID#: 1802458-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022320	Date of Collection:	2/20/18 9:16:00 AM
Dil. Factor:	2.09	Date of Analysis:	2/23/18 11:16 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.0	Not Detected	2.7	Not Detected
1,1-Dichloroethene	1.0	Not Detected	4.1	Not Detected
cis-1,2-Dichloroethene	1.0	Not Detected	4.1	Not Detected
Trichloroethene	1.0	Not Detected	5.6	Not Detected
trans-1,2-Dichloroethene	1.0	Not Detected	4.1	Not Detected
Tetrachloroethene	1.0	Not Detected	7.1	Not Detected
1,4-Dioxane	4.2	Not Detected	15	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	88	70-130
4-Bromofluorobenzene	95	70-130



Air Toxics

Client Sample ID: SVMP-18-3 (022018)

Lab ID#: 1802458-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022321	Date of Collection:	2/20/18 10:52:00 AM
Dil. Factor:	2.29	Date of Analysis:	2/23/18 11:42 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.5	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Trichloroethene	1.1	Not Detected	6.2	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Tetrachloroethene	1.1	Not Detected	7.8	Not Detected
1,4-Dioxane	4.6	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	91	70-130
4-Bromofluorobenzene	96	70-130



Air Toxics

Client Sample ID: SVMP-23-3 (022018)

Lab ID#: 1802458-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022322	Date of Collection:	2/20/18 2:26:00 PM
Dil. Factor:	2.12	Date of Analysis:	2/24/18 12:08 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.7	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.2	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.2	Not Detected
Trichloroethene	1.1	Not Detected	5.7	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.2	Not Detected
Tetrachloroethene	1.1	Not Detected	7.2	Not Detected
1,4-Dioxane	4.2	Not Detected	15	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	94	70-130



Air Toxics

Client Sample ID: SVMP-24-4 (022118)

Lab ID#: 1802458-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022323	Date of Collection:	2/21/18 8:52:00 AM
Dil. Factor:	2.39	Date of Analysis:	2/24/18 12:35 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.1	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	93	70-130



Air Toxics

Client Sample ID: SVMP-06-4.5 (022118)

Lab ID#: 1802458-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022324	Date of Collection: 2/21/18 11:10:00 AM
Dil. Factor:	2.31	Date of Analysis: 2/24/18 01:01 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Trichloroethene	1.2	Not Detected	6.2	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrachloroethene	1.2	Not Detected	7.8	Not Detected
1,4-Dioxane	4.6	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	95	70-130



Air Toxics

Client Sample ID: SVMP-05-4.5 (022118)

Lab ID#: 1802458-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022325	Date of Collection:	2/21/18 12:11:00 PM
Dil. Factor:	2.11	Date of Analysis:	2/24/18 01:27 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.0	Not Detected	2.7	Not Detected
1,1-Dichloroethene	1.0	Not Detected	4.2	Not Detected
cis-1,2-Dichloroethene	1.0	Not Detected	4.2	Not Detected
Trichloroethene	1.0	Not Detected	5.7	Not Detected
trans-1,2-Dichloroethene	1.0	Not Detected	4.2	Not Detected
Tetrachloroethene	1.0	Not Detected	7.2	Not Detected
1,4-Dioxane	4.2	Not Detected	15	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	92	70-130



Air Toxics

Client Sample ID: SVMP-04-3.5 (022118)

Lab ID#: 1802458-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022326	Date of Collection:	2/21/18 1:29:00 PM
Dil. Factor:	2.39	Date of Analysis:	2/24/18 01:53 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.1	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	90	70-130
4-Bromofluorobenzene	93	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1802458-11A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022306	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	2/23/18 01:12 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	90	70-130
4-Bromofluorobenzene	94	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1802458-12A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022302	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/23/18 09:57 AM

Compound	%Recovery
Vinyl Chloride	127
1,1-Dichloroethene	100
cis-1,2-Dichloroethene	91
Trichloroethene	108
trans-1,2-Dichloroethene	96
Tetrachloroethene	107
1,4-Dioxane	99

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	102	70-130

Client Sample ID: LCS

Lab ID#: 1802458-13A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022303	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/23/18 10:21 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	125	70-130
1,1-Dichloroethene	103	70-130
cis-1,2-Dichloroethene	101	70-130
Trichloroethene	110	70-130
trans-1,2-Dichloroethene	85	70-130
Tetrachloroethene	107	70-130
1,4-Dioxane	103	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	100	70-130

Client Sample ID: LCSD

Lab ID#: 1802458-13AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022304	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/23/18 10:47 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	130	70-130
1,1-Dichloroethene	103	70-130
cis-1,2-Dichloroethene	102	70-130
Trichloroethene	108	70-130
trans-1,2-Dichloroethene	85	70-130
Tetrachloroethene	107	70-130
1,4-Dioxane	105	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	99	70-130

6/7/2018

Mr. Gustan Taylor
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: FORD LTP
Project #: MI001454.0004.00003
Workorder #: 1806043

Dear Mr. Gustan Taylor

The following report includes the data for the above referenced project for sample(s) received on 6/1/2018 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1806043

Work Order Summary

CLIENT:	Mr. Gustan Taylor Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	248.994.2294	P.O. #	MI001386.0001_AT_WA08
FAX:		PROJECT #	MI001454.0004.00003 FORD LTP
DATE RECEIVED:	06/01/2018	CONTACT:	Ausha Scott
DATE COMPLETED:	06/07/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SVMP-01D-7(052918)	TO-15	6.7 "Hg	14.6 psi
02A	SVMP-01S-3.5(052918)	TO-15	5.3 "Hg	14.8 psi
03A	SVMP-02D-8.5(052918)	TO-15	5.9 "Hg	15.6 psi
04A	SVMP-02S-3.5(052918)	TO-15	5.5 "Hg	15.2 psi
05A	SVMP-03D-7(052918)	TO-15	5.9 "Hg	14.8 psi
06A	SVMP-03S-3.5(052918)	TO-15	8.2 "Hg	14.9 psi
07A	SVMP-18-3(053018)	TO-15	4.5 "Hg	15 psi
08A	SVMP-24-4(053018)	TO-15	4.1 "Hg	15 psi
09A	SVMP-21-2(053018)	TO-15	4.9 "Hg	15.4 psi
10A	Lab Blank	TO-15	NA	NA
11A	CCV	TO-15	NA	NA
12A	LCS	TO-15	NA	NA
12AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 06/07/18

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1806043

Nine 1 Liter Summa Canister samples were received on June 01, 2018. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

**Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN**

Client Sample ID: SVMP-01D-7(052918)

Lab ID#: 1806043-01A

No Detections Were Found.

Client Sample ID: SVMP-01S-3.5(052918)

Lab ID#: 1806043-02A

No Detections Were Found.

Client Sample ID: SVMP-02D-8.5(052918)

Lab ID#: 1806043-03A

No Detections Were Found.

Client Sample ID: SVMP-02S-3.5(052918)

Lab ID#: 1806043-04A

No Detections Were Found.

Client Sample ID: SVMP-03D-7(052918)

Lab ID#: 1806043-05A

No Detections Were Found.

Client Sample ID: SVMP-03S-3.5(052918)

Lab ID#: 1806043-06A

No Detections Were Found.

Client Sample ID: SVMP-18-3(053018)

Lab ID#: 1806043-07A

No Detections Were Found.

Client Sample ID: SVMP-24-4(053018)

Lab ID#: 1806043-08A

No Detections Were Found.

Client Sample ID: SVMP-21-2(053018)

Lab ID#: 1806043-09A

Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SVMP-21-2(053018)

Lab ID#: 1806043-09A

No Detections Were Found.



Air Toxics

Client Sample ID: SVMP-01D-7(052918)

Lab ID#: 1806043-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a060612	Date of Collection:	5/29/18 12:40:00 PM
Dil. Factor:	2.57	Date of Analysis:	6/6/18 03:41 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.3	Not Detected	3.3	Not Detected
1,1-Dichloroethene	1.3	Not Detected	5.1	Not Detected
cis-1,2-Dichloroethene	1.3	Not Detected	5.1	Not Detected
Trichloroethene	1.3	Not Detected	6.9	Not Detected
trans-1,2-Dichloroethene	1.3	Not Detected	5.1	Not Detected
Tetrachloroethene	1.3	Not Detected	8.7	Not Detected
1,4-Dioxane	5.1	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	84	70-130
4-Bromofluorobenzene	104	70-130



Air Toxics

Client Sample ID: SVMP-01S-3.5(052918)

Lab ID#: 1806043-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a060615	Date of Collection:	5/29/18 1:20:00 PM
Dil. Factor:	2.44	Date of Analysis:	6/6/18 06:47 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.6	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrachloroethene	1.2	Not Detected	8.3	Not Detected
1,4-Dioxane	4.9	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	88	70-130
4-Bromofluorobenzene	105	70-130



Air Toxics

Client Sample ID: SVMP-02D-8.5(052918)

Lab ID#: 1806043-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a060616	Date of Collection:	5/29/18 2:40:00 PM
Dil. Factor:	2.56	Date of Analysis:	6/6/18 07:14 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.3	Not Detected	3.3	Not Detected
1,1-Dichloroethene	1.3	Not Detected	5.1	Not Detected
cis-1,2-Dichloroethene	1.3	Not Detected	5.1	Not Detected
Trichloroethene	1.3	Not Detected	6.9	Not Detected
trans-1,2-Dichloroethene	1.3	Not Detected	5.1	Not Detected
Tetrachloroethene	1.3	Not Detected	8.7	Not Detected
1,4-Dioxane	5.1	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	88	70-130
4-Bromofluorobenzene	104	70-130



Air Toxics

Client Sample ID: SVMP-02S-3.5(052918)

Lab ID#: 1806043-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a060617	Date of Collection:	5/29/18 3:20:00 PM
Dil. Factor:	2.49	Date of Analysis:	6/6/18 07:40 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.2	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Trichloroethene	1.2	Not Detected	6.7	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Tetrachloroethene	1.2	Not Detected	8.4	Not Detected
1,4-Dioxane	5.0	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	87	70-130
4-Bromofluorobenzene	106	70-130



Air Toxics

Client Sample ID: SVMP-03D-7(052918)

Lab ID#: 1806043-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a060618	Date of Collection:	5/29/18 4:36:00 PM
Dil. Factor:	2.50	Date of Analysis:	6/6/18 08:06 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.2	Not Detected
1,1-Dichloroethene	1.2	Not Detected	5.0	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	5.0	Not Detected
Trichloroethene	1.2	Not Detected	6.7	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	5.0	Not Detected
Tetrachloroethene	1.2	Not Detected	8.5	Not Detected
1,4-Dioxane	5.0	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	86	70-130
4-Bromofluorobenzene	104	70-130



Air Toxics

Client Sample ID: SVMP-03S-3.5(052918)

Lab ID#: 1806043-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a060619	Date of Collection:	5/29/18 5:05:00 PM
Dil. Factor:	2.77	Date of Analysis:	6/6/18 08:33 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.4	Not Detected	3.5	Not Detected
1,1-Dichloroethene	1.4	Not Detected	5.5	Not Detected
cis-1,2-Dichloroethene	1.4	Not Detected	5.5	Not Detected
Trichloroethene	1.4	Not Detected	7.4	Not Detected
trans-1,2-Dichloroethene	1.4	Not Detected	5.5	Not Detected
Tetrachloroethene	1.4	Not Detected	9.4	Not Detected
1,4-Dioxane	5.5	Not Detected	20	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	88	70-130
4-Bromofluorobenzene	104	70-130



Air Toxics

Client Sample ID: SVMP-18-3(053018)

Lab ID#: 1806043-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a060620	Date of Collection:	5/30/18 10:00:00 AM
Dil. Factor:	2.38	Date of Analysis:	6/6/18 08:59 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.1	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	88	70-130
4-Bromofluorobenzene	106	70-130



Air Toxics

Client Sample ID: SVMP-24-4(053018)

Lab ID#: 1806043-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a060621	Date of Collection:	5/30/18 11:00:00 AM
Dil. Factor:	2.34	Date of Analysis:	6/6/18 09:25 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrachloroethene	1.2	Not Detected	7.9	Not Detected
1,4-Dioxane	4.7	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	86	70-130
4-Bromofluorobenzene	106	70-130



Air Toxics

Client Sample ID: SVMP-21-2(053018)

Lab ID#: 1806043-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a060622	Date of Collection:	5/30/18 12:18:00 PM
Dil. Factor:	2.45	Date of Analysis:	6/6/18 09:52 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.6	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrachloroethene	1.2	Not Detected	8.3	Not Detected
1,4-Dioxane	4.9	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	103	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1806043-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a060605	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	6/6/18 11:53 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	87	70-130
4-Bromofluorobenzene	103	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1806043-11A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a060602	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/6/18 10:06 AM

Compound	%Recovery
Vinyl Chloride	92
1,1-Dichloroethene	98
cis-1,2-Dichloroethene	101
Trichloroethene	100
trans-1,2-Dichloroethene	100
Tetrachloroethene	107
1,4-Dioxane	88

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	90	70-130
4-Bromofluorobenzene	108	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 1806043-12A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a060603	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/6/18 10:31 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	91	70-130
1,1-Dichloroethene	94	70-130
cis-1,2-Dichloroethene	88	70-130
Trichloroethene	105	70-130
trans-1,2-Dichloroethene	108	70-130
Tetrachloroethene	106	70-130
1,4-Dioxane	89	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	87	70-130
4-Bromofluorobenzene	106	70-130

Client Sample ID: LCSD

Lab ID#: 1806043-12AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a060604	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/6/18 10:55 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	92	70-130
1,1-Dichloroethene	93	70-130
cis-1,2-Dichloroethene	89	70-130
Trichloroethene	103	70-130
trans-1,2-Dichloroethene	106	70-130
Tetrachloroethene	105	70-130
1,4-Dioxane	85	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	88	70-130
4-Bromofluorobenzene	105	70-130

9/1/2018

Mr. Gustan Taylor
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: FORD LTP
Project #: MI001454.0004.00003
Workorder #: 1808626


Dear Mr. Gustan Taylor

The following report includes the data for the above referenced project for sample(s) received on 8/27/2018 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,


Ausha Scott
Project Manager

WORK ORDER #: 1808626

Work Order Summary

CLIENT:	Mr. Gustan Taylor Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	248.994.2294	P.O. #	MI001454.0004.0001B
FAX:		PROJECT #	MI001454.0004.00003 FORD LTP
DATE RECEIVED:	08/27/2018	CONTACT:	Ausha Scott
DATE COMPLETED:	09/01/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SVMP-4-3.5(082318)	TO-15	5.5 "Hg	15 psi
02A	SVMP-8-3.5(082318)	TO-15	5.0 "Hg	15 psi
03A	SVMP-9-4(082318)	TO-15	5.5 "Hg	15 psi
04A	SVMP-10-3(082318)	TO-15	5.5 "Hg	15 psi
05A	SVMP-21-2(082418)	TO-15	5.0 "Hg	15 psi
06A	SVMP-14-2(082418)	TO-15	4.5 "Hg	15 psi
07A	SVMP-13-2(082418)	TO-15	5.0 "Hg	15 psi
08A	SVMP-15-2(082418)	TO-15	5.0 "Hg	15 psi
09A	SVMP-16-2(082418)	TO-15	6.0 "Hg	15 psi
10A	SVMP-17-2(082418)	TO-15	5.5 "Hg	15 psi
11A	SVMP-22-3(082118)	TO-15	4.5 "Hg	14.8 psi
12A	SVMP-23-3(082218)	TO-15	3.9 "Hg	15.1 psi
13A	SVMP-24-4(082218)	TO-15	4.5 "Hg	15.1 psi
14A	SVMP-18-3(082218)	TO-15	6.9 "Hg	14.5 psi
15A	SVMP-19-3(082218)	TO-15	3.3 "Hg	14.9 psi
16A	SVMP-20-3(082218)	TO-15	4.5 "Hg	14.8 psi
17A	SVMP-7-3.5(082318)	TO-15	4.3 "Hg	15.4 psi
18A	SVMP-6-4.5(082318)	TO-15	3.7 "Hg	14.9 psi
19A	DUP-1(082318)	TO-15	8.4 "Hg	14.9 psi
20A	SVMP-5-4.5(082318)	TO-15	3.9 "Hg	14.8 psi
21A	Lab Blank	TO-15	NA	NA
22A	CCV	TO-15	NA	NA
23A	LCS	TO-15	NA	NA

Continued on next page

WORK ORDER #: 1808626

Work Order Summary

CLIENT: Mr. Gustan Taylor
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi, MI 48377

PHONE: 248.994.2294

FAX:

DATE RECEIVED: 08/27/2018

DATE COMPLETED: 09/01/2018

BILL TO: Accounts Payable
Arcadis U.S., Inc.
630 Plaza Drive
Suite 600
Highlands Ranch, CO 80129

P.O. # MI001454.0004.0001B

PROJECT # MI001454.0004.00003 FORD LTP

CONTACT: Ausha Scott

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
23AA	LCSD	TO-15	NA	NA

CERTIFIED BY: _____



Technical Director

DATE: 09/01/18

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1808626

Twenty 1 Liter Summa Canister samples were received on August 27, 2018. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

The Chain of Custody (COC) information for samples SVMP-23-3(082218) and SVMP-24-4(082218) did not match the entries on the sample tags with regard to sample identification. Therefore the information on the sample tags was used to process and report the samples.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

Summary of Detected Compounds EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SVMP-4-3.5(082318)

Lab ID#: 1808626-01A

No Detections Were Found.

Client Sample ID: SVMP-8-3.5(082318)

Lab ID#: 1808626-02A

No Detections Were Found.

Client Sample ID: SVMP-9-4(082318)

Lab ID#: 1808626-03A

No Detections Were Found.

Client Sample ID: SVMP-10-3(082318)

Lab ID#: 1808626-04A

No Detections Were Found.

Client Sample ID: SVMP-21-2(082418)

Lab ID#: 1808626-05A

No Detections Were Found.

Client Sample ID: SVMP-14-2(082418)

Lab ID#: 1808626-06A

No Detections Were Found.

Client Sample ID: SVMP-13-2(082418)

Lab ID#: 1808626-07A

No Detections Were Found.

Client Sample ID: SVMP-15-2(082418)

Lab ID#: 1808626-08A

No Detections Were Found.

Client Sample ID: SVMP-16-2(082418)

Lab ID#: 1808626-09A

Summary of Detected Compounds EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SVMP-16-2(082418)

Lab ID#: 1808626-09A

No Detections Were Found.

Client Sample ID: SVMP-17-2(082418)

Lab ID#: 1808626-10A

No Detections Were Found.

Client Sample ID: SVMP-22-3(082118)

Lab ID#: 1808626-11A

No Detections Were Found.

Client Sample ID: SVMP-23-3(082218)

Lab ID#: 1808626-12A

No Detections Were Found.

Client Sample ID: SVMP-24-4(082218)

Lab ID#: 1808626-13A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	1.2	1.3	6.4	6.9

Client Sample ID: SVMP-18-3(082218)

Lab ID#: 1808626-14A

No Detections Were Found.

Client Sample ID: SVMP-19-3(082218)

Lab ID#: 1808626-15A

No Detections Were Found.

Client Sample ID: SVMP-20-3(082218)

Lab ID#: 1808626-16A

No Detections Were Found.



**Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN**

Client Sample ID: SVMP-7-3.5(082318)

Lab ID#: 1808626-17A

No Detections Were Found.

Client Sample ID: SVMP-6-4.5(082318)

Lab ID#: 1808626-18A

No Detections Were Found.

Client Sample ID: DUP-1(082318)

Lab ID#: 1808626-19A

No Detections Were Found.

Client Sample ID: SVMP-5-4.5(082318)

Lab ID#: 1808626-20A

No Detections Were Found.



Air Toxics

Client Sample ID: SVMP-4-3.5(082318)

Lab ID#: 1808626-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a083006	Date of Collection:	8/23/18 12:15:00 PM
Dil. Factor:	2.47	Date of Analysis:	8/30/18 03:12 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.2	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Trichloroethene	1.2	Not Detected	6.6	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Tetrachloroethene	1.2	Not Detected	8.4	Not Detected
1,4-Dioxane	4.9	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	102	70-130



Air Toxics

Client Sample ID: SVMP-8-3.5(082318)

Lab ID#: 1808626-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a083007	Date of Collection:	8/23/18 1:22:00 PM
Dil. Factor:	2.42	Date of Analysis:	8/30/18 03:38 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.5	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrachloroethene	1.2	Not Detected	8.2	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	104	70-130

Client Sample ID: SVMP-9-4(082318)

Lab ID#: 1808626-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a083008	Date of Collection:	8/23/18 2:35:00 PM
Dil. Factor:	2.47	Date of Analysis:	8/30/18 04:04 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.2	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Trichloroethene	1.2	Not Detected	6.6	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Tetrachloroethene	1.2	Not Detected	8.4	Not Detected
1,4-Dioxane	4.9	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	96	70-130
4-Bromofluorobenzene	104	70-130



Air Toxics

Client Sample ID: SVMP-10-3(082318)

Lab ID#: 1808626-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a083009	Date of Collection: 8/23/18 3:35:00 PM
Dil. Factor:	2.47	Date of Analysis: 8/30/18 04:31 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.2	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Trichloroethene	1.2	Not Detected	6.6	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Tetrachloroethene	1.2	Not Detected	8.4	Not Detected
1,4-Dioxane	4.9	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	102	70-130



Air Toxics

Client Sample ID: SVMP-21-2(082418)

Lab ID#: 1808626-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a083010	Date of Collection: 8/24/18 9:12:00 AM
Dil. Factor:	2.42	Date of Analysis: 8/30/18 04:57 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.5	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrachloroethene	1.2	Not Detected	8.2	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	102	70-130



Air Toxics

Client Sample ID: SVMP-14-2(082418)

Lab ID#: 1808626-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a083011	Date of Collection:	8/24/18 10:16:00 AM
Dil. Factor:	2.38	Date of Analysis:	8/30/18 05:23 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.1	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	96	70-130
4-Bromofluorobenzene	101	70-130



Air Toxics

Client Sample ID: SVMP-13-2(082418)

Lab ID#: 1808626-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a083012	Date of Collection: 8/24/18 10:53:00 AM
Dil. Factor:	2.42	Date of Analysis: 8/30/18 05:50 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.5	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrachloroethene	1.2	Not Detected	8.2	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	104	70-130



Air Toxics

Client Sample ID: SVMP-15-2(082418)

Lab ID#: 1808626-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a083013	Date of Collection:	8/24/18 12:20:00 PM
Dil. Factor:	2.42	Date of Analysis:	8/30/18 06:16 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.5	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrachloroethene	1.2	Not Detected	8.2	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	102	70-130
4-Bromofluorobenzene	103	70-130



Air Toxics

Client Sample ID: SVMP-16-2(082418)

Lab ID#: 1808626-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a083014	Date of Collection:	8/24/18 2:16:00 PM
Dil. Factor:	2.52	Date of Analysis:	8/30/18 06:43 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.3	Not Detected	3.2	Not Detected
1,1-Dichloroethene	1.3	Not Detected	5.0	Not Detected
cis-1,2-Dichloroethene	1.3	Not Detected	5.0	Not Detected
Trichloroethene	1.3	Not Detected	6.8	Not Detected
trans-1,2-Dichloroethene	1.3	Not Detected	5.0	Not Detected
Tetrachloroethene	1.3	Not Detected	8.5	Not Detected
1,4-Dioxane	5.0	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	102	70-130



Air Toxics

Client Sample ID: SVMP-17-2(082418)

Lab ID#: 1808626-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a083015	Date of Collection: 8/24/18 2:50:00 PM
Dil. Factor:	2.47	Date of Analysis: 8/30/18 07:09 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.2	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Trichloroethene	1.2	Not Detected	6.6	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Tetrachloroethene	1.2	Not Detected	8.4	Not Detected
1,4-Dioxane	4.9	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	102	70-130



Air Toxics

Client Sample ID: SVMP-22-3(082118)

Lab ID#: 1808626-11A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a083016	Date of Collection: 8/21/18 10:59:00 AM
Dil. Factor:	2.36	Date of Analysis: 8/30/18 09:16 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.0	Not Detected
1,4-Dioxane	4.7	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	102	70-130



Air Toxics

Client Sample ID: SVMP-23-3(082218)

Lab ID#: 1808626-12A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a083017	Date of Collection: 8/22/18 1:12:00 PM
Dil. Factor:	2.33	Date of Analysis: 8/30/18 09:42 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrachloroethene	1.2	Not Detected	7.9	Not Detected
1,4-Dioxane	4.7	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	103	70-130



Air Toxics

Client Sample ID: SVMP-24-4(082218)

Lab ID#: 1808626-13A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a083018	Date of Collection:	8/22/18 2:10:00 PM
Dil. Factor:	2.38	Date of Analysis:	8/30/18 10:08 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	1.3	6.4	6.9
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.1	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	102	70-130



Air Toxics

Client Sample ID: SVMP-18-3(082218)

Lab ID#: 1808626-14A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a083019	Date of Collection:	8/22/18 3:10:00 PM
Dil. Factor:	2.58	Date of Analysis:	8/30/18 10:35 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.3	Not Detected	3.3	Not Detected
1,1-Dichloroethene	1.3	Not Detected	5.1	Not Detected
cis-1,2-Dichloroethene	1.3	Not Detected	5.1	Not Detected
Trichloroethene	1.3	Not Detected	6.9	Not Detected
trans-1,2-Dichloroethene	1.3	Not Detected	5.1	Not Detected
Tetrachloroethene	1.3	Not Detected	8.8	Not Detected
1,4-Dioxane	5.2	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	103	70-130
4-Bromofluorobenzene	103	70-130



Air Toxics

Client Sample ID: SVMP-19-3(082218)

Lab ID#: 1808626-15A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a083020	Date of Collection:	8/22/18 4:10:00 PM
Dil. Factor:	2.26	Date of Analysis:	8/30/18 11:01 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.5	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Trichloroethene	1.1	Not Detected	6.1	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Tetrachloroethene	1.1	Not Detected	7.7	Not Detected
1,4-Dioxane	4.5	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	105	70-130
4-Bromofluorobenzene	103	70-130



Air Toxics

Client Sample ID: SVMP-20-3(082218)

Lab ID#: 1808626-16A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a083021	Date of Collection:	8/22/18 5:10:00 PM
Dil. Factor:	2.36	Date of Analysis:	8/30/18 11:27 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.0	Not Detected
1,4-Dioxane	4.7	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	103	70-130
4-Bromofluorobenzene	104	70-130



Air Toxics

Client Sample ID: SVMP-7-3.5(082318)

Lab ID#: 1808626-17A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a083022	Date of Collection:	8/23/18 9:12:00 AM
Dil. Factor:	2.39	Date of Analysis:	8/30/18 11:54 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.1	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	102	70-130



Air Toxics

Client Sample ID: SVMP-6-4.5(082318)

Lab ID#: 1808626-18A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a083023	Date of Collection:	8/23/18 10:30:00 AM
Dil. Factor:	2.30	Date of Analysis:	8/31/18 12:20 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Trichloroethene	1.2	Not Detected	6.2	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrachloroethene	1.2	Not Detected	7.8	Not Detected
1,4-Dioxane	4.6	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	95	70-130
4-Bromofluorobenzene	102	70-130



Air Toxics

Client Sample ID: DUP-1(082318)

Lab ID#: 1808626-19A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a083024	Date of Collection:	8/23/18
Dil. Factor:	2.80	Date of Analysis:	8/31/18 12:47 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.4	Not Detected	3.6	Not Detected
1,1-Dichloroethene	1.4	Not Detected	5.6	Not Detected
cis-1,2-Dichloroethene	1.4	Not Detected	5.6	Not Detected
Trichloroethene	1.4	Not Detected	7.5	Not Detected
trans-1,2-Dichloroethene	1.4	Not Detected	5.6	Not Detected
Tetrachloroethene	1.4	Not Detected	9.5	Not Detected
1,4-Dioxane	5.6	Not Detected	20	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	103	70-130



Air Toxics

Client Sample ID: SVMP-5-4.5(082318)

Lab ID#: 1808626-20A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a083025	Date of Collection: 8/23/18 10:55:00 AM
Dil. Factor:	2.31	Date of Analysis: 8/31/18 01:13 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Trichloroethene	1.2	Not Detected	6.2	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrachloroethene	1.2	Not Detected	7.8	Not Detected
1,4-Dioxane	4.6	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	103	70-130

Client Sample ID: Lab Blank

Lab ID#: 1808626-21A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a083005	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/30/18 12:42 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	103	70-130

Client Sample ID: CCV

Lab ID#: 1808626-22A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a083002	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/30/18 10:55 AM

Compound	%Recovery
Vinyl Chloride	113
1,1-Dichloroethene	113
cis-1,2-Dichloroethene	112
Trichloroethene	108
trans-1,2-Dichloroethene	110
Tetrachloroethene	104
1,4-Dioxane	102

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	106	70-130

Client Sample ID: LCS

Lab ID#: 1808626-23A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a083003	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/30/18 11:31 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	113	70-130
1,1-Dichloroethene	108	70-130
cis-1,2-Dichloroethene	101	70-130
Trichloroethene	107	70-130
trans-1,2-Dichloroethene	119	70-130
Tetrachloroethene	101	70-130
1,4-Dioxane	101	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	104	70-130

Client Sample ID: LCSD

Lab ID#: 1808626-23AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a083004	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/30/18 11:55 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	116	70-130
1,1-Dichloroethene	111	70-130
cis-1,2-Dichloroethene	103	70-130
Trichloroethene	106	70-130
trans-1,2-Dichloroethene	122	70-130
Tetrachloroethene	104	70-130
1,4-Dioxane	105	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	107	70-130

11/18/2018
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #: MI001454.0004.00003
Workorder #: 1811277

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 11/13/2018 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1811277

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0004.0001B
FAX:		PROJECT #	MI001454.0004.00003 Ford LTP
DATE RECEIVED:	11/13/2018	CONTACT:	Ausha Scott
DATE COMPLETED:	11/18/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SVMP-12-3.5(110618)	TO-15	4.9 "Hg	15.2 psi
02A	SVMP-01D-7(110618)	TO-15	2.8 "Hg	15.6 psi
03A	SVMP-01S-3.5(110618)	TO-15	3.7 "Hg	15.5 psi
04A	SVMP-02S-4.5(110718)	TO-15	3.1 "Hg	15.7 psi
05A	SVMP-02D-8.5(110718)	TO-15	3.3 "Hg	15.8 psi
06A	SVMP-03S-3.5(110718)	TO-15	3.1 "Hg	15.4 psi
07A	SVMP-03D-7(110718)	TO-15	3.1 "Hg	14.5 psi
08A	SVMP-18-3(110718)	TO-15	3.3 "Hg	15.4 psi
09A	Lab Blank	TO-15	NA	NA
10A	CCV	TO-15	NA	NA
11A	LCS	TO-15	NA	NA
11AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 11/18/18

Certification numbers: AZ Licensure AZ0775, FL NELAP - E8 , LA NELAP - 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP CA009332018-10, VA NELAP - 9505, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005-011, Effective date: 10/18/2018, Expiration date: 10/17/2019.

Eurofins Air Toxics LLC. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1811277

Eight 1 Liter Summa Canister samples were received on November 13, 2018. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified (0.2 ppbv for compounds reported at 0.5 ppbv and 0.8 ppbv for compounds reported at 2.0 ppbv) may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-12-3.5(110618)	Date/Time Analyzed:	11/16/18 10:31 PM
Lab ID:	1811277-01A	Dilution Factor:	2.43
Date/Time Collected:	11/6/18 02:25 PM	Instrument/Filename:	msda.i / a111617
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.8	4.8	Not Detected
1,4-Dioxane	123-91-1	3.5	8.8	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.8	4.8	Not Detected
Tetrachloroethene	127-18-4	1.5	6.6	8.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.3	3.8	4.8	Not Detected
Trichloroethene	79-01-6	2.1	5.2	6.5	Not Detected
Vinyl Chloride	75-01-4	1.2	2.5	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-01D-7(110618)	Date/Time Analyzed:	11/16/18 10:57 PM
Lab ID:	1811277-02A	Dilution Factor:	2.27
Date/Time Collected:	11/6/18 03:19 PM	Instrument/Filename:	msda.i / a111618
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.6	4.5	Not Detected
1,4-Dioxane	123-91-1	3.3	8.2	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.6	4.5	Not Detected
Tetrachloroethene	127-18-4	1.4	6.2	7.7	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.3	3.6	4.5	Not Detected
Trichloroethene	79-01-6	2.0	4.9	6.1	Not Detected
Vinyl Chloride	75-01-4	1.1	2.3	2.9	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	112
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: SVMP-01S-3.5(110618)
Lab ID: 1811277-03A
Date/Time Collected: 11/6/18 03:26 PM
Media: 1 Liter Summa Canister

Date/Time Analyzed: 11/16/18 11:24 PM
Dilution Factor: 2.34
Instrument/Filename: msda.i / a111619

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.7	4.6	Not Detected
1,4-Dioxane	123-91-1	3.4	8.4	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.7	4.6	Not Detected
Tetrachloroethene	127-18-4	1.4	6.3	7.9	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.3	3.7	4.6	Not Detected
Trichloroethene	79-01-6	2.0	5.0	6.3	Not Detected
Vinyl Chloride	75-01-4	1.1	2.4	3.0	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	103

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-02S-4.5(110718)	Date/Time Analyzed:	11/16/18 11:50 PM
Lab ID:	1811277-04A	Dilution Factor:	2.31
Date/Time Collected:	11/7/18 08:26 AM	Instrument/Filename:	msda.i / a111620
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.7	4.6	Not Detected
1,4-Dioxane	123-91-1	3.3	8.3	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.7	4.6	Not Detected
Tetrachloroethene	127-18-4	1.4	6.3	7.8	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.3	3.7	4.6	Not Detected
Trichloroethene	79-01-6	2.0	5.0	6.2	Not Detected
Vinyl Chloride	75-01-4	1.1	2.4	3.0	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	112
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SVMP-02D-8.5(110718)	Date/Time Analyzed:	11/17/18 12:17 AM
Lab ID:	1811277-05A	Dilution Factor:	2.33
Date/Time Collected:	11/7/18 08:26 AM	Instrument/Filename:	msda.i / a111621
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.7	4.6	Not Detected
1,4-Dioxane	123-91-1	3.4	8.4	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.7	4.6	Not Detected
Tetrachloroethene	127-18-4	1.4	6.3	7.9	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.3	3.7	4.6	Not Detected
Trichloroethene	79-01-6	2.0	5.0	6.3	Not Detected
Vinyl Chloride	75-01-4	1.1	2.4	3.0	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	114
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-03S-3.5(110718)	Date/Time Analyzed:	11/17/18 12:43 AM
Lab ID:	1811277-06A	Dilution Factor:	2.28
Date/Time Collected:	11/7/18 09:12 AM	Instrument/Filename:	msda.i / a111622
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.6	4.5	Not Detected
1,4-Dioxane	123-91-1	3.3	8.2	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.6	4.5	Not Detected
Tetrachloroethene	127-18-4	1.4	6.2	7.7	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.3	3.6	4.5	Not Detected
Trichloroethene	79-01-6	2.0	4.9	6.1	Not Detected
Vinyl Chloride	75-01-4	1.1	2.3	2.9	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-03D-7(110718)	Date/Time Analyzed:	11/17/18 01:09 AM
Lab ID:	1811277-07A	Dilution Factor:	2.22
Date/Time Collected:	11/7/18 09:16 AM	Instrument/Filename:	msda.i / a111623
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.5	4.4	Not Detected
1,4-Dioxane	123-91-1	3.2	8.0	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.5	4.4	Not Detected
Tetrachloroethene	127-18-4	1.4	6.0	7.5	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.2	3.5	4.4	Not Detected
Trichloroethene	79-01-6	1.9	4.8	6.0	Not Detected
Vinyl Chloride	75-01-4	1.1	2.3	2.8	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	91
4-Bromofluorobenzene	460-00-4	70-130	114
Toluene-d8	2037-26-5	70-130	103

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-18-3(110718)	Date/Time Analyzed:	11/17/18 01:36 AM
Lab ID:	1811277-08A	Dilution Factor:	2.30
Date/Time Collected:	11/7/18 11:12 AM	Instrument/Filename:	msda.i / a111624
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.6	4.6	Not Detected
1,4-Dioxane	123-91-1	3.3	8.3	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.6	4.6	Not Detected
Tetrachloroethene	127-18-4	1.4	6.2	7.8	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.3	3.6	4.6	Not Detected
Trichloroethene	79-01-6	2.0	4.9	6.2	Not Detected
Vinyl Chloride	75-01-4	1.1	2.4	2.9	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	111
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	11/16/18 01:25 PM
Lab ID:	1811277-09A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a111605c
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.75	1.6	2.0	Not Detected
1,4-Dioxane	123-91-1	1.4	3.6	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.59	1.6	2.0	Not Detected
Tetrachloroethene	127-18-4	0.61	2.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.56	1.6	2.0	Not Detected
Trichloroethene	79-01-6	0.86	2.1	2.7	Not Detected
Vinyl Chloride	75-01-4	0.48	1.0	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	109
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	CCV	Date/Time Analyzed:	11/16/18 11:32 AM
Lab ID:	1811277-10A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a111602
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	98
1,4-Dioxane	123-91-1	92
cis-1,2-Dichloroethene	156-59-2	101
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	99
Trichloroethene	79-01-6	99
Vinyl Chloride	75-01-4	90

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	112
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCS	Date/Time Analyzed:	11/16/18 12:11 PM
Lab ID:	1811277-11A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a111603
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	95
1,4-Dioxane	123-91-1	93
cis-1,2-Dichloroethene	156-59-2	94
Tetrachloroethene	127-18-4	100
trans-1,2-Dichloroethene	156-60-5	111
Trichloroethene	79-01-6	101
Vinyl Chloride	75-01-4	92

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	109
Toluene-d8	2037-26-5	70-130	101

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	11/16/18 12:37 PM
Lab ID:	1811277-11AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a111604
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	101
1,4-Dioxane	123-91-1	94
cis-1,2-Dichloroethene	156-59-2	94
Tetrachloroethene	127-18-4	101
trans-1,2-Dichloroethene	156-60-5	110
Trichloroethene	79-01-6	98
Vinyl Chloride	75-01-4	94

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	113
Toluene-d8	2037-26-5	70-130	99

* % Recovery is calculated using unrounded analytical results.

3/14/2019

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #: MI001454.0006
Workorder #: 1903165

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 3/7/2019 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1903165

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0004.0001B
FAX:		PROJECT #	MI001454.0006 Ford LTP
DATE RECEIVED:	03/07/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	03/14/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SVMP-09-4_030519	TO-15	4.1 "Hg	15.6 psi
02A	SVMP-04-3.5_030519	TO-15	9.2 "Hg	15.9 psi
03A	SVMP-18-3_030519	TO-15	7.8 "Hg	16 psi
04A	SVMP-19-3_030519	TO-15	5.5 "Hg	14.7 psi
05A	DUP-01	TO-15	6.7 "Hg	16.2 psi
06A	Lab Blank	TO-15	NA	NA
06B	Lab Blank	TO-15	NA	NA
07A	CCV	TO-15	NA	NA
07B	CCV	TO-15	NA	NA
08A	LCS	TO-15	NA	NA
08AA	LCSD	TO-15	NA	NA
08B	LCS	TO-15	NA	NA
08BB	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 03/14/19

Certification numbers: AZ Licensure AZ0775, FL NELAP - E8 , LA NELAP - 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP CA009332018-10, VA NELAP - 9505, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005-011, Effective date: 10/18/2018, Expiration date: 10/17/2019.

Eurofins Air Toxics LLC. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1903165

Five 1 Liter Summa Canister (100% Certified) samples were received on March 07, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per project specific client request the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. All The canisters used for this project have been certified to the Reporting Limit for the target analytes included in this workorder. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-09-4_030519	Date/Time Analyzed:	3/13/19 03:31 AM
Lab ID:	1903165-01A	Dilution Factor:	2.39
Date/Time Collected:	3/5/19 10:46 AM	Instrument/Filename:	msda.i / a031228
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.8	4.7	Not Detected
1,4-Dioxane	123-91-1	3.4	8.6	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.8	4.7	Not Detected
Tetrachloroethene	127-18-4	1.4	6.5	8.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.3	3.8	4.7	Not Detected
Trichloroethene	79-01-6	2.0	5.1	6.4	Not Detected
Vinyl Chloride	75-01-4	1.2	2.4	3.0	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-04-3.5_030519	Date/Time Analyzed:	3/13/19 03:58 AM
Lab ID:	1903165-02A	Dilution Factor:	3.00
Date/Time Collected:	3/5/19 12:23 PM	Instrument/Filename:	msda.i / a031229
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.3	4.8	5.9	Not Detected
1,4-Dioxane	123-91-1	4.3	11	22	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.8	4.8	5.9	Not Detected
Tetrachloroethene	127-18-4	1.8	8.1	10	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.7	4.8	5.9	Not Detected
Trichloroethene	79-01-6	2.6	6.4	8.1	Not Detected
Vinyl Chloride	75-01-4	1.4	3.1	3.8	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	SVMP-18-3_030519	Date/Time Analyzed:	3/13/19 04:24 AM
Lab ID:	1903165-03A	Dilution Factor:	2.82
Date/Time Collected:	3/5/19 02:06 PM	Instrument/Filename:	msda.i / a031230
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.1	4.5	5.6	Not Detected
1,4-Dioxane	123-91-1	4.1	10	20	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.7	4.5	5.6	Not Detected
Tetrachloroethene	127-18-4	1.7	7.6	9.6	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.6	4.5	5.6	Not Detected
Trichloroethene	79-01-6	2.4	6.1	7.6	Not Detected
Vinyl Chloride	75-01-4	1.4	2.9	3.6	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-19-3_030519	Date/Time Analyzed:	3/13/19 12:00 AM
Lab ID:	1903165-04A	Dilution Factor:	2.45
Date/Time Collected:	3/5/19 03:26 PM	Instrument/Filename:	msda.i / a031220
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.9	4.8	Not Detected
1,4-Dioxane	123-91-1	3.5	8.8	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.9	4.8	Not Detected
Tetrachloroethene	127-18-4	1.5	6.6	8.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.4	3.9	4.8	Not Detected
Trichloroethene	79-01-6	2.1	5.3	6.6	Not Detected
Vinyl Chloride	75-01-4	1.2	2.5	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	DUP-01	Date/Time Analyzed:	3/13/19 04:02 PM
Lab ID:	1903165-05A	Dilution Factor:	2.71
Date/Time Collected:	3/5/19 12:00 AM	Instrument/Filename:	msd3.i / 3031307
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.9	4.3	5.4	Not Detected
1,4-Dioxane	123-91-1	1.8	9.8	20	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.2	4.3	5.4	Not Detected
Tetrachloroethene	127-18-4	1.8	7.4	9.2	2.3 J
trans-1,2-Dichloroethene	156-60-5	1.6	4.3	5.4	Not Detected
Trichloroethene	79-01-6	1.2	5.8	7.3	3.7 J
Vinyl Chloride	75-01-4	1.9	2.8	3.5	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	85
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	3/12/19 12:50 PM
Lab ID:	1903165-06A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a031206c
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.75	1.6	2.0	Not Detected
1,4-Dioxane	123-91-1	1.4	3.6	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.59	1.6	2.0	Not Detected
Tetrachloroethene	127-18-4	0.61	2.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.56	1.6	2.0	Not Detected
Trichloroethene	79-01-6	0.86	2.1	2.7	Not Detected
Vinyl Chloride	75-01-4	0.48	1.0	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	3/13/19 12:29 PM
Lab ID:	1903165-06B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3031306a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.71	1.6	2.0	Not Detected
1,4-Dioxane	123-91-1	0.65	3.6	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.44	1.6	2.0	Not Detected
Tetrachloroethene	127-18-4	0.68	2.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.59	1.6	2.0	Not Detected
Trichloroethene	79-01-6	0.43	2.1	2.7	Not Detected
Vinyl Chloride	75-01-4	0.72	1.0	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	85
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	103

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	CCV	Date/Time Analyzed:	3/12/19 09:55 AM
Lab ID:	1903165-07A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a031202
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	105
1,4-Dioxane	123-91-1	96
cis-1,2-Dichloroethene	156-59-2	104
Tetrachloroethene	127-18-4	99
trans-1,2-Dichloroethene	156-60-5	101
Trichloroethene	79-01-6	98
Vinyl Chloride	75-01-4	102

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	CCV	Date/Time Analyzed:	3/13/19 10:25 AM
Lab ID:	1903165-07B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3031302
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	91
1,4-Dioxane	123-91-1	93
cis-1,2-Dichloroethene	156-59-2	85
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	91
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	91

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	82
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	103

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	3/12/19 11:07 AM
Lab ID:	1903165-08A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a031204
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	112
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	119
Tetrachloroethene	127-18-4	104
trans-1,2-Dichloroethene	156-60-5	93
Trichloroethene	79-01-6	104
Vinyl Chloride	75-01-4	107

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	101

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	3/12/19 12:02 PM
Lab ID:	1903165-08AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a031205
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	111
1,4-Dioxane	123-91-1	100
cis-1,2-Dichloroethene	156-59-2	121
Tetrachloroethene	127-18-4	101
trans-1,2-Dichloroethene	156-60-5	92
Trichloroethene	79-01-6	103
Vinyl Chloride	75-01-4	108

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	101

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCS	Date/Time Analyzed:	3/13/19 10:49 AM
Lab ID:	1903165-08B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3031303
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	96
1,4-Dioxane	123-91-1	96
cis-1,2-Dichloroethene	156-59-2	101
Tetrachloroethene	127-18-4	106
trans-1,2-Dichloroethene	156-60-5	84
Trichloroethene	79-01-6	99
Vinyl Chloride	75-01-4	99

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	86
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	98

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	3/13/19 11:11 AM
Lab ID:	1903165-08BB	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3031304
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	95
1,4-Dioxane	123-91-1	99
cis-1,2-Dichloroethene	156-59-2	103
Tetrachloroethene	127-18-4	106
trans-1,2-Dichloroethene	156-60-5	86
Trichloroethene	79-01-6	100
Vinyl Chloride	75-01-4	101

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	80
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	103

* % Recovery is calculated using unrounded analytical results.

7/3/2019

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP

Project #:

Workorder #: 1906590

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 6/27/2019 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1906590

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0004
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	06/27/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	07/03/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A(cancelled)	SVMP-26-4.0_062419	TO-15	10.5 "Hg	15 psi
02A	SVMP-08-3.5_062419	TO-15	8.0 "Hg	15 psi
03A	SVMP-09-4.0_062419	TO-15	7.5 "Hg	15 psi
04A	SVMP-07-3.5_062419	TO-15	7.0 "Hg	15 psi
05A	SVMP-06-4.5_062419	TO-15	6.5 "Hg	15 psi
06A	SVMP-05-4.5_062519	TO-15	7.0 "Hg	15 psi
07A	SVMP-21-2.0_062519	TO-15	6.0 "Hg	15 psi
08A	SVMP-18-3.0_062519	TO-15	7.0 "Hg	15 psi
09A	Lab Blank	TO-15	NA	NA
09B	Lab Blank	TO-15	NA	NA
10A	CCV	TO-15	NA	NA
10B	CCV	TO-15	NA	NA
11A	LCS	TO-15	NA	NA
11AA	LCSD	TO-15	NA	NA
11B	LCS	TO-15	NA	NA
11BB	LCSD	TO-15	NA	NA

CERTIFIED BY: 
 Technical Director

DATE: 07/03/19

Certification numbers: AZ Licensure AZ0775, FL NELAP - E8 , LA NELAP - 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP CA009332018-10, VA NELAP - 9505, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005-011, Effective date: 10/18/2018, Expiration date: 10/17/2019.

Eurofins Air Toxics LLC. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1906590

Eight 1 Liter Summa Canister (100% Certified) samples were received on June 27, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

Sample SVMP-26-4.0_062419 was cancelled on 7/1/2019 per client's request.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SVMP-08-3.5_062419	Date/Time Analyzed:	7/1/19 10:47 PM
Lab ID:	1906590-02A	Dilution Factor:	2.76
Date/Time Collected:	6/24/19 01:40 PM	Instrument/Filename:	msd17.i / 17070114
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.4	4.4	5.5	Not Detected
1,4-Dioxane	123-91-1	10	15	20	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.5	4.4	5.5	Not Detected
Tetrachloroethene	127-18-4	3.7	7.5	9.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.6	4.4	5.5	Not Detected
Trichloroethene	79-01-6	2.7	5.9	7.4	Not Detected
Vinyl Chloride	75-01-4	1.4	2.8	3.5	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	103

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-09-4.0_062419	Date/Time Analyzed:	7/1/19 11:15 PM
Lab ID:	1906590-03A	Dilution Factor:	2.69
Date/Time Collected:	6/24/19 02:23 PM	Instrument/Filename:	msd17.i / 17070115
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.3	4.3	5.3	Not Detected
1,4-Dioxane	123-91-1	10	14	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.5	4.3	5.3	Not Detected
Tetrachloroethene	127-18-4	3.6	7.3	9.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.6	4.3	5.3	Not Detected
Trichloroethene	79-01-6	2.6	5.8	7.2	Not Detected
Vinyl Chloride	75-01-4	1.4	2.8	3.4	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	SVMP-07-3.5_062419	Date/Time Analyzed:	7/1/19 11:44 PM
Lab ID:	1906590-04A	Dilution Factor:	2.64
Date/Time Collected:	6/24/19 04:14 PM	Instrument/Filename:	msd17.i / 17070116
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.3	4.2	5.2	Not Detected
1,4-Dioxane	123-91-1	10	14	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.5	4.2	5.2	Not Detected
Tetrachloroethene	127-18-4	3.6	7.2	9.0	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.6	4.2	5.2	Not Detected
Trichloroethene	79-01-6	2.6	5.7	7.1	Not Detected
Vinyl Chloride	75-01-4	1.3	2.7	3.4	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-06-4.5_062419	Date/Time Analyzed:	7/2/19 12:12 AM
Lab ID:	1906590-05A	Dilution Factor:	2.58
Date/Time Collected:	6/24/19 04:59 PM	Instrument/Filename:	msd17.i / 17070117
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.2	4.1	5.1	Not Detected
1,4-Dioxane	123-91-1	9.8	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	4.1	5.1	Not Detected
Tetrachloroethene	127-18-4	3.5	7.0	8.8	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.5	4.1	5.1	Not Detected
Trichloroethene	79-01-6	2.5	5.5	6.9	Not Detected
Vinyl Chloride	75-01-4	1.3	2.6	3.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	103

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-05-4.5_062519	Date/Time Analyzed:	7/2/19 12:40 AM
Lab ID:	1906590-06A	Dilution Factor:	2.64
Date/Time Collected:	6/25/19 10:03 AM	Instrument/Filename:	msd17.i / 17070118
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.3	4.2	5.2	Not Detected
1,4-Dioxane	123-91-1	10	14	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.5	4.2	5.2	Not Detected
Tetrachloroethene	127-18-4	3.6	7.2	9.0	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.6	4.2	5.2	Not Detected
Trichloroethene	79-01-6	2.6	5.7	7.1	Not Detected
Vinyl Chloride	75-01-4	1.3	2.7	3.4	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-21-2.0_062519	Date/Time Analyzed:	7/2/19 01:08 AM
Lab ID:	1906590-07A	Dilution Factor:	2.52
Date/Time Collected:	6/25/19 11:52 AM	Instrument/Filename:	msd17.i / 17070119
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.2	4.0	5.0	Not Detected
1,4-Dioxane	123-91-1	9.6	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	4.0	5.0	Not Detected
Tetrachloroethene	127-18-4	3.4	6.8	8.5	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.5	4.0	5.0	Not Detected
Trichloroethene	79-01-6	2.4	5.4	6.8	Not Detected
Vinyl Chloride	75-01-4	1.3	2.6	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-18-3.0_062519	Date/Time Analyzed:	7/2/19 03:41 PM
Lab ID:	1906590-08A	Dilution Factor:	2.64
Date/Time Collected:	6/25/19 12:50 PM	Instrument/Filename:	msd17.i / 17070208
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.3	4.2	5.2	Not Detected
1,4-Dioxane	123-91-1	10	14	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.5	4.2	5.2	Not Detected
Tetrachloroethene	127-18-4	3.6	7.2	9.0	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.6	4.2	5.2	Not Detected
Trichloroethene	79-01-6	2.6	5.7	7.1	Not Detected
Vinyl Chloride	75-01-4	1.3	2.7	3.4	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	7/1/19 02:50 PM
Lab ID:	1906590-09A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17070106a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.87	1.6	2.0	Not Detected
1,4-Dioxane	123-91-1	3.8	5.4	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.56	1.6	2.0	Not Detected
Tetrachloroethene	127-18-4	1.4	2.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.59	1.6	2.0	Not Detected
Trichloroethene	79-01-6	0.97	2.1	2.7	Not Detected
Vinyl Chloride	75-01-4	0.51	1.0	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	103

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	7/2/19 01:12 PM
Lab ID:	1906590-09B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17070207a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.87	1.6	2.0	Not Detected
1,4-Dioxane	123-91-1	3.8	5.4	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.56	1.6	2.0	Not Detected
Tetrachloroethene	127-18-4	1.4	2.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.59	1.6	2.0	Not Detected
Trichloroethene	79-01-6	0.97	2.1	2.7	Not Detected
Vinyl Chloride	75-01-4	0.51	1.0	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	CCV	Date/Time Analyzed:	7/1/19 10:01 AM
Lab ID:	1906590-10A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17070102
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	101
1,4-Dioxane	123-91-1	106
cis-1,2-Dichloroethene	156-59-2	116
Tetrachloroethene	127-18-4	97
trans-1,2-Dichloroethene	156-60-5	108
Trichloroethene	79-01-6	105
Vinyl Chloride	75-01-4	108

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	103

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	7/2/19 11:22 AM
Lab ID:	1906590-10B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17070203
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	107
1,4-Dioxane	123-91-1	107
cis-1,2-Dichloroethene	156-59-2	114
Tetrachloroethene	127-18-4	100
trans-1,2-Dichloroethene	156-60-5	113
Trichloroethene	79-01-6	106
Vinyl Chloride	75-01-4	112

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	103

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCS	Date/Time Analyzed:	7/1/19 10:28 AM
Lab ID:	1906590-11A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17070103
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	94
1,4-Dioxane	123-91-1	108
cis-1,2-Dichloroethene	156-59-2	122
Tetrachloroethene	127-18-4	98
trans-1,2-Dichloroethene	156-60-5	91
Trichloroethene	79-01-6	107
Vinyl Chloride	75-01-4	106

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	107

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	7/1/19 10:55 AM
Lab ID:	1906590-11AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17070104
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	90
1,4-Dioxane	123-91-1	104
cis-1,2-Dichloroethene	156-59-2	119
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	88
Trichloroethene	79-01-6	104
Vinyl Chloride	75-01-4	104

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	103

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCS	Date/Time Analyzed:	7/2/19 11:49 AM
Lab ID:	1906590-11B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17070204
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	102
1,4-Dioxane	123-91-1	106
cis-1,2-Dichloroethene	156-59-2	123
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	95
Trichloroethene	79-01-6	107
Vinyl Chloride	75-01-4	114

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	102

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	7/2/19 12:15 PM
Lab ID:	1906590-11BB	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17070205
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	100
1,4-Dioxane	123-91-1	105
cis-1,2-Dichloroethene	156-59-2	121
Tetrachloroethene	127-18-4	99
trans-1,2-Dichloroethene	156-60-5	96
Trichloroethene	79-01-6	106
Vinyl Chloride	75-01-4	110

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	101

* % Recovery is calculated using unrounded analytical results.

[REDACTED]

12/19/2018
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #: MI001454.0003
Workorder #: 1812240

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 12/12/2018 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

[REDACTED]


Ausha Scott
Project Manager

WORK ORDER #: 1812240

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0004.0001B
FAX:		PROJECT #	MI001454.0003 Ford LTP
DATE RECEIVED:	12/12/2018	CONTACT:	Ausha Scott
DATE COMPLETED:	12/19/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	IAF-34360Capitol-01_120618	Modified TO-15	6.5 "Hg	5 psi
02A	DUP-34360Capitol-01_120618	Modified TO-15	8.5 "Hg	5 psi
03A	IAB-34360Capitol-02_120618	Modified TO-15	7.0 "Hg	5 psi
04A	DUP-34360Capitol-02_120618	Modified TO-15	6.0 "Hg	5 psi
05A	IACS-34360Capitol-03_120618	Modified TO-15	6.5 "Hg	5 psi
06A	IAG-34360Capitol-04_120618	Modified TO-15	3.5 "Hg	5 psi
07A	AA-34360Capitol-01_120618	Modified TO-15	4.5 "Hg	5 psi
08A	DUP-34360Capitol-03_120618	Modified TO-15	4.0 "Hg	5 psi
09A	Lab Blank	Modified TO-15	NA	NA
09B	Lab Blank	Modified TO-15	NA	NA
10A	CCV	Modified TO-15	NA	NA
10B	CCV	Modified TO-15	NA	NA
11A	LCS	Modified TO-15	NA	NA
11AA	LCSD	Modified TO-15	NA	NA
11B	LCS	Modified TO-15	NA	NA
11BB	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 12/19/18

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 1812240

Eight 6 Liter Summa Canister (100% Certified) samples were received on December 12, 2018. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per project specific client request the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. All The canisters used for this project have been certified to the Reporting Limit for the target analytes included in this workorder. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

- B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).
- J - Estimated value.
- E - Exceeds instrument calibration range.
- S - Saturated peak.
- Q - Exceeds quality control limits.
- U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.
- UJ- Non-detected compound associated with low bias in the CCV
- N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-34360Capitol-01_120618	Date/Time Analyzed:	12/14/18 07:21 PM
Lab ID:	1812240-01A	Dilution Factor:	1.71
Date/Time Collected:	12/7/18 05:23 PM	Instrument/Filename:	msdv.i / v121413
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.33	0.61	0.68	Not Detected
1,4-Dioxane	123-91-1	0.36	0.55	0.62	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.41	0.61	0.68	Not Detected
Tetrachloroethene	127-18-4	0.58	1.0	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.57	0.61	0.68	Not Detected
Trichloroethene	79-01-6	0.42	0.83	0.92	Not Detected
Vinyl Chloride	75-01-4	0.33	0.39	0.44	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	99

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	DUP-34360Capitol-01_120618	Date/Time Analyzed:	12/14/18 08:58 PM
Lab ID:	1812240-02A	Dilution Factor:	1.87
Date/Time Collected:	12/7/18 12:00 AM	Instrument/Filename:	msdv.i / v121414
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.36	0.67	0.74	Not Detected
1,4-Dioxane	123-91-1	0.39	0.61	0.67	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.45	0.67	0.74	Not Detected
Tetrachloroethene	127-18-4	0.63	1.1	1.3	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.63	0.67	0.74	Not Detected
Trichloroethene	79-01-6	0.46	0.90	1.0	Not Detected
Vinyl Chloride	75-01-4	0.36	0.43	0.48	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	90
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP



Client ID:	IAB-34360Capitol-02_120618	Date/Time Analyzed:	12/14/18 09:35 PM
Lab ID:	1812240-03A	Dilution Factor:	1.75
Date/Time Collected:	12/7/18 05:25 PM	Instrument/Filename:	msdv.i / v121415
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.34	0.62	0.69	Not Detected
1,4-Dioxane	123-91-1	0.37	0.57	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.42	0.62	0.69	Not Detected
Tetrachloroethene	127-18-4	0.59	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.59	0.62	0.69	Not Detected
Trichloroethene	79-01-6	0.43	0.85	0.94	Not Detected
Vinyl Chloride	75-01-4	0.34	0.40	0.45	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	111
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	DUP-34360Capitol-02_120618	Date/Time Analyzed:	12/14/18 10:13 PM
Lab ID:	1812240-04A	Dilution Factor:	1.68
Date/Time Collected:	12/7/18 12:00 AM	Instrument/Filename:	msdv.i / v121416
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.32	0.60	0.67	Not Detected
1,4-Dioxane	123-91-1	0.35	0.54	0.60	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.40	0.60	0.67	Not Detected
Tetrachloroethene	127-18-4	0.57	1.0	1.1	1.0 J
trans-1,2-Dichloroethene	156-60-5	0.56	0.60	0.67	Not Detected
Trichloroethene	79-01-6	0.41	0.81	0.90	Not Detected
Vinyl Chloride	75-01-4	0.32	0.39	0.43	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	89
Toluene-d8	2037-26-5	70-130	97

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	IACS-34360Capitol-03_120618	Date/Time Analyzed:	12/14/18 10:53 PM
Lab ID:	1812240-05A	Dilution Factor:	1.70
Date/Time Collected:	12/7/18 06:17 PM	Instrument/Filename:	msdv.i / v121417
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.33	0.61	0.67	Not Detected
1,4-Dioxane	123-91-1	0.36	0.55	0.61	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.41	0.61	0.67	Not Detected
Tetrachloroethene	127-18-4	0.58	1.0	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.57	0.61	0.67	Not Detected
Trichloroethene	79-01-6	0.42	0.82	0.91	Not Detected
Vinyl Chloride	75-01-4	0.33	0.39	0.43	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	89
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAG-34360Capitol-04_120618	Date/Time Analyzed:	12/17/18 01:50 PM
Lab ID:	1812240-06A	Dilution Factor:	1.52
Date/Time Collected:	12/7/18 06:11 PM	Instrument/Filename:	msdv.i / v121709
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.29	0.54	0.60	Not Detected
1,4-Dioxane	123-91-1	0.32	0.49	0.55	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.36	0.54	0.60	Not Detected
Tetrachloroethene	127-18-4	0.51	0.93	1.0	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.51	0.54	0.60	Not Detected
Trichloroethene	79-01-6	0.38	0.74	0.82	Not Detected
Vinyl Chloride	75-01-4	0.29	0.35	0.39	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	107
4-Bromofluorobenzene	460-00-4	70-130	87
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-34360Capitol-01_120618	Date/Time Analyzed:	12/17/18 02:27 PM
Lab ID:	1812240-07A	Dilution Factor:	1.58
Date/Time Collected:	12/7/18 06:22 PM	Instrument/Filename:	msdv.i / v121710
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.30	0.56	0.63	Not Detected
1,4-Dioxane	123-91-1	0.33	0.51	0.57	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.38	0.56	0.63	Not Detected
Tetrachloroethene	127-18-4	0.53	0.96	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.53	0.56	0.63	Not Detected
Trichloroethene	79-01-6	0.39	0.76	0.85	Not Detected
Vinyl Chloride	75-01-4	0.31	0.36	0.40	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	88
Toluene-d8	2037-26-5	70-130	99

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	DUP-34360Capitol-03_120618	Date/Time Analyzed:	12/17/18 03:05 PM
Lab ID:	1812240-08A	Dilution Factor:	1.55
Date/Time Collected:	12/7/18 12:00 AM	Instrument/Filename:	msdv.i / v121711
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.30	0.55	0.61	Not Detected
1,4-Dioxane	123-91-1	0.32	0.50	0.56	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.37	0.55	0.61	Not Detected
Tetrachloroethene	127-18-4	0.52	0.95	1.0	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.52	0.55	0.61	Not Detected
Trichloroethene	79-01-6	0.38	0.75	0.83	Not Detected
Vinyl Chloride	75-01-4	0.30	0.36	0.40	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	111
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	12/14/18 01:14 PM
Lab ID:	1812240-09A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdv.i / v121406c
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.19	0.36	0.40	Not Detected
1,4-Dioxane	123-91-1	0.21	0.32	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.24	0.36	0.40	Not Detected
Tetrachloroethene	127-18-4	0.34	0.61	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.34	0.36	0.40	Not Detected
Trichloroethene	79-01-6	0.25	0.48	0.54	Not Detected
Vinyl Chloride	75-01-4	0.19	0.23	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	117
4-Bromofluorobenzene	460-00-4	70-130	80
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	12/17/18 12:52 PM
Lab ID:	1812240-09B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdv.i / v121708a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.19	0.36	0.40	Not Detected
1,4-Dioxane	123-91-1	0.21	0.32	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.24	0.36	0.40	Not Detected
Tetrachloroethene	127-18-4	0.34	0.61	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.34	0.36	0.40	Not Detected
Trichloroethene	79-01-6	0.25	0.48	0.54	Not Detected
Vinyl Chloride	75-01-4	0.19	0.23	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	111
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	104

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	12/14/18 09:46 AM
Lab ID:	1812240-10A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdv.i / v121402
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	102
1,4-Dioxane	123-91-1	82
cis-1,2-Dichloroethene	156-59-2	106
Tetrachloroethene	127-18-4	101
trans-1,2-Dichloroethene	156-60-5	102
Trichloroethene	79-01-6	93
Vinyl Chloride	75-01-4	123

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	104

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	12/17/18 08:50 AM
Lab ID:	1812240-10B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdv.i / v121702
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	97
1,4-Dioxane	123-91-1	83
cis-1,2-Dichloroethene	156-59-2	105
Tetrachloroethene	127-18-4	93
trans-1,2-Dichloroethene	156-60-5	99
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	117

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	81
Toluene-d8	2037-26-5	70-130	110

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	12/14/18 10:36 AM
Lab ID:	1812240-11A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdv.i / v121403
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	103
1,4-Dioxane	123-91-1	92
cis-1,2-Dichloroethene	156-59-2	102
Tetrachloroethene	127-18-4	112
trans-1,2-Dichloroethene	156-60-5	113
Trichloroethene	79-01-6	103
Vinyl Chloride	75-01-4	129

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	109

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	12/14/18 11:14 AM
Lab ID:	1812240-11AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdv.i / v121404
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	103
1,4-Dioxane	123-91-1	99
cis-1,2-Dichloroethene	156-59-2	107
Tetrachloroethene	127-18-4	113
trans-1,2-Dichloroethene	156-60-5	121
Trichloroethene	79-01-6	120
Vinyl Chloride	75-01-4	126

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	113

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	12/17/18 09:28 AM
Lab ID:	1812240-11B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdv.i / v121703
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	97
1,4-Dioxane	123-91-1	95
cis-1,2-Dichloroethene	156-59-2	99
Tetrachloroethene	127-18-4	101
trans-1,2-Dichloroethene	156-60-5	111
Trichloroethene	79-01-6	103
Vinyl Chloride	75-01-4	120

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	90
Toluene-d8	2037-26-5	70-130	114

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	12/17/18 10:05 AM
Lab ID:	1812240-11BB	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdv.i / v121704
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	94
1,4-Dioxane	123-91-1	90
cis-1,2-Dichloroethene	156-59-2	92
Tetrachloroethene	127-18-4	104
trans-1,2-Dichloroethene	156-60-5	108
Trichloroethene	79-01-6	102
Vinyl Chloride	75-01-4	115

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	113

* % Recovery is calculated using unrounded analytical results.

7/8/2019

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP Off-Site Sampling

Project #:

Workorder #: 1907009

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 7/1/2019 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1907009

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0004.00002
FAX:		PROJECT #	Ford LTP Off-Site Sampling
DATE RECEIVED:	07/01/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	07/08/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	AA-34360CAPITOL-01_062519	Modified TO-15	7.0 "Hg	5 psi
02A	IAB-34360CAPITOL-02_062519	Modified TO-15	6.5 "Hg	5 psi
03A	IAF-34360CAPITOL-01_062519	Modified TO-15	6.0 "Hg	5 psi
04A	DUP-34360CAPITOL-01_062519	Modified TO-15	6.5 "Hg	5 psi
05A	DUP-34360CAPITOL-02_062519	Modified TO-15	4.5 "Hg	5 psi
06A	IAG-34360CAPITOL-04_062519	Modified TO-15	7.5 "Hg	5 psi
07A	Lab Blank	Modified TO-15	NA	NA
08A	CCV	Modified TO-15	NA	NA
09A	LCS	Modified TO-15	NA	NA
09AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 07/08/19

Certification numbers: AZ Licensure AZ0775, FL NELAP - E8 , LA NELAP - 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP CA009332018-10, VA NELAP - 9505, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005-011, Effective date: 10/18/2018, Expiration date: 10/17/2019.

Eurofins Air Toxics LLC. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 1907009

Six 6 Liter Summa Canister (100% Cert Ambient) samples were received on July 01, 2019. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	AA-34360CAPITOL-01_062519	Date/Time Analyzed:	7/2/19 03:19 PM
Lab ID:	1907009-01A	Dilution Factor:	1.75
Date/Time Collected:	6/26/19 04:05 PM	Instrument/Filename:	msd21.i / 21070207
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.25	0.65	0.69	Not Detected
1,4-Dioxane	123-91-1	0.10	0.59	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.25	0.65	0.69	Not Detected
Tetrachloroethene	127-18-4	0.64	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.65	0.69	Not Detected
Trichloroethene	79-01-6	0.21	0.88	0.94	Not Detected
Vinyl Chloride	75-01-4	0.18	0.42	0.45	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	99

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	IAB-34360CAPITOL-02_062519	Date/Time Analyzed:	7/2/19 03:55 PM
Lab ID:	1907009-02A	Dilution Factor:	1.71
Date/Time Collected:	6/26/19 04:12 PM	Instrument/Filename:	msd21.i / 21070208
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.25	0.64	0.68	Not Detected
1,4-Dioxane	123-91-1	0.10	0.58	0.62	0.79
cis-1,2-Dichloroethene	156-59-2	0.24	0.64	0.68	Not Detected
Tetrachloroethene	127-18-4	0.62	1.1	1.2	0.97 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.64	0.68	Not Detected
Trichloroethene	79-01-6	0.21	0.86	0.92	0.25 J
Vinyl Chloride	75-01-4	0.18	0.41	0.44	0.22 J

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	98

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling



Client ID: IAF-34360CAPITOL-01_062519
Lab ID: 1907009-03A
Date/Time Collected: 6/26/19 04:11 PM
Media: 6 Liter Summa Canister (100% Cert Ambier)
Date/Time Analyzed: 7/2/19 04:31 PM
Dilution Factor: 1.68
Instrument/Filename: msd21.i / 21070209

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.24	0.63	0.67	Not Detected
1,4-Dioxane	123-91-1	0.10	0.57	0.60	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.24	0.63	0.67	Not Detected
Tetrachloroethene	127-18-4	0.61	1.1	1.1	1.1
trans-1,2-Dichloroethene	156-60-5	0.34	0.63	0.67	Not Detected
Trichloroethene	79-01-6	0.20	0.85	0.90	Not Detected
Vinyl Chloride	75-01-4	0.17	0.40	0.43	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	117
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	98

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	DUP-34360CAPITOL-01_062519	Date/Time Analyzed:	7/2/19 05:07 PM
Lab ID:	1907009-04A	Dilution Factor:	1.71
Date/Time Collected:	6/26/19 12:00 AM	Instrument/Filename:	msd21.i / 21070210
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.25	0.64	0.68	Not Detected
1,4-Dioxane	123-91-1	0.10	0.58	0.62	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.24	0.64	0.68	Not Detected
Tetrachloroethene	127-18-4	0.62	1.1	1.2	0.90 J
trans-1,2-Dichloroethene	156-60-5	0.35	0.64	0.68	Not Detected
Trichloroethene	79-01-6	0.21	0.86	0.92	0.27 J
Vinyl Chloride	75-01-4	0.18	0.41	0.44	0.22 J

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	99

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	DUP-34360CAPITOL-02_062519	Date/Time Analyzed:	7/2/19 05:52 PM
Lab ID:	1907009-05A	Dilution Factor:	1.58
Date/Time Collected:	6/26/19 12:00 AM	Instrument/Filename:	msd21.i / 21070211
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.23	0.59	0.63	Not Detected
1,4-Dioxane	123-91-1	0.094	0.54	0.57	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.23	0.59	0.63	Not Detected
Tetrachloroethene	127-18-4	0.57	1.0	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.32	0.59	0.63	Not Detected
Trichloroethene	79-01-6	0.19	0.80	0.85	Not Detected
Vinyl Chloride	75-01-4	0.16	0.38	0.40	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	116
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	98

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	IAG-34360CAPITOL-04_062519	Date/Time Analyzed:	7/2/19 06:28 PM
Lab ID:	1907009-06A	Dilution Factor:	1.79
Date/Time Collected:	6/26/19 04:51 PM	Instrument/Filename:	msd21.i / 21070212
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.26	0.67	0.71	Not Detected
1,4-Dioxane	123-91-1	0.11	0.61	0.64	0.35 J
cis-1,2-Dichloroethene	156-59-2	0.26	0.67	0.71	Not Detected
Tetrachloroethene	127-18-4	0.65	1.1	1.2	0.68 J
trans-1,2-Dichloroethene	156-60-5	0.37	0.67	0.71	Not Detected
Trichloroethene	79-01-6	0.22	0.90	0.96	Not Detected
Vinyl Chloride	75-01-4	0.18	0.43	0.46	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	96

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	Lab Blank	Date/Time Analyzed:	7/2/19 11:24 AM
Lab ID:	1907009-07A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21070205a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.14	0.37	0.40	Not Detected
1,4-Dioxane	123-91-1	0.060	0.34	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.14	0.37	0.40	Not Detected
Tetrachloroethene	127-18-4	0.36	0.64	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.20	0.37	0.40	Not Detected
Trichloroethene	79-01-6	0.12	0.50	0.54	Not Detected
Vinyl Chloride	75-01-4	0.10	0.24	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	115
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	99

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	CCV	Date/Time Analyzed:	7/2/19 09:12 AM
Lab ID:	1907009-08A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21070202
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	94
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	95
Tetrachloroethene	127-18-4	105
trans-1,2-Dichloroethene	156-60-5	98
Trichloroethene	79-01-6	104
Vinyl Chloride	75-01-4	93

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	106

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	LCS	Date/Time Analyzed:	7/2/19 10:01 AM
Lab ID:	1907009-09A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21070203
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	93
1,4-Dioxane	123-91-1	103
cis-1,2-Dichloroethene	156-59-2	103
Tetrachloroethene	127-18-4	100
trans-1,2-Dichloroethene	156-60-5	82
Trichloroethene	79-01-6	100
Vinyl Chloride	75-01-4	93

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	105

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	LCSD	Date/Time Analyzed:	7/2/19 10:48 AM
Lab ID:	1907009-09AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21070204
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	94
1,4-Dioxane	123-91-1	104
cis-1,2-Dichloroethene	156-59-2	105
Tetrachloroethene	127-18-4	101
trans-1,2-Dichloroethene	156-60-5	84
Trichloroethene	79-01-6	102
Vinyl Chloride	75-01-4	95

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	102

* % Recovery is calculated using unrounded analytical results.

7/8/2019

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP Off-Site Sampling

Project #:

Workorder #: 1907012

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 7/1/2019 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1907012

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0004.00002
FAX:		PROJECT #	Ford LTP Off-Site Sampling
DATE RECEIVED:	07/01/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	07/08/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SSMP-34360CAPITOL-01_062619	TO-15	6.5 "Hg	15 psi
02A	Lab Blank	TO-15	NA	NA
03A	CCV	TO-15	NA	NA
04A	LCS	TO-15	NA	NA
04AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 07/08/19

Certification numbers: AZ Licensure AZ0775, FL NELAP - E8 , LA NELAP - 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP CA009332018-10, VA NELAP - 9505, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005-011, Effective date: 10/18/2018, Expiration date: 10/17/2019.

Eurofins Air Toxics LLC. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1907012

One 1 Liter Summa Canister (100% Certified) sample was received on July 01, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Dilution was performed on sample SSMP-34360CAPITOL-01_062619 due to the presence of high level target species.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	SSMP-34360CAPITOL-01_062619	Date/Time Analyzed:	7/2/19 07:22 PM
Lab ID:	1907012-01A	Dilution Factor:	8.60
Date/Time Collected:	6/26/19 04:38 PM	Instrument/Filename:	msdp.i / p070214
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	6.5	15	17	Not Detected
1,4-Dioxane	123-91-1	8.2	43	62	Not Detected
cis-1,2-Dichloroethene	156-59-2	7.8	15	17	Not Detected
Tetrachloroethene	127-18-4	5.5	26	29	6400
trans-1,2-Dichloroethene	156-60-5	10	15	17	Not Detected
Trichloroethene	79-01-6	3.0	21	23	26
Vinyl Chloride	75-01-4	2.6	9.9	11	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	Lab Blank	Date/Time Analyzed:	7/2/19 01:28 PM
Lab ID:	1907012-02A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdp.i / p070207a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.75	1.8	2.0	Not Detected
1,4-Dioxane	123-91-1	0.95	5.0	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.90	1.8	2.0	Not Detected
Tetrachloroethene	127-18-4	0.64	3.0	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.2	1.8	2.0	Not Detected
Trichloroethene	79-01-6	0.35	2.4	2.7	Not Detected
Vinyl Chloride	75-01-4	0.30	1.1	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	90
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling



Client ID: CCV
Lab ID: 1907012-03A
Date/Time Collected: NA - Not Applicable
Media: NA - Not Applicable

Date/Time Analyzed: 7/2/19 10:10 AM
Dilution Factor: 1.00
Instrument/Filename: msdp.i / p070202

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	94
1,4-Dioxane	123-91-1	93
cis-1,2-Dichloroethene	156-59-2	96
Tetrachloroethene	127-18-4	91
trans-1,2-Dichloroethene	156-60-5	98
Trichloroethene	79-01-6	95
Vinyl Chloride	75-01-4	97

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	105

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	LCS	Date/Time Analyzed:	7/2/19 10:36 AM
Lab ID:	1907012-04A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdp.i / p070203
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	94
1,4-Dioxane	123-91-1	93
cis-1,2-Dichloroethene	156-59-2	105
Tetrachloroethene	127-18-4	94
trans-1,2-Dichloroethene	156-60-5	86
Trichloroethene	79-01-6	91
Vinyl Chloride	75-01-4	111

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	102

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	LCSD	Date/Time Analyzed:	7/2/19 11:02 AM
Lab ID:	1907012-04AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdp.i / p070204
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	98
1,4-Dioxane	123-91-1	95
cis-1,2-Dichloroethene	156-59-2	112
Tetrachloroethene	127-18-4	93
trans-1,2-Dichloroethene	156-60-5	87
Trichloroethene	79-01-6	92
Vinyl Chloride	75-01-4	113

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	102

* % Recovery is calculated using unrounded analytical results.

12/13/2019
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1912194

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 12/9/2019 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1912194

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30016344.0001B
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	12/09/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	12/13/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	IAF-34360CAPITOL-01_120419	Modified TO-15	7.5 "Hg	5 psi
02A	IAB-34360CAPITOL-02_120419	Modified TO-15	7.5 "Hg	5 psi
03A	IAG-34360CAPITOL-04_120419	Modified TO-15	7.5 "Hg	5 psi
04A	AA-34360CAPITOL-01_120419	Modified TO-15	7.0 "Hg	5 psi
05A	Lab Blank	Modified TO-15	NA	NA
06A	CCV	Modified TO-15	NA	NA
07A	LCS	Modified TO-15	NA	NA
07AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 
 Technical Director

DATE: 12/13/19

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP – CA009332019-11, VA NELAP - 460197, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005-011, Effective date: 10/18/2019, Expiration date: 10/17/2020.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 1912194

Four 6 Liter Summa Canister (100% Cert Ambient) samples were received on December 09, 2019. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the EATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-34360CAPITOL-01_120419	Date/Time Analyzed:	12/11/19 08:22 PM
Lab ID:	1912194-01A	Dilution Factor:	1.79
Date/Time Collected:	12/4/19 06:07 PM	Instrument/Filename:	msd20.i / 20121119
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.17	0.64	0.71	Not Detected
1,4-Dioxane	123-91-1	0.52	0.58	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.38	0.64	0.71	Not Detected
Tetrachloroethene	127-18-4	0.75	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.40	0.64	0.71	Not Detected
Trichloroethene	79-01-6	0.47	0.86	0.96	Not Detected
Vinyl Chloride	75-01-4	0.15	0.41	0.46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	97

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAB-34360CAPITOL-02_120419	Date/Time Analyzed:	12/11/19 09:00 PM
Lab ID:	1912194-02A	Dilution Factor:	1.79
Date/Time Collected:	12/4/19 06:08 PM	Instrument/Filename:	msd20.i / 20121120
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.17	0.64	0.71	Not Detected
1,4-Dioxane	123-91-1	0.52	0.58	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.38	0.64	0.71	Not Detected
Tetrachloroethene	127-18-4	0.75	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.40	0.64	0.71	Not Detected
Trichloroethene	79-01-6	0.47	0.86	0.96	Not Detected
Vinyl Chloride	75-01-4	0.15	0.41	0.46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	IAG-34360CAPITOL-04_120419	Date/Time Analyzed:	12/11/19 09:39 PM
Lab ID:	1912194-03A	Dilution Factor:	1.79
Date/Time Collected:	12/4/19 06:10 PM	Instrument/Filename:	msd20.i / 20121121
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.17	0.64	0.71	Not Detected
1,4-Dioxane	123-91-1	0.52	0.58	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.38	0.64	0.71	Not Detected
Tetrachloroethene	127-18-4	0.75	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.40	0.64	0.71	Not Detected
Trichloroethene	79-01-6	0.47	0.86	0.96	Not Detected
Vinyl Chloride	75-01-4	0.15	0.41	0.46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	99

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-34360CAPITOL-01_120419	Date/Time Analyzed:	12/11/19 10:18 PM
Lab ID:	1912194-04A	Dilution Factor:	1.75
Date/Time Collected:	12/4/19 06:03 PM	Instrument/Filename:	msd20.i / 20121122
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.17	0.62	0.69	Not Detected
1,4-Dioxane	123-91-1	0.51	0.57	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.37	0.62	0.69	Not Detected
Tetrachloroethene	127-18-4	0.74	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.39	0.62	0.69	Not Detected
Trichloroethene	79-01-6	0.46	0.85	0.94	Not Detected
Vinyl Chloride	75-01-4	0.14	0.40	0.45	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	12/11/19 10:09 AM
Lab ID:	1912194-05A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20121106a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.095	0.36	0.40	Not Detected
1,4-Dioxane	123-91-1	0.29	0.32	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.21	0.36	0.40	Not Detected
Tetrachloroethene	127-18-4	0.42	0.61	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.22	0.36	0.40	Not Detected
Trichloroethene	79-01-6	0.26	0.48	0.54	Not Detected
Vinyl Chloride	75-01-4	0.082	0.23	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	12/11/19 07:31 AM
Lab ID:	1912194-06A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20121102
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	87
1,4-Dioxane	123-91-1	97
cis-1,2-Dichloroethene	156-59-2	91
Tetrachloroethene	127-18-4	108
trans-1,2-Dichloroethene	156-60-5	96
Trichloroethene	79-01-6	110
Vinyl Chloride	75-01-4	91

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	106

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	12/11/19 08:10 AM
Lab ID:	1912194-07A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20121103
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	89
1,4-Dioxane	123-91-1	92
cis-1,2-Dichloroethene	156-59-2	83
Tetrachloroethene	127-18-4	108
trans-1,2-Dichloroethene	156-60-5	106
Trichloroethene	79-01-6	108
Vinyl Chloride	75-01-4	94

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	88
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	102

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	12/11/19 08:50 AM
Lab ID:	1912194-07AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20121104
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	89
1,4-Dioxane	123-91-1	90
cis-1,2-Dichloroethene	156-59-2	80
Tetrachloroethene	127-18-4	103
trans-1,2-Dichloroethene	156-60-5	102
Trichloroethene	79-01-6	104
Vinyl Chloride	75-01-4	93

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	91
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	100

* % Recovery is calculated using unrounded analytical results.

12/16/2019
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1912198

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 12/9/2019 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1912198

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30016344.0001B
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	12/09/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	12/16/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SSMP-34360CAPITOL-01_120419	TO-15	5.5 "Hg	14.8 psi
02A	Lab Blank	TO-15	NA	NA
03A	CCV	TO-15	NA	NA
04A	LCS	TO-15	NA	NA
04AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 12/16/19

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP – CA009332019-11, VA NELAP - 460197, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005-011, Effective date: 10/18/2019, Expiration date: 10/17/2020.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1912198

One 1 Liter Summa Canister (100% Certified) sample was received on December 09, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-34360CAPITOL-01_120419	Date/Time Analyzed:	12/12/19 04:32 PM
Lab ID:	1912198-01A	Dilution Factor:	2.46
Date/Time Collected:	12/4/19 06:22 PM	Instrument/Filename:	msdp.i / p121208
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.2	4.4	4.9	Not Detected
1,4-Dioxane	123-91-1	0.89	12	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.68	4.4	4.9	Not Detected
Tetrachloroethene	127-18-4	1.0	7.5	8.3	2200
trans-1,2-Dichloroethene	156-60-5	1.1	4.4	4.9	Not Detected
Trichloroethene	79-01-6	0.55	5.9	6.6	7.9
Vinyl Chloride	75-01-4	0.46	2.8	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	12/12/19 03:49 PM
Lab ID:	1912198-02A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdp.i / p121207a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.50	1.8	2.0	Not Detected
1,4-Dioxane	123-91-1	0.36	5.0	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.28	1.8	2.0	Not Detected
Tetrachloroethene	127-18-4	0.42	3.0	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.45	1.8	2.0	Not Detected
Trichloroethene	79-01-6	0.22	2.4	2.7	Not Detected
Vinyl Chloride	75-01-4	0.19	1.1	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: CCV
Lab ID: 1912198-03A
Date/Time Collected: NA - Not Applicable
Media: NA - Not Applicable

Date/Time Analyzed: 12/12/19 12:41 PM
Dilution Factor: 1.00
Instrument/Filename: msdp.i / p121203

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	99
1,4-Dioxane	123-91-1	102
cis-1,2-Dichloroethene	156-59-2	105
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	102
Trichloroethene	79-01-6	99
Vinyl Chloride	75-01-4	98

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	104

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCS	Date/Time Analyzed:	12/12/19 02:03 PM
Lab ID:	1912198-04A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdp.i / p121204
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	99
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	111
Tetrachloroethene	127-18-4	101
trans-1,2-Dichloroethene	156-60-5	91
Trichloroethene	79-01-6	95
Vinyl Chloride	75-01-4	96

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	101

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	12/12/19 02:29 PM
Lab ID:	1912198-04AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdp.i / p121205
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	97
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	113
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	91
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	97

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	101

* % Recovery is calculated using unrounded analytical results.

7/30/2020

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 2007578

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 7/23/2020 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 2007578

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30050315.0302.01
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	07/23/2020	CONTACT:	Ausha Scott
DATE COMPLETED:	07/30/2020		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	AA-34360CAPITOL-01_071720	Modified TO-15	6.0 "Hg	5 psi
02A	IAB-34360CAPITOL-02_071720	Modified TO-15	6.5 "Hg	5 psi
03A	IAF-34360CAPITOL-01_071720	Modified TO-15	5.5 "Hg	5 psi
04A	IAG-34360CAPITOL-04_071720	Modified TO-15	5.5 "Hg	5 psi
05A	Lab Blank	Modified TO-15	NA	NA
06A	CCV	Modified TO-15	NA	NA
07A	LCS	Modified TO-15	NA	NA
07AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 07/30/20

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP – CA009332019-11, VA NELAP - 460197, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005-011, Effective date: 10/18/2019, Expiration date: 10/17/2020.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards
 This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, LLC.
 180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 2007578

Four 6 Liter Summa Canister (100% Cert Ambient) samples were received on July 23, 2020. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the EATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-34360CAPITOL-01_071720	Date/Time Analyzed:	7/24/20 05:12 PM
Lab ID:	2007578-01A	Dilution Factor:	1.68
Date/Time Collected:	7/17/20 05:01 PM	Instrument/Filename:	msd21.i / 21072416
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.054	0.17	0.67	Not Detected
1,4-Dioxane	123-91-1	0.041	0.15	0.60	0.16 J
cis-1,2-Dichloroethene	156-59-2	0.026	0.17	0.67	Not Detected
Tetrachloroethene	127-18-4	0.086	0.28	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.076	0.17	0.67	Not Detected
Trichloroethene	79-01-6	0.081	0.22	0.90	Not Detected
Vinyl Chloride	75-01-4	0.019	0.11	0.43	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	122
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	104

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAB-34360CAPITOL-02_071720	Date/Time Analyzed:	7/24/20 06:26 PM
Lab ID:	2007578-02A	Dilution Factor:	1.71
Date/Time Collected:	7/17/20 05:15 PM	Instrument/Filename:	msd21.i / 21072418
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.055	0.17	0.68	Not Detected
1,4-Dioxane	123-91-1	0.042	0.15	0.62	0.19 J
cis-1,2-Dichloroethene	156-59-2	0.027	0.17	0.68	Not Detected
Tetrachloroethene	127-18-4	0.088	0.29	1.2	0.11 J
trans-1,2-Dichloroethene	156-60-5	0.077	0.17	0.68	Not Detected
Trichloroethene	79-01-6	0.083	0.23	0.92	Not Detected
Vinyl Chloride	75-01-4	0.019	0.11	0.44	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	111
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	106

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: IAF-34360CAPITOL-01_071720
Lab ID: 2007578-03A
Date/Time Collected: 7/17/20 05:03 PM
Media: 6 Liter Summa Canister (100% Cert Ambier)

Date/Time Analyzed: 7/24/20 07:04 PM
Dilution Factor: 1.64
Instrument/Filename: msd21.i / 21072419

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.053	0.16	0.65	Not Detected
1,4-Dioxane	123-91-1	0.040	0.15	0.59	0.15 J
cis-1,2-Dichloroethene	156-59-2	0.026	0.16	0.65	Not Detected
Tetrachloroethene	127-18-4	0.084	0.28	1.1	0.12 J
trans-1,2-Dichloroethene	156-60-5	0.074	0.16	0.65	Not Detected
Trichloroethene	79-01-6	0.079	0.22	0.88	Not Detected
Vinyl Chloride	75-01-4	0.018	0.10	0.42	Not Detected

J = Estimated value.
 D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	114
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	106

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAG-34360CAPITOL-04_071720	Date/Time Analyzed:	7/24/20 07:41 PM
Lab ID:	2007578-04A	Dilution Factor:	1.64
Date/Time Collected:	7/17/20 04:59 PM	Instrument/Filename:	msd21.i / 21072420
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.053	0.16	0.65	Not Detected
1,4-Dioxane	123-91-1	0.040	0.15	0.59	0.33 J
cis-1,2-Dichloroethene	156-59-2	0.026	0.16	0.65	Not Detected
Tetrachloroethene	127-18-4	0.084	0.28	1.1	0.23 J
trans-1,2-Dichloroethene	156-60-5	0.074	0.16	0.65	Not Detected
Trichloroethene	79-01-6	0.079	0.22	0.88	Not Detected
Vinyl Chloride	75-01-4	0.018	0.10	0.42	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	122
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	104

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	7/24/20 11:16 AM
Lab ID:	2007578-05A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21072408a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.032	0.099	0.40	Not Detected
1,4-Dioxane	123-91-1	0.024	0.090	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.016	0.099	0.40	Not Detected
Tetrachloroethene	127-18-4	0.051	0.17	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.045	0.099	0.40	Not Detected
Trichloroethene	79-01-6	0.048	0.13	0.54	Not Detected
Vinyl Chloride	75-01-4	0.011	0.064	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	117
4-Bromofluorobenzene	460-00-4	70-130	90
Toluene-d8	2037-26-5	70-130	105

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	7/24/20 09:38 AM
Lab ID:	2007578-06A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21072406
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	98
1,4-Dioxane	123-91-1	108
cis-1,2-Dichloroethene	156-59-2	99
Tetrachloroethene	127-18-4	96
trans-1,2-Dichloroethene	156-60-5	98
Trichloroethene	79-01-6	100
Vinyl Chloride	75-01-4	98

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	112

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	7/24/20 08:23 AM
Lab ID:	2007578-07A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21072404
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	94
1,4-Dioxane	123-91-1	105
cis-1,2-Dichloroethene	156-59-2	98
Tetrachloroethene	127-18-4	97
trans-1,2-Dichloroethene	156-60-5	96
Trichloroethene	79-01-6	104
Vinyl Chloride	75-01-4	96

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	108
Toluene-d8	2037-26-5	70-130	116

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	7/24/20 09:01 AM
Lab ID:	2007578-07AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21072405
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	95
1,4-Dioxane	123-91-1	104
cis-1,2-Dichloroethene	156-59-2	99
Tetrachloroethene	127-18-4	94
trans-1,2-Dichloroethene	156-60-5	97
Trichloroethene	79-01-6	101
Vinyl Chloride	75-01-4	97

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	113

* % Recovery is calculated using unrounded analytical results.

7/30/2020

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP

Project #:

Workorder #: 2007581

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 7/23/2020 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott

Project Manager

WORK ORDER #: 2007581

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30050315.0302.01
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	07/23/2020	CONTACT:	Ausha Scott
DATE COMPLETED:	07/30/2020		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	DUP-34360CAPITOL-01_071720	TO-15	7.8 "Hg	15.5 psi
02A	SSMP-34360CAPITOL-01_071720	TO-15	6.5 "Hg	15.5 psi
03A	Lab Blank	TO-15	NA	NA
04A	CCV	TO-15	NA	NA
05A	LCS	TO-15	NA	NA
05AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 07/30/20

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP – CA009332019-11, VA NELAP - 460197, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005-011, Effective date: 10/18/2019, Expiration date: 10/17/2020.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 2007581

Two 1 Liter Summa Canister (100% Certified) samples were received on July 23, 2020. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Dilution was performed on samples DUP-34360CAPITOL-01_071720 and SSMP-34360CAPITOL-01_071720 due to the presence of high level target species.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	DUP-34360CAPITOL-01_071720	Date/Time Analyzed:	7/27/20 02:39 PM
Lab ID:	2007581-01A	Dilution Factor:	11.1
Date/Time Collected:	7/17/20 12:00 AM	Instrument/Filename:	msdj.i / j072713
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	7.5	13	22	Not Detected
1,4-Dioxane	123-91-1	20	28	80	Not Detected
cis-1,2-Dichloroethene	156-59-2	5.7	13	22	Not Detected
Tetrachloroethene	127-18-4	10	22	38	9600
trans-1,2-Dichloroethene	156-60-5	4.4	13	22	Not Detected
Trichloroethene	79-01-6	7.2	18	30	27 J
Vinyl Chloride	75-01-4	2.6	8.5	14	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	87
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-34360CAPITOL-01_071720	Date/Time Analyzed:	7/27/20 03:04 PM
Lab ID:	2007581-02A	Dilution Factor:	13.1
Date/Time Collected:	7/17/20 05:22 PM	Instrument/Filename:	msdj.i / j072714
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	8.8	16	26	Not Detected
1,4-Dioxane	123-91-1	23	33	94	Not Detected
cis-1,2-Dichloroethene	156-59-2	6.8	16	26	Not Detected
Tetrachloroethene	127-18-4	12	27	44	9400
trans-1,2-Dichloroethene	156-60-5	5.2	16	26	Not Detected
Trichloroethene	79-01-6	8.4	21	35	36
Vinyl Chloride	75-01-4	3.0	10	17	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	113
4-Bromofluorobenzene	460-00-4	70-130	90
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	Lab Blank	Date/Time Analyzed:	7/27/20 11:33 AM
Lab ID:	2007581-03A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j072707c
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.67	1.2	2.0	Not Detected
1,4-Dioxane	123-91-1	1.8	2.5	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.52	1.2	2.0	Not Detected
Tetrachloroethene	127-18-4	0.95	2.0	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.40	1.2	2.0	Not Detected
Trichloroethene	79-01-6	0.64	1.6	2.7	Not Detected
Vinyl Chloride	75-01-4	0.23	0.77	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	127
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	94

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	CCV	Date/Time Analyzed:	7/27/20 08:43 AM
Lab ID:	2007581-04A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j072702
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	92
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	96
Tetrachloroethene	127-18-4	114
trans-1,2-Dichloroethene	156-60-5	102
Trichloroethene	79-01-6	100
Vinyl Chloride	75-01-4	109

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	112
4-Bromofluorobenzene	460-00-4	70-130	113
Toluene-d8	2037-26-5	70-130	96

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCS	Date/Time Analyzed:	7/27/20 09:09 AM
Lab ID:	2007581-05A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j072703
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	100
1,4-Dioxane	123-91-1	90
cis-1,2-Dichloroethene	156-59-2	91
Tetrachloroethene	127-18-4	106
trans-1,2-Dichloroethene	156-60-5	114
Trichloroethene	79-01-6	100
Vinyl Chloride	75-01-4	116

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	123
4-Bromofluorobenzene	460-00-4	70-130	108
Toluene-d8	2037-26-5	70-130	97

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	7/27/20 09:36 AM
Lab ID:	2007581-05AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j072704
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	103
1,4-Dioxane	123-91-1	89
cis-1,2-Dichloroethene	156-59-2	94
Tetrachloroethene	127-18-4	107
trans-1,2-Dichloroethene	156-60-5	120
Trichloroethene	79-01-6	98
Vinyl Chloride	75-01-4	113

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	120
4-Bromofluorobenzene	460-00-4	70-130	115
Toluene-d8	2037-26-5	70-130	98

* % Recovery is calculated using unrounded analytical results.

Martin, Michele

From: Hinskey, Kristoffer
Sent: Friday, December 20, 2019 8:49 AM
To: Olechiw, Theresa; Uppencamp, Robert; Richmond, Adam
Cc: Taylor, Gustan; Ellis, Rob
Subject: FW: Livonia Transmission Plant - 24-Hr Notice 34360 Capitol
Attachments: 34360 Capitol Data Package.pdf

Notice sent.

From: Hinskey, Kristoffer
Sent: Friday, December 20, 2019 8:46 AM
To: Brandon Alger (AlgerB@michigan.gov) <AlgerB@michigan.gov>; Vens, Beth (DEQ) <VENSB@michigan.gov>; Rafalski, Alexandra (DHHS) <RafalskiA@michigan.gov>; Cooch, Aaron (DHHS-Contractor) <CoochA@michigan.gov>; Merritt, Lawrence (L.H.) <lmerrit2@ford.com>; Walton, Todd (T.M.) <twalton@ford.com>; Pinter, Chuck (C.H.) <cpinter@ford.com>
Cc: Quinnan, Joseph <Joseph.Quinnan@arcadis.com>
Subject: Livonia Transmission Plant - 24-Hr Notice 34360 Capitol

Hi Brandon –

This email serves as the notification for an exceedance as it relates to offsite vapor intrusion assessment conducted under the approval letter provided by EGLE for the VI RespAP.

Analytical results from the residential property at 34360 Capitol indicated that PCE was detected in sub-slab soil vapor collected from the garage above the screening level presented by EGLE in the Consent Decree. PCE was detected in the garage (sample SSMP_-34360CAPITOL-01_120419) of the home at a concentration of 2,200 ug/m³ which exceeded the residential screening level of 1,400 ug/m³. For PCE, the screening level and the time-sensitive screening level are the same at 1,400 ug/m³. PCE was not detected in any of the indoor air samples or the ambient air sample collected from the property.

This property was originally sampled in December 2018 and PCE was detected in one indoor air sample at 1.0 J ug/m³; the other indoor air samples were non-detect. The sub-slab soil vapor sample collected from beneath the garage in December was rejected.

The property was sampled again in June 2019 and PCE was detected in indoor air samples collected from the property at very low levels (0.68 J ug/m³ to 1.1 ug/m³), which were well below the indoor air screening level of 41 ug/m³. The sub-slab soil vapor sample collected from beneath the garage had a concentration of 6,400 ug/m³, exceeding the screening level. Groundwater well MW-128S is located on this property and has been sampled four times with each being non-detect for PCE. Additionally, soil vapor monitoring point SVMP-18 is location upgradient of this property and has been sampled nine times with each result being non-detect for PCE.

A detailed chemical inventory was completed in this home and garage. A number of potential sources of VOCs were noted during the product inventory including aerosol cleaners, solvents, and household products. These products were removed from the garage prior to sampling.

An aerosol canister of “Carquest Brake Parts Cleaner” was noted in the garage during the June 2019 sampling event as shown in the photo below. As shown in the attached safety data sheet Carquest Brake Parts Cleaner is 90-100% PCE.

This product was removed prior to sampling in June, but it is unclear when it may have been used prior to sampling, how it may have impacted sub-slab soil vapor, and what residual PCE may still be present.

The property owner was provided the data package (attached), that contains the analytical results.

Thank you



Prepared in accordance with applicable regulatory requirements.

Material name: Carquest Brake Parts Cleaner SOS US
1005 (CRC# 09620) Version #: 02 Revision date: 08-07-2014 Issue date: 12-20-2013 1 / 9

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information

When exposed to extreme heat or hot surfaces, vapors may decompose to harmful or fatal corrosive gases such as hydrogen chloride and possibly phosgene.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Tetrachloroethylene	Perchloroethylene	127-18-4	90 - 100
Carbon dioxide		124-38-9	1 - 5

Specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

Skin contact Remove contaminated clothing. Rinse skin with water/shower. If skin irritation occurs: Get medical

Martin, Michele

From: Hinskey, Kristoffer
Sent: Friday, September 6, 2019 7:47 PM
To: Brandon Alger (AlgerB@michigan.gov)
Cc: Vens, Beth (DEQ); Rafalski, Alexandra (DHHS); Cooch, Aaron (DHHS-Contractor); Merritt, Lawrence (L.H.); Walton, Todd (T.M.); Pinter, Chuck (C.H.); Quinnan, Joseph
Subject: Livonia Transmission Plant - Notification 34360 Capitol
Attachments: 34360 Capitol Data Package.pdf

Brandon –

We are writing to notify EGLE of an exceedance of screening levels for sub-slab soil vapor for an assessment conducted under the approval letter provided by the EGLE for the VI RespAP.

Analytical results from the residential property at 34360 Capitol indicated that PCE was detected in sub-slab soil vapor collected from the garage above the screening level presented by MDEQ in the Consent Decree. PCE was detected in the garage (sample SSMP_-34360CAPITOL-01_062619) of the home at a concentration of 6,400 ug/m³ which exceeded the residential screening level of 1,400 ug/m³. For PCE the screening level and the time-sensitive screening level are the same at 1,400 ug/m³. PCE was detected in indoor air samples collected from the property at very low levels (0.68 ug/m³ to 1.1 ug/m³), which were well below the indoor air screening level of 41 ug/m³.

This property was originally sampled in December 2018 and PCE was detected in one indoor air sample at 1 ug/m³; the other indoor air samples were non-detect. The sub-slab soil vapor sample collected from beneath the garage in December was rejected. Groundwater well MW-128S is located on this property and has been sampled three times with each being non-detect for PCE.

A detailed chemical inventory was completed in this home and garage. A number of potential sources of VOCs were noted during the product inventory including aerosol cleaners, solvents, and household products. These products were removed from the garage prior to sampling. An aerosol canister of “Carquest Brake Parts Cleaner” was noted in the garage as shown in the photo below. As shown in the attached safety data sheet Carquest Brake Parts Cleaner is 90-100% PCE. This product was removed prior to sampling, but it is unclear when it may have been used prior to sampling and how it may have impacted sub-slab soil vapor.

The property owner was provided the data package (attached), that contains the analytical results.

Thank you



Dispose of contents/container in accordance with local/regional/national regulations.

Material name: Carquest Brake Parts Cleaner
 1005 (CRC# 09620) Version #: 02 Revision date: 08-07-2014 Issue date: 12-20-2013

sds us
 1 / 9

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information

When exposed to extreme heat or hot surfaces, vapors may decompose to harmful or fatal corrosive gases such as hydrogen chloride and possibly phosgene.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Tetrachloroethylene	Perchloroethylene	127-18-4	90 - 100
Carbon dioxide		124-38-9	1 - 5

Specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact Remove contaminated clothing. Rinse skin with water/shower. If skin irritation occurs: Get medical

Martin, Michele

From: Hinskey, Kristoffer
Sent: Wednesday, August 19, 2020 9:49 AM
To: Alger, Brandon (EGLE)
Cc: Vens, Beth (DEQ); Rafalski, Alexandra (DHHS); Cooch, Aaron (DHHS-Contractor); Merritt, Lawrence (L.H.); Walton, Todd (T.M.); Pinter, Chuck (C.H.); Olechiw, Theresa
Subject: Livonia Transmission Plant 24-Hour Notification 34360 Capitol
Attachments: 34360 Capitol Data Package.pdf

Brandon –

This email serves as the notification for an exceedance as it relates to the offsite vapor intrusion assessment conducted under the approval letter provided by EGLE for the VI RespAP.

Analytical results from the July 17, 2020 sample event collected at residential property located at 34360 Capitol indicated that PCE was detected in sub-slab soil vapor collected from the garage. The sample result for the sub-slab monitoring point in the garage were above the screening level presented by EGLE in the Consent Decree. PCE was detected in the garage (samples SSMP-34360CAPITOL-01_071720 and DUP-34360CAPITOL-01_071720) at concentrations of 9,400 ug/m³ and 9,600 ug/m³, respectively, which exceed the residential screening level of 1,400 ug/m³. For PCE, the screening level and the time-sensitive screening level are the same at 1,400 ug/m³. PCE was detected in indoor air samples collected from the property, including the basement, first floor and the garage at very low levels (0.11 J ug/m³ to 0.23 J ug/m³). All indoor air results were well below the indoor air screening level of 41 ug/m³.

Two of the four rounds of sampling at this property were completed in December 2018 and June 2019. Sample results from these events indicated that PCE was detected in indoor air samples collected from the property at very low levels or not detected at all (0.68 J to 1.1 ug/m³). The sub-slab soil vapor sample collected from beneath the garage in December was rejected due to a quality issue, however, the sub-slab soil vapor sample collected in June 2019 from beneath the garage had a concentration of 6,400 ug/m³, exceeding the screening level of 1,400 ug/m³.

The property was sampled again in December 2019 and PCE was not detected in indoor air samples collected from the property, which included the basement, first floor, and garage. The sub-slab soil vapor sample collected from beneath the garage had a concentration of 2,200 ug/m³, exceeding the screening level of 1,400 ug/m³.

Groundwater monitoring well MW-128S is located on this property approximately located 10 feet away from the house and 60 feet away from the garage. Monitoring Well MW-128S has been sampled six times with each sampling event being non-detect for PCE. Additionally, soil vapor monitoring point SVMP-18 is located upgradient of this property and has been sampled nine times with each result being non-detect for PCE.

A detailed chemical inventory was completed in this home and garage. A number of potential sources of VOCs were noted during the product inventory including aerosol cleaners, solvents, and household products. These products were removed from the garage prior to sampling.

An aerosol canister of “Carquest Brake Parts Cleaner” was noted in the garage during the June 2019 sampling event as shown in the photo below. As shown in the attached safety data sheet Carquest Brake Parts Cleaner is 90-100% PCE. This product was removed prior to sampling in June, but it is unclear when it may have been used prior to sampling, how it may have impacted sub-slab soil vapor, and what residual PCE may still be present.

A soil and groundwater investigation was completed inside the garage on Monday, July 27, 2020 to evaluate PCE impacts in sub-slab soil vapor below the garage in the vicinity of SSMP-01. Four soil borings were completed within approximately one to five feet of SSMP-01. Soil and groundwater samples were collected from each location, analytical results for these samples are pending.

The property owner was provided the data package (attached), that contains the analytical results.



Material name: Carquest Brake Parts Cleaner
 1005 (CRC# 09620) Version #: 02 Revision date: 08-07-2014 Issue date: 12-20-2013 SDS US 1 / 9

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information
 When exposed to extreme heat or hot surfaces, vapors may decompose to harmful or fatal corrosive gases such as hydrogen chloride and possibly phosgene.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Tetrachloroethylene	Perchloroethylene	127-18-4	90 - 100
Carbon dioxide		124-38-9	0 - 5

Specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

Skin contact Remove contaminated clothing. Rinse skin with water/shower. If skin irritation occurs: Get medical

Thank you

Kris Hinskey | Certified Project Manager | kristoffer.hinskey@arcadis.com
Arcadis | Arcadis of Michigan, LLC
 28550 Cabot Drive Suite 500 Novi MI | 48377 | USA
 T. +1 269 579 5402

Connect with us! www.arcadis.com | [LinkedIn](#) | [Twitter](#) | [Facebook](#)



Be green, leave it on the screen.



SAFETY DATA SHEET

1. Identification

Product identifier	Carquest Brake Parts Cleaner
Other means of identification	
Product code	1005 (CRC# 09620)
Recommended use	Brake cleaner
Recommended restrictions	None known.
Manufacturer/Importer/Supplier/Distributor information	
Manufactured or sold by:	
Company name	CRC Industries, Inc.
Address	885 Louis Dr. Warminster, PA 18974 US
Telephone	
General Information	215-674-4300
Technical Assistance	800-521-3168
Customer Service	800-272-4620
24-Hour Emergency (CHEMTREC)	800-424-9300 (US) 703-527-3887 (International)
Website	www.crcindustries.com

2. Hazard(s) identification

Physical hazards	Gases under pressure	Compressed gas
Health hazards	Skin corrosion/irritation	Category 2
	Carcinogenicity	Category 1B
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
Environmental hazards	Hazardous to the aquatic environment, long-term hazard	Category 2
OSHA defined hazards	Not classified.	
Label elements		



Signal word	Danger
Hazard statement	Contains gas under pressure; may explode if heated. Causes skin irritation. May cause drowsiness or dizziness. May cause cancer. Toxic to aquatic life with long lasting effects.
Precautionary statement	
Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not puncture or incinerate container. Do not expose to heat or store at temperatures above 49°C/120°F. Use with adequate ventilation. Open doors and windows or use other means to ensure a fresh air supply during use and while product is drying. If you experience any symptoms listed on this label, increase ventilation or leave the area. Avoid breathing mist or vapor. Avoid breathing gas. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. Avoid release to the environment.
Response	If on skin: Wash with plenty of water. If skin irritation occurs: Get medical attention. Take off contaminated clothing and wash before reuse. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell. If exposed or concerned: Get medical attention. Collect spillage.
Storage	Store locked up. Protect from sunlight. Store in a well-ventilated place. Exposure to high temperature may cause can to burst.
Disposal	Dispose of contents/container in accordance with local/regional/national regulations.

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information

When exposed to extreme heat or hot surfaces, vapors may decompose to harmful or fatal corrosive gases such as hydrogen chloride and possibly phosgene.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Tetrachloroethylene	Perchloroethylene	127-18-4	90 - 100
Carbon dioxide		124-38-9	1 - 5

Specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact	Remove contaminated clothing. Rinse skin with water/shower. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse.
Eye contact	Rinse with water. Get medical attention if irritation develops and persists.
Ingestion	In the unlikely event of swallowing contact a physician or poison control center. Rinse mouth.
Most important symptoms/effects, acute and delayed	May cause drowsiness and dizziness. Headache. Nausea, vomiting. Irritation of eyes and mucous membranes. Irritation of nose and throat. Skin irritation. May cause redness and pain.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.
General information	IF exposed or concerned: Get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media	Dry chemical, CO2, or water spray.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Contents under pressure. Exposure to high temperature may cause can to burst. When exposed to extreme heat or hot surfaces, vapors may decompose to harmful or fatal corrosive gases such as hydrogen chloride and possibly phosgene.
Special protective equipment and precautions for firefighters	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.
Fire-fighting equipment/instructions	In case of fire: Stop leak if safe to do so. Move containers from fire area if you can do so without risk. Containers should be cooled with water to prevent vapor pressure build up.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist or vapor. Avoid breathing gas. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways. Stop the flow of material, if this is without risk. Collect spillage. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid release to the environment. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Pressurized container: Do not pierce or burn, even after use. Do not use if spray button is missing or defective. Do not spray on a naked flame or any other incandescent material. Do not smoke while using or until sprayed surface is thoroughly dry. Use with adequate ventilation. Open doors and windows or use other means to ensure a fresh air supply during use and while product is drying. If you experience any symptoms listed on this label, increase ventilation or leave the area. Do not cut, weld, solder, drill, grind, or expose containers to heat, flame, sparks, or other sources of ignition. Use caution around energized equipment. The metal container will conduct electricity if it contacts a live source. This may result in injury to the user from electrical shock and/or flash fire. Avoid breathing mist or vapor. Avoid breathing gas. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Use only in well-ventilated areas. Should be handled in closed systems, if possible. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. Avoid release to the environment. Do not empty into drains. For product usage instructions, please see the product label.

Conditions for safe storage, including any incompatibilities

Level 1 Aerosol.

Contents under pressure. Do not puncture or incinerate container. Do not expose to heat or store at temperatures above 49 °C/120 °F. Do not handle or store near an open flame, heat or other sources of ignition. Exposure to high temperature may cause can to burst. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Carbon dioxide (CAS 124-38-9)	PEL	9000 mg/m3
		5000 ppm

US. OSHA Table Z-2 (29 CFR 1910.1000)

Components	Type	Value
Tetrachloroethylene (CAS 127-18-4)	Ceiling	200 ppm
	TWA	100 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
Carbon dioxide (CAS 124-38-9)	STEL	30000 ppm
	TWA	5000 ppm
Tetrachloroethylene (CAS 127-18-4)	STEL	100 ppm
	TWA	25 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Carbon dioxide (CAS 124-38-9)	STEL	54000 mg/m3
	TWA	30000 ppm 9000 mg/m3 5000 ppm

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Tetrachloroethylene (CAS 127-18-4)	0.5 mg/l	Tetrachloroethylene	Blood	*
	3 ppm	Tetrachloroethylene	End-exhaled air	*

* - For sampling details, please see the source document.

Exposure guidelines

US - Minnesota Haz Subs: Skin designation applies

Tetrachloroethylene (CAS 127-18-4)

Skin designation applies.

Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection

Wear protective gloves such as: Viton®. Polyvinyl alcohol (PVA). Nitrile. Silver Shield®

Other

Wear appropriate chemical resistant clothing.

Respiratory protection

If engineering controls are not feasible or if exposure exceeds the applicable exposure limits, use a NIOSH-approved cartridge respirator with an organic vapor cartridge. Use a self-contained breathing apparatus in confined spaces and for emergencies. Air monitoring is needed to determine actual employee exposure levels.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state

Liquid.

Form

Aerosol.

Color

Colorless.

Odor

Irritating.

Odor threshold

50 ppm

pH

Not available.

Melting point/freezing point

-8.1 °F (-22.3 °C) estimated

Initial boiling point and boiling range

250.3 °F (121.3 °C) estimated

Flash point

None (Tag Closed Cup)

Evaporation rate

Very fast.

Flammability (solid, gas)

Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)

Not available.

Flammability limit - upper (%)

Not available.

Vapor pressure

1352.4 hPa estimated

Vapor density

5.76 (air = 1)

Relative density

1.62

Solubility (water)

0.02 % (77 °F (25 °C))

Partition coefficient (n-octanol/water)

Not available.

Auto-ignition temperature

Not available.

Decomposition temperature

Not available.

Viscosity (kinematic)

Not available.

Percent volatile

97.7 % estimated

Other information

Partition coefficient (oil/water)

2.88

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Heat, flames and sparks. Contact with incompatible materials. When exposed to extreme heat or hot surfaces, vapors may decompose to harmful or fatal corrosive gases such as hydrogen chloride and possibly phosgene.
Incompatible materials	Strong oxidizing agents. Strong acids. Strong bases.
Hazardous decomposition products	Hydrogen chloride. Trace amounts of chlorine and phosgene. Carbon oxides. Halogenated materials. Carbonyl halides.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Prolonged inhalation may be harmful. May cause drowsiness and dizziness. Headache. Nausea, vomiting.
Skin contact	Causes skin irritation.
Eye contact	Direct contact with eyes may cause temporary irritation.
Ingestion	Ingestion of large amounts may produce gastrointestinal disturbances including irritation, nausea, and diarrhea.

Symptoms related to the physical, chemical and toxicological characteristics

May cause drowsiness and dizziness. Headache. Nausea, vomiting. Irritation of nose and throat. Irritation of eyes and mucous membranes. Skin irritation. May cause redness and pain.

Information on toxicological effects

Acute toxicity Narcotic effects.

Product	Species	Test Results
Carquest Brake Parts Cleaner		
Acute		
<i>Dermal</i>		
LD50	Rabbit	3305.1284 mg/kg estimated
<i>Inhalation</i>		
LC50	Rat	20.4779 mg/l, 4 Hours estimated
<i>Oral</i>		
LD50	Rat	2691.8162 mg/kg estimated

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation	Causes skin irritation.
Serious eye damage/eye irritation	Direct contact with eyes may cause temporary irritation.
Respiratory sensitization	Not available.
Skin sensitization	This product is not expected to cause skin sensitization.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	May cause cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity

Tetrachloroethylene (CAS 127-18-4) 2A Probably carcinogenic to humans.

US. National Toxicology Program (NTP) Report on Carcinogens

Tetrachloroethylene (CAS 127-18-4) Reasonably Anticipated to be a Human Carcinogen.

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	May cause drowsiness and dizziness.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	May be an aspiration hazard.

Chronic effects Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.

12. Ecological information

Ecotoxicity Toxic to aquatic life with long lasting effects. Accumulation in aquatic organisms is expected.

Product	Species	Test Results
Carquest Brake Parts Cleaner		
Aquatic		
Fish	LC50	Fish 19.1805 mg/l, 96 hours estimated
Components	Species	Test Results
Tetrachloroethylene (CAS 127-18-4)		
Aquatic		
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss) 4.73 - 5.27 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability Not available.

Bioaccumulative potential Not available.

Partition coefficient n-octanol / water (log Kow)

Tetrachloroethylene 2.88

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal of waste from residues / unused products This material and its container must be disposed of as hazardous waste. Consult authorities before disposal. Contents under pressure. Do not puncture, incinerate or crush. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose in accordance with all applicable regulations.

Hazardous waste code D039: Waste Tetrachloroethylene
F001: Waste Halogenated Solvent - Spent Halogenated Solvent Used in Degreasing
F002: Waste Halogenated Solvent - Spent Halogenated Solvent

US RCRA Hazardous Waste U List: Reference

Tetrachloroethylene (CAS 127-18-4) U210

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number UN1950
UN proper shipping name Aerosols, poison, Packing Group III, Limited Quantity, MARINE POLLUTANT
Transport hazard class(es)
Class 2.2
Subsidiary risk 6.1(PGIII)
Label(s) 2.2, 6.1
Packing group Not applicable.
Environmental hazards
Marine pollutant Yes
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
Special provisions Not available.
Packaging exceptions 306
Packaging non bulk None
Packaging bulk None

IATA

UN number UN1950
UN proper shipping name Aerosols, non-flammable, containing substances in Division 6.1, Packing Group III, Limited Quantity

Transport hazard class(es)	
Class	2.2
Subsidiary risk	6.1
Packing group	Not applicable.
Environmental hazards	No.
ERG Code	2P
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed.
Cargo aircraft only	Allowed.

IMDG

UN number	UN1950
UN proper shipping name	AEROSOLS, MARINE POLLUTANT
Transport hazard class(es)	
Class	2
Subsidiary risk	6.1
Packing group	Not applicable.
Environmental hazards	
Marine pollutant	Yes
EmS	Not available.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
General information	DOT Regulated Marine Pollutant. IMDG Regulated Marine Pollutant.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

SARA 304 Emergency release notification

Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

Tetrachloroethylene (CAS 127-18-4)

CERCLA Hazardous Substance List (40 CFR 302.4)

Tetrachloroethylene (CAS 127-18-4)

CERCLA Hazardous Substances: Reportable quantity

Tetrachloroethylene (CAS 127-18-4) 100 LBS

Spills or releases resulting in the loss of any ingredient at or above its RQ require immediate notification to the National Response Center (800-424-8802) and to your Local Emergency Planning Committee.

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Tetrachloroethylene (CAS 127-18-4)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

Food and Drug Administration (FDA) Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Section 311/312 Hazard categories
 Immediate Hazard - Yes
 Delayed Hazard - Yes
 Fire Hazard - No
 Pressure Hazard - Yes
 Reactivity Hazard - No

SARA 302 Extremely hazardous substance No

US state regulations

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. New Jersey Worker and Community Right-to-Know Act

Carbon dioxide (CAS 124-38-9)

Tetrachloroethylene (CAS 127-18-4)

US. Massachusetts RTK - Substance List

Carbon dioxide (CAS 124-38-9)

Tetrachloroethylene (CAS 127-18-4)

US. Pennsylvania Worker and Community Right-to-Know Law

Tetrachloroethylene (CAS 127-18-4)

Carbon dioxide (CAS 124-38-9)

US. Rhode Island RTK

Tetrachloroethylene (CAS 127-18-4)

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

Tetrachloroethylene (CAS 127-18-4)

Listed: April 1, 1988

Volatile organic compounds (VOC) regulations

EPA

VOC content (40 CFR 51.100(s)) 0 %

Consumer products (40 CFR 59, Subpt. C) Not regulated

State

Consumer products This product is regulated as a Brake Cleaner. This product is not compliant to be sold for use in California and New Jersey. This product is compliant in all other states.

VOC content (CA) 0 %

VOC content (OTC) 0 %

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date	12-20-2013
Revision date	08-07-2014
Prepared by	Allison Cho
Version #	02
Further information	CRC # 491G

HMIS® ratings

Health: 2*
Flammability: 0
Physical hazard: 0
Personal protection: B

NFPA ratings

Health: 2
Flammability: 0
Instability: 0

NFPA ratings



Disclaimer

CRC cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. This information is accurate to the best of CRC Industries' knowledge or obtained from sources believed by CRC to be accurate. Before using any product, read all warnings and directions on the label. For further clarification of any information contained on this (M)SDS consult your supervisor, a health & safety professional, or CRC Industries.

Attachment 5

**34934 Standish Street – Analytical Laboratory Reports,
24-hr Notices, and Data Packages**

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

TestAmerica Job ID: 240-108813-1

Client Project/Site: Ford LTP Livonia MI - E203631

For:

ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
3/5/2019 3:20:25 PM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108813-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108813-1

Job ID: 240-108813-1

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Livonia MI - E203631

Report Number: 240-108813-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The sample was received on 3/2/2019 9:45 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.4° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Sample MW-183S-030119 (240-108813-1) was analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The sample was analyzed on 03/04/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-183S-030119 (240-108813-1) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 03/04/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108813-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108813-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-108813-1	MW-183S-030119	Water	03/01/19 09:50	03/02/19 09:45

- 1
- 2
- 3
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- 7
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- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108813-1

Client Sample ID: MW-183S-030119

Lab Sample ID: 240-108813-1

No Detections.

- 1
- 2
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- 4
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- 6
- 7
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- 9
- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108813-1

Client Sample ID: MW-183S-030119

Lab Sample ID: 240-108813-1

Date Collected: 03/01/19 09:50

Matrix: Water

Date Received: 03/02/19 09:45

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			03/04/19 18:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	80		63 - 125					03/04/19 18:24	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/04/19 16:12	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			03/04/19 16:12	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			03/04/19 16:12	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/04/19 16:12	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			03/04/19 16:12	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			03/04/19 16:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		70 - 121					03/04/19 16:12	1
4-Bromofluorobenzene (Surr)	69		59 - 120					03/04/19 16:12	1
Toluene-d8 (Surr)	74		70 - 123					03/04/19 16:12	1
Dibromofluoromethane (Surr)	97		75 - 128					03/04/19 16:12	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108813-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-121)	BFB (59-120)	TOL (70-123)	DBFM (75-128)
240-108804-H-1 MSD	Matrix Spike Duplicate	83	75	74	90
240-108804-K-1 MS	Matrix Spike	87	77	74	92
240-108813-1	MW-183S-030119	97	69	74	97
LCS 240-370116/4	Lab Control Sample	85	76	77	92
MB 240-370116/6	Method Blank	90	67	72	92

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (63-125)
240-108804-B-1 MS	Matrix Spike	83
240-108804-B-1 MSD	Matrix Spike Duplicate	84
240-108813-1	MW-183S-030119	80
LCS 240-370124/4	Lab Control Sample	86
MB 240-370124/5	Method Blank	86

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108813-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-370116/6

Matrix: Water

Analysis Batch: 370116

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/04/19 11:28	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			03/04/19 11:28	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			03/04/19 11:28	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/04/19 11:28	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			03/04/19 11:28	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			03/04/19 11:28	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		70 - 121		03/04/19 11:28	1
4-Bromofluorobenzene (Surr)	67		59 - 120		03/04/19 11:28	1
Toluene-d8 (Surr)	72		70 - 123		03/04/19 11:28	1
Dibromofluoromethane (Surr)	92		75 - 128		03/04/19 11:28	1

Lab Sample ID: LCS 240-370116/4

Matrix: Water

Analysis Batch: 370116

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	9.73		ug/L		97	65 - 139
cis-1,2-Dichloroethene	10.0	11.6		ug/L		116	76 - 128
Tetrachloroethene	10.0	10.8		ug/L		108	74 - 130
trans-1,2-Dichloroethene	10.0	12.2		ug/L		122	78 - 133
Trichloroethene	10.0	11.6		ug/L		116	76 - 125
Vinyl chloride	10.0	8.87		ug/L		89	58 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	85		70 - 121
4-Bromofluorobenzene (Surr)	76		59 - 120
Toluene-d8 (Surr)	77		70 - 123
Dibromofluoromethane (Surr)	92		75 - 128

Lab Sample ID: 240-108804-H-1 MSD

Matrix: Water

Analysis Batch: 370116

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	10.0	9.37		ug/L		94	53 - 140	1	35
cis-1,2-Dichloroethene	1.0	U	10.0	11.2		ug/L		112	64 - 130	1	21
Tetrachloroethene	1.0	U	10.0	9.83		ug/L		98	51 - 136	2	23
trans-1,2-Dichloroethene	1.0	U	10.0	11.5		ug/L		115	68 - 133	2	24
Trichloroethene	0.14	J	10.0	11.2		ug/L		110	55 - 131	1	23
Vinyl chloride	1.0	U	10.0	9.89		ug/L		99	43 - 154	10	29

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	83		70 - 121
4-Bromofluorobenzene (Surr)	75		59 - 120
Toluene-d8 (Surr)	74		70 - 123

TestAmerica Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108813-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-108804-H-1 MSD
Matrix: Water
Analysis Batch: 370116

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
Dibromofluoromethane (Surr)	90		75 - 128

Lab Sample ID: 240-108804-K-1 MS
Matrix: Water
Analysis Batch: 370116

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U	10.0	9.28		ug/L		93	53 - 140
cis-1,2-Dichloroethene	1.0	U	10.0	11.3		ug/L		113	64 - 130
Tetrachloroethene	1.0	U	10.0	9.64		ug/L		96	51 - 136
trans-1,2-Dichloroethene	1.0	U	10.0	11.3		ug/L		113	68 - 133
Trichloroethene	0.14	J	10.0	11.0		ug/L		109	55 - 131
Vinyl chloride	1.0	U	10.0	8.92		ug/L		89	43 - 154

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	87		70 - 121
4-Bromofluorobenzene (Surr)	77		59 - 120
Toluene-d8 (Surr)	74		70 - 123
Dibromofluoromethane (Surr)	92		75 - 128

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-370124/5
Matrix: Water
Analysis Batch: 370124

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			03/04/19 13:45	1

	MB	MB		Prepared	Analyzed	Dil Fac
Surrogate	%Recovery	Qualifier	Limits			
1,2-Dichloroethane-d4 (Surr)	86		63 - 125		03/04/19 13:45	1

Lab Sample ID: LCS 240-370124/4
Matrix: Water
Analysis Batch: 370124

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	12.1		ug/L		121	59 - 131

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	86		63 - 125

TestAmerica Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108813-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-108804-B-1 MS
Matrix: Water
Analysis Batch: 370124

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	10.0	11.6		ug/L		116	52 - 129
MS MS									
Surrogate	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	83		63 - 125						

Lab Sample ID: 240-108804-B-1 MSD
Matrix: Water
Analysis Batch: 370124

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	2.0	U	10.0	11.3		ug/L		113	52 - 129	3	13
MSD MSD											
Surrogate	%Recovery	Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	84		63 - 125								

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QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108813-1

GC/MS VOA

Analysis Batch: 370116

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-108813-1	MW-183S-030119	Total/NA	Water	8260B	
MB 240-370116/6	Method Blank	Total/NA	Water	8260B	
LCS 240-370116/4	Lab Control Sample	Total/NA	Water	8260B	
240-108804-H-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
240-108804-K-1 MS	Matrix Spike	Total/NA	Water	8260B	

Analysis Batch: 370124

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-108813-1	MW-183S-030119	Total/NA	Water	8260B SIM	
MB 240-370124/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-370124/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-108804-B-1 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-108804-B-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108813-1

Client Sample ID: MW-183S-030119

Lab Sample ID: 240-108813-1

Date Collected: 03/01/19 09:50

Matrix: Water

Date Received: 03/02/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	370116	03/04/19 16:12	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	370124	03/04/19 18:24	SAM	TAL CAN

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.

TestAmerica Job ID: 240-108813-1

Project/Site: Ford LTP Livonia MI - E203631

Laboratory: TestAmerica Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-19 *
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19
Illinois	NELAP	5	200004	07-31-19
Kansas	NELAP	7	E-10336	04-30-19 *
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19
New York	NELAP	2	10975	03-31-19 *
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Canton

Client Information Client Contact: Angela DeGrandis Company: ARCADIS U.S., Inc. Address: 28550 Cabot Drive Suite 500 City: Novi State: Zp MI, 48377 Phone: MI001454.0003.00002 Email: angela.degrandis@arcadis-us.com Project Name: Ford LTP Livonia MI - E203631 Site:		Lab PM: DelMonico, Michael E-Mail: michael.delmonico@testamericainc.com Carrier Tracking No(s): COC No: 240-58422-24977.6 Page: Page 1 of 3 Job #: 1/1	
Due Date Requested: TAT Requested (days): 1 day / 24-HR PO #: MI001454.0003.00002 WO #: Cadena #: E203631 Project #: 24015353 SSO#:		Analysis Requested Total Number of containers: 6	
Sample Identification MW-183-030119 Sample Date: 3/1/19 Sample Time: 0950 Sample Type (C=Comp, G=grab): G Matrix (Water, Solid, Other): Water Preservation Code:		Perform MS/MSD (Yes or No): Field Filtered Sample (Yes or No): 8260B - VOCs (Short List): 8260B - SIM - 1,4-Dioxane: Special Instructions/Note: G * SUBMIT ALL RESULTS THROUGH CADENA (SIM.TOMALIA@CADENA.COM)	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV <input checked="" type="checkbox"/> Other (specify): LEVEL IV REPORTING			
Empty Kit Relinquished by: Relinquished by: [Signature] Relinquished by: [Signature] Relinquished by: [Signature]		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Custody Seals Intact Custody Seal No:		Received by: Received by: [Signature] Received by: [Signature] Received by: [Signature]	
Date/Time: Date/Time: 3/1/19 1200 Date/Time: 03/01/19 Date/Time: 3-1-19 1521		Date/Time: Date/Time: 3/1/19 1200 Date/Time: 3-1-19 1521 Date/Time: 3/2/19 945	
Company: ARCADIS Company: ARCADIS Company: ARCADIS		Company: ARCADIS Company: ARCADIS Company: ARCADIS	



TestAmerica Canton Sample Receipt Form/Narrative

Login #: 108813

Canton Facility

Client: Accadis Site Name: Cooler unpacked by: [Signature]
Cooler Received on: 3/2/19 Opened on: 3/2/19
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler #: TA Foam Box Client Cooler Box Other
Packing material used: Bubble Wrap Foam Plastic Bag None Other
COOLANT: Wet Ice Blue Ice Dry Ice Water None

- 1. Cooler temperature upon receipt
IR GUN# IR-8 (CF -0.2 °C) Observed Cooler Temp. 0.6 °C Corrected Cooler Temp. 0.4 °C
IR GUN #36 (CF +0.7 °C) Observed Cooler Temp. °C Corrected Cooler Temp. °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1
-Were the seals on the outside of the cooler(s) signed & dated?
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?
-Were tamper/custody seals intact and uncompromised?
3. Shippers' packing slip attached to the cooler(s)?
4. Did custody papers accompany the sample(s)?
5. Were the custody papers relinquished & signed in the appropriate place?
6. Was/were the person(s) who collected the samples clearly identified on the COC?
7. Did all bottles arrive in good condition (Unbroken)?
8. Could all bottle labels be reconciled with the COC?
9. Were correct bottle(s) used for the test(s) indicated?
10. Sufficient quantity received to perform indicated analyses?
11. Are these work share samples?
If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt?
13. Were VOAs on the COC?
14. Were air bubbles >6 mm in any VOA vials? Larger than this.
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #
16. Was a LL Hg or Me Hg trip blank present?

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM Date by via Verbal Voice Mail Other
Concerning

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: [Signature]

18. SAMPLE CONDITION
Sample(s) were received after the recommended holding time had expired.
Sample(s) were received in a broken container.
Sample(s) were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION
Sample(s) were further preserved in the laboratory.
Time preserved: Preservative(s) added/Lot number(s):
VOA Sample Preservation - Date/Time VOAs Frozen:

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-112910-1
Client Project/Site: Ford LTP Livonia MI - E203631

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
5/31/2019 12:14:03 PM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-112910-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.
X	Surrogate is outside control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-112910-1

Job ID: 240-112910-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Livonia MI - E203631

Report Number: 240-112910-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The sample was received on 5/18/2019 10:15 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.0° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Sample MW-183S_051319 (240-112910-1) was analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The sample was analyzed on 05/23/2019.

4-Bromofluorobenzene (Surr) failed the surrogate recovery criteria high for 240-112528-D-2 MS and 240-112528-C-2 MSD. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-183S_051319 (240-112910-1) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 05/21/2019.

1,4-Dioxane was detected in method blank MB 240-382312/5 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-112910-1

Job ID: 240-112910-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-112910-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-112910-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-112910-1	MW-183S_051319	Water	05/13/19 17:01	05/20/19 10:15	

- 1
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- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-112910-1

Client Sample ID: MW-183S_051319

Lab Sample ID: 240-112910-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.0	J B	2.0	0.86	ug/L	1		8260B SIM	Total/NA

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-112910-1

Client Sample ID: MW-183S_051319

Lab Sample ID: 240-112910-1

Date Collected: 05/13/19 17:01

Matrix: Water

Date Received: 05/20/19 10:15

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.0	J B	2.0	0.86	ug/L	-		05/21/19 18:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		63 - 125		05/21/19 18:18	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		05/23/19 13:30	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L	-		05/23/19 13:30	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L	-		05/23/19 13:30	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		05/23/19 13:30	1
Trichloroethene	1.0	U	1.0	0.10	ug/L	-		05/23/19 13:30	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L	-		05/23/19 13:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		70 - 121		05/23/19 13:30	1
4-Bromofluorobenzene (Surr)	106		59 - 120		05/23/19 13:30	1
Toluene-d8 (Surr)	107		70 - 123		05/23/19 13:30	1
Dibromofluoromethane (Surr)	103		75 - 128		05/23/19 13:30	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-112910-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-121)	BFB (59-120)	TOL (70-123)	DBFM (75-128)
240-112528-C-2 MSD	Matrix Spike Duplicate	91	123 X	117	101
240-112528-D-2 MS	Matrix Spike	92	126 X	115	99
240-112910-1	MW-183S_051319	97	106	107	103
LCS 240-382711/4	Lab Control Sample	88	110	109	96
MB 240-382711/6	Method Blank	99	113	113	106

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (63-125)
240-112905-C-1 MS	Matrix Spike	91
240-112905-C-1 MSD	Matrix Spike Duplicate	87
240-112910-1	MW-183S_051319	87
LCS 240-382312/4	Lab Control Sample	84
MB 240-382312/5	Method Blank	84

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-112910-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-382711/6
Matrix: Water
Analysis Batch: 382711

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			05/23/19 08:16	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			05/23/19 08:16	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			05/23/19 08:16	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			05/23/19 08:16	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			05/23/19 08:16	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			05/23/19 08:16	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		70 - 121		05/23/19 08:16	1
4-Bromofluorobenzene (Surr)	113		59 - 120		05/23/19 08:16	1
Toluene-d8 (Surr)	113		70 - 123		05/23/19 08:16	1
Dibromofluoromethane (Surr)	106		75 - 128		05/23/19 08:16	1

Lab Sample ID: LCS 240-382711/4
Matrix: Water
Analysis Batch: 382711

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	10.6		ug/L		106	65 - 139
cis-1,2-Dichloroethene	10.0	10.7		ug/L		107	76 - 128
Tetrachloroethene	10.0	9.20		ug/L		92	74 - 130
trans-1,2-Dichloroethene	10.0	10.6		ug/L		106	78 - 133
Trichloroethene	10.0	8.97		ug/L		90	76 - 125
Vinyl chloride	10.0	11.1		ug/L		111	58 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	88		70 - 121
4-Bromofluorobenzene (Surr)	110		59 - 120
Toluene-d8 (Surr)	109		70 - 123
Dibromofluoromethane (Surr)	96		75 - 128

Lab Sample ID: 240-112528-C-2 MSD
Matrix: Water
Analysis Batch: 382711

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	10.0	10.8		ug/L		108	53 - 140	14	35
cis-1,2-Dichloroethene	1.0	U	10.0	10.0		ug/L		100	64 - 130	1	21
Tetrachloroethene	1.0	U	10.0	9.19		ug/L		92	51 - 136	8	23
trans-1,2-Dichloroethene	1.0	U	10.0	9.90		ug/L		99	68 - 133	2	24
Trichloroethene	1.0	U	10.0	8.89		ug/L		89	55 - 131	3	23
Vinyl chloride	3.2		10.0	14.8		ug/L		117	43 - 154	18	29

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	91		70 - 121
4-Bromofluorobenzene (Surr)	123	X	59 - 120
Toluene-d8 (Surr)	117		70 - 123

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-112910-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-112528-C-2 MSD
Matrix: Water
Analysis Batch: 382711

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Dibromofluoromethane (Surr)	101		75 - 128

Lab Sample ID: 240-112528-D-2 MS
Matrix: Water
Analysis Batch: 382711

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U	10.0	9.43		ug/L		94	53 - 140
cis-1,2-Dichloroethene	1.0	U	10.0	10.1		ug/L		101	64 - 130
Tetrachloroethene	1.0	U	10.0	8.52		ug/L		85	51 - 136
trans-1,2-Dichloroethene	1.0	U	10.0	9.70		ug/L		97	68 - 133
Trichloroethene	1.0	U	10.0	8.60		ug/L		86	55 - 131
Vinyl chloride	3.2		10.0	12.4		ug/L		92	43 - 154

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	92		70 - 121
4-Bromofluorobenzene (Surr)	126	X	59 - 120
Toluene-d8 (Surr)	115		70 - 123
Dibromofluoromethane (Surr)	99		75 - 128

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-382312/5
Matrix: Water
Analysis Batch: 382312

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.51	J	2.0	0.86	ug/L			05/21/19 12:01	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		63 - 125		05/21/19 12:01	1

Lab Sample ID: LCS 240-382312/4
Matrix: Water
Analysis Batch: 382312

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	12.7		ug/L		127	59 - 131

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	84		63 - 125

Lab Sample ID: 240-112905-C-1 MS
Matrix: Water
Analysis Batch: 382312

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	1.1	J B	10.0	12.2		ug/L		111	52 - 129

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-112910-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>MS</i> <i>%Recovery</i>	<i>MS</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	91		63 - 125

Lab Sample ID: 240-112905-C-1 MSD
 Matrix: Water
 Analysis Batch: 382312

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Total/NA

<i>Analyte</i>	<i>Sample</i> <i>Result</i>	<i>Sample</i> <i>Qualifier</i>	<i>Spike</i> <i>Added</i>	<i>MSD</i> <i>Result</i>	<i>MSD</i> <i>Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec.</i> <i>Limits</i>	<i>RPD</i>	<i>RPD</i> <i>Limit</i>
1,4-Dioxane	1.1	J B	10.0	12.3		ug/L		112	52 - 129	1	13

<i>Surrogate</i>	<i>MSD</i> <i>%Recovery</i>	<i>MSD</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	87		63 - 125

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- 14

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-112910-1

GC/MS VOA

Analysis Batch: 382312

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-112910-1	MW-183S_051319	Total/NA	Water	8260B SIM	
MB 240-382312/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-382312/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-112905-C-1 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-112905-C-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 382711

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-112910-1	MW-183S_051319	Total/NA	Water	8260B	
MB 240-382711/6	Method Blank	Total/NA	Water	8260B	
LCS 240-382711/4	Lab Control Sample	Total/NA	Water	8260B	
240-112528-C-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
240-112528-D-2 MS	Matrix Spike	Total/NA	Water	8260B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-112910-1

Client Sample ID: MW-183S_051319

Lab Sample ID: 240-112910-1

Date Collected: 05/13/19 17:01

Matrix: Water

Date Received: 05/20/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	382711	05/23/19 13:30	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	382312	05/21/19 18:18	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-112910-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19 *
Illinois	NELAP	5	200004	07-31-19 *
Iowa	State Program	7	421	06-01-21
Kansas	NELAP	7	E-10336	04-30-20
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19 *
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19 *
New York	NELAP	2	10975	03-31-20
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Canton

MICHIGAN Chain of Custody Record
 190



Client Information		Lab PM:		Carrier Tracking No(s):		COC No:					
Client Contact: Caitlin O'Neill		DeiMonico, Michael				240-60548-25803.8					
Company: ARCADIS U.S. Inc		E-Mail: michael.deimonico@lestamericainc.com		Page: Page 8 of 13		Job #:					
Address: 28550 Cabot Drive Suite 500 Novi State Zip: MI, 48377		Due Date Requested: TAT Requested (days): 10		Analysis Requested		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:					
PO #: MI004348-8662-6662		WO #: Cadema #: E203631		Perform MS/MSD (Yes or No)		M - Hexane N - None O - AshNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)					
Project Name: Ford LTP Livonia MI - E203631		Project #: 24015353		Field Filtered Sample (Yes or No)		Total Number of Containers					
Site: FERD LTP		SSOW#:		8260B - VOCs (Short List)		Special Instructions/Note:					
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Solid, Organic, Inorganic, etc.)	Preservation Code	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs (Short List)	Analysis Requested	Carrier Tracking No(s)	COC No
MW-1835-051319	5-13-19	1701	G	Water		N	X	X			
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							

240-112910 Chain of Custody

Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological
 Deliverable Requested: I, II, III (X) Other (specify)

Empty Kit Relinquished by: _____ Date: _____
Relinquished by: *Caitlin O'Neill* Date: 5/13/19 1830 Company: Arcadis
Relinquished by: *Caitlin O'Neill* Date: 5/17/19 1200 Company: Arcadis
Relinquished by: *[Signature]* Date: 5-17-19 1530 Company: GTA


Custody Seal Initial: _____ **Custody Seal No.:** _____
 A Yes Δ No

Special Instructions/QC Requirements:
 Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months

TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility


Login # : 112910

Client Arcadis Site Name _____
 Cooler Received on 5-18-19 Opened on 5-18-19
 FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Cooler unpacked by:


Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # TA Foam Box Client Cooler Box Other _____
 Packing material used: Bubble Wrap Foam Plastic Bag None Other _____
 COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN# IR-8 (CF -0.2 °C) Observed Cooler Temp. 1.2 °C Corrected Cooler Temp. 1.0 °C
 IR GUN #36 (CF +0.7°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples?
 If yes, Questions 12-16 have been checked at the originating laboratory.
 Yes No NA pH Strip Lot# HC984738
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No
13. Were VOAs on the COC? Yes No NA
14. Were air bubbles >6 mm in any VOA vials?  Larger than this. Yes No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No
16. Was a LL Hg or Me Hg trip blank present? Yes No


Tests that are not checked for pH by Receiving:

 VOAs
 Oil and Grease
 TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:


18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

DATA VERIFICATION REPORT



May 31, 2019

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: MI001454.0002/3/4.00002/2B/3B
Event Specific Scope of Work References: Sample COC
Laboratory: TestAmerica - North Canton
Laboratory submittal: 112910-1
Sample date: 2019-05-13
Report received by CADENA: 2019-05-31
Initial Data Verification completed by CADENA: 2019-05-31
Number of Samples: 1
Sample Matrices: Water
Test Categories: GCMS VOC

Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

The following minor QC exceptions or missing information were noted:

MBK - GCMS VOC SIM QC batch 382312 method blank had a detection below the RL for the following analyte: 1,4-DIOXANE. The following client sample results should be considered to be non-detect at the RL and qualified with UB flags: -001.

GCMS VOC non-client MS and MSD SURROGATE recoveries were outliers biased high for at least 1 surrogate. Associated client sample results were non-detect so qualification was not required based on these high bias QC outliers.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

SAMPLING AND ANALYSIS SUMMARY

CADENA Project ID: E203631

Laboratory: TestAmerica-North Canton

Laboratory Submittal: 112910-1

Lab Sample ID	Sample ID	Collection Date (mm/yy/dd)	Collection Time (hh:mm:ss)	Volatile Organics by GCMS	8260B with Single Ion Monitoring	Comment
2401129101	MW-183S_051319	5/13/2019	5:01:00	X	X	

Qualified Results Summary

CADENA Project ID: E203631

Laboratory: TestAmerica - North Canton

Laboratory Submittal: 112910-1

Sample Name: MW-183S_051319

Lab Sample ID: 2401129101

Sample Date: 5/13/2019

Analyte	Cas No.	Result	Report Limit	Units	Valid Qualifier
GC/MS VOC					
<u>OSW-8260BBSim</u>					
1,4-Dioxane	123-91-1	1.0	2.0	ug/l	UB

Analytical Results Summary

Reportable Results Only

CADENA Project ID: E203631

Laboratory: TestAmerica - North Canton

Laboratory Submittal: 112910-1

Sample Name: MW-183S_051319

Lab Sample ID: 2401129101

Sample Date: 5/13/2019

Analyte	Cas No.	Result	Report		Valid	
			Limit	Units		Qualifier
GC/MS VOC						
<u>OSW-8260B</u>						
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	
Trichloroethene	79-01-6	ND	1.0	ug/l	---	
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	
<u>OSW-8260BBSim</u>						
1,4-Dioxane	123-91-1	1.0	2.0	ug/l	UB	

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-119121-1
Client Project/Site: Ford LTP Livonia MI - E203631

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
10/2/2019 2:57:32 PM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

LINKS

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results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119121-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119121-1

Job ID: 240-119121-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Livonia MI - E203631

Report Number: 240-119121-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control sample was within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, sample was diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The sample was received on 9/19/2019 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 2.5° C, 3.5° C and 3.6° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples MW-183S_091719 (240-119121-1) and TRIP BLANK (240-119121-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The sample was analyzed on 09/26/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-183S_091719 (240-119121-1) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 09/24/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119121-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119121-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-119121-1	MW-183S_091719	Water	09/17/19 11:21	09/19/19 09:30	
240-119121-2	TRIP BLANK	Water	09/17/19 00:00	09/19/19 09:30	

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- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119121-1

Client Sample ID: MW-183S_091719

Lab Sample ID: 240-119121-1

No Detections.

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-119121-2

No Detections.

- 1
- 2
- 3
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This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119121-1

Client Sample ID: MW-183S_091719

Lab Sample ID: 240-119121-1

Date Collected: 09/17/19 11:21

Matrix: Water

Date Received: 09/19/19 09:30

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			09/24/19 21:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		63 - 125		09/24/19 21:15	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			09/26/19 19:06	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			09/26/19 19:06	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			09/26/19 19:06	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			09/26/19 19:06	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			09/26/19 19:06	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			09/26/19 19:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		70 - 121		09/26/19 19:06	1
4-Bromofluorobenzene (Surr)	78		59 - 120		09/26/19 19:06	1
Toluene-d8 (Surr)	93		70 - 123		09/26/19 19:06	1
Dibromofluoromethane (Surr)	113		75 - 128		09/26/19 19:06	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119121-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-119121-2

Date Collected: 09/17/19 00:00

Matrix: Water

Date Received: 09/19/19 09:30

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			09/26/19 19:30	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			09/26/19 19:30	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			09/26/19 19:30	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			09/26/19 19:30	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			09/26/19 19:30	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			09/26/19 19:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		70 - 121		09/26/19 19:30	1
4-Bromofluorobenzene (Surr)	77		59 - 120		09/26/19 19:30	1
Toluene-d8 (Surr)	91		70 - 123		09/26/19 19:30	1
Dibromofluoromethane (Surr)	109		75 - 128		09/26/19 19:30	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119121-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA	BFB	TOL	DBFM
		(70-121)	(59-120)	(70-123)	(75-128)
240-119121-1	MW-183S_091719	96	78	93	113
240-119121-2	TRIP BLANK	95	77	91	109
240-119125-C-1 MS	Matrix Spike	81	94	97	98
240-119125-G-1 MSD	Matrix Spike Duplicate	80	94	99	102
LCS 240-402637/4	Lab Control Sample	83	102	102	103
MB 240-402637/7	Method Blank	88	78	93	108

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA
		(63-125)
240-119121-1	MW-183S_091719	110
240-119125-H-1 MS	Matrix Spike	109
240-119125-H-1 MSD	Matrix Spike Duplicate	111
LCS 240-402169/4	Lab Control Sample	107
MB 240-402169/5	Method Blank	108

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119121-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-402637/7
Matrix: Water
Analysis Batch: 402637

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			09/26/19 15:08	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			09/26/19 15:08	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			09/26/19 15:08	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			09/26/19 15:08	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			09/26/19 15:08	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			09/26/19 15:08	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		70 - 121		09/26/19 15:08	1
4-Bromofluorobenzene (Surr)	78		59 - 120		09/26/19 15:08	1
Toluene-d8 (Surr)	93		70 - 123		09/26/19 15:08	1
Dibromofluoromethane (Surr)	108		75 - 128		09/26/19 15:08	1

Lab Sample ID: LCS 240-402637/4
Matrix: Water
Analysis Batch: 402637

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	10.3		ug/L		103	65 - 139
cis-1,2-Dichloroethene	10.0	10.1		ug/L		101	76 - 128
Tetrachloroethene	10.0	10.7		ug/L		107	74 - 130
trans-1,2-Dichloroethene	10.0	10.8		ug/L		108	78 - 133
Trichloroethene	10.0	11.0		ug/L		110	76 - 125
Vinyl chloride	10.0	5.91		ug/L		59	58 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	83		70 - 121
4-Bromofluorobenzene (Surr)	102		59 - 120
Toluene-d8 (Surr)	102		70 - 123
Dibromofluoromethane (Surr)	103		75 - 128

Lab Sample ID: 240-119125-C-1 MS
Matrix: Water
Analysis Batch: 402637

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U	10.0	9.52		ug/L		95	53 - 140
cis-1,2-Dichloroethene	1.0	U	10.0	9.75		ug/L		98	64 - 130
Tetrachloroethene	1.0	U	10.0	9.24		ug/L		92	51 - 136
trans-1,2-Dichloroethene	1.0	U	10.0	10.4		ug/L		104	68 - 133
Trichloroethene	1.0	U	10.0	10.2		ug/L		102	55 - 131
Vinyl chloride	1.0	U	10.0	5.54		ug/L		55	43 - 154

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	81		70 - 121
4-Bromofluorobenzene (Surr)	94		59 - 120
Toluene-d8 (Surr)	97		70 - 123

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QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119121-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-119125-C-1 MS
Matrix: Water
Analysis Batch: 402637

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	98		75 - 128

Lab Sample ID: 240-119125-G-1 MSD
Matrix: Water
Analysis Batch: 402637

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	10.0	10.0		ug/L		100	53 - 140	5	35
cis-1,2-Dichloroethene	1.0	U	10.0	10.3		ug/L		103	64 - 130	5	21
Tetrachloroethene	1.0	U	10.0	10.2		ug/L		102	51 - 136	10	23
trans-1,2-Dichloroethene	1.0	U	10.0	11.0		ug/L		110	68 - 133	5	24
Trichloroethene	1.0	U	10.0	10.3		ug/L		103	55 - 131	1	23
Vinyl chloride	1.0	U	10.0	5.50		ug/L		55	43 - 154	1	29

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	80		70 - 121
4-Bromofluorobenzene (Surr)	94		59 - 120
Toluene-d8 (Surr)	99		70 - 123
Dibromofluoromethane (Surr)	102		75 - 128

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-402169/5
Matrix: Water
Analysis Batch: 402169

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			09/24/19 12:10	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		63 - 125		09/24/19 12:10	1

Lab Sample ID: LCS 240-402169/4
Matrix: Water
Analysis Batch: 402169

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	10.0		ug/L		100	59 - 131

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	107		63 - 125

Lab Sample ID: 240-119125-H-1 MS
Matrix: Water
Analysis Batch: 402169

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	10.0	11.5		ug/L		115	52 - 129

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QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119121-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	109		63 - 125

Lab Sample ID: 240-119125-H-1 MSD
Matrix: Water
Analysis Batch: 402169

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
1,4-Dioxane	2.0	U	10.0	11.1		ug/L		111	52 - 129	3	13

<i>Surrogate</i>	<i>%Recovery</i>	<i>MSD MSD Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	111		63 - 125



QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119121-1

GC/MS VOA

Analysis Batch: 402169

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119121-1	MW-183S_091719	Total/NA	Water	8260B SIM	
MB 240-402169/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-402169/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-119125-H-1 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-119125-H-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 402637

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119121-1	MW-183S_091719	Total/NA	Water	8260B	
240-119121-2	TRIP BLANK	Total/NA	Water	8260B	
MB 240-402637/7	Method Blank	Total/NA	Water	8260B	
LCS 240-402637/4	Lab Control Sample	Total/NA	Water	8260B	
240-119125-C-1 MS	Matrix Spike	Total/NA	Water	8260B	
240-119125-G-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119121-1

Client Sample ID: MW-183S_091719

Lab Sample ID: 240-119121-1

Date Collected: 09/17/19 11:21

Matrix: Water

Date Received: 09/19/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	402637	09/26/19 19:06	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	402169	09/24/19 21:15	SAM	TAL CAN

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-119121-2

Date Collected: 09/17/19 00:00

Matrix: Water

Date Received: 09/19/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	402637	09/26/19 19:30	LRW	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119121-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-20
California	State Program	2927	02-23-20
Connecticut	State	PH-0590	12-31-19
Connecticut	State Program	PH-0590	12-31-19
Florida	NELAP	E87225	06-30-20
Florida	NELAP	E87225	06-30-20
Georgia	State	4062	02-23-20
Georgia	State Program	N/A	02-23-20
Illinois	NELAP	200004	07-31-20
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-20
Iowa	State Program	421	06-01-21
Kansas	NELAP	E-10336	04-30-20
Kansas	NELAP	E-10336	04-30-20
Kentucky (UST)	State	112225	02-23-20
Kentucky (UST)	State Program	58	02-23-20
Kentucky (WW)	State	KY98016	12-31-19
Kentucky (WW)	State Program	98016	12-31-19
Minnesota	NELAP	039-999-348	12-31-19 *
Minnesota	NELAP	OH00048	12-31-19
Minnesota (Petrofund)	State Program	3506	07-31-21
New Jersey	NELAP	OH001	06-30-20
New Jersey	NELAP	OH001	06-30-20
New York	NELAP	10975	03-31-20
New York	NELAP	10975	03-31-20
Ohio VAP	State	CL0024	06-05-21
Ohio VAP	State Program	CL0024	06-05-21
Oregon	NELAP	4062	02-23-20
Oregon	NELAP	4062	02-23-20
Pennsylvania	NELAP	68-00340	08-31-20
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-19-11	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	Federal	P330-16-00404	12-28-19
USDA	US Federal Programs	P330-16-00404	12-28-19
Virginia	NELAP	460175	09-14-20
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-20
Washington	State Program	C971	01-12-20 *
West Virginia DEP	State	210	12-31-19
West Virginia DEP	State Program	210	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Chain of Custody Record

TestAmerica Laboratory location: Brighton --- 10448 Chikson Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Client Contact Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240 Project Name: Ford LTP Project Number: M1001454.0004.0002B PO # M1001454.0004.0002B		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other		Client Project Manager: Kris Hinskey Telephone: 248-994-2240 Email: kristoffer.hinskey@arcadis.com		Site Contact: Rachel Bielak Telephone: 248-946-6331		Lab Contact: Mike DeMonico Telephone: 330-497-9396		TestAmerica Laboratories, Inc. COC No: _____ of _____ COCs For lab use only	
Method of Shipment/Carrier: Shipping/Tracking No:		Analysis Turnaround Time TAT if different from below: <input type="checkbox"/> 3 weeks <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day 10 day		Containers & Preservatives H2SO4 <input type="checkbox"/> HNO3 <input type="checkbox"/> HCl <input type="checkbox"/> NaOH <input type="checkbox"/> ZnAc <input type="checkbox"/> NaOH <input type="checkbox"/> Uppers <input type="checkbox"/> Other: _____		Filtered Sample (Y / N) Composite C / Grab C 1,1-DCE 8260B Cis-1,2-DCE 8260B Trans-1,2-DCE 8260B PCE 8260B TCE 8260B Vinyl Chloride 8260B 1,4-Dioxane 8260B SIM		Sample Specific Notes / Special Instructions:		Walk-in client Lab sampling Job/SDG No:	
Matrix Air <input type="checkbox"/> Aqueous <input type="checkbox"/> Sediment <input type="checkbox"/> Solid <input type="checkbox"/> Other: _____		Sample Time Sample Date: 9-17-19 Sample Date: 9-17-19 Sample Time: 1021 Sample Time: ---		Sample Identification Mw-1835-091719 Trip Blank		Date/Time: 8-17-19 Date/Time: 9/18/19 Date/Time: 9/18/19		Company: Arcadis Company: ARCADIS Company: ETAL-MI		Date/Time: 8-17-19 1635 Date/Time: 9/18/19 1030 Date/Time: 9/18/19 1420	
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> In Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown		Special Instructions/QC Requirements & Comments: Submit all results through Cadena at jim.tormalia@cadena.com. Cadena #E203631 Level IV Reporting requested.		Relinquished by: <i>John</i> Relinquished by: <i>KACHELBIELAK Paul Bielak</i> Relinquished by: <i>Nolly Nassow</i>		Received by: <i>Nolly Nassow</i> Received by: <i>Molly Nassow</i> Received in Laboratory by: <i>[Signature]</i>		Company: Arcadis Company: ETAL-MI Company: <i>TAL</i>		Date/Time: 8-17-19 1635 Date/Time: 9/18/19 1030 Date/Time: 9/18/19 1420	



Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 119121

Client Accadis Site Name _____
 Cooler Received on 9/19/17 Opened on 9/19/19
 FedEx: 1st Grd UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Cooler unpacked by:
DsO

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # TAC Foam Box _____ Client Cooler Box _____ Other _____
 Packing material used: Bubble Wrap Foam Plastic Bag None Other _____
 COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN #IR-11 (CF +0.9°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity Leach Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
 If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC991818
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? Larger than this. Yes No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # N/A Yes No
16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:

 VOAs
 Oil and Grease
 TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:
Martin

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

Eurofins TestAmerica Canton Sample Receipt Multiple Cooler Form

Cooler Description (Circle)				IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)		
(TA)	Client	Box	Other	IR-10 IR-11	1.8	2.5	(Wet Ice)	Blue Ice	Dry Ice
							Water	None	
(TA)	Client	Box	Other	IR-10 IR-11	2.9	3.6	(Wet Ice)	Blue Ice	Dry Ice
							Water	None	
(TA)	Client	Box	Other	IR-10 IR-11	2.8	3.5	(Wet Ice)	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	

See Temperature Excursion Form



ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-126333-1
Client Project/Site: Ford LTP Off Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
2/28/2020 10:31:37 AM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
U	Indicates the analyte was analyzed for but not detected.
X	Surrogate is outside control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

Job ID: 240-126333-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Off Site

Report Number: 240-126333-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 2/14/2020 8:50 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 3.6° C, 4.4° C and 4.6° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-126333-1) and MW-183S_021220 (240-126333-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 02/19/2020 and 02/20/2020.

1,1-Dichloroethene and Tetrachloroethene failed the recovery criteria high for LCS 240-423576/4. Refer to the QC report for details.

The laboratory control sample (LCS) for 423576 recovered outside control limits for the following analytes: 1,1-Dichloroethene, Tetrachloroethene. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported: MW-183S_021220 (240-126333-2).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-183S_021220 (240-126333-2) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 02/24/2020.

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

Job ID: 240-126333-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-126333-1	TRIP BLANK	Water	02/12/20 00:00	02/14/20 08:50	
240-126333-2	MW-183S_021220	Water	02/12/20 11:40	02/14/20 08:50	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-126333-1

No Detections.

Client Sample ID: MW-183S_021220

Lab Sample ID: 240-126333-2

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-126333-1

Date Collected: 02/12/20 00:00

Matrix: Water

Date Received: 02/14/20 08:50

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/19/20 16:34	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/19/20 16:34	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/19/20 16:34	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/19/20 16:34	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/19/20 16:34	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/19/20 16:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		75 - 130		02/19/20 16:34	1
4-Bromofluorobenzene (Surr)	63		47 - 134		02/19/20 16:34	1
Toluene-d8 (Surr)	82		69 - 122		02/19/20 16:34	1
Dibromofluoromethane (Surr)	84		78 - 129		02/19/20 16:34	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

Client Sample ID: MW-183S_021220

Lab Sample ID: 240-126333-2

Date Collected: 02/12/20 11:40

Matrix: Water

Date Received: 02/14/20 08:50

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L	-		02/24/20 18:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		70 - 133		02/24/20 18:57	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U *	1.0	0.19	ug/L	-		02/20/20 12:43	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L	-		02/20/20 12:43	1
Tetrachloroethene	1.0	U *	1.0	0.15	ug/L	-		02/20/20 12:43	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		02/20/20 12:43	1
Trichloroethene	1.0	U	1.0	0.10	ug/L	-		02/20/20 12:43	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L	-		02/20/20 12:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	77		75 - 130		02/20/20 12:43	1
4-Bromofluorobenzene (Surr)	65		47 - 134		02/20/20 12:43	1
Toluene-d8 (Surr)	84		69 - 122		02/20/20 12:43	1
Dibromofluoromethane (Surr)	80		78 - 129		02/20/20 12:43	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-126333-1	TRIP BLANK	84	63	82	84
240-126333-2	MW-183S_021220	77	65	84	80
240-126339-E-4 MSD	Matrix Spike Duplicate	72 X	76	83	77 X
240-126339-F-4 MS	Matrix Spike	72 X	76	83	81
240-126395-B-2 MS	Matrix Spike	81	82	94	87
240-126395-B-2 MSD	Matrix Spike Duplicate	76	77	90	83
LCS 240-423393/4	Lab Control Sample	75	80	87	79
LCS 240-423576/4	Lab Control Sample	90	92	108	101
MB 240-423393/7	Method Blank	81	67	80	80
MB 240-423576/7	Method Blank	77	61	79	79

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA
		(70-133)
240-126333-2	MW-183S_021220	103
240-126349-G-5 MS	Matrix Spike	103
240-126349-G-5 MSD	Matrix Spike Duplicate	105
LCS 240-423939/4	Lab Control Sample	101
MB 240-423939/5	Method Blank	102

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-423393/7
Matrix: Water
Analysis Batch: 423393

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/19/20 13:17	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/19/20 13:17	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/19/20 13:17	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/19/20 13:17	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/19/20 13:17	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/19/20 13:17	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	81		75 - 130		02/19/20 13:17	1
4-Bromofluorobenzene (Surr)	67		47 - 134		02/19/20 13:17	1
Toluene-d8 (Surr)	80		69 - 122		02/19/20 13:17	1
Dibromofluoromethane (Surr)	80		78 - 129		02/19/20 13:17	1

Lab Sample ID: LCS 240-423393/4
Matrix: Water
Analysis Batch: 423393

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	9.59		ug/L		96	73 - 129
cis-1,2-Dichloroethene	10.0	9.33		ug/L		93	75 - 124
Tetrachloroethene	10.0	11.3		ug/L		113	70 - 125
trans-1,2-Dichloroethene	10.0	9.21		ug/L		92	74 - 130
Trichloroethene	10.0	9.51		ug/L		95	71 - 121
Vinyl chloride	10.0	6.48		ug/L		65	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	75		75 - 130
4-Bromofluorobenzene (Surr)	80		47 - 134
Toluene-d8 (Surr)	87		69 - 122
Dibromofluoromethane (Surr)	79		78 - 129

Lab Sample ID: 240-126339-E-4 MSD
Matrix: Water
Analysis Batch: 423393

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	10.0	8.45		ug/L		85	64 - 132	7	35
cis-1,2-Dichloroethene	1.0	U	10.0	8.70		ug/L		87	68 - 121	1	35
Tetrachloroethene	1.0	U	10.0	9.65		ug/L		97	52 - 129	1	35
trans-1,2-Dichloroethene	1.0	U	10.0	8.48		ug/L		85	69 - 126	1	35
Trichloroethene	1.0	U	10.0	8.39		ug/L		84	56 - 124	2	35
Vinyl chloride	0.32	J	10.0	6.51		ug/L		62	49 - 136	12	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	72	X	75 - 130
4-Bromofluorobenzene (Surr)	76		47 - 134
Toluene-d8 (Surr)	83		69 - 122

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-126339-E-4 MSD
Matrix: Water
Analysis Batch: 423393

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	77	X	78 - 129

Lab Sample ID: 240-126339-F-4 MS
Matrix: Water
Analysis Batch: 423393

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.
	Result	Qualifier		Result	Qualifier				
1,1-Dichloroethene	1.0	U	10.0	9.09		ug/L		91	64 - 132
cis-1,2-Dichloroethene	1.0	U	10.0	8.76		ug/L		88	68 - 121
Tetrachloroethene	1.0	U	10.0	9.57		ug/L		96	52 - 129
trans-1,2-Dichloroethene	1.0	U	10.0	8.57		ug/L		86	69 - 126
Trichloroethene	1.0	U	10.0	8.19		ug/L		82	56 - 124
Vinyl chloride	0.32	J	10.0	7.34		ug/L		70	49 - 136

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	72	X	75 - 130
4-Bromofluorobenzene (Surr)	76		47 - 134
Toluene-d8 (Surr)	83		69 - 122
Dibromofluoromethane (Surr)	81		78 - 129

Lab Sample ID: MB 240-423576/7
Matrix: Water
Analysis Batch: 423576

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/20/20 12:21	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/20/20 12:21	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/20/20 12:21	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/20/20 12:21	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/20/20 12:21	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/20/20 12:21	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	77		75 - 130		02/20/20 12:21	1
4-Bromofluorobenzene (Surr)	61		47 - 134		02/20/20 12:21	1
Toluene-d8 (Surr)	79		69 - 122		02/20/20 12:21	1
Dibromofluoromethane (Surr)	79		78 - 129		02/20/20 12:21	1

Lab Sample ID: LCS 240-423576/4
Matrix: Water
Analysis Batch: 423576

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.
1,1-Dichloroethene	10.0	13.0	*	ug/L		130	73 - 129
cis-1,2-Dichloroethene	10.0	11.8		ug/L		118	75 - 124
Tetrachloroethene	10.0	13.7	*	ug/L		137	70 - 125
trans-1,2-Dichloroethene	10.0	12.1		ug/L		121	74 - 130
Trichloroethene	10.0	11.5		ug/L		115	71 - 121

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-423576/4
Matrix: Water
Analysis Batch: 423576

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Vinyl chloride	10.0	8.74		ug/L		87	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	90		75 - 130
4-Bromofluorobenzene (Surr)	92		47 - 134
Toluene-d8 (Surr)	108		69 - 122
Dibromofluoromethane (Surr)	101		78 - 129

Lab Sample ID: 240-126395-B-2 MS
Matrix: Water
Analysis Batch: 423576

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1000	U *	10000	8450		ug/L		84	64 - 132
cis-1,2-Dichloroethene	18000		10000	26400		ug/L		85	68 - 121
Tetrachloroethene	1000	U *	10000	9350		ug/L		93	52 - 129
trans-1,2-Dichloroethene	1000	U	10000	9240		ug/L		92	69 - 126
Trichloroethene	1000	U	10000	8740		ug/L		87	56 - 124
Vinyl chloride	7000		10000	13500		ug/L		65	49 - 136

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	81		75 - 130
4-Bromofluorobenzene (Surr)	82		47 - 134
Toluene-d8 (Surr)	94		69 - 122
Dibromofluoromethane (Surr)	87		78 - 129

Lab Sample ID: 240-126395-B-2 MSD
Matrix: Water
Analysis Batch: 423576

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1000	U *	10000	8640		ug/L		86	64 - 132	2	35
cis-1,2-Dichloroethene	18000		10000	25900		ug/L		80	68 - 121	2	35
Tetrachloroethene	1000	U *	10000	9370		ug/L		94	52 - 129	0	35
trans-1,2-Dichloroethene	1000	U	10000	8480		ug/L		85	69 - 126	9	35
Trichloroethene	1000	U	10000	8130		ug/L		81	56 - 124	7	35
Vinyl chloride	7000		10000	13400		ug/L		64	49 - 136	1	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	76		75 - 130
4-Bromofluorobenzene (Surr)	77		47 - 134
Toluene-d8 (Surr)	90		69 - 122
Dibromofluoromethane (Surr)	83		78 - 129

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-423939/5
Matrix: Water
Analysis Batch: 423939

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			02/24/20 11:11	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		70 - 133					02/24/20 11:11	1

Lab Sample ID: LCS 240-423939/4
Matrix: Water
Analysis Batch: 423939

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	9.41		ug/L		94	80 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	101		70 - 133				

Lab Sample ID: 240-126349-G-5 MS
Matrix: Water
Analysis Batch: 423939

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	10.0	9.98		ug/L		100	46 - 170
Surrogate	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	103		70 - 133						

Lab Sample ID: 240-126349-G-5 MSD
Matrix: Water
Analysis Batch: 423939

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	2.0	U	10.0	10.2		ug/L		102	46 - 170	2	26
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	105		70 - 133								

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

GC/MS VOA

Analysis Batch: 423393

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-126333-1	TRIP BLANK	Total/NA	Water	8260B	
MB 240-423393/7	Method Blank	Total/NA	Water	8260B	
LCS 240-423393/4	Lab Control Sample	Total/NA	Water	8260B	
240-126339-E-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
240-126339-F-4 MS	Matrix Spike	Total/NA	Water	8260B	

Analysis Batch: 423576

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-126333-2	MW-183S_021220	Total/NA	Water	8260B	
MB 240-423576/7	Method Blank	Total/NA	Water	8260B	
LCS 240-423576/4	Lab Control Sample	Total/NA	Water	8260B	
240-126395-B-2 MS	Matrix Spike	Total/NA	Water	8260B	
240-126395-B-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Analysis Batch: 423939

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-126333-2	MW-183S_021220	Total/NA	Water	8260B SIM	
MB 240-423939/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-423939/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-126349-G-5 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-126349-G-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-126333-1

Date Collected: 02/12/20 00:00

Matrix: Water

Date Received: 02/14/20 08:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	423393	02/19/20 16:34	LEE	TAL CAN

Client Sample ID: MW-183S_021220

Lab Sample ID: 240-126333-2

Date Collected: 02/12/20 11:40

Matrix: Water

Date Received: 02/14/20 08:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	423576	02/20/20 12:43	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	423939	02/24/20 18:57	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-20 *
Connecticut	State	PH-0590	12-31-19 *
Florida	NELAP	E87225	06-30-20
Georgia	State	4062	02-23-20 *
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-20
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-20
New York	NELAP	10975	03-31-20
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-23-20 *
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-16-00404	12-28-19 *
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.



MICHIGAN 190

Chain of Custody Record

TestAmerica Laboratory location: Brighton — 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810.229.2763

TestAmerica
100 EAST WASHINGTON AVENUE, SUITE 100
 BRIGHTON, MI 48116

Client Contact Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240 Project Name: Ford LTP Off-Site Project Number: 30042006.0402.02 PO # 30042006.0402.02		Regulatory program: DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other <input type="checkbox"/>	
Client Project Manager: Kris Hinesley Telephone: 248-994-2240 Email: kris@offic.hinesley@arcadis.com		Site Contact: Julia McClafferty Telephone: 734-644-5131	
Lab Contact: Mike DeMonico Telephone: 330-497-9396		TestAmerica Laboratories, Inc. COC No: _____ of _____ For lab use only	
Sampler Name: S. JOHNSON Method of Shipment/Carrier: Shipping/Tracking No:		Analysis Turnaround Time TAT if differs from below: 10 day <input type="checkbox"/> 3 weeks <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day <input type="checkbox"/>	
Sample Identification TRIP BLANK MW-183S-02120		Containers & Preservatives H2SO4 <input type="checkbox"/> HCl <input type="checkbox"/> NaOH <input type="checkbox"/> NaCl <input type="checkbox"/> Other: _____	
Matrix Solid <input type="checkbox"/> Sediment <input type="checkbox"/> Aqueous <input type="checkbox"/> Air <input type="checkbox"/> Other: _____		Filtered Sample (Y/N) Y <input type="checkbox"/> N <input type="checkbox"/> G <input type="checkbox"/>	
Sample Date 2/12/20 1140		Sample Time 1140	
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Irritant <input type="checkbox"/> Flammable <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) Return to Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Special Instructions/QC Requirements & Comments: Submit all results through Cadena at: jtomalia@cadenaco.com, Cadena #E203631 Level IV Reporting requested		240-126333 Chain of Custody	

Relinquished by:	Relinquished by:	Relinquished by:	Relinquished by:
[Signature]	[Signature]	[Signature]	[Signature]
Company: ARCADIS Date/Time: 2/12/20 1500	Company: ARCADIS TRAILER Date/Time: 2/12/20 1650	Company: ARCADIS Date/Time: 2/12/20 1730	Company: ARCADIS Date/Time: 2/13/20 1545
Company: ARCADIS Date/Time: 2/12/20 1650	Company: ARCADIS Date/Time: 2/12/20 1730	Company: ARCADIS Date/Time: 2/13/20 1545	Company: ETAL-MI Date/Time: 2/14/20 850
Company: ARCADIS Date/Time: 2/12/20 1730	Company: ARCADIS Date/Time: 2/13/20 1545	Company: ETAL-MI Date/Time: 2/14/20 850	Company: ETAC Date/Time: 2/14/20 850

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Canton Facility

Client Arcadis Site Name
Cooler Received on 2-14-20 Opened on 2-14-20
FedEx: 1st Grd/Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Cooler unpacked by: [Signature]

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # [Blank] Foam Box Client Cooler Box Other
Packing material used: Bubble Wrap Foam Plastic Bag None Other
COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt [X] See Multiple Cooler Form

IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. 8 °C Corrected Cooler Temp. °C
IR GUN #IR-11 (CF +0.9°C) Observed Cooler Temp. °C Corrected Cooler Temp. °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 3 Yes No

-Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
-Were tamper/custody seals intact and uncompromised? Yes No NA

3. Shippers' packing slip attached to the cooler(s)? Yes No

4. Did custody papers accompany the sample(s)? Yes No

5. Were the custody papers relinquished & signed in the appropriate place? Yes No

6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No

7. Did all bottles arrive in good condition (Unbroken)? Yes No

8. Could all bottle labels be reconciled with the COC? Yes No

9. Were correct bottle(s) used for the test(s) indicated? Yes No

10. Sufficient quantity received to perform indicated analyses? Yes No

11. Are these work share samples? Yes No

If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC995364

13. Were VOAs on the COC? Yes No

14. Were air bubbles >6 mm in any VOA vials? [X] Larger than this. Yes No NA

15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # NA Yes No

16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: AG

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

Eurofins TestAmerica Canton Sample Receipt Multiple Cooler Form

Cooler Description (Circle)				IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)		
<u>TA</u>	Client	Box	Other	<u>IR-10</u> IR-11	2.9	3.6	<u>Wet Ice</u>	Blue Ice	Dry Ice
							Water	None	
<u>TA</u>	Client	Box	Other	<u>IR-10</u> IR-11	3.7	4.4	<u>Wet Ice</u>	Blue Ice	Dry Ice
							Water	None	
<u>TA</u>	Client	Box	Other	<u>IR-10</u> IR-11	3.9	4.6	<u>Wet Ice</u>	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	

See Temperature Excursion Form



ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-139964-1
Client Project/Site: Ford LTP - Off Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
11/25/2020 8:46:21 AM

Michael DelMonico, Project Manager I
(330)497-9396
Michael.DelMonico@Eurofinset.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:

www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139964-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139964-1

Job ID: 240-139964-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP - Off Site

Report Number: 240-139964-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 11/11/2020 9:15 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.8° C and 2.9° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-139964-1) and MW-183S_110920 (240-139964-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/20/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-183S_110920 (240-139964-2) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 11/17/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139964-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139964-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-139964-1	TRIP BLANK	Water	11/09/20 00:00	11/11/20 09:15	
240-139964-2	MW-183S_110920	Water	11/09/20 14:30	11/11/20 09:15	

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- 13
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Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139964-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-139964-1

No Detections.

Client Sample ID: MW-183S_110920

Lab Sample ID: 240-139964-2

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP - Off Site

Job ID: 240-139964-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-139964-1

Date Collected: 11/09/20 00:00

Matrix: Water

Date Received: 11/11/20 09:15

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/20/20 16:05	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/20/20 16:05	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/20/20 16:05	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/20/20 16:05	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/20/20 16:05	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/20/20 16:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		75 - 130		11/20/20 16:05	1
4-Bromofluorobenzene (Surr)	71		47 - 134		11/20/20 16:05	1
Toluene-d8 (Surr)	87		69 - 122		11/20/20 16:05	1
Dibromofluoromethane (Surr)	96		78 - 129		11/20/20 16:05	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP - Off Site

Job ID: 240-139964-1

Client Sample ID: MW-183S_110920

Lab Sample ID: 240-139964-2

Date Collected: 11/09/20 14:30

Matrix: Water

Date Received: 11/11/20 09:15

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/17/20 21:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	125		70 - 133		11/17/20 21:23	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/20/20 16:29	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/20/20 16:29	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/20/20 16:29	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/20/20 16:29	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/20/20 16:29	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/20/20 16:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		75 - 130		11/20/20 16:29	1
4-Bromofluorobenzene (Surr)	72		47 - 134		11/20/20 16:29	1
Toluene-d8 (Surr)	87		69 - 122		11/20/20 16:29	1
Dibromofluoromethane (Surr)	94		78 - 129		11/20/20 16:29	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139964-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA	BFB	TOL	DBFM
		(75-130)	(47-134)	(69-122)	(78-129)
240-139964-1	TRIP BLANK	87	71	87	96
240-139964-2	MW-183S_110920	87	72	87	94
240-140049-E-3 MS	Matrix Spike	78	91	93	86
240-140049-F-3 MSD	Matrix Spike Duplicate	79	87	92	86
LCS 240-462077/4	Lab Control Sample	82	91	101	93
MB 240-462077/7	Method Blank	84	72	86	90

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA
		(70-133)
240-139957-C-2 MS	Matrix Spike	122
240-139957-C-2 MSD	Matrix Spike Duplicate	121
240-139964-2	MW-183S_110920	125
LCS 240-461393/3	Lab Control Sample	109
MB 240-461393/5	Method Blank	116

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139964-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-462077/7
Matrix: Water
Analysis Batch: 462077

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/20/20 15:41	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/20/20 15:41	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/20/20 15:41	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/20/20 15:41	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/20/20 15:41	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/20/20 15:41	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		75 - 130		11/20/20 15:41	1
4-Bromofluorobenzene (Surr)	72		47 - 134		11/20/20 15:41	1
Toluene-d8 (Surr)	86		69 - 122		11/20/20 15:41	1
Dibromofluoromethane (Surr)	90		78 - 129		11/20/20 15:41	1

Lab Sample ID: LCS 240-462077/4
Matrix: Water
Analysis Batch: 462077

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	9.98		ug/L		100	73 - 129
cis-1,2-Dichloroethene	10.0	9.47		ug/L		95	75 - 124
Tetrachloroethene	10.0	10.1		ug/L		101	70 - 125
trans-1,2-Dichloroethene	10.0	10.1		ug/L		101	74 - 130
Trichloroethene	10.0	8.96		ug/L		90	71 - 121
Vinyl chloride	10.0	8.02		ug/L		80	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	82		75 - 130
4-Bromofluorobenzene (Surr)	91		47 - 134
Toluene-d8 (Surr)	101		69 - 122
Dibromofluoromethane (Surr)	93		78 - 129

Lab Sample ID: 240-140049-E-3 MS
Matrix: Water
Analysis Batch: 462077

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U	10.0	9.89		ug/L		99	64 - 132
cis-1,2-Dichloroethene	1.0	U	10.0	9.59		ug/L		96	68 - 121
Tetrachloroethene	1.0	U	10.0	10.7		ug/L		107	52 - 129
trans-1,2-Dichloroethene	1.0	U	10.0	10.4		ug/L		104	69 - 126
Trichloroethene	1.0	U	10.0	8.96		ug/L		90	56 - 124
Vinyl chloride	1.0	U	10.0	7.37		ug/L		74	49 - 136

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	78		75 - 130
4-Bromofluorobenzene (Surr)	91		47 - 134
Toluene-d8 (Surr)	93		69 - 122

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139964-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-140049-E-3 MS
Matrix: Water
Analysis Batch: 462077

Client Sample ID: Matrix Spike
Prep Type: Total/NA

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
Dibromofluoromethane (Surr)	86		78 - 129

Lab Sample ID: 240-140049-F-3 MSD
Matrix: Water
Analysis Batch: 462077

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	10.0	9.69		ug/L		97	64 - 132	2	35
cis-1,2-Dichloroethene	1.0	U	10.0	9.50		ug/L		95	68 - 121	1	35
Tetrachloroethene	1.0	U	10.0	9.79		ug/L		98	52 - 129	8	35
trans-1,2-Dichloroethene	1.0	U	10.0	10.2		ug/L		102	69 - 126	2	35
Trichloroethene	1.0	U	10.0	8.96		ug/L		90	56 - 124	0	35
Vinyl chloride	1.0	U	10.0	7.43		ug/L		74	49 - 136	1	35

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	79		75 - 130
4-Bromofluorobenzene (Surr)	87		47 - 134
Toluene-d8 (Surr)	92		69 - 122
Dibromofluoromethane (Surr)	86		78 - 129

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-461393/5
Matrix: Water
Analysis Batch: 461393

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/17/20 13:36	1

	MB	MB							
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
1,2-Dichloroethane-d4 (Surr)	116		70 - 133		11/17/20 13:36	1			

Lab Sample ID: LCS 240-461393/3
Matrix: Water
Analysis Batch: 461393

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	11.0		ug/L		110	80 - 135

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	109		70 - 133

Lab Sample ID: 240-139957-C-2 MS
Matrix: Water
Analysis Batch: 461393

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	10.0	12.0		ug/L		120	46 - 170

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP - Off Site

Job ID: 240-139964-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>MS</i> <i>%Recovery</i>	<i>MS</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	122		70 - 133

Lab Sample ID: 240-139957-C-2 MSD
Matrix: Water
Analysis Batch: 461393

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

<i>Analyte</i>	<i>Sample</i> <i>Result</i>	<i>Sample</i> <i>Qualifier</i>	<i>Spike</i> <i>Added</i>	<i>MSD</i> <i>Result</i>	<i>MSD</i> <i>Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec.</i> <i>Limits</i>	<i>RPD</i>	<i>RPD</i> <i>Limit</i>
1,4-Dioxane	2.0	U	10.0	12.0		ug/L		120	46 - 170	0	26

<i>Surrogate</i>	<i>MSD</i> <i>%Recovery</i>	<i>MSD</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	121		70 - 133

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QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139964-1

GC/MS VOA

Analysis Batch: 461393

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-139964-2	MW-183S_110920	Total/NA	Water	8260B SIM	
MB 240-461393/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-461393/3	Lab Control Sample	Total/NA	Water	8260B SIM	
240-139957-C-2 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-139957-C-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 462077

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-139964-1	TRIP BLANK	Total/NA	Water	8260B	
240-139964-2	MW-183S_110920	Total/NA	Water	8260B	
MB 240-462077/7	Method Blank	Total/NA	Water	8260B	
LCS 240-462077/4	Lab Control Sample	Total/NA	Water	8260B	
240-140049-E-3 MS	Matrix Spike	Total/NA	Water	8260B	
240-140049-F-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139964-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-139964-1

Date Collected: 11/09/20 00:00

Matrix: Water

Date Received: 11/11/20 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	462077	11/20/20 16:05	LRW	TAL CAN

Client Sample ID: MW-183S_110920

Lab Sample ID: 240-139964-2

Date Collected: 11/09/20 14:30

Matrix: Water

Date Received: 11/11/20 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	462077	11/20/20 16:29	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	461393	11/17/20 21:23	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139964-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-21
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-21
Texas	NELAP	T104704517-18-10	08-31-21
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-21
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

Chain of Custody Record

TestAmerica Laboratory location: Brighton -- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

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Client Contact Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240 Project Name: Ford LTP Off-Site Project Number: 30050315.402.04 PO # 30050315.402.04		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other	
Client Project Manager: Kris Hinskey Telephone: 248-994-2240 Email: kristoffer.hinskey@arcadis.com		Site Contact: Julia McClafferty Telephone: 734-644-5131	
Lab Contact: Mike DelMonico Telephone: 330-497-9396		TestAmerica Laboratories, Inc. COC No: _____ of _____ COCs	
Sampler Name: Ellen Redner Method of Shipment/Carrier: Shipping/Tracking No:		Analysis Turnaround Time TAT if different from below: <input type="checkbox"/> 3 weeks <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day	
Sample Identification TRIP BLANK MW-1855-110920		Containers & Preservatives H2SO4 <input type="checkbox"/> HNO3 <input type="checkbox"/> HCl <input type="checkbox"/> NaOH <input type="checkbox"/> ZnAc <input type="checkbox"/> NaOH <input type="checkbox"/> Other: _____ Matrix: Aqueous <input type="checkbox"/> Sediment <input type="checkbox"/> Solid <input type="checkbox"/> Other: _____	
Sample Date: 11/9/20 Sample Time: 1430		Filtered Sample (Y/N) NG X NG X	
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		Sample Specific Notes / Special Instructions: LTP BLANK 3 Vials for 8260B 3 Vials for 8260B SIM	
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Irritant <input type="checkbox"/> Inflammable <input type="checkbox"/> Corrosive <input type="checkbox"/> Unknown		Barcode: 240-139964 Chain of Custody 11/9/2020	
Special Instructions/QC Requirements & Comments: Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203631 Level IV Reporting requested.			
Relinquished by: Ellen Redner Relinquished by: John McClafferty Relinquished by: Paul Can		Received by: Nov, cold storage Received by: Paul Can Received in Laboratory by: [Signature]	
Company: Arcadis Date/Time: 11/9/2020 1800		Company: Arcadis Date/Time: 11/10/20 1440	
Company: Arcadis Date/Time: 11/10/20 1700		Company: Arcadis Date/Time: 11/9/2020 1800	
Company: ETA Date/Time: 11/10/20 1440		Company: ETA Date/Time: 11/10/20 1440	
Company: ETA Date/Time: 11/10/20 1700		Company: ETA Date/Time: 11-11-20 915	

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Eurofins TestAmerica Canton Sample Receipt Form/Narrative

Login # : 1399164

Canton Facility

Client Arcadis Site Name _____ Cooler unpacked by: [Signature]
 Cooler Received on 11-11-20 Opened on 11-12-20
 FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # TA Foam Box _____ Client Cooler Box _____ Other _____
 Packing material used: Bubble Wrap Foam Plastic Bag None Other _____
 COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN# IR-11 (CF +0.9 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN #IR-12 (CF +0.5 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 2 Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)? Yes No
10. Were correct bottle(s) used for the test(s) indicated? Yes No
11. Sufficient quantity received to perform indicated analyses? Yes No
12. Are these work share samples and all listed on the COC? Yes No
 If yes, Questions 13-17 have been checked at the originating laboratory.
13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC907861
14. Were VOAs on the COC? Yes No
15. Were air bubbles >6 mm in any VOA vials? ● ← Larger than this. Yes No NA MSJ
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # NA Yes No
17. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:
 VOAs
 Oil and Grease
 TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____
 Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page Samples processed by: _____

19. SAMPLE CONDITION
 Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION
 Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____
 VOA Sample Preservation - Date/Time VOAs Frozen: _____

Eurofins TestAmerica Canton Sample Receipt Multiple Cooler Form				
Cooler Description (Circle)	IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)
<u>TA</u> Client Box Other	IR-11 <u>IR-12</u>	2.0	2.9	Wet Ice Blue Ice Dry Ice Water None
<u>TA</u> Client Box Other	IR-11 <u>IR-12</u>	1.9	2.8	Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
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TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ice Water None

See Temperature Excursion Form

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ANALYTICAL REPORT

Eurofins TestAmerica, Edison
777 New Durham Road
Edison, NJ 08817
Tel: (732)549-3900

Laboratory Job ID: 460-197400-1
Client Project/Site: Ford LTP Off-Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
12/8/2019 2:11:25 PM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

LINKS

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results through
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www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197400-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197400-1

Job ID: 460-197400-1

Laboratory: Eurofins TestAmerica, Edison

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Off-Site

Report Number: 460-197400-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Edison attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 11/23/2019 1:50 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.3° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (460-197400-1) and MW-183S_112119 (460-197400-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260C. The samples were analyzed on 12/03/2019 and 12/04/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS)

Sample MW-183S_112119 (460-197400-2) was analyzed for Volatile organic compounds (GC/MS) in accordance with SW-846 Method 8260C SIM. The sample was analyzed on 12/02/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197400-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 460-197400-1

No Detections.

Client Sample ID: MW-183S_112119

Lab Sample ID: 460-197400-2

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Edison

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197400-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 460-197400-1

Date Collected: 11/21/19 00:00

Matrix: Water

Date Received: 11/23/19 13:50

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.26	ug/L	-		12/03/19 23:06	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L	-		12/03/19 23:06	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L	-		12/03/19 23:06	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L	-		12/03/19 23:06	1
Trichloroethene	1.0	U	1.0	0.31	ug/L	-		12/03/19 23:06	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L	-		12/03/19 23:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		74 - 132		12/03/19 23:06	1
Toluene-d8 (Surr)	99		80 - 120		12/03/19 23:06	1
Dibromofluoromethane (Surr)	97		72 - 131		12/03/19 23:06	1
4-Bromofluorobenzene	81		77 - 124		12/03/19 23:06	1

Client Sample ID: MW-183S_112119

Lab Sample ID: 460-197400-2

Date Collected: 11/21/19 14:15

Matrix: Water

Date Received: 11/23/19 13:50

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.33	ug/L	-		12/02/19 23:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	97		72 - 133		12/02/19 23:41	1

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.26	ug/L	-		12/04/19 02:53	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L	-		12/04/19 02:53	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L	-		12/04/19 02:53	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L	-		12/04/19 02:53	1
Trichloroethene	1.0	U	1.0	0.31	ug/L	-		12/04/19 02:53	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L	-		12/04/19 02:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		74 - 132		12/04/19 02:53	1
Toluene-d8 (Surr)	99		80 - 120		12/04/19 02:53	1
Dibromofluoromethane (Surr)	95		72 - 131		12/04/19 02:53	1
4-Bromofluorobenzene	83		77 - 124		12/04/19 02:53	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197400-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA	TOL	DBFM	BFB
		(74-132)	(80-120)	(72-131)	(77-124)
460-197400-1	TRIP BLANK	97	99	97	81
460-197400-2	MW-183S_112119	96	99	95	83
460-197492-A-2 MS	Matrix Spike	113	115	113	96
460-197492-A-2 MSD	Matrix Spike Duplicate	101	102	99	86
LCS 460-659793/4	Lab Control Sample	97	100	98	84
MB 460-659793/9	Method Blank	97	99	95	81

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

BFB = 4-Bromofluorobenzene

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB
		(72-133)
460-197400-2	MW-183S_112119	97
460-197492-A-2 MS	Matrix Spike	94
460-197492-A-2 MSD	Matrix Spike Duplicate	99
LCS 460-659570/4	Lab Control Sample	91
MB 460-659570/8	Method Blank	98

Surrogate Legend

BFB = 4-Bromofluorobenzene

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197400-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 460-659793/9
Matrix: Water
Analysis Batch: 659793

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.26	ug/L			12/03/19 22:19	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L			12/03/19 22:19	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L			12/03/19 22:19	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L			12/03/19 22:19	1
Trichloroethene	1.0	U	1.0	0.31	ug/L			12/03/19 22:19	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L			12/03/19 22:19	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		74 - 132		12/03/19 22:19	1
Toluene-d8 (Surr)	99		80 - 120		12/03/19 22:19	1
Dibromofluoromethane (Surr)	95		72 - 131		12/03/19 22:19	1
4-Bromofluorobenzene	81		77 - 124		12/03/19 22:19	1

Lab Sample ID: LCS 460-659793/4
Matrix: Water
Analysis Batch: 659793

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	20.0	22.1		ug/L		111	74 - 123
cis-1,2-Dichloroethene	20.0	19.9		ug/L		100	80 - 120
Tetrachloroethene	20.0	19.3		ug/L		96	78 - 122
trans-1,2-Dichloroethene	20.0	21.0		ug/L		105	79 - 120
Trichloroethene	20.0	19.5		ug/L		98	77 - 120
Vinyl chloride	20.0	23.5		ug/L		118	62 - 138

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	97		74 - 132
Toluene-d8 (Surr)	100		80 - 120
Dibromofluoromethane (Surr)	98		72 - 131
4-Bromofluorobenzene	84		77 - 124

Lab Sample ID: 460-197492-A-2 MS
Matrix: Water
Analysis Batch: 659793

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U F1	20.0	27.8	F1	ug/L		139	74 - 123
cis-1,2-Dichloroethene	1.0	U	20.0	23.3		ug/L		116	80 - 120
Tetrachloroethene	1.0	U	20.0	22.1		ug/L		111	78 - 122
trans-1,2-Dichloroethene	1.0	U F1	20.0	24.9	F1	ug/L		124	79 - 120
Trichloroethene	1.0	U	20.0	22.1		ug/L		110	77 - 120
Vinyl chloride	1.0	U	20.0	27.5		ug/L		138	62 - 138

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	113		74 - 132
Toluene-d8 (Surr)	115		80 - 120
Dibromofluoromethane (Surr)	113		72 - 131

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197400-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 460-197492-A-2 MS
Matrix: Water
Analysis Batch: 659793

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene	96		77 - 124

Lab Sample ID: 460-197492-A-2 MSD
Matrix: Water
Analysis Batch: 659793

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U F1	20.0	22.8		ug/L		114	74 - 123	20	30
cis-1,2-Dichloroethene	1.0	U	20.0	20.2		ug/L		101	80 - 120	14	30
Tetrachloroethene	1.0	U	20.0	19.6		ug/L		98	78 - 122	12	30
trans-1,2-Dichloroethene	1.0	U F1	20.0	20.9		ug/L		104	79 - 120	17	30
Trichloroethene	1.0	U	20.0	19.4		ug/L		97	77 - 120	13	30
Vinyl chloride	1.0	U	20.0	23.9		ug/L		119	62 - 138	14	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	101		74 - 132
Toluene-d8 (Surr)	102		80 - 120
Dibromofluoromethane (Surr)	99		72 - 131
4-Bromofluorobenzene	86		77 - 124

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 460-659570/8
Matrix: Water
Analysis Batch: 659570

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.33	ug/L			12/02/19 23:16	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	98		72 - 133		12/02/19 23:16	1

Lab Sample ID: LCS 460-659570/4
Matrix: Water
Analysis Batch: 659570

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	5.00	5.13		ug/L		103	66 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene	91		72 - 133

Lab Sample ID: 460-197492-A-2 MS
Matrix: Water
Analysis Batch: 659570

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	5.00	3.93		ug/L		79	66 - 135

Eurofins TestAmerica, Edison

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off-Site

Job ID: 460-197400-1

Method: 8260C SIM - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>MS %Recovery</i>	<i>MS Qualifier</i>	<i>Limits</i>
4-Bromofluorobenzene	94		72 - 133

Lab Sample ID: 460-197492-A-2 MSD
Matrix: Water
Analysis Batch: 659570

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
1,4-Dioxane	2.0	U	5.00	4.44		ug/L		89	66 - 135	12	30

<i>Surrogate</i>	<i>MSD %Recovery</i>	<i>MSD Qualifier</i>	<i>Limits</i>
4-Bromofluorobenzene	99		72 - 133



QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197400-1

GC/MS VOA

Analysis Batch: 659570

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-197400-2	MW-183S_112119	Total/NA	Water	8260C SIM	
MB 460-659570/8	Method Blank	Total/NA	Water	8260C SIM	
LCS 460-659570/4	Lab Control Sample	Total/NA	Water	8260C SIM	
460-197492-A-2 MS	Matrix Spike	Total/NA	Water	8260C SIM	
460-197492-A-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260C SIM	

Analysis Batch: 659793

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-197400-1	TRIP BLANK	Total/NA	Water	8260C	
460-197400-2	MW-183S_112119	Total/NA	Water	8260C	
MB 460-659793/9	Method Blank	Total/NA	Water	8260C	
LCS 460-659793/4	Lab Control Sample	Total/NA	Water	8260C	
460-197492-A-2 MS	Matrix Spike	Total/NA	Water	8260C	
460-197492-A-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260C	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197400-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 460-197400-1

Date Collected: 11/21/19 00:00

Matrix: Water

Date Received: 11/23/19 13:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	659793	12/03/19 23:06	AVM	TAL EDI

Client Sample ID: MW-183S_112119

Lab Sample ID: 460-197400-2

Date Collected: 11/21/19 14:15

Matrix: Water

Date Received: 11/23/19 13:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	659793	12/04/19 02:53	AVM	TAL EDI
Total/NA	Analysis	8260C SIM		1	659570	12/02/19 23:41	KLB	TAL EDI

Laboratory References:

TAL EDI = Eurofins TestAmerica, Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197400-1

Laboratory: Eurofins TestAmerica, Edison

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Connecticut	State	PH-0200	09-30-20
DE Haz. Subst. Cleanup Act (HSCA)	State	<cert No.>	12-31-21
Georgia	State	12028 (NJ)	06-30-20
Massachusetts	State	M-NJ312	06-30-20
Massachusetts	State Program	M-NJ312	06-30-20
New Jersey	NELAP	12028	06-30-20
New York	NELAP	11452	04-01-20
Pennsylvania	NELAP	68-00522	02-28-20
Rhode Island	State	LAO00132	12-30-19
USDA	US Federal Programs	P330-18-00135	05-03-21

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-20
Connecticut	State	PH-0590	12-31-19
Florida	NELAP	E87225	06-30-20
Georgia	State	4062	02-23-20
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-20
Kansas	NELAP	E-10336	04-30-20
Kentucky (UST)	State	112225	02-23-20
Kentucky (WW)	State	KY98016	12-31-19
Minnesota	NELAP	OH00048	12-31-19
Minnesota (Petrofund)	State Program	3506	07-31-21
New Jersey	NELAP	OH001	06-30-20
New York	NELAP	10975	03-31-20
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-23-20
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-16-00404	12-28-19
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-20
West Virginia DEP	State	210	12-31-19

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197400-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL EDI
8260C SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL EDI
5030C	Purge and Trap	SW846	TAL EDI

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL EDI = Eurofins TestAmerica, Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197400-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
460-197400-1	TRIP BLANK	Water	11/21/19 00:00	11/23/19 13:50	
460-197400-2	MW-183S_112119	Water	11/21/19 14:15	11/23/19 13:50	

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Chain of Custody Record

TestAmerica Laboratory location: Brighton - 10448 Chatham Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Regulatory Program: DW NPDES RCRA Other

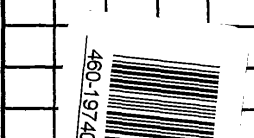
Client Contact: Rachel Brelak
Site Contact: Rachel Brelak
Telephone: 248-994-2240
Analysis Turnaround Time
TAT if different from below:
10 day
3 weeks
2 weeks
1 week
2 days
1 day

Lab Contact: Mike DeMonte
Telephone: 330-497-9396

TestAmerica Laboratories, Inc.
COC No: 147400
of COCs

Company Name: ARCADIS
Address: 18550 Cabot Drive, Suite 500
City/State/Zip: Novi, MI, 48377
Phone: 248-994-3340
Project Name: Ford LTP Off-Site
Project Number: 30016346-0002B
PO # 30016346-0002B
Client Project Manager: Kris Hinesky
Telephone: 248-994-2240
Email: kristoffer.hinesky@arcadis.com
Sample Name: S. JANSEN
Method of Shipment/Carrier: S. JANSEN
Shipping/Tracking No:

Sample Date	Sample Time	MATRIX					Containers & Preservatives				Filtered Sample (Y/N)							Sample Specific Notes / Special Instructions					
		Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	Unpres	Other:	Composite=C / Grab=G	1,1-DCE 8260B	cis-1,2-DCE 8260B	Trans-1,2-DCE 8260B		PCE 8260B	TCE 8260B	Vinyl Chloride 8260B	1,4-Dioxane 8260B SIM	
TRIP BLANK														X	X	X	X	X	X	X	X	X	
MW-183S-112119	11/19/14 15	X												X	X	X	X	X	X	X	X	X	1 CONTAINER 6 CONTAINERS



Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Dispose By Lab Archive For Months

Requisitioned by: S. Jansen Company: ARCADIS Date/Time: 11/22/14 1600 Received by: M. DEWIDER Company: ARCADIS Date/Time: 11/22/14 1600
Requisitioned by: S. Jansen Company: ARCADIS Date/Time: 11/22/14 1830 Received by: NEW LEAD STORAGE Company: ARCADIS Date/Time: 11/22/14 1830
Requisitioned by: RAHEL BRELAK Company: ARCADIS Date/Time: 11/22/14 1015 Received by: Branch Company: ETA Date/Time: 11/22/14 1015
TR 11/22/14 ETA 11/23 1350
IRI 11 5.0° CS=1055399

**Eurofins TestAmerica Edison
Receipt Temperature and pH Log**

Job Number: 197400

Page ____ of ____

Number of Coolers:	Cooler Temperatures									
	Cooler #1		Cooler #2		Cooler #3		Cooler #4		Cooler #5	
	RAW	CORRECTED	RAW	CORRECTED	RAW	CORRECTED	RAW	CORRECTED	RAW	CORRECTED
	5.0	5.3								
	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C

TALS Sample Number	(pH<2)	(pH<2)	(pH<2)	(pH<2)	(pH<2)	(pH 5-9)	(pH<2)	(pH<2)	(pH>9)	(pH<2)	(pH<2)	(pH<2)	(pH<2)	(pH<2)	(pH<2)	(pH<2)	(pH<2)	(pH<2)

If pH adjustments are required record the information below:

Sample No(s), adjusted: _____

Preservative Name/Conc.: _____ Volume of Preservative used (ml): _____

Lot # of Preservative(s): _____ Expiration Date: _____

The appropriate Project Manager and Department Manager should be notified about the samples which were pH adjusted. Samples for Metal analysis which are out of compliance must be acidified at least 24 hours prior to analysis.

Initials: WJ Date: 11/23

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 460-197400-1

Login Number: 197400

List Number: 1

Creator: Jara, Kelly D

List Source: Eurofins TestAmerica, Edison

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	CS #1055399
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-134684-1
Client Project/Site: Ford LTP Off-Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
8/21/2020 10:50:28 AM

Michael DelMonico, Project Manager I
(330)497-9396
Michael.DelMonico@Eurofinset.com

LINKS

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results through
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www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134684-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
X	Surrogate recovery exceeds control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134684-1

Job ID: 240-134684-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Off-Site

Report Number: 240-134684-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 8/8/2020 10:00 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 4.3° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-134684-1) and MW-183S_080620 (240-134684-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 08/18/2020.

Dibromofluoromethane (Surr) failed the surrogate recovery criteria high for MB 240-447614/6. Refer to the QC report for details.

The continuing calibration verification (CCV) associated with batch 447614 recovered above the upper control limit for Vinyl Chloride. The samples associated with this CCV were non-detect for the affected analyte; therefore, the data have been reported. The associated samples are impacted: TRIP BLANK (240-134684-1) and MW-183S_080620 (240-134684-2).

Surrogate recovery for the method blank(s) was outside the upper control limit: (MB 240-447614/6). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

No MS/MSD in batch 447614 due to MSD exceeding 12 hour tune time window: TRIP BLANK (240-134684-1) and MW-183S_080620 (240-134684-2).

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134684-1

Job ID: 240-134684-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-183S_080620 (240-134684-2) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 08/14/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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- 10
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- 12
- 13
- 14

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134684-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134684-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-134684-1	TRIP BLANK	Water	08/06/20 00:00	08/08/20 10:00	
240-134684-2	MW-183S_080620	Water	08/06/20 12:25	08/08/20 10:00	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134684-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134684-1

No Detections.

Client Sample ID: MW-183S_080620

Lab Sample ID: 240-134684-2

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off-Site

Job ID: 240-134684-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134684-1

Date Collected: 08/06/20 00:00

Matrix: Water

Date Received: 08/08/20 10:00

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/18/20 16:24	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/18/20 16:24	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/18/20 16:24	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/18/20 16:24	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/18/20 16:24	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/18/20 16:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		75 - 130		08/18/20 16:24	1
4-Bromofluorobenzene (Surr)	101		47 - 134		08/18/20 16:24	1
Toluene-d8 (Surr)	107		69 - 122		08/18/20 16:24	1
Dibromofluoromethane (Surr)	123		78 - 129		08/18/20 16:24	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134684-1

Client Sample ID: MW-183S_080620

Lab Sample ID: 240-134684-2

Date Collected: 08/06/20 12:25

Matrix: Water

Date Received: 08/08/20 10:00

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L	-		08/14/20 19:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		70 - 133		08/14/20 19:57	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L	-		08/18/20 16:47	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L	-		08/18/20 16:47	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L	-		08/18/20 16:47	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L	-		08/18/20 16:47	1
Trichloroethene	1.0	U	1.0	0.36	ug/L	-		08/18/20 16:47	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L	-		08/18/20 16:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		75 - 130		08/18/20 16:47	1
4-Bromofluorobenzene (Surr)	89		47 - 134		08/18/20 16:47	1
Toluene-d8 (Surr)	90		69 - 122		08/18/20 16:47	1
Dibromofluoromethane (Surr)	104		78 - 129		08/18/20 16:47	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134684-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-134684-1	TRIP BLANK	102	101	107	123
240-134684-2	MW-183S_080620	88	89	90	104
LCS 240-447614/4	Lab Control Sample	94	97	98	118
MB 240-447614/6	Method Blank	115	115	121	135 X

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-133)
240-134654-A-2 MS	Matrix Spike	88
240-134654-A-2 MSD	Matrix Spike Duplicate	83
240-134684-2	MW-183S_080620	91
LCS 240-447208/4	Lab Control Sample	87
MB 240-447208/5	Method Blank	88

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134684-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-447614/6
Matrix: Water
Analysis Batch: 447614

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/18/20 12:39	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/18/20 12:39	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/18/20 12:39	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/18/20 12:39	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/18/20 12:39	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/18/20 12:39	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	115		75 - 130		08/18/20 12:39	1
4-Bromofluorobenzene (Surr)	115		47 - 134		08/18/20 12:39	1
Toluene-d8 (Surr)	121		69 - 122		08/18/20 12:39	1
Dibromofluoromethane (Surr)	135	X	78 - 129		08/18/20 12:39	1

Lab Sample ID: LCS 240-447614/4
Matrix: Water
Analysis Batch: 447614

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	11.4		ug/L		114	73 - 129
cis-1,2-Dichloroethene	10.0	11.5		ug/L		115	75 - 124
Tetrachloroethene	10.0	10.9		ug/L		109	70 - 125
trans-1,2-Dichloroethene	10.0	11.6		ug/L		116	74 - 130
Trichloroethene	10.0	10.5		ug/L		105	71 - 121
Vinyl chloride	10.0	12.2		ug/L		122	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	94		75 - 130
4-Bromofluorobenzene (Surr)	97		47 - 134
Toluene-d8 (Surr)	98		69 - 122
Dibromofluoromethane (Surr)	118		78 - 129

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-447208/5
Matrix: Water
Analysis Batch: 447208

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/14/20 12:26	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		70 - 133		08/14/20 12:26	1

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off-Site

Job ID: 240-134684-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-447208/4
Matrix: Water
Analysis Batch: 447208

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	10.6		ug/L	-	106	80 - 135
Surrogate							
	%Recovery	LCS Qualifier	LCS Limits				
1,2-Dichloroethane-d4 (Surr)	87		70 - 133				

Lab Sample ID: 240-134654-A-2 MS
Matrix: Water
Analysis Batch: 447208

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	10.0	10.3		ug/L	-	103	46 - 170
Surrogate									
	%Recovery	MS Qualifier	MS Limits						
1,2-Dichloroethane-d4 (Surr)	88		70 - 133						

Lab Sample ID: 240-134654-A-2 MSD
Matrix: Water
Analysis Batch: 447208

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	2.0	U	10.0	10.1		ug/L	-	101	46 - 170	3	26
Surrogate											
	%Recovery	MSD Qualifier	MSD Limits								
1,2-Dichloroethane-d4 (Surr)	83		70 - 133								

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134684-1

GC/MS VOA

Analysis Batch: 447208

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134684-2	MW-183S_080620	Total/NA	Water	8260B SIM	
MB 240-447208/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-447208/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-134654-A-2 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-134654-A-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 447614

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134684-1	TRIP BLANK	Total/NA	Water	8260B	
240-134684-2	MW-183S_080620	Total/NA	Water	8260B	
MB 240-447614/6	Method Blank	Total/NA	Water	8260B	
LCS 240-447614/4	Lab Control Sample	Total/NA	Water	8260B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134684-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134684-1

Date Collected: 08/06/20 00:00

Matrix: Water

Date Received: 08/08/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	447614	08/18/20 16:24	LEE	TAL CAN

Client Sample ID: MW-183S_080620

Lab Sample ID: 240-134684-2

Date Collected: 08/06/20 12:25

Matrix: Water

Date Received: 08/08/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	447614	08/18/20 16:47	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	447208	08/14/20 19:57	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134684-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-20 *
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Canton



Chain of Custody Record

TestAmerica Laboratory location: Brighton --- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Regulatory program: DW NPDES RCRA Other

Client Project Manager: Kris Hinskey
 Telephone: 248-994-2240
 Email: kristoffer.hinskey@arcadis.com

Site Contact: Julia McClafferty
 Telephone: 734-644-5131

Lab Contact: Mike DelMonico
 Telephone: 330-497-9396

Company Name: Arcadis
 Address: 28550 Cabot Drive, Suite 500
 City/State/Zip: Novi, MI, 48377
 Phone: 248-994-2240

Project Name: Ford LTP OH-Site
 Project Number: 30050315.402.04
 PO # 30050315.402.04

Sampler Name: *Ernest W. Hinskey*
 Method of Shipment/Carrier: *10 day*
 Shipping/Tracking No:

Analysis Turnaround Time
 TAT (if different from below):
 3 weeks
 2 weeks
 1 week
 2 days
 1 day

Sample Identification	Sample Date	Sample Time	Matrix						Containers & Preservatives						Filtered Sample (Y/N)	Composite=C/Grab=G	Analyses						Sample Specific Notes / Special Instructions:		
			Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Capres	Other:			1,1-DCE 8260B	GIS-1,2-DCE 8260B	Trans-1,2-DCE 8260B	PCE 8260B	TCE 8260B	Vinyl Chloride 8260B		1,4-Dioxane 8260B SIM	
TRIP BLANK	8/6/20	—	X																						1 Trip blank 2 vials for 8260B 3 vials for 8260B SIM
MW-1635-080620	8/6/20	1225	X																						



Possible Hazard Identification
 Non-Hazard Flammable Irritant Poison B Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal By Lab Archive For _____ Months

Special Instructions/QC Requirements & Comments:
 Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203631
 Level IV Reporting requested.

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
<i>Justin Green</i>	Arcadis	8/6/20 1600	Arcadis cold storage	Arcadis	8/6/20 1600
<i>Cheryl Brannick</i>	ARCADIS	8/7/20/0915	<i>[Signature]</i>	ETA	8/7/20 0915
<i>[Signature]</i>	ETA	8/7/20 0916	<i>[Signature]</i>	ETA	8-8-20 1000

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Eurofins TestAmerica Canton Sample Receipt Form/Narrative

Login # : 174684

Canton Facility


Client Arcadis Site Name _____
 Cooler Received on 8-8-20 Opened on 8-8-20
 FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Cooler unpacked by:

Adam Ramsey

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # 574 Foam Box Client Cooler Box Other _____
 Packing material used: Bubble Wrap Foam Plastic Bag None Other _____
 COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN# IR-10 (CF +0.7°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN #IR-11 (CF +0.9°C) Observed Cooler Temp. 3.4 °C Corrected Cooler Temp. 4.3 °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
 If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC911298
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? Yes No NA
 Larger than this: 
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 0417701E Yes No
16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.

Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-134182-1
Client Project/Site: Ford LTP

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
8/13/2020 2:36:17 PM

Michael DelMonico, Project Manager I
(330)497-9396
Michael.DelMonico@Eurofinset.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Job ID: 240-134182-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP

Report Number: 240-134182-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 7/30/2020 9:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.2° C and 2.4° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TMW-20-02 (7-12)_072820 (240-134182-34) and TRIP BLANK (240-134182-35) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 08/04/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS

Samples SB-141 (0.5-1)_072820 (240-134182-1), SB-141 (1-2)_072820 (240-134182-2), SB-141 (2-3)_072820 (240-134182-3), SB-141 (3-4)_072820 (240-134182-4), SB-141 (4-5)_072820 (240-134182-5), SB-141 (5-6)_072820 (240-134182-6), SB-141 (6-7)_072820 (240-134182-7), SB-141 (7-8)_072820 (240-134182-8), TMW-20-02 (0.5-1)_072820 (240-134182-9), TMW-20-02 (1-2)_072820 (240-134182-10), TMW-20-02 (2-3)_072820 (240-134182-11), TMW-20-02 (3-4)_072820 (240-134182-12), TMW-20-02 (4-5)_072820 (240-134182-13), TMW-20-02 (5-6)_072820 (240-134182-14), TMW-20-02 (6-7)_072820 (240-134182-15), TMW-20-02 (7-8)_072820 (240-134182-16), SB-142 (0.5-1)_072820 (240-134182-17), SB-142 (1-2)_072820 (240-134182-18), SB-142 (2-3)_072820 (240-134182-19), SB-142 (3-4)_072820 (240-134182-20), SB-142 (4-5)_072820 (240-134182-21), SB-142 (5-6)_072820 (240-134182-22), SB-142 (6-7)_072820 (240-134182-23), SB-142 (7-8)_072820 (240-134182-24), SB-143 (0.5-1)_072820 (240-134182-25), SB-143 (1-2)_072820 (240-134182-26), SB-143 (2-3)_072820 (240-134182-27), SB-143 (3-4)_072820

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Job ID: 240-134182-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

(240-134182-28), SB-143 (4-5)_072820 (240-134182-29), SB-143 (5-6)_072820 (240-134182-30), SB-143 (6-7)_072820 (240-134182-31), SB-143 (7-8)_072820 (240-134182-32) and DUP-03 (240-134182-33) were analyzed for volatile organic compounds in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 07/31/2020, 08/01/2020, 08/04/2020 and 08/05/2020.

1,4-Dioxane failed the recovery criteria high for the MS of sample SB-142 (4-5)_072820MS (240-134182-21) in batch 240-445183.
1,4-Dioxane failed the recovery criteria high for the MS of sample SB-143 (3-4)_072820MS (240-134182-28) in batch 240-445595. Refer to the QC report for details.

Insufficient sample volume was available to perform a matrix spike duplicate (MSD) associated with preparation batch 240-445021 and 240-445021 and analytical batch 240-445183.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Samples TMW-20-02 (7-12)_072820 (240-134182-34) and TRIP BLANK (240-134182-35) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 07/31/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples SB-141 (0.5-1)_072820 (240-134182-1), SB-141 (1-2)_072820 (240-134182-2), SB-141 (2-3)_072820 (240-134182-3), SB-141 (3-4)_072820 (240-134182-4), SB-141 (4-5)_072820 (240-134182-5), SB-141 (5-6)_072820 (240-134182-6), SB-141 (6-7)_072820 (240-134182-7), SB-141 (7-8)_072820 (240-134182-8), TMW-20-02 (0.5-1)_072820 (240-134182-9), TMW-20-02 (1-2)_072820 (240-134182-10), TMW-20-02 (2-3)_072820 (240-134182-11), TMW-20-02 (3-4)_072820 (240-134182-12), TMW-20-02 (4-5)_072820 (240-134182-13), TMW-20-02 (5-6)_072820 (240-134182-14), TMW-20-02 (6-7)_072820 (240-134182-15), TMW-20-02 (7-8)_072820 (240-134182-16), SB-142 (0.5-1)_072820 (240-134182-17), SB-142 (1-2)_072820 (240-134182-18), SB-142 (2-3)_072820 (240-134182-19), SB-142 (3-4)_072820 (240-134182-20), SB-142 (4-5)_072820 (240-134182-21), SB-142 (5-6)_072820 (240-134182-22), SB-142 (6-7)_072820 (240-134182-23), SB-142 (7-8)_072820 (240-134182-24), SB-143 (0.5-1)_072820 (240-134182-25), SB-143 (1-2)_072820 (240-134182-26), SB-143 (2-3)_072820 (240-134182-27), SB-143 (3-4)_072820 (240-134182-28), SB-143 (4-5)_072820 (240-134182-29), SB-143 (5-6)_072820 (240-134182-30), SB-143 (6-7)_072820 (240-134182-31), SB-143 (7-8)_072820 (240-134182-32) and DUP-03 (240-134182-33) were analyzed for percent solids in accordance with ASTM Method D2216-80. The samples were analyzed on 08/03/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B MI	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
Moisture	Percent Moisture	EPA	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-134182-1	SB-141 (0.5-1)_072820	Solid	07/28/20 09:38	07/30/20 09:40	
240-134182-2	SB-141 (1-2)_072820	Solid	07/28/20 09:45	07/30/20 09:40	
240-134182-3	SB-141 (2-3)_072820	Solid	07/28/20 09:48	07/30/20 09:40	
240-134182-4	SB-141 (3-4)_072820	Solid	07/28/20 09:53	07/30/20 09:40	
240-134182-5	SB-141 (4-5)_072820	Solid	07/28/20 09:56	07/30/20 09:40	
240-134182-6	SB-141 (5-6)_072820	Solid	07/28/20 10:18	07/30/20 09:40	
240-134182-7	SB-141 (6-7)_072820	Solid	07/28/20 10:27	07/30/20 09:40	
240-134182-8	SB-141 (7-8)_072820	Solid	07/28/20 10:30	07/30/20 09:40	
240-134182-9	TMW-20-02 (0.5-1)_072820	Solid	07/28/20 11:06	07/30/20 09:40	
240-134182-10	TMW-20-02 (1-2)_072820	Solid	07/28/20 11:07	07/30/20 09:40	
240-134182-11	TMW-20-02 (2-3)_072820	Solid	07/28/20 11:08	07/30/20 09:40	
240-134182-12	TMW-20-02 (3-4)_072820	Solid	07/28/20 11:09	07/30/20 09:40	
240-134182-13	TMW-20-02 (4-5)_072820	Solid	07/28/20 11:10	07/30/20 09:40	
240-134182-14	TMW-20-02 (5-6)_072820	Solid	07/28/20 11:29	07/30/20 09:40	
240-134182-15	TMW-20-02 (6-7)_072820	Solid	07/28/20 11:30	07/30/20 09:40	
240-134182-16	TMW-20-02 (7-8)_072820	Solid	07/28/20 11:34	07/30/20 09:40	
240-134182-17	SB-142 (0.5-1)_072820	Solid	07/28/20 12:40	07/30/20 09:40	
240-134182-18	SB-142 (1-2)_072820	Solid	07/28/20 12:41	07/30/20 09:40	
240-134182-19	SB-142 (2-3)_072820	Solid	07/28/20 12:42	07/30/20 09:40	
240-134182-20	SB-142 (3-4)_072820	Solid	07/28/20 12:43	07/30/20 09:40	
240-134182-21	SB-142 (4-5)_072820	Solid	07/28/20 12:44	07/30/20 09:40	
240-134182-22	SB-142 (5-6)_072820	Solid	07/28/20 12:58	07/30/20 09:40	
240-134182-23	SB-142 (6-7)_072820	Solid	07/28/20 13:01	07/30/20 09:40	
240-134182-24	SB-142 (7-8)_072820	Solid	07/28/20 13:00	07/30/20 09:40	
240-134182-25	SB-143 (0.5-1)_072820	Solid	07/28/20 13:20	07/30/20 09:40	
240-134182-26	SB-143 (1-2)_072820	Solid	07/28/20 13:21	07/30/20 09:40	
240-134182-27	SB-143 (2-3)_072820	Solid	07/28/20 13:22	07/30/20 09:40	
240-134182-28	SB-143 (3-4)_072820	Solid	07/28/20 13:23	07/30/20 09:40	
240-134182-29	SB-143 (4-5)_072820	Solid	07/28/20 13:24	07/30/20 09:40	
240-134182-30	SB-143 (5-6)_072820	Solid	07/28/20 13:40	07/30/20 09:40	
240-134182-31	SB-143 (6-7)_072820	Solid	07/28/20 13:45	07/30/20 09:40	
240-134182-32	SB-143 (7-8)_072820	Solid	07/28/20 13:50	07/30/20 09:40	
240-134182-33	DUP-03	Solid	07/28/20 00:00	07/30/20 09:40	
240-134182-34	TMW-20-02 (7-12)_072820	Water	07/28/20 15:05	07/30/20 09:40	
240-134182-35	TRIP BLANK	Water	07/28/20 00:00	07/30/20 09:40	

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (0.5-1)_072820	Lab Sample ID: 240-134182-1
<input type="checkbox"/> No Detections.	
Client Sample ID: SB-141 (1-2)_072820	Lab Sample ID: 240-134182-2
<input type="checkbox"/> No Detections.	
Client Sample ID: SB-141 (2-3)_072820	Lab Sample ID: 240-134182-3
<input type="checkbox"/> No Detections.	
Client Sample ID: SB-141 (3-4)_072820	Lab Sample ID: 240-134182-4
<input type="checkbox"/> No Detections.	
Client Sample ID: SB-141 (4-5)_072820	Lab Sample ID: 240-134182-5
<input type="checkbox"/> No Detections.	
Client Sample ID: SB-141 (5-6)_072820	Lab Sample ID: 240-134182-6
<input type="checkbox"/> No Detections.	
Client Sample ID: SB-141 (6-7)_072820	Lab Sample ID: 240-134182-7
<input type="checkbox"/> No Detections.	
Client Sample ID: SB-141 (7-8)_072820	Lab Sample ID: 240-134182-8
<input type="checkbox"/> No Detections.	
Client Sample ID: TMW-20-02 (0.5-1)_072820	Lab Sample ID: 240-134182-9
<input type="checkbox"/> No Detections.	
Client Sample ID: TMW-20-02 (1-2)_072820	Lab Sample ID: 240-134182-10
<input type="checkbox"/> No Detections.	
Client Sample ID: TMW-20-02 (2-3)_072820	Lab Sample ID: 240-134182-11
<input type="checkbox"/> No Detections.	
Client Sample ID: TMW-20-02 (3-4)_072820	Lab Sample ID: 240-134182-12
<input type="checkbox"/> No Detections.	
Client Sample ID: TMW-20-02 (4-5)_072820	Lab Sample ID: 240-134182-13
<input type="checkbox"/> No Detections.	
Client Sample ID: TMW-20-02 (5-6)_072820	Lab Sample ID: 240-134182-14
<input type="checkbox"/> No Detections.	
Client Sample ID: TMW-20-02 (6-7)_072820	Lab Sample ID: 240-134182-15
<input type="checkbox"/> No Detections.	
Client Sample ID: TMW-20-02 (7-8)_072820	Lab Sample ID: 240-134182-16
<input type="checkbox"/> No Detections.	

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (0.5-1)_072820

Lab Sample ID: 240-134182-17

No Detections.

Client Sample ID: SB-142 (1-2)_072820

Lab Sample ID: 240-134182-18

No Detections.

Client Sample ID: SB-142 (2-3)_072820

Lab Sample ID: 240-134182-19

No Detections.

Client Sample ID: SB-142 (3-4)_072820

Lab Sample ID: 240-134182-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	14	J	39	8.9	ug/Kg	1		☼	8260B MI	Total/NA
Tetrachloroethene	19	J	39	18	ug/Kg	1		☼	8260B MI	Total/NA
trans-1,2-Dichloroethene	24	J	39	9.9	ug/Kg	1		☼	8260B MI	Total/NA
Trichloroethene	13	J	39	11	ug/Kg	1		☼	8260B MI	Total/NA
Vinyl chloride	12	J	32	12	ug/Kg	1		☼	8260B MI	Total/NA

Client Sample ID: SB-142 (4-5)_072820

Lab Sample ID: 240-134182-21

No Detections.

Client Sample ID: SB-142 (5-6)_072820

Lab Sample ID: 240-134182-22

No Detections.

Client Sample ID: SB-142 (6-7)_072820

Lab Sample ID: 240-134182-23

No Detections.

Client Sample ID: SB-142 (7-8)_072820

Lab Sample ID: 240-134182-24

No Detections.

Client Sample ID: SB-143 (0.5-1)_072820

Lab Sample ID: 240-134182-25

No Detections.

Client Sample ID: SB-143 (1-2)_072820

Lab Sample ID: 240-134182-26

No Detections.

Client Sample ID: SB-143 (2-3)_072820

Lab Sample ID: 240-134182-27

No Detections.

Client Sample ID: SB-143 (3-4)_072820

Lab Sample ID: 240-134182-28

No Detections.

Client Sample ID: SB-143 (4-5)_072820

Lab Sample ID: 240-134182-29

No Detections.

Client Sample ID: SB-143 (5-6)_072820

Lab Sample ID: 240-134182-30

No Detections.

Client Sample ID: SB-143 (6-7)_072820

Lab Sample ID: 240-134182-31

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (7-8)_072820

Lab Sample ID: 240-134182-32

No Detections.

Client Sample ID: DUP-03

Lab Sample ID: 240-134182-33

No Detections.

Client Sample ID: TMW-20-02 (7-12)_072820

Lab Sample ID: 240-134182-34

No Detections.

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134182-35

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (0.5-1)_072820

Lab Sample ID: 240-134182-1

Date Collected: 07/28/20 09:38

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.3

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	47	U	47	19	ug/Kg	☼	07/30/20 20:24	07/31/20 18:27	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	07/30/20 20:24	07/31/20 18:27	1
cis-1,2-Dichloroethene	47	U	47	11	ug/Kg	☼	07/30/20 20:24	07/31/20 18:27	1
Tetrachloroethene	47	U	47	21	ug/Kg	☼	07/30/20 20:24	07/31/20 18:27	1
trans-1,2-Dichloroethene	47	U	47	12	ug/Kg	☼	07/30/20 20:24	07/31/20 18:27	1
Trichloroethene	47	U	47	13	ug/Kg	☼	07/30/20 20:24	07/31/20 18:27	1
Vinyl chloride	38	U	38	14	ug/Kg	☼	07/30/20 20:24	07/31/20 18:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		47 - 136	07/30/20 20:24	07/31/20 18:27	1
4-Bromofluorobenzene (Surr)	118		51 - 124	07/30/20 20:24	07/31/20 18:27	1
Dibromofluoromethane (Surr)	92		49 - 122	07/30/20 20:24	07/31/20 18:27	1
Toluene-d8 (Surr)	110		55 - 123	07/30/20 20:24	07/31/20 18:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.3		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.7		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (1-2)_072820

Lab Sample ID: 240-134182-2

Date Collected: 07/28/20 09:45

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.7

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	42	U	42	17	ug/Kg	☼	07/30/20 20:24	07/31/20 18:50	1
1,4-Dioxane	13000	U	13000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 18:50	1
cis-1,2-Dichloroethene	42	U	42	9.5	ug/Kg	☼	07/30/20 20:24	07/31/20 18:50	1
Tetrachloroethene	42	U	42	19	ug/Kg	☼	07/30/20 20:24	07/31/20 18:50	1
trans-1,2-Dichloroethene	42	U	42	11	ug/Kg	☼	07/30/20 20:24	07/31/20 18:50	1
Trichloroethene	42	U	42	12	ug/Kg	☼	07/30/20 20:24	07/31/20 18:50	1
Vinyl chloride	34	U	34	13	ug/Kg	☼	07/30/20 20:24	07/31/20 18:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		47 - 136	07/30/20 20:24	07/31/20 18:50	1
4-Bromofluorobenzene (Surr)	106		51 - 124	07/30/20 20:24	07/31/20 18:50	1
Dibromofluoromethane (Surr)	88		49 - 122	07/30/20 20:24	07/31/20 18:50	1
Toluene-d8 (Surr)	105		55 - 123	07/30/20 20:24	07/31/20 18:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.7		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.3		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (2-3)_072820

Lab Sample ID: 240-134182-3

Date Collected: 07/28/20 09:48

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.9

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	45	U	45	18	ug/Kg	☼	07/30/20 20:24	07/31/20 19:12	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 19:12	1
cis-1,2-Dichloroethene	45	U	45	10	ug/Kg	☼	07/30/20 20:24	07/31/20 19:12	1
Tetrachloroethene	45	U	45	20	ug/Kg	☼	07/30/20 20:24	07/31/20 19:12	1
trans-1,2-Dichloroethene	45	U	45	11	ug/Kg	☼	07/30/20 20:24	07/31/20 19:12	1
Trichloroethene	45	U	45	12	ug/Kg	☼	07/30/20 20:24	07/31/20 19:12	1
Vinyl chloride	36	U	36	13	ug/Kg	☼	07/30/20 20:24	07/31/20 19:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		47 - 136	07/30/20 20:24	07/31/20 19:12	1
4-Bromofluorobenzene (Surr)	106		51 - 124	07/30/20 20:24	07/31/20 19:12	1
Dibromofluoromethane (Surr)	86		49 - 122	07/30/20 20:24	07/31/20 19:12	1
Toluene-d8 (Surr)	106		55 - 123	07/30/20 20:24	07/31/20 19:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.9		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	3.1		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (3-4)_072820

Lab Sample ID: 240-134182-4

Date Collected: 07/28/20 09:53

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.7

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	43	U	43	17	ug/Kg	☼	07/30/20 20:24	07/31/20 19:35	1
1,4-Dioxane	13000	U	13000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 19:35	1
cis-1,2-Dichloroethene	43	U	43	9.7	ug/Kg	☼	07/30/20 20:24	07/31/20 19:35	1
Tetrachloroethene	43	U	43	19	ug/Kg	☼	07/30/20 20:24	07/31/20 19:35	1
trans-1,2-Dichloroethene	43	U	43	11	ug/Kg	☼	07/30/20 20:24	07/31/20 19:35	1
Trichloroethene	43	U	43	12	ug/Kg	☼	07/30/20 20:24	07/31/20 19:35	1
Vinyl chloride	35	U	35	13	ug/Kg	☼	07/30/20 20:24	07/31/20 19:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		47 - 136	07/30/20 20:24	07/31/20 19:35	1
4-Bromofluorobenzene (Surr)	105		51 - 124	07/30/20 20:24	07/31/20 19:35	1
Dibromofluoromethane (Surr)	85		49 - 122	07/30/20 20:24	07/31/20 19:35	1
Toluene-d8 (Surr)	102		55 - 123	07/30/20 20:24	07/31/20 19:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.7		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.3		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (4-5)_072820

Lab Sample ID: 240-134182-5

Date Collected: 07/28/20 09:56

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.5

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	44	U	44	18	ug/Kg	☼	07/30/20 20:24	07/31/20 19:57	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 19:57	1
cis-1,2-Dichloroethene	44	U	44	9.9	ug/Kg	☼	07/30/20 20:24	07/31/20 19:57	1
Tetrachloroethene	44	U	44	20	ug/Kg	☼	07/30/20 20:24	07/31/20 19:57	1
trans-1,2-Dichloroethene	44	U	44	11	ug/Kg	☼	07/30/20 20:24	07/31/20 19:57	1
Trichloroethene	44	U	44	12	ug/Kg	☼	07/30/20 20:24	07/31/20 19:57	1
Vinyl chloride	35	U	35	13	ug/Kg	☼	07/30/20 20:24	07/31/20 19:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		47 - 136	07/30/20 20:24	07/31/20 19:57	1
4-Bromofluorobenzene (Surr)	109		51 - 124	07/30/20 20:24	07/31/20 19:57	1
Dibromofluoromethane (Surr)	86		49 - 122	07/30/20 20:24	07/31/20 19:57	1
Toluene-d8 (Surr)	103		55 - 123	07/30/20 20:24	07/31/20 19:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.5		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.5		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (5-6)_072820

Lab Sample ID: 240-134182-6

Date Collected: 07/28/20 10:18

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.5

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	45	U	45	18	ug/Kg	☼	07/30/20 20:24	07/31/20 20:20	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 20:20	1
cis-1,2-Dichloroethene	45	U	45	10	ug/Kg	☼	07/30/20 20:24	07/31/20 20:20	1
Tetrachloroethene	45	U	45	20	ug/Kg	☼	07/30/20 20:24	07/31/20 20:20	1
trans-1,2-Dichloroethene	45	U	45	11	ug/Kg	☼	07/30/20 20:24	07/31/20 20:20	1
Trichloroethene	45	U	45	12	ug/Kg	☼	07/30/20 20:24	07/31/20 20:20	1
Vinyl chloride	36	U	36	13	ug/Kg	☼	07/30/20 20:24	07/31/20 20:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		47 - 136	07/30/20 20:24	07/31/20 20:20	1
4-Bromofluorobenzene (Surr)	111		51 - 124	07/30/20 20:24	07/31/20 20:20	1
Dibromofluoromethane (Surr)	92		49 - 122	07/30/20 20:24	07/31/20 20:20	1
Toluene-d8 (Surr)	110		55 - 123	07/30/20 20:24	07/31/20 20:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.5		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.5		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (6-7)_072820

Lab Sample ID: 240-134182-7

Date Collected: 07/28/20 10:27

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 98.1

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	43	U	43	17	ug/Kg	☼	07/30/20 20:24	07/31/20 20:42	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 20:42	1
cis-1,2-Dichloroethene	43	U	43	9.8	ug/Kg	☼	07/30/20 20:24	07/31/20 20:42	1
Tetrachloroethene	43	U	43	20	ug/Kg	☼	07/30/20 20:24	07/31/20 20:42	1
trans-1,2-Dichloroethene	43	U	43	11	ug/Kg	☼	07/30/20 20:24	07/31/20 20:42	1
Trichloroethene	43	U	43	12	ug/Kg	☼	07/30/20 20:24	07/31/20 20:42	1
Vinyl chloride	35	U	35	13	ug/Kg	☼	07/30/20 20:24	07/31/20 20:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		47 - 136	07/30/20 20:24	07/31/20 20:42	1
4-Bromofluorobenzene (Surr)	109		51 - 124	07/30/20 20:24	07/31/20 20:42	1
Dibromofluoromethane (Surr)	88		49 - 122	07/30/20 20:24	07/31/20 20:42	1
Toluene-d8 (Surr)	107		55 - 123	07/30/20 20:24	07/31/20 20:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	98.1		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	1.9		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (7-8)_072820

Lab Sample ID: 240-134182-8

Date Collected: 07/28/20 10:30

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 95.2

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	48	U	48	19	ug/Kg	☼	07/30/20 20:24	07/31/20 21:05	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	07/30/20 20:24	07/31/20 21:05	1
cis-1,2-Dichloroethene	48	U	48	11	ug/Kg	☼	07/30/20 20:24	07/31/20 21:05	1
Tetrachloroethene	48	U	48	21	ug/Kg	☼	07/30/20 20:24	07/31/20 21:05	1
trans-1,2-Dichloroethene	48	U	48	12	ug/Kg	☼	07/30/20 20:24	07/31/20 21:05	1
Trichloroethene	48	U	48	13	ug/Kg	☼	07/30/20 20:24	07/31/20 21:05	1
Vinyl chloride	38	U	38	14	ug/Kg	☼	07/30/20 20:24	07/31/20 21:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		47 - 136	07/30/20 20:24	07/31/20 21:05	1
4-Bromofluorobenzene (Surr)	105		51 - 124	07/30/20 20:24	07/31/20 21:05	1
Dibromofluoromethane (Surr)	86		49 - 122	07/30/20 20:24	07/31/20 21:05	1
Toluene-d8 (Surr)	103		55 - 123	07/30/20 20:24	07/31/20 21:05	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	95.2		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	4.8		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (0.5-1)_072820

Lab Sample ID: 240-134182-9

Date Collected: 07/28/20 11:06

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.4

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	45	U	45	18	ug/Kg	☼	07/30/20 20:24	07/31/20 21:27	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 21:27	1
cis-1,2-Dichloroethene	45	U	45	10	ug/Kg	☼	07/30/20 20:24	07/31/20 21:27	1
Tetrachloroethene	45	U	45	20	ug/Kg	☼	07/30/20 20:24	07/31/20 21:27	1
trans-1,2-Dichloroethene	45	U	45	11	ug/Kg	☼	07/30/20 20:24	07/31/20 21:27	1
Trichloroethene	45	U	45	12	ug/Kg	☼	07/30/20 20:24	07/31/20 21:27	1
Vinyl chloride	36	U	36	14	ug/Kg	☼	07/30/20 20:24	07/31/20 21:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		47 - 136	07/30/20 20:24	07/31/20 21:27	1
4-Bromofluorobenzene (Surr)	109		51 - 124	07/30/20 20:24	07/31/20 21:27	1
Dibromofluoromethane (Surr)	87		49 - 122	07/30/20 20:24	07/31/20 21:27	1
Toluene-d8 (Surr)	108		55 - 123	07/30/20 20:24	07/31/20 21:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.4		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	3.6		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (1-2)_072820

Lab Sample ID: 240-134182-10

Date Collected: 07/28/20 11:07

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.2

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	45	U	45	18	ug/Kg	☼	07/30/20 20:24	07/31/20 21:50	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 21:50	1
cis-1,2-Dichloroethene	45	U	45	10	ug/Kg	☼	07/30/20 20:24	07/31/20 21:50	1
Tetrachloroethene	45	U	45	20	ug/Kg	☼	07/30/20 20:24	07/31/20 21:50	1
trans-1,2-Dichloroethene	45	U	45	11	ug/Kg	☼	07/30/20 20:24	07/31/20 21:50	1
Trichloroethene	45	U	45	12	ug/Kg	☼	07/30/20 20:24	07/31/20 21:50	1
Vinyl chloride	36	U	36	13	ug/Kg	☼	07/30/20 20:24	07/31/20 21:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		47 - 136	07/30/20 20:24	07/31/20 21:50	1
4-Bromofluorobenzene (Surr)	107		51 - 124	07/30/20 20:24	07/31/20 21:50	1
Dibromofluoromethane (Surr)	84		49 - 122	07/30/20 20:24	07/31/20 21:50	1
Toluene-d8 (Surr)	103		55 - 123	07/30/20 20:24	07/31/20 21:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.2		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	3.8		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (2-3)_072820

Lab Sample ID: 240-134182-11

Date Collected: 07/28/20 11:08

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 92.3

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	48	U	48	19	ug/Kg	☼	07/30/20 20:24	07/31/20 22:13	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	07/30/20 20:24	07/31/20 22:13	1
cis-1,2-Dichloroethene	48	U	48	11	ug/Kg	☼	07/30/20 20:24	07/31/20 22:13	1
Tetrachloroethene	48	U	48	21	ug/Kg	☼	07/30/20 20:24	07/31/20 22:13	1
trans-1,2-Dichloroethene	48	U	48	12	ug/Kg	☼	07/30/20 20:24	07/31/20 22:13	1
Trichloroethene	48	U	48	13	ug/Kg	☼	07/30/20 20:24	07/31/20 22:13	1
Vinyl chloride	38	U	38	14	ug/Kg	☼	07/30/20 20:24	07/31/20 22:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		47 - 136	07/30/20 20:24	07/31/20 22:13	1
4-Bromofluorobenzene (Surr)	114		51 - 124	07/30/20 20:24	07/31/20 22:13	1
Dibromofluoromethane (Surr)	93		49 - 122	07/30/20 20:24	07/31/20 22:13	1
Toluene-d8 (Surr)	111		55 - 123	07/30/20 20:24	07/31/20 22:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	92.3		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	7.7		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (3-4)_072820

Lab Sample ID: 240-134182-12

Date Collected: 07/28/20 11:09

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.6

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	42	U	42	17	ug/Kg	☼	07/30/20 20:24	07/31/20 22:35	1
1,4-Dioxane	13000	U	13000	1100	ug/Kg	☼	07/30/20 20:24	07/31/20 22:35	1
cis-1,2-Dichloroethene	42	U	42	9.5	ug/Kg	☼	07/30/20 20:24	07/31/20 22:35	1
Tetrachloroethene	42	U	42	19	ug/Kg	☼	07/30/20 20:24	07/31/20 22:35	1
trans-1,2-Dichloroethene	42	U	42	11	ug/Kg	☼	07/30/20 20:24	07/31/20 22:35	1
Trichloroethene	42	U	42	12	ug/Kg	☼	07/30/20 20:24	07/31/20 22:35	1
Vinyl chloride	34	U	34	13	ug/Kg	☼	07/30/20 20:24	07/31/20 22:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		47 - 136	07/30/20 20:24	07/31/20 22:35	1
4-Bromofluorobenzene (Surr)	99		51 - 124	07/30/20 20:24	07/31/20 22:35	1
Dibromofluoromethane (Surr)	83		49 - 122	07/30/20 20:24	07/31/20 22:35	1
Toluene-d8 (Surr)	99		55 - 123	07/30/20 20:24	07/31/20 22:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.6		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.4		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (4-5)_072820

Lab Sample ID: 240-134182-13

Date Collected: 07/28/20 11:10

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.1

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	45	U	45	18	ug/Kg	☼	07/30/20 20:24	07/31/20 22:57	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 22:57	1
cis-1,2-Dichloroethene	45	U	45	10	ug/Kg	☼	07/30/20 20:24	07/31/20 22:57	1
Tetrachloroethene	45	U	45	20	ug/Kg	☼	07/30/20 20:24	07/31/20 22:57	1
trans-1,2-Dichloroethene	45	U	45	11	ug/Kg	☼	07/30/20 20:24	07/31/20 22:57	1
Trichloroethene	45	U	45	12	ug/Kg	☼	07/30/20 20:24	07/31/20 22:57	1
Vinyl chloride	36	U	36	13	ug/Kg	☼	07/30/20 20:24	07/31/20 22:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		47 - 136	07/30/20 20:24	07/31/20 22:57	1
4-Bromofluorobenzene (Surr)	110		51 - 124	07/30/20 20:24	07/31/20 22:57	1
Dibromofluoromethane (Surr)	85		49 - 122	07/30/20 20:24	07/31/20 22:57	1
Toluene-d8 (Surr)	108		55 - 123	07/30/20 20:24	07/31/20 22:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.1		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.9		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (5-6)_072820

Lab Sample ID: 240-134182-14

Date Collected: 07/28/20 11:29

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 89.8

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	49	U	49	20	ug/Kg	☼	07/30/20 20:24	07/31/20 23:20	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	07/30/20 20:24	07/31/20 23:20	1
cis-1,2-Dichloroethene	49	U	49	11	ug/Kg	☼	07/30/20 20:24	07/31/20 23:20	1
Tetrachloroethene	49	U	49	22	ug/Kg	☼	07/30/20 20:24	07/31/20 23:20	1
trans-1,2-Dichloroethene	49	U	49	12	ug/Kg	☼	07/30/20 20:24	07/31/20 23:20	1
Trichloroethene	49	U	49	14	ug/Kg	☼	07/30/20 20:24	07/31/20 23:20	1
Vinyl chloride	39	U	39	15	ug/Kg	☼	07/30/20 20:24	07/31/20 23:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		47 - 136	07/30/20 20:24	07/31/20 23:20	1
4-Bromofluorobenzene (Surr)	111		51 - 124	07/30/20 20:24	07/31/20 23:20	1
Dibromofluoromethane (Surr)	91		49 - 122	07/30/20 20:24	07/31/20 23:20	1
Toluene-d8 (Surr)	109		55 - 123	07/30/20 20:24	07/31/20 23:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	89.8		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	10.2		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (6-7)_072820

Lab Sample ID: 240-134182-15

Date Collected: 07/28/20 11:30

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.1

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	45	U	45	18	ug/Kg	☼	07/30/20 20:24	07/31/20 23:42	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 23:42	1
cis-1,2-Dichloroethene	45	U	45	10	ug/Kg	☼	07/30/20 20:24	07/31/20 23:42	1
Tetrachloroethene	45	U	45	20	ug/Kg	☼	07/30/20 20:24	07/31/20 23:42	1
trans-1,2-Dichloroethene	45	U	45	11	ug/Kg	☼	07/30/20 20:24	07/31/20 23:42	1
Trichloroethene	45	U	45	12	ug/Kg	☼	07/30/20 20:24	07/31/20 23:42	1
Vinyl chloride	36	U	36	14	ug/Kg	☼	07/30/20 20:24	07/31/20 23:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		47 - 136	07/30/20 20:24	07/31/20 23:42	1
4-Bromofluorobenzene (Surr)	103		51 - 124	07/30/20 20:24	07/31/20 23:42	1
Dibromofluoromethane (Surr)	84		49 - 122	07/30/20 20:24	07/31/20 23:42	1
Toluene-d8 (Surr)	101		55 - 123	07/30/20 20:24	07/31/20 23:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.1		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	3.9		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (7-8)_072820

Lab Sample ID: 240-134182-16

Date Collected: 07/28/20 11:34

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 94.2

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	46	U	46	18	ug/Kg	☼	07/30/20 20:24	08/01/20 00:05	1
1,4-Dioxane	14000	U	14000	1300	ug/Kg	☼	07/30/20 20:24	08/01/20 00:05	1
cis-1,2-Dichloroethene	46	U	46	10	ug/Kg	☼	07/30/20 20:24	08/01/20 00:05	1
Tetrachloroethene	46	U	46	21	ug/Kg	☼	07/30/20 20:24	08/01/20 00:05	1
trans-1,2-Dichloroethene	46	U	46	12	ug/Kg	☼	07/30/20 20:24	08/01/20 00:05	1
Trichloroethene	46	U	46	13	ug/Kg	☼	07/30/20 20:24	08/01/20 00:05	1
Vinyl chloride	37	U	37	14	ug/Kg	☼	07/30/20 20:24	08/01/20 00:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		47 - 136	07/30/20 20:24	08/01/20 00:05	1
4-Bromofluorobenzene (Surr)	108		51 - 124	07/30/20 20:24	08/01/20 00:05	1
Dibromofluoromethane (Surr)	88		49 - 122	07/30/20 20:24	08/01/20 00:05	1
Toluene-d8 (Surr)	106		55 - 123	07/30/20 20:24	08/01/20 00:05	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	94.2		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	5.8		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (0.5-1)_072820

Lab Sample ID: 240-134182-17

Date Collected: 07/28/20 12:40

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.5

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	44	U	44	18	ug/Kg	☼	07/30/20 20:24	08/01/20 00:27	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	08/01/20 00:27	1
cis-1,2-Dichloroethene	44	U	44	9.9	ug/Kg	☼	07/30/20 20:24	08/01/20 00:27	1
Tetrachloroethene	44	U	44	20	ug/Kg	☼	07/30/20 20:24	08/01/20 00:27	1
trans-1,2-Dichloroethene	44	U	44	11	ug/Kg	☼	07/30/20 20:24	08/01/20 00:27	1
Trichloroethene	44	U	44	12	ug/Kg	☼	07/30/20 20:24	08/01/20 00:27	1
Vinyl chloride	35	U	35	13	ug/Kg	☼	07/30/20 20:24	08/01/20 00:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		47 - 136	07/30/20 20:24	08/01/20 00:27	1
4-Bromofluorobenzene (Surr)	108		51 - 124	07/30/20 20:24	08/01/20 00:27	1
Dibromofluoromethane (Surr)	88		49 - 122	07/30/20 20:24	08/01/20 00:27	1
Toluene-d8 (Surr)	108		55 - 123	07/30/20 20:24	08/01/20 00:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.5		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	3.5		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (1-2)_072820

Lab Sample ID: 240-134182-18

Date Collected: 07/28/20 12:41

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.8

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	43	U	43	17	ug/Kg	☼	07/30/20 20:24	08/01/20 00:50	1
1,4-Dioxane	13000	U	13000	1200	ug/Kg	☼	07/30/20 20:24	08/01/20 00:50	1
cis-1,2-Dichloroethene	43	U	43	9.6	ug/Kg	☼	07/30/20 20:24	08/01/20 00:50	1
Tetrachloroethene	43	U	43	19	ug/Kg	☼	07/30/20 20:24	08/01/20 00:50	1
trans-1,2-Dichloroethene	43	U	43	11	ug/Kg	☼	07/30/20 20:24	08/01/20 00:50	1
Trichloroethene	43	U	43	12	ug/Kg	☼	07/30/20 20:24	08/01/20 00:50	1
Vinyl chloride	34	U	34	13	ug/Kg	☼	07/30/20 20:24	08/01/20 00:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		47 - 136	07/30/20 20:24	08/01/20 00:50	1
4-Bromofluorobenzene (Surr)	104		51 - 124	07/30/20 20:24	08/01/20 00:50	1
Dibromofluoromethane (Surr)	85		49 - 122	07/30/20 20:24	08/01/20 00:50	1
Toluene-d8 (Surr)	103		55 - 123	07/30/20 20:24	08/01/20 00:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.8		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.2		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (2-3)_072820

Lab Sample ID: 240-134182-19

Date Collected: 07/28/20 12:42

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.1

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	44	U	44	18	ug/Kg	☼	07/30/20 20:24	08/01/20 01:12	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	08/01/20 01:12	1
cis-1,2-Dichloroethene	44	U	44	9.9	ug/Kg	☼	07/30/20 20:24	08/01/20 01:12	1
Tetrachloroethene	44	U	44	20	ug/Kg	☼	07/30/20 20:24	08/01/20 01:12	1
trans-1,2-Dichloroethene	44	U	44	11	ug/Kg	☼	07/30/20 20:24	08/01/20 01:12	1
Trichloroethene	44	U	44	12	ug/Kg	☼	07/30/20 20:24	08/01/20 01:12	1
Vinyl chloride	35	U	35	13	ug/Kg	☼	07/30/20 20:24	08/01/20 01:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		47 - 136	07/30/20 20:24	08/01/20 01:12	1
4-Bromofluorobenzene (Surr)	106		51 - 124	07/30/20 20:24	08/01/20 01:12	1
Dibromofluoromethane (Surr)	82		49 - 122	07/30/20 20:24	08/01/20 01:12	1
Toluene-d8 (Surr)	102		55 - 123	07/30/20 20:24	08/01/20 01:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.1		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.9		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (3-4)_072820

Lab Sample ID: 240-134182-20

Date Collected: 07/28/20 12:43

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 98.0

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	39	U	39	16	ug/Kg	☼	08/03/20 17:08	08/04/20 19:12	1
1,4-Dioxane	12000	U	12000	1100	ug/Kg	☼	08/03/20 17:08	08/04/20 19:12	1
cis-1,2-Dichloroethene	14	J	39	8.9	ug/Kg	☼	08/03/20 17:08	08/04/20 19:12	1
Tetrachloroethene	19	J	39	18	ug/Kg	☼	08/03/20 17:08	08/04/20 19:12	1
trans-1,2-Dichloroethene	24	J	39	9.9	ug/Kg	☼	08/03/20 17:08	08/04/20 19:12	1
Trichloroethene	13	J	39	11	ug/Kg	☼	08/03/20 17:08	08/04/20 19:12	1
Vinyl chloride	12	J	32	12	ug/Kg	☼	08/03/20 17:08	08/04/20 19:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		47 - 136	08/03/20 17:08	08/04/20 19:12	1
4-Bromofluorobenzene (Surr)	114		51 - 124	08/03/20 17:08	08/04/20 19:12	1
Dibromofluoromethane (Surr)	89		49 - 122	08/03/20 17:08	08/04/20 19:12	1
Toluene-d8 (Surr)	108		55 - 123	08/03/20 17:08	08/04/20 19:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	98.0		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.0		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (4-5)_072820

Lab Sample ID: 240-134182-21

Date Collected: 07/28/20 12:44

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 94.6

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	44	U	44	18	ug/Kg	☼	07/30/20 20:24	08/01/20 01:35	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	08/01/20 01:35	1
cis-1,2-Dichloroethene	44	U	44	10	ug/Kg	☼	07/30/20 20:24	08/01/20 01:35	1
Tetrachloroethene	44	U	44	20	ug/Kg	☼	07/30/20 20:24	08/01/20 01:35	1
trans-1,2-Dichloroethene	44	U	44	11	ug/Kg	☼	07/30/20 20:24	08/01/20 01:35	1
Trichloroethene	44	U	44	12	ug/Kg	☼	07/30/20 20:24	08/01/20 01:35	1
Vinyl chloride	35	U	35	13	ug/Kg	☼	07/30/20 20:24	08/01/20 01:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		47 - 136	07/30/20 20:24	08/01/20 01:35	1
4-Bromofluorobenzene (Surr)	104		51 - 124	07/30/20 20:24	08/01/20 01:35	1
Dibromofluoromethane (Surr)	83		49 - 122	07/30/20 20:24	08/01/20 01:35	1
Toluene-d8 (Surr)	102		55 - 123	07/30/20 20:24	08/01/20 01:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	94.6		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	5.4		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (5-6)_072820

Lab Sample ID: 240-134182-22

Date Collected: 07/28/20 12:58

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 94.6

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	48	U	48	19	ug/Kg	☼	08/03/20 17:08	08/04/20 19:35	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	08/03/20 17:08	08/04/20 19:35	1
cis-1,2-Dichloroethene	48	U	48	11	ug/Kg	☼	08/03/20 17:08	08/04/20 19:35	1
Tetrachloroethene	48	U	48	22	ug/Kg	☼	08/03/20 17:08	08/04/20 19:35	1
trans-1,2-Dichloroethene	48	U	48	12	ug/Kg	☼	08/03/20 17:08	08/04/20 19:35	1
Trichloroethene	48	U	48	13	ug/Kg	☼	08/03/20 17:08	08/04/20 19:35	1
Vinyl chloride	39	U	39	15	ug/Kg	☼	08/03/20 17:08	08/04/20 19:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		47 - 136	08/03/20 17:08	08/04/20 19:35	1
4-Bromofluorobenzene (Surr)	106		51 - 124	08/03/20 17:08	08/04/20 19:35	1
Dibromofluoromethane (Surr)	88		49 - 122	08/03/20 17:08	08/04/20 19:35	1
Toluene-d8 (Surr)	106		55 - 123	08/03/20 17:08	08/04/20 19:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	94.6		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	5.4		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (6-7)_072820

Lab Sample ID: 240-134182-23

Date Collected: 07/28/20 13:01

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.6

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	43	U	43	17	ug/Kg	☼	08/03/20 17:08	08/04/20 19:57	1
1,4-Dioxane	13000	U	13000	1200	ug/Kg	☼	08/03/20 17:08	08/04/20 19:57	1
cis-1,2-Dichloroethene	43	U	43	9.6	ug/Kg	☼	08/03/20 17:08	08/04/20 19:57	1
Tetrachloroethene	43	U	43	19	ug/Kg	☼	08/03/20 17:08	08/04/20 19:57	1
trans-1,2-Dichloroethene	43	U	43	11	ug/Kg	☼	08/03/20 17:08	08/04/20 19:57	1
Trichloroethene	43	U	43	12	ug/Kg	☼	08/03/20 17:08	08/04/20 19:57	1
Vinyl chloride	34	U	34	13	ug/Kg	☼	08/03/20 17:08	08/04/20 19:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		47 - 136	08/03/20 17:08	08/04/20 19:57	1
4-Bromofluorobenzene (Surr)	113		51 - 124	08/03/20 17:08	08/04/20 19:57	1
Dibromofluoromethane (Surr)	90		49 - 122	08/03/20 17:08	08/04/20 19:57	1
Toluene-d8 (Surr)	109		55 - 123	08/03/20 17:08	08/04/20 19:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.6		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	3.4		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (7-8)_072820

Lab Sample ID: 240-134182-24

Date Collected: 07/28/20 13:00

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 95.5

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	46	U	46	18	ug/Kg	☼	08/03/20 17:08	08/04/20 20:20	1
1,4-Dioxane	14000	U	14000	1300	ug/Kg	☼	08/03/20 17:08	08/04/20 20:20	1
cis-1,2-Dichloroethene	46	U	46	10	ug/Kg	☼	08/03/20 17:08	08/04/20 20:20	1
Tetrachloroethene	46	U	46	21	ug/Kg	☼	08/03/20 17:08	08/04/20 20:20	1
trans-1,2-Dichloroethene	46	U	46	12	ug/Kg	☼	08/03/20 17:08	08/04/20 20:20	1
Trichloroethene	46	U	46	13	ug/Kg	☼	08/03/20 17:08	08/04/20 20:20	1
Vinyl chloride	37	U	37	14	ug/Kg	☼	08/03/20 17:08	08/04/20 20:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		47 - 136	08/03/20 17:08	08/04/20 20:20	1
4-Bromofluorobenzene (Surr)	110		51 - 124	08/03/20 17:08	08/04/20 20:20	1
Dibromofluoromethane (Surr)	88		49 - 122	08/03/20 17:08	08/04/20 20:20	1
Toluene-d8 (Surr)	108		55 - 123	08/03/20 17:08	08/04/20 20:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	95.5		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	4.5		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (0.5-1)_072820

Lab Sample ID: 240-134182-25

Date Collected: 07/28/20 13:20

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.6

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	44	U	44	18	ug/Kg	☼	08/03/20 17:08	08/04/20 20:42	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	08/03/20 17:08	08/04/20 20:42	1
cis-1,2-Dichloroethene	44	U	44	9.9	ug/Kg	☼	08/03/20 17:08	08/04/20 20:42	1
Tetrachloroethene	44	U	44	20	ug/Kg	☼	08/03/20 17:08	08/04/20 20:42	1
trans-1,2-Dichloroethene	44	U	44	11	ug/Kg	☼	08/03/20 17:08	08/04/20 20:42	1
Trichloroethene	44	U	44	12	ug/Kg	☼	08/03/20 17:08	08/04/20 20:42	1
Vinyl chloride	35	U	35	13	ug/Kg	☼	08/03/20 17:08	08/04/20 20:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		47 - 136	08/03/20 17:08	08/04/20 20:42	1
4-Bromofluorobenzene (Surr)	108		51 - 124	08/03/20 17:08	08/04/20 20:42	1
Dibromofluoromethane (Surr)	87		49 - 122	08/03/20 17:08	08/04/20 20:42	1
Toluene-d8 (Surr)	105		55 - 123	08/03/20 17:08	08/04/20 20:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.6		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	2.4		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (1-2)_072820

Lab Sample ID: 240-134182-26

Date Collected: 07/28/20 13:21

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.4

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	42	U	42	17	ug/Kg	☼	08/03/20 17:08	08/04/20 21:49	1
1,4-Dioxane	13000	U	13000	1200	ug/Kg	☼	08/03/20 17:08	08/04/20 21:49	1
cis-1,2-Dichloroethene	42	U	42	9.5	ug/Kg	☼	08/03/20 17:08	08/04/20 21:49	1
Tetrachloroethene	42	U	42	19	ug/Kg	☼	08/03/20 17:08	08/04/20 21:49	1
trans-1,2-Dichloroethene	42	U	42	11	ug/Kg	☼	08/03/20 17:08	08/04/20 21:49	1
Trichloroethene	42	U	42	12	ug/Kg	☼	08/03/20 17:08	08/04/20 21:49	1
Vinyl chloride	34	U	34	13	ug/Kg	☼	08/03/20 17:08	08/04/20 21:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		47 - 136	08/03/20 17:08	08/04/20 21:49	1
4-Bromofluorobenzene (Surr)	104		51 - 124	08/03/20 17:08	08/04/20 21:49	1
Dibromofluoromethane (Surr)	86		49 - 122	08/03/20 17:08	08/04/20 21:49	1
Toluene-d8 (Surr)	104		55 - 123	08/03/20 17:08	08/04/20 21:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.4		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	3.6		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (2-3)_072820

Lab Sample ID: 240-134182-27

Date Collected: 07/28/20 13:22

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 95.2

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	45	U	45	18	ug/Kg	☼	08/03/20 17:08	08/04/20 22:12	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	08/03/20 17:08	08/04/20 22:12	1
cis-1,2-Dichloroethene	45	U	45	10	ug/Kg	☼	08/03/20 17:08	08/04/20 22:12	1
Tetrachloroethene	45	U	45	20	ug/Kg	☼	08/03/20 17:08	08/04/20 22:12	1
trans-1,2-Dichloroethene	45	U	45	11	ug/Kg	☼	08/03/20 17:08	08/04/20 22:12	1
Trichloroethene	45	U	45	12	ug/Kg	☼	08/03/20 17:08	08/04/20 22:12	1
Vinyl chloride	36	U	36	14	ug/Kg	☼	08/03/20 17:08	08/04/20 22:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		47 - 136	08/03/20 17:08	08/04/20 22:12	1
4-Bromofluorobenzene (Surr)	105		51 - 124	08/03/20 17:08	08/04/20 22:12	1
Dibromofluoromethane (Surr)	86		49 - 122	08/03/20 17:08	08/04/20 22:12	1
Toluene-d8 (Surr)	104		55 - 123	08/03/20 17:08	08/04/20 22:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	95.2		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	4.8		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (3-4)_072820

Lab Sample ID: 240-134182-28

Date Collected: 07/28/20 13:23

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.4

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	43	U	43	17	ug/Kg	☼	08/03/20 17:08	08/04/20 22:35	1
1,4-Dioxane	13000	U F1	13000	1200	ug/Kg	☼	08/03/20 17:08	08/04/20 22:35	1
cis-1,2-Dichloroethene	43	U	43	9.6	ug/Kg	☼	08/03/20 17:08	08/04/20 22:35	1
Tetrachloroethene	43	U	43	19	ug/Kg	☼	08/03/20 17:08	08/04/20 22:35	1
trans-1,2-Dichloroethene	43	U	43	11	ug/Kg	☼	08/03/20 17:08	08/04/20 22:35	1
Trichloroethene	43	U	43	12	ug/Kg	☼	08/03/20 17:08	08/04/20 22:35	1
Vinyl chloride	34	U	34	13	ug/Kg	☼	08/03/20 17:08	08/04/20 22:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		47 - 136	08/03/20 17:08	08/04/20 22:35	1
4-Bromofluorobenzene (Surr)	104		51 - 124	08/03/20 17:08	08/04/20 22:35	1
Dibromofluoromethane (Surr)	85		49 - 122	08/03/20 17:08	08/04/20 22:35	1
Toluene-d8 (Surr)	103		55 - 123	08/03/20 17:08	08/04/20 22:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.4		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	2.6		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (4-5)_072820

Lab Sample ID: 240-134182-29

Date Collected: 07/28/20 13:24

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.9

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	43	U	43	17	ug/Kg	☼	08/03/20 17:08	08/04/20 23:43	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	08/03/20 17:08	08/04/20 23:43	1
cis-1,2-Dichloroethene	43	U	43	9.8	ug/Kg	☼	08/03/20 17:08	08/04/20 23:43	1
Tetrachloroethene	43	U	43	20	ug/Kg	☼	08/03/20 17:08	08/04/20 23:43	1
trans-1,2-Dichloroethene	43	U	43	11	ug/Kg	☼	08/03/20 17:08	08/04/20 23:43	1
Trichloroethene	43	U	43	12	ug/Kg	☼	08/03/20 17:08	08/04/20 23:43	1
Vinyl chloride	35	U	35	13	ug/Kg	☼	08/03/20 17:08	08/04/20 23:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		47 - 136	08/03/20 17:08	08/04/20 23:43	1
4-Bromofluorobenzene (Surr)	112		51 - 124	08/03/20 17:08	08/04/20 23:43	1
Dibromofluoromethane (Surr)	89		49 - 122	08/03/20 17:08	08/04/20 23:43	1
Toluene-d8 (Surr)	110		55 - 123	08/03/20 17:08	08/04/20 23:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.9		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	3.1		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (5-6)_072820

Lab Sample ID: 240-134182-30

Date Collected: 07/28/20 13:40

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.1

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	43	U	43	17	ug/Kg	☼	08/03/20 17:08	08/05/20 00:05	1
1,4-Dioxane	13000	U	13000	1200	ug/Kg	☼	08/03/20 17:08	08/05/20 00:05	1
cis-1,2-Dichloroethene	43	U	43	9.6	ug/Kg	☼	08/03/20 17:08	08/05/20 00:05	1
Tetrachloroethene	43	U	43	19	ug/Kg	☼	08/03/20 17:08	08/05/20 00:05	1
trans-1,2-Dichloroethene	43	U	43	11	ug/Kg	☼	08/03/20 17:08	08/05/20 00:05	1
Trichloroethene	43	U	43	12	ug/Kg	☼	08/03/20 17:08	08/05/20 00:05	1
Vinyl chloride	34	U	34	13	ug/Kg	☼	08/03/20 17:08	08/05/20 00:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		47 - 136	08/03/20 17:08	08/05/20 00:05	1
4-Bromofluorobenzene (Surr)	109		51 - 124	08/03/20 17:08	08/05/20 00:05	1
Dibromofluoromethane (Surr)	88		49 - 122	08/03/20 17:08	08/05/20 00:05	1
Toluene-d8 (Surr)	107		55 - 123	08/03/20 17:08	08/05/20 00:05	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.1		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	2.9		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (6-7)_072820

Lab Sample ID: 240-134182-31

Date Collected: 07/28/20 13:45

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.2

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	46	U	46	19	ug/Kg	☼	08/03/20 17:08	08/05/20 00:28	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	08/03/20 17:08	08/05/20 00:28	1
cis-1,2-Dichloroethene	46	U	46	10	ug/Kg	☼	08/03/20 17:08	08/05/20 00:28	1
Tetrachloroethene	46	U	46	21	ug/Kg	☼	08/03/20 17:08	08/05/20 00:28	1
trans-1,2-Dichloroethene	46	U	46	12	ug/Kg	☼	08/03/20 17:08	08/05/20 00:28	1
Trichloroethene	46	U	46	13	ug/Kg	☼	08/03/20 17:08	08/05/20 00:28	1
Vinyl chloride	37	U	37	14	ug/Kg	☼	08/03/20 17:08	08/05/20 00:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		47 - 136	08/03/20 17:08	08/05/20 00:28	1
4-Bromofluorobenzene (Surr)	104		51 - 124	08/03/20 17:08	08/05/20 00:28	1
Dibromofluoromethane (Surr)	82		49 - 122	08/03/20 17:08	08/05/20 00:28	1
Toluene-d8 (Surr)	101		55 - 123	08/03/20 17:08	08/05/20 00:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.2		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	3.8		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (7-8)_072820

Lab Sample ID: 240-134182-32

Date Collected: 07/28/20 13:50

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 92.0

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	55	U	55	22	ug/Kg	☼	08/03/20 17:08	08/05/20 00:50	1
1,4-Dioxane	17000	U	17000	1500	ug/Kg	☼	08/03/20 17:08	08/05/20 00:50	1
cis-1,2-Dichloroethene	55	U	55	12	ug/Kg	☼	08/03/20 17:08	08/05/20 00:50	1
Tetrachloroethene	55	U	55	25	ug/Kg	☼	08/03/20 17:08	08/05/20 00:50	1
trans-1,2-Dichloroethene	55	U	55	14	ug/Kg	☼	08/03/20 17:08	08/05/20 00:50	1
Trichloroethene	55	U	55	15	ug/Kg	☼	08/03/20 17:08	08/05/20 00:50	1
Vinyl chloride	44	U	44	17	ug/Kg	☼	08/03/20 17:08	08/05/20 00:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		47 - 136	08/03/20 17:08	08/05/20 00:50	1
4-Bromofluorobenzene (Surr)	111		51 - 124	08/03/20 17:08	08/05/20 00:50	1
Dibromofluoromethane (Surr)	89		49 - 122	08/03/20 17:08	08/05/20 00:50	1
Toluene-d8 (Surr)	110		55 - 123	08/03/20 17:08	08/05/20 00:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	92.0		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	8.0		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: DUP-03

Lab Sample ID: 240-134182-33

Date Collected: 07/28/20 00:00

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.8

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	47	U	47	19	ug/Kg	☼	08/03/20 17:08	08/05/20 01:13	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	08/03/20 17:08	08/05/20 01:13	1
cis-1,2-Dichloroethene	47	U	47	11	ug/Kg	☼	08/03/20 17:08	08/05/20 01:13	1
Tetrachloroethene	47	U	47	21	ug/Kg	☼	08/03/20 17:08	08/05/20 01:13	1
trans-1,2-Dichloroethene	47	U	47	12	ug/Kg	☼	08/03/20 17:08	08/05/20 01:13	1
Trichloroethene	47	U	47	13	ug/Kg	☼	08/03/20 17:08	08/05/20 01:13	1
Vinyl chloride	37	U	37	14	ug/Kg	☼	08/03/20 17:08	08/05/20 01:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		47 - 136	08/03/20 17:08	08/05/20 01:13	1
4-Bromofluorobenzene (Surr)	106		51 - 124	08/03/20 17:08	08/05/20 01:13	1
Dibromofluoromethane (Surr)	87		49 - 122	08/03/20 17:08	08/05/20 01:13	1
Toluene-d8 (Surr)	105		55 - 123	08/03/20 17:08	08/05/20 01:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.8		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	3.2		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (7-12)_072820

Lab Sample ID: 240-134182-34

Date Collected: 07/28/20 15:05

Matrix: Water

Date Received: 07/30/20 09:40

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L	-		07/31/20 19:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		70 - 133		07/31/20 19:06	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L	-		08/04/20 00:17	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L	-		08/04/20 00:17	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L	-		08/04/20 00:17	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L	-		08/04/20 00:17	1
Trichloroethene	1.0	U	1.0	0.36	ug/L	-		08/04/20 00:17	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L	-		08/04/20 00:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	129		75 - 130		08/04/20 00:17	1
4-Bromofluorobenzene (Surr)	99		47 - 134		08/04/20 00:17	1
Toluene-d8 (Surr)	112		69 - 122		08/04/20 00:17	1
Dibromofluoromethane (Surr)	107		78 - 129		08/04/20 00:17	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134182-35

Date Collected: 07/28/20 00:00

Matrix: Water

Date Received: 07/30/20 09:40

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L	-		07/31/20 14:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		70 - 133					07/31/20 14:58	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L	-		08/04/20 00:42	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L	-		08/04/20 00:42	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L	-		08/04/20 00:42	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L	-		08/04/20 00:42	1
Trichloroethene	1.0	U	1.0	0.36	ug/L	-		08/04/20 00:42	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L	-		08/04/20 00:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	122		75 - 130					08/04/20 00:42	1
4-Bromofluorobenzene (Surr)	95		47 - 134					08/04/20 00:42	1
Toluene-d8 (Surr)	112		69 - 122					08/04/20 00:42	1
Dibromofluoromethane (Surr)	100		78 - 129					08/04/20 00:42	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-133764-G-4 MS	Matrix Spike	128	99	112	104
240-133764-H-4 MSD	Matrix Spike Duplicate	122	97	109	102
240-134182-34	TMW-20-02 (7-12)_072820	129	99	112	107
240-134182-35	TRIP BLANK	122	95	112	100
LCS 240-445379/4	Lab Control Sample	127	95	110	105
MB 240-445379/7	Method Blank	122	94	112	106

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (47-136)	BFB (51-124)	DBFM (49-122)	TOL (55-123)
240-134182-1	SB-141 (0.5-1)_072820	95	118	92	110
240-134182-2	SB-141 (1-2)_072820	91	106	88	105
240-134182-3	SB-141 (2-3)_072820	90	106	86	106
240-134182-4	SB-141 (3-4)_072820	88	105	85	102
240-134182-5	SB-141 (4-5)_072820	89	109	86	103
240-134182-6	SB-141 (5-6)_072820	96	111	92	110
240-134182-7	SB-141 (6-7)_072820	91	109	88	107
240-134182-8	SB-141 (7-8)_072820	89	105	86	103
240-134182-9	TMW-20-02 (0.5-1)_072820	92	109	87	108
240-134182-10	TMW-20-02 (1-2)_072820	89	107	84	103
240-134182-11	TMW-20-02 (2-3)_072820	99	114	93	111
240-134182-12	TMW-20-02 (3-4)_072820	87	99	83	99
240-134182-13	TMW-20-02 (4-5)_072820	92	110	85	108
240-134182-14	TMW-20-02 (5-6)_072820	97	111	91	109
240-134182-15	TMW-20-02 (6-7)_072820	90	103	84	101
240-134182-16	TMW-20-02 (7-8)_072820	95	108	88	106
240-134182-17	SB-142 (0.5-1)_072820	96	108	88	108
240-134182-18	SB-142 (1-2)_072820	90	104	85	103
240-134182-19	SB-142 (2-3)_072820	86	106	82	102
240-134182-20	SB-142 (3-4)_072820	94	114	89	108
240-134182-21	SB-142 (4-5)_072820	88	104	83	102
240-134182-21 MS	SB-142 (4-5)_072820	93	115	87	104
240-134182-22	SB-142 (5-6)_072820	95	106	88	106
240-134182-23	SB-142 (6-7)_072820	95	113	90	109
240-134182-24	SB-142 (7-8)_072820	93	110	88	108
240-134182-25	SB-143 (0.5-1)_072820	91	108	87	105
240-134182-25 MS	SB-143 (0.5-1)_072820	89	107	88	107
240-134182-25 MSD	SB-143 (0.5-1)_072820	96	109	92	107
240-134182-26	SB-143 (1-2)_072820	91	104	86	104
240-134182-27	SB-143 (2-3)_072820	93	105	86	104
240-134182-28	SB-143 (3-4)_072820	90	104	85	103

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Surrogate Summary

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP

Job ID: 240-134182-1

Method: 8260B MI - Volatile Organic Compounds (GC/MS) (Continued)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (47-136)	BFB (51-124)	DBFM (49-122)	TOL (55-123)
240-134182-28 MS	SB-143 (3-4)_072820	88	102	84	100
240-134182-28 MSD	SB-143 (3-4)_072820	85	107	86	103
240-134182-29	SB-143 (4-5)_072820	94	112	89	110
240-134182-30	SB-143 (5-6)_072820	94	109	88	107
240-134182-31	SB-143 (6-7)_072820	88	104	82	101
240-134182-32	SB-143 (7-8)_072820	95	111	89	110
240-134182-33	DUP-03	93	106	87	105
LCS 240-445021/2-A	Lab Control Sample	84	99	82	97
LCS 240-445424/2-A	Lab Control Sample	84	98	80	97
MB 240-445021/1-A	Method Blank	81	96	79	95
MB 240-445424/1-A	Method Blank	82	93	76	93

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
 BFB = 4-Bromofluorobenzene (Surr)
 DBFM = Dibromofluoromethane (Surr)
 TOL = Toluene-d8 (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA
		(70-133)
240-134182-34	TMW-20-02 (7-12)_072820	85
240-134182-35	TRIP BLANK	85
240-134235-C-2 MS	Matrix Spike	87
240-134235-C-2 MSD	Matrix Spike Duplicate	85
LCS 240-445137/4	Lab Control Sample	82
MB 240-445137/5	Method Blank	82

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-445379/7
Matrix: Water
Analysis Batch: 445379

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/03/20 16:25	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/03/20 16:25	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/03/20 16:25	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/03/20 16:25	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/03/20 16:25	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/03/20 16:25	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	122		75 - 130		08/03/20 16:25	1
4-Bromofluorobenzene (Surr)	94		47 - 134		08/03/20 16:25	1
Toluene-d8 (Surr)	112		69 - 122		08/03/20 16:25	1
Dibromofluoromethane (Surr)	106		78 - 129		08/03/20 16:25	1

Lab Sample ID: LCS 240-445379/4
Matrix: Water
Analysis Batch: 445379

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	9.38		ug/L		94	73 - 129
cis-1,2-Dichloroethene	10.0	9.02		ug/L		90	75 - 124
Tetrachloroethene	10.0	10.9		ug/L		109	70 - 125
trans-1,2-Dichloroethene	10.0	9.26		ug/L		93	74 - 130
Trichloroethene	10.0	8.49		ug/L		85	71 - 121
Vinyl chloride	10.0	12.0		ug/L		120	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	127		75 - 130
4-Bromofluorobenzene (Surr)	95		47 - 134
Toluene-d8 (Surr)	110		69 - 122
Dibromofluoromethane (Surr)	105		78 - 129

Lab Sample ID: 240-133764-G-4 MS
Matrix: Water
Analysis Batch: 445379

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U	10.0	10.6		ug/L		106	64 - 132
cis-1,2-Dichloroethene	1.0	U	10.0	9.61		ug/L		96	68 - 121
Tetrachloroethene	1.0	U	10.0	12.0		ug/L		120	52 - 129
trans-1,2-Dichloroethene	1.0	U	10.0	9.98		ug/L		100	69 - 126
Trichloroethene	1.0	U	10.0	8.99		ug/L		90	56 - 124
Vinyl chloride	1.0	U	10.0	13.3		ug/L		133	49 - 136

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	128		75 - 130
4-Bromofluorobenzene (Surr)	99		47 - 134
Toluene-d8 (Surr)	112		69 - 122

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QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-133764-G-4 MS
Matrix: Water
Analysis Batch: 445379

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	104		78 - 129

Lab Sample ID: 240-133764-H-4 MSD
Matrix: Water
Analysis Batch: 445379

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	10.0	10.3		ug/L		103	64 - 132	3	35
cis-1,2-Dichloroethene	1.0	U	10.0	9.82		ug/L		98	68 - 121	2	35
Tetrachloroethene	1.0	U	10.0	11.9		ug/L		119	52 - 129	1	35
trans-1,2-Dichloroethene	1.0	U	10.0	10.3		ug/L		103	69 - 126	3	35
Trichloroethene	1.0	U	10.0	9.31		ug/L		93	56 - 124	4	35
Vinyl chloride	1.0	U	10.0	12.8		ug/L		128	49 - 136	4	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	122		75 - 130
4-Bromofluorobenzene (Surr)	97		47 - 134
Toluene-d8 (Surr)	109		69 - 122
Dibromofluoromethane (Surr)	102		78 - 129

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-445021/1-A
Matrix: Solid
Analysis Batch: 445183

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445021

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	40	U	40	16	ug/Kg		07/30/20 20:24	07/31/20 17:42	1
1,4-Dioxane	13000	U	13000	1100	ug/Kg		07/30/20 20:24	07/31/20 17:42	1
cis-1,2-Dichloroethene	40	U	40	9.0	ug/Kg		07/30/20 20:24	07/31/20 17:42	1
Tetrachloroethene	40	U	40	18	ug/Kg		07/30/20 20:24	07/31/20 17:42	1
trans-1,2-Dichloroethene	40	U	40	10	ug/Kg		07/30/20 20:24	07/31/20 17:42	1
Trichloroethene	40	U	40	11	ug/Kg		07/30/20 20:24	07/31/20 17:42	1
Vinyl chloride	32	U	32	12	ug/Kg		07/30/20 20:24	07/31/20 17:42	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	81		47 - 136	07/30/20 20:24	07/31/20 17:42	1
4-Bromofluorobenzene (Surr)	96		51 - 124	07/30/20 20:24	07/31/20 17:42	1
Dibromofluoromethane (Surr)	79		49 - 122	07/30/20 20:24	07/31/20 17:42	1
Toluene-d8 (Surr)	95		55 - 123	07/30/20 20:24	07/31/20 17:42	1

Lab Sample ID: LCS 240-445021/2-A
Matrix: Solid
Analysis Batch: 445183

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445021

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1000	1130		ug/Kg		113	48 - 140
1,4-Dioxane	20000	20900		ug/Kg		104	44 - 154

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QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Method: 8260B MI - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-445021/2-A
Matrix: Solid
Analysis Batch: 445183

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445021

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	1000	876		ug/Kg		88	76 - 120
Tetrachloroethene	1000	1070		ug/Kg		107	75 - 124
trans-1,2-Dichloroethene	1000	1120		ug/Kg		112	74 - 125
Trichloroethene	1000	1040		ug/Kg		104	75 - 123
Vinyl chloride	1000	968		ug/Kg		97	39 - 140

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	84		47 - 136
4-Bromofluorobenzene (Surr)	99		51 - 124
Dibromofluoromethane (Surr)	82		49 - 122
Toluene-d8 (Surr)	97		55 - 123

Lab Sample ID: 240-134182-21 MS
Matrix: Solid
Analysis Batch: 445183

Client Sample ID: SB-142 (4-5)_072820
Prep Type: Total/NA
Prep Batch: 445021

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	44	U	1040	979		ug/Kg	☼	94	20 - 150
1,4-Dioxane	14000	U	20800	42500	F1	ug/Kg	☼	204	48 - 149
cis-1,2-Dichloroethene	44	U	1040	1010		ug/Kg	☼	97	35 - 130
Tetrachloroethene	44	U	1040	1190		ug/Kg	☼	115	13 - 144
trans-1,2-Dichloroethene	44	U	1040	1300		ug/Kg	☼	125	31 - 138
Trichloroethene	44	U	1040	1220		ug/Kg	☼	117	10 - 162
Vinyl chloride	35	U	1040	1120		ug/Kg	☼	108	15 - 150

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	93		47 - 136
4-Bromofluorobenzene (Surr)	115		51 - 124
Dibromofluoromethane (Surr)	87		49 - 122
Toluene-d8 (Surr)	104		55 - 123

Lab Sample ID: MB 240-445424/1-A
Matrix: Solid
Analysis Batch: 445595

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445424

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	40	U	40	16	ug/Kg		08/03/20 17:08	08/04/20 18:24	1
1,4-Dioxane	13000	U	13000	1100	ug/Kg		08/03/20 17:08	08/04/20 18:24	1
cis-1,2-Dichloroethene	40	U	40	9.0	ug/Kg		08/03/20 17:08	08/04/20 18:24	1
Tetrachloroethene	40	U	40	18	ug/Kg		08/03/20 17:08	08/04/20 18:24	1
trans-1,2-Dichloroethene	40	U	40	10	ug/Kg		08/03/20 17:08	08/04/20 18:24	1
Trichloroethene	40	U	40	11	ug/Kg		08/03/20 17:08	08/04/20 18:24	1
Vinyl chloride	32	U	32	12	ug/Kg		08/03/20 17:08	08/04/20 18:24	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	82		47 - 136	08/03/20 17:08	08/04/20 18:24	1
4-Bromofluorobenzene (Surr)	93		51 - 124	08/03/20 17:08	08/04/20 18:24	1
Dibromofluoromethane (Surr)	76		49 - 122	08/03/20 17:08	08/04/20 18:24	1

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Method: 8260B MI - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-445424/1-A
Matrix: Solid
Analysis Batch: 445595

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445424

Surrogate	MB MB	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)		93		55 - 123	08/03/20 17:08	08/04/20 18:24	1

Lab Sample ID: LCS 240-445424/2-A
Matrix: Solid
Analysis Batch: 445595

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445424

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,1-Dichloroethene	1000	1060		ug/Kg		106	48 - 140
1,4-Dioxane	20000	20300		ug/Kg		101	44 - 154
cis-1,2-Dichloroethene	1000	838		ug/Kg		84	76 - 120
Tetrachloroethene	1000	1020		ug/Kg		102	75 - 124
trans-1,2-Dichloroethene	1000	1060		ug/Kg		106	74 - 125
Trichloroethene	1000	995		ug/Kg		99	75 - 123
Vinyl chloride	1000	1050		ug/Kg		105	39 - 140

Surrogate	LCS LCS	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)		84		47 - 136
4-Bromofluorobenzene (Surr)		98		51 - 124
Dibromofluoromethane (Surr)		80		49 - 122
Toluene-d8 (Surr)		97		55 - 123

Lab Sample ID: 240-134182-25 MS
Matrix: Solid
Analysis Batch: 445595

Client Sample ID: SB-143 (0.5-1)_072820
Prep Type: Total/NA
Prep Batch: 445424

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
1,1-Dichloroethene	44	U	1030	1250		ug/Kg	☼	121	20 - 150
1,4-Dioxane	14000	U	20700	23200		ug/Kg	☼	112	48 - 149
cis-1,2-Dichloroethene	44	U	1030	994		ug/Kg	☼	96	35 - 130
Tetrachloroethene	44	U	1030	1230		ug/Kg	☼	119	13 - 144
trans-1,2-Dichloroethene	44	U	1030	1290		ug/Kg	☼	124	31 - 138
Trichloroethene	44	U	1030	1190		ug/Kg	☼	116	10 - 162
Vinyl chloride	35	U	1030	1250		ug/Kg	☼	121	15 - 150

Surrogate	MS MS	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)		89		47 - 136
4-Bromofluorobenzene (Surr)		107		51 - 124
Dibromofluoromethane (Surr)		88		49 - 122
Toluene-d8 (Surr)		107		55 - 123

Lab Sample ID: 240-134182-25 MSD
Matrix: Solid
Analysis Batch: 445595

Client Sample ID: SB-143 (0.5-1)_072820
Prep Type: Total/NA
Prep Batch: 445424

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,1-Dichloroethene	44	U	1060	1280		ug/Kg	☼	121	20 - 150	2	40
1,4-Dioxane	14000	U	21300	29800		ug/Kg	☼	140	48 - 149	25	40
cis-1,2-Dichloroethene	44	U	1060	1030		ug/Kg	☼	97	35 - 130	4	40

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Method: 8260B MI - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-134182-25 MSD

Client Sample ID: SB-143 (0.5-1)_072820

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 445595

Prep Batch: 445424

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier		Result	Qualifier						
Tetrachloroethene	44	U	1060	1240		ug/Kg	☼	116	13 - 144	1	40
trans-1,2-Dichloroethene	44	U	1060	1320		ug/Kg	☼	124	31 - 138	2	40
Trichloroethene	44	U	1060	1220		ug/Kg	☼	114	10 - 162	2	40
Vinyl chloride	35	U	1060	1250		ug/Kg	☼	118	15 - 150	0	40

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	96		47 - 136
4-Bromofluorobenzene (Surr)	109		51 - 124
Dibromofluoromethane (Surr)	92		49 - 122
Toluene-d8 (Surr)	107		55 - 123

Lab Sample ID: 240-134182-28 MS

Client Sample ID: SB-143 (3-4)_072820

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 445595

Prep Batch: 445424

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier		Result	Qualifier						
1,1-Dichloroethene	43	U	1040	1100		ug/Kg	☼	107	20 - 150		
1,4-Dioxane	13000	U F1	20700	31700	F1	ug/Kg	☼	153	48 - 149		
cis-1,2-Dichloroethene	43	U	1040	926		ug/Kg	☼	89	35 - 130		
Tetrachloroethene	43	U	1040	1120		ug/Kg	☼	108	13 - 144		
trans-1,2-Dichloroethene	43	U	1040	1200		ug/Kg	☼	115	31 - 138		
Trichloroethene	43	U	1040	1120		ug/Kg	☼	108	10 - 162		
Vinyl chloride	34	U	1040	1220		ug/Kg	☼	118	15 - 150		

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	88		47 - 136
4-Bromofluorobenzene (Surr)	102		51 - 124
Dibromofluoromethane (Surr)	84		49 - 122
Toluene-d8 (Surr)	100		55 - 123

Lab Sample ID: 240-134182-28 MSD

Client Sample ID: SB-143 (3-4)_072820

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 445595

Prep Batch: 445424

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier		Result	Qualifier						
1,1-Dichloroethene	43	U	1060	1240		ug/Kg	☼	117	20 - 150	12	40
1,4-Dioxane	13000	U F1	21100	21600		ug/Kg	☼	102	48 - 149	38	40
cis-1,2-Dichloroethene	43	U	1060	994		ug/Kg	☼	94	35 - 130	7	40
Tetrachloroethene	43	U	1060	1210		ug/Kg	☼	114	13 - 144	8	40
trans-1,2-Dichloroethene	43	U	1060	1280		ug/Kg	☼	121	31 - 138	7	40
Trichloroethene	43	U	1060	1210		ug/Kg	☼	115	10 - 162	8	40
Vinyl chloride	34	U	1060	1230		ug/Kg	☼	117	15 - 150	1	40

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	85		47 - 136
4-Bromofluorobenzene (Surr)	107		51 - 124
Dibromofluoromethane (Surr)	86		49 - 122
Toluene-d8 (Surr)	103		55 - 123

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-445137/5
Matrix: Water
Analysis Batch: 445137

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			07/31/20 13:43	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	82		70 - 133					07/31/20 13:43	1

Lab Sample ID: LCS 240-445137/4
Matrix: Water
Analysis Batch: 445137

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	12.0		ug/L		120	80 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	82		70 - 133				

Lab Sample ID: 240-134235-C-2 MS
Matrix: Water
Analysis Batch: 445137

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	33		20.0	56.5		ug/L		116	46 - 170
Surrogate	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	87		70 - 133						

Lab Sample ID: 240-134235-C-2 MSD
Matrix: Water
Analysis Batch: 445137

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	33		20.0	58.9		ug/L		127	46 - 170	4	26
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	85		70 - 133								

Method: Moisture - Percent Moisture

Lab Sample ID: 240-134182-6 DU
Matrix: Solid
Analysis Batch: 445353

Client Sample ID: SB-141 (5-6)_072820
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	97.5		97.3		%		0.2	20
Percent Moisture	2.5		2.7		%		6	20

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QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Method: Moisture - Percent Moisture (Continued)

Lab Sample ID: 240-134182-15 DU

Matrix: Solid
Analysis Batch: 445353

Client Sample ID: TMW-20-02 (6-7)_072820

Prep Type: Total/NA

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD	Limit
	Result	Qualifier	Result	Qualifier					
Percent Solids	96.1		95.8		%		0.3		20
Percent Moisture	3.9		4.2		%		7		20

Lab Sample ID: 240-134182-21 DU

Matrix: Solid
Analysis Batch: 445353

Client Sample ID: SB-142 (4-5)_072820

Prep Type: Total/NA

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD	Limit
	Result	Qualifier	Result	Qualifier					
Percent Solids	94.6		94.4		%		0.2		20
Percent Moisture	5.4		5.6		%		3		20

Lab Sample ID: 240-134182-23 DU

Matrix: Solid
Analysis Batch: 445353

Client Sample ID: SB-142 (6-7)_072820

Prep Type: Total/NA

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD	Limit
	Result	Qualifier	Result	Qualifier					
Percent Solids	96.6		96.7		%		0.1		20
Percent Moisture	3.4		3.3		%		3		20

Lab Sample ID: 240-134182-25 DU

Matrix: Solid
Analysis Batch: 445353

Client Sample ID: SB-143 (0.5-1)_072820

Prep Type: Total/NA

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD	Limit
	Result	Qualifier	Result	Qualifier					
Percent Solids	97.6		97.5		%		0.1		20
Percent Moisture	2.4		2.5		%		6		20

Lab Sample ID: 240-134182-28 DU

Matrix: Solid
Analysis Batch: 445353

Client Sample ID: SB-143 (3-4)_072820

Prep Type: Total/NA

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD	Limit
	Result	Qualifier	Result	Qualifier					
Percent Solids	97.4		97.3		%		0		20
Percent Moisture	2.6		2.7		%		0.5		20

Lab Sample ID: 240-134182-30 DU

Matrix: Solid
Analysis Batch: 445353

Client Sample ID: SB-143 (5-6)_072820

Prep Type: Total/NA

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD	Limit
	Result	Qualifier	Result	Qualifier					
Percent Solids	97.1		96.8		%		0.3		20
Percent Moisture	2.9		3.2		%		10		20

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

GC/MS VOA

Prep Batch: 445021

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134182-1	SB-141 (0.5-1)_072820	Total/NA	Solid	5030B	
240-134182-2	SB-141 (1-2)_072820	Total/NA	Solid	5030B	
240-134182-3	SB-141 (2-3)_072820	Total/NA	Solid	5030B	
240-134182-4	SB-141 (3-4)_072820	Total/NA	Solid	5030B	
240-134182-5	SB-141 (4-5)_072820	Total/NA	Solid	5030B	
240-134182-6	SB-141 (5-6)_072820	Total/NA	Solid	5030B	
240-134182-7	SB-141 (6-7)_072820	Total/NA	Solid	5030B	
240-134182-8	SB-141 (7-8)_072820	Total/NA	Solid	5030B	
240-134182-9	TMW-20-02 (0.5-1)_072820	Total/NA	Solid	5030B	
240-134182-10	TMW-20-02 (1-2)_072820	Total/NA	Solid	5030B	
240-134182-11	TMW-20-02 (2-3)_072820	Total/NA	Solid	5030B	
240-134182-12	TMW-20-02 (3-4)_072820	Total/NA	Solid	5030B	
240-134182-13	TMW-20-02 (4-5)_072820	Total/NA	Solid	5030B	
240-134182-14	TMW-20-02 (5-6)_072820	Total/NA	Solid	5030B	
240-134182-15	TMW-20-02 (6-7)_072820	Total/NA	Solid	5030B	
240-134182-16	TMW-20-02 (7-8)_072820	Total/NA	Solid	5030B	
240-134182-17	SB-142 (0.5-1)_072820	Total/NA	Solid	5030B	
240-134182-18	SB-142 (1-2)_072820	Total/NA	Solid	5030B	
240-134182-19	SB-142 (2-3)_072820	Total/NA	Solid	5030B	
240-134182-21	SB-142 (4-5)_072820	Total/NA	Solid	5030B	
MB 240-445021/1-A	Method Blank	Total/NA	Solid	5030B	
LCS 240-445021/2-A	Lab Control Sample	Total/NA	Solid	5030B	
240-134182-21 MS	SB-142 (4-5)_072820	Total/NA	Solid	5030B	

Analysis Batch: 445137

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134182-34	TMW-20-02 (7-12)_072820	Total/NA	Water	8260B SIM	
240-134182-35	TRIP BLANK	Total/NA	Water	8260B SIM	
MB 240-445137/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-445137/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-134235-C-2 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-134235-C-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 445183

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134182-1	SB-141 (0.5-1)_072820	Total/NA	Solid	8260B MI	445021
240-134182-2	SB-141 (1-2)_072820	Total/NA	Solid	8260B MI	445021
240-134182-3	SB-141 (2-3)_072820	Total/NA	Solid	8260B MI	445021
240-134182-4	SB-141 (3-4)_072820	Total/NA	Solid	8260B MI	445021
240-134182-5	SB-141 (4-5)_072820	Total/NA	Solid	8260B MI	445021
240-134182-6	SB-141 (5-6)_072820	Total/NA	Solid	8260B MI	445021
240-134182-7	SB-141 (6-7)_072820	Total/NA	Solid	8260B MI	445021
240-134182-8	SB-141 (7-8)_072820	Total/NA	Solid	8260B MI	445021
240-134182-9	TMW-20-02 (0.5-1)_072820	Total/NA	Solid	8260B MI	445021
240-134182-10	TMW-20-02 (1-2)_072820	Total/NA	Solid	8260B MI	445021
240-134182-11	TMW-20-02 (2-3)_072820	Total/NA	Solid	8260B MI	445021
240-134182-12	TMW-20-02 (3-4)_072820	Total/NA	Solid	8260B MI	445021
240-134182-13	TMW-20-02 (4-5)_072820	Total/NA	Solid	8260B MI	445021
240-134182-14	TMW-20-02 (5-6)_072820	Total/NA	Solid	8260B MI	445021
240-134182-15	TMW-20-02 (6-7)_072820	Total/NA	Solid	8260B MI	445021
240-134182-16	TMW-20-02 (7-8)_072820	Total/NA	Solid	8260B MI	445021

Eurofins TestAmerica, Canton

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

GC/MS VOA (Continued)

Analysis Batch: 445183 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134182-17	SB-142 (0.5-1)_072820	Total/NA	Solid	8260B MI	445021
240-134182-18	SB-142 (1-2)_072820	Total/NA	Solid	8260B MI	445021
240-134182-19	SB-142 (2-3)_072820	Total/NA	Solid	8260B MI	445021
240-134182-21	SB-142 (4-5)_072820	Total/NA	Solid	8260B MI	445021
MB 240-445021/1-A	Method Blank	Total/NA	Solid	8260B MI	445021
LCS 240-445021/2-A	Lab Control Sample	Total/NA	Solid	8260B MI	445021
240-134182-21 MS	SB-142 (4-5)_072820	Total/NA	Solid	8260B MI	445021

Analysis Batch: 445379

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134182-34	TMW-20-02 (7-12)_072820	Total/NA	Water	8260B	
240-134182-35	TRIP BLANK	Total/NA	Water	8260B	
MB 240-445379/7	Method Blank	Total/NA	Water	8260B	
LCS 240-445379/4	Lab Control Sample	Total/NA	Water	8260B	
240-133764-G-4 MS	Matrix Spike	Total/NA	Water	8260B	
240-133764-H-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Prep Batch: 445424

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134182-20	SB-142 (3-4)_072820	Total/NA	Solid	5030B	
240-134182-22	SB-142 (5-6)_072820	Total/NA	Solid	5030B	
240-134182-23	SB-142 (6-7)_072820	Total/NA	Solid	5030B	
240-134182-24	SB-142 (7-8)_072820	Total/NA	Solid	5030B	
240-134182-25	SB-143 (0.5-1)_072820	Total/NA	Solid	5030B	
240-134182-26	SB-143 (1-2)_072820	Total/NA	Solid	5030B	
240-134182-27	SB-143 (2-3)_072820	Total/NA	Solid	5030B	
240-134182-28	SB-143 (3-4)_072820	Total/NA	Solid	5030B	
240-134182-29	SB-143 (4-5)_072820	Total/NA	Solid	5030B	
240-134182-30	SB-143 (5-6)_072820	Total/NA	Solid	5030B	
240-134182-31	SB-143 (6-7)_072820	Total/NA	Solid	5030B	
240-134182-32	SB-143 (7-8)_072820	Total/NA	Solid	5030B	
240-134182-33	DUP-03	Total/NA	Solid	5030B	
MB 240-445424/1-A	Method Blank	Total/NA	Solid	5030B	
LCS 240-445424/2-A	Lab Control Sample	Total/NA	Solid	5030B	
240-134182-25 MS	SB-143 (0.5-1)_072820	Total/NA	Solid	5030B	
240-134182-25 MSD	SB-143 (0.5-1)_072820	Total/NA	Solid	5030B	
240-134182-28 MS	SB-143 (3-4)_072820	Total/NA	Solid	5030B	
240-134182-28 MSD	SB-143 (3-4)_072820	Total/NA	Solid	5030B	

Analysis Batch: 445595

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134182-20	SB-142 (3-4)_072820	Total/NA	Solid	8260B MI	445424
240-134182-22	SB-142 (5-6)_072820	Total/NA	Solid	8260B MI	445424
240-134182-23	SB-142 (6-7)_072820	Total/NA	Solid	8260B MI	445424
240-134182-24	SB-142 (7-8)_072820	Total/NA	Solid	8260B MI	445424
240-134182-25	SB-143 (0.5-1)_072820	Total/NA	Solid	8260B MI	445424
240-134182-26	SB-143 (1-2)_072820	Total/NA	Solid	8260B MI	445424
240-134182-27	SB-143 (2-3)_072820	Total/NA	Solid	8260B MI	445424
240-134182-28	SB-143 (3-4)_072820	Total/NA	Solid	8260B MI	445424
240-134182-29	SB-143 (4-5)_072820	Total/NA	Solid	8260B MI	445424
240-134182-30	SB-143 (5-6)_072820	Total/NA	Solid	8260B MI	445424

Eurofins TestAmerica, Canton

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

GC/MS VOA (Continued)

Analysis Batch: 445595 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134182-31	SB-143 (6-7)_072820	Total/NA	Solid	8260B MI	445424
240-134182-32	SB-143 (7-8)_072820	Total/NA	Solid	8260B MI	445424
240-134182-33	DUP-03	Total/NA	Solid	8260B MI	445424
MB 240-445424/1-A	Method Blank	Total/NA	Solid	8260B MI	445424
LCS 240-445424/2-A	Lab Control Sample	Total/NA	Solid	8260B MI	445424
240-134182-25 MS	SB-143 (0.5-1)_072820	Total/NA	Solid	8260B MI	445424
240-134182-25 MSD	SB-143 (0.5-1)_072820	Total/NA	Solid	8260B MI	445424
240-134182-28 MS	SB-143 (3-4)_072820	Total/NA	Solid	8260B MI	445424
240-134182-28 MSD	SB-143 (3-4)_072820	Total/NA	Solid	8260B MI	445424

General Chemistry

Analysis Batch: 445353

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134182-1	SB-141 (0.5-1)_072820	Total/NA	Solid	Moisture	
240-134182-2	SB-141 (1-2)_072820	Total/NA	Solid	Moisture	
240-134182-3	SB-141 (2-3)_072820	Total/NA	Solid	Moisture	
240-134182-4	SB-141 (3-4)_072820	Total/NA	Solid	Moisture	
240-134182-5	SB-141 (4-5)_072820	Total/NA	Solid	Moisture	
240-134182-6	SB-141 (5-6)_072820	Total/NA	Solid	Moisture	
240-134182-7	SB-141 (6-7)_072820	Total/NA	Solid	Moisture	
240-134182-8	SB-141 (7-8)_072820	Total/NA	Solid	Moisture	
240-134182-9	TMW-20-02 (0.5-1)_072820	Total/NA	Solid	Moisture	
240-134182-10	TMW-20-02 (1-2)_072820	Total/NA	Solid	Moisture	
240-134182-11	TMW-20-02 (2-3)_072820	Total/NA	Solid	Moisture	
240-134182-12	TMW-20-02 (3-4)_072820	Total/NA	Solid	Moisture	
240-134182-13	TMW-20-02 (4-5)_072820	Total/NA	Solid	Moisture	
240-134182-14	TMW-20-02 (5-6)_072820	Total/NA	Solid	Moisture	
240-134182-15	TMW-20-02 (6-7)_072820	Total/NA	Solid	Moisture	
240-134182-16	TMW-20-02 (7-8)_072820	Total/NA	Solid	Moisture	
240-134182-17	SB-142 (0.5-1)_072820	Total/NA	Solid	Moisture	
240-134182-18	SB-142 (1-2)_072820	Total/NA	Solid	Moisture	
240-134182-19	SB-142 (2-3)_072820	Total/NA	Solid	Moisture	
240-134182-20	SB-142 (3-4)_072820	Total/NA	Solid	Moisture	
240-134182-21	SB-142 (4-5)_072820	Total/NA	Solid	Moisture	
240-134182-22	SB-142 (5-6)_072820	Total/NA	Solid	Moisture	
240-134182-23	SB-142 (6-7)_072820	Total/NA	Solid	Moisture	
240-134182-24	SB-142 (7-8)_072820	Total/NA	Solid	Moisture	
240-134182-25	SB-143 (0.5-1)_072820	Total/NA	Solid	Moisture	
240-134182-26	SB-143 (1-2)_072820	Total/NA	Solid	Moisture	
240-134182-27	SB-143 (2-3)_072820	Total/NA	Solid	Moisture	
240-134182-28	SB-143 (3-4)_072820	Total/NA	Solid	Moisture	
240-134182-29	SB-143 (4-5)_072820	Total/NA	Solid	Moisture	
240-134182-30	SB-143 (5-6)_072820	Total/NA	Solid	Moisture	
240-134182-31	SB-143 (6-7)_072820	Total/NA	Solid	Moisture	
240-134182-32	SB-143 (7-8)_072820	Total/NA	Solid	Moisture	
240-134182-33	DUP-03	Total/NA	Solid	Moisture	
240-134182-6 DU	SB-141 (5-6)_072820	Total/NA	Solid	Moisture	
240-134182-15 DU	TMW-20-02 (6-7)_072820	Total/NA	Solid	Moisture	
240-134182-21 DU	SB-142 (4-5)_072820	Total/NA	Solid	Moisture	
240-134182-23 DU	SB-142 (6-7)_072820	Total/NA	Solid	Moisture	

Eurofins TestAmerica, Canton

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

General Chemistry (Continued)

Analysis Batch: 445353 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134182-25 DU	SB-143 (0.5-1)_072820	Total/NA	Solid	Moisture	
240-134182-28 DU	SB-143 (3-4)_072820	Total/NA	Solid	Moisture	
240-134182-30 DU	SB-143 (5-6)_072820	Total/NA	Solid	Moisture	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (0.5-1)_072820

Lab Sample ID: 240-134182-1

Date Collected: 07/28/20 09:38

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: SB-141 (0.5-1)_072820

Lab Sample ID: 240-134182-1

Date Collected: 07/28/20 09:38

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 18:27	TJL1	TAL CAN

Client Sample ID: SB-141 (1-2)_072820

Lab Sample ID: 240-134182-2

Date Collected: 07/28/20 09:45

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: SB-141 (1-2)_072820

Lab Sample ID: 240-134182-2

Date Collected: 07/28/20 09:45

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 18:50	TJL1	TAL CAN

Client Sample ID: SB-141 (2-3)_072820

Lab Sample ID: 240-134182-3

Date Collected: 07/28/20 09:48

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: SB-141 (2-3)_072820

Lab Sample ID: 240-134182-3

Date Collected: 07/28/20 09:48

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 19:12	TJL1	TAL CAN

Client Sample ID: SB-141 (3-4)_072820

Lab Sample ID: 240-134182-4

Date Collected: 07/28/20 09:53

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Eurofins TestAmerica, Canton

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (3-4)_072820

Lab Sample ID: 240-134182-4

Date Collected: 07/28/20 09:53

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 19:35	TJL1	TAL CAN

Client Sample ID: SB-141 (4-5)_072820

Lab Sample ID: 240-134182-5

Date Collected: 07/28/20 09:56

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: SB-141 (4-5)_072820

Lab Sample ID: 240-134182-5

Date Collected: 07/28/20 09:56

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 19:57	TJL1	TAL CAN

Client Sample ID: SB-141 (5-6)_072820

Lab Sample ID: 240-134182-6

Date Collected: 07/28/20 10:18

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: SB-141 (5-6)_072820

Lab Sample ID: 240-134182-6

Date Collected: 07/28/20 10:18

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 20:20	TJL1	TAL CAN

Client Sample ID: SB-141 (6-7)_072820

Lab Sample ID: 240-134182-7

Date Collected: 07/28/20 10:27

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (6-7)_072820

Lab Sample ID: 240-134182-7

Date Collected: 07/28/20 10:27

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 98.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 20:42	TJL1	TAL CAN

Client Sample ID: SB-141 (7-8)_072820

Lab Sample ID: 240-134182-8

Date Collected: 07/28/20 10:30

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: SB-141 (7-8)_072820

Lab Sample ID: 240-134182-8

Date Collected: 07/28/20 10:30

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 95.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 21:05	TJL1	TAL CAN

Client Sample ID: TMW-20-02 (0.5-1)_072820

Lab Sample ID: 240-134182-9

Date Collected: 07/28/20 11:06

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: TMW-20-02 (0.5-1)_072820

Lab Sample ID: 240-134182-9

Date Collected: 07/28/20 11:06

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 21:27	TJL1	TAL CAN

Client Sample ID: TMW-20-02 (1-2)_072820

Lab Sample ID: 240-134182-10

Date Collected: 07/28/20 11:07

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (1-2)_072820

Lab Sample ID: 240-134182-10

Date Collected: 07/28/20 11:07

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 21:50	TJL1	TAL CAN

Client Sample ID: TMW-20-02 (2-3)_072820

Lab Sample ID: 240-134182-11

Date Collected: 07/28/20 11:08

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: TMW-20-02 (2-3)_072820

Lab Sample ID: 240-134182-11

Date Collected: 07/28/20 11:08

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 92.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 22:13	TJL1	TAL CAN

Client Sample ID: TMW-20-02 (3-4)_072820

Lab Sample ID: 240-134182-12

Date Collected: 07/28/20 11:09

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: TMW-20-02 (3-4)_072820

Lab Sample ID: 240-134182-12

Date Collected: 07/28/20 11:09

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 22:35	TJL1	TAL CAN

Client Sample ID: TMW-20-02 (4-5)_072820

Lab Sample ID: 240-134182-13

Date Collected: 07/28/20 11:10

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (4-5)_072820

Lab Sample ID: 240-134182-13

Date Collected: 07/28/20 11:10

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 22:57	TJL1	TAL CAN

Client Sample ID: TMW-20-02 (5-6)_072820

Lab Sample ID: 240-134182-14

Date Collected: 07/28/20 11:29

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: TMW-20-02 (5-6)_072820

Lab Sample ID: 240-134182-14

Date Collected: 07/28/20 11:29

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 89.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 23:20	TJL1	TAL CAN

Client Sample ID: TMW-20-02 (6-7)_072820

Lab Sample ID: 240-134182-15

Date Collected: 07/28/20 11:30

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: TMW-20-02 (6-7)_072820

Lab Sample ID: 240-134182-15

Date Collected: 07/28/20 11:30

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 23:42	TJL1	TAL CAN

Client Sample ID: TMW-20-02 (7-8)_072820

Lab Sample ID: 240-134182-16

Date Collected: 07/28/20 11:34

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (7-8)_072820

Lab Sample ID: 240-134182-16

Date Collected: 07/28/20 11:34

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 94.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	08/01/20 00:05	TJL1	TAL CAN

Client Sample ID: SB-142 (0.5-1)_072820

Lab Sample ID: 240-134182-17

Date Collected: 07/28/20 12:40

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: SB-142 (0.5-1)_072820

Lab Sample ID: 240-134182-17

Date Collected: 07/28/20 12:40

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	08/01/20 00:27	TJL1	TAL CAN

Client Sample ID: SB-142 (1-2)_072820

Lab Sample ID: 240-134182-18

Date Collected: 07/28/20 12:41

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: SB-142 (1-2)_072820

Lab Sample ID: 240-134182-18

Date Collected: 07/28/20 12:41

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	08/01/20 00:50	TJL1	TAL CAN

Client Sample ID: SB-142 (2-3)_072820

Lab Sample ID: 240-134182-19

Date Collected: 07/28/20 12:42

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (2-3)_072820

Lab Sample ID: 240-134182-19

Date Collected: 07/28/20 12:42

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	08/01/20 01:12	TJL1	TAL CAN

Client Sample ID: SB-142 (3-4)_072820

Lab Sample ID: 240-134182-20

Date Collected: 07/28/20 12:43

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: SB-142 (3-4)_072820

Lab Sample ID: 240-134182-20

Date Collected: 07/28/20 12:43

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 98.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/04/20 19:12	TJL1	TAL CAN

Client Sample ID: SB-142 (4-5)_072820

Lab Sample ID: 240-134182-21

Date Collected: 07/28/20 12:44

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: SB-142 (4-5)_072820

Lab Sample ID: 240-134182-21

Date Collected: 07/28/20 12:44

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 94.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	08/01/20 01:35	TJL1	TAL CAN

Client Sample ID: SB-142 (5-6)_072820

Lab Sample ID: 240-134182-22

Date Collected: 07/28/20 12:58

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (5-6)_072820

Lab Sample ID: 240-134182-22

Date Collected: 07/28/20 12:58

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 94.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/04/20 19:35	TJL1	TAL CAN

Client Sample ID: SB-142 (6-7)_072820

Lab Sample ID: 240-134182-23

Date Collected: 07/28/20 13:01

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Client Sample ID: SB-142 (6-7)_072820

Lab Sample ID: 240-134182-23

Date Collected: 07/28/20 13:01

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/04/20 19:57	TJL1	TAL CAN

Client Sample ID: SB-142 (7-8)_072820

Lab Sample ID: 240-134182-24

Date Collected: 07/28/20 13:00

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Client Sample ID: SB-142 (7-8)_072820

Lab Sample ID: 240-134182-24

Date Collected: 07/28/20 13:00

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 95.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/04/20 20:20	TJL1	TAL CAN

Client Sample ID: SB-143 (0.5-1)_072820

Lab Sample ID: 240-134182-25

Date Collected: 07/28/20 13:20

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (0.5-1)_072820

Lab Sample ID: 240-134182-25

Date Collected: 07/28/20 13:20

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/04/20 20:42	TJL1	TAL CAN

Client Sample ID: SB-143 (1-2)_072820

Lab Sample ID: 240-134182-26

Date Collected: 07/28/20 13:21

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Client Sample ID: SB-143 (1-2)_072820

Lab Sample ID: 240-134182-26

Date Collected: 07/28/20 13:21

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/04/20 21:49	TJL1	TAL CAN

Client Sample ID: SB-143 (2-3)_072820

Lab Sample ID: 240-134182-27

Date Collected: 07/28/20 13:22

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Client Sample ID: SB-143 (2-3)_072820

Lab Sample ID: 240-134182-27

Date Collected: 07/28/20 13:22

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 95.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/04/20 22:12	TJL1	TAL CAN

Client Sample ID: SB-143 (3-4)_072820

Lab Sample ID: 240-134182-28

Date Collected: 07/28/20 13:23

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (3-4)_072820

Lab Sample ID: 240-134182-28

Date Collected: 07/28/20 13:23

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/04/20 22:35	TJL1	TAL CAN

Client Sample ID: SB-143 (4-5)_072820

Lab Sample ID: 240-134182-29

Date Collected: 07/28/20 13:24

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Client Sample ID: SB-143 (4-5)_072820

Lab Sample ID: 240-134182-29

Date Collected: 07/28/20 13:24

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/04/20 23:43	TJL1	TAL CAN

Client Sample ID: SB-143 (5-6)_072820

Lab Sample ID: 240-134182-30

Date Collected: 07/28/20 13:40

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Client Sample ID: SB-143 (5-6)_072820

Lab Sample ID: 240-134182-30

Date Collected: 07/28/20 13:40

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/05/20 00:05	TJL1	TAL CAN

Client Sample ID: SB-143 (6-7)_072820

Lab Sample ID: 240-134182-31

Date Collected: 07/28/20 13:45

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (6-7)_072820

Lab Sample ID: 240-134182-31

Date Collected: 07/28/20 13:45

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/05/20 00:28	TJL1	TAL CAN

Client Sample ID: SB-143 (7-8)_072820

Lab Sample ID: 240-134182-32

Date Collected: 07/28/20 13:50

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Client Sample ID: SB-143 (7-8)_072820

Lab Sample ID: 240-134182-32

Date Collected: 07/28/20 13:50

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 92.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/05/20 00:50	TJL1	TAL CAN

Client Sample ID: DUP-03

Lab Sample ID: 240-134182-33

Date Collected: 07/28/20 00:00

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Client Sample ID: DUP-03

Lab Sample ID: 240-134182-33

Date Collected: 07/28/20 00:00

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/05/20 01:13	TJL1	TAL CAN

Client Sample ID: TMW-20-02 (7-12)_072820

Lab Sample ID: 240-134182-34

Date Collected: 07/28/20 15:05

Matrix: Water

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	445379	08/04/20 00:17	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	445137	07/31/20 19:06	SAM	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134182-35

Date Collected: 07/28/20 00:00

Matrix: Water

Date Received: 07/30/20 09:40

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Prepared or Analyzed</u>	<u>Analyst</u>	<u>Lab</u>
Total/NA	Analysis	8260B		1	445379	08/04/20 00:42	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	445137	07/31/20 14:58	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-20 *
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.



MICHIGAN
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Chain of Custody Record 376185 eurofins

Environment Testin
TestAmerica

TAL-8210

Address:

Regulatory Program: DW NPDES RCRA Other:

Client Contact
Company Name: ARCADIS
Address: 28550 CABOT DRIVE # 500
City/State/Zip: NOVI MI 48377
Phone: _____
Fax: _____
Project Name: FORD CTP
Site: LIVONIA MI
PO #: 30050315303.01

Project Manager: KRIS HINESKY
Tel/Email: 269-579-5402

Site Contact: IAW UROST
Date: 7/28/20
Carrier: _____
COC No: 1 of 3 COCs

Analysis Turnaround Time
 CALENDAR DAYS WORKING DAYS
TAT if different from Below: 10 DAYS
 2 weeks
 1 week
 2 days
 1 day
STAVAKO
TAT

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:
SB-141(0.5-1)-072820	7/28/20	0938	G	S	2	(1)-40ml mech, (1)-402 JMS
SB-141(1-2)-072820	7/28/20	0945	G	S	2	"
SB-141(2-3)-072820	7/28/20	0948	G	S	2	"
SB-141(3-4)-072820	7/28/20	0953	G	S	2	"
SB-141(4-5)-072820	7/28/20	0956	G	S	2	"
SB-141(5-6)-072820	7/28/20	1018	G	S	2	"
SB-141(6-7)-072820	7/28/20	1027	G	S	2	"
SB-141(7-8)-072820	7/28/20	1030	G	S	2	"
TMW-20-02(0.5-1)-072820	7/28/20	1106	G	S	2	"
TMW-20-02(1-2)-072820	7/28/20	1107	G	S	2	"
TMW-20-02(2-3)-072820	7/28/20	1108	G	S	2	"
TMW-20-02(3-4)-072820	7/28/20	1109	G	S	2	"



Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other: MECH

Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard Flammable Skin Irritant Poison B Unknown

Special Instructions/QC Requirements & Comments: ANALYZE FOR: PCE, TCE, 1,1-DCE, CIS-1,2-DCE, TRANS-1,2-DCE, VC, 1,1-DIOXANE. LEVEL III REPORTING. SUBMIT ALL RESULTS THROUGH CADENA @ JIM.TOMALIA@CADENA.COM # E-203728.

Custody Seals Intact: Yes No
Relinquished by: *Christy Mee*
Relinquished by: *[Signature]*
Relinquished by: *[Signature]*

Received by: *[Signature]*
Received by: *[Signature]*
Received in Laboratory by: *[Signature]*

Company: ARCADIS
Company: EUROFIN
Company: EUROFIN

Date/Time: 7/29/20 0815
Date/Time: 7-30-20 940
Date/Time: _____

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return to Client Disposal by Lab Archive for _____ Months

Therm ID No: _____
Cooler Temp. (°C): Obs'd: _____

- 1
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MICHIGAN
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Chain of Custody Record 384442 eurofins

Environment Testing
TestAmerica

TAL-8210

Regulatory Program: DW NPDES RCRA Other: _____

Project Manager: KRIS HIMESKY
Tel/Email: 269-579-5402
Site Contact: JAW OKOST
Date: 7/28/20
Carrier: _____
COC No: 2 of 3 COCs

Company Name: ARCADIS
Address: 28550 CABOT DRIVE #500
City/State/Zip: NOVI MI 48377
Phone: _____
Fax: _____
Project Name: FORO LTP
Site: LIVONIA MI
PO # 30050315.303.01

Sample Identification	Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Lab Contact:	Date:	Carrier:	Sampler:	COC No:	Sample Specific Notes:
TMMW-20-02(4-5)-072820	7/28/20	1110	G	S	2	N	N	USP METHOD 8260 CONTAMINANTS	7/28/20			2	
TMMW-20-02(5-6)-072820	7/28/20	1129	G	S	2	N	N	USP METHOD 8260 CONTAMINANTS	7/28/20			3	
TMMW-20-02(6-7)-072820	7/28/20	1130	G	S	2	N	N	USP METHOD 8260 CONTAMINANTS	7/28/20			3	
TMMW-20-02(7-8)-072820	7/28/20	1134	G	S	2	N	N	USP METHOD 8260 CONTAMINANTS	7/28/20			3	
SB-142(0.5-1)-072820	7/28/20	1240	G	S	2	N	N		7/28/20				
SB-142(1-2)-072820	7/28/20	1241	G	S	2	N	N		7/28/20				
SB-142(2-3)-072820	7/28/20	1242	G	S	2	N	N		7/28/20				
SB-142(3-4)-072820	7/28/20	1243	G	S	2	N	N		7/28/20				
SB-142(4-5)-072820	7/28/20	1244	G	S	6	N	N		7/28/20				COLLECTED MS/MSD.
SB-142(5-6)-072820	7/28/20	1258	G	S	2	N	N		7/28/20				
SB-142(6-7)-072820	7/28/20	1301	G	S	2	N	N		7/28/20				
SB-142(7-8)-072820	7/28/20	1300	G	S	2	N	N		7/28/20				

Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other: MECH

Possible Hazard Identification: _____
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard Flammable Skin Irritant Poison B Unknown

Special Instructions/QC Requirements & Comments: ANALYZE FOR: PCE; TCE; 1,1-DCE; 1,1-DCE; TRANS-1,2-DCE; VC; 1,4-DIOXANE
LEVEL IV REPORTING. SUBMIT ALL RESULTS THROUGH CADEMIA@JIM.TOMALIA@CADEMIA.COM # F203728

Cooler Temp. (°C): Obs'd: _____
Therm ID No.: _____

Relinquished by: [Signature]
Relinquished by: [Signature]
Relinquished by: [Signature]

Received by: [Signature]
Received by: [Signature]
Received in Laboratory by: [Signature]

Date/Time: 7/28/20 0817
Date/Time: 7/28/20 0817
Date/Time: 7/28/20 0817

Regulatory Program: DW NPDES RCRA Other: _____

Project Manager: KRIS HINESKY
Tel/Fax: 269-579-5402
Site Contact: JAU OROST
Date: 7/28/2020
Carrier: _____

Company Name: ARCADIS
Address: 28550 CABOT DRIVE #500
City/State/Zip: NOVI, MI / 48377
Phone: _____

Project Name: FORD LTP
Site: LIVONIA, MI
P.O.#: 30050315, 303.01

COG No: 3 of 3 COGs

Sampler: _____
For Lab Use Only: _____
Walk-In Client: _____
Lab Sampling: _____
Job / SDG No.: _____

Sample Identification	Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)		Sample Specific Notes
						Perform MS/MSD (Y/N)	USEPA METHOD 8160 406 3M	
SB-143(0.5-1)-072820	7/28/20	1320	G	S	6	Y	Y	COLLECTED MS/MSD
SB-143(1-2)-072820	7/28/20	1321	G	S	2	N	N	
SB-143(2-3)-072820	7/28/20	1322	G	S	2	N	N	
SB-143(3-4)-072820	7/28/20	1323	G	S	6	Y	Y	COLLECTED MS/MSD
SB-143(4-5)-072820	7/28/20	1324	G	S	2	N	N	
SB-143(5-6)-072820	7/28/20	1340	G	S	2	N	N	
SB-143(6-7)-072820	7/28/20	1345	G	S	2	N	N	
SB-143(7-8)-072820	7/28/20	1350	G	S	2	N	N	
DUP-03	7/28/20	---	G	S	2	N	N	
TRIP BLANK	7/28/20	1505	G	GW	6	N	N	
	7/28/20	---	G	GW	2	N	N	(2) TRIP BLANKS 40ml HCL

Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other: MB, PH

Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Special Instructions/QC Requirements & Comments: ANALYZE FOR: PCE; TCE; 1,1-DCE; CIS-1,2-DCE; TRANS-1,2-DCE; VC; 1,4-DIOXANE. LEVEL IV REPORTING. SUBMIT ALL RESULTS THROUGH CADEMA AT JIM.TOMALIA@CADEMA.COM #8203728

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): Return to Client Disposal by Lab Archive for _____ Months

Cooler Temp. (°C): Obs'd: _____ Cor'd: _____

Relinquished by: *[Signature]* Date/Time: 7/29/20 06:15
Relinquished by: *[Signature]* Date/Time: 7-30-20 10:00
Relinquished by: _____ Date/Time: _____

Company: ARCADIS
Company: EUROFINIS
Company: *[Signature]*
Company: _____



Eurofins TestAmerica Canton Sample Receipt Form/Narrative

Login # : 134187

Canton Facility

Client Arcadis Site Name _____
 Cooler Received on 7-30-20 Opened on 7-30-20
 FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Cooler unpacked by: _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # 111 Foam Box Client Cooler Box Other _____
 Packing material used: Bubble Wrap Foam Plastic Bag None Other _____
 COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN #IR-11 (CF +0.9 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 3 Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
 If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC911298
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? Larger than this. Yes No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # NA Yes No
16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:
 VOAs
 Oil and Grease
 TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: _____

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

ANALYTICAL REPORT

Job Number: 240-134182-1

Job Description: Ford LTP

For:

ARCADIS U.S., Inc.

28550 Cabot Drive

Suite 500

Novi, MI 48377

Attention: Kristoffer Hinskey



Approved for release.
Michael DeMonico
Project Manager I
8/13/2020 2:35 PM

Michael DeMonico, Project Manager I
4101 Shuffel Street NW, North Canton, OH, 44720
(330)497-9396
Michael.DeMonico@Eurofinset.com
08/13/2020

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of TestAmerica and its client. All questions regarding this report should be directed to the TestAmerica Project Manager who has signed this report.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins TestAmerica Project Manager.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Eurofins TestAmerica, Canton

4101 Shuffel Street NW, North Canton, OH 44720

Tel (330) 497-9396 Fax (330) 497-0772 www.testamericainc.com

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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP

Report Number: 240-134182-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 7/30/2020 9:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.2° C and 2.4° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TMW-20-02 (7-12)_072820 (240-134182-34) and TRIP BLANK (240-134182-35) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 08/04/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS

Samples SB-141 (0.5-1)_072820 (240-134182-1), SB-141 (1-2)_072820 (240-134182-2), SB-141 (2-3)_072820 (240-134182-3), SB-141 (3-4)_072820 (240-134182-4), SB-141 (4-5)_072820 (240-134182-5), SB-141 (5-6)_072820 (240-134182-6), SB-141 (6-7)_072820 (240-134182-7), SB-141 (7-8)_072820 (240-134182-8), TMW-20-02 (0.5-1)_072820 (240-134182-9), TMW-20-02 (1-2)_072820 (240-134182-10), TMW-20-02 (2-3)_072820 (240-134182-11), TMW-20-02 (3-4)_072820 (240-134182-12), TMW-20-02 (4-5)_072820 (240-134182-13), TMW-20-02 (5-6)_072820 (240-134182-14), TMW-20-02 (6-7)_072820 (240-134182-15), TMW-20-02 (7-8)_072820 (240-134182-16), SB-142 (0.5-1)_072820 (240-134182-17), SB-142 (1-2)_072820 (240-134182-18), SB-142 (2-3)_072820 (240-134182-19), SB-142 (3-4)_072820 (240-134182-20), SB-142 (4-5)_072820 (240-134182-21), SB-142 (5-6)_072820 (240-134182-22), SB-142 (6-7)_072820 (240-134182-23), SB-142 (7-8)_072820 (240-134182-24), SB-143 (0.5-1)_072820 (240-134182-25), SB-143 (1-2)_072820 (240-134182-26), SB-143 (2-3)_072820 (240-134182-27), SB-143 (3-4)_072820 (240-134182-28), SB-143 (4-5)_072820 (240-134182-29), SB-143 (5-6)_072820 (240-134182-30), SB-143 (6-7)_072820 (240-134182-31), SB-143 (7-8)_072820 (240-134182-32) and DUP-03 (240-134182-33) were analyzed for volatile organic compounds in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 07/31/2020, 08/01/2020, 08/04/2020 and 08/05/2020.

1,4-Dioxane failed the recovery criteria high for the MS of sample SB-142 (4-5)_072820MS (240-134182-21) in batch 240-445183.

1,4-Dioxane failed the recovery criteria high for the MS of sample SB-143 (3-4)_072820MS (240-134182-28) in batch 240-445595. Refer to the QC report for details.

Insufficient sample volume was available to perform a matrix spike duplicate (MSD) associated with preparation batch 240-445021 and 240-445021 and analytical batch 240-445183.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Samples TMW-20-02 (7-12)_072820 (240-134182-34) and TRIP BLANK (240-134182-35) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 07/31/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples SB-141 (0.5-1)_072820 (240-134182-1), SB-141 (1-2)_072820 (240-134182-2), SB-141 (2-3)_072820 (240-134182-3), SB-141 (3-4)_072820 (240-134182-4), SB-141 (4-5)_072820 (240-134182-5), SB-141 (5-6)_072820 (240-134182-6), SB-141 (6-7)_072820 (240-134182-7), SB-141 (7-8)_072820 (240-134182-8), TMW-20-02 (0.5-1)_072820 (240-134182-9), TMW-20-02 (1-2)_072820 (240-134182-10), TMW-20-02 (2-3)_072820 (240-134182-11), TMW-20-02 (3-4)_072820 (240-134182-12), TMW-20-02 (4-5)_072820 (240-134182-13), TMW-20-02 (5-6)_072820 (240-134182-14), TMW-20-02 (6-7)_072820 (240-134182-15), TMW-20-02 (7-8)_072820 (240-134182-16), SB-142 (0.5-1)_072820 (240-134182-17), SB-142 (1-2)_072820 (240-134182-18), SB-142 (2-3)_072820 (240-134182-19), SB-142 (3-4)_072820 (240-134182-20), SB-142 (4-5)_072820 (240-134182-21), SB-142 (5-6)_072820 (240-134182-22), SB-142 (6-7)_072820 (240-134182-23), SB-142 (7-8)_072820 (240-134182-24), SB-143 (0.5-1)_072820 (240-134182-25), SB-143 (1-2)_072820 (240-134182-26), SB-143 (2-3)_072820 (240-134182-27), SB-143 (3-4)_072820 (240-134182-28), SB-143 (4-5)_072820 (240-134182-29), SB-143 (5-6)_072820 (240-134182-30), SB-143 (6-7)_072820 (240-134182-31), SB-143 (7-8)_072820 (240-134182-32) and DUP-03 (240-134182-33) were analyzed for percent solids in accordance with ASTM Method D2216-80. The samples were analyzed on 08/03/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (0.5-1)_072820

Lab Sample ID: 240-134182-1

No Detections.

Client Sample ID: SB-141 (1-2)_072820

Lab Sample ID: 240-134182-2

No Detections.

Client Sample ID: SB-141 (2-3)_072820

Lab Sample ID: 240-134182-3

No Detections.

Client Sample ID: SB-141 (3-4)_072820

Lab Sample ID: 240-134182-4

No Detections.

Client Sample ID: SB-141 (4-5)_072820

Lab Sample ID: 240-134182-5

No Detections.

Client Sample ID: SB-141 (5-6)_072820

Lab Sample ID: 240-134182-6

No Detections.

Client Sample ID: SB-141 (6-7)_072820

Lab Sample ID: 240-134182-7

No Detections.

Client Sample ID: SB-141 (7-8)_072820

Lab Sample ID: 240-134182-8

No Detections.

Client Sample ID: TMW-20-02 (0.5-1)_072820

Lab Sample ID: 240-134182-9

No Detections.

Client Sample ID: TMW-20-02 (1-2)_072820

Lab Sample ID: 240-134182-10

No Detections.

Client Sample ID: TMW-20-02 (2-3)_072820

Lab Sample ID: 240-134182-11

No Detections.

Client Sample ID: TMW-20-02 (3-4)_072820

Lab Sample ID: 240-134182-12

No Detections.

Client Sample ID: TMW-20-02 (4-5)_072820

Lab Sample ID: 240-134182-13

No Detections.

Client Sample ID: TMW-20-02 (5-6)_072820

Lab Sample ID: 240-134182-14

No Detections.

Client Sample ID: TMW-20-02 (6-7)_072820

Lab Sample ID: 240-134182-15

No Detections.

Client Sample ID: TMW-20-02 (7-8)_072820

Lab Sample ID: 240-134182-16

No Detections.

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (0.5-1)_072820

Lab Sample ID: 240-134182-17

No Detections.

Client Sample ID: SB-142 (1-2)_072820

Lab Sample ID: 240-134182-18

No Detections.

Client Sample ID: SB-142 (2-3)_072820

Lab Sample ID: 240-134182-19

No Detections.

Client Sample ID: SB-142 (3-4)_072820

Lab Sample ID: 240-134182-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	14	J	39	8.9	ug/Kg	1	☼	8260B	MI	Total/NA
Tetrachloroethene	19	J	39	18	ug/Kg	1	☼	8260B	MI	Total/NA
trans-1,2-Dichloroethene	24	J	39	9.9	ug/Kg	1	☼	8260B	MI	Total/NA
Trichloroethene	13	J	39	11	ug/Kg	1	☼	8260B	MI	Total/NA
Vinyl chloride	12	J	32	12	ug/Kg	1	☼	8260B	MI	Total/NA

Client Sample ID: SB-142 (4-5)_072820

Lab Sample ID: 240-134182-21

No Detections.

Client Sample ID: SB-142 (5-6)_072820

Lab Sample ID: 240-134182-22

No Detections.

Client Sample ID: SB-142 (6-7)_072820

Lab Sample ID: 240-134182-23

No Detections.

Client Sample ID: SB-142 (7-8)_072820

Lab Sample ID: 240-134182-24

No Detections.

Client Sample ID: SB-143 (0.5-1)_072820

Lab Sample ID: 240-134182-25

No Detections.

Client Sample ID: SB-143 (1-2)_072820

Lab Sample ID: 240-134182-26

No Detections.

Client Sample ID: SB-143 (2-3)_072820

Lab Sample ID: 240-134182-27

No Detections.

Client Sample ID: SB-143 (3-4)_072820

Lab Sample ID: 240-134182-28

No Detections.

Client Sample ID: SB-143 (4-5)_072820

Lab Sample ID: 240-134182-29

No Detections.

Client Sample ID: SB-143 (5-6)_072820

Lab Sample ID: 240-134182-30

No Detections.

Client Sample ID: SB-143 (6-7)_072820

Lab Sample ID: 240-134182-31

No Detections.

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (7-8)_072820

Lab Sample ID: 240-134182-32

No Detections.

Client Sample ID: DUP-03

Lab Sample ID: 240-134182-33

No Detections.

Client Sample ID: TMW-20-02 (7-12)_072820

Lab Sample ID: 240-134182-34

No Detections.

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134182-35

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (0.5-1)_072820

Lab Sample ID: 240-134182-1

Date Collected: 07/28/20 09:38

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.3		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.7		0.1	0.1	%			08/03/20 09:58	1

Client Sample ID: SB-141 (0.5-1)_072820

Lab Sample ID: 240-134182-1

Date Collected: 07/28/20 09:38

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.3

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	47	U	47	19	ug/Kg	☼	07/30/20 20:24	07/31/20 18:27	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	07/30/20 20:24	07/31/20 18:27	1
cis-1,2-Dichloroethene	47	U	47	11	ug/Kg	☼	07/30/20 20:24	07/31/20 18:27	1
Tetrachloroethene	47	U	47	21	ug/Kg	☼	07/30/20 20:24	07/31/20 18:27	1
trans-1,2-Dichloroethene	47	U	47	12	ug/Kg	☼	07/30/20 20:24	07/31/20 18:27	1
Trichloroethene	47	U	47	13	ug/Kg	☼	07/30/20 20:24	07/31/20 18:27	1
Vinyl chloride	38	U	38	14	ug/Kg	☼	07/30/20 20:24	07/31/20 18:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		47 - 136	07/30/20 20:24	07/31/20 18:27	1
4-Bromofluorobenzene (Surr)	118		51 - 124	07/30/20 20:24	07/31/20 18:27	1
Dibromofluoromethane (Surr)	92		49 - 122	07/30/20 20:24	07/31/20 18:27	1
Toluene-d8 (Surr)	110		55 - 123	07/30/20 20:24	07/31/20 18:27	1

Client Sample ID: SB-141 (1-2)_072820

Lab Sample ID: 240-134182-2

Date Collected: 07/28/20 09:45

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.7		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.3		0.1	0.1	%			08/03/20 09:58	1

Client Sample ID: SB-141 (1-2)_072820

Lab Sample ID: 240-134182-2

Date Collected: 07/28/20 09:45

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.7

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	42	U	42	17	ug/Kg	☼	07/30/20 20:24	07/31/20 18:50	1
1,4-Dioxane	13000	U	13000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 18:50	1
cis-1,2-Dichloroethene	42	U	42	9.5	ug/Kg	☼	07/30/20 20:24	07/31/20 18:50	1
Tetrachloroethene	42	U	42	19	ug/Kg	☼	07/30/20 20:24	07/31/20 18:50	1
trans-1,2-Dichloroethene	42	U	42	11	ug/Kg	☼	07/30/20 20:24	07/31/20 18:50	1
Trichloroethene	42	U	42	12	ug/Kg	☼	07/30/20 20:24	07/31/20 18:50	1
Vinyl chloride	34	U	34	13	ug/Kg	☼	07/30/20 20:24	07/31/20 18:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		47 - 136	07/30/20 20:24	07/31/20 18:50	1
4-Bromofluorobenzene (Surr)	106		51 - 124	07/30/20 20:24	07/31/20 18:50	1
Dibromofluoromethane (Surr)	88		49 - 122	07/30/20 20:24	07/31/20 18:50	1
Toluene-d8 (Surr)	105		55 - 123	07/30/20 20:24	07/31/20 18:50	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (2-3)_072820

Lab Sample ID: 240-134182-3

Date Collected: 07/28/20 09:48

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.9		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	3.1		0.1	0.1	%			08/03/20 09:58	1

Client Sample ID: SB-141 (2-3)_072820

Lab Sample ID: 240-134182-3

Date Collected: 07/28/20 09:48

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.9

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	45	U	45	18	ug/Kg	☼	07/30/20 20:24	07/31/20 19:12	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 19:12	1
cis-1,2-Dichloroethene	45	U	45	10	ug/Kg	☼	07/30/20 20:24	07/31/20 19:12	1
Tetrachloroethene	45	U	45	20	ug/Kg	☼	07/30/20 20:24	07/31/20 19:12	1
trans-1,2-Dichloroethene	45	U	45	11	ug/Kg	☼	07/30/20 20:24	07/31/20 19:12	1
Trichloroethene	45	U	45	12	ug/Kg	☼	07/30/20 20:24	07/31/20 19:12	1
Vinyl chloride	36	U	36	13	ug/Kg	☼	07/30/20 20:24	07/31/20 19:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		47 - 136	07/30/20 20:24	07/31/20 19:12	1
4-Bromofluorobenzene (Surr)	106		51 - 124	07/30/20 20:24	07/31/20 19:12	1
Dibromofluoromethane (Surr)	86		49 - 122	07/30/20 20:24	07/31/20 19:12	1
Toluene-d8 (Surr)	106		55 - 123	07/30/20 20:24	07/31/20 19:12	1

Client Sample ID: SB-141 (3-4)_072820

Lab Sample ID: 240-134182-4

Date Collected: 07/28/20 09:53

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.7		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.3		0.1	0.1	%			08/03/20 09:58	1

Client Sample ID: SB-141 (3-4)_072820

Lab Sample ID: 240-134182-4

Date Collected: 07/28/20 09:53

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.7

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	43	U	43	17	ug/Kg	☼	07/30/20 20:24	07/31/20 19:35	1
1,4-Dioxane	13000	U	13000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 19:35	1
cis-1,2-Dichloroethene	43	U	43	9.7	ug/Kg	☼	07/30/20 20:24	07/31/20 19:35	1
Tetrachloroethene	43	U	43	19	ug/Kg	☼	07/30/20 20:24	07/31/20 19:35	1
trans-1,2-Dichloroethene	43	U	43	11	ug/Kg	☼	07/30/20 20:24	07/31/20 19:35	1
Trichloroethene	43	U	43	12	ug/Kg	☼	07/30/20 20:24	07/31/20 19:35	1
Vinyl chloride	35	U	35	13	ug/Kg	☼	07/30/20 20:24	07/31/20 19:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		47 - 136	07/30/20 20:24	07/31/20 19:35	1
4-Bromofluorobenzene (Surr)	105		51 - 124	07/30/20 20:24	07/31/20 19:35	1
Dibromofluoromethane (Surr)	85		49 - 122	07/30/20 20:24	07/31/20 19:35	1
Toluene-d8 (Surr)	102		55 - 123	07/30/20 20:24	07/31/20 19:35	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (4-5)_072820

Lab Sample ID: 240-134182-5

Date Collected: 07/28/20 09:56

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.5		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.5		0.1	0.1	%			08/03/20 09:58	1

Client Sample ID: SB-141 (4-5)_072820

Lab Sample ID: 240-134182-5

Date Collected: 07/28/20 09:56

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.5

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	44	U	44	18	ug/Kg	☼	07/30/20 20:24	07/31/20 19:57	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 19:57	1
cis-1,2-Dichloroethene	44	U	44	9.9	ug/Kg	☼	07/30/20 20:24	07/31/20 19:57	1
Tetrachloroethene	44	U	44	20	ug/Kg	☼	07/30/20 20:24	07/31/20 19:57	1
trans-1,2-Dichloroethene	44	U	44	11	ug/Kg	☼	07/30/20 20:24	07/31/20 19:57	1
Trichloroethene	44	U	44	12	ug/Kg	☼	07/30/20 20:24	07/31/20 19:57	1
Vinyl chloride	35	U	35	13	ug/Kg	☼	07/30/20 20:24	07/31/20 19:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		47 - 136	07/30/20 20:24	07/31/20 19:57	1
4-Bromofluorobenzene (Surr)	109		51 - 124	07/30/20 20:24	07/31/20 19:57	1
Dibromofluoromethane (Surr)	86		49 - 122	07/30/20 20:24	07/31/20 19:57	1
Toluene-d8 (Surr)	103		55 - 123	07/30/20 20:24	07/31/20 19:57	1

Client Sample ID: SB-141 (5-6)_072820

Lab Sample ID: 240-134182-6

Date Collected: 07/28/20 10:18

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.5		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.5		0.1	0.1	%			08/03/20 09:58	1

Client Sample ID: SB-141 (5-6)_072820

Lab Sample ID: 240-134182-6

Date Collected: 07/28/20 10:18

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.5

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	45	U	45	18	ug/Kg	☼	07/30/20 20:24	07/31/20 20:20	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 20:20	1
cis-1,2-Dichloroethene	45	U	45	10	ug/Kg	☼	07/30/20 20:24	07/31/20 20:20	1
Tetrachloroethene	45	U	45	20	ug/Kg	☼	07/30/20 20:24	07/31/20 20:20	1
trans-1,2-Dichloroethene	45	U	45	11	ug/Kg	☼	07/30/20 20:24	07/31/20 20:20	1
Trichloroethene	45	U	45	12	ug/Kg	☼	07/30/20 20:24	07/31/20 20:20	1
Vinyl chloride	36	U	36	13	ug/Kg	☼	07/30/20 20:24	07/31/20 20:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		47 - 136	07/30/20 20:24	07/31/20 20:20	1
4-Bromofluorobenzene (Surr)	111		51 - 124	07/30/20 20:24	07/31/20 20:20	1
Dibromofluoromethane (Surr)	92		49 - 122	07/30/20 20:24	07/31/20 20:20	1
Toluene-d8 (Surr)	110		55 - 123	07/30/20 20:24	07/31/20 20:20	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (6-7)_072820

Lab Sample ID: 240-134182-7

Date Collected: 07/28/20 10:27

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	98.1		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	1.9		0.1	0.1	%			08/03/20 09:58	1

Client Sample ID: SB-141 (6-7)_072820

Lab Sample ID: 240-134182-7

Date Collected: 07/28/20 10:27

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 98.1

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	43	U	43	17	ug/Kg	☼	07/30/20 20:24	07/31/20 20:42	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 20:42	1
cis-1,2-Dichloroethene	43	U	43	9.8	ug/Kg	☼	07/30/20 20:24	07/31/20 20:42	1
Tetrachloroethene	43	U	43	20	ug/Kg	☼	07/30/20 20:24	07/31/20 20:42	1
trans-1,2-Dichloroethene	43	U	43	11	ug/Kg	☼	07/30/20 20:24	07/31/20 20:42	1
Trichloroethene	43	U	43	12	ug/Kg	☼	07/30/20 20:24	07/31/20 20:42	1
Vinyl chloride	35	U	35	13	ug/Kg	☼	07/30/20 20:24	07/31/20 20:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		47 - 136	07/30/20 20:24	07/31/20 20:42	1
4-Bromofluorobenzene (Surr)	109		51 - 124	07/30/20 20:24	07/31/20 20:42	1
Dibromofluoromethane (Surr)	88		49 - 122	07/30/20 20:24	07/31/20 20:42	1
Toluene-d8 (Surr)	107		55 - 123	07/30/20 20:24	07/31/20 20:42	1

Client Sample ID: SB-141 (7-8)_072820

Lab Sample ID: 240-134182-8

Date Collected: 07/28/20 10:30

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	95.2		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	4.8		0.1	0.1	%			08/03/20 09:58	1

Client Sample ID: SB-141 (7-8)_072820

Lab Sample ID: 240-134182-8

Date Collected: 07/28/20 10:30

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 95.2

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	48	U	48	19	ug/Kg	☼	07/30/20 20:24	07/31/20 21:05	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	07/30/20 20:24	07/31/20 21:05	1
cis-1,2-Dichloroethene	48	U	48	11	ug/Kg	☼	07/30/20 20:24	07/31/20 21:05	1
Tetrachloroethene	48	U	48	21	ug/Kg	☼	07/30/20 20:24	07/31/20 21:05	1
trans-1,2-Dichloroethene	48	U	48	12	ug/Kg	☼	07/30/20 20:24	07/31/20 21:05	1
Trichloroethene	48	U	48	13	ug/Kg	☼	07/30/20 20:24	07/31/20 21:05	1
Vinyl chloride	38	U	38	14	ug/Kg	☼	07/30/20 20:24	07/31/20 21:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		47 - 136	07/30/20 20:24	07/31/20 21:05	1
4-Bromofluorobenzene (Surr)	105		51 - 124	07/30/20 20:24	07/31/20 21:05	1
Dibromofluoromethane (Surr)	86		49 - 122	07/30/20 20:24	07/31/20 21:05	1
Toluene-d8 (Surr)	103		55 - 123	07/30/20 20:24	07/31/20 21:05	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (0.5-1)_072820

Lab Sample ID: 240-134182-9

Date Collected: 07/28/20 11:06

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.4		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	3.6		0.1	0.1	%			08/03/20 09:58	1

Client Sample ID: TMW-20-02 (0.5-1)_072820

Lab Sample ID: 240-134182-9

Date Collected: 07/28/20 11:06

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.4

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	45	U	45	18	ug/Kg	☼	07/30/20 20:24	07/31/20 21:27	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 21:27	1
cis-1,2-Dichloroethene	45	U	45	10	ug/Kg	☼	07/30/20 20:24	07/31/20 21:27	1
Tetrachloroethene	45	U	45	20	ug/Kg	☼	07/30/20 20:24	07/31/20 21:27	1
trans-1,2-Dichloroethene	45	U	45	11	ug/Kg	☼	07/30/20 20:24	07/31/20 21:27	1
Trichloroethene	45	U	45	12	ug/Kg	☼	07/30/20 20:24	07/31/20 21:27	1
Vinyl chloride	36	U	36	14	ug/Kg	☼	07/30/20 20:24	07/31/20 21:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		47 - 136	07/30/20 20:24	07/31/20 21:27	1
4-Bromofluorobenzene (Surr)	109		51 - 124	07/30/20 20:24	07/31/20 21:27	1
Dibromofluoromethane (Surr)	87		49 - 122	07/30/20 20:24	07/31/20 21:27	1
Toluene-d8 (Surr)	108		55 - 123	07/30/20 20:24	07/31/20 21:27	1

Client Sample ID: TMW-20-02 (1-2)_072820

Lab Sample ID: 240-134182-10

Date Collected: 07/28/20 11:07

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.2		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	3.8		0.1	0.1	%			08/03/20 09:58	1

Client Sample ID: TMW-20-02 (1-2)_072820

Lab Sample ID: 240-134182-10

Date Collected: 07/28/20 11:07

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.2

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	45	U	45	18	ug/Kg	☼	07/30/20 20:24	07/31/20 21:50	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 21:50	1
cis-1,2-Dichloroethene	45	U	45	10	ug/Kg	☼	07/30/20 20:24	07/31/20 21:50	1
Tetrachloroethene	45	U	45	20	ug/Kg	☼	07/30/20 20:24	07/31/20 21:50	1
trans-1,2-Dichloroethene	45	U	45	11	ug/Kg	☼	07/30/20 20:24	07/31/20 21:50	1
Trichloroethene	45	U	45	12	ug/Kg	☼	07/30/20 20:24	07/31/20 21:50	1
Vinyl chloride	36	U	36	13	ug/Kg	☼	07/30/20 20:24	07/31/20 21:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		47 - 136	07/30/20 20:24	07/31/20 21:50	1
4-Bromofluorobenzene (Surr)	107		51 - 124	07/30/20 20:24	07/31/20 21:50	1
Dibromofluoromethane (Surr)	84		49 - 122	07/30/20 20:24	07/31/20 21:50	1
Toluene-d8 (Surr)	103		55 - 123	07/30/20 20:24	07/31/20 21:50	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (2-3)_072820

Lab Sample ID: 240-134182-11

Date Collected: 07/28/20 11:08

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	92.3		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	7.7		0.1	0.1	%			08/03/20 09:58	1

Client Sample ID: TMW-20-02 (2-3)_072820

Lab Sample ID: 240-134182-11

Date Collected: 07/28/20 11:08

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 92.3

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	48	U	48	19	ug/Kg	☼	07/30/20 20:24	07/31/20 22:13	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	07/30/20 20:24	07/31/20 22:13	1
cis-1,2-Dichloroethene	48	U	48	11	ug/Kg	☼	07/30/20 20:24	07/31/20 22:13	1
Tetrachloroethene	48	U	48	21	ug/Kg	☼	07/30/20 20:24	07/31/20 22:13	1
trans-1,2-Dichloroethene	48	U	48	12	ug/Kg	☼	07/30/20 20:24	07/31/20 22:13	1
Trichloroethene	48	U	48	13	ug/Kg	☼	07/30/20 20:24	07/31/20 22:13	1
Vinyl chloride	38	U	38	14	ug/Kg	☼	07/30/20 20:24	07/31/20 22:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		47 - 136	07/30/20 20:24	07/31/20 22:13	1
4-Bromofluorobenzene (Surr)	114		51 - 124	07/30/20 20:24	07/31/20 22:13	1
Dibromofluoromethane (Surr)	93		49 - 122	07/30/20 20:24	07/31/20 22:13	1
Toluene-d8 (Surr)	111		55 - 123	07/30/20 20:24	07/31/20 22:13	1

Client Sample ID: TMW-20-02 (3-4)_072820

Lab Sample ID: 240-134182-12

Date Collected: 07/28/20 11:09

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.6		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.4		0.1	0.1	%			08/03/20 09:58	1

Client Sample ID: TMW-20-02 (3-4)_072820

Lab Sample ID: 240-134182-12

Date Collected: 07/28/20 11:09

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.6

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	42	U	42	17	ug/Kg	☼	07/30/20 20:24	07/31/20 22:35	1
1,4-Dioxane	13000	U	13000	1100	ug/Kg	☼	07/30/20 20:24	07/31/20 22:35	1
cis-1,2-Dichloroethene	42	U	42	9.5	ug/Kg	☼	07/30/20 20:24	07/31/20 22:35	1
Tetrachloroethene	42	U	42	19	ug/Kg	☼	07/30/20 20:24	07/31/20 22:35	1
trans-1,2-Dichloroethene	42	U	42	11	ug/Kg	☼	07/30/20 20:24	07/31/20 22:35	1
Trichloroethene	42	U	42	12	ug/Kg	☼	07/30/20 20:24	07/31/20 22:35	1
Vinyl chloride	34	U	34	13	ug/Kg	☼	07/30/20 20:24	07/31/20 22:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		47 - 136	07/30/20 20:24	07/31/20 22:35	1
4-Bromofluorobenzene (Surr)	99		51 - 124	07/30/20 20:24	07/31/20 22:35	1
Dibromofluoromethane (Surr)	83		49 - 122	07/30/20 20:24	07/31/20 22:35	1
Toluene-d8 (Surr)	99		55 - 123	07/30/20 20:24	07/31/20 22:35	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (4-5)_072820

Lab Sample ID: 240-134182-13

Date Collected: 07/28/20 11:10

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.1		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.9		0.1	0.1	%			08/03/20 09:58	1

Client Sample ID: TMW-20-02 (4-5)_072820

Lab Sample ID: 240-134182-13

Date Collected: 07/28/20 11:10

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.1

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	45	U	45	18	ug/Kg	☼	07/30/20 20:24	07/31/20 22:57	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 22:57	1
cis-1,2-Dichloroethene	45	U	45	10	ug/Kg	☼	07/30/20 20:24	07/31/20 22:57	1
Tetrachloroethene	45	U	45	20	ug/Kg	☼	07/30/20 20:24	07/31/20 22:57	1
trans-1,2-Dichloroethene	45	U	45	11	ug/Kg	☼	07/30/20 20:24	07/31/20 22:57	1
Trichloroethene	45	U	45	12	ug/Kg	☼	07/30/20 20:24	07/31/20 22:57	1
Vinyl chloride	36	U	36	13	ug/Kg	☼	07/30/20 20:24	07/31/20 22:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		47 - 136	07/30/20 20:24	07/31/20 22:57	1
4-Bromofluorobenzene (Surr)	110		51 - 124	07/30/20 20:24	07/31/20 22:57	1
Dibromofluoromethane (Surr)	85		49 - 122	07/30/20 20:24	07/31/20 22:57	1
Toluene-d8 (Surr)	108		55 - 123	07/30/20 20:24	07/31/20 22:57	1

Client Sample ID: TMW-20-02 (5-6)_072820

Lab Sample ID: 240-134182-14

Date Collected: 07/28/20 11:29

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	89.8		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	10.2		0.1	0.1	%			08/03/20 09:58	1

Client Sample ID: TMW-20-02 (5-6)_072820

Lab Sample ID: 240-134182-14

Date Collected: 07/28/20 11:29

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 89.8

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	49	U	49	20	ug/Kg	☼	07/30/20 20:24	07/31/20 23:20	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	07/30/20 20:24	07/31/20 23:20	1
cis-1,2-Dichloroethene	49	U	49	11	ug/Kg	☼	07/30/20 20:24	07/31/20 23:20	1
Tetrachloroethene	49	U	49	22	ug/Kg	☼	07/30/20 20:24	07/31/20 23:20	1
trans-1,2-Dichloroethene	49	U	49	12	ug/Kg	☼	07/30/20 20:24	07/31/20 23:20	1
Trichloroethene	49	U	49	14	ug/Kg	☼	07/30/20 20:24	07/31/20 23:20	1
Vinyl chloride	39	U	39	15	ug/Kg	☼	07/30/20 20:24	07/31/20 23:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		47 - 136	07/30/20 20:24	07/31/20 23:20	1
4-Bromofluorobenzene (Surr)	111		51 - 124	07/30/20 20:24	07/31/20 23:20	1
Dibromofluoromethane (Surr)	91		49 - 122	07/30/20 20:24	07/31/20 23:20	1
Toluene-d8 (Surr)	109		55 - 123	07/30/20 20:24	07/31/20 23:20	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (6-7)_072820

Lab Sample ID: 240-134182-15

Date Collected: 07/28/20 11:30

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.1		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	3.9		0.1	0.1	%			08/03/20 09:58	1

Client Sample ID: TMW-20-02 (6-7)_072820

Lab Sample ID: 240-134182-15

Date Collected: 07/28/20 11:30

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.1

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	45	U	45	18	ug/Kg	☼	07/30/20 20:24	07/31/20 23:42	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 23:42	1
cis-1,2-Dichloroethene	45	U	45	10	ug/Kg	☼	07/30/20 20:24	07/31/20 23:42	1
Tetrachloroethene	45	U	45	20	ug/Kg	☼	07/30/20 20:24	07/31/20 23:42	1
trans-1,2-Dichloroethene	45	U	45	11	ug/Kg	☼	07/30/20 20:24	07/31/20 23:42	1
Trichloroethene	45	U	45	12	ug/Kg	☼	07/30/20 20:24	07/31/20 23:42	1
Vinyl chloride	36	U	36	14	ug/Kg	☼	07/30/20 20:24	07/31/20 23:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		47 - 136	07/30/20 20:24	07/31/20 23:42	1
4-Bromofluorobenzene (Surr)	103		51 - 124	07/30/20 20:24	07/31/20 23:42	1
Dibromofluoromethane (Surr)	84		49 - 122	07/30/20 20:24	07/31/20 23:42	1
Toluene-d8 (Surr)	101		55 - 123	07/30/20 20:24	07/31/20 23:42	1

Client Sample ID: TMW-20-02 (7-8)_072820

Lab Sample ID: 240-134182-16

Date Collected: 07/28/20 11:34

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	94.2		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	5.8		0.1	0.1	%			08/03/20 09:58	1

Client Sample ID: TMW-20-02 (7-8)_072820

Lab Sample ID: 240-134182-16

Date Collected: 07/28/20 11:34

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 94.2

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	46	U	46	18	ug/Kg	☼	07/30/20 20:24	08/01/20 00:05	1
1,4-Dioxane	14000	U	14000	1300	ug/Kg	☼	07/30/20 20:24	08/01/20 00:05	1
cis-1,2-Dichloroethene	46	U	46	10	ug/Kg	☼	07/30/20 20:24	08/01/20 00:05	1
Tetrachloroethene	46	U	46	21	ug/Kg	☼	07/30/20 20:24	08/01/20 00:05	1
trans-1,2-Dichloroethene	46	U	46	12	ug/Kg	☼	07/30/20 20:24	08/01/20 00:05	1
Trichloroethene	46	U	46	13	ug/Kg	☼	07/30/20 20:24	08/01/20 00:05	1
Vinyl chloride	37	U	37	14	ug/Kg	☼	07/30/20 20:24	08/01/20 00:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		47 - 136	07/30/20 20:24	08/01/20 00:05	1
4-Bromofluorobenzene (Surr)	108		51 - 124	07/30/20 20:24	08/01/20 00:05	1
Dibromofluoromethane (Surr)	88		49 - 122	07/30/20 20:24	08/01/20 00:05	1
Toluene-d8 (Surr)	106		55 - 123	07/30/20 20:24	08/01/20 00:05	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (0.5-1)_072820

Lab Sample ID: 240-134182-17

Date Collected: 07/28/20 12:40

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.5		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	3.5		0.1	0.1	%			08/03/20 09:58	1

Client Sample ID: SB-142 (0.5-1)_072820

Lab Sample ID: 240-134182-17

Date Collected: 07/28/20 12:40

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.5

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	44	U	44	18	ug/Kg	☼	07/30/20 20:24	08/01/20 00:27	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	08/01/20 00:27	1
cis-1,2-Dichloroethene	44	U	44	9.9	ug/Kg	☼	07/30/20 20:24	08/01/20 00:27	1
Tetrachloroethene	44	U	44	20	ug/Kg	☼	07/30/20 20:24	08/01/20 00:27	1
trans-1,2-Dichloroethene	44	U	44	11	ug/Kg	☼	07/30/20 20:24	08/01/20 00:27	1
Trichloroethene	44	U	44	12	ug/Kg	☼	07/30/20 20:24	08/01/20 00:27	1
Vinyl chloride	35	U	35	13	ug/Kg	☼	07/30/20 20:24	08/01/20 00:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		47 - 136	07/30/20 20:24	08/01/20 00:27	1
4-Bromofluorobenzene (Surr)	108		51 - 124	07/30/20 20:24	08/01/20 00:27	1
Dibromofluoromethane (Surr)	88		49 - 122	07/30/20 20:24	08/01/20 00:27	1
Toluene-d8 (Surr)	108		55 - 123	07/30/20 20:24	08/01/20 00:27	1

Client Sample ID: SB-142 (1-2)_072820

Lab Sample ID: 240-134182-18

Date Collected: 07/28/20 12:41

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.8		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.2		0.1	0.1	%			08/03/20 09:58	1

Client Sample ID: SB-142 (1-2)_072820

Lab Sample ID: 240-134182-18

Date Collected: 07/28/20 12:41

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.8

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	43	U	43	17	ug/Kg	☼	07/30/20 20:24	08/01/20 00:50	1
1,4-Dioxane	13000	U	13000	1200	ug/Kg	☼	07/30/20 20:24	08/01/20 00:50	1
cis-1,2-Dichloroethene	43	U	43	9.6	ug/Kg	☼	07/30/20 20:24	08/01/20 00:50	1
Tetrachloroethene	43	U	43	19	ug/Kg	☼	07/30/20 20:24	08/01/20 00:50	1
trans-1,2-Dichloroethene	43	U	43	11	ug/Kg	☼	07/30/20 20:24	08/01/20 00:50	1
Trichloroethene	43	U	43	12	ug/Kg	☼	07/30/20 20:24	08/01/20 00:50	1
Vinyl chloride	34	U	34	13	ug/Kg	☼	07/30/20 20:24	08/01/20 00:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		47 - 136	07/30/20 20:24	08/01/20 00:50	1
4-Bromofluorobenzene (Surr)	104		51 - 124	07/30/20 20:24	08/01/20 00:50	1
Dibromofluoromethane (Surr)	85		49 - 122	07/30/20 20:24	08/01/20 00:50	1
Toluene-d8 (Surr)	103		55 - 123	07/30/20 20:24	08/01/20 00:50	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (2-3)_072820

Lab Sample ID: 240-134182-19

Date Collected: 07/28/20 12:42

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.1		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.9		0.1	0.1	%			08/03/20 09:58	1

Client Sample ID: SB-142 (2-3)_072820

Lab Sample ID: 240-134182-19

Date Collected: 07/28/20 12:42

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.1

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	44	U	44	18	ug/Kg	☼	07/30/20 20:24	08/01/20 01:12	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	08/01/20 01:12	1
cis-1,2-Dichloroethene	44	U	44	9.9	ug/Kg	☼	07/30/20 20:24	08/01/20 01:12	1
Tetrachloroethene	44	U	44	20	ug/Kg	☼	07/30/20 20:24	08/01/20 01:12	1
trans-1,2-Dichloroethene	44	U	44	11	ug/Kg	☼	07/30/20 20:24	08/01/20 01:12	1
Trichloroethene	44	U	44	12	ug/Kg	☼	07/30/20 20:24	08/01/20 01:12	1
Vinyl chloride	35	U	35	13	ug/Kg	☼	07/30/20 20:24	08/01/20 01:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		47 - 136	07/30/20 20:24	08/01/20 01:12	1
4-Bromofluorobenzene (Surr)	106		51 - 124	07/30/20 20:24	08/01/20 01:12	1
Dibromofluoromethane (Surr)	82		49 - 122	07/30/20 20:24	08/01/20 01:12	1
Toluene-d8 (Surr)	102		55 - 123	07/30/20 20:24	08/01/20 01:12	1

Client Sample ID: SB-142 (3-4)_072820

Lab Sample ID: 240-134182-20

Date Collected: 07/28/20 12:43

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	98.0		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.0		0.1	0.1	%			08/03/20 09:58	1

Client Sample ID: SB-142 (3-4)_072820

Lab Sample ID: 240-134182-20

Date Collected: 07/28/20 12:43

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 98.0

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	39	U	39	16	ug/Kg	☼	08/03/20 17:08	08/04/20 19:12	1
1,4-Dioxane	12000	U	12000	1100	ug/Kg	☼	08/03/20 17:08	08/04/20 19:12	1
cis-1,2-Dichloroethene	14	J	39	8.9	ug/Kg	☼	08/03/20 17:08	08/04/20 19:12	1
Tetrachloroethene	19	J	39	18	ug/Kg	☼	08/03/20 17:08	08/04/20 19:12	1
trans-1,2-Dichloroethene	24	J	39	9.9	ug/Kg	☼	08/03/20 17:08	08/04/20 19:12	1
Trichloroethene	13	J	39	11	ug/Kg	☼	08/03/20 17:08	08/04/20 19:12	1
Vinyl chloride	12	J	32	12	ug/Kg	☼	08/03/20 17:08	08/04/20 19:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		47 - 136	08/03/20 17:08	08/04/20 19:12	1
4-Bromofluorobenzene (Surr)	114		51 - 124	08/03/20 17:08	08/04/20 19:12	1
Dibromofluoromethane (Surr)	89		49 - 122	08/03/20 17:08	08/04/20 19:12	1
Toluene-d8 (Surr)	108		55 - 123	08/03/20 17:08	08/04/20 19:12	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (4-5)_072820

Lab Sample ID: 240-134182-21

Date Collected: 07/28/20 12:44

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	94.6		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	5.4		0.1	0.1	%			08/03/20 09:58	1

Client Sample ID: SB-142 (4-5)_072820

Lab Sample ID: 240-134182-21

Date Collected: 07/28/20 12:44

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 94.6

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	44	U	44	18	ug/Kg	☼	07/30/20 20:24	08/01/20 01:35	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	08/01/20 01:35	1
cis-1,2-Dichloroethene	44	U	44	10	ug/Kg	☼	07/30/20 20:24	08/01/20 01:35	1
Tetrachloroethene	44	U	44	20	ug/Kg	☼	07/30/20 20:24	08/01/20 01:35	1
trans-1,2-Dichloroethene	44	U	44	11	ug/Kg	☼	07/30/20 20:24	08/01/20 01:35	1
Trichloroethene	44	U	44	12	ug/Kg	☼	07/30/20 20:24	08/01/20 01:35	1
Vinyl chloride	35	U	35	13	ug/Kg	☼	07/30/20 20:24	08/01/20 01:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		47 - 136	07/30/20 20:24	08/01/20 01:35	1
4-Bromofluorobenzene (Surr)	104		51 - 124	07/30/20 20:24	08/01/20 01:35	1
Dibromofluoromethane (Surr)	83		49 - 122	07/30/20 20:24	08/01/20 01:35	1
Toluene-d8 (Surr)	102		55 - 123	07/30/20 20:24	08/01/20 01:35	1

Client Sample ID: SB-142 (5-6)_072820

Lab Sample ID: 240-134182-22

Date Collected: 07/28/20 12:58

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	94.6		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	5.4		0.1	0.1	%			08/03/20 09:58	1

Client Sample ID: SB-142 (5-6)_072820

Lab Sample ID: 240-134182-22

Date Collected: 07/28/20 12:58

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 94.6

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	48	U	48	19	ug/Kg	☼	08/03/20 17:08	08/04/20 19:35	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	08/03/20 17:08	08/04/20 19:35	1
cis-1,2-Dichloroethene	48	U	48	11	ug/Kg	☼	08/03/20 17:08	08/04/20 19:35	1
Tetrachloroethene	48	U	48	22	ug/Kg	☼	08/03/20 17:08	08/04/20 19:35	1
trans-1,2-Dichloroethene	48	U	48	12	ug/Kg	☼	08/03/20 17:08	08/04/20 19:35	1
Trichloroethene	48	U	48	13	ug/Kg	☼	08/03/20 17:08	08/04/20 19:35	1
Vinyl chloride	39	U	39	15	ug/Kg	☼	08/03/20 17:08	08/04/20 19:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		47 - 136	08/03/20 17:08	08/04/20 19:35	1
4-Bromofluorobenzene (Surr)	106		51 - 124	08/03/20 17:08	08/04/20 19:35	1
Dibromofluoromethane (Surr)	88		49 - 122	08/03/20 17:08	08/04/20 19:35	1
Toluene-d8 (Surr)	106		55 - 123	08/03/20 17:08	08/04/20 19:35	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (6-7)_072820

Lab Sample ID: 240-134182-23

Date Collected: 07/28/20 13:01

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.6		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	3.4		0.1	0.1	%			08/03/20 10:40	1

Client Sample ID: SB-142 (6-7)_072820

Lab Sample ID: 240-134182-23

Date Collected: 07/28/20 13:01

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.6

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	43	U	43	17	ug/Kg	☼	08/03/20 17:08	08/04/20 19:57	1
1,4-Dioxane	13000	U	13000	1200	ug/Kg	☼	08/03/20 17:08	08/04/20 19:57	1
cis-1,2-Dichloroethene	43	U	43	9.6	ug/Kg	☼	08/03/20 17:08	08/04/20 19:57	1
Tetrachloroethene	43	U	43	19	ug/Kg	☼	08/03/20 17:08	08/04/20 19:57	1
trans-1,2-Dichloroethene	43	U	43	11	ug/Kg	☼	08/03/20 17:08	08/04/20 19:57	1
Trichloroethene	43	U	43	12	ug/Kg	☼	08/03/20 17:08	08/04/20 19:57	1
Vinyl chloride	34	U	34	13	ug/Kg	☼	08/03/20 17:08	08/04/20 19:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		47 - 136	08/03/20 17:08	08/04/20 19:57	1
4-Bromofluorobenzene (Surr)	113		51 - 124	08/03/20 17:08	08/04/20 19:57	1
Dibromofluoromethane (Surr)	90		49 - 122	08/03/20 17:08	08/04/20 19:57	1
Toluene-d8 (Surr)	109		55 - 123	08/03/20 17:08	08/04/20 19:57	1

Client Sample ID: SB-142 (7-8)_072820

Lab Sample ID: 240-134182-24

Date Collected: 07/28/20 13:00

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	95.5		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	4.5		0.1	0.1	%			08/03/20 10:40	1

Client Sample ID: SB-142 (7-8)_072820

Lab Sample ID: 240-134182-24

Date Collected: 07/28/20 13:00

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 95.5

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	46	U	46	18	ug/Kg	☼	08/03/20 17:08	08/04/20 20:20	1
1,4-Dioxane	14000	U	14000	1300	ug/Kg	☼	08/03/20 17:08	08/04/20 20:20	1
cis-1,2-Dichloroethene	46	U	46	10	ug/Kg	☼	08/03/20 17:08	08/04/20 20:20	1
Tetrachloroethene	46	U	46	21	ug/Kg	☼	08/03/20 17:08	08/04/20 20:20	1
trans-1,2-Dichloroethene	46	U	46	12	ug/Kg	☼	08/03/20 17:08	08/04/20 20:20	1
Trichloroethene	46	U	46	13	ug/Kg	☼	08/03/20 17:08	08/04/20 20:20	1
Vinyl chloride	37	U	37	14	ug/Kg	☼	08/03/20 17:08	08/04/20 20:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		47 - 136	08/03/20 17:08	08/04/20 20:20	1
4-Bromofluorobenzene (Surr)	110		51 - 124	08/03/20 17:08	08/04/20 20:20	1
Dibromofluoromethane (Surr)	88		49 - 122	08/03/20 17:08	08/04/20 20:20	1
Toluene-d8 (Surr)	108		55 - 123	08/03/20 17:08	08/04/20 20:20	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (0.5-1)_072820

Lab Sample ID: 240-134182-25

Date Collected: 07/28/20 13:20

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.6		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	2.4		0.1	0.1	%			08/03/20 10:40	1

Client Sample ID: SB-143 (0.5-1)_072820

Lab Sample ID: 240-134182-25

Date Collected: 07/28/20 13:20

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.6

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	44	U	44	18	ug/Kg	☼	08/03/20 17:08	08/04/20 20:42	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	08/03/20 17:08	08/04/20 20:42	1
cis-1,2-Dichloroethene	44	U	44	9.9	ug/Kg	☼	08/03/20 17:08	08/04/20 20:42	1
Tetrachloroethene	44	U	44	20	ug/Kg	☼	08/03/20 17:08	08/04/20 20:42	1
trans-1,2-Dichloroethene	44	U	44	11	ug/Kg	☼	08/03/20 17:08	08/04/20 20:42	1
Trichloroethene	44	U	44	12	ug/Kg	☼	08/03/20 17:08	08/04/20 20:42	1
Vinyl chloride	35	U	35	13	ug/Kg	☼	08/03/20 17:08	08/04/20 20:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		47 - 136	08/03/20 17:08	08/04/20 20:42	1
4-Bromofluorobenzene (Surr)	108		51 - 124	08/03/20 17:08	08/04/20 20:42	1
Dibromofluoromethane (Surr)	87		49 - 122	08/03/20 17:08	08/04/20 20:42	1
Toluene-d8 (Surr)	105		55 - 123	08/03/20 17:08	08/04/20 20:42	1

Client Sample ID: SB-143 (1-2)_072820

Lab Sample ID: 240-134182-26

Date Collected: 07/28/20 13:21

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.4		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	3.6		0.1	0.1	%			08/03/20 10:40	1

Client Sample ID: SB-143 (1-2)_072820

Lab Sample ID: 240-134182-26

Date Collected: 07/28/20 13:21

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.4

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	42	U	42	17	ug/Kg	☼	08/03/20 17:08	08/04/20 21:49	1
1,4-Dioxane	13000	U	13000	1200	ug/Kg	☼	08/03/20 17:08	08/04/20 21:49	1
cis-1,2-Dichloroethene	42	U	42	9.5	ug/Kg	☼	08/03/20 17:08	08/04/20 21:49	1
Tetrachloroethene	42	U	42	19	ug/Kg	☼	08/03/20 17:08	08/04/20 21:49	1
trans-1,2-Dichloroethene	42	U	42	11	ug/Kg	☼	08/03/20 17:08	08/04/20 21:49	1
Trichloroethene	42	U	42	12	ug/Kg	☼	08/03/20 17:08	08/04/20 21:49	1
Vinyl chloride	34	U	34	13	ug/Kg	☼	08/03/20 17:08	08/04/20 21:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		47 - 136	08/03/20 17:08	08/04/20 21:49	1
4-Bromofluorobenzene (Surr)	104		51 - 124	08/03/20 17:08	08/04/20 21:49	1
Dibromofluoromethane (Surr)	86		49 - 122	08/03/20 17:08	08/04/20 21:49	1
Toluene-d8 (Surr)	104		55 - 123	08/03/20 17:08	08/04/20 21:49	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (2-3)_072820

Lab Sample ID: 240-134182-27

Date Collected: 07/28/20 13:22

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	95.2		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	4.8		0.1	0.1	%			08/03/20 10:40	1

Client Sample ID: SB-143 (2-3)_072820

Lab Sample ID: 240-134182-27

Date Collected: 07/28/20 13:22

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 95.2

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	45	U	45	18	ug/Kg	☼	08/03/20 17:08	08/04/20 22:12	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	08/03/20 17:08	08/04/20 22:12	1
cis-1,2-Dichloroethene	45	U	45	10	ug/Kg	☼	08/03/20 17:08	08/04/20 22:12	1
Tetrachloroethene	45	U	45	20	ug/Kg	☼	08/03/20 17:08	08/04/20 22:12	1
trans-1,2-Dichloroethene	45	U	45	11	ug/Kg	☼	08/03/20 17:08	08/04/20 22:12	1
Trichloroethene	45	U	45	12	ug/Kg	☼	08/03/20 17:08	08/04/20 22:12	1
Vinyl chloride	36	U	36	14	ug/Kg	☼	08/03/20 17:08	08/04/20 22:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		47 - 136	08/03/20 17:08	08/04/20 22:12	1
4-Bromofluorobenzene (Surr)	105		51 - 124	08/03/20 17:08	08/04/20 22:12	1
Dibromofluoromethane (Surr)	86		49 - 122	08/03/20 17:08	08/04/20 22:12	1
Toluene-d8 (Surr)	104		55 - 123	08/03/20 17:08	08/04/20 22:12	1

Client Sample ID: SB-143 (3-4)_072820

Lab Sample ID: 240-134182-28

Date Collected: 07/28/20 13:23

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.4		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	2.6		0.1	0.1	%			08/03/20 10:40	1

Client Sample ID: SB-143 (3-4)_072820

Lab Sample ID: 240-134182-28

Date Collected: 07/28/20 13:23

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.4

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	43	U	43	17	ug/Kg	☼	08/03/20 17:08	08/04/20 22:35	1
1,4-Dioxane	13000	U F1	13000	1200	ug/Kg	☼	08/03/20 17:08	08/04/20 22:35	1
cis-1,2-Dichloroethene	43	U	43	9.6	ug/Kg	☼	08/03/20 17:08	08/04/20 22:35	1
Tetrachloroethene	43	U	43	19	ug/Kg	☼	08/03/20 17:08	08/04/20 22:35	1
trans-1,2-Dichloroethene	43	U	43	11	ug/Kg	☼	08/03/20 17:08	08/04/20 22:35	1
Trichloroethene	43	U	43	12	ug/Kg	☼	08/03/20 17:08	08/04/20 22:35	1
Vinyl chloride	34	U	34	13	ug/Kg	☼	08/03/20 17:08	08/04/20 22:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		47 - 136	08/03/20 17:08	08/04/20 22:35	1
4-Bromofluorobenzene (Surr)	104		51 - 124	08/03/20 17:08	08/04/20 22:35	1
Dibromofluoromethane (Surr)	85		49 - 122	08/03/20 17:08	08/04/20 22:35	1
Toluene-d8 (Surr)	103		55 - 123	08/03/20 17:08	08/04/20 22:35	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (4-5)_072820

Lab Sample ID: 240-134182-29

Date Collected: 07/28/20 13:24

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.9		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	3.1		0.1	0.1	%			08/03/20 10:40	1

Client Sample ID: SB-143 (4-5)_072820

Lab Sample ID: 240-134182-29

Date Collected: 07/28/20 13:24

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.9

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	43	U	43	17	ug/Kg	☼	08/03/20 17:08	08/04/20 23:43	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	08/03/20 17:08	08/04/20 23:43	1
cis-1,2-Dichloroethene	43	U	43	9.8	ug/Kg	☼	08/03/20 17:08	08/04/20 23:43	1
Tetrachloroethene	43	U	43	20	ug/Kg	☼	08/03/20 17:08	08/04/20 23:43	1
trans-1,2-Dichloroethene	43	U	43	11	ug/Kg	☼	08/03/20 17:08	08/04/20 23:43	1
Trichloroethene	43	U	43	12	ug/Kg	☼	08/03/20 17:08	08/04/20 23:43	1
Vinyl chloride	35	U	35	13	ug/Kg	☼	08/03/20 17:08	08/04/20 23:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		47 - 136	08/03/20 17:08	08/04/20 23:43	1
4-Bromofluorobenzene (Surr)	112		51 - 124	08/03/20 17:08	08/04/20 23:43	1
Dibromofluoromethane (Surr)	89		49 - 122	08/03/20 17:08	08/04/20 23:43	1
Toluene-d8 (Surr)	110		55 - 123	08/03/20 17:08	08/04/20 23:43	1

Client Sample ID: SB-143 (5-6)_072820

Lab Sample ID: 240-134182-30

Date Collected: 07/28/20 13:40

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.1		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	2.9		0.1	0.1	%			08/03/20 10:40	1

Client Sample ID: SB-143 (5-6)_072820

Lab Sample ID: 240-134182-30

Date Collected: 07/28/20 13:40

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.1

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	43	U	43	17	ug/Kg	☼	08/03/20 17:08	08/05/20 00:05	1
1,4-Dioxane	13000	U	13000	1200	ug/Kg	☼	08/03/20 17:08	08/05/20 00:05	1
cis-1,2-Dichloroethene	43	U	43	9.6	ug/Kg	☼	08/03/20 17:08	08/05/20 00:05	1
Tetrachloroethene	43	U	43	19	ug/Kg	☼	08/03/20 17:08	08/05/20 00:05	1
trans-1,2-Dichloroethene	43	U	43	11	ug/Kg	☼	08/03/20 17:08	08/05/20 00:05	1
Trichloroethene	43	U	43	12	ug/Kg	☼	08/03/20 17:08	08/05/20 00:05	1
Vinyl chloride	34	U	34	13	ug/Kg	☼	08/03/20 17:08	08/05/20 00:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		47 - 136	08/03/20 17:08	08/05/20 00:05	1
4-Bromofluorobenzene (Surr)	109		51 - 124	08/03/20 17:08	08/05/20 00:05	1
Dibromofluoromethane (Surr)	88		49 - 122	08/03/20 17:08	08/05/20 00:05	1
Toluene-d8 (Surr)	107		55 - 123	08/03/20 17:08	08/05/20 00:05	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (6-7)_072820

Lab Sample ID: 240-134182-31

Date Collected: 07/28/20 13:45

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.2		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	3.8		0.1	0.1	%			08/03/20 10:40	1

Client Sample ID: SB-143 (6-7)_072820

Lab Sample ID: 240-134182-31

Date Collected: 07/28/20 13:45

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.2

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	46	U	46	19	ug/Kg	☼	08/03/20 17:08	08/05/20 00:28	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	08/03/20 17:08	08/05/20 00:28	1
cis-1,2-Dichloroethene	46	U	46	10	ug/Kg	☼	08/03/20 17:08	08/05/20 00:28	1
Tetrachloroethene	46	U	46	21	ug/Kg	☼	08/03/20 17:08	08/05/20 00:28	1
trans-1,2-Dichloroethene	46	U	46	12	ug/Kg	☼	08/03/20 17:08	08/05/20 00:28	1
Trichloroethene	46	U	46	13	ug/Kg	☼	08/03/20 17:08	08/05/20 00:28	1
Vinyl chloride	37	U	37	14	ug/Kg	☼	08/03/20 17:08	08/05/20 00:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		47 - 136	08/03/20 17:08	08/05/20 00:28	1
4-Bromofluorobenzene (Surr)	104		51 - 124	08/03/20 17:08	08/05/20 00:28	1
Dibromofluoromethane (Surr)	82		49 - 122	08/03/20 17:08	08/05/20 00:28	1
Toluene-d8 (Surr)	101		55 - 123	08/03/20 17:08	08/05/20 00:28	1

Client Sample ID: SB-143 (7-8)_072820

Lab Sample ID: 240-134182-32

Date Collected: 07/28/20 13:50

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	92.0		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	8.0		0.1	0.1	%			08/03/20 10:40	1

Client Sample ID: SB-143 (7-8)_072820

Lab Sample ID: 240-134182-32

Date Collected: 07/28/20 13:50

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 92.0

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	55	U	55	22	ug/Kg	☼	08/03/20 17:08	08/05/20 00:50	1
1,4-Dioxane	17000	U	17000	1500	ug/Kg	☼	08/03/20 17:08	08/05/20 00:50	1
cis-1,2-Dichloroethene	55	U	55	12	ug/Kg	☼	08/03/20 17:08	08/05/20 00:50	1
Tetrachloroethene	55	U	55	25	ug/Kg	☼	08/03/20 17:08	08/05/20 00:50	1
trans-1,2-Dichloroethene	55	U	55	14	ug/Kg	☼	08/03/20 17:08	08/05/20 00:50	1
Trichloroethene	55	U	55	15	ug/Kg	☼	08/03/20 17:08	08/05/20 00:50	1
Vinyl chloride	44	U	44	17	ug/Kg	☼	08/03/20 17:08	08/05/20 00:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		47 - 136	08/03/20 17:08	08/05/20 00:50	1
4-Bromofluorobenzene (Surr)	111		51 - 124	08/03/20 17:08	08/05/20 00:50	1
Dibromofluoromethane (Surr)	89		49 - 122	08/03/20 17:08	08/05/20 00:50	1
Toluene-d8 (Surr)	110		55 - 123	08/03/20 17:08	08/05/20 00:50	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: DUP-03

Lab Sample ID: 240-134182-33

Date Collected: 07/28/20 00:00

Matrix: Solid

Date Received: 07/30/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.8		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	3.2		0.1	0.1	%			08/03/20 10:40	1

Client Sample ID: DUP-03

Lab Sample ID: 240-134182-33

Date Collected: 07/28/20 00:00

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.8

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	47	U	47	19	ug/Kg	☼	08/03/20 17:08	08/05/20 01:13	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	08/03/20 17:08	08/05/20 01:13	1
cis-1,2-Dichloroethene	47	U	47	11	ug/Kg	☼	08/03/20 17:08	08/05/20 01:13	1
Tetrachloroethene	47	U	47	21	ug/Kg	☼	08/03/20 17:08	08/05/20 01:13	1
trans-1,2-Dichloroethene	47	U	47	12	ug/Kg	☼	08/03/20 17:08	08/05/20 01:13	1
Trichloroethene	47	U	47	13	ug/Kg	☼	08/03/20 17:08	08/05/20 01:13	1
Vinyl chloride	37	U	37	14	ug/Kg	☼	08/03/20 17:08	08/05/20 01:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		47 - 136	08/03/20 17:08	08/05/20 01:13	1
4-Bromofluorobenzene (Surr)	106		51 - 124	08/03/20 17:08	08/05/20 01:13	1
Dibromofluoromethane (Surr)	87		49 - 122	08/03/20 17:08	08/05/20 01:13	1
Toluene-d8 (Surr)	105		55 - 123	08/03/20 17:08	08/05/20 01:13	1

Client Sample ID: TMW-20-02 (7-12)_072820

Lab Sample ID: 240-134182-34

Date Collected: 07/28/20 15:05

Matrix: Water

Date Received: 07/30/20 09:40

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			07/31/20 19:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		70 - 133		07/31/20 19:06	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/04/20 00:17	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/04/20 00:17	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/04/20 00:17	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/04/20 00:17	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/04/20 00:17	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/04/20 00:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	129		75 - 130		08/04/20 00:17	1
4-Bromofluorobenzene (Surr)	99		47 - 134		08/04/20 00:17	1
Toluene-d8 (Surr)	112		69 - 122		08/04/20 00:17	1
Dibromofluoromethane (Surr)	107		78 - 129		08/04/20 00:17	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134182-35

Date Collected: 07/28/20 00:00

Matrix: Water

Date Received: 07/30/20 09:40

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			07/31/20 14:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		70 - 133					07/31/20 14:58	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/04/20 00:42	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/04/20 00:42	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/04/20 00:42	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/04/20 00:42	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/04/20 00:42	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/04/20 00:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	122		75 - 130					08/04/20 00:42	1
4-Bromofluorobenzene (Surr)	95		47 - 134					08/04/20 00:42	1
Toluene-d8 (Surr)	112		69 - 122					08/04/20 00:42	1
Dibromofluoromethane (Surr)	100		78 - 129					08/04/20 00:42	1

Default Detection Limits

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Prep: 5030B

Analyte	RL	MDL	Units
1,1-Dichloroethene	40	16	ug/Kg
1,4-Dioxane	13000	1100	ug/Kg
cis-1,2-Dichloroethene	40	9.0	ug/Kg
Tetrachloroethene	40	18	ug/Kg
trans-1,2-Dichloroethene	40	10	ug/Kg
Trichloroethene	40	11	ug/Kg
Vinyl chloride	32	12	ug/Kg

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	RL	MDL	Units
1,4-Dioxane	2.0	0.86	ug/L

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	RL	MDL	Units
1,1-Dichloroethene	1.0	0.46	ug/L
cis-1,2-Dichloroethene	1.0	0.38	ug/L
Tetrachloroethene	1.0	0.33	ug/L
trans-1,2-Dichloroethene	1.0	0.43	ug/L
Trichloroethene	1.0	0.36	ug/L
Vinyl chloride	1.0	0.50	ug/L

General Chemistry

Analyte	RL	MDL	Units
Percent Moisture	0.1	0.1	%
Percent Solids	0.1	0.1	%

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-133764-G-4 MS	Matrix Spike	128	99	112	104
240-133764-H-4 MSD	Matrix Spike Duplicate	122	97	109	102
240-134182-34	TMW-20-02 (7-12)_072820	129	99	112	107
240-134182-35	TRIP BLANK	122	95	112	100
LCS 240-445379/4	Lab Control Sample	127	95	110	105
MB 240-445379/7	Method Blank	122	94	112	106

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (47-136)	BFB (51-124)	DBFM (49-122)	TOL (55-123)
240-134182-1	SB-141 (0.5-1)_072820	95	118	92	110
240-134182-2	SB-141 (1-2)_072820	91	106	88	105
240-134182-3	SB-141 (2-3)_072820	90	106	86	106
240-134182-4	SB-141 (3-4)_072820	88	105	85	102
240-134182-5	SB-141 (4-5)_072820	89	109	86	103
240-134182-6	SB-141 (5-6)_072820	96	111	92	110
240-134182-7	SB-141 (6-7)_072820	91	109	88	107
240-134182-8	SB-141 (7-8)_072820	89	105	86	103
240-134182-9	TMW-20-02 (0.5-1)_072820	92	109	87	108
240-134182-10	TMW-20-02 (1-2)_072820	89	107	84	103
240-134182-11	TMW-20-02 (2-3)_072820	99	114	93	111
240-134182-12	TMW-20-02 (3-4)_072820	87	99	83	99
240-134182-13	TMW-20-02 (4-5)_072820	92	110	85	108
240-134182-14	TMW-20-02 (5-6)_072820	97	111	91	109
240-134182-15	TMW-20-02 (6-7)_072820	90	103	84	101
240-134182-16	TMW-20-02 (7-8)_072820	95	108	88	106
240-134182-17	SB-142 (0.5-1)_072820	96	108	88	108
240-134182-18	SB-142 (1-2)_072820	90	104	85	103
240-134182-19	SB-142 (2-3)_072820	86	106	82	102
240-134182-20	SB-142 (3-4)_072820	94	114	89	108
240-134182-21	SB-142 (4-5)_072820	88	104	83	102
240-134182-21 MS	SB-142 (4-5)_072820	93	115	87	104
240-134182-22	SB-142 (5-6)_072820	95	106	88	106
240-134182-23	SB-142 (6-7)_072820	95	113	90	109
240-134182-24	SB-142 (7-8)_072820	93	110	88	108
240-134182-25	SB-143 (0.5-1)_072820	91	108	87	105
240-134182-25 MS	SB-143 (0.5-1)_072820	89	107	88	107
240-134182-25 MSD	SB-143 (0.5-1)_072820	96	109	92	107
240-134182-26	SB-143 (1-2)_072820	91	104	86	104
240-134182-27	SB-143 (2-3)_072820	93	105	86	104
240-134182-28	SB-143 (3-4)_072820	90	104	85	103

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Method: 8260B MI - Volatile Organic Compounds (GC/MS) (Continued)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (47-136)	BFB (51-124)	DBFM (49-122)	TOL (55-123)
240-134182-28 MS	SB-143 (3-4)_072820	88	102	84	100
240-134182-28 MSD	SB-143 (3-4)_072820	85	107	86	103
240-134182-29	SB-143 (4-5)_072820	94	112	89	110
240-134182-30	SB-143 (5-6)_072820	94	109	88	107
240-134182-31	SB-143 (6-7)_072820	88	104	82	101
240-134182-32	SB-143 (7-8)_072820	95	111	89	110
240-134182-33	DUP-03	93	106	87	105
LCS 240-445021/2-A	Lab Control Sample	84	99	82	97
LCS 240-445424/2-A	Lab Control Sample	84	98	80	97
MB 240-445021/1-A	Method Blank	81	96	79	95
MB 240-445424/1-A	Method Blank	82	93	76	93

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		DCA (70-133)
240-134182-34	TMW-20-02 (7-12)_072820	85
240-134182-35	TRIP BLANK	85
240-134235-C-2 MS	Matrix Spike	87
240-134235-C-2 MSD	Matrix Spike Duplicate	85
LCS 240-445137/4	Lab Control Sample	82
MB 240-445137/5	Method Blank	82

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-445379/7
Matrix: Water
Analysis Batch: 445379

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/03/20 16:25	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/03/20 16:25	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/03/20 16:25	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/03/20 16:25	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/03/20 16:25	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/03/20 16:25	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	122		75 - 130		08/03/20 16:25	1
4-Bromofluorobenzene (Surr)	94		47 - 134		08/03/20 16:25	1
Toluene-d8 (Surr)	112		69 - 122		08/03/20 16:25	1
Dibromofluoromethane (Surr)	106		78 - 129		08/03/20 16:25	1

Lab Sample ID: LCS 240-445379/4
Matrix: Water
Analysis Batch: 445379

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	9.38		ug/L		94	73 - 129
cis-1,2-Dichloroethene	10.0	9.02		ug/L		90	75 - 124
Tetrachloroethene	10.0	10.9		ug/L		109	70 - 125
trans-1,2-Dichloroethene	10.0	9.26		ug/L		93	74 - 130
Trichloroethene	10.0	8.49		ug/L		85	71 - 121
Vinyl chloride	10.0	12.0		ug/L		120	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	127		75 - 130
4-Bromofluorobenzene (Surr)	95		47 - 134
Toluene-d8 (Surr)	110		69 - 122
Dibromofluoromethane (Surr)	105		78 - 129

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-445021/1-A
Matrix: Solid
Analysis Batch: 445183

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445021

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	40	U	40	16	ug/Kg		07/30/20 20:24	07/31/20 17:42	1
1,4-Dioxane	13000	U	13000	1100	ug/Kg		07/30/20 20:24	07/31/20 17:42	1
cis-1,2-Dichloroethene	40	U	40	9.0	ug/Kg		07/30/20 20:24	07/31/20 17:42	1
Tetrachloroethene	40	U	40	18	ug/Kg		07/30/20 20:24	07/31/20 17:42	1
trans-1,2-Dichloroethene	40	U	40	10	ug/Kg		07/30/20 20:24	07/31/20 17:42	1
Trichloroethene	40	U	40	11	ug/Kg		07/30/20 20:24	07/31/20 17:42	1
Vinyl chloride	32	U	32	12	ug/Kg		07/30/20 20:24	07/31/20 17:42	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	81		47 - 136	07/30/20 20:24	07/31/20 17:42	1

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Method: 8260B MI - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-445021/1-A
Matrix: Solid
Analysis Batch: 445183

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445021

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	96		51 - 124	07/30/20 20:24	07/31/20 17:42	1
Dibromofluoromethane (Surr)	79		49 - 122	07/30/20 20:24	07/31/20 17:42	1
Toluene-d8 (Surr)	95		55 - 123	07/30/20 20:24	07/31/20 17:42	1

Lab Sample ID: LCS 240-445021/2-A
Matrix: Solid
Analysis Batch: 445183

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445021

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,4-Dioxane	20000	20900		ug/Kg		104	44 - 154
cis-1,2-Dichloroethene	1000	876		ug/Kg		88	76 - 120
Tetrachloroethene	1000	1070		ug/Kg		107	75 - 124
trans-1,2-Dichloroethene	1000	1120		ug/Kg		112	74 - 125
Trichloroethene	1000	1040		ug/Kg		104	75 - 123
Vinyl chloride	1000	968		ug/Kg		97	39 - 140

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	84		47 - 136
4-Bromofluorobenzene (Surr)	99		51 - 124
Dibromofluoromethane (Surr)	82		49 - 122
Toluene-d8 (Surr)	97		55 - 123

Lab Sample ID: 240-134182-21 MS
Matrix: Solid
Analysis Batch: 445183

Client Sample ID: SB-142 (4-5)_072820
Prep Type: Total/NA
Prep Batch: 445021

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
1,4-Dioxane	14000	U	20800	42500	F1	ug/Kg	☼	204	48 - 149
cis-1,2-Dichloroethene	44	U	1040	1010		ug/Kg	☼	97	35 - 130
Tetrachloroethene	44	U	1040	1190		ug/Kg	☼	115	13 - 144
trans-1,2-Dichloroethene	44	U	1040	1300		ug/Kg	☼	125	31 - 138
Trichloroethene	44	U	1040	1220		ug/Kg	☼	117	10 - 162
Vinyl chloride	35	U	1040	1120		ug/Kg	☼	108	15 - 150

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	93		47 - 136
4-Bromofluorobenzene (Surr)	115		51 - 124
Dibromofluoromethane (Surr)	87		49 - 122
Toluene-d8 (Surr)	104		55 - 123

Lab Sample ID: MB 240-445424/1-A
Matrix: Solid
Analysis Batch: 445595

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445424

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	40	U	40	16	ug/Kg		08/03/20 17:08	08/04/20 18:24	1

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Method: 8260B MI - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-445424/1-A
Matrix: Solid
Analysis Batch: 445595

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445424

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	13000	U	13000	1100	ug/Kg		08/03/20 17:08	08/04/20 18:24	1
cis-1,2-Dichloroethene	40	U	40	9.0	ug/Kg		08/03/20 17:08	08/04/20 18:24	1
Tetrachloroethene	40	U	40	18	ug/Kg		08/03/20 17:08	08/04/20 18:24	1
trans-1,2-Dichloroethene	40	U	40	10	ug/Kg		08/03/20 17:08	08/04/20 18:24	1
Trichloroethene	40	U	40	11	ug/Kg		08/03/20 17:08	08/04/20 18:24	1
Vinyl chloride	32	U	32	12	ug/Kg		08/03/20 17:08	08/04/20 18:24	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	82		47 - 136	08/03/20 17:08	08/04/20 18:24	1
4-Bromofluorobenzene (Surr)	93		51 - 124	08/03/20 17:08	08/04/20 18:24	1
Dibromofluoromethane (Surr)	76		49 - 122	08/03/20 17:08	08/04/20 18:24	1
Toluene-d8 (Surr)	93		55 - 123	08/03/20 17:08	08/04/20 18:24	1

Lab Sample ID: LCS 240-445424/2-A
Matrix: Solid
Analysis Batch: 445595

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445424

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,1-Dichloroethene	1000	1060		ug/Kg		106	48 - 140
1,4-Dioxane	20000	20300		ug/Kg		101	44 - 154
cis-1,2-Dichloroethene	1000	838		ug/Kg		84	76 - 120
Tetrachloroethene	1000	1020		ug/Kg		102	75 - 124
trans-1,2-Dichloroethene	1000	1060		ug/Kg		106	74 - 125
Trichloroethene	1000	995		ug/Kg		99	75 - 123
Vinyl chloride	1000	1050		ug/Kg		105	39 - 140

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	84		47 - 136
4-Bromofluorobenzene (Surr)	98		51 - 124
Dibromofluoromethane (Surr)	80		49 - 122
Toluene-d8 (Surr)	97		55 - 123

Lab Sample ID: 240-134182-25 MS
Matrix: Solid
Analysis Batch: 445595

Client Sample ID: SB-143 (0.5-1)_072820
Prep Type: Total/NA
Prep Batch: 445424

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
1,1-Dichloroethene	44	U	1030	1250		ug/Kg	☼	121	20 - 150
1,4-Dioxane	14000	U	20700	23200		ug/Kg	☼	112	48 - 149
cis-1,2-Dichloroethene	44	U	1030	994		ug/Kg	☼	96	35 - 130
Tetrachloroethene	44	U	1030	1230		ug/Kg	☼	119	13 - 144
trans-1,2-Dichloroethene	44	U	1030	1290		ug/Kg	☼	124	31 - 138
Trichloroethene	44	U	1030	1190		ug/Kg	☼	116	10 - 162
Vinyl chloride	35	U	1030	1250		ug/Kg	☼	121	15 - 150

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	89		47 - 136
4-Bromofluorobenzene (Surr)	107		51 - 124

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Method: 8260B MI - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-134182-25 MS
Matrix: Solid
Analysis Batch: 445595

Client Sample ID: SB-143 (0.5-1)_072820
Prep Type: Total/NA
Prep Batch: 445424

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	88		49 - 122
Toluene-d8 (Surr)	107		55 - 123

Lab Sample ID: 240-134182-25 MSD
Matrix: Solid
Analysis Batch: 445595

Client Sample ID: SB-143 (0.5-1)_072820
Prep Type: Total/NA
Prep Batch: 445424

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier						
1,1-Dichloroethene	44	U	1060	1280		ug/Kg	☼	121	20 - 150	2	40
1,4-Dioxane	14000	U	21300	29800		ug/Kg	☼	140	48 - 149	25	40
cis-1,2-Dichloroethene	44	U	1060	1030		ug/Kg	☼	97	35 - 130	4	40
Tetrachloroethene	44	U	1060	1240		ug/Kg	☼	116	13 - 144	1	40
trans-1,2-Dichloroethene	44	U	1060	1320		ug/Kg	☼	124	31 - 138	2	40
Trichloroethene	44	U	1060	1220		ug/Kg	☼	114	10 - 162	2	40
Vinyl chloride	35	U	1060	1250		ug/Kg	☼	118	15 - 150	0	40

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	96		47 - 136
4-Bromofluorobenzene (Surr)	109		51 - 124
Dibromofluoromethane (Surr)	92		49 - 122
Toluene-d8 (Surr)	107		55 - 123

Lab Sample ID: 240-134182-28 MS
Matrix: Solid
Analysis Batch: 445595

Client Sample ID: SB-143 (3-4)_072820
Prep Type: Total/NA
Prep Batch: 445424

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	Limits
	Result	Qualifier		Result	Qualifier				
1,1-Dichloroethene	43	U	1040	1100		ug/Kg	☼	107	20 - 150
1,4-Dioxane	13000	U F1	20700	31700	F1	ug/Kg	☼	153	48 - 149
cis-1,2-Dichloroethene	43	U	1040	926		ug/Kg	☼	89	35 - 130
Tetrachloroethene	43	U	1040	1120		ug/Kg	☼	108	13 - 144
trans-1,2-Dichloroethene	43	U	1040	1200		ug/Kg	☼	115	31 - 138
Trichloroethene	43	U	1040	1120		ug/Kg	☼	108	10 - 162
Vinyl chloride	34	U	1040	1220		ug/Kg	☼	118	15 - 150

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	88		47 - 136
4-Bromofluorobenzene (Surr)	102		51 - 124
Dibromofluoromethane (Surr)	84		49 - 122
Toluene-d8 (Surr)	100		55 - 123

Lab Sample ID: 240-134182-28 MSD
Matrix: Solid
Analysis Batch: 445595

Client Sample ID: SB-143 (3-4)_072820
Prep Type: Total/NA
Prep Batch: 445424

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier						
1,1-Dichloroethene	43	U	1060	1240		ug/Kg	☼	117	20 - 150	12	40
1,4-Dioxane	13000	U F1	21100	21600		ug/Kg	☼	102	48 - 149	38	40

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Method: 8260B MI - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-134182-28 MSD
Matrix: Solid
Analysis Batch: 445595

Client Sample ID: SB-143 (3-4)_072820
Prep Type: Total/NA
Prep Batch: 445424

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
cis-1,2-Dichloroethene	43	U	1060	994		ug/Kg	☼	94	35 - 130	7	40
Tetrachloroethene	43	U	1060	1210		ug/Kg	☼	114	13 - 144	8	40
trans-1,2-Dichloroethene	43	U	1060	1280		ug/Kg	☼	121	31 - 138	7	40
Trichloroethene	43	U	1060	1210		ug/Kg	☼	115	10 - 162	8	40
Vinyl chloride	34	U	1060	1230		ug/Kg	☼	117	15 - 150	1	40

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	85		47 - 136
4-Bromofluorobenzene (Surr)	107		51 - 124
Dibromofluoromethane (Surr)	86		49 - 122
Toluene-d8 (Surr)	103		55 - 123

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-445137/5
Matrix: Water
Analysis Batch: 445137

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			07/31/20 13:43	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	82		70 - 133		07/31/20 13:43	1

Lab Sample ID: LCS 240-445137/4
Matrix: Water
Analysis Batch: 445137

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	12.0		ug/L		120	80 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	82		70 - 133

Method: Moisture - Percent Moisture

Lab Sample ID: 240-134182-6 DU
Matrix: Solid
Analysis Batch: 445353

Client Sample ID: SB-141 (5-6)_072820
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	97.5		97.3		%		0.2	20
Percent Moisture	2.5		2.7		%		6	20

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Method: Moisture - Percent Moisture (Continued)

Lab Sample ID: 240-134182-15 DU
Matrix: Solid
Analysis Batch: 445353

Client Sample ID: TMW-20-02 (6-7)_072820
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	96.1		95.8		%		0.3	20
Percent Moisture	3.9		4.2		%		7	20

Lab Sample ID: 240-134182-21 DU
Matrix: Solid
Analysis Batch: 445353

Client Sample ID: SB-142 (4-5)_072820
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	94.6		94.4		%		0.2	20
Percent Moisture	5.4		5.6		%		3	20

Lab Sample ID: 240-134182-23 DU
Matrix: Solid
Analysis Batch: 445353

Client Sample ID: SB-142 (6-7)_072820
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	96.6		96.7		%		0.1	20
Percent Moisture	3.4		3.3		%		3	20

Lab Sample ID: 240-134182-25 DU
Matrix: Solid
Analysis Batch: 445353

Client Sample ID: SB-143 (0.5-1)_072820
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	97.6		97.5		%		0.1	20
Percent Moisture	2.4		2.5		%		6	20

Lab Sample ID: 240-134182-28 DU
Matrix: Solid
Analysis Batch: 445353

Client Sample ID: SB-143 (3-4)_072820
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	97.4		97.3		%		0	20
Percent Moisture	2.6		2.7		%		0.5	20

Lab Sample ID: 240-134182-30 DU
Matrix: Solid
Analysis Batch: 445353

Client Sample ID: SB-143 (5-6)_072820
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	97.1		96.8		%		0.3	20
Percent Moisture	2.9		3.2		%		10	20

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

GC/MS VOA

Prep Batch: 445021

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134182-1	SB-141 (0.5-1)_072820	Total/NA	Solid	5030B	
240-134182-2	SB-141 (1-2)_072820	Total/NA	Solid	5030B	
240-134182-3	SB-141 (2-3)_072820	Total/NA	Solid	5030B	
240-134182-4	SB-141 (3-4)_072820	Total/NA	Solid	5030B	
240-134182-5	SB-141 (4-5)_072820	Total/NA	Solid	5030B	
240-134182-6	SB-141 (5-6)_072820	Total/NA	Solid	5030B	
240-134182-7	SB-141 (6-7)_072820	Total/NA	Solid	5030B	
240-134182-8	SB-141 (7-8)_072820	Total/NA	Solid	5030B	
240-134182-9	TMW-20-02 (0.5-1)_072820	Total/NA	Solid	5030B	
240-134182-10	TMW-20-02 (1-2)_072820	Total/NA	Solid	5030B	
240-134182-11	TMW-20-02 (2-3)_072820	Total/NA	Solid	5030B	
240-134182-12	TMW-20-02 (3-4)_072820	Total/NA	Solid	5030B	
240-134182-13	TMW-20-02 (4-5)_072820	Total/NA	Solid	5030B	
240-134182-14	TMW-20-02 (5-6)_072820	Total/NA	Solid	5030B	
240-134182-15	TMW-20-02 (6-7)_072820	Total/NA	Solid	5030B	
240-134182-16	TMW-20-02 (7-8)_072820	Total/NA	Solid	5030B	
240-134182-17	SB-142 (0.5-1)_072820	Total/NA	Solid	5030B	
240-134182-18	SB-142 (1-2)_072820	Total/NA	Solid	5030B	
240-134182-19	SB-142 (2-3)_072820	Total/NA	Solid	5030B	
240-134182-21	SB-142 (4-5)_072820	Total/NA	Solid	5030B	
MB 240-445021/1-A	Method Blank	Total/NA	Solid	5030B	
LCS 240-445021/2-A	Lab Control Sample	Total/NA	Solid	5030B	
240-134182-21 MS	SB-142 (4-5)_072820	Total/NA	Solid	5030B	

Analysis Batch: 445137

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134182-34	TMW-20-02 (7-12)_072820	Total/NA	Water	8260B SIM	
240-134182-35	TRIP BLANK	Total/NA	Water	8260B SIM	
MB 240-445137/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-445137/4	Lab Control Sample	Total/NA	Water	8260B SIM	

Analysis Batch: 445183

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134182-1	SB-141 (0.5-1)_072820	Total/NA	Solid	8260B MI	445021
240-134182-2	SB-141 (1-2)_072820	Total/NA	Solid	8260B MI	445021
240-134182-3	SB-141 (2-3)_072820	Total/NA	Solid	8260B MI	445021
240-134182-4	SB-141 (3-4)_072820	Total/NA	Solid	8260B MI	445021
240-134182-5	SB-141 (4-5)_072820	Total/NA	Solid	8260B MI	445021
240-134182-6	SB-141 (5-6)_072820	Total/NA	Solid	8260B MI	445021
240-134182-7	SB-141 (6-7)_072820	Total/NA	Solid	8260B MI	445021
240-134182-8	SB-141 (7-8)_072820	Total/NA	Solid	8260B MI	445021
240-134182-9	TMW-20-02 (0.5-1)_072820	Total/NA	Solid	8260B MI	445021
240-134182-10	TMW-20-02 (1-2)_072820	Total/NA	Solid	8260B MI	445021
240-134182-11	TMW-20-02 (2-3)_072820	Total/NA	Solid	8260B MI	445021
240-134182-12	TMW-20-02 (3-4)_072820	Total/NA	Solid	8260B MI	445021
240-134182-13	TMW-20-02 (4-5)_072820	Total/NA	Solid	8260B MI	445021
240-134182-14	TMW-20-02 (5-6)_072820	Total/NA	Solid	8260B MI	445021
240-134182-15	TMW-20-02 (6-7)_072820	Total/NA	Solid	8260B MI	445021
240-134182-16	TMW-20-02 (7-8)_072820	Total/NA	Solid	8260B MI	445021
240-134182-17	SB-142 (0.5-1)_072820	Total/NA	Solid	8260B MI	445021
240-134182-18	SB-142 (1-2)_072820	Total/NA	Solid	8260B MI	445021

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

GC/MS VOA (Continued)

Analysis Batch: 445183 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134182-19	SB-142 (2-3)_072820	Total/NA	Solid	8260B MI	445021
240-134182-21	SB-142 (4-5)_072820	Total/NA	Solid	8260B MI	445021
MB 240-445021/1-A	Method Blank	Total/NA	Solid	8260B MI	445021
LCS 240-445021/2-A	Lab Control Sample	Total/NA	Solid	8260B MI	445021
240-134182-21 MS	SB-142 (4-5)_072820	Total/NA	Solid	8260B MI	445021

Analysis Batch: 445379

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134182-34	TMW-20-02 (7-12)_072820	Total/NA	Water	8260B	
240-134182-35	TRIP BLANK	Total/NA	Water	8260B	
MB 240-445379/7	Method Blank	Total/NA	Water	8260B	
LCS 240-445379/4	Lab Control Sample	Total/NA	Water	8260B	

Prep Batch: 445424

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134182-20	SB-142 (3-4)_072820	Total/NA	Solid	5030B	
240-134182-22	SB-142 (5-6)_072820	Total/NA	Solid	5030B	
240-134182-23	SB-142 (6-7)_072820	Total/NA	Solid	5030B	
240-134182-24	SB-142 (7-8)_072820	Total/NA	Solid	5030B	
240-134182-25	SB-143 (0.5-1)_072820	Total/NA	Solid	5030B	
240-134182-26	SB-143 (1-2)_072820	Total/NA	Solid	5030B	
240-134182-27	SB-143 (2-3)_072820	Total/NA	Solid	5030B	
240-134182-28	SB-143 (3-4)_072820	Total/NA	Solid	5030B	
240-134182-29	SB-143 (4-5)_072820	Total/NA	Solid	5030B	
240-134182-30	SB-143 (5-6)_072820	Total/NA	Solid	5030B	
240-134182-31	SB-143 (6-7)_072820	Total/NA	Solid	5030B	
240-134182-32	SB-143 (7-8)_072820	Total/NA	Solid	5030B	
240-134182-33	DUP-03	Total/NA	Solid	5030B	
MB 240-445424/1-A	Method Blank	Total/NA	Solid	5030B	
LCS 240-445424/2-A	Lab Control Sample	Total/NA	Solid	5030B	
240-134182-25 MS	SB-143 (0.5-1)_072820	Total/NA	Solid	5030B	
240-134182-25 MSD	SB-143 (0.5-1)_072820	Total/NA	Solid	5030B	
240-134182-28 MS	SB-143 (3-4)_072820	Total/NA	Solid	5030B	
240-134182-28 MSD	SB-143 (3-4)_072820	Total/NA	Solid	5030B	

Analysis Batch: 445595

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134182-20	SB-142 (3-4)_072820	Total/NA	Solid	8260B MI	445424
240-134182-22	SB-142 (5-6)_072820	Total/NA	Solid	8260B MI	445424
240-134182-23	SB-142 (6-7)_072820	Total/NA	Solid	8260B MI	445424
240-134182-24	SB-142 (7-8)_072820	Total/NA	Solid	8260B MI	445424
240-134182-25	SB-143 (0.5-1)_072820	Total/NA	Solid	8260B MI	445424
240-134182-26	SB-143 (1-2)_072820	Total/NA	Solid	8260B MI	445424
240-134182-27	SB-143 (2-3)_072820	Total/NA	Solid	8260B MI	445424
240-134182-28	SB-143 (3-4)_072820	Total/NA	Solid	8260B MI	445424
240-134182-29	SB-143 (4-5)_072820	Total/NA	Solid	8260B MI	445424
240-134182-30	SB-143 (5-6)_072820	Total/NA	Solid	8260B MI	445424
240-134182-31	SB-143 (6-7)_072820	Total/NA	Solid	8260B MI	445424
240-134182-32	SB-143 (7-8)_072820	Total/NA	Solid	8260B MI	445424
240-134182-33	DUP-03	Total/NA	Solid	8260B MI	445424
MB 240-445424/1-A	Method Blank	Total/NA	Solid	8260B MI	445424

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

GC/MS VOA (Continued)

Analysis Batch: 445595 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 240-445424/2-A	Lab Control Sample	Total/NA	Solid	8260B MI	445424
240-134182-25 MS	SB-143 (0.5-1)_072820	Total/NA	Solid	8260B MI	445424
240-134182-25 MSD	SB-143 (0.5-1)_072820	Total/NA	Solid	8260B MI	445424
240-134182-28 MS	SB-143 (3-4)_072820	Total/NA	Solid	8260B MI	445424
240-134182-28 MSD	SB-143 (3-4)_072820	Total/NA	Solid	8260B MI	445424

General Chemistry

Analysis Batch: 445353

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134182-1	SB-141 (0.5-1)_072820	Total/NA	Solid	Moisture	
240-134182-2	SB-141 (1-2)_072820	Total/NA	Solid	Moisture	
240-134182-3	SB-141 (2-3)_072820	Total/NA	Solid	Moisture	
240-134182-4	SB-141 (3-4)_072820	Total/NA	Solid	Moisture	
240-134182-5	SB-141 (4-5)_072820	Total/NA	Solid	Moisture	
240-134182-6	SB-141 (5-6)_072820	Total/NA	Solid	Moisture	
240-134182-7	SB-141 (6-7)_072820	Total/NA	Solid	Moisture	
240-134182-8	SB-141 (7-8)_072820	Total/NA	Solid	Moisture	
240-134182-9	TMW-20-02 (0.5-1)_072820	Total/NA	Solid	Moisture	
240-134182-10	TMW-20-02 (1-2)_072820	Total/NA	Solid	Moisture	
240-134182-11	TMW-20-02 (2-3)_072820	Total/NA	Solid	Moisture	
240-134182-12	TMW-20-02 (3-4)_072820	Total/NA	Solid	Moisture	
240-134182-13	TMW-20-02 (4-5)_072820	Total/NA	Solid	Moisture	
240-134182-14	TMW-20-02 (5-6)_072820	Total/NA	Solid	Moisture	
240-134182-15	TMW-20-02 (6-7)_072820	Total/NA	Solid	Moisture	
240-134182-16	TMW-20-02 (7-8)_072820	Total/NA	Solid	Moisture	
240-134182-17	SB-142 (0.5-1)_072820	Total/NA	Solid	Moisture	
240-134182-18	SB-142 (1-2)_072820	Total/NA	Solid	Moisture	
240-134182-19	SB-142 (2-3)_072820	Total/NA	Solid	Moisture	
240-134182-20	SB-142 (3-4)_072820	Total/NA	Solid	Moisture	
240-134182-21	SB-142 (4-5)_072820	Total/NA	Solid	Moisture	
240-134182-22	SB-142 (5-6)_072820	Total/NA	Solid	Moisture	
240-134182-23	SB-142 (6-7)_072820	Total/NA	Solid	Moisture	
240-134182-24	SB-142 (7-8)_072820	Total/NA	Solid	Moisture	
240-134182-25	SB-143 (0.5-1)_072820	Total/NA	Solid	Moisture	
240-134182-26	SB-143 (1-2)_072820	Total/NA	Solid	Moisture	
240-134182-27	SB-143 (2-3)_072820	Total/NA	Solid	Moisture	
240-134182-28	SB-143 (3-4)_072820	Total/NA	Solid	Moisture	
240-134182-29	SB-143 (4-5)_072820	Total/NA	Solid	Moisture	
240-134182-30	SB-143 (5-6)_072820	Total/NA	Solid	Moisture	
240-134182-31	SB-143 (6-7)_072820	Total/NA	Solid	Moisture	
240-134182-32	SB-143 (7-8)_072820	Total/NA	Solid	Moisture	
240-134182-33	DUP-03	Total/NA	Solid	Moisture	
240-134182-6 DU	SB-141 (5-6)_072820	Total/NA	Solid	Moisture	
240-134182-15 DU	TMW-20-02 (6-7)_072820	Total/NA	Solid	Moisture	
240-134182-21 DU	SB-142 (4-5)_072820	Total/NA	Solid	Moisture	
240-134182-23 DU	SB-142 (6-7)_072820	Total/NA	Solid	Moisture	
240-134182-25 DU	SB-143 (0.5-1)_072820	Total/NA	Solid	Moisture	
240-134182-28 DU	SB-143 (3-4)_072820	Total/NA	Solid	Moisture	
240-134182-30 DU	SB-143 (5-6)_072820	Total/NA	Solid	Moisture	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (0.5-1)_072820

Lab Sample ID: 240-134182-1

Date Collected: 07/28/20 09:38

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: SB-141 (0.5-1)_072820

Lab Sample ID: 240-134182-1

Date Collected: 07/28/20 09:38

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 18:27	TJL1	TAL CAN

Client Sample ID: SB-141 (1-2)_072820

Lab Sample ID: 240-134182-2

Date Collected: 07/28/20 09:45

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: SB-141 (1-2)_072820

Lab Sample ID: 240-134182-2

Date Collected: 07/28/20 09:45

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 18:50	TJL1	TAL CAN

Client Sample ID: SB-141 (2-3)_072820

Lab Sample ID: 240-134182-3

Date Collected: 07/28/20 09:48

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: SB-141 (2-3)_072820

Lab Sample ID: 240-134182-3

Date Collected: 07/28/20 09:48

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 19:12	TJL1	TAL CAN

Client Sample ID: SB-141 (3-4)_072820

Lab Sample ID: 240-134182-4

Date Collected: 07/28/20 09:53

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (3-4)_072820

Lab Sample ID: 240-134182-4

Date Collected: 07/28/20 09:53

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 19:35	TJL1	TAL CAN

Client Sample ID: SB-141 (4-5)_072820

Lab Sample ID: 240-134182-5

Date Collected: 07/28/20 09:56

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: SB-141 (4-5)_072820

Lab Sample ID: 240-134182-5

Date Collected: 07/28/20 09:56

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 19:57	TJL1	TAL CAN

Client Sample ID: SB-141 (5-6)_072820

Lab Sample ID: 240-134182-6

Date Collected: 07/28/20 10:18

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: SB-141 (5-6)_072820

Lab Sample ID: 240-134182-6

Date Collected: 07/28/20 10:18

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 20:20	TJL1	TAL CAN

Client Sample ID: SB-141 (6-7)_072820

Lab Sample ID: 240-134182-7

Date Collected: 07/28/20 10:27

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (6-7)_072820

Lab Sample ID: 240-134182-7

Date Collected: 07/28/20 10:27

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 98.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 20:42	TJL1	TAL CAN

Client Sample ID: SB-141 (7-8)_072820

Lab Sample ID: 240-134182-8

Date Collected: 07/28/20 10:30

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: SB-141 (7-8)_072820

Lab Sample ID: 240-134182-8

Date Collected: 07/28/20 10:30

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 95.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 21:05	TJL1	TAL CAN

Client Sample ID: TMW-20-02 (0.5-1)_072820

Lab Sample ID: 240-134182-9

Date Collected: 07/28/20 11:06

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: TMW-20-02 (0.5-1)_072820

Lab Sample ID: 240-134182-9

Date Collected: 07/28/20 11:06

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 21:27	TJL1	TAL CAN

Client Sample ID: TMW-20-02 (1-2)_072820

Lab Sample ID: 240-134182-10

Date Collected: 07/28/20 11:07

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (1-2)_072820

Lab Sample ID: 240-134182-10

Date Collected: 07/28/20 11:07

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 21:50	TJL1	TAL CAN

Client Sample ID: TMW-20-02 (2-3)_072820

Lab Sample ID: 240-134182-11

Date Collected: 07/28/20 11:08

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: TMW-20-02 (2-3)_072820

Lab Sample ID: 240-134182-11

Date Collected: 07/28/20 11:08

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 92.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 22:13	TJL1	TAL CAN

Client Sample ID: TMW-20-02 (3-4)_072820

Lab Sample ID: 240-134182-12

Date Collected: 07/28/20 11:09

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: TMW-20-02 (3-4)_072820

Lab Sample ID: 240-134182-12

Date Collected: 07/28/20 11:09

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 22:35	TJL1	TAL CAN

Client Sample ID: TMW-20-02 (4-5)_072820

Lab Sample ID: 240-134182-13

Date Collected: 07/28/20 11:10

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (4-5)_072820

Lab Sample ID: 240-134182-13

Date Collected: 07/28/20 11:10

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 22:57	TJL1	TAL CAN

Client Sample ID: TMW-20-02 (5-6)_072820

Lab Sample ID: 240-134182-14

Date Collected: 07/28/20 11:29

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: TMW-20-02 (5-6)_072820

Lab Sample ID: 240-134182-14

Date Collected: 07/28/20 11:29

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 89.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 23:20	TJL1	TAL CAN

Client Sample ID: TMW-20-02 (6-7)_072820

Lab Sample ID: 240-134182-15

Date Collected: 07/28/20 11:30

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: TMW-20-02 (6-7)_072820

Lab Sample ID: 240-134182-15

Date Collected: 07/28/20 11:30

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 23:42	TJL1	TAL CAN

Client Sample ID: TMW-20-02 (7-8)_072820

Lab Sample ID: 240-134182-16

Date Collected: 07/28/20 11:34

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (7-8)_072820

Lab Sample ID: 240-134182-16

Date Collected: 07/28/20 11:34

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 94.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	08/01/20 00:05	TJL1	TAL CAN

Client Sample ID: SB-142 (0.5-1)_072820

Lab Sample ID: 240-134182-17

Date Collected: 07/28/20 12:40

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: SB-142 (0.5-1)_072820

Lab Sample ID: 240-134182-17

Date Collected: 07/28/20 12:40

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	08/01/20 00:27	TJL1	TAL CAN

Client Sample ID: SB-142 (1-2)_072820

Lab Sample ID: 240-134182-18

Date Collected: 07/28/20 12:41

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: SB-142 (1-2)_072820

Lab Sample ID: 240-134182-18

Date Collected: 07/28/20 12:41

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	08/01/20 00:50	TJL1	TAL CAN

Client Sample ID: SB-142 (2-3)_072820

Lab Sample ID: 240-134182-19

Date Collected: 07/28/20 12:42

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (2-3)_072820

Lab Sample ID: 240-134182-19

Date Collected: 07/28/20 12:42

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	08/01/20 01:12	TJL1	TAL CAN

Client Sample ID: SB-142 (3-4)_072820

Lab Sample ID: 240-134182-20

Date Collected: 07/28/20 12:43

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: SB-142 (3-4)_072820

Lab Sample ID: 240-134182-20

Date Collected: 07/28/20 12:43

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 98.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/04/20 19:12	TJL1	TAL CAN

Client Sample ID: SB-142 (4-5)_072820

Lab Sample ID: 240-134182-21

Date Collected: 07/28/20 12:44

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: SB-142 (4-5)_072820

Lab Sample ID: 240-134182-21

Date Collected: 07/28/20 12:44

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 94.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	08/01/20 01:35	TJL1	TAL CAN

Client Sample ID: SB-142 (5-6)_072820

Lab Sample ID: 240-134182-22

Date Collected: 07/28/20 12:58

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (5-6)_072820

Lab Sample ID: 240-134182-22

Date Collected: 07/28/20 12:58

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 94.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/04/20 19:35	TJL1	TAL CAN

Client Sample ID: SB-142 (6-7)_072820

Lab Sample ID: 240-134182-23

Date Collected: 07/28/20 13:01

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Client Sample ID: SB-142 (6-7)_072820

Lab Sample ID: 240-134182-23

Date Collected: 07/28/20 13:01

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/04/20 19:57	TJL1	TAL CAN

Client Sample ID: SB-142 (7-8)_072820

Lab Sample ID: 240-134182-24

Date Collected: 07/28/20 13:00

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Client Sample ID: SB-142 (7-8)_072820

Lab Sample ID: 240-134182-24

Date Collected: 07/28/20 13:00

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 95.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/04/20 20:20	TJL1	TAL CAN

Client Sample ID: SB-143 (0.5-1)_072820

Lab Sample ID: 240-134182-25

Date Collected: 07/28/20 13:20

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (0.5-1)_072820

Lab Sample ID: 240-134182-25

Date Collected: 07/28/20 13:20

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/04/20 20:42	TJL1	TAL CAN

Client Sample ID: SB-143 (1-2)_072820

Lab Sample ID: 240-134182-26

Date Collected: 07/28/20 13:21

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Client Sample ID: SB-143 (1-2)_072820

Lab Sample ID: 240-134182-26

Date Collected: 07/28/20 13:21

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/04/20 21:49	TJL1	TAL CAN

Client Sample ID: SB-143 (2-3)_072820

Lab Sample ID: 240-134182-27

Date Collected: 07/28/20 13:22

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Client Sample ID: SB-143 (2-3)_072820

Lab Sample ID: 240-134182-27

Date Collected: 07/28/20 13:22

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 95.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/04/20 22:12	TJL1	TAL CAN

Client Sample ID: SB-143 (3-4)_072820

Lab Sample ID: 240-134182-28

Date Collected: 07/28/20 13:23

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (3-4)_072820

Lab Sample ID: 240-134182-28

Date Collected: 07/28/20 13:23

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/04/20 22:35	TJL1	TAL CAN

Client Sample ID: SB-143 (4-5)_072820

Lab Sample ID: 240-134182-29

Date Collected: 07/28/20 13:24

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Client Sample ID: SB-143 (4-5)_072820

Lab Sample ID: 240-134182-29

Date Collected: 07/28/20 13:24

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/04/20 23:43	TJL1	TAL CAN

Client Sample ID: SB-143 (5-6)_072820

Lab Sample ID: 240-134182-30

Date Collected: 07/28/20 13:40

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Client Sample ID: SB-143 (5-6)_072820

Lab Sample ID: 240-134182-30

Date Collected: 07/28/20 13:40

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/05/20 00:05	TJL1	TAL CAN

Client Sample ID: SB-143 (6-7)_072820

Lab Sample ID: 240-134182-31

Date Collected: 07/28/20 13:45

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (6-7)_072820

Lab Sample ID: 240-134182-31

Date Collected: 07/28/20 13:45

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/05/20 00:28	TJL1	TAL CAN

Client Sample ID: SB-143 (7-8)_072820

Lab Sample ID: 240-134182-32

Date Collected: 07/28/20 13:50

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Client Sample ID: SB-143 (7-8)_072820

Lab Sample ID: 240-134182-32

Date Collected: 07/28/20 13:50

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 92.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/05/20 00:50	TJL1	TAL CAN

Client Sample ID: DUP-03

Lab Sample ID: 240-134182-33

Date Collected: 07/28/20 00:00

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Client Sample ID: DUP-03

Lab Sample ID: 240-134182-33

Date Collected: 07/28/20 00:00

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/05/20 01:13	TJL1	TAL CAN

Client Sample ID: TMW-20-02 (7-12)_072820

Lab Sample ID: 240-134182-34

Date Collected: 07/28/20 15:05

Matrix: Water

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	445379	08/04/20 00:17	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	445137	07/31/20 19:06	SAM	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134182-35

Date Collected: 07/28/20 00:00

Matrix: Water

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	445379	08/04/20 00:42	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	445137	07/31/20 14:58	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-20 *
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B MI	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
Moisture	Percent Moisture	EPA	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-134182-1	SB-141 (0.5-1)_072820	Solid	07/28/20 09:38	07/30/20 09:40	
240-134182-2	SB-141 (1-2)_072820	Solid	07/28/20 09:45	07/30/20 09:40	
240-134182-3	SB-141 (2-3)_072820	Solid	07/28/20 09:48	07/30/20 09:40	
240-134182-4	SB-141 (3-4)_072820	Solid	07/28/20 09:53	07/30/20 09:40	
240-134182-5	SB-141 (4-5)_072820	Solid	07/28/20 09:56	07/30/20 09:40	
240-134182-6	SB-141 (5-6)_072820	Solid	07/28/20 10:18	07/30/20 09:40	
240-134182-7	SB-141 (6-7)_072820	Solid	07/28/20 10:27	07/30/20 09:40	
240-134182-8	SB-141 (7-8)_072820	Solid	07/28/20 10:30	07/30/20 09:40	
240-134182-9	TMW-20-02 (0.5-1)_072820	Solid	07/28/20 11:06	07/30/20 09:40	
240-134182-10	TMW-20-02 (1-2)_072820	Solid	07/28/20 11:07	07/30/20 09:40	
240-134182-11	TMW-20-02 (2-3)_072820	Solid	07/28/20 11:08	07/30/20 09:40	
240-134182-12	TMW-20-02 (3-4)_072820	Solid	07/28/20 11:09	07/30/20 09:40	
240-134182-13	TMW-20-02 (4-5)_072820	Solid	07/28/20 11:10	07/30/20 09:40	
240-134182-14	TMW-20-02 (5-6)_072820	Solid	07/28/20 11:29	07/30/20 09:40	
240-134182-15	TMW-20-02 (6-7)_072820	Solid	07/28/20 11:30	07/30/20 09:40	
240-134182-16	TMW-20-02 (7-8)_072820	Solid	07/28/20 11:34	07/30/20 09:40	
240-134182-17	SB-142 (0.5-1)_072820	Solid	07/28/20 12:40	07/30/20 09:40	
240-134182-18	SB-142 (1-2)_072820	Solid	07/28/20 12:41	07/30/20 09:40	
240-134182-19	SB-142 (2-3)_072820	Solid	07/28/20 12:42	07/30/20 09:40	
240-134182-20	SB-142 (3-4)_072820	Solid	07/28/20 12:43	07/30/20 09:40	
240-134182-21	SB-142 (4-5)_072820	Solid	07/28/20 12:44	07/30/20 09:40	
240-134182-22	SB-142 (5-6)_072820	Solid	07/28/20 12:58	07/30/20 09:40	
240-134182-23	SB-142 (6-7)_072820	Solid	07/28/20 13:01	07/30/20 09:40	
240-134182-24	SB-142 (7-8)_072820	Solid	07/28/20 13:00	07/30/20 09:40	
240-134182-25	SB-143 (0.5-1)_072820	Solid	07/28/20 13:20	07/30/20 09:40	
240-134182-26	SB-143 (1-2)_072820	Solid	07/28/20 13:21	07/30/20 09:40	
240-134182-27	SB-143 (2-3)_072820	Solid	07/28/20 13:22	07/30/20 09:40	
240-134182-28	SB-143 (3-4)_072820	Solid	07/28/20 13:23	07/30/20 09:40	
240-134182-29	SB-143 (4-5)_072820	Solid	07/28/20 13:24	07/30/20 09:40	
240-134182-30	SB-143 (5-6)_072820	Solid	07/28/20 13:40	07/30/20 09:40	
240-134182-31	SB-143 (6-7)_072820	Solid	07/28/20 13:45	07/30/20 09:40	
240-134182-32	SB-143 (7-8)_072820	Solid	07/28/20 13:50	07/30/20 09:40	
240-134182-33	DUP-03	Solid	07/28/20 00:00	07/30/20 09:40	
240-134182-34	TMW-20-02 (7-12)_072820	Water	07/28/20 15:05	07/30/20 09:40	
240-134182-35	TRIP BLANK	Water	07/28/20 00:00	07/30/20 09:40	

GC/MS VOA MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Instrument ID: A3UX10 Analysis Batch Number: 419116Lab Sample ID: STD8260 240-419116/2 IC Client Sample ID: _____Date Analyzed: 01/15/20 15:09 Lab File ID: UXX5174.D GC Column: DB-624 ID: 0.18 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,2,3-Trichlorobenzene		Invalid Compound ID	williams1 a	01/20/20 15:37
1,2,4-Trichlorobenzene		Invalid Compound ID	williams1 a	01/20/20 16:44
Hexachlorobutadiene		Invalid Compound ID	williams1 a	01/20/20 15:51
Naphthalene		Invalid Compound ID	williams1 a	01/20/20 15:37
Vinyl acetate		Invalid Compound ID	williams1 a	01/20/20 15:50

Lab Sample ID: STD8260 240-419116/3 IC Client Sample ID: _____Date Analyzed: 01/15/20 15:34 Lab File ID: UXX5175.D GC Column: DB-624 ID: 0.18 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,2,3-Trichlorobenzene		Invalid Compound ID	williams1 a	01/20/20 15:37
Naphthalene		Invalid Compound ID	williams1 a	01/20/20 15:37

Lab Sample ID: STD8260 240-419116/8 IC Client Sample ID: _____Date Analyzed: 01/15/20 17:40 Lab File ID: UXX5180.D GC Column: DB-624 ID: 0.18 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane		Invalid Compound ID	williams1 a	01/20/20 16:43

GC/MS VOA MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Instrument ID: A3UX12 Analysis Batch Number: 442964Lab Sample ID: STD8260 240-442964/9 IC Client Sample ID: _____Date Analyzed: 07/16/20 17:43 Lab File ID: U1279113.D GC Column: DB-624 ID: 0.18 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
2-Chloroethyl vinyl ether	6.09	Invalid Compound ID	laveyt	07/16/20 20:34
4-Methyl-2-pentanone (MIBK)	6.35	Invalid Compound ID	laveyt	07/16/20 20:54
1,2-Dichloroethane-d4 (Surr)		Invalid Compound ID	laveyt	07/16/20 20:28
1,4-Dioxane		Invalid Compound ID	laveyt	07/16/20 20:33
2-Hexanone		Invalid Compound ID	laveyt	07/16/20 20:55
2-Methyl-2-propanol		Invalid Compound ID	laveyt	07/16/20 21:11
4-Bromofluorobenzene (Surr)		Invalid Compound ID	laveyt	07/16/20 20:28
Acetone		Invalid Compound ID	laveyt	07/16/20 18:54
Chloromethane		Invalid Compound ID	laveyt	07/16/20 20:36
Dibromofluoromethane (Surr)		Invalid Compound ID	laveyt	07/16/20 20:28
Hexane		Invalid Compound ID	laveyt	07/16/20 20:37
n-Heptane		Invalid Compound ID	laveyt	07/16/20 18:56
Toluene-d8 (Surr)		Invalid Compound ID	laveyt	07/16/20 18:52
Vinyl acetate		Invalid Compound ID	laveyt	07/16/20 20:37

Lab Sample ID: STD8260 240-442964/10 I Client Sample ID: _____Date Analyzed: 07/16/20 18:05 Lab File ID: U1279114.D GC Column: DB-624 ID: 0.18 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,2-Dichloroethane-d4 (Surr)		Invalid Compound ID	laveyt	07/16/20 20:29
4-Bromofluorobenzene (Surr)		Invalid Compound ID	laveyt	07/16/20 20:29
Dibromofluoromethane (Surr)		Invalid Compound ID	laveyt	07/16/20 20:29
Toluene-d8 (Surr)		Invalid Compound ID	laveyt	07/16/20 20:29

GC/MS VOA MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Instrument ID: A3UX12 Analysis Batch Number: 442964

Lab Sample ID: STD8260 240-442964/12 I Client Sample ID: _____

Date Analyzed: 07/16/20 18:50 Lab File ID: U1279116.D GC Column: DB-624 ID: 0.18 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Chloromethane	1.58	Split Peak	laveyt	07/16/20 19:12

GC/MS VOA MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Instrument ID: A3UX2 Analysis Batch Number: 424238Lab Sample ID: IC 240-424238/5 Client Sample ID: _____Date Analyzed: 02/25/20 17:40 Lab File ID: X29302.D GC Column: ZB-624 ID: 0.53 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane	5.88	Poor chromatography	macenczak s	02/26/20 08:58

Lab Sample ID: ICIS 240-424238/6 Client Sample ID: _____Date Analyzed: 02/25/20 18:06 Lab File ID: X29303.D GC Column: ZB-624 ID: 0.53 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane	5.88	Poor chromatography	macenczak s	02/26/20 08:57

Lab Sample ID: IC 240-424238/7 Client Sample ID: _____Date Analyzed: 02/25/20 18:32 Lab File ID: X29304.D GC Column: ZB-624 ID: 0.53 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane	5.88	Poor chromatography	macenczak s	02/26/20 08:57

Lab Sample ID: IC 240-424238/8 Client Sample ID: _____Date Analyzed: 02/25/20 18:58 Lab File ID: X29305.D GC Column: ZB-624 ID: 0.53 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane	5.87	Poor chromatography	macenczak s	02/26/20 08:56

GC/MS VOA MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Instrument ID: A3UX2 Analysis Batch Number: 424238Lab Sample ID: IC 240-424238/9 Client Sample ID: _____Date Analyzed: 02/25/20 19:24 Lab File ID: X29306.D GC Column: ZB-624 ID: 0.53 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane	5.90	Poor chromatography	macenczak s	02/26/20 08:56

Lab Sample ID: ICV 240-424238/11 Client Sample ID: _____Date Analyzed: 02/25/20 20:15 Lab File ID: X29308.D GC Column: ZB-624 ID: 0.53 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane	5.88	Poor chromatography	macenczak s	02/26/20 09:03

GC/MS VOA MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Instrument ID: A3UX2 Analysis Batch Number: 445137

Lab Sample ID: CCVIS 240-445137/3 Client Sample ID: _____

Date Analyzed: 07/31/20 12:53 Lab File ID: X21081.D GC Column: ZB-624 ID: 0.53 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane (IS)	5.80	Poor chromatography	macenczak s	07/31/20 13:11
1,4-Dioxane	5.88	Poor chromatography	macenczak s	07/31/20 13:11

Lab Sample ID: LCS 240-445137/4 Client Sample ID: _____

Date Analyzed: 07/31/20 13:18 Lab File ID: X21082.D GC Column: ZB-624 ID: 0.53 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane (IS)	5.81	Poor chromatography	macenczak s	07/31/20 13:39
1,4-Dioxane	5.88	Poor chromatography	macenczak s	07/31/20 13:39

Lab Sample ID: MB 240-445137/5 Client Sample ID: _____

Date Analyzed: 07/31/20 13:43 Lab File ID: X21083.D GC Column: ZB-624 ID: 0.53 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane		Invalid Compound ID	macenczak s	07/31/20 14:06

Lab Sample ID: 240-134235-C-2 MS Client Sample ID: _____

Date Analyzed: 07/31/20 17:27 Lab File ID: X21092.D GC Column: ZB-624 ID: 0.53 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane (IS)	5.80	Poor chromatography	macenczak s	08/03/20 10:38
1,4-Dioxane	5.88	Poor chromatography	macenczak s	08/03/20 10:38

GC/MS VOA MANUAL INTEGRATION SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Instrument ID: A3UX2 Analysis Batch Number: 445137

Lab Sample ID: 240-134235-C-2 MSD Client Sample ID: _____

Date Analyzed: 07/31/20 17:51 Lab File ID: X21093.D GC Column: ZB-624 ID: 0.53 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane (IS)	5.80	Poor chromatography	macenczak s	08/03/20 10:38
1,4-Dioxane	5.88	Poor chromatography	macenczak s	08/03/20 10:39

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
vm150is_00164	03/25/20	02/25/20	MEOH, Lot +221000000230446J+	5 mL	VM568718_00017	3 mL	Dioxane-d8 (IS)	3000 ug/mL
.VM568718_00017	01/31/24		restek, Lot A0145169		(Purchased Reagent)		Fluorobenzene	150 ug/mL
							Dioxane-d8 (IS)	5000 ug/mL
							Fluorobenzene	250 ug/mL
vm150is_00174	08/09/20	07/09/20	MEOH, Lot 0000230446	5 mL	VM568718_00018	3 mL	Dioxane-d8 (IS)	3000 ug/mL
.VM568718_00018	01/31/24		restek, Lot A0145169		(Purchased Reagent)		Fluorobenzene	150 ug/mL
							Dioxane-d8 (IS)	5000 ug/mL
							Fluorobenzene	250 ug/mL
vm150is_00174	08/09/20	07/09/20	MEOH, Lot 0000230446	5 mL	VM567650_00033	300 uL	1,2-Dichloroethane-d4 (Surr)	150 ug/mL
.VM567650_00033	11/30/23		Restek, Lot A0143613		(Purchased Reagent)		1,2-Dichloroethane-d4 (Surr)	2500 ug/mL
VM50IS_00080	06/16/20	12/16/19	MEOH, Lot 177891	50 mL	VM568718_00017	10 mL	1,4-Dichlorobenzene-d4	50 ug/mL
.VM568718_00017	01/31/24		restek, Lot A0145169		(Purchased Reagent)		Chlorobenzene-d5	50 ug/mL
							Fluorobenzene	50 ug/mL
							1,4-Dichlorobenzene-d4	250 ug/mL
							Chlorobenzene-d5	250 ug/mL
							Fluorobenzene	250 ug/mL
VM50IS_00084	11/21/20	05/21/20	MEOH, Lot 177891	50 mL	VM568718_00017	10 mL	1,4-Dichlorobenzene-d4	50 ug/mL
.VM568718_00017	01/31/24		restek, Lot A0145169		(Purchased Reagent)		Chlorobenzene-d5	50 ug/mL
							Fluorobenzene	50 ug/mL
							1,4-Dichlorobenzene-d4	250 ug/mL
							Chlorobenzene-d5	250 ug/mL
							Fluorobenzene	250 ug/mL
vm50is_stk_a_00006	08/06/20	02/06/20	MEOH, Lot 230446	50 mL	vm30241_00007	1 mL	1,4-Dichlorobenzene-d4	50 ug/mL
.vm30241_00007	01/31/23		restek, Lot A0134242		(Purchased Reagent)		Chlorobenzene-d5	50 ug/mL
							Fluorobenzene	50 ug/mL
							1,4-Dichlorobenzene-d4	2500 ug/mL
							Chlorobenzene-d5	2500 ug/mL
							Fluorobenzene	2500 ug/mL
vm50ss_00387	01/21/20	01/14/20	MEOH, Lot na	5 mL	vm50ss_stk_00083	5 mL	1,2-Dichloroethane-d4 (Surr)	50 ug/mL
.vm50ss_stk_00083	06/24/20	12/24/19	MEOH, Lot 0000230446	200 mL	VM567650_00032	4 mL	4-Bromofluorobenzene (Surr)	50 ug/mL
							Dibromofluoromethane (Surr)	50 ug/mL
							Toluene-d8 (Surr)	50 ug/mL
							1,2-Dichloroethane-d4 (Surr)	50 ug/mL
							4-Bromofluorobenzene (Surr)	50 ug/mL
							Dibromofluoromethane (Surr)	50 ug/mL
							Toluene-d8 (Surr)	50 ug/mL
.VM567650_00032	07/30/23		Restek, Lot A0139582		(Purchased Reagent)		1,2-Dichloroethane-d4 (Surr)	2500 ug/mL
							4-Bromofluorobenzene (Surr)	2500 ug/mL
							Dibromofluoromethane (Surr)	2500 ug/mL
							Toluene-d8 (Surr)	2500 ug/mL
vm50ss_00391	02/27/20	02/20/20	MEOH, Lot na	5 mL	vm50ss_stk_00083	5 mL	1,2-Dichloroethane-d4 (Surr)	50 ug/mL
.vm50ss_stk_00083	06/24/20	12/24/19	MEOH, Lot 0000230446	200 mL	VM567650_00032	4 mL	1,2-Dichloroethane-d4 (Surr)	50 ug/mL
.VM567650_00032	07/30/23		Restek, Lot A0139582		(Purchased Reagent)		1,2-Dichloroethane-d4 (Surr)	2500 ug/mL
vm50ss_00410	07/16/20	07/09/20	MEOH, Lot na	5 mL	vm50ss_stk_00085	5 mL	1,2-Dichloroethane-d4 (Surr)	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							4-Bromofluorobenzene (Surr)	50 ug/mL
							Dibromofluoromethane (Surr)	50 ug/mL
							Toluene-d8 (Surr)	50 ug/mL
.vm50ss_stk_00085	11/21/20	05/21/20	MEOH, Lot 0000230446	200 mL	VM567650_00032	4 mL	1,2-Dichloroethane-d4 (Surr)	50 ug/mL
							4-Bromofluorobenzene (Surr)	50 ug/mL
							Dibromofluoromethane (Surr)	50 ug/mL
							Toluene-d8 (Surr)	50 ug/mL
..VM567650_00032	07/30/23		Restek, Lot A0139582			(Purchased Reagent)	1,2-Dichloroethane-d4 (Surr)	2500 ug/mL
							4-Bromofluorobenzene (Surr)	2500 ug/mL
							Dibromofluoromethane (Surr)	2500 ug/mL
							Toluene-d8 (Surr)	2500 ug/mL
vm50ss_stk_00085	11/21/20	05/21/20	MEOH, Lot 0000230446	200 mL	VM567650_00032	4 mL	1,2-Dichloroethane-d4 (Surr)	50 ug/mL
							4-Bromofluorobenzene (Surr)	50 ug/mL
							Dibromofluoromethane (Surr)	50 ug/mL
							Toluene-d8 (Surr)	50 ug/mL
.VM567650_00032	07/30/23		Restek, Lot A0139582			(Purchased Reagent)	1,2-Dichloroethane-d4 (Surr)	2500 ug/mL
							4-Bromofluorobenzene (Surr)	2500 ug/mL
							Dibromofluoromethane (Surr)	2500 ug/mL
							Toluene-d8 (Surr)	2500 ug/mL
vmarolistdw_00352	07/16/20	07/09/20	MEOH, Lot na	5 mL	VMACROLSTD_00085	5 mL	Acrolein	250 ug/mL
.VMACROLSTD_00085	08/01/20	07/01/20	MEOH, Lot 0000230446	20 mL	VM568720_00037	0.25 mL	Acrolein	250 ug/mL
..VM568720_00037	04/30/21		restek, Lot A0154578			(Purchased Reagent)	Acrolein	20000 ug/mL
vmbfb_00024							1,2-Dichloroethene, Total	
							1,3-Dichloropropene, Total	
							Tentatively Identified Compound	
							Total BTEX	
							Trihalomethanes, Total	
							Xylenes, Total	
					vm30026_00003	1.25 mL	BFB	50 ug/mL
.vm30026_00003	08/31/23		restek, Lot A0141187			(Purchased Reagent)	BFB	2000 ug/mL
vmbfb_00025							1,2-Dichloroethene, Total	
							1,3-Dichloropropene, Total	
							Tentatively Identified Compound	
							Total BTEX	
							Trihalomethanes, Total	
							Xylenes, Total	
					vm30026_00003	1.25 mL	BFB	50 ug/mL
.vm30026_00003	08/31/23		restek, Lot A0141187			(Purchased Reagent)	BFB	2000 ug/mL
vmdiox_spike_00213	02/27/20	02/20/20	MEOH, Lot na	1 mL	VMSIMSTOSPIKE_00018	1 mL	1,4-Dioxane	50 ug/mL
.VMSIMSTOSPIKE_00018	04/13/20	01/13/20	MEOH, Lot +221000000230446J+	100 mL	VMNSIMIX2_00008	100 uL	1,4-Dioxane	50 ug/mL
..VMNSIMIX2_00008	06/30/20		NSI Soln, Inc., Lot 062019			(Purchased Reagent)	1,4-Dioxane	50000 ug/mL
vmdiox_spike_00231	08/07/20	07/31/20	MEOH, Lot na	1 mL	VMSIMSTOSPIKE_00020	1 mL	1,4-Dioxane	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134182-1

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Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.VMSIMSTOSPIKE_00020	09/24/20	06/24/20	MEOH, Lot +221000000230446J+	100 mL	VMNSIMIX2_00009	100 uL	1,4-Dioxane	50 ug/mL
..VMNSIMIX2_00009	05/31/21		NSI Soln, Inc., Lot 200527		(Purchased Reagent)		1,4-Dioxane	50000 ug/mL
vmdioxanew_00200	02/27/20	02/20/20	MEOH, Lot na	1 mL	vmdioxane_00026	1 mL	1,4-Dioxane	100 ug/mL
.vmdioxane_00026	03/24/20	12/24/19	MEOH, Lot +221000000230446J+	50 mL	VM30287_00015	2.5 mL	1,4-Dioxane	100 ug/mL
..VM30287_00015	04/30/22		Restek, Lot A0126604		(Purchased Reagent)		1,4-Dioxane	2000 ug/mL
vmdioxanew_00219	08/07/20	07/31/20	MEOH, Lot na	1 mL	vmdioxane_00028	1 mL	1,4-Dioxane	100 ug/mL
.vmdioxane_00028	09/24/20	06/24/20	MEOH, Lot +221000000230446J+	50 mL	VM30287_00016	2.5 mL	1,4-Dioxane	100 ug/mL
..VM30287_00016	08/31/24		Restek, Lot A0151797		(Purchased Reagent)		1,4-Dioxane	2000 ug/mL
VMENCORESS_00568	08/02/20	07/26/20	MEOH, Lot na	5 mL	VM567650_00034	5 mL	1,2-Dichloroethane-d4 (Surr)	2500 ug/mL
							4-Bromofluorobenzene (Surr)	2500 ug/mL
							Dibromofluoromethane (Surr)	2500 ug/mL
							Toluene-d8 (Surr)	2500 ug/mL
.VM567650_00034	07/31/23		Restek, Lot A0139582		(Purchased Reagent)		1,2-Dichloroethane-d4 (Surr)	2500 ug/mL
							4-Bromofluorobenzene (Surr)	2500 ug/mL
							Dibromofluoromethane (Surr)	2500 ug/mL
							Toluene-d8 (Surr)	2500 ug/mL
VMENCORESS_00569	08/10/20	08/03/20	MEOH, Lot na	5 mL	VM567650_00034	5 mL	1,2-Dichloroethane-d4 (Surr)	2500 ug/mL
							4-Bromofluorobenzene (Surr)	2500 ug/mL
							Dibromofluoromethane (Surr)	2500 ug/mL
							Toluene-d8 (Surr)	2500 ug/mL
.VM567650_00034	07/31/23		Restek, Lot A0139582		(Purchased Reagent)		1,2-Dichloroethane-d4 (Surr)	2500 ug/mL
							4-Bromofluorobenzene (Surr)	2500 ug/mL
							Dibromofluoromethane (Surr)	2500 ug/mL
							Toluene-d8 (Surr)	2500 ug/mL
VMNFASA_00589	08/05/20	07/29/20	MEOH, Lot NA	5 mL	VMFASA_00064	5 mL	Acrolein	250 ug/mL
.VMFASA_00064	10/09/20	07/09/20	MEOH, Lot 0000230446	100 mL	VM568720S_00036	1.25 mL	Acrolein	250 ug/mL
..VM568720S_00036	04/30/21		restek, Lot A0154553		(Purchased Reagent)		Acrolein	20000 ug/mL
VMNFASG_00632	08/01/20	07/29/20	MEOH, Lot NA	5 mL	VMFASG_00096	5 mL	Bromomethane	50 ug/mL
							Butadiene	50 ug/mL
							Chloroethane	50 ug/mL
							Chloromethane	50 ug/mL
							Dichlorodifluoromethane	50 ug/mL
							Dichlorofluoromethane	50 ug/mL
							Trichlorofluoromethane	50 ug/mL
							Vinyl chloride	50 ug/mL
.VMFASG_00096	08/01/20	07/01/20	MEOH, Lot 0000230446	100 mL	vm569722S_00007	2 mL	Bromomethane	50 ug/mL
							Butadiene	50 ug/mL
							Chloroethane	50 ug/mL
							Chloromethane	50 ug/mL
							Dichlorodifluoromethane	50 ug/mL
							Dichlorofluoromethane	50 ug/mL
							Trichlorofluoromethane	50 ug/mL
							Vinyl chloride	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..vm569722S_00007	10/31/21		Restek, Lot A0142117			(Purchased Reagent)	Bromomethane	2500 ug/mL
							Butadiene	2500 ug/mL
							Chloroethane	2500 ug/mL
							Chloromethane	2500 ug/mL
							Dichlorodifluoromethane	2500 ug/mL
							Dichlorofluoromethane	2500 ug/mL
							Trichlorofluoromethane	2500 ug/mL
Vinyl chloride	2500 ug/mL							
VMENFASG_00633	08/10/20	08/03/20	MEOH, Lot NA	5 mL	VMFASG_00097	5 mL	Bromomethane	50 ug/mL
							Butadiene	50 ug/mL
							Chloroethane	50 ug/mL
							Chloromethane	50 ug/mL
							Dichlorodifluoromethane	50 ug/mL
							Dichlorofluoromethane	50 ug/mL
							Trichlorofluoromethane	50 ug/mL
Vinyl chloride	50 ug/mL							
.VMFASG_00097	09/03/20	08/03/20	MEOH, Lot 0000230446	100 mL	vm569722S_00007	2 mL	Bromomethane	50 ug/mL
							Butadiene	50 ug/mL
							Chloroethane	50 ug/mL
							Chloromethane	50 ug/mL
							Dichlorodifluoromethane	50 ug/mL
							Dichlorofluoromethane	50 ug/mL
							Trichlorofluoromethane	50 ug/mL
Vinyl chloride	50 ug/mL							
..vm569722S_00007	10/31/21		Restek, Lot A0142117			(Purchased Reagent)	Bromomethane	2500 ug/mL
							Butadiene	2500 ug/mL
							Chloroethane	2500 ug/mL
							Chloromethane	2500 ug/mL
							Dichlorodifluoromethane	2500 ug/mL
							Dichlorofluoromethane	2500 ug/mL
							Trichlorofluoromethane	2500 ug/mL
Vinyl chloride	2500 ug/mL							
VMENFASP_00602	08/05/20	07/29/20	MEOH, Lot NA	5 mL	VMRFASP_00067	5 mL	2-Butanone (MEK)	100 ug/mL
							2-Hexanone	100 ug/mL
							4-Methyl-2-pentanone (MIBK)	100 ug/mL
							Acetone	100 ug/mL
							2-Chloroethyl vinyl ether	50 ug/mL
							Vinyl acetate	50 ug/mL
							1,1,1,2-Tetrachloroethane	50 ug/mL
							1,1,1-Trichloroethane	50 ug/mL
							1,1,2,2-Tetrachloroethane	50 ug/mL
							1,1,2-Trichloro-1,2,2-trifluor	50 ug/mL
							oethane	
							1,1,2-Trichloroethane	50 ug/mL
							1,1-Dichloroethane	50 ug/mL
							1,1-Dichloroethene	50 ug/mL
1,1-Dichloropropene	50 ug/mL							

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134182-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							1,2,3-Trichlorobenzene	50 ug/mL
							1,2,3-Trichloropropane	50 ug/mL
							1,2,4-Trichlorobenzene	50 ug/mL
							1,2,4-Trimethylbenzene	50 ug/mL
							1,2-Dibromo-3-Chloropropane	50 ug/mL
							1,2-Dichlorobenzene	50 ug/mL
							1,2-Dichloroethane	50 ug/mL
							1,2-Dichloropropane	50 ug/mL
							1,3,5-Trimethylbenzene	50 ug/mL
							1,3-Dichlorobenzene	50 ug/mL
							1,3-Dichloropropane	50 ug/mL
							1,4-Dichlorobenzene	50 ug/mL
							1,4-Dioxane	1000 ug/mL
							2,2-Dichloropropane	50 ug/mL
							2-Chlorotoluene	50 ug/mL
							2-Methyl-2-propanol	500 ug/mL
							3-Chloro-1-propene	50 ug/mL
							4-Chlorotoluene	50 ug/mL
							4-Isopropyltoluene	50 ug/mL
							Acrylonitrile	500 ug/mL
							Benzene	50 ug/mL
							Bromobenzene	50 ug/mL
							Bromoform	50 ug/mL
							Carbon disulfide	50 ug/mL
							Carbon tetrachloride	50 ug/mL
							Chlorobenzene	50 ug/mL
							Chlorobromomethane	50 ug/mL
							Chlorodibromomethane	50 ug/mL
							Chloroform	50 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							cis-1,3-Dichloropropene	50 ug/mL
							Cyclohexane	50 ug/mL
							Dibromomethane	50 ug/mL
							Dichlorobromomethane	50 ug/mL
							Ethyl ether	50 ug/mL
							Ethyl methacrylate	50 ug/mL
							Ethylbenzene	50 ug/mL
							Ethylene Dibromide	50 ug/mL
							Hexachlorobutadiene	50 ug/mL
							Hexane	50 ug/mL
							Iodomethane	50 ug/mL
							Isobutyl alcohol	1250 ug/mL
							Isopropylbenzene	50 ug/mL
							m-Xylene & p-Xylene	50 ug/mL
							Methyl acetate	100 ug/mL
							Methyl tert-butyl ether	50 ug/mL
							Methylcyclohexane	50 ug/mL
							Methylene Chloride	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134182-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							n-Butylbenzene	50 ug/mL
							n-Heptane	50 ug/mL
							N-Propylbenzene	50 ug/mL
							Naphthalene	50 ug/mL
							o-Xylene	50 ug/mL
							sec-Butylbenzene	50 ug/mL
							Styrene	50 ug/mL
							tert-Butylbenzene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							Tetrahydrofuran	100 ug/mL
							Toluene	50 ug/mL
							Total BTEX	250 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							trans-1,3-Dichloropropene	50 ug/mL
							trans-1,4-Dichloro-2-butene	50 ug/mL
							Trichloroethene	50 ug/mL
							Trihalomethanes, Total	200 ug/mL
							Xylenes, Total	100 ug/mL
.VMRFASP_00067	09/18/20	06/18/20	MEOH, Lot 0000230446	100 mL	VM569721S_00005	0.8 mL	2-Butanone (MEK)	100 ug/mL
							2-Hexanone	100 ug/mL
							4-Methyl-2-pentanone (MIBK)	100 ug/mL
							Acetone	100 ug/mL
					VM569723S_00008	2 mL	2-Chloroethyl vinyl ether	50 ug/mL
					VM569724S_00029	1 mL	Vinyl acetate	50 ug/mL
					VM571992S_00006	2 mL	1,1,1,2-Tetrachloroethane	50 ug/mL
							1,1,1-Trichloroethane	50 ug/mL
							1,1,2,2-Tetrachloroethane	50 ug/mL
							1,1,2-Trichloro-1,2,2-trifluoroethane	50 ug/mL
							1,1,2-Trichloroethane	50 ug/mL
							1,1-Dichloroethane	50 ug/mL
							1,1-Dichloroethene	50 ug/mL
							1,1-Dichloropropene	50 ug/mL
							1,2,3-Trichlorobenzene	50 ug/mL
							1,2,3-Trichloropropane	50 ug/mL
							1,2,4-Trichlorobenzene	50 ug/mL
							1,2,4-Trimethylbenzene	50 ug/mL
							1,2-Dibromo-3-Chloropropane	50 ug/mL
							1,2-Dichlorobenzene	50 ug/mL
							1,2-Dichloroethane	50 ug/mL
							1,2-Dichloropropane	50 ug/mL
							1,3,5-Trimethylbenzene	50 ug/mL
							1,3-Dichlorobenzene	50 ug/mL
							1,3-Dichloropropane	50 ug/mL
							1,4-Dichlorobenzene	50 ug/mL
							1,4-Dioxane	1000 ug/mL
							2,2-Dichloropropane	50 ug/mL
							2-Chlorotoluene	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134182-1

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Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							2-Methyl-2-propanol	500 ug/mL
							3-Chloro-1-propene	50 ug/mL
							4-Chlorotoluene	50 ug/mL
							4-Isopropyltoluene	50 ug/mL
							Acrylonitrile	500 ug/mL
							Benzene	50 ug/mL
							Bromobenzene	50 ug/mL
							Bromoform	50 ug/mL
							Carbon disulfide	50 ug/mL
							Carbon tetrachloride	50 ug/mL
							Chlorobenzene	50 ug/mL
							Chlorobromomethane	50 ug/mL
							Chlorodibromomethane	50 ug/mL
							Chloroform	50 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							cis-1,3-Dichloropropene	50 ug/mL
							Cyclohexane	50 ug/mL
							Dibromomethane	50 ug/mL
							Dichlorobromomethane	50 ug/mL
							Ethyl ether	50 ug/mL
							Ethyl methacrylate	50 ug/mL
							Ethylbenzene	50 ug/mL
							Ethylene Dibromide	50 ug/mL
							Hexachlorobutadiene	50 ug/mL
							Hexane	50 ug/mL
							Iodomethane	50 ug/mL
							Isobutyl alcohol	1250 ug/mL
							Isopropylbenzene	50 ug/mL
							m-Xylene & p-Xylene	50 ug/mL
							Methyl acetate	100 ug/mL
							Methyl tert-butyl ether	50 ug/mL
							Methylcyclohexane	50 ug/mL
							Methylene Chloride	50 ug/mL
							n-Butylbenzene	50 ug/mL
							n-Heptane	50 ug/mL
							N-Propylbenzene	50 ug/mL
							Naphthalene	50 ug/mL
							o-Xylene	50 ug/mL
							sec-Butylbenzene	50 ug/mL
							Styrene	50 ug/mL
							tert-Butylbenzene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							Tetrahydrofuran	100 ug/mL
							Toluene	50 ug/mL
							Total BTEX	250 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							trans-1,3-Dichloropropene	50 ug/mL
							trans-1,4-Dichloro-2-butene	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134182-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Trichloroethene	50 ug/mL
							Trihalomethanes, Total	200 ug/mL
							Xylenes, Total	100 ug/mL
..VM569721S_00005	12/31/20		Restek, Lot A0133078		(Purchased Reagent)		2-Butanone (MEK)	12500 ug/mL
							2-Hexanone	12500 ug/mL
							4-Methyl-2-pentanone (MIBK)	12500 ug/mL
							Acetone	12500 ug/mL
..VM569723S_00008	11/30/21		Restek, Lot A0143264		(Purchased Reagent)		2-Chloroethyl vinyl ether	2500 ug/mL
..VM569724S_00029	09/30/21		Restek, Lot A0158728		(Purchased Reagent)		Vinyl acetate	5000 ug/mL
..VM571992S_00006	06/30/21		Restek, Lot A0144202		(Purchased Reagent)		1,1,1,2-Tetrachloroethane	2500 ug/mL
							1,1,1-Trichloroethane	2500 ug/mL
							1,1,2,2-Tetrachloroethane	2500 ug/mL
							1,1,2-Trichloro-1,2,2-trifluoroethane	2500 ug/mL
							1,1,2-Trichloroethane	2500 ug/mL
							1,1-Dichloroethane	2500 ug/mL
							1,1-Dichloroethene	2500 ug/mL
							1,1-Dichloropropene	2500 ug/mL
							1,2,3-Trichlorobenzene	2500 ug/mL
							1,2,3-Trichloropropane	2500 ug/mL
							1,2,4-Trichlorobenzene	2500 ug/mL
							1,2,4-Trimethylbenzene	2500 ug/mL
							1,2-Dibromo-3-Chloropropane	2500 ug/mL
							1,2-Dichlorobenzene	2500 ug/mL
							1,2-Dichloroethane	2500 ug/mL
							1,2-Dichloropropane	2500 ug/mL
							1,3,5-Trimethylbenzene	2500 ug/mL
							1,3-Dichlorobenzene	2500 ug/mL
							1,3-Dichloropropane	2500 ug/mL
							1,4-Dichlorobenzene	2500 ug/mL
							1,4-Dioxane	50000 ug/mL
							2,2-Dichloropropane	2500 ug/mL
							2-Chlorotoluene	2500 ug/mL
							2-Methyl-2-propanol	25000 ug/mL
							3-Chloro-1-propene	2500 ug/mL
							4-Chlorotoluene	2500 ug/mL
							4-Isopropyltoluene	2500 ug/mL
							Acrylonitrile	25000 ug/mL
							Benzene	2500 ug/mL
							Bromobenzene	2500 ug/mL
							Bromoform	2500 ug/mL
							Carbon disulfide	2500 ug/mL
							Carbon tetrachloride	2500 ug/mL
							Chlorobenzene	2500 ug/mL
							Chlorobromomethane	2500 ug/mL
							Chlorodibromomethane	2500 ug/mL
							Chloroform	2500 ug/mL
							cis-1,2-Dichloroethene	2500 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134182-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							cis-1,3-Dichloropropene	2500 ug/mL
							Cyclohexane	2500 ug/mL
							Dibromomethane	2500 ug/mL
							Dichlorobromomethane	2500 ug/mL
							Ethyl ether	2500 ug/mL
							Ethyl methacrylate	2500 ug/mL
							Ethylbenzene	2500 ug/mL
							Ethylene Dibromide	2500 ug/mL
							Hexachlorobutadiene	2500 ug/mL
							Hexane	2500 ug/mL
							Iodomethane	2500 ug/mL
							Isobutyl alcohol	62500 ug/mL
							Isopropylbenzene	2500 ug/mL
							m-Xylene & p-Xylene	2500 ug/mL
							Methyl acetate	5000 ug/mL
							Methyl tert-butyl ether	2500 ug/mL
							Methylcyclohexane	2500 ug/mL
							Methylene Chloride	2500 ug/mL
							n-Butylbenzene	2500 ug/mL
							n-Heptane	2500 ug/mL
							N-Propylbenzene	2500 ug/mL
							Naphthalene	2500 ug/mL
							o-Xylene	2500 ug/mL
							sec-Butylbenzene	2500 ug/mL
							Styrene	2500 ug/mL
							tert-Butylbenzene	2500 ug/mL
							Tetrachloroethene	2500 ug/mL
							Tetrahydrofuran	5000 ug/mL
							Toluene	2500 ug/mL
							Total BTEX	12500 ug/mL
							trans-1,2-Dichloroethene	2500 ug/mL
							trans-1,3-Dichloropropene	2500 ug/mL
							trans-1,4-Dichloro-2-butene	2500 ug/mL
							Trichloroethene	2500 ug/mL
							Trihalomethanes, Total	10000 ug/mL
							Xylenes, Total	5000 ug/mL
VMFASAW_00312	01/21/20	01/14/20	MEOH, Lot NA	5 mL	VMFASA_00058	5 mL	Acrolein	250 ug/mL
.VMFASA_00058	01/31/20	11/01/19	MEOH, Lot 0000230446	100 mL	VM568720S_00035	1.25 mL	Acrolein	250 ug/mL
..VM568720S_00035	01/31/20		restek, Lot A0150981		(Purchased Reagent)		Acrolein	2000 ug/mL
VMFASGW_00343	01/22/20	01/15/20	MEOH, Lot NA	5 mL	VMFASG_00090	5 mL	Vinyl chloride	50 ug/mL
.VMFASG_00090	01/30/20	12/30/19	MEOH, Lot 0000230446	100 mL	vm569722S_00006	2 mL	Vinyl chloride	50 ug/mL
..vm569722S_00006	12/31/20		Restek, Lot A0133344		(Purchased Reagent)		Vinyl chloride	2500 ug/mL
VMFASGW_00367	07/16/20	07/09/20	MEOH, Lot NA	5 mL	VMFASG_00096	5 mL	Vinyl chloride	50 ug/mL
.VMFASG_00096	08/01/20	07/01/20	MEOH, Lot 0000230446	100 mL	vm569722S_00007	2 mL	Vinyl chloride	50 ug/mL
..vm569722S_00007	10/31/21		Restek, Lot A0142117		(Purchased Reagent)		Vinyl chloride	2500 ug/mL
VMFASGW_00370	08/10/20	08/03/20	MEOH, Lot NA	5 mL	VMFASG_00097	5 mL	Vinyl chloride	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134182-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.VMFASG_00097	09/03/20	08/03/20	MEOH, Lot 0000230446	100 mL	vm569722S_00007	2 mL	Vinyl chloride	50 ug/mL
..vm569722S_00007	10/31/21		Restek, Lot A0142117		(Purchased Reagent)		Vinyl chloride	2500 ug/mL
VMFASPW_00334	01/21/20	01/14/20	MEOH, Lot n/a	5 mL	VMRFASP_00063	5 mL	1,1-Dichloroethene	50 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							Trichloroethene	50 ug/mL
.VMRFASP_00063	01/31/20	01/06/20	MEOH, Lot 0000230446	50 mL	VM571992S_00005	1 mL	1,1-Dichloroethene	50 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							Trichloroethene	50 ug/mL
..VM571992S_00005	06/30/21		Restek, Lot A0144202		(Purchased Reagent)		1,1-Dichloroethene	2500 ug/mL
							cis-1,2-Dichloroethene	2500 ug/mL
							Tetrachloroethene	2500 ug/mL
							trans-1,2-Dichloroethene	2500 ug/mL
							Trichloroethene	2500 ug/mL
VMFASPW_00358	07/20/20	07/13/20	MEOH, Lot n/a	5 mL	VMRFASP_00067	5 mL	1,1-Dichloroethene	50 ug/mL
							1,4-Dioxane	1000 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							Trichloroethene	50 ug/mL
.VMRFASP_00067	09/18/20	06/18/20	MEOH, Lot 0000230446	100 mL	VM571992S_00006	2 mL	1,1-Dichloroethene	50 ug/mL
							1,4-Dioxane	1000 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							Trichloroethene	50 ug/mL
..VM571992S_00006	06/30/21		Restek, Lot A0144202		(Purchased Reagent)		1,1-Dichloroethene	2500 ug/mL
							1,4-Dioxane	5000 ug/mL
							cis-1,2-Dichloroethene	2500 ug/mL
							Tetrachloroethene	2500 ug/mL
							trans-1,2-Dichloroethene	2500 ug/mL
							Trichloroethene	2500 ug/mL
VMFASPW_00360	08/05/20	07/29/20	MEOH, Lot n/a	5 mL	VMRFASP_00067	5 mL	1,1-Dichloroethene	50 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							Trichloroethene	50 ug/mL
.VMRFASP_00067	09/18/20	06/18/20	MEOH, Lot 0000230446	100 mL	VM571992S_00006	2 mL	1,1-Dichloroethene	50 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							Trichloroethene	50 ug/mL
..VM571992S_00006	06/30/21		Restek, Lot A0144202		(Purchased Reagent)		1,1-Dichloroethene	2500 ug/mL
							cis-1,2-Dichloroethene	2500 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Tetrachloroethene	2500 ug/mL
							trans-1,2-Dichloroethene	2500 ug/mL
							Trichloroethene	2500 ug/mL
VMRGAS_00323	01/21/20	01/14/20	MEOH, Lot 0000230446	10 mL	vm569722_00013	0.2 mL	Bromomethane	50 ug/mL
							Butadiene	50 ug/mL
							Chloroethane	50 ug/mL
							Chloromethane	50 ug/mL
							Dichlorodifluoromethane	50 ug/mL
							Dichlorofluoromethane	50 ug/mL
							Trichlorofluoromethane	50 ug/mL
							Vinyl chloride	50 ug/mL
.vm569722_00013	11/30/21		Restek, Lot A0143158			(Purchased Reagent)	Bromomethane	2500 ug/mL
							Butadiene	2500 ug/mL
							Chloroethane	2500 ug/mL
							Chloromethane	2500 ug/mL
							Dichlorodifluoromethane	2500 ug/mL
							Dichlorofluoromethane	2500 ug/mL
							Trichlorofluoromethane	2500 ug/mL
							Vinyl chloride	2500 ug/mL
VMRGAS_00347	07/22/20	07/15/20	MEOH, Lot 0000230446	10 mL	vm569722_00015	0.2 mL	Bromomethane	50 ug/mL
							Butadiene	50 ug/mL
							Chloroethane	50 ug/mL
							Chloromethane	50 ug/mL
							Dichlorodifluoromethane	50 ug/mL
							Dichlorofluoromethane	50 ug/mL
							Trichlorofluoromethane	50 ug/mL
							Vinyl chloride	50 ug/mL
.vm569722_00015	11/30/22		Restek, Lot A0154679			(Purchased Reagent)	Bromomethane	2500 ug/mL
							Butadiene	2500 ug/mL
							Chloroethane	2500 ug/mL
							Chloromethane	2500 ug/mL
							Dichlorodifluoromethane	2500 ug/mL
							Dichlorofluoromethane	2500 ug/mL
							Trichlorofluoromethane	2500 ug/mL
							Vinyl chloride	2500 ug/mL
VMRGAS_00349	08/07/20	07/31/20	MEOH, Lot 0000230446	10 mL	vm569722_00015	0.2 mL	Vinyl chloride	50 ug/mL
.vm569722_00015	11/30/22		Restek, Lot A0154679			(Purchased Reagent)	Vinyl chloride	2500 ug/mL
VMRPRIMW_00369	01/21/20	01/14/20	MEOH, Lot NA	5 mL	VMRPRIM_00042	5 mL	2-Butanone (MEK)	100 ug/mL
							2-Hexanone	100 ug/mL
							4-Methyl-2-pentanone (MIBK)	100 ug/mL
							Acetone	100 ug/mL
							2-Chloroethyl vinyl ether	100 ug/mL
							Vinyl acetate	50 ug/mL
							1,1,1,2-Tetrachloroethane	50 ug/mL
							1,1,1-Trichloroethane	50 ug/mL
							1,1,2,2-Tetrachloroethane	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134182-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							1,1,2-Trichloro-1,2,2-trifluoroethane	50 ug/mL
							1,1,2-Trichloroethane	50 ug/mL
							1,1-Dichloroethane	50 ug/mL
							1,1-Dichloroethene	50 ug/mL
							1,1-Dichloropropene	50 ug/mL
							1,2,3-Trichlorobenzene	50 ug/mL
							1,2,3-Trichloropropane	50 ug/mL
							1,2,4-Trichlorobenzene	50 ug/mL
							1,2,4-Trimethylbenzene	50 ug/mL
							1,2-Dibromo-3-Chloropropane	50 ug/mL
							1,2-Dichlorobenzene	50 ug/mL
							1,2-Dichloroethane	50 ug/mL
							1,2-Dichloropropane	50 ug/mL
							1,3,5-Trimethylbenzene	50 ug/mL
							1,3-Dichlorobenzene	50 ug/mL
							1,3-Dichloropropane	50 ug/mL
							1,4-Dichlorobenzene	50 ug/mL
							1,4-Dioxane	1000 ug/mL
							2,2-Dichloropropane	50 ug/mL
							2-Chlorotoluene	50 ug/mL
							2-Methyl-2-propanol	500 ug/mL
							3-Chloro-1-propene	50 ug/mL
							4-Chlorotoluene	50 ug/mL
							4-Isopropyltoluene	50 ug/mL
							Acrylonitrile	500 ug/mL
							Benzene	50 ug/mL
							Bromobenzene	50 ug/mL
							Bromoform	50 ug/mL
							Carbon disulfide	50 ug/mL
							Carbon tetrachloride	50 ug/mL
							Chlorobenzene	50 ug/mL
							Chlorobromomethane	50 ug/mL
							Chlorodibromomethane	50 ug/mL
							Chloroform	50 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							cis-1,3-Dichloropropane	50 ug/mL
							Cyclohexane	50 ug/mL
							Dibromomethane	50 ug/mL
							Dichlorobromomethane	50 ug/mL
							Ethyl ether	50 ug/mL
							Ethyl methacrylate	50 ug/mL
							Ethylbenzene	50 ug/mL
							Ethylene Dibromide	50 ug/mL
							Hexachlorobutadiene	50 ug/mL
							Hexane	50 ug/mL
							Iodomethane	50 ug/mL
							Isobutyl alcohol	1250 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134182-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Isopropylbenzene	50 ug/mL
							m-Xylene & p-Xylene	50 ug/mL
							Methyl acetate	100 ug/mL
							Methyl tert-butyl ether	50 ug/mL
							Methylcyclohexane	50 ug/mL
							Methylene Chloride	50 ug/mL
							n-Butylbenzene	50 ug/mL
							n-Heptane	50 ug/mL
							N-Propylbenzene	50 ug/mL
							Naphthalene	50 ug/mL
							o-Xylene	50 ug/mL
							sec-Butylbenzene	50 ug/mL
							Styrene	50 ug/mL
							tert-Butylbenzene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							Tetrahydrofuran	100 ug/mL
							Toluene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							trans-1,3-Dichloropropene	50 ug/mL
							trans-1,4-Dichloro-2-butene	50 ug/mL
							Trichloroethene	50 ug/mL
.VMRPRIM_00042	01/31/20	12/12/19	MEOH, Lot 0000230446	50 mL	VM569721_00006	0.4 mL	2-Butanone (MEK)	100 ug/mL
							2-Hexanone	100 ug/mL
							4-Methyl-2-pentanone (MIBK)	100 ug/mL
							Acetone	100 ug/mL
					VM569723_00008	2 mL	2-Chloroethyl vinyl ether	100 ug/mL
					VM569724_00021	0.5 mL	Vinyl acetate	50 ug/mL
					VM571992_00003	1 mL	1,1,1,2-Tetrachloroethane	50 ug/mL
							1,1,1-Trichloroethane	50 ug/mL
							1,1,2,2-Tetrachloroethane	50 ug/mL
							1,1,2-Trichloro-1,2,2-trifluoroethane	50 ug/mL
							1,1,2-Trichloroethane	50 ug/mL
							1,1-Dichloroethane	50 ug/mL
							1,1-Dichloroethene	50 ug/mL
							1,1-Dichloropropene	50 ug/mL
							1,2,3-Trichlorobenzene	50 ug/mL
							1,2,3-Trichloropropane	50 ug/mL
							1,2,4-Trichlorobenzene	50 ug/mL
							1,2,4-Trimethylbenzene	50 ug/mL
							1,2-Dibromo-3-Chloropropane	50 ug/mL
							1,2-Dichlorobenzene	50 ug/mL
							1,2-Dichloroethane	50 ug/mL
							1,2-Dichloropropane	50 ug/mL
							1,3,5-Trimethylbenzene	50 ug/mL
							1,3-Dichlorobenzene	50 ug/mL
							1,3-Dichloropropane	50 ug/mL
							1,4-Dichlorobenzene	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134182-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							1,4-Dioxane	1000 ug/mL
							2,2-Dichloropropane	50 ug/mL
							2-Chlorotoluene	50 ug/mL
							2-Methyl-2-propanol	500 ug/mL
							3-Chloro-1-propene	50 ug/mL
							4-Chlorotoluene	50 ug/mL
							4-Isopropyltoluene	50 ug/mL
							Acrylonitrile	500 ug/mL
							Benzene	50 ug/mL
							Bromobenzene	50 ug/mL
							Bromoform	50 ug/mL
							Carbon disulfide	50 ug/mL
							Carbon tetrachloride	50 ug/mL
							Chlorobenzene	50 ug/mL
							Chlorobromomethane	50 ug/mL
							Chlorodibromomethane	50 ug/mL
							Chloroform	50 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							cis-1,3-Dichloropropene	50 ug/mL
							Cyclohexane	50 ug/mL
							Dibromomethane	50 ug/mL
							Dichlorobromomethane	50 ug/mL
							Ethyl ether	50 ug/mL
							Ethyl methacrylate	50 ug/mL
							Ethylbenzene	50 ug/mL
							Ethylene Dibromide	50 ug/mL
							Hexachlorobutadiene	50 ug/mL
							Hexane	50 ug/mL
							Iodomethane	50 ug/mL
							Isobutyl alcohol	1250 ug/mL
							Isopropylbenzene	50 ug/mL
							m-Xylene & p-Xylene	50 ug/mL
							Methyl acetate	100 ug/mL
							Methyl tert-butyl ether	50 ug/mL
							Methylcyclohexane	50 ug/mL
							Methylene Chloride	50 ug/mL
							n-Butylbenzene	50 ug/mL
							n-Heptane	50 ug/mL
							N-Propylbenzene	50 ug/mL
							Naphthalene	50 ug/mL
							o-Xylene	50 ug/mL
							sec-Butylbenzene	50 ug/mL
							Styrene	50 ug/mL
							tert-Butylbenzene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							Tetrahydrofuran	100 ug/mL
							Toluene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134182-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							trans-1,3-Dichloropropene	50 ug/mL
							trans-1,4-Dichloro-2-butene	50 ug/mL
							Trichloroethene	50 ug/mL
..VM569721_00006	04/30/21		Restek, Lot A0137509		(Purchased Reagent)		2-Butanone (MEK)	12500 ug/mL
							2-Hexanone	12500 ug/mL
							4-Methyl-2-pentanone (MIBK)	12500 ug/mL
							Acetone	12500 ug/mL
..VM569723_00008	02/28/22		restek, Lot A0146250		(Purchased Reagent)		2-Chloroethyl vinyl ether	2500 ug/mL
..VM569724_00021	01/31/20		Restek, Lot A0150515		(Purchased Reagent)		Vinyl acetate	5000 ug/mL
..VM571992_00003	06/30/21		Restek, Lot A0143774		(Purchased Reagent)		1,1,1,2-Tetrachloroethane	2500 ug/mL
							1,1,1-Trichloroethane	2500 ug/mL
							1,1,2,2-Tetrachloroethane	2500 ug/mL
							1,1,2-Trichloro-1,2,2-trifluoroethane	2500 ug/mL
							1,1,2-Trichloroethane	2500 ug/mL
							1,1-Dichloroethane	2500 ug/mL
							1,1-Dichloroethene	2500 ug/mL
							1,1-Dichloropropene	2500 ug/mL
							1,2,3-Trichlorobenzene	2500 ug/mL
							1,2,3-Trichloropropane	2500 ug/mL
							1,2,4-Trichlorobenzene	2500 ug/mL
							1,2,4-Trimethylbenzene	2500 ug/mL
							1,2-Dibromo-3-Chloropropane	2500 ug/mL
							1,2-Dichlorobenzene	2500 ug/mL
							1,2-Dichloroethane	2500 ug/mL
							1,2-Dichloropropane	2500 ug/mL
							1,3,5-Trimethylbenzene	2500 ug/mL
							1,3-Dichlorobenzene	2500 ug/mL
							1,3-Dichloropropane	2500 ug/mL
							1,4-Dichlorobenzene	2500 ug/mL
							1,4-Dioxane	50000 ug/mL
							2,2-Dichloropropane	2500 ug/mL
							2-Chlorotoluene	2500 ug/mL
							2-Methyl-2-propanol	25000 ug/mL
							3-Chloro-1-propene	2500 ug/mL
							4-Chlorotoluene	2500 ug/mL
							4-Isopropyltoluene	2500 ug/mL
							Acrylonitrile	25000 ug/mL
							Benzene	2500 ug/mL
							Bromobenzene	2500 ug/mL
							Bromoform	2500 ug/mL
							Carbon disulfide	2500 ug/mL
							Carbon tetrachloride	2500 ug/mL
							Chlorobenzene	2500 ug/mL
							Chlorobromomethane	2500 ug/mL
							Chlorodibromomethane	2500 ug/mL
							Chloroform	2500 ug/mL
							cis-1,2-Dichloroethene	2500 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134182-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							cis-1,3-Dichloropropene	2500 ug/mL
							Cyclohexane	2500 ug/mL
							Dibromomethane	2500 ug/mL
							Dichlorobromomethane	2500 ug/mL
							Ethyl ether	2500 ug/mL
							Ethyl methacrylate	2500 ug/mL
							Ethylbenzene	2500 ug/mL
							Ethylene Dibromide	2500 ug/mL
							Hexachlorobutadiene	2500 ug/mL
							Hexane	2500 ug/mL
							Iodomethane	2500 ug/mL
							Isobutyl alcohol	62500 ug/mL
							Isopropylbenzene	2500 ug/mL
							m-Xylene & p-Xylene	2500 ug/mL
							Methyl acetate	5000 ug/mL
							Methyl tert-butyl ether	2500 ug/mL
							Methylcyclohexane	2500 ug/mL
							Methylene Chloride	2500 ug/mL
							n-Butylbenzene	2500 ug/mL
							n-Heptane	2500 ug/mL
							N-Propylbenzene	2500 ug/mL
							Naphthalene	2500 ug/mL
							o-Xylene	2500 ug/mL
							sec-Butylbenzene	2500 ug/mL
							Styrene	2500 ug/mL
							tert-Butylbenzene	2500 ug/mL
							Tetrachloroethene	2500 ug/mL
							Tetrahydrofuran	5000 ug/mL
							Toluene	2500 ug/mL
							trans-1,2-Dichloroethene	2500 ug/mL
							trans-1,3-Dichloropropene	2500 ug/mL
							trans-1,4-Dichloro-2-butene	2500 ug/mL
							Trichloroethene	2500 ug/mL
vmrprimw_00394	07/23/20	07/16/20	MEOH, Lot NA	5 mL	VMRPRIM_00045	5 mL	2-Butanone (MEK)	100 ug/mL
							2-Hexanone	100 ug/mL
							4-Methyl-2-pentanone (MIBK)	100 ug/mL
							Acetone	100 ug/mL
							2-Chloroethyl vinyl ether	100 ug/mL
							Vinyl acetate	50 ug/mL
							1,1,1,2-Tetrachloroethane	50 ug/mL
							1,1,1-Trichloroethane	50 ug/mL
							1,1,2,2-Tetrachloroethane	50 ug/mL
							1,1,2-Trichloro-1,2,2-trifluoroethane	50 ug/mL
							1,1,2-Trichloroethane	50 ug/mL
							1,1-Dichloroethane	50 ug/mL
							1,1-Dichloroethene	50 ug/mL
							1,1-Dichloropropene	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134182-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							1,2,3-Trichlorobenzene	50 ug/mL
							1,2,3-Trichloropropane	50 ug/mL
							1,2,4-Trichlorobenzene	50 ug/mL
							1,2,4-Trimethylbenzene	50 ug/mL
							1,2-Dibromo-3-Chloropropane	50 ug/mL
							1,2-Dichlorobenzene	50 ug/mL
							1,2-Dichloroethane	50 ug/mL
							1,2-Dichloropropane	50 ug/mL
							1,3,5-Trimethylbenzene	50 ug/mL
							1,3-Dichlorobenzene	50 ug/mL
							1,3-Dichloropropane	50 ug/mL
							1,4-Dichlorobenzene	50 ug/mL
							1,4-Dioxane	1000 ug/mL
							2,2-Dichloropropane	50 ug/mL
							2-Chlorotoluene	50 ug/mL
							2-Methyl-2-propanol	500 ug/mL
							3-Chloro-1-propene	50 ug/mL
							4-Chlorotoluene	50 ug/mL
							4-Isopropyltoluene	50 ug/mL
							Acrylonitrile	500 ug/mL
							Benzene	50 ug/mL
							Bromobenzene	50 ug/mL
							Bromoform	50 ug/mL
							Carbon disulfide	50 ug/mL
							Carbon tetrachloride	50 ug/mL
							Chlorobenzene	50 ug/mL
							Chlorobromomethane	50 ug/mL
							Chlorodibromomethane	50 ug/mL
							Chloroform	50 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							cis-1,3-Dichloropropene	50 ug/mL
							Cyclohexane	50 ug/mL
							Dibromomethane	50 ug/mL
							Dichlorobromomethane	50 ug/mL
							Ethyl ether	50 ug/mL
							Ethyl methacrylate	50 ug/mL
							Ethylbenzene	50 ug/mL
							Ethylene Dibromide	50 ug/mL
							Hexachlorobutadiene	50 ug/mL
							Hexane	50 ug/mL
							Iodomethane	50 ug/mL
							Isobutyl alcohol	1250 ug/mL
							Isopropylbenzene	50 ug/mL
							m-Xylene & p-Xylene	50 ug/mL
							Methyl acetate	100 ug/mL
							Methyl tert-butyl ether	50 ug/mL
							Methylcyclohexane	50 ug/mL
							Methylene Chloride	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134182-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							n-Butylbenzene	50 ug/mL
							n-Heptane	50 ug/mL
							N-Propylbenzene	50 ug/mL
							Naphthalene	50 ug/mL
							o-Xylene	50 ug/mL
							sec-Butylbenzene	50 ug/mL
							Styrene	50 ug/mL
							tert-Butylbenzene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							Tetrahydrofuran	100 ug/mL
							Toluene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							trans-1,3-Dichloropropene	50 ug/mL
							trans-1,4-Dichloro-2-butene	50 ug/mL
							Trichloroethene	50 ug/mL
.VMRPRIM_00045	08/01/20	05/01/20	MEOH, Lot 0000230446	50 mL	VM569721_00006	0.4 mL	2-Butanone (MEK)	100 ug/mL
							2-Hexanone	100 ug/mL
							4-Methyl-2-pentanone (MIBK)	100 ug/mL
							Acetone	100 ug/mL
					VM569723_00008	2 mL	2-Chloroethyl vinyl ether	100 ug/mL
					VM569724_00024	0.5 mL	Vinyl acetate	50 ug/mL
					VM571992_00003	1 mL	1,1,1,2-Tetrachloroethane	50 ug/mL
							1,1,1-Trichloroethane	50 ug/mL
							1,1,2,2-Tetrachloroethane	50 ug/mL
							1,1,2-Trichloro-1,2,2-trifluoroethane	50 ug/mL
							1,1,2-Trichloroethane	50 ug/mL
							1,1-Dichloroethane	50 ug/mL
							1,1-Dichloroethene	50 ug/mL
							1,1-Dichloropropene	50 ug/mL
							1,2,3-Trichlorobenzene	50 ug/mL
							1,2,3-Trichloropropane	50 ug/mL
							1,2,4-Trichlorobenzene	50 ug/mL
							1,2,4-Trimethylbenzene	50 ug/mL
							1,2-Dibromo-3-Chloropropane	50 ug/mL
							1,2-Dichlorobenzene	50 ug/mL
							1,2-Dichloroethane	50 ug/mL
							1,2-Dichloropropane	50 ug/mL
							1,3,5-Trimethylbenzene	50 ug/mL
							1,3-Dichlorobenzene	50 ug/mL
							1,3-Dichloropropane	50 ug/mL
							1,4-Dichlorobenzene	50 ug/mL
							1,4-Dioxane	1000 ug/mL
							2,2-Dichloropropane	50 ug/mL
							2-Chlorotoluene	50 ug/mL
							2-Methyl-2-propanol	500 ug/mL
							3-Chloro-1-propene	50 ug/mL
							4-Chlorotoluene	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134182-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							4-Isopropyltoluene	50 ug/mL
							Acrylonitrile	500 ug/mL
							Benzene	50 ug/mL
							Bromobenzene	50 ug/mL
							Bromoform	50 ug/mL
							Carbon disulfide	50 ug/mL
							Carbon tetrachloride	50 ug/mL
							Chlorobenzene	50 ug/mL
							Chlorobromomethane	50 ug/mL
							Chlorodibromomethane	50 ug/mL
							Chloroform	50 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							cis-1,3-Dichloropropene	50 ug/mL
							Cyclohexane	50 ug/mL
							Dibromomethane	50 ug/mL
							Dichlorobromomethane	50 ug/mL
							Ethyl ether	50 ug/mL
							Ethyl methacrylate	50 ug/mL
							Ethylbenzene	50 ug/mL
							Ethylene Dibromide	50 ug/mL
							Hexachlorobutadiene	50 ug/mL
							Hexane	50 ug/mL
							Iodomethane	50 ug/mL
							Isobutyl alcohol	1250 ug/mL
							Isopropylbenzene	50 ug/mL
							m-Xylene & p-Xylene	50 ug/mL
							Methyl acetate	100 ug/mL
							Methyl tert-butyl ether	50 ug/mL
							Methylcyclohexane	50 ug/mL
							Methylene Chloride	50 ug/mL
							n-Butylbenzene	50 ug/mL
							n-Heptane	50 ug/mL
							N-Propylbenzene	50 ug/mL
							Naphthalene	50 ug/mL
							o-Xylene	50 ug/mL
							sec-Butylbenzene	50 ug/mL
							Styrene	50 ug/mL
							tert-Butylbenzene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							Tetrahydrofuran	100 ug/mL
Toluene	50 ug/mL							
trans-1,2-Dichloroethene	50 ug/mL							
trans-1,3-Dichloropropene	50 ug/mL							
trans-1,4-Dichloro-2-butene	50 ug/mL							
Trichloroethene	50 ug/mL							
..VM569721_00006	04/30/21		Restek, Lot A0137509			(Purchased Reagent)	2-Butanone (MEK)	12500 ug/mL
							2-Hexanone	12500 ug/mL
							4-Methyl-2-pentanone (MIBK)	12500 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134182-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..VM569723_00008	02/28/22		restek, Lot A0146250			(Purchased Reagent)	Acetone	12500 ug/mL
..VM569724_00024	07/31/21		Restek, Lot A0156559			(Purchased Reagent)	2-Chloroethyl vinyl ether	2500 ug/mL
..VM571992_00003	06/30/21		Restek, Lot A0143774			(Purchased Reagent)	Vinyl acetate	5000 ug/mL
							1,1,1,2-Tetrachloroethane	2500 ug/mL
							1,1,1-Trichloroethane	2500 ug/mL
							1,1,2,2-Tetrachloroethane	2500 ug/mL
							1,1,2-Trichloro-1,2,2-trifluoroethane	2500 ug/mL
							1,1,2-Trichloroethane	2500 ug/mL
							1,1-Dichloroethane	2500 ug/mL
							1,1-Dichloroethene	2500 ug/mL
							1,1-Dichloropropene	2500 ug/mL
							1,2,3-Trichlorobenzene	2500 ug/mL
							1,2,3-Trichloropropane	2500 ug/mL
							1,2,4-Trichlorobenzene	2500 ug/mL
							1,2,4-Trimethylbenzene	2500 ug/mL
							1,2-Dibromo-3-Chloropropane	2500 ug/mL
							1,2-Dichlorobenzene	2500 ug/mL
							1,2-Dichloroethane	2500 ug/mL
							1,2-Dichloropropane	2500 ug/mL
							1,3,5-Trimethylbenzene	2500 ug/mL
							1,3-Dichlorobenzene	2500 ug/mL
							1,3-Dichloropropane	2500 ug/mL
							1,4-Dichlorobenzene	2500 ug/mL
							1,4-Dioxane	5000 ug/mL
							2,2-Dichloropropane	2500 ug/mL
							2-Chlorotoluene	2500 ug/mL
							2-Methyl-2-propanol	25000 ug/mL
							3-Chloro-1-propene	2500 ug/mL
							4-Chlorotoluene	2500 ug/mL
							4-Isopropyltoluene	2500 ug/mL
							Acrylonitrile	25000 ug/mL
							Benzene	2500 ug/mL
							Bromobenzene	2500 ug/mL
							Bromoform	2500 ug/mL
							Carbon disulfide	2500 ug/mL
							Carbon tetrachloride	2500 ug/mL
							Chlorobenzene	2500 ug/mL
							Chlorobromomethane	2500 ug/mL
							Chlorodibromomethane	2500 ug/mL
							Chloroform	2500 ug/mL
							cis-1,2-Dichloroethene	2500 ug/mL
							cis-1,3-Dichloropropene	2500 ug/mL
							Cyclohexane	2500 ug/mL
							Dibromomethane	2500 ug/mL
							Dichlorobromomethane	2500 ug/mL
							Ethyl ether	2500 ug/mL
							Ethyl methacrylate	2500 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Ethylbenzene	2500 ug/mL
							Ethylene Dibromide	2500 ug/mL
							Hexachlorobutadiene	2500 ug/mL
							Hexane	2500 ug/mL
							Iodomethane	2500 ug/mL
							Isobutyl alcohol	62500 ug/mL
							Isopropylbenzene	2500 ug/mL
							m-Xylene & p-Xylene	2500 ug/mL
							Methyl acetate	5000 ug/mL
							Methyl tert-butyl ether	2500 ug/mL
							Methylcyclohexane	2500 ug/mL
							Methylene Chloride	2500 ug/mL
							n-Butylbenzene	2500 ug/mL
							n-Heptane	2500 ug/mL
							N-Propylbenzene	2500 ug/mL
							Naphthalene	2500 ug/mL
							o-Xylene	2500 ug/mL
							sec-Butylbenzene	2500 ug/mL
							Styrene	2500 ug/mL
							tert-Butylbenzene	2500 ug/mL
							Tetrachloroethene	2500 ug/mL
							Tetrahydrofuran	5000 ug/mL
							Toluene	2500 ug/mL
							trans-1,2-Dichloroethene	2500 ug/mL
							trans-1,3-Dichloropropene	2500 ug/mL
							trans-1,4-Dichloro-2-butene	2500 ug/mL
							Trichloroethene	2500 ug/mL
VMRPRIMW_00397	08/06/20	07/30/20	MEOH, Lot NA	5 mL	VMRPRIM_00046	5 mL	1,1-Dichloroethene	50 ug/mL
							1,4-Dioxane	1000 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							Trichloroethene	50 ug/mL
.VMRPRIM_00046	09/30/20	06/30/20	MEOH, Lot 0000230446	50 mL	VM571992_00003	1 mL	1,1-Dichloroethene	50 ug/mL
							1,4-Dioxane	1000 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							Trichloroethene	50 ug/mL
..VM571992_00003	06/30/21		Restek, Lot A0143774		(Purchased Reagent)		1,1-Dichloroethene	2500 ug/mL
							1,4-Dioxane	50000 ug/mL
							cis-1,2-Dichloroethene	2500 ug/mL
							Tetrachloroethene	2500 ug/mL
							trans-1,2-Dichloroethene	2500 ug/mL
							Trichloroethene	2500 ug/mL

Reagent

vm30026_00003

REC: 11/28/18
VM 30026-00003



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Bellefonte, PA 16823-8812
Tel: (800)356-1688
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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 30026 Lot No.: A0141187
Description : 4-Bromofluorobenzene Mixture
4-Bromofluorobenzene 2000µg/mL, P&T Methanol, 1mL/ampul
Container Size : 2 mL Pkg Amt: > 1 mL
Expiration Date : August 31, 2023 Storage: 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	1-Bromo-4-fluorobenzene (BFB) CAS # 460-00-4 (Lot 20401KO) Purity 99%	2,004.7 µg/mL	+/- 11.7645	µg/mL	Gravimetric
			+/- 112.4110	µg/mL	Unstressed
			+/- 115.0408	µg/mL	Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

Reagent

vm30241_00007



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Catalog No. : 30241 **Lot No.:** A0134242

Description : 8260A Internal Standard Mix
8260A Internal Standard Mix 2,500 µg/mL, P&T Methanol, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : January 31, 2023 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)			
1	Fluorobenzene	2,503.6 µg/mL	+/-	14.5561	µg/mL	Gravimetric
	CAS # 462-06-6 (Lot BCBK8171V)		+/-	140.3744	µg/mL	Unstressed
	Purity 99%		+/-	143.6590	µg/mL	Stressed
2	Chlorobenzene-d5	2,506.4 µg/mL	+/-	14.5724	µg/mL	Gravimetric
	CAS # 3114-55-4 (Lot PR-22736)		+/-	140.5314	µg/mL	Unstressed
	Purity 99%		+/-	143.8196	µg/mL	Stressed
3	1,4-Dichlorobenzene-d4	2,513.4 µg/mL	+/-	14.6131	µg/mL	Gravimetric
	CAS # 3855-82-1 (Lot PR-18488)		+/-	140.9238	µg/mL	Unstressed
	Purity 99%		+/-	144.2213	µg/mL	Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

VM30241-00007

REC'D
5-4-18

Reagent

VM30287_00015

VM30287_00015

Rec: 12/15/17



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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 30287 Lot No.: A0126604
Description : 1,4-Dioxane Standard
1,4-Dioxane 2000µg/mL, P&T Methanol, 1mL/ampul
Container Size : 2 mL Pkg Amt: > 1 mL
Expiration Date : April 30, 2022 Storage: 0°C or colder

CERTIFIED VALUES

Table with 4 main columns: Elution Order, Compound, Grav. Conc. (weight/volume), and Expanded Uncertainty (95% C.L.; K=2). Row 1: 1, 1,4-Dioxane (CAS # 123-91-1, Purity 99%, Lot SHBF2002V), 2,009.2 µg/mL, +/- 11.7911 µg/mL (Gravimetric), +/- 43.0471 µg/mL (Unstressed), +/- 44.2968 µg/mL (Stressed).

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

Reagent

VM30287_00016

Rec: 2/13/20
VM 30287-000/6



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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 30287 **Lot No.:** A0151797
Description : 1,4-Dioxane Standard
1,4-Dioxane 2000µg/mL, P&T Methanol, 1mL/ampul
Container Size : 2 mL **Pkg Amt:** > 1 mL
Expiration Date : August 31, 2024 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	1,4-Dioxane CAS # 123-91-1 Purity 99% (Lot SHBK6493)	2,008.0 µg/mL	+/- 11.7841	µg/mL	Gravimetric
			+/- 43.0214	µg/mL	Unstressed
			+/- 44.2703	µg/mL	Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

Reagent

VM567650_00033

vm 567650-00033 Rec: 4/9/19



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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 567650 **Lot No.:** A0143613
Description : 8260 Surrogate Standard
8260 Surrogate Standard 2,500µg/mL, P&T Methanol, 5mL/ampul
Container Size : 5 mL **Pkg Amt:** > 5 mL
Expiration Date : November 30, 2023 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)			
1	Dibromofluoromethane	2,506.4 µg/mL	+/-	14.5724	µg/mL	Gravimetric
	CAS # 1868-53-7 (Lot 0012017)		+/-	140.5314	µg/mL	Unstressed
	Purity 99%		+/-	143.8196	µg/mL	Stressed
2	1,2-Dichloroethane-d4	2,503.8 µg/mL	+/-	14.5570	µg/mL	Gravimetric
	CAS # 17060-07-0 (Lot PR-29377)		+/-	140.3828	µg/mL	Unstressed
	Purity 99%		+/-	143.6676	µg/mL	Stressed
3	Toluene-d8	2,512.2 µg/mL	+/-	14.6059	µg/mL	Gravimetric
	CAS # 2037-26-5 (Lot PR-27311)		+/-	140.8538	µg/mL	Unstressed
	Purity 99%		+/-	144.1496	µg/mL	Stressed
4	1-Bromo-4-fluorobenzene (BFB)	2,501.8 µg/mL	+/-	14.5457	µg/mL	Gravimetric
	CAS # 460-00-4 (Lot 20401KO)		+/-	140.2734	µg/mL	Unstressed
	Purity 99%		+/-	143.5557	µg/mL	Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

Reagent

VM567650_00034

vm567650-00034 Rec: 4/9/19



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Catalog No. : 567650 **Lot No.:** A0139582
Description : 8260 Surrogate Standard
8260 Surrogate Standard 2,500µg/mL, P&T Methanol, 5mL/ampul
Container Size : 5 mL **Pkg Amt:** > 5 mL
Expiration Date : July 31, 2023 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)			
1	Dibromofluoromethane	2,500.5 µg/mL	+/-	14.5381	µg/mL	Gravimetric
	CAS # 1868-53-7 (Lot 0012017)		+/-	140.2006	µg/mL	Unstressed
	Purity 99%		+/-	143.4811	µg/mL	Stressed
2	1,2-Dichloroethane-d4	2,500.4 µg/mL	+/-	14.5375	µg/mL	Gravimetric
	CAS # 17060-07-0 (Lot PR-26748)		+/-	140.1949	µg/mL	Unstressed
	Purity 99%		+/-	143.4753	µg/mL	Stressed
3	Toluene-d8	2,500.0 µg/mL	+/-	14.5352	µg/mL	Gravimetric
	CAS # 2037-26-5 (Lot PR-27981)		+/-	140.1725	µg/mL	Unstressed
	Purity 99%		+/-	143.4524	µg/mL	Stressed
4	1-Bromo-4-fluorobenzene (BFB)	2,500.4 µg/mL	+/-	14.5375	µg/mL	Gravimetric
	CAS # 460-00-4 (Lot 20401KO)		+/-	140.1949	µg/mL	Unstressed
	Purity 99%		+/-	143.4753	µg/mL	Stressed

Solvent: P&T Methanol
 CAS # 67-56-1
 Purity 99%

Reagent

VM568718_00017

VM568718-00017 Rec: 7/12/19



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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 568718 **Lot No.:** A0145169
Description : 8260 Internal Standard 2014
8260 Internal Standard 2014 250-5,000µg/mL, P&T Methanol/Water (90:10), 5mL/ampul
Container Size : 5 mL **Pkg Amt:** > 5 mL
Expiration Date : January 31, 2024 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	tert-Butyl-d9-alcohol	5,044.0 µg/mL	+/-	29.3246	µg/mL Gravimetric
	CAS # 25725-11-5 (Lot CD-107)		+/-	107.9918	µg/mL Unstressed
	Purity 98%		+/-	111.1314	µg/mL Stressed
2	2-Butanone-d5	1,254.2 µg/mL	+/-	7.2922	µg/mL Gravimetric
	CAS # 24313-50-6 (Lot M-276)		+/-	26.8533	µg/mL Unstressed
	Purity 99%		+/-	27.6340	µg/mL Stressed
3	Fluorobenzene	252.1 µg/mL	+/-	1.4689	µg/mL Gravimetric
	CAS # 462-06-6 (Lot BCBK8171V)		+/-	5.3977	µg/mL Unstressed
	Purity 99%		+/-	5.5545	µg/mL Stressed
4	1,4-Dioxane-d8	5,027.8 µg/mL	+/-	29.2304	µg/mL Gravimetric
	CAS # 17647-74-4 (Lot I-19942)		+/-	107.6448	µg/mL Unstressed
	Purity 99%		+/-	110.7743	µg/mL Stressed
5	Chlorobenzene-d5	250.6 µg/mL	+/-	1.4603	µg/mL Gravimetric
	CAS # 3114-55-4 (Lot PR-23926)		+/-	5.3661	µg/mL Unstressed
	Purity 99%		+/-	5.5220	µg/mL Stressed
6	1,4-Dichlorobenzene-d4	251.6 µg/mL	+/-	1.4660	µg/mL Gravimetric
	CAS # 3855-82-1 (Lot PR-18488)		+/-	5.3871	µg/mL Unstressed
	Purity 99%		+/-	5.5436	µg/mL Stressed

Reagent

VM568718_00018

Rec: 12/4/19
VM568718-00018



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Fax: (814)353-1309

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Certificate of Analysis



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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 568718 **Lot No.:** A0145169
Description : 8260 Internal Standard 2014
8260 Internal Standard 2014 250-5,000µg/mL, P&T Methanol/Water (90:10), 5mL/ampul
Container Size : 5 mL **Pkg Amt:** > 5 mL
Expiration Date : January 31, 2024 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	tert-Butyl-d9-alcohol CAS # 25725-11-5 Purity 98% (Lot CD-107)	5,044.0 µg/mL	+/-	29.3246	µg/mL Gravimetric
			+/-	107.9918	µg/mL Unstressed
			+/-	111.1314	µg/mL Stressed
2	2-Butanone-d5 CAS # 24313-50-6 Purity 99% (Lot M-276)	1,254.2 µg/mL	+/-	7.2922	µg/mL Gravimetric
			+/-	26.8533	µg/mL Unstressed
			+/-	27.6340	µg/mL Stressed
3	Fluorobenzene CAS # 462-06-6 Purity 99% (Lot BCBK8171V)	252.1 µg/mL	+/-	1.4689	µg/mL Gravimetric
			+/-	5.3977	µg/mL Unstressed
			+/-	5.5545	µg/mL Stressed
4	1,4-Dioxane-d8 CAS # 17647-74-4 Purity 99% (Lot I-19942)	5,027.8 µg/mL	+/-	29.2304	µg/mL Gravimetric
			+/-	107.6448	µg/mL Unstressed
			+/-	110.7743	µg/mL Stressed
5	Chlorobenzene-d5 CAS # 3114-55-4 Purity 99% (Lot PR-23926)	250.6 µg/mL	+/-	1.4603	µg/mL Gravimetric
			+/-	5.3661	µg/mL Unstressed
			+/-	5.5220	µg/mL Stressed
6	1,4-Dichlorobenzene-d4 CAS # 3855-82-1 Purity 99% (Lot PR-18488)	251.6 µg/mL	+/-	1.4660	µg/mL Gravimetric
			+/-	5.3871	µg/mL Unstressed
			+/-	5.5436	µg/mL Stressed

Reagent

VM568720_00037

Rec: 116/d^o VM568720_00037



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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 568720 **Lot No.:** A0154578
Description : 8260 List 1/Std #5 Acrolein High
8260 List 1/Std #5 Acrolein High 19,750µg/mL, Water, 1mL/ampul
Container Size : 2 mL **Pkg Amt:** > 1 mL
Expiration Date : April 30, 2021 **Storage:** 0°C or colder
Handling: This product is photosensitive.

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Acrolein CAS # 107-02-8 Purity 99% (Lot D0012019410)	19,810.7 µg/mL	+/- 115.9958	µg/mL	Gravimetric
			+/- 395.7642	µg/mL	Unstressed
			+/- 887.8866	µg/mL	Stressed

Solvent: Water
 CAS # 7732-18-5
 Purity 99%

Reagent

VM568720S_00035

vm5687205-00035 Rec: 10/17/19



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Catalog No. : 568720.SEC **Lot No.:** A0150981

Description : 8260 List 1/Std #5 Acrolein High
8260 List 1/Std #5 Acrolein High 19,750µg/mL, Water, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : January 31, 2020 **Storage:** 0°C or colder

Handling: This product is photosensitive.

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)
1	Acrolein CAS # 107-02-8.SEC (Lot CSBLJM) Purity 97%	19,750.5 µg/mL	+/- 115.6435 µg/mL Gravimetric +/- 633.2629 µg/mL Unstressed +/- 736.0988 µg/mL Stressed

Solvent: Water
CAS # 7732-18-5
Purity 99%

Reagent

VM568720S_00036

Rec: 1/16/19 VM 568720 SEC → 000306



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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 568720.SEC **Lot No.:** A0154553
Description : 8260 List 1/Std #5 Acrolein High
8260 List 1/Std #5 Acrolein High 19,750µg/mL, Water, 1mL/ampul
Container Size : 2 mL **Pkg Amt:** > 1 mL
Expiration Date : April 30, 2021 **Storage:** 0°C or colder
Handling: This product is photosensitive.

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
			Value	Unit	Method
1	Acrolein	19,750.0 µg/mL	+/- 115.6405	µg/mL	Gravimetric
	CAS # 107-02-8.SEC (Lot D8402600-1024)		+/- 394.5517	µg/mL	Unstressed
	Purity 97%		+/- 885.1665	µg/mL	Stressed

Solvent: Water
 CAS # 7732-18-5
 Purity 99%

Reagent

VM569721_00006

RCCL: 12/4/18
 VM569721-00006



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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 569721 **Lot No.:** A0137509
Description : 8260 List 1/ Std #2 Ketones (2015)
8260 List 1/ Std #2 Ketones (2015) 12,500µg/mL, P&T Methanol/Water (90:10), 1mL/ampul
Container Size : 2 mL **Pkg Amt:** > 1 mL
Expiration Date : April 30, 2021 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L., K=2)			
1	Acetone	12,619.0 µg/mL	+/-	73.8870	µg/mL	Gravimetric
	CAS # 67-64-1 (Lot SHBH6933)		+/-	761.4104	µg/mL	Unstressed
	Purity 99%		+/-	763.2179	µg/mL	Stressed
2	2-Butanone (MEK)	12,602.0 µg/mL	+/-	73.7875	µg/mL	Gravimetric
	CAS # 78-93-3 (Lot SHBF2461V)		+/-	760.3846	µg/mL	Unstressed
	Purity 99%		+/-	762.1897	µg/mL	Stressed
3	4-Methyl-2-pentanone (MIBK)	12,531.0 µg/mL	+/-	73.3718	µg/mL	Gravimetric
	CAS # 108-10-1 (Lot SHBH7006)		+/-	756.1006	µg/mL	Unstressed
	Purity 99%		+/-	757.8955	µg/mL	Stressed
4	2-Hexanone	12,606.0 µg/mL	+/-	73.8109	µg/mL	Gravimetric
	CAS # 591-78-6 (Lot MKBW0198V)		+/-	760.6260	µg/mL	Unstressed
	Purity 99%		+/-	762.4316	µg/mL	Stressed

Solvent: P&T Methanol/Water (90:10)
 CAS # 67-56-1/7732-18-5
 Purity 99%

Reagent

VM569721S_00005



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Rec: 6/15/18

20 vials

VM569721g-00005



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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 569721.SEC **Lot No.:** A0133078
Description : 8260 List 1/ Std #2 Ketones (2015)
8260 List 1/ Std #2 Ketones (2015) 12,500µg/mL, P&T Methanol/Water (90:10), 1mL/ampul
Container Size : 2 mL **Pkg Amt:** > 1 mL
Expiration Date : December 31, 2020 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Acetone	12,504.8 µg/mL	+/-	73.2184	µg/mL Gravimetric
	CAS # 67-64-1.SEC (Lot P14A572)		+/-	754.5197	µg/mL Unstressed
	Purity 99%		+/-	756.3109	µg/mL Stressed
2	2-Butanone (MEK)	12,504.0 µg/mL	+/-	73.2137	µg/mL Gravimetric
	CAS # 78-93-3.SEC (Lot RA58J)		+/-	754.4715	µg/mL Unstressed
	Purity 99%		+/-	756.2625	µg/mL Stressed
3	4-Methyl-2-pentanone (MIBK)	12,500.8 µg/mL	+/-	73.1949	µg/mL Gravimetric
	CAS # 108-10-1.SEC (Lot E29T040)		+/-	754.2784	µg/mL Unstressed
	Purity 99%		+/-	756.0689	µg/mL Stressed
4	2-Hexanone	12,503.6 µg/mL	+/-	73.2113	µg/mL Gravimetric
	CAS # 591-78-6.SEC (Lot V3NRA)		+/-	754.4473	µg/mL Unstressed
	Purity 99%		+/-	756.2383	µg/mL Stressed

Solvent: P&T Methanol/Water (90:10)
CAS # 67-56-1/7732-18-5
Purity 99%

Reagent

vm569722_00013

Rec: 7/23/19

VM569722-00013



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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 569722 **Lot No.:** A0143158

Description : 8260 List 1 / Std #3 Gases (2015)

8260 List 1 / Std #3 Gases (2015) 2,500µg/mL, P&T Methanol, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : November 30, 2021 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)			
1	Dichlorodifluoromethane (CFC-12)	2,500.9 µg/mL	+/-	17.2023	µg/mL	Gravimetric
	CAS # 75-71-8 (Lot 00012554)		+/-	140.5234	µg/mL	Unstressed
	Purity 99%		+/-	143.7976	µg/mL	Stressed
2	Chloromethane (methyl chloride)	2,500.4 µg/mL	+/-	17.0791	µg/mL	Gravimetric
	CAS # 74-87-3 (Lot SHBJ6334)		+/-	140.4796	µg/mL	Unstressed
	Purity 99%		+/-	143.7534	µg/mL	Stressed
3	Vinyl chloride	2,500.4 µg/mL	+/-	16.5693	µg/mL	Gravimetric
	CAS # 75-01-4 (Lot 00012557)		+/-	140.4224	µg/mL	Unstressed
	Purity 99%		+/-	143.6977	µg/mL	Stressed
4	1,3-Butadiene	2,500.1 µg/mL	+/-	17.0785	µg/mL	Gravimetric
	CAS # 106-99-0 (Lot SHBK2299)		+/-	140.4623	µg/mL	Unstressed
	Purity 99%		+/-	143.7357	µg/mL	Stressed
5	Bromomethane (methyl bromide)	2,500.9 µg/mL	+/-	16.5511	µg/mL	Gravimetric
	CAS # 74-83-9 (Lot 101604)		+/-	140.4457	µg/mL	Unstressed
	Purity 99%		+/-	143.7217	µg/mL	Stressed
6	Chloroethane (ethyl chloride)	2,502.0 µg/mL	+/-	16.0409	µg/mL	Gravimetric
	CAS # 75-00-3 (Lot 107-401039114-1)		+/-	140.4480	µg/mL	Unstressed
	Purity 99%		+/-	143.7268	µg/mL	Stressed
7	Dichlorofluoromethane (CFC-21)	2,500.0 µg/mL	+/-	14.5352	µg/mL	Gravimetric
	CAS # 75-43-4 (Lot 7766400)		+/-	140.1725	µg/mL	Unstressed
	Purity 99%		+/-	143.4524	µg/mL	Stressed

8	Trichlorofluoromethane (CFC-11)	2,500.8 µg/mL	+/- 17.8012	µg/mL	Gravimetric
	CAS # 75-69-4 (Lot SHBH4155V)		+/- 140.5946	µg/mL	Unstressed
	Purity 99%		+/- 143.8670	µg/mL	Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

Tech Tips:

Raw material may contain trace amounts of tert-Butanol.

Column:
60m x 0.25mm x 1.4µm
Rtx-502.2 (cat.#10916)

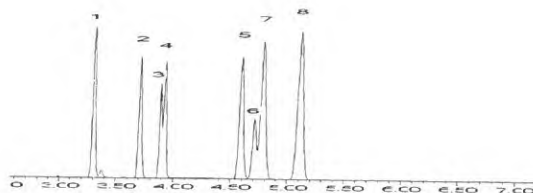
Carrier Gas:
helium-constant pressure 30 psi

Temp. Program:
40°C (hold 2 min.) to 240°C
@ 8°C/min. (hold 5 min.)

Inj. Temp:
200°C

Det. Temp:
250°C

Det. Type:
MSD



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Joseph Jaglowski
Joseph Jaglowski - Mix Technician

Date Mixed: 12-Nov-2018 **Balance:** B707717271

Jennifer Pollino
Jennifer Pollino - Operations Tech-ARM QC

Date Passed: 11-Dec-2018

Manufactured under Restek's ISO 9001:2015
Registered Quality System
Certificate #FM 80397

Reagent

vm569722_00015



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Certificate of Analysis

Rec: 4/14/20
 VMS69722-00015



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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 569722 **Lot No.:** A0154679
Description : 8260 List 1 / Std #3 Gases (2015)
8260 List 1 / Std #3 Gases (2015) 2,500µg/mL, P&T Methanol, 1mL/ampul
Container Size : 2 mL **Pkg Amt:** > 1 mL
Expiration Date : November 30, 2022 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)			
1	Dichlorodifluoromethane (CFC-12)	2,502.7 µg/mL	+/-	18.2705	µg/mL	Gravimetric
	CAS # 75-71-8 (Lot 00012554)		+/-	140.7566	µg/mL	Unstressed
	Purity 99%		+/-	144.0300	µg/mL	Stressed
2	Chloromethane (methyl chloride)	2,500.3 µg/mL	+/-	18.7547	µg/mL	Gravimetric
	CAS # 74-87-3 (Lot SHBK6571)		+/-	140.6865	µg/mL	Unstressed
	Purity 99%		+/-	143.9553	µg/mL	Stressed
3	Vinyl chloride	2,501.1 µg/mL	+/-	18.5858	µg/mL	Gravimetric
	CAS # 75-01-4 (Lot 00015559)		+/-	140.7083	µg/mL	Unstressed
	Purity 99%		+/-	143.9787	µg/mL	Stressed
4	1,3-Butadiene	2,497.1 µg/mL	+/-	17.5808	µg/mL	Gravimetric
	CAS # 106-99-0 (Lot SHBK2299)		+/-	140.3628	µg/mL	Unstressed
	Purity 99%		+/-	143.6309	µg/mL	Stressed
5	Bromomethane (methyl bromide)	2,500.8 µg/mL	+/-	23.3138	µg/mL	Gravimetric
	CAS # 74-83-9 (Lot 101604)		+/-	141.3956	µg/mL	Unstressed
	Purity 99%		+/-	144.6498	µg/mL	Stressed
6	Chloroethane (ethyl chloride)	2,499.0 µg/mL	+/-	21.4252	µg/mL	Gravimetric
	CAS # 75-00-3 (Lot 107-401039114-1)		+/-	140.9973	µg/mL	Unstressed
	Purity 99%		+/-	144.2558	µg/mL	Stressed
7	Dichlorofluoromethane (CFC-21)	2,500.0 µg/mL	+/-	14.5352	µg/mL	Gravimetric
	CAS # 75-43-4 (Lot 4938100)		+/-	140.1725	µg/mL	Unstressed
	Purity 99%		+/-	143.4524	µg/mL	Stressed

8	Trichlorofluoromethane (CFC-11)	2,499.6 µg/mL	+/- 21.2368	µg/mL	Gravimetric
	CAS # 75-69-4 (Lot 25931)		+/- 141.0019	µg/mL	Unstressed
	Purity 99%		+/- 144.2618	µg/mL	Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

Tech Tips:

Raw material may contain trace amounts of tert-Butanol.

Column:
60m x 0.25mm x 1.4µm
Rtx-502.2 (cat.#10916)

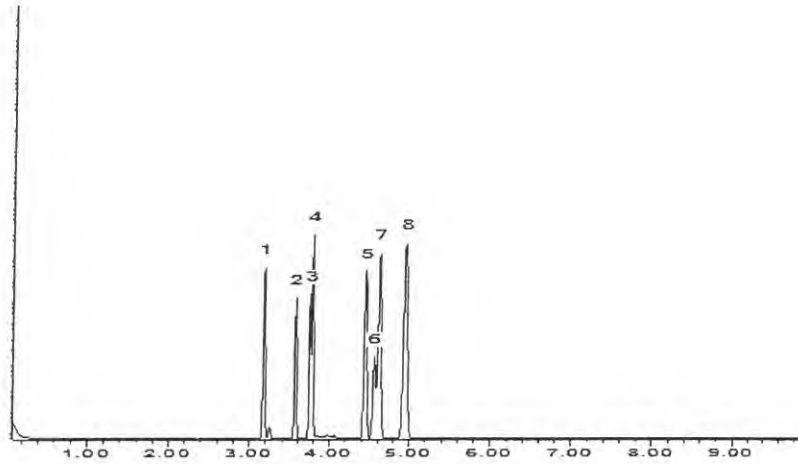
Carrier Gas:
helium-constant pressure 30 psi

Temp. Program:
40°C (hold 2 min.) to 240°C
@ 8°C/min. (hold 5 min.)

Inj. Temp:
200°C

Det. Temp:
250°C

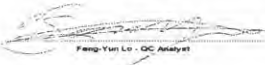
Det. Type:
MSD



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.


Tom Suckar - Mix Technician

Date Mixed: 04-Nov-2019 **Balance:** B707717271


Feng-Yun Lo - QC Analyst

Date Passed: 10-Nov-2019

Manufactured under Restek's ISO 9001:2015
Registered Quality System
Certificate #FM 80397

Reagent

vm569722s_00006



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Certificate of Analysis

Rec: 6/15/18

20 vial

VM569722S-00006



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 569722.SEC **Lot No.:** A0133344

Description : 8260 List 1 / Std #3 Gases (2015)
8260 List 1 / Std #3 Gases (2015) 2,500µg/mL, P&T Methanol, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : December 31, 2020 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)			
1	Dichlorofluoromethane (CFC-21)	2,500.0 µg/mL	+/-	14.5352	µg/mL	Gravimetric
	CAS # 75-43-4 * (Lot 4938100)		+/-	140.1725	µg/mL	Unstressed
	Purity 99%		+/-	143.4524	µg/mL	Stressed
2	Chloromethane (methyl chloride)	2,521.6 µg/mL	+/-	17.0984	µg/mL	Gravimetric
	CAS # 74-87-3.SEC (Lot 18343)		+/-	141.6588	µg/mL	Unstressed
	Purity 99%		+/-	144.9608	µg/mL	Stressed
3	Vinyl chloride	2,502.2 µg/mL	+/-	18.3289	µg/mL	Gravimetric
	CAS # 75-01-4.SEC (Lot MKBK6872V)		+/-	140.7354	µg/mL	Unstressed
	Purity 99%		+/-	144.0080	µg/mL	Stressed
4	1,3-Butadiene	2,513.3 µg/mL	+/-	16.7862	µg/mL	Gravimetric
	CAS # 106-99-0.SEC (Lot 24033)		+/-	141.1580	µg/mL	Unstressed
	Purity 99%		+/-	144.4497	µg/mL	Stressed
5	Bromomethane (methyl bromide)	2,524.8 µg/mL	+/-	22.7878	µg/mL	Gravimetric
	CAS # 74-83-9.SEC (Lot Q119-46)		+/-	142.6298	µg/mL	Unstressed
	Purity 99%		+/-	145.9179	µg/mL	Stressed
6	Chloroethane (ethyl chloride)	2,515.6 µg/mL	+/-	20.9811	µg/mL	Gravimetric
	CAS # 75-00-3.SEC (Lot 00004202)		+/-	141.8493	µg/mL	Unstressed
	Purity 99%		+/-	145.1315	µg/mL	Stressed
7	Dichlorodifluoromethane (CFC-12)	2,509.0 µg/mL	+/-	17.4430	µg/mL	Gravimetric
	CAS # 75-71-8.SEC (Lot 24186)		+/-	141.0029	µg/mL	Unstressed
	Purity 99%		+/-	144.2872	µg/mL	Stressed

8	Trichlorofluoromethane (CFC-11)	2,497.4	µg/mL	+/- 22.1815	µg/mL	Gravimetric
	CAS # 75-69-4,SEC (Lot 253600)			+/- 141.0261	µg/mL	Unstressed
	Purity 99%			+/- 144.2798	µg/mL	Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

* Restek is unable to identify a reliable and/or acceptable second source for this material - the same batch of neat material may have been used to produce both the primary and secondary standard. The primary and secondary standards were prepared using different equipment and personnel.

Tech Tips:

Raw material may contain trace amounts of tert-Butanol.

Column:
60m x 0.25mm x 1.4µm
Rtx-502.2 (cat.#10916)

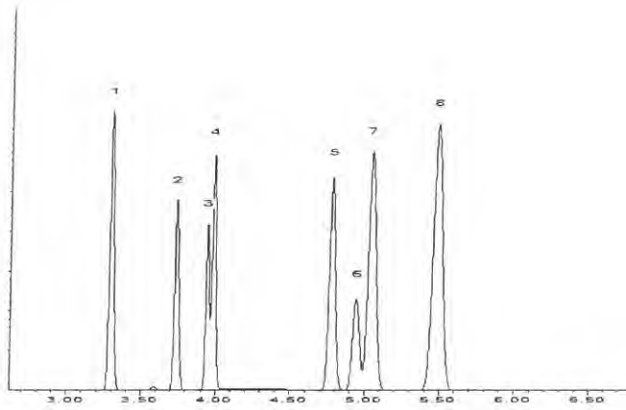
Carrier Gas:
helium-constant flow 2.0 mL/min.

Temp. Program:
40°C (hold 6 min.) to 100°C
@ 6°C/min.

Inj. Temp:
200°C

Det. Temp:
250°C

Det. Type:
MSD



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Lane Kibe
Lane Kibe - Mix Technician

Date Mixed: 14-Dec-2017 Balance: 1128342314

Justin Albertson
Justin Albertson - Operations Tech-ARM QC

Date Passed: 20-Dec-2017

Manufactured under Restek's ISO 9001:2008
Registered Quality System
Certificate #FM 80397

Reagent

vm569722s_00007

Ref: 1-23-19
 VMS697225-00007



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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 569722.SEC **Lot No.:** A0142117
Description : 8260 List 1 / Std #3 Gases (2015)
8260 List 1 / Std #3 Gases (2015) 2,500µg/mL, P&T Methanol, 1mL/ampul
Container Size : 2 mL **Pkg Amt:** > 1 mL
Expiration Date : October 31, 2021 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)			
1	Dichlorodifluoromethane (CFC-12)	2,503.0 µg/mL	+/-	23.3708	µg/mL	Gravimetric
	CAS # 75-71-8.SEC (Lot 24847)		+/-	141.5277	µg/mL	Unstressed
	Purity 99%		+/-	144.7846	µg/mL	Stressed
2	Chloromethane (methyl chloride)	2,497.4 µg/mL	+/-	25.3963	µg/mL	Gravimetric
	CAS # 74-87-3.SEC (Lot 18343)		+/-	141.5662	µg/mL	Unstressed
	Purity 99%		+/-	144.8078	µg/mL	Stressed
3	Vinyl chloride	2,501.8 µg/mL	+/-	19.5755	µg/mL	Gravimetric
	CAS # 75-01-4.SEC (Lot MKBK6872V)		+/-	140.8855	µg/mL	Unstressed
	Purity 99%		+/-	144.1539	µg/mL	Stressed
4	1,3-Butadiene	2,505.3 µg/mL	+/-	20.9927	µg/mL	Gravimetric
	CAS # 106-99-0.SEC (Lot 22331)		+/-	141.2797	µg/mL	Unstressed
	Purity 99%		+/-	144.5480	µg/mL	Stressed
5	Bromomethane (methyl bromide)	2,498.6 µg/mL	+/-	25.6449	µg/mL	Gravimetric
	CAS # 74-83-9.SEC (Lot Q119-46)		+/-	141.6796	µg/mL	Unstressed
	Purity 99%		+/-	144.9218	µg/mL	Stressed
6	Chloroethane (ethyl chloride)	2,498.9 µg/mL	+/-	24.9623	µg/mL	Gravimetric
	CAS # 75-00-3.SEC (Lot 00004202)		+/-	141.5741	µg/mL	Unstressed
	Purity 99%		+/-	144.8194	µg/mL	Stressed
7	Dichlorofluoromethane (CFC-21)	2,500.0 µg/mL	+/-	14.6714	µg/mL	Gravimetric
	CAS # 75-43-4 * (Lot 7766400)		+/-	140.1867	µg/mL	Unstressed
	Purity 99%		+/-	143.4662	µg/mL	Stressed

8	Trichlorofluoromethane (CFC-11)	2,501.7	µg/mL	+/-	23.1926	µg/mL	Gravimetric
	CAS # 75-69-4.SEC (Lot 253600)			+/-	141.4285	µg/mL	Unstressed
	Purity 99%			+/-	144.6844	µg/mL	Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

* Restek is unable to identify a reliable and/or acceptable second source for this material - the same batch of neat material may have been used to produce both the primary and secondary standard. The primary and secondary standards were prepared using different equipment and personnel.

Tech Tips:

Raw material may contain trace amounts of tert-Butanol.

Column:
 60m x 0.25mm x 1.4µm
 Rtx-502.2 (cat.#10916)

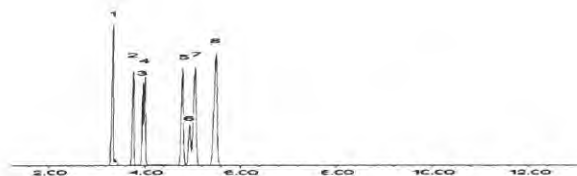
Carrier Gas:
 helium-constant flow 2.0 mL/min.

Temp. Program:
 40°C (hold 6 min.) to 100°C
 @ 6°C/min.

Inj. Temp:
 200°C

Det. Temp:
 250°C

Det. Type:
 MSD



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Michael Mage

Date Mixed: 04-Oct-2018 **Balance:** 1127510105

Jennifer J Pollino
 Jennifer Pollino - Operations Tech-ARM QC

Date Passed: 08-Oct-2018

Manufactured under Restek's ISO 9001:2015
 Registered Quality System
 Certificate #FM 80397

Reagent

VM569723_00008



110 Benner Circle
 Bellefonte, PA 16823-8812
 Tel: (800)356-1688
 Fax: (814)353-1309

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Certificate of Analysis

VM569723-00008 Rec: 9/9/19



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Catalog No. : 569723 **Lot No.:** A0146250
Description : 8260 List 1 / Std #4 2-CEVE (2015)
8260 List 1 / Std #4 2-CEVE (2015) 2,500µg/mL, P&T Methanol, 1mL/ampul
Container Size : 2 mL **Pkg Amt:** > 1 mL
Expiration Date : February 28, 2022 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	2-Chloroethyl vinyl ether CAS # 110-75-8 Purity 99% (Lot MKBS6526V)	2,500.0 µg/mL	+/- 14.5352	µg/mL	Gravimetric
			+/- 53.5253	µg/mL	Unstressed
			+/- 55.0814	µg/mL	Stressed

Solvent: P&T Methanol
 CAS # 67-56-1
 Purity 99%

Tech Tips:

Degradation of tetrachloroethylene to pentachloroethane may occur if solutions containing 2-chloroethyl vinyl ether are combined with solutions that contain tetrachloroethylene.

Reagent

VM569723S_00008

Rec: 9/9/19
 VM5697235-00008



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Catalog No. : 569723.SEC **Lot No.:** A0143264
Description : 8260 List 1 / Std #4 2-CEVE (2015)
8260 List 1 / Std #4 2-CEVE (2015) 2,500µg/mL, P&T Methanol, 1mL/ampul
Container Size : 2 mL **Pkg Amt:** > 1 mL
Expiration Date : November 30, 2021 **Storage:** 0°C or colder

C E R T I F I E D V A L U E S

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)			
1	2-Chloroethyl vinyl ether CAS # 110-75-8.SEC (Lot BQZ2K-QD) Purity 99%	2,502.8 µg/mL	+/-	14.6878	µg/mL	Gravimetric
			+/-	53.6224	µg/mL	Unstressed
			+/-	55.1792	µg/mL	Stressed

Solvent: P&T Methanol
 CAS # 67-56-1
 Purity 99%

Tech Tips:

Degradation of tetrachloroethylene to pentachloroethane may occur if solutions containing 2-chloroethyl vinyl ether are combined with solutions that contain tetrachloroethylene.

Reagent

VM569724_00021

vm 569724-00021 Rec: 9/6/19



CERTIFIED REFERENCE MATERIAL

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 Tel: (800)356-1688
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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 569724 Lot No.: A0150515
 Description : 8260 List 1 / Std #6 Vinyl Acetate (2015)
 8260 List 1 / Std #6 Vinyl Acetate (2015) 5,000µg/mL, P&T Methanol, 1mL/ampul
 Container Size : 2 mL Pkg Amt: > 1 mL
 Expiration Date : January 31, 2020 Storage: 0°C or colder
 Handling: This product is photosensitive.

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)
1	Vinyl acetate CAS # 108-05-4 Purity 99% (Lot STBD7333V)	5,024.0 µg/mL	+/- 29.4836 µg/mL Gravimetric +/- 303.1467 µg/mL Unstressed +/- 303.8663 µg/mL Stressed

Solvent: P&T Methanol
 CAS # 67-56-1
 Purity 99%

Tech Tips:

Vinyl acetate is a volatile organic ester included in the target lists of several US EPA and other methods. Under acidic conditions, esters react with alcohols to form new esters (transesterification). Methanol-based mixes containing halogenated compounds are slightly acidic, so it is important to minimize exposure of vinyl acetate to mixes of halogenated compounds in methanol. For this reason, we offer vinyl acetate in individual solution, and suggest that it be introduced into the working level calibration solution immediately before use. This will minimize problems and ensure more consistent results.

Reagent

VM569724_00024

Rec'd 4-20-20

VM569724 - 00024



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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 569724 **Lot No.:** A0156559

Description : 8260 List 1 / Std #6 Vinyl Acetate (2015)
8260 List 1 / Std #6 Vinyl Acetate (2015) 5,000µg/mL, P&T Methanol, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : July 31, 2021 **Storage:** 0°C or colder

Handling: This product is photosensitive.

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)
1	Vinyl acetate	5,040.0 µg/mL	+/- 29.5103 µg/mL Gravimetric
	CAS # 108-05-4 (Lot 192709KJ)		+/- 304.1056 µg/mL Unstressed
	Purity 99%		+/- 304.8275 µg/mL Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

Specific Reference Material Notes:

08 April 2020
Expiration date extended from July 31, 2020 to July 31, 2021.

Tech Tips:

Vinyl acetate is a volatile organic ester included in the target lists of several US EPA and other methods. Under acidic conditions, esters react with alcohols to form new esters (transesterification). Methanol-based mixes containing halogenated compounds are slightly acidic, so it is important to minimize exposure of vinyl acetate to mixes of halogenated compounds in methanol. For this reason, we offer vinyl acetate in individual solution, and suggest that it be introduced into the working level calibration solution immediately before use. This will minimize problems and ensure more consistent results.

Reagent

VM569724S_00029

Rec'd: 4/12/19

VMS697245-00029



CERTIFIED REFERENCE MATERIAL

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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 569724.SEC Lot No.: A0158728

Description : 8260 List 1 / Std #6 Vinyl Acetate (2015)
8260 List 1 / Std #6 Vinyl Acetate (2015) 5,000µg/mL, P&T Methanol, 1mL/ampul

Container Size : 2 mL Pkg Amt: > 1 mL

Expiration Date : September 30, 2021 Storage: 0°C or colder

Handling: This product is photosensitive.

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L., K=2)
1	Vinyl acetate CAS # 108-05-4.SEC (Lot 190320CGKJ) Purity 99%	5,034.0 µg/mL	+/- 29.5423 µg/mL Gravimetric +/- 303.7501 µg/mL Unstressed +/- 304.4711 µg/mL Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

Specific Reference Material Notes:

08 April 2020
Expiration date extended from September 30, 2020 to September 30, 2021.

Tech Tips:

Vinyl acetate is a volatile organic ester included in the target lists of several US EPA and other methods. Under acidic conditions, esters react with alcohols to form new esters (transesterification). Methanol-based mixes containing halogenated compounds are slightly acidic, so it is important to minimize exposure of vinyl acetate to mixes of halogenated compounds in methanol. For this reason, we offer vinyl acetate in individual solution, and suggest that it be introduced into the working level calibration solution immediately before use. This will minimize problems and ensure more consistent results.

Reagent

VM571992_00003

Rec: 5/31/19

VM571992 - 00003



CERTIFIED REFERENCE MATERIAL

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Catalog No. : 571992 **Lot No.:** A0143774
Description : 8260 List 1 / Std #1 MegaMix (2017)
8260 List 1 / Std #1 MegaMix (2017) 1,250-62,500µg/mL, P&T Methanol, 1mL/ampul
Container Size : 2 mL **Pkg Amt:** > 1 mL
Expiration Date : June 30, 2021 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)			
1	Diethyl ether (ethyl ether)	2,500.6 µg/mL	+/-	14.5388	µg/mL	Gravimetric
	CAS # 60-29-7 (Lot SHBJ5713)		+/-	150.8738	µg/mL	Unstressed
	Purity 99%		+/-	151.2320	µg/mL	Stressed
2	1,1,2-Trichlorotrifluoroethane (CFC-113)	2,501.6 µg/mL	+/-	14.5447	µg/mL	Gravimetric
	CAS # 76-13-1 (Lot 00009482)		+/-	150.9341	µg/mL	Unstressed
	Purity 99%		+/-	151.2925	µg/mL	Stressed
3	1,1-dichloroethene	2,501.9 µg/mL	+/-	14.5461	µg/mL	Gravimetric
	CAS # 75-35-4 (Lot SHBG8609V)		+/-	150.9492	µg/mL	Unstressed
	Purity 99%		+/-	151.3076	µg/mL	Stressed
4	tert-Butanol (TBA)	25,008.1 µg/mL	+/-	145.3918	µg/mL	Gravimetric
	CAS # 75-65-0 (Lot SHBJ9404)		+/-	1,508.8503	µg/mL	Unstressed
	Purity 99%		+/-	1,512.4325	µg/mL	Stressed
5	Methyl acetate	5,000.8 µg/mL	+/-	29.0748	µg/mL	Gravimetric
	CAS # 79-20-9 (Lot SHBG4345V)		+/-	301.7174	µg/mL	Unstressed
	Purity 99%		+/-	302.4337	µg/mL	Stressed
6	Iodomethane (methyl iodide)	2,500.6 µg/mL	+/-	14.5388	µg/mL	Gravimetric
	CAS # 74-88-4 (Lot SHBH4362V)		+/-	150.8738	µg/mL	Unstressed
	Purity 99%		+/-	151.2320	µg/mL	Stressed
7	Allyl chloride (3-chloropropene)	2,502.0 µg/mL	+/-	14.5468	µg/mL	Gravimetric
	CAS # 107-05-1 (Lot WXBB7852V)		+/-	150.9567	µg/mL	Unstressed
	Purity 99%		+/-	151.3151	µg/mL	Stressed

8	Methylene chloride (dichloromethane)		2,500.8	µg/mL	+/-	14.5396	µg/mL	Gravimetric
	CAS # 75-09-2	(Lot SHBK5095)			+/-	150.8813	µg/mL	Unstressed
	Purity 99%				+/-	151.2395	µg/mL	Stressed
9	Carbon disulfide		2,501.1	µg/mL	+/-	14.5418	µg/mL	Gravimetric
	CAS # 75-15-0	(Lot U22D706)			+/-	150.9040	µg/mL	Unstressed
	Purity 99%				+/-	151.2622	µg/mL	Stressed
10	Acrylonitrile		25,010.4	µg/mL	+/-	145.4049	µg/mL	Gravimetric
	CAS # 107-13-1	(Lot R15D047)			+/-	1,508.9860	µg/mL	Unstressed
	Purity 99%				+/-	1,512,5686	µg/mL	Stressed
11	Methyl-tert-butyl ether (MTBE)		2,500.3	µg/mL	+/-	14.5367	µg/mL	Gravimetric
	CAS # 1634-04-4	(Lot SHBH9526)			+/-	150.8512	µg/mL	Unstressed
	Purity 99%				+/-	151.2093	µg/mL	Stressed
12	cis-1,2-Dichloroethene		2,501.3	µg/mL	+/-	14.5425	µg/mL	Gravimetric
	CAS # 156-59-2	(Lot MKBX5945V)			+/-	150.9115	µg/mL	Unstressed
	Purity 99%				+/-	151.2698	µg/mL	Stressed
13	n-Hexane (C6)		2,500.8	µg/mL	+/-	14.5396	µg/mL	Gravimetric
	CAS # 110-54-3	(Lot SHBH8106)			+/-	150.8813	µg/mL	Unstressed
	Purity 99%				+/-	151.2395	µg/mL	Stressed
14	1,1-Dichloroethane		2,500.4	µg/mL	+/-	14.5374	µg/mL	Gravimetric
	CAS # 75-34-3	(Lot 462600)			+/-	150.8587	µg/mL	Unstressed
	Purity 99%				+/-	151.2169	µg/mL	Stressed
15	2,2-Dichloropropane		2,500.9	µg/mL	+/-	14.5403	µg/mL	Gravimetric
	CAS # 594-20-7	(Lot BCBT5124)			+/-	150.8889	µg/mL	Unstressed
	Purity 99%				+/-	151.2471	µg/mL	Stressed
16	trans-1,2-Dichloroethene		2,500.3	µg/mL	+/-	14.5367	µg/mL	Gravimetric
	CAS # 156-60-5	(Lot MKBH9850V)			+/-	150.8512	µg/mL	Unstressed
	Purity 99%				+/-	151.2093	µg/mL	Stressed
17	Isobutanol (2-Methyl-1-propanol)		62,500.9	µg/mL	+/-	363.3665	µg/mL	Gravimetric
	CAS # 78-83-1	(Lot SHBK0551)			+/-	3,770.9529	µg/mL	Unstressed
	Purity 99%				+/-	3,779.9058	µg/mL	Stressed
18	chloroform		2,500.5	µg/mL	+/-	14.5381	µg/mL	Gravimetric
	CAS # 67-66-3	(Lot SHBJ9076)			+/-	150.8662	µg/mL	Unstressed
	Purity 99%				+/-	151.2244	µg/mL	Stressed
19	Bromochloromethane		2,500.6	µg/mL	+/-	14.5387	µg/mL	Gravimetric
	CAS # 74-97-5	(Lot 00008541)			+/-	150.8718	µg/mL	Unstressed
	Purity 98%				+/-	151.2300	µg/mL	Stressed
20	Tetrahydrofuran		5,000.6	µg/mL	+/-	29.0741	µg/mL	Gravimetric
	CAS # 109-99-9	(Lot SHBJ6179)			+/-	301.7099	µg/mL	Unstressed
	Purity 99%				+/-	302.4262	µg/mL	Stressed
21	1,1,1-trichloroethane		2,500.8	µg/mL	+/-	14.5396	µg/mL	Gravimetric
	CAS # 71-55-6	(Lot B15W12061)			+/-	150.8813	µg/mL	Unstressed
	Purity 99%				+/-	151.2395	µg/mL	Stressed
22	Cyclohexane		2,500.9	µg/mL	+/-	14.5403	µg/mL	Gravimetric
	CAS # 110-82-7	(Lot MKCC9660)			+/-	150.8889	µg/mL	Unstressed
	Purity 99%				+/-	151.2471	µg/mL	Stressed
23	1,1-Dichloropropene		2,500.6	µg/mL	+/-	14.5388	µg/mL	Gravimetric
	CAS # 563-58-6	(Lot 180531JLM)			+/-	150.8738	µg/mL	Unstressed
	Purity 99%				+/-	151.2320	µg/mL	Stressed

24	carbon tetrachloride CAS # 56-23-5 Purity 99%	(Lot SHBJ2110)	2,501.1	µg/mL	+/- +/- +/-	14.5418 150.9040 151.2622	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
25	n-Heptane (C7) CAS # 142-82-5 Purity 99%	(Lot SHBJ2424)	2,501.6	µg/mL	+/- +/- +/-	14.5447 150.9341 151.2925	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
26	1,2-Dichloroethane CAS # 107-06-2 Purity 99%	(Lot SHBJ0707)	2,501.3	µg/mL	+/- +/- +/-	14.5425 150.9115 151.2698	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
27	Benzene CAS # 71-43-2 Purity 99%	(Lot SHBJ5344)	2,500.9	µg/mL	+/- +/- +/-	14.5403 150.8889 151.2471	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
28	Trichloroethene CAS # 79-01-6 Purity 99%	(Lot SHBH1955V)	2,500.5	µg/mL	+/- +/- +/-	14.5381 150.8662 151.2244	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
29	Methylcyclohexane CAS # 108-87-2 Purity 99%	(Lot SHBJ0457)	2,501.6	µg/mL	+/- +/- +/-	14.5447 150.9341 151.2925	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
30	1,2-Dichloropropane CAS # 78-87-5 Purity 99%	(Lot BCBR0882V)	2,500.5	µg/mL	+/- +/- +/-	14.5381 150.8662 151.2244	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
31	1,4-Dioxane CAS # 123-91-1 Purity 99%	(Lot SHBJ7415)	50,001.1	µg/mL	+/- +/- +/-	290.6957 3,016.7880 3,023.9503	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
32	Dibromomethane CAS # 74-95-3 Purity 99%	(Lot 10201030)	2,502.0	µg/mL	+/- +/- +/-	14.5468 150.9567 151.3151	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
33	cis-1,3-Dichloropropene CAS # 10061-01-5 Purity 99%	(Lot 25076)	2,501.4	µg/mL	+/- +/- +/-	14.5432 150.9190 151.2773	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
34	Toluene CAS # 108-88-3 Purity 99%	(Lot SHBJ5659)	2,500.1	µg/mL	+/- +/- +/-	14.5359 150.8436 151.2017	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
35	Ethyl methacrylate CAS # 97-63-2 Purity 99%	(Lot 69796APV)	2,502.8	µg/mL	+/- +/- +/-	14.5512 151.0020 151.3605	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
36	trans-1,3-Dichloropropene CAS # 10061-02-6 Purity 98%	(Lot C797620)	2,500.6	µg/mL	+/- +/- +/-	14.5387 150.8718 151.2300	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
37	1,1,2-Trichloroethane CAS # 79-00-5 Purity 99%	(Lot FGB01)	2,500.4	µg/mL	+/- +/- +/-	14.5374 150.8587 151.2169	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
38	1,3-Dichloropropane CAS # 142-28-9 Purity 99%	(Lot BCBG2162V)	2,500.9	µg/mL	+/- +/- +/-	14.5403 150.8889 151.2471	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
39	Tetrachloroethene CAS # 127-18-4 Purity 99%	(Lot SHBH9691)	2,501.0	µg/mL	+/- +/- +/-	14.5410 150.8964 151.2547	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

40	dibromochloromethane CAS # 124-48-1 Purity 98%	(Lot MKCC0877)	2,502.4 µg/mL	+/- 14.5493 +/- 150.9827 +/- 151.3411	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
41	1,2-Dibromoethane (EDB) CAS # 106-93-4 Purity 99%	(Lot BCBH3877V)	2,500.4 µg/mL	+/- 14.5374 +/- 150.8587 +/- 151.2169	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
42	Chlorobenzene CAS # 108-90-7 Purity 99%	(Lot SHBH4459V)	2,501.1 µg/mL	+/- 14.5418 +/- 150.9040 +/- 151.2622	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
43	m-Xylene CAS # 108-38-3 Purity 99%	(Lot SHBJ2338)	1,251.5 µg/mL	+/- 7.2763 +/- 75.5085 +/- 75.6878	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
44	p-Xylene CAS # 106-42-3 Purity 99%	(Lot SHBJ0052)	1,250.1 µg/mL	+/- 7.2683 +/- 75.4256 +/- 75.6047	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
45	Ethylbenzene CAS # 100-41-4 Purity 99%	(Lot SHBJ3183)	2,500.0 µg/mL	+/- 14.5352 +/- 150.8361 +/- 151.1942	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
46	1,1,1,2-Tetrachloroethane CAS # 630-20-6 Purity 99%	(Lot MKBS3769V)	2,500.0 µg/mL	+/- 14.5352 +/- 150.8361 +/- 151.1942	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
47	o-Xylene CAS # 95-47-6 Purity 99%	(Lot SHBH7231)	2,500.8 µg/mL	+/- 14.5396 +/- 150.8813 +/- 151.2395	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
48	Styrene CAS # 100-42-5 Purity 99%	(Lot MKCC9766)	2,500.0 µg/mL	+/- 14.5352 +/- 150.8361 +/- 151.1942	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
49	Isopropylbenzene (cumene) CAS # 98-82-8 Purity 99%	(Lot 10185056)	2,500.1 µg/mL	+/- 14.5359 +/- 150.8436 +/- 151.2017	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
50	bromoform CAS # 75-25-2 Purity 99%	(Lot SHBG3138V)	2,501.0 µg/mL	+/- 14.5410 +/- 150.8964 +/- 151.2547	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
51	bromodichloromethane CAS # 75-27-4 Purity 99%	(Lot MKCF8470)	2,501.6 µg/mL	+/- 14.5447 +/- 150.9341 +/- 151.2925	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
52	1,1,2,2-Tetrachloroethane CAS # 79-34-5 Purity 99%	(Lot CFA4D)	2,500.5 µg/mL	+/- 14.5381 +/- 150.8662 +/- 151.2244	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
53	1,2,3-Trichloropropane CAS # 96-18-4 Purity 99%	(Lot BCBH8722V)	2,501.3 µg/mL	+/- 14.5425 +/- 150.9115 +/- 151.2698	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
54	trans-1,4-dichloro-2-butene CAS # 110-57-6 Purity 94%	(Lot MKBX7788V)	2,500.0 µg/mL	+/- 14.5355 +/- 150.8389 +/- 151.1971	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
55	n-Propylbenzene CAS # 103-65-1 Purity 99%	(Lot WXBC3346V)	2,500.0 µg/mL	+/- 14.5352 +/- 150.8361 +/- 151.1942	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

56	Bromobenzene CAS # 108-86-1 Purity 99%	(Lot WXBC5147V)	2,500.1 µg/mL	+/- 14.5359 +/- 150.8436 +/- 151.2017	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
57	1,3,5-Trimethylbenzene CAS # 108-67-8 Purity 99%	(Lot BCBS7648V)	2,500.5 µg/mL	+/- 14.5381 +/- 150.8662 +/- 151.2244	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
58	2-Chlorotoluene CAS # 95-49-8 Purity 99%	(Lot MKBW5554V)	2,500.1 µg/mL	+/- 14.5359 +/- 150.8436 +/- 151.2017	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
59	4-Chlorotoluene CAS # 106-43-4 Purity 99%	(Lot MKBL7753V)	2,500.9 µg/mL	+/- 14.5403 +/- 150.8889 +/- 151.2471	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
60	tert-Butylbenzene CAS # 98-06-6 Purity 99%	(Lot STBD6954V)	2,500.1 µg/mL	+/- 14.5359 +/- 150.8436 +/- 151.2017	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
61	1,2,4-Trimethylbenzene CAS # 95-63-6 Purity 97%	(Lot MKBH5027V)	2,499.9 µg/mL	+/- 14.5348 +/- 150.8320 +/- 151.1901	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
62	sec-Butylbenzene CAS # 135-98-8 Purity 99%	(Lot MKBR9260V)	2,501.1 µg/mL	+/- 14.5418 +/- 150.9040 +/- 151.2622	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
63	p-Isopropyltoluene (p-Cymene) CAS # 99-87-6 Purity 99%	(Lot MKBV3556V)	2,501.1 µg/mL	+/- 14.5418 +/- 150.9040 +/- 151.2622	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
64	1,3-Dichlorobenzene CAS # 541-73-1 Purity 99%	(Lot BCBQ7100V)	2,501.4 µg/mL	+/- 14.5432 +/- 150.9190 +/- 151.2773	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
65	1,4-Dichlorobenzene CAS # 106-46-7 Purity 99%	(Lot MKBS4401V)	2,501.5 µg/mL	+/- 14.5439 +/- 150.9266 +/- 151.2849	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
66	n-Butylbenzene CAS # 104-51-8 Purity 99%	(Lot 09804AE)	2,501.0 µg/mL	+/- 14.5410 +/- 150.8964 +/- 151.2547	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
67	1,2-Dichlorobenzene CAS # 95-50-1 Purity 99%	(Lot SHBG3111V)	2,502.9 µg/mL	+/- 14.5519 +/- 151.0095 +/- 151.3681	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
68	1,2-Dibromo-3-chloropropane CAS # 96-12-8 Purity 99%	(Lot FBL01)	2,502.0 µg/mL	+/- 14.5468 +/- 150.9567 +/- 151.3151	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
69	1,2,4-Trichlorobenzene CAS # 120-82-1 Purity 99%	(Lot SHBJ9215)	2,502.1 µg/mL	+/- 14.5476 +/- 150.9643 +/- 151.3227	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
70	Hexachlorobutadiene CAS # 87-68-3 Purity 99%	(Lot J31X013)	2,501.5 µg/mL	+/- 14.5439 +/- 150.9266 +/- 151.2849	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
71	Naphthalene CAS # 91-20-3 Purity 99%	(Lot MKBZ8680V)	2,502.8 µg/mL	+/- 14.5512 +/- 151.0020 +/- 151.3605	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

72	1,2,3-Trichlorobenzene		2,502.5 µg/mL	+/- 14.5498	µg/mL	Gravimetric
	CAS # 87-61-6	(Lot MKBX7627V)		+/- 150.9869	µg/mL	Unstressed
	Purity 99%			+/- 151.3454	µg/mL	Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

Column:
60m x 0.25mm x 1.4µm
Rtx-502.2 (cat.#10916)

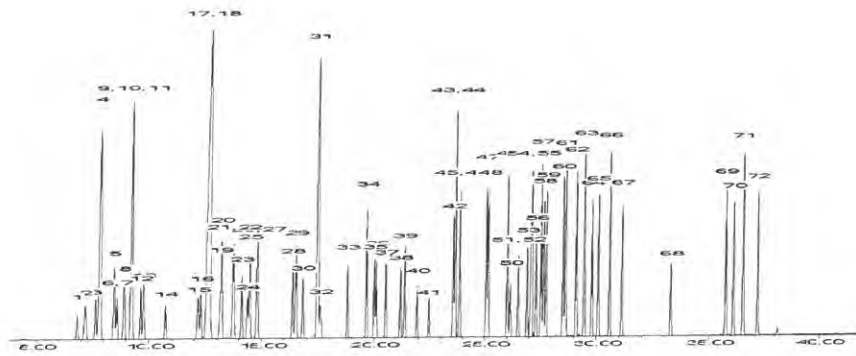
Carrier Gas:
helium-constant pressure 30 psi

Temp. Program:
40°C (hold 6 min.) to 240°C
@ 6°C/min. (hold 10 min.)

Inj. Temp:
200°C

Det. Temp:
250°C

Det. Type:
MSD



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

F. Joseph Tallon
F. Joseph Tallon - Mix Technician

Date Mixed: 05-Dec-2018 **Balance:** B251644995

Diane Shaffer
Diane Shaffer - Operations Tech-ARM QC

Date Passed: 21-Dec-2018

Manufactured under Restek's ISO 9001:2015
Registered Quality System
Certificate #FM 80397

Reagent

VM571992S_00005

Rec: 5/31/19
VMS 719925 - 00005



110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 571992.SEC Lot No.: A0144202
 Description : 8260 List 1 / Std #1 MegaMix (2017)
 8260 List 1 / Std #1 MegaMix (2017) 1,250-62,500µg/mL, P&T Methanol, 1mL/ampul
 Container Size : 2 mL Pkg Amt: > 1 mL
 Expiration Date : June 30, 2021 Storage: 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)			
1	Diethyl ether (ethyl ether)	2,517.0 µg/mL	+/-	14.6339	µg/mL	Gravimetric
	CAS # 60-29-7.SEC (Lot F23X068)		+/-	151.8598	µg/mL	Unstressed
	Purity 98%		+/-	152.2203	µg/mL	Stressed
2	1,1,2-Trichlorotrifluoroethane (CFC-113)	2,506.7 µg/mL	+/-	14.5740	µg/mL	Gravimetric
	CAS # 76-13-1.SEC (Lot 18342)		+/-	151.2383	µg/mL	Unstressed
	Purity 99%		+/-	151.5974	µg/mL	Stressed
3	1,1-Dichloroethene	2,503.3 µg/mL	+/-	14.5546	µg/mL	Gravimetric
	CAS # 75-35-4.SEC (Lot 7692300)		+/-	151.0372	µg/mL	Unstressed
	Purity 99%		+/-	151.3958	µg/mL	Stressed
4	tert-Butanol (TBA)	25,000.8 µg/mL	+/-	145.3491	µg/mL	Gravimetric
	CAS # 75-65-0.SEC (Lot XYXDO)		+/-	1,508.4071	µg/mL	Unstressed
	Purity 98%		+/-	1,511.9883	µg/mL	Stressed
5	Methyl acetate	5,002.3 µg/mL	+/-	29.0840	µg/mL	Gravimetric
	CAS # 79-20-9.SEC (Lot UCNEL)		+/-	301.8129	µg/mL	Unstressed
	Purity 99%		+/-	302.5295	µg/mL	Stressed
6	Iodomethane (methyl iodide)	2,503.5 µg/mL	+/-	14.5556	µg/mL	Gravimetric
	CAS # 74-88-4.SEC (Lot Y25A027)		+/-	151.0472	µg/mL	Unstressed
	Purity 99%		+/-	151.4059	µg/mL	Stressed
7	Allyl chloride (3-chloropropene)	2,511.7 µg/mL	+/-	14.6030	µg/mL	Gravimetric
	CAS # 107-05-1.SEC (Lot H3HG C)		+/-	151.5400	µg/mL	Unstressed
	Purity 99%		+/-	151.8998	µg/mL	Stressed

8	Methylene chloride (dichloromethane) CAS # 75-09-2,SEC (Lot FGM02) Purity 99%	2,506.7 µg/mL	+/- 14.5740 +/- 151.2383 +/- 151.5974	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
9	Carbon disulfide CAS # 75-15-0,SEC (Lot MKBL1376V) Purity 99%	2,500.7 µg/mL	+/- 14.5391 +/- 150.8763 +/- 151.2345	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
10	Acrylonitrile CAS # 107-13-1,SEC (Lot UERIL) Purity 99%	25,001.2 µg/mL	+/- 145.3513 +/- 1,508.4304 +/- 1,512.0117	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
11	Methyl-tert-butyl ether (MTBE) CAS # 1634-04-4,SEC (Lot ZHKYA) Purity 99%	2,501.5 µg/mL	+/- 14.5439 +/- 150.9266 +/- 151.2849	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
12	cis-1,2-Dichloroethene CAS # 156-59-2,SEC (Lot HGC01-BLKT) Purity 98%	2,501.3 µg/mL	+/- 14.5427 +/- 150.9137 +/- 151.2720	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
13	n-Hexane (C6) CAS # 110-54-3,SEC (Lot K24W001) Purity 97%	2,503.2 µg/mL	+/- 14.5541 +/- 151.0320 +/- 151.3905	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
14	1,1-Dichloroethane CAS # 75-34-3,SEC (Lot 5379000) Purity 99%	2,502.0 µg/mL	+/- 14.5468 +/- 150.9567 +/- 151.3151	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
15	2,2-Dichloropropane CAS # 594-20-7,SEC (Lot I7E8E) Purity 98%	2,503.2 µg/mL	+/- 14.5541 +/- 151.0320 +/- 151.3905	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
16	trans-1,2-Dichloroethene CAS # 156-60-5,SEC (Lot TS5UB) Purity 97%	2,501.0 µg/mL	+/- 14.5409 +/- 150.8954 +/- 151.2537	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
17	Isobutanol (2-Methyl-1-propanol) CAS # 78-83-1,SEC (Lot PH2XK) Purity 99%	62,508.3 µg/mL	+/- 363.4098 +/- 3,771.4029 +/- 3,780.3569	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
18	Chloroform CAS # 67-66-3,SEC (Lot 1297547) Purity 99%	2,500.5 µg/mL	+/- 14.5381 +/- 150.8662 +/- 151.2244	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
19	Bromochloromethane CAS # 74-97-5,SEC (Lot 5670200) Purity 99%	2,507.0 µg/mL	+/- 14.5759 +/- 151.2584 +/- 151.6175	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
20	Tetrahydrofuran CAS # 109-99-9,SEC (Lot 8DAOJ) Purity 99%	5,006.7 µg/mL	+/- 29.1092 +/- 302.0744 +/- 302.7916	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
21	1,1,1-Trichloroethane CAS # 71-55-6,SEC (Lot 7998000) Purity 99%	2,507.7 µg/mL	+/- 14.5798 +/- 151.2986 +/- 151.6579	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
22	Cyclohexane CAS # 110-82-7,SEC (Lot YADRA) Purity 99%	2,508.0 µg/mL	+/- 14.5817 +/- 151.3188 +/- 151.6780	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
23	1,1-Dichloropropene CAS # 563-58-6,SEC (Lot 5221100) Purity 96%	2,502.4 µg/mL	+/- 14.5492 +/- 150.9809 +/- 151.3393	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

24	Carbon tetrachloride CAS # 56-23-5.SEC Purity 99%	(Lot 11466)	2,510.3 µg/mL	+/- 14.5953 +/- 151.4595 +/- 151.8191	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
25	n-Heptane (C7) CAS # 142-82-5.SEC Purity 99%	(Lot TFHUC)	2,511.8 µg/mL	+/- 14.6040 +/- 151.5500 +/- 151.9098	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
26	1,2-Dichloroethane CAS # 107-06-2.SEC Purity 99%	(Lot FO6PK)	2,501.3 µg/mL	+/- 14.5430 +/- 150.9165 +/- 151.2748	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
27	Benzene CAS # 71-43-2.SEC Purity 99%	(Lot B28Y008)	2,504.8 µg/mL	+/- 14.5633 +/- 151.1277 +/- 151.4865	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
28	Trichloroethene CAS # 79-01-6.SEC Purity 99%	(Lot H04X050)	2,508.7 µg/mL	+/- 14.5856 +/- 151.3590 +/- 151.7183	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
29	Methylcyclohexane CAS # 108-87-2.SEC Purity 99%	(Lot Q02QG)	2,504.5 µg/mL	+/- 14.5614 +/- 151.1076 +/- 151.4663	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
30	1,2-Dichloropropane CAS # 78-87-5.SEC Purity 99%	(Lot ERRBI-RH)	2,504.0 µg/mL	+/- 14.5585 +/- 151.0774 +/- 151.4361	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
31	1,4-Dioxane CAS # 123-91-1.SEC Purity 99%	(Lot YVP2C)	50,008.0 µg/mL	+/- 290.7356 +/- 3,017.2028 +/- 3,024.3661	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
32	Dibromomethane CAS # 74-95-3.SEC Purity 99%	(Lot FGI01-OICH)	2,509.5 µg/mL	+/- 14.5904 +/- 151.4093 +/- 151.7687	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
33	cis-1,3-Dichloropropene CAS # 10061-01-5.SEC Purity 99%	(Lot 487QA)	2,502.0 µg/mL	+/- 14.5468 +/- 150.9567 +/- 151.3151	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
34	Toluene CAS # 108-88-3.SEC Purity 99%	(Lot YND2B-BD)	2,501.5 µg/mL	+/- 14.5439 +/- 150.9266 +/- 151.2849	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
35	Ethyl methacrylate CAS # 97-63-2.SEC Purity 99%	(Lot MLWYK-LS)	2,508.8 µg/mL	+/- 14.5866 +/- 151.3690 +/- 151.7284	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
36	trans-1,3-Dichloropropene CAS # 10061-02-6.SEC Purity 96%	(Lot ZDMSL)	2,502.9 µg/mL	+/- 14.5520 +/- 151.0098 +/- 151.3684	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
37	1,1,2-Trichloroethane CAS # 79-00-5.SEC Purity 99%	(Lot 7871500)	2,502.5 µg/mL	+/- 14.5498 +/- 150.9869 +/- 151.3454	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
38	1,3-Dichloropropane CAS # 142-28-9.SEC Purity 99%	(Lot AGN01-EFPC)	2,502.7 µg/mL	+/- 14.5507 +/- 150.9970 +/- 151.3555	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
39	Tetrachloroethene CAS # 127-18-4.SEC Purity 99%	(Lot F09W014)	2,505.0 µg/mL	+/- 14.5643 +/- 151.1378 +/- 151.4966	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

40	Dibromochloromethane CAS # 124-48-1.SEC Purity 97%	(Lot 10206360)	2,502.4 µg/mL	+/- 14.5494 +/- 150.9832 +/- 151.3417	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
41	1,2-Dibromoethane (EDB) CAS # 106-93-4.SEC Purity 99%	(Lot 3505900)	2,503.3 µg/mL	+/- 14.5546 +/- 151.0372 +/- 151.3958	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
42	Chlorobenzene CAS # 108-90-7.SEC Purity 99%	(Lot 1161936)	2,504.8 µg/mL	+/- 14.5633 +/- 151.1277 +/- 151.4865	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
43	m-Xylene CAS # 108-38-3.SEC Purity 99%	(Lot OUKMG-GB)	1,251.7 µg/mL	+/- 7.2941 +/- 75.5202 +/- 75.6995	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
44	p-Xylene CAS # 106-42-3.SEC Purity 99%	(Lot GM01)	1,253.7 µg/mL	+/- 7.3058 +/- 75.6409 +/- 75.8205	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
45	Ethylbenzene CAS # 100-41-4.SEC Purity 99%	(Lot PI4SE)	2,503.5 µg/mL	+/- 14.5556 +/- 151.0472 +/- 151.4059	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
46	1,1,1,2-Tetrachloroethane CAS # 630-20-6.SEC Purity 99%	(Lot GC01)	2,506.7 µg/mL	+/- 14.5740 +/- 151.2383 +/- 151.5974	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
47	o-Xylene CAS # 95-47-6.SEC Purity 99%	(Lot FGL01)	2,504.2 µg/mL	+/- 14.5594 +/- 151.0875 +/- 151.4462	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
48	Styrene CAS # 100-42-5.SEC Purity 99%	(Lot OFIOL-IA)	2,507.2 µg/mL	+/- 14.5769 +/- 151.2685 +/- 151.6276	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
49	Isopropylbenzene (cumene) CAS # 98-82-8.SEC Purity 99%	(Lot 2PHXG-IH)	2,505.2 µg/mL	+/- 14.5653 +/- 151.1478 +/- 151.5067	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
50	Bromoform CAS # 75-25-2.SEC Purity 97%	(Lot 5461400)	2,500.5 µg/mL	+/- 14.5381 +/- 150.8661 +/- 151.2243	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
51	Bromodichloromethane CAS # 75-27-4.SEC Purity 98%	(Lot 13780)	2,501.3 µg/mL	+/- 14.5427 +/- 150.9137 +/- 151.2720	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
52	1,1,2,2-Tetrachloroethane CAS # 79-34-5.SEC Purity 99%	(Lot CFA4D-AQ)	2,502.0 µg/mL	+/- 14.5468 +/- 150.9567 +/- 151.3151	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
53	1,2,3-Trichloropropane CAS # 96-18-4.SEC Purity 99%	(Lot GUHZN)	2,505.7 µg/mL	+/- 14.5682 +/- 151.1780 +/- 151.5369	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
54	trans-1,4-Dichloro-2-butene CAS # 110-57-6.SEC Purity 98%	(Lot 100700-3)	2,514.2 µg/mL	+/- 14.6177 +/- 151.6922 +/- 152.0524	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
55	n-Propylbenzene CAS # 103-65-1.SEC Purity 99%	(Lot T2HFC)	2,503.7 µg/mL	+/- 14.5565 +/- 151.0573 +/- 151.4159	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

56	Bromobenzene CAS # 108-86-1.SEC Purity 99%	(Lot 2FUHG-EM)	2,506.2 µg/mL	+/- 14.5711 +/- 151.2081 +/- 151.5671	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
57	1,3,5-Trimethylbenzene CAS # 108-67-8.SEC Purity 99%	(Lot FGH02-CMLN)	2,510.0 µg/mL	+/- 14.5934 +/- 151.4394 +/- 151.7990	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
58	2-Chlorotoluene CAS # 95-49-8.SEC Purity 99%	(Lot SW8QG-AO)	2,504.7 µg/mL	+/- 14.5623 +/- 151.1176 +/- 151.4764	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
59	4-Chlorotoluene CAS # 106-43-4.SEC Purity 99%	(Lot P4XHJ-AO)	2,509.2 µg/mL	+/- 14.5885 +/- 151.3891 +/- 151.7486	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
60	tert-Butylbenzene CAS # 98-06-6.SEC Purity 99%	(Lot D6OHC)	2,505.8 µg/mL	+/- 14.5691 +/- 151.1880 +/- 151.5470	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
61	1,2,4-Trimethylbenzene CAS # 95-63-6.SEC Purity 99%	(Lot JMIYD)	2,508.7 µg/mL	+/- 14.5856 +/- 151.3590 +/- 151.7183	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
62	sec-Butylbenzene CAS # 135-98-8.SEC Purity 99%	(Lot OGN01-IMA)	2,504.7 µg/mL	+/- 14.5623 +/- 151.1176 +/- 151.4764	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
63	4-Isopropyltoluene (p-cymene) CAS # 99-87-6.SEC Purity 99%	(Lot 6628200)	2,500.3 µg/mL	+/- 14.5372 +/- 150.8562 +/- 151.2143	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
64	1,3-Dichlorobenzene CAS # 541-73-1.SEC Purity 99%	(Lot FMDFD)	2,506.3 µg/mL	+/- 14.5720 +/- 151.2182 +/- 151.5772	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
65	1,4-Dichlorobenzene CAS # 106-46-7.SEC Purity 99%	(Lot 4Y5DC)	2,509.8 µg/mL	+/- 14.5924 +/- 151.4294 +/- 151.7889	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
66	n-Butylbenzene CAS # 104-51-8.SEC Purity 99%	(Lot MMPGA)	2,513.7 µg/mL	+/- 14.6147 +/- 151.6607 +/- 152.0207	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
67	1,2-Dichlorobenzene CAS # 95-50-1.SEC Purity 99%	(Lot R6QDM)	2,501.8 µg/mL	+/- 14.5459 +/- 150.9467 +/- 151.3051	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
68	1,2-Dibromo-3-chloropropane CAS # 96-12-8.SEC Purity 98%	(Lot LC00408V)	2,508.5 µg/mL	+/- 14.5845 +/- 151.3473 +/- 151.7066	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
69	1,2,4-Trichlorobenzene CAS # 120-82-1.SEC Purity 99%	(Lot 3LYYC)	2,503.3 µg/mL	+/- 14.5546 +/- 151.0372 +/- 151.3958	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
70	Hexachlorobutadiene CAS # 87-68-3.SEC Purity 97%	(Lot 5526800)	2,504.4 µg/mL	+/- 14.5607 +/- 151.1002 +/- 151.4590	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
71	Naphthalene CAS # 91-20-3.SEC Purity 99%	(Lot 4KW3H-00)	2,503.3 µg/mL	+/- 14.5546 +/- 151.0372 +/- 151.3958	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

72	1,2,3-Trichlorobenzene		2,512.2 µg/mL	+/- 14.6063	µg/mL	Gravimetric
	CAS # 87-61-6.SEC	(Lot A0043055)		+/- 151.5740	µg/mL	Unstressed
	Purity 98%			+/- 151.9338	µg/mL	Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

Column:
60m x 0.25mm x 1.4µm
Rtx-502.2 (cat.#10916)

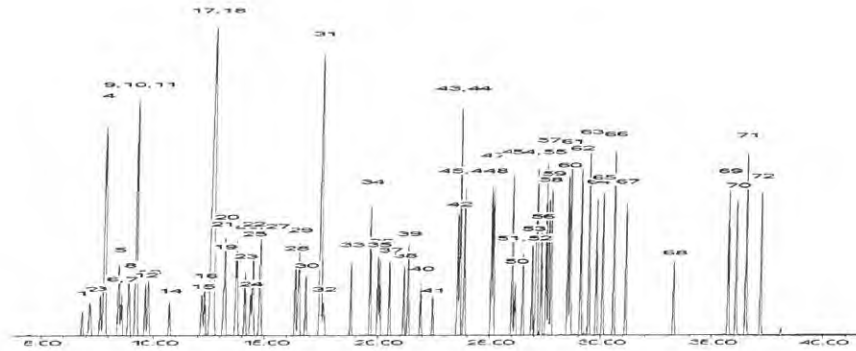
Carrier Gas:
helium-constant pressure 30 psi

Temp. Program:
40°C (hold 6 min.) to 240°C
@ 6°C/min. (hold 10 min.)

Inj. Temp:
200°C

Det. Temp:
250°C

Det. Type:
MSD



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Brandon Reish
Brandon Reish - Mix Technician

Date Mixed: 17-Dec-2018 **Balance:** 1127510105

Diane Shaffer
Diane Shaffer - Operations Tech-ARM QC

Date Passed: 21-Dec-2018

Manufactured under Restek's ISO 9001:2015
Registered Quality System
Certificate #FM 80397

Reagent

VM571992S_00006



110 Benner Circle
 Bellefonte, PA 16823-8812
 Tel: (800)356-1688
 Fax: (814)353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

Rec: 9/9/14
 VM 5719925-00006



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 571992.SEC **Lot No.:** A0144202
Description : 8260 List 1 / Std #1 MegaMix (2017)
8260 List 1 / Std #1 MegaMix (2017) 1,250-62,500µg/mL, P&T Methanol, 1mL/ampul
Container Size : 2 mL **Pkg Amt:** > 1 mL
Expiration Date : June 30, 2021 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L., K=2)			
1	Diethyl ether (ethyl ether)	2,517.0 µg/mL	+/-	14.6339	µg/mL	Gravimetric
	CAS # 60-29-7.SEC (Lot F23X068)		+/-	151.8598	µg/mL	Unstressed
	Purity 98%		+/-	152.2203	µg/mL	Stressed
2	1,1,2-Trichlorotrifluoroethane (CFC-113)	2,506.7 µg/mL	+/-	14.5740	µg/mL	Gravimetric
	CAS # 76-13-1.SEC (Lot 18342)		+/-	151.2383	µg/mL	Unstressed
	Purity 99%		+/-	151.5974	µg/mL	Stressed
3	1,1-Dichloroethene	2,503.3 µg/mL	+/-	14.5546	µg/mL	Gravimetric
	CAS # 75-35-4.SEC (Lot 7692300)		+/-	151.0372	µg/mL	Unstressed
	Purity 99%		+/-	151.3958	µg/mL	Stressed
4	tert-Butanol (TBA)	25,000.8 µg/mL	+/-	145.3491	µg/mL	Gravimetric
	CAS # 75-65-0.SEC (Lot XYXDO)		+/-	1,508.4071	µg/mL	Unstressed
	Purity 98%		+/-	1,511.9883	µg/mL	Stressed
5	Methyl acetate	5,002.3 µg/mL	+/-	29.0840	µg/mL	Gravimetric
	CAS # 79-20-9.SEC (Lot UCNEL)		+/-	301.8129	µg/mL	Unstressed
	Purity 99%		+/-	302.5295	µg/mL	Stressed
6	Iodomethane (methyl iodide)	2,503.5 µg/mL	+/-	14.5556	µg/mL	Gravimetric
	CAS # 74-88-4.SEC (Lot Y25A027)		+/-	151.0472	µg/mL	Unstressed
	Purity 99%		+/-	151.4059	µg/mL	Stressed
7	Allyl chloride (3-chloropropene)	2,511.7 µg/mL	+/-	14.6030	µg/mL	Gravimetric
	CAS # 107-05-1.SEC (Lot H3HGC)		+/-	151.5400	µg/mL	Unstressed
	Purity 99%		+/-	151.8998	µg/mL	Stressed

8	Methylene chloride (dichloromethane) CAS # 75-09-2.SEC (Lot FGM02) Purity 99%	2,506.7 µg/mL	+/- 14.5740 +/- 151.2383 +/- 151.5974	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
9	Carbon disulfide CAS # 75-15-0.SEC (Lot MKBL1376V) Purity 99%	2,500.7 µg/mL	+/- 14.5391 +/- 150.8763 +/- 151.2345	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
10	Acrylonitrile CAS # 107-13-1.SEC (Lot UERIL) Purity 99%	25,001.2 µg/mL	+/- 145.3513 +/- 1,508.4304 +/- 1,512.0117	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
11	Methyl-tert-butyl ether (MTBE) CAS # 1634-04-4.SEC (Lot ZHKYA) Purity 99%	2,501.5 µg/mL	+/- 14.5439 +/- 150.9266 +/- 151.2849	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
12	cis-1,2-Dichloroethene CAS # 156-59-2.SEC (Lot HGC01-BLKT) Purity 98%	2,501.3 µg/mL	+/- 14.5427 +/- 150.9137 +/- 151.2720	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
13	n-Hexane (C6) CAS # 110-54-3.SEC (Lot K24W001) Purity 97%	2,503.2 µg/mL	+/- 14.5541 +/- 151.0320 +/- 151.3905	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
14	1,1-Dichloroethane CAS # 75-34-3.SEC (Lot 5379000) Purity 99%	2,502.0 µg/mL	+/- 14.5468 +/- 150.9567 +/- 151.3151	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
15	2,2-Dichloropropane CAS # 594-20-7.SEC (Lot I7E8E) Purity 98%	2,503.2 µg/mL	+/- 14.5541 +/- 151.0320 +/- 151.3905	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
16	trans-1,2-Dichloroethene CAS # 156-60-5.SEC (Lot TS5UB) Purity 97%	2,501.0 µg/mL	+/- 14.5409 +/- 150.8954 +/- 151.2537	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
17	Isobutanol (2-Methyl-1-propanol) CAS # 78-83-1.SEC (Lot PH2XK) Purity 99%	62,508.3 µg/mL	+/- 363.4098 +/- 3,771.4029 +/- 3,780.3569	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
18	Chloroform CAS # 67-66-3.SEC (Lot 1297547) Purity 99%	2,500.5 µg/mL	+/- 14.5381 +/- 150.8662 +/- 151.2244	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
19	Bromochloromethane CAS # 74-97-5.SEC (Lot 5670200) Purity 99%	2,507.0 µg/mL	+/- 14.5759 +/- 151.2584 +/- 151.6175	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
20	Tetrahydrofuran CAS # 109-99-9.SEC (Lot 8DAOJ) Purity 99%	5,006.7 µg/mL	+/- 29.1092 +/- 302.0744 +/- 302.7916	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
21	1,1,1-Trichloroethane CAS # 71-55-6.SEC (Lot 7998000) Purity 99%	2,507.7 µg/mL	+/- 14.5798 +/- 151.2986 +/- 151.6579	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
22	Cyclohexane CAS # 110-82-7.SEC (Lot YADRA) Purity 99%	2,508.0 µg/mL	+/- 14.5817 +/- 151.3188 +/- 151.6780	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
23	1,1-Dichloropropene CAS # 563-58-6.SEC (Lot 5221100) Purity 96%	2,502.4 µg/mL	+/- 14.5492 +/- 150.9809 +/- 151.3393	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

24	Carbon tetrachloride CAS # 56-23-5.SEC Purity 99%	(Lot I1466)	2,510.3 µg/mL	+/- 14.5953 +/- 151.4595 +/- 151.8191	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
25	n-Heptane (C7) CAS # 142-82-5.SEC Purity 99%	(Lot TFHUC)	2,511.8 µg/mL	+/- 14.6040 +/- 151.5500 +/- 151.9098	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
26	1,2-Dichloroethane CAS # 107-06-2.SEC Purity 99%	(Lot FO6PK)	2,501.3 µg/mL	+/- 14.5430 +/- 150.9165 +/- 151.2748	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
27	Benzene CAS # 71-43-2.SEC Purity 99%	(Lot B28Y008)	2,504.8 µg/mL	+/- 14.5633 +/- 151.1277 +/- 151.4865	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
28	Trichloroethene CAS # 79-01-6.SEC Purity 99%	(Lot H04X050)	2,508.7 µg/mL	+/- 14.5856 +/- 151.3590 +/- 151.7183	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
29	Methylcyclohexane CAS # 108-87-2.SEC Purity 99%	(Lot Q02QG)	2,504.5 µg/mL	+/- 14.5614 +/- 151.1076 +/- 151.4663	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
30	1,2-Dichloropropane CAS # 78-87-5.SEC Purity 99%	(Lot ERRBI-RH)	2,504.0 µg/mL	+/- 14.5585 +/- 151.0774 +/- 151.4361	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
31	1,4-Dioxane CAS # 123-91-1.SEC Purity 99%	(Lot YVP2C)	50,008.0 µg/mL	+/- 290.7356 +/- 3,017.2028 +/- 3,024.3661	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
32	Dibromomethane CAS # 74-95-3.SEC Purity 99%	(Lot FGI01-OICH)	2,509.5 µg/mL	+/- 14.5904 +/- 151.4093 +/- 151.7687	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
33	cis-1,3-Dichloropropene CAS # 10061-01-5.SEC Purity 99%	(Lot 487OA)	2,502.0 µg/mL	+/- 14.5468 +/- 150.9567 +/- 151.3151	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
34	Toluene CAS # 108-88-3.SEC Purity 99%	(Lot YND2B-BD)	2,501.5 µg/mL	+/- 14.5439 +/- 150.9266 +/- 151.2849	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
35	Ethyl methacrylate CAS # 97-63-2.SEC Purity 99%	(Lot MLWYK-LS)	2,508.8 µg/mL	+/- 14.5866 +/- 151.3690 +/- 151.7284	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
36	trans-1,3-Dichloropropene CAS # 10061-02-6.SEC Purity 96%	(Lot ZDMSL)	2,502.9 µg/mL	+/- 14.5520 +/- 151.0098 +/- 151.3684	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
37	1,1,2-Trichloroethane CAS # 79-00-5.SEC Purity 99%	(Lot 7871500)	2,502.5 µg/mL	+/- 14.5498 +/- 150.9869 +/- 151.3454	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
38	1,3-Dichloropropane CAS # 142-28-9.SEC Purity 99%	(Lot AGN01-EFPC)	2,502.7 µg/mL	+/- 14.5507 +/- 150.9970 +/- 151.3555	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
39	Tetrachloroethene CAS # 127-18-4.SEC Purity 99%	(Lot F09W014)	2,505.0 µg/mL	+/- 14.5643 +/- 151.1378 +/- 151.4966	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

40	Dibromochloromethane CAS # 124-48-1.SEC Purity 97%	(Lot 10206360)	2,502.4 µg/mL	+/- 14.5494 +/- 150.9832 +/- 151.3417	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
41	1,2-Dibromoethane (EDB) CAS # 106-93-4.SEC Purity 99%	(Lot 3505900)	2,503.3 µg/mL	+/- 14.5546 +/- 151.0372 +/- 151.3958	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
42	Chlorobenzene CAS # 108-90-7.SEC Purity 99%	(Lot 1161936)	2,504.8 µg/mL	+/- 14.5633 +/- 151.1277 +/- 151.4865	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
43	m-Xylene CAS # 108-38-3.SEC Purity 99%	(Lot OUKMG-GB)	1,251.7 µg/mL	+/- 7.2941 +/- 75.5202 +/- 75.6995	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
44	p-Xylene CAS # 106-42-3.SEC Purity 99%	(Lot GM01)	1,253.7 µg/mL	+/- 7.3058 +/- 75.6409 +/- 75.8205	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
45	Ethylbenzene CAS # 100-41-4.SEC Purity 99%	(Lot PI4SE)	2,503.5 µg/mL	+/- 14.5556 +/- 151.0472 +/- 151.4059	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
46	1,1,1,2-Tetrachloroethane CAS # 630-20-6.SEC Purity 99%	(Lot GC01)	2,506.7 µg/mL	+/- 14.5740 +/- 151.2383 +/- 151.5974	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
47	o-Xylene CAS # 95-47-6.SEC Purity 99%	(Lot FGL01)	2,504.2 µg/mL	+/- 14.5594 +/- 151.0875 +/- 151.4462	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
48	Styrene CAS # 100-42-5.SEC Purity 99%	(Lot OFIOL-IA)	2,507.2 µg/mL	+/- 14.5769 +/- 151.2685 +/- 151.6276	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
49	Isopropylbenzene (cumene) CAS # 98-82-8.SEC Purity 99%	(Lot 2PHXG-IH)	2,505.2 µg/mL	+/- 14.5653 +/- 151.1478 +/- 151.5067	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
50	Bromoform CAS # 75-25-2.SEC Purity 97%	(Lot 5461400)	2,500.5 µg/mL	+/- 14.5381 +/- 150.8661 +/- 151.2243	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
51	Bromodichloromethane CAS # 75-27-4.SEC Purity 98%	(Lot 13780)	2,501.3 µg/mL	+/- 14.5427 +/- 150.9137 +/- 151.2720	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
52	1,1,2,2-Tetrachloroethane CAS # 79-34-5.SEC Purity 99%	(Lot CFA4D-AQ)	2,502.0 µg/mL	+/- 14.5468 +/- 150.9567 +/- 151.3151	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
53	1,2,3-Trichloropropane CAS # 96-18-4.SEC Purity 99%	(Lot GUHZN)	2,505.7 µg/mL	+/- 14.5682 +/- 151.1780 +/- 151.5369	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
54	trans-1,4-Dichloro-2-butene CAS # 110-57-6.SEC Purity 98%	(Lot 100700-3)	2,514.2 µg/mL	+/- 14.6177 +/- 151.6922 +/- 152.0524	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
55	n-Propylbenzene CAS # 103-65-1.SEC Purity 99%	(Lot T2HFC)	2,503.7 µg/mL	+/- 14.5565 +/- 151.0573 +/- 151.4159	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

56	Bromobenzene		2,506.2	µg/mL	+/-	14.5711	µg/mL	Gravimetric
	CAS #	108-86-1.SEC	(Lot 2FUHG-EM)		+/-	151.2081	µg/mL	Unstressed
	Purity	99%			+/-	151.5671	µg/mL	Stressed
57	1,3,5-Trimethylbenzene		2,510.0	µg/mL	+/-	14.5934	µg/mL	Gravimetric
	CAS #	108-67-8.SEC	(Lot FGH02-CMLN)		+/-	151.4394	µg/mL	Unstressed
	Purity	99%			+/-	151.7990	µg/mL	Stressed
58	2-Chlorotoluene		2,504.7	µg/mL	+/-	14.5623	µg/mL	Gravimetric
	CAS #	95-49-8.SEC	(Lot SW8QG-AO)		+/-	151.1176	µg/mL	Unstressed
	Purity	99%			+/-	151.4764	µg/mL	Stressed
59	4-Chlorotoluene		2,509.2	µg/mL	+/-	14.5885	µg/mL	Gravimetric
	CAS #	106-43-4.SEC	(Lot P4XHJ-AO)		+/-	151.3891	µg/mL	Unstressed
	Purity	99%			+/-	151.7486	µg/mL	Stressed
60	tert-Butylbenzene		2,505.8	µg/mL	+/-	14.5691	µg/mL	Gravimetric
	CAS #	98-06-6.SEC	(Lot D6OHC)		+/-	151.1880	µg/mL	Unstressed
	Purity	99%			+/-	151.5470	µg/mL	Stressed
61	1,2,4-Trimethylbenzene		2,508.7	µg/mL	+/-	14.5856	µg/mL	Gravimetric
	CAS #	95-63-6.SEC	(Lot JMIYD)		+/-	151.3590	µg/mL	Unstressed
	Purity	99%			+/-	151.7183	µg/mL	Stressed
62	sec-Butylbenzene		2,504.7	µg/mL	+/-	14.5623	µg/mL	Gravimetric
	CAS #	135-98-8.SEC	(Lot OGN01-IMA)		+/-	151.1176	µg/mL	Unstressed
	Purity	99%			+/-	151.4764	µg/mL	Stressed
63	4-Isopropyltoluene (p-cymene)		2,500.3	µg/mL	+/-	14.5372	µg/mL	Gravimetric
	CAS #	99-87-6.SEC	(Lot 6628200)		+/-	150.8562	µg/mL	Unstressed
	Purity	99%			+/-	151.2143	µg/mL	Stressed
64	1,3-Dichlorobenzene		2,506.3	µg/mL	+/-	14.5720	µg/mL	Gravimetric
	CAS #	541-73-1.SEC	(Lot FMDFD)		+/-	151.2182	µg/mL	Unstressed
	Purity	99%			+/-	151.5772	µg/mL	Stressed
65	1,4-Dichlorobenzene		2,509.8	µg/mL	+/-	14.5924	µg/mL	Gravimetric
	CAS #	106-46-7.SEC	(Lot 4Y5DC)		+/-	151.4294	µg/mL	Unstressed
	Purity	99%			+/-	151.7889	µg/mL	Stressed
66	n-Butylbenzene		2,513.7	µg/mL	+/-	14.6147	µg/mL	Gravimetric
	CAS #	104-51-8.SEC	(Lot MMPGA)		+/-	151.6607	µg/mL	Unstressed
	Purity	99%			+/-	152.0207	µg/mL	Stressed
67	1,2-Dichlorobenzene		2,501.8	µg/mL	+/-	14.5459	µg/mL	Gravimetric
	CAS #	95-50-1.SEC	(Lot R6QDM)		+/-	150.9467	µg/mL	Unstressed
	Purity	99%			+/-	151.3051	µg/mL	Stressed
68	1,2-Dibromo-3-chloropropane		2,508.5	µg/mL	+/-	14.5845	µg/mL	Gravimetric
	CAS #	96-12-8.SEC	(Lot LC00408V)		+/-	151.3473	µg/mL	Unstressed
	Purity	98%			+/-	151.7066	µg/mL	Stressed
69	1,2,4-Trichlorobenzene		2,503.3	µg/mL	+/-	14.5546	µg/mL	Gravimetric
	CAS #	120-82-1.SEC	(Lot 3LYYC)		+/-	151.0372	µg/mL	Unstressed
	Purity	99%			+/-	151.3958	µg/mL	Stressed
70	Hexachlorobutadiene		2,504.4	µg/mL	+/-	14.5607	µg/mL	Gravimetric
	CAS #	87-68-3.SEC	(Lot 5526800)		+/-	151.1002	µg/mL	Unstressed
	Purity	97%			+/-	151.4590	µg/mL	Stressed
71	Naphthalene		2,503.3	µg/mL	+/-	14.5546	µg/mL	Gravimetric
	CAS #	91-20-3.SEC	(Lot 4KW3H-OO)		+/-	151.0372	µg/mL	Unstressed
	Purity	99%			+/-	151.3958	µg/mL	Stressed

72	1,2,3-Trichlorobenzene		2,512.2 µg/mL	+/- 14.6063	µg/mL	Gravimetric
	CAS # 87-61-6.SEC	(Lot A0043055)		+/- 151.5740	µg/mL	Unstressed
	Purity 98%			+/- 151.9338	µg/mL	Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

Column:
60m x 0.25mm x 1.4µm
Rtx-502.2 (cat.#10916)

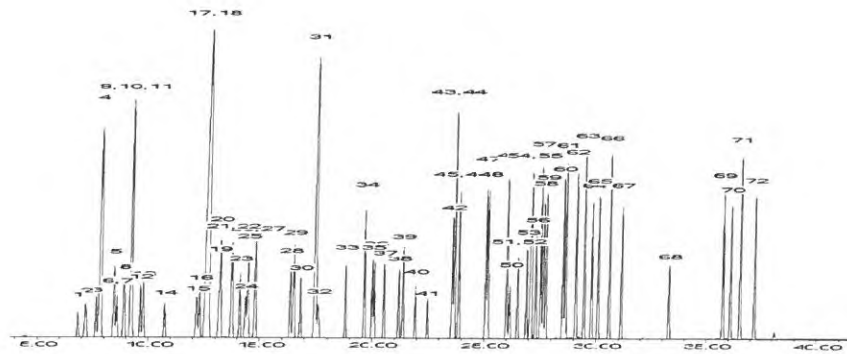
Carrier Gas:
helium-constant pressure 30 psi

Temp. Program:
40°C (hold 6 min.) to 240°C
@ 6°C/min. (hold 10 min.)

Inj. Temp:
200°C

Det. Temp:
250°C

Det. Type:
MSD



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Brandon Reish

Brandon Reish - Mix Technician

Date Mixed: 17-Dec-2018

Balance: 1127510105

Diane Shaffer

Diane Shaffer - Operations Tech-ARM QC

Date Passed: 21-Dec-2018

Manufactured under Restek's ISO 9001:2015
Registered Quality System
Certificate #FM 80397

Reagent

VMNSIMIX2_00008

Certificate of Analysis

8260 Extras Mix 2

Catalog Number: Q-3383
Lot Number: 062019
Manufacture Date: 06/20/2019

Expiration: 06/30/2020
Solvent: Methanol/Water
Hazards: Irritant, Toxic

<u>Analyte</u>	<u>CAS</u>	<u>Analyte Purity</u>	<u>Gravimetric Concentration (ug/mL)</u>
Ethylene oxide	75-21-8	99.0%	25000 ± 176
Epichlorohydrin	106-89-8	99.9%	9998 ± 70
Propylene oxide	75-56-9	99.0%	10001 ± 71
1,4-Dioxane	123-91-1	100%	50002 ± 353

Packaging, Storage, Instructions For Use

This standard is packaged in a flame-sealed ampule and **must be stored at -15 to -30°C**. To use this standard, allow it to reach room temperature. Mix it gently by inversion. Inspect for precipitate. If present, sonicate for a few minutes to redissolve. Open the ampule and withdraw an aliquot appropriate for your application.

Traceability Information

Analyte Source Materials: The highest purity analyte source materials are used in the manufacture of this standard. The actual purity is referenced above.

Method: This standard was verified gravimetrically.

Balance: All analytical balances are calibrated on a semiannual basis by an ISO 17025 accredited calibration laboratory and are traceable to NIST. Traceable Calibration Certificate available upon request.

All balances are checked daily by an in-house standard operating procedure. The weights used for this daily verification are calibrated annually by an ISO 17025 accredited calibration laboratory and are certified traceable to NIST. Certificate of Calibration and Traceability available upon request.

Thermometer: All thermometers are NIST traceable through thermometers that are calibrated annually by an ISO 17025 accredited calibration laboratory.

Glassware: All glassware used in the manufacture of our standards is Class A. An in-house standard operating procedure is used to verify all glassware prior to it being placed into service. Volumetric pipeters are calibrated every four months by an ISO 17025 accredited calibration laboratory.



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Catalog Number: Q-3383

Lot Number: 062019

Intended Uses

- Calibration of analytical instruments
- Validation of analytical methods
- Preparation of working level reference materials, i.e. "check standards"
- Detection limit studies

Homogeneity

This standard was thoroughly mixed in production and is guaranteed homogenous.

Kenneth Grzybowski

Kenneth Grzybowski, Organics Department Manager

Mark Hammersla

Mark Hammersla, President



ISO 9001:2015 UL Registered Firm - Certificate # 10002343 QM15



Reagent

VMNSIMIX2_00009

Certificate of Analysis

8620 Extra Mix 2

Catalog Number: Q-3383 **Expiration:** 05/31/2021
Lot Number: 200527 **Solvent:** 1:1 Methanol:Water
Manufacture Date: 05/27/2020 **Hazards:** Irritant, Toxic

<u>Analyte</u>	<u>CAS</u>	<u>Analyte Purity</u>	<u>Gravimetric Concentration (ug/mL)</u>
Epichlorohydrin	106-89-8	99.9%	9998.2 ± 93.1
Propylene oxide	75-56-9	99.0%	9998.4 ± 93.1
1,4-Dioxane	123-91-1	100%	49998.7 ± 465.5
Ethylene Oxide	75-21-8	99.0%	24900.0 ± 231.8

This certified reference material (CRM) was manufactured and certified by NSI Lab Solutions according to quality procedures meeting our accreditation requirements of ISO 17034:2015 and ISO/IEC 17025:2017. Our certificates and scopes of accreditation may be viewed at www.anab.org.

Packaging, Storage, Instructions For Use

This CRM is packaged in a flame-sealed ampule and must be stored at -10°C to -20°C. To use this CRM, allow it to reach room temperature. Mix it gently by inversion. Inspect for precipitate. If present, sonicate for a few minutes to redissolve. Open the ampule and withdraw an aliquot appropriate for your application.

Traceability Information

Analyte Source Materials: The highest purity analyte source materials are used in the manufacture of this standard. The actual purity is referenced above.

Method: This CRM was verified Volumetrically and Analytically.

Balance: All analytical balances are calibrated on a semiannual basis by an ISO 17025 accredited calibration laboratory and are traceable to NIST. Traceable Calibration Certificate available upon request.

All balances are checked daily by an in-house standard operating procedure. The weights used for this daily verification are calibrated annually by an ISO 17025 accredited calibration laboratory and are certified traceable to NIST. Certificate of Calibration and Traceability available upon request.

Catalog Number: Q-3383
Lot Number: 200527

Thermometer: All thermometers are NIST traceable through thermometers that are calibrated annually by an ISO 17025 accredited calibration laboratory.

Glassware: All glassware used in the manufacture of our standards is Class A. An in-house standard operating procedure is used to verify all glassware prior to it being placed into service. Volumetric pipetors are calibrated every four months by an ISO 17025 accredited calibration laboratory.

Intended Uses

- Calibration of analytical instruments
- Validation of analytical methods
- Preparation of working level reference materials, i.e. "check standards"
- Detection limit studies

Homogeneity

This CRM was thoroughly mixed in production and is guaranteed homogenous.

Ken Grzybowski

Ken Grzybowski, Organics Department Manager

Mark Hammersla

Mark Hammersla, President

8260B_MI

Volatile Organic Compounds (GC/MS)

FORM II
GC/MS VOA SURROGATE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Matrix: Solid Level: Medium

GC Column (1): DB-624 ID: 0.18 (mm)

Client Sample ID	Lab Sample ID	DBFM #	DCA #	TOL #	BFB #
SB-141 (0.5-1) 072820	240-134182-1	92	95	110	118
SB-141 (1-2) 072820	240-134182-2	88	91	105	106
SB-141 (2-3) 072820	240-134182-3	86	90	106	106
SB-141 (3-4) 072820	240-134182-4	85	88	102	105
SB-141 (4-5) 072820	240-134182-5	86	89	103	109
SB-141 (5-6) 072820	240-134182-6	92	96	110	111
SB-141 (6-7) 072820	240-134182-7	88	91	107	109
SB-141 (7-8) 072820	240-134182-8	86	89	103	105
TMW-20-02 (0.5-1) 072820	240-134182-9	87	92	108	109
TMW-20-02 (1-2) 072820	240-134182-10	84	89	103	107
TMW-20-02 (2-3) 072820	240-134182-11	93	99	111	114
TMW-20-02 (3-4) 072820	240-134182-12	83	87	99	99
TMW-20-02 (4-5) 072820	240-134182-13	85	92	108	110
TMW-20-02 (5-6) 072820	240-134182-14	91	97	109	111
TMW-20-02 (6-7) 072820	240-134182-15	84	90	101	103
TMW-20-02 (7-8) 072820	240-134182-16	88	95	106	108
SB-142 (0.5-1) 072820	240-134182-17	88	96	108	108
SB-142 (1-2) 072820	240-134182-18	85	90	103	104
SB-142 (2-3) 072820	240-134182-19	82	86	102	106
SB-142 (3-4) 072820	240-134182-20	89	94	108	114
SB-142 (4-5) 072820	240-134182-21	83	88	102	104
SB-142 (5-6) 072820	240-134182-22	88	95	106	106
SB-142 (6-7) 072820	240-134182-23	90	95	109	113
SB-142 (7-8) 072820	240-134182-24	88	93	108	110

QC LIMITS

DBFM = Dibromofluoromethane (Surr)	49-122
DCA = 1,2-Dichloroethane-d4 (Surr)	47-136
TOL = Toluene-d8 (Surr)	55-123
BFB = 4-Bromofluorobenzene (Surr)	51-124

Column to be used to flag recovery values

FORM II
GC/MS VOA SURROGATE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Matrix: Solid Level: Medium

GC Column (1): DB-624 ID: 0.18 (mm)

Client Sample ID	Lab Sample ID	DBFM #	DCA #	TOL #	BFB #
SB-143 (0.5-1) 072820	240-134182-25	87	91	105	108
SB-143 (1-2) 072820	240-134182-26	86	91	104	104
SB-143 (2-3) 072820	240-134182-27	86	93	104	105
SB-143 (3-4) 072820	240-134182-28	85	90	103	104
SB-143 (4-5) 072820	240-134182-29	89	94	110	112
SB-143 (5-6) 072820	240-134182-30	88	94	107	109
SB-143 (6-7) 072820	240-134182-31	82	88	101	104
SB-143 (7-8) 072820	240-134182-32	89	95	110	111
DUP-03	240-134182-33	87	93	105	106
	MB 240-445021/1-A	79	81	95	96
	MB 240-445424/1-A	76	82	93	93
	LCS 240-445021/2-A	82	84	97	99
	LCS 240-445424/2-A	80	84	97	98
SB-142 (4-5) 072820 MS	240-134182-21 MS	87	93	104	115
SB-143 (0.5-1) 072820 MS	240-134182-25 MS	88	89	107	107
SB-143 (3-4) 072820 MS	240-134182-28 MS	84	88	100	102
SB-143 (0.5-1) 072820 MSD	240-134182-25 MSD	92	96	107	109
SB-143 (3-4) 072820 MSD	240-134182-28 MSD	86	85	103	107

DBFM = Dibromofluoromethane (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)

QC LIMITS
49-122
47-136
55-123
51-124

Column to be used to flag recovery values

FORM II 8260B MI

FORM III
GC/MS VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Matrix: Solid Level: Medium Lab File ID: U1279415.D

Lab ID: LCS 240-445021/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC	QC LIMITS REC	#
1,1-Dichloroethene	1000	1130	113	48-140	
1,4-Dioxane	20000	20900	104	44-154	
cis-1,2-Dichloroethene	1000	876	88	76-120	
Tetrachloroethene	1000	1070	107	75-124	
trans-1,2-Dichloroethene	1000	1120	112	74-125	
Trichloroethene	1000	1040	104	75-123	
Vinyl chloride	1000	968	97	39-140	

Column to be used to flag recovery and RPD values

FORM III
GC/MS VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Matrix: Solid Level: Medium Lab File ID: U1279495a.D

Lab ID: LCS 240-445424/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC	QC LIMITS REC	#
1,1-Dichloroethene	1000	1060	106	48-140	
1,4-Dioxane	20000	20300	101	44-154	
cis-1,2-Dichloroethene	1000	838	84	76-120	
Tetrachloroethene	1000	1020	102	75-124	
trans-1,2-Dichloroethene	1000	1060	106	74-125	
Trichloroethene	1000	995	99	75-123	
Vinyl chloride	1000	1050	105	39-140	

Column to be used to flag recovery and RPD values

FORM III
GC/MS VOA MATRIX SPIKE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Matrix: Solid Level: Medium Lab File ID: U1279436.D

Lab ID: 240-134182-21 MS Client ID: SB-142 (4-5)_072820 MS

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC	QC LIMITS REC	#
1,1-Dichloroethene	1040	44 U	979	94	20-150	
1,4-Dioxane	20800	14000 U	42500	204	48-149	F1
cis-1,2-Dichloroethene	1040	44 U	1010	97	35-130	
Tetrachloroethene	1040	44 U	1190	115	13-144	
trans-1,2-Dichloroethene	1040	44 U	1300	125	31-138	
Trichloroethene	1040	44 U	1220	117	10-162	
Vinyl chloride	1040	35 U	1120	108	15-150	

Column to be used to flag recovery and RPD values

FORM III 8260B MI

FORM III
GC/MS VOA MATRIX SPIKE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Matrix: Solid Level: Medium Lab File ID: U1279501a.D

Lab ID: 240-134182-25 MS Client ID: SB-143 (0.5-1)_072820 MS

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC	QC LIMITS REC	#
1,1-Dichloroethene	1030	44 U	1250	121	20-150	
1,4-Dioxane	20700	14000 U	23200	112	48-149	
cis-1,2-Dichloroethene	1030	44 U	994	96	35-130	
Tetrachloroethene	1030	44 U	1230	119	13-144	
trans-1,2-Dichloroethene	1030	44 U	1290	124	31-138	
Trichloroethene	1030	44 U	1190	116	10-162	
Vinyl chloride	1030	35 U	1250	121	15-150	

Column to be used to flag recovery and RPD values

FORM III
GC/MS VOA MATRIX SPIKE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Matrix: Solid Level: Medium Lab File ID: U1279506a.D

Lab ID: 240-134182-28 MS Client ID: SB-143 (3-4)_072820 MS

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC	QC LIMITS REC	#
1,1-Dichloroethene	1040	43 U	1100	107	20-150	
1,4-Dioxane	20700	13000 U	31700	153	48-149	F1
cis-1,2-Dichloroethene	1040	43 U	926	89	35-130	
Tetrachloroethene	1040	43 U	1120	108	13-144	
trans-1,2-Dichloroethene	1040	43 U	1200	115	31-138	
Trichloroethene	1040	43 U	1120	108	10-162	
Vinyl chloride	1040	34 U	1220	118	15-150	

Column to be used to flag recovery and RPD values

FORM III 8260B MI

FORM III
GC/MS VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Matrix: Solid Level: Medium Lab File ID: U1279502.D

Lab ID: 240-134182-25 MSD Client ID: SB-143 (0.5-1)_072820 MSD

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
1,1-Dichloroethene	1060	1280	121	2	40	20-150	
1,4-Dioxane	21300	29800	140	25	40	48-149	
cis-1,2-Dichloroethene	1060	1030	97	4	40	35-130	
Tetrachloroethene	1060	1240	116	1	40	13-144	
trans-1,2-Dichloroethene	1060	1320	124	2	40	31-138	
Trichloroethene	1060	1220	114	2	40	10-162	
Vinyl chloride	1060	1250	118	0	40	15-150	

Column to be used to flag recovery and RPD values

FORM III
GC/MS VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Matrix: Solid Level: Medium Lab File ID: U1279507a.D

Lab ID: 240-134182-28 MSD Client ID: SB-143 (3-4)_072820 MSD

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
1,1-Dichloroethene	1060	1240	117	12	40	20-150	
1,4-Dioxane	21100	21600	102	38	40	48-149	
cis-1,2-Dichloroethene	1060	994	94	7	40	35-130	
Tetrachloroethene	1060	1210	114	8	40	13-144	
trans-1,2-Dichloroethene	1060	1280	121	7	40	31-138	
Trichloroethene	1060	1210	115	8	40	10-162	
Vinyl chloride	1060	1230	117	1	40	15-150	

Column to be used to flag recovery and RPD values

FORM IV
GC/MS VOA METHOD BLANK SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Lab File ID: U1279414.D Lab Sample ID: MB 240-445021/1-A
 Matrix: Solid Heated Purge: (Y/N) N
 Instrument ID: A3UX12 Date Analyzed: 07/31/2020 17:42
 GC Column: DB-624 ID: 0.18 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 240-445021/2-A	U1279415.D	07/31/2020 18:04
SB-141 (0.5-1)_072820	240-134182-1	U1279416.D	07/31/2020 18:27
SB-141 (1-2)_072820	240-134182-2	U1279417.D	07/31/2020 18:50
SB-141 (2-3)_072820	240-134182-3	U1279418.D	07/31/2020 19:12
SB-141 (3-4)_072820	240-134182-4	U1279419.D	07/31/2020 19:35
SB-141 (4-5)_072820	240-134182-5	U1279420.D	07/31/2020 19:57
SB-141 (5-6)_072820	240-134182-6	U1279421.D	07/31/2020 20:20
SB-141 (6-7)_072820	240-134182-7	U1279422.D	07/31/2020 20:42
SB-141 (7-8)_072820	240-134182-8	U1279423.D	07/31/2020 21:05
TMW-20-02 (0.5-1)_072820	240-134182-9	U1279424.D	07/31/2020 21:27
TMW-20-02 (1-2)_072820	240-134182-10	U1279425.D	07/31/2020 21:50
TMW-20-02 (2-3)_072820	240-134182-11	U1279426.D	07/31/2020 22:13
TMW-20-02 (3-4)_072820	240-134182-12	U1279427.D	07/31/2020 22:35
TMW-20-02 (4-5)_072820	240-134182-13	U1279428.D	07/31/2020 22:57
TMW-20-02 (5-6)_072820	240-134182-14	U1279429.D	07/31/2020 23:20
TMW-20-02 (6-7)_072820	240-134182-15	U1279430.D	07/31/2020 23:42
TMW-20-02 (7-8)_072820	240-134182-16	U1279431.D	08/01/2020 00:05
SB-142 (0.5-1)_072820	240-134182-17	U1279432.D	08/01/2020 00:27
SB-142 (1-2)_072820	240-134182-18	U1279433.D	08/01/2020 00:50
SB-142 (2-3)_072820	240-134182-19	U1279434.D	08/01/2020 01:12
SB-142 (4-5)_072820	240-134182-21	U1279435.D	08/01/2020 01:35
SB-142 (4-5)_072820 MS	240-134182-21 MS	U1279436.D	08/01/2020 01:57

FORM IV
GC/MS VOA METHOD BLANK SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Lab File ID: U1279494a.D Lab Sample ID: MB 240-445424/1-A
 Matrix: Solid Heated Purge: (Y/N) N
 Instrument ID: A3UX12 Date Analyzed: 08/04/2020 18:24
 GC Column: DB-624 ID: 0.18 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 240-445424/2-A	U1279495a.D	08/04/2020 18:51
SB-142 (3-4)_072820	240-134182-20	U1279496a.D	08/04/2020 19:12
SB-142 (5-6)_072820	240-134182-22	U1279497.D	08/04/2020 19:35
SB-142 (6-7)_072820	240-134182-23	U1279498a.D	08/04/2020 19:57
SB-142 (7-8)_072820	240-134182-24	U1279499a.D	08/04/2020 20:20
SB-143 (0.5-1)_072820	240-134182-25	U1279500b.D	08/04/2020 20:42
SB-143 (0.5-1)_072820 MS	240-134182-25 MS	U1279501a.D	08/04/2020 21:05
SB-143 (0.5-1)_072820 MSD	240-134182-25 MSD	U1279502.D	08/04/2020 21:27
SB-143 (1-2)_072820	240-134182-26	U1279503a.D	08/04/2020 21:49
SB-143 (2-3)_072820	240-134182-27	U1279504a.D	08/04/2020 22:12
SB-143 (3-4)_072820	240-134182-28	U1279505a.D	08/04/2020 22:35
SB-143 (3-4)_072820 MS	240-134182-28 MS	U1279506a.D	08/04/2020 22:57
SB-143 (3-4)_072820 MSD	240-134182-28 MSD	U1279507a.D	08/04/2020 23:20
SB-143 (4-5)_072820	240-134182-29	U1279508b.D	08/04/2020 23:43
SB-143 (5-6)_072820	240-134182-30	U1279509.D	08/05/2020 00:05
SB-143 (6-7)_072820	240-134182-31	U1279510a.D	08/05/2020 00:28
SB-143 (7-8)_072820	240-134182-32	U1279511.D	08/05/2020 00:50
DUP-03	240-134182-33	U1279512.D	08/05/2020 01:13

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Lab File ID: BFB4436a.D BFB Injection Date: 07/16/2020
 Instrument ID: A3UX12 BFB Injection Time: 16:09
 Analysis Batch No.: 442964

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15.0 - 40.0 % of mass 95	21.2	
75	30.0 - 60.0 % of mass 95	51.6	
95	Base Peak, 100% relative abundance	100.0	
96	5.0 - 9.0 % of mass 95	6.7	
173	Less than 2.0 % of mass 174	0.0	(0.0) 1
174	50.0 - 120.00 % of mass 95	86.5	
175	5.0 - 9.0 % of mass 174	6.3	(7.3) 1
176	95.0 - 101.0 % of mass 174	84.1	(97.2) 1
177	5.0 - 9.0 % of mass 176	5.5	(6.6) 2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	STD8260 240-442964/9	U1279113.D	07/16/2020	17:43
	STD8260 240-442964/10	U1279114.D	07/16/2020	18:05
	STD8260 240-442964/11	U1279115.D	07/16/2020	18:27
	STD8260 240-442964/12	U1279116.D	07/16/2020	18:50
	ICIS 240-442964/13	U1279117.D	07/16/2020	19:12
	STD8260 240-442964/14	U1279118.D	07/16/2020	19:35
	STD8260 240-442964/15	U1279119.D	07/16/2020	19:57
	STD8260 240-442964/16	U1279120.D	07/16/2020	20:20
	ICV 240-442964/17	U1279121.D	07/16/2020	20:43

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Lab File ID: BFB4448.D BFB Injection Date: 07/31/2020
 Instrument ID: A3UX12 BFB Injection Time: 15:04
 Analysis Batch No.: 445183

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0 % of mass 95	19.8
75	30.0 - 60.0 % of mass 95	48.4
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0 % of mass 95	6.9
173	Less than 2.0 % of mass 174	0.0 (0.0) 1
174	50.0 - 120.00 % of mass 95	86.1
175	5.0 - 9.0 % of mass 174	6.2 (7.2) 1
176	95.0 - 101.0 % of mass 174	82.9 (96.3) 1
177	5.0 - 9.0 % of mass 176	5.2 (6.3) 2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	CCV 240-445183/3	U1279408.D	07/31/2020	15:26
	CCVIS 240-445183/4	U1279409.D	07/31/2020	15:49
	MB 240-445021/1-A	U1279414.D	07/31/2020	17:42
	LCS 240-445021/2-A	U1279415.D	07/31/2020	18:04
SB-141 (0.5-1) 072820	240-134182-1	U1279416.D	07/31/2020	18:27
SB-141 (1-2) 072820	240-134182-2	U1279417.D	07/31/2020	18:50
SB-141 (2-3) 072820	240-134182-3	U1279418.D	07/31/2020	19:12
SB-141 (3-4) 072820	240-134182-4	U1279419.D	07/31/2020	19:35
SB-141 (4-5) 072820	240-134182-5	U1279420.D	07/31/2020	19:57
SB-141 (5-6) 072820	240-134182-6	U1279421.D	07/31/2020	20:20
SB-141 (6-7) 072820	240-134182-7	U1279422.D	07/31/2020	20:42
SB-141 (7-8) 072820	240-134182-8	U1279423.D	07/31/2020	21:05
TMW-20-02 (0.5-1) 072820	240-134182-9	U1279424.D	07/31/2020	21:27
TMW-20-02 (1-2) 072820	240-134182-10	U1279425.D	07/31/2020	21:50
TMW-20-02 (2-3) 072820	240-134182-11	U1279426.D	07/31/2020	22:13
TMW-20-02 (3-4) 072820	240-134182-12	U1279427.D	07/31/2020	22:35
TMW-20-02 (4-5) 072820	240-134182-13	U1279428.D	07/31/2020	22:57
TMW-20-02 (5-6) 072820	240-134182-14	U1279429.D	07/31/2020	23:20
TMW-20-02 (6-7) 072820	240-134182-15	U1279430.D	07/31/2020	23:42
TMW-20-02 (7-8) 072820	240-134182-16	U1279431.D	08/01/2020	0:05
SB-142 (0.5-1) 072820	240-134182-17	U1279432.D	08/01/2020	0:27
SB-142 (1-2) 072820	240-134182-18	U1279433.D	08/01/2020	0:50
SB-142 (2-3) 072820	240-134182-19	U1279434.D	08/01/2020	1:12
SB-142 (4-5) 072820	240-134182-21	U1279435.D	08/01/2020	1:35
SB-142 (4-5) 072820 MS	240-134182-21 MS	U1279436.D	08/01/2020	1:57

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Lab File ID: BFB4451.D BFB Injection Date: 08/04/2020
 Instrument ID: A3UX12 BFB Injection Time: 15:54
 Analysis Batch No.: 445595

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15.0 - 40.0 % of mass 95	19.7	
75	30.0 - 60.0 % of mass 95	48.4	
95	Base Peak, 100% relative abundance	100.0	
96	5.0 - 9.0 % of mass 95	6.6	
173	Less than 2.0 % of mass 174	0.0	(0.0) 1
174	50.0 - 120.00 % of mass 95	83.7	
175	5.0 - 9.0 % of mass 174	6.2	(7.4) 1
176	95.0 - 101.0 % of mass 174	81.2	(97.1) 1
177	5.0 - 9.0 % of mass 176	5.4	(6.7) 2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	CCV 240-445595/3	U1279489.D	08/04/2020	16:16
	CCVIS 240-445595/4	U1279490.D	08/04/2020	16:38
	MB 240-445424/1-A	U1279494a.D	08/04/2020	18:24
	LCS 240-445424/2-A	U1279495a.D	08/04/2020	18:51
SB-142 (3-4) 072820	240-134182-20	U1279496a.D	08/04/2020	19:12
SB-142 (5-6) 072820	240-134182-22	U1279497.D	08/04/2020	19:35
SB-142 (6-7) 072820	240-134182-23	U1279498a.D	08/04/2020	19:57
SB-142 (7-8) 072820	240-134182-24	U1279499a.D	08/04/2020	20:20
SB-143 (0.5-1) 072820	240-134182-25	U1279500b.D	08/04/2020	20:42
SB-143 (0.5-1) 072820 MS	240-134182-25 MS	U1279501a.D	08/04/2020	21:05
SB-143 (0.5-1) 072820 MSD	240-134182-25 MSD	U1279502.D	08/04/2020	21:27
SB-143 (1-2) 072820	240-134182-26	U1279503a.D	08/04/2020	21:49
SB-143 (2-3) 072820	240-134182-27	U1279504a.D	08/04/2020	22:12
SB-143 (3-4) 072820	240-134182-28	U1279505a.D	08/04/2020	22:35
SB-143 (3-4) 072820 MS	240-134182-28 MS	U1279506a.D	08/04/2020	22:57
SB-143 (3-4) 072820 MSD	240-134182-28 MSD	U1279507a.D	08/04/2020	23:20
SB-143 (4-5) 072820	240-134182-29	U1279508b.D	08/04/2020	23:43
SB-143 (5-6) 072820	240-134182-30	U1279509.D	08/05/2020	0:05
SB-143 (6-7) 072820	240-134182-31	U1279510a.D	08/05/2020	0:28
SB-143 (7-8) 072820	240-134182-32	U1279511.D	08/05/2020	0:50
DUP-03	240-134182-33	U1279512.D	08/05/2020	1:13

FORM VIII
GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Sample No.: ICIS 240-442964/13 Date Analyzed: 07/16/2020 19:12
 Instrument ID: A3UX12 GC Column: DB-624 ID: 0.18 (mm)
 Lab File ID (Standard): U1279117.D Heated Purge: (Y/N) N
 Calibration ID: 57832

	FB		CBNZd5		DCBd4	
	AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MID-POINT	930091	5.10	747849	7.75	400649	9.97
UPPER LIMIT	1860182	5.60	1495698	8.25	801298	10.47
LOWER LIMIT	465046	4.60	373925	7.25	200325	9.47
LAB SAMPLE ID	CLIENT SAMPLE ID					
ICV 240-442964/17	993337	5.10	838058	7.75	407737	9.97
CCVIS 240-445183/4	1182046	5.10	798808	7.75	396386	9.97
CCVIS 240-445595/4	1127735	5.10	738729	7.75	363181	9.97

FB = Fluorobenzene

CBNZd5 = Chlorobenzene-d5

DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area

RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8260B MI

FORM VIII
GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Sample No.: CCVIS 240-445183/4 Date Analyzed: 07/31/2020 15:49
 Instrument ID: A3UX12 GC Column: DB-624 ID: 0.18 (mm)
 Lab File ID (Standard): U1279409.D Heated Purge: (Y/N) N
 Calibration ID: 57832

	FB		CBNZd5		DCBd4		
	AREA #	RT #	AREA #	RT #	AREA #	RT #	
12/24 HOUR STD	1182046	5.10	798808	7.75	396386	9.97	
UPPER LIMIT	2364092	5.60	1597616	8.25	792772	10.47	
LOWER LIMIT	591023	4.60	399404	7.25	198193	9.47	
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 240-445021/1-A		1160347	5.10	757249	7.75	371953	9.97
LCS 240-445021/2-A		1161269	5.10	759880	7.75	368545	9.97
240-134182-1	SB-141 (0.5-1)_072820	1168247	5.10	766623	7.75	386495	9.97
240-134182-2	SB-141 (1-2)_072820	1146389	5.10	733086	7.75	363896	9.97
240-134182-3	SB-141 (2-3)_072820	1143625	5.10	742944	7.75	371616	9.97
240-134182-4	SB-141 (3-4)_072820	1143606	5.10	732355	7.75	362809	9.97
240-134182-5	SB-141 (4-5)_072820	1136777	5.10	733138	7.75	379290	9.97
240-134182-6	SB-141 (5-6)_072820	1167143	5.10	754506	7.75	380520	9.97
240-134182-7	SB-141 (6-7)_072820	1120517	5.10	717551	7.75	360027	9.97
240-134182-8	SB-141 (7-8)_072820	1110876	5.10	727352	7.75	363711	9.97
240-134182-9	TMW-20-02 (0.5-1) 072820	1137013	5.10	734431	7.75	379619	9.97
240-134182-10	TMW-20-02 (1-2) 072820	1133821	5.10	747565	7.75	381766	9.97
240-134182-11	TMW-20-02 (2-3) 072820	1149696	5.10	758281	7.75	382322	9.97
240-134182-12	TMW-20-02 (3-4) 072820	1138415	5.10	733284	7.75	374630	9.97
240-134182-13	TMW-20-02 (4-5) 072820	1146307	5.10	762225	7.75	377688	9.97
240-134182-14	TMW-20-02 (5-6) 072820	1157996	5.10	792266	7.75	398603	9.97
240-134182-15	TMW-20-02 (6-7) 072820	1145412	5.10	769756	7.75	387813	9.97
240-134182-16	TMW-20-02 (7-8) 072820	1105018	5.08	742324	7.75	375782	9.97
240-134182-17	SB-142 (0.5-1)_072820	1153641	5.10	775478	7.75	383994	9.97
240-134182-18	SB-142 (1-2)_072820	1158756	5.10	771566	7.75	379898	9.97
240-134182-19	SB-142 (2-3)_072820	1150060	5.10	756530	7.75	375978	9.97
240-134182-21	SB-142 (4-5)_072820	1119134	5.10	723882	7.75	369405	9.97

FB = Fluorobenzene

CBNZd5 = Chlorobenzene-d5

DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area

RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Sample No.: CCVIS 240-445595/4 Date Analyzed: 08/04/2020 16:38
 Instrument ID: A3UX12 GC Column: DB-624 ID: 0.18 (mm)
 Lab File ID (Standard): U1279490.D Heated Purge: (Y/N) N
 Calibration ID: 57832

	FB		CBNZd5		DCBd4		
	AREA #	RT #	AREA #	RT #	AREA #	RT #	
12/24 HOUR STD	1127735	5.10	738729	7.75	363181	9.97	
UPPER LIMIT	2255470	5.60	1477458	8.25	726362	10.47	
LOWER LIMIT	563868	4.60	369365	7.25	181591	9.47	
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 240-445424/1-A		1115717	5.10	751371	7.75	374333	9.97
LCS 240-445424/2-A		1167295	5.08	803421	7.75	396353	9.97
240-134182-20	SB-142 (3-4)_072820	1101831	5.10	738760	7.75	377371	9.97
240-134182-22	SB-142 (5-6)_072820	1098055	5.10	722182	7.75	374222	9.97
240-134182-23	SB-142 (6-7)_072820	1095167	5.10	722057	7.75	360751	9.97
240-134182-24	SB-142 (7-8)_072820	1093855	5.10	692630	7.75	342611	9.97
240-134182-25	SB-143 (0.5-1)_072820	1062789	5.10	675993	7.75	339157	9.97
240-134182-25 MS	SB-143 (0.5-1)_072820 MS	1104066	5.10	733955	7.75	375656	9.97
240-134182-25 MSD	SB-143 (0.5-1)_072820 MSD	1104309	5.10	745910	7.75	382113	9.97
240-134182-26	SB-143 (1-2)_072820	1083575	5.10	698604	7.75	357743	9.97
240-134182-27	SB-143 (2-3)_072820	1104467	5.10	743993	7.75	383724	9.97
240-134182-28	SB-143 (3-4)_072820	1086421	5.10	715017	7.75	368970	9.97
240-134182-28 MS	SB-143 (3-4)_072820 MS	1060054	5.10	741525	7.75	391344	9.97
240-134182-28 MSD	SB-143 (3-4)_072820 MSD	1098106	5.10	766667	7.75	392940	9.97
240-134182-29	SB-143 (4-5)_072820	1110673	5.10	748825	7.75	380566	9.97
240-134182-30	SB-143 (5-6)_072820	1101562	5.10	749339	7.75	379489	9.97
240-134182-31	SB-143 (6-7)_072820	1089260	5.10	746970	7.75	386496	9.97
240-134182-32	SB-143 (7-8)_072820	1064154	5.10	687208	7.75	353484	9.97
240-134182-33	DUP-03	1088476	5.10	710269	7.75	366484	9.97

FB = Fluorobenzene
 CBNZd5 = Chlorobenzene-d5
 DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area
 RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: SB-141 (0.5-1)_072820 Lab Sample ID: 240-134182-1
 Matrix: Solid Lab File ID: U1279416.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 09:38
 Sample wt/vol: 8.979(g) Date Analyzed: 07/31/2020 18:27
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0 (mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 2.7 Level: (low/med) Medium
 Analysis Batch No.: 445183 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	47	U	47	19
123-91-1	1,4-Dioxane	15000	U	15000	1300
156-59-2	cis-1,2-Dichloroethene	47	U	47	11
127-18-4	Tetrachloroethene	47	U	47	21
156-60-5	trans-1,2-Dichloroethene	47	U	47	12
79-01-6	Trichloroethene	47	U	47	13
75-01-4	Vinyl chloride	38	U	38	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	95		47-136
460-00-4	4-Bromofluorobenzene (Surr)	118		51-124
1868-53-7	Dibromofluoromethane (Surr)	92		49-122
2037-26-5	Toluene-d8 (Surr)	110		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279416.D
 Lims ID: 240-134182-A-1-A
 Client ID: SB-141 (0.5-1)_072820
 Sample Type: Client
 Inject. Date: 31-Jul-2020 18:27:30 ALS Bottle#: 10 Worklist Smp#: 12
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-012
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 31-Jul-2020 16:43:44 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1030

First Level Reviewer: laveyt Date: 31-Jul-2020 18:52:22

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1168247	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	766623	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.970	0.000	96	386495	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.527	4.539	-0.012	94	346261	22.3	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	94	440562	23.2	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1395687	26.9	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.846	8.846	0.000	89	509972	28.7	
12 Vinyl chloride	62		1.688				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166		7.001				ND	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Euromins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279416.D

Injection Date: 31-Jul-2020 18:27:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-1-A

Lab Sample ID: 240-134182-1

Worklist Smp#: 12

Client ID: SB-141 (0.5-1)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

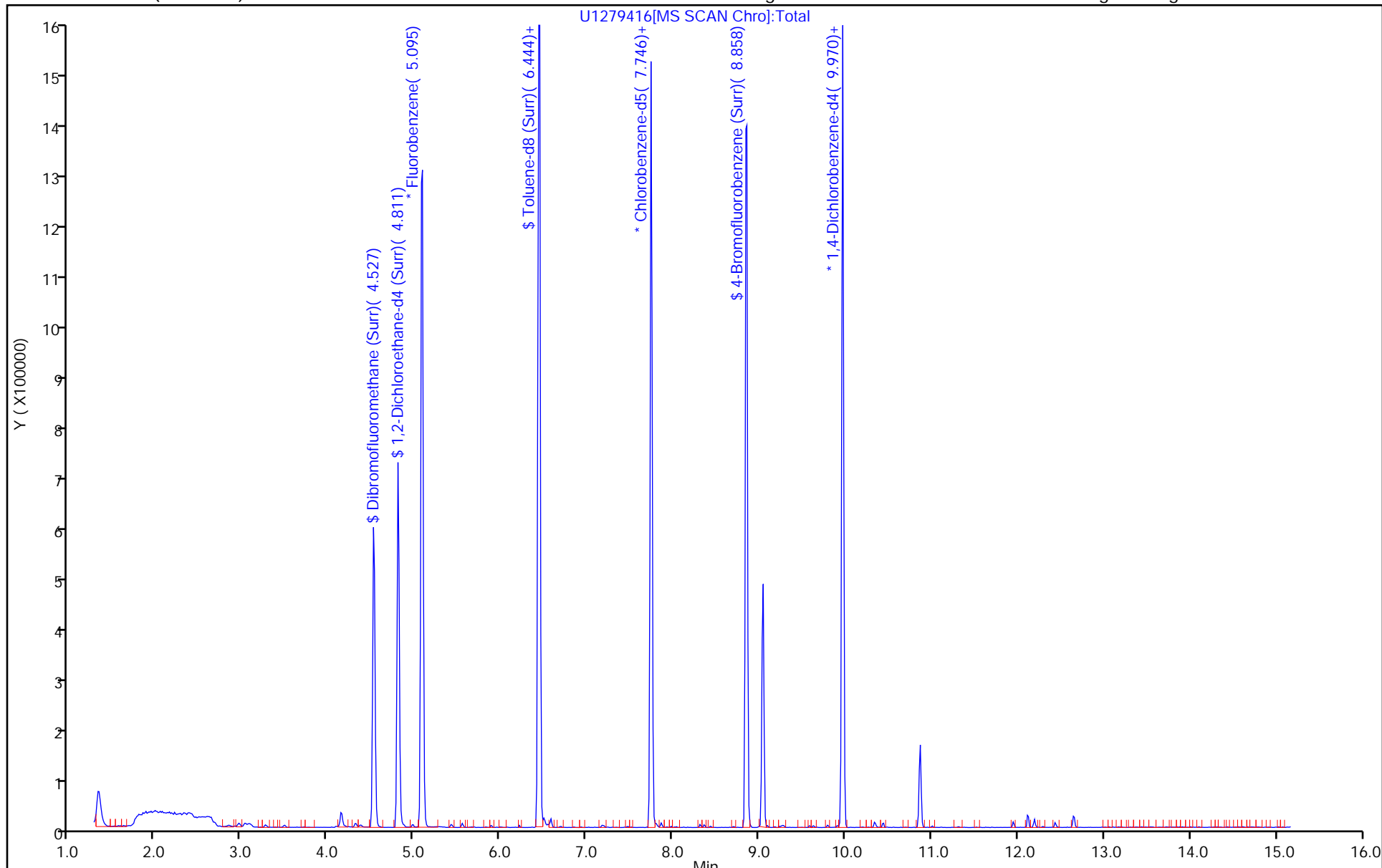
ALS Bottle#: 10

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279416.D
 Lims ID: 240-134182-A-1-A
 Client ID: SB-141 (0.5-1)_072820
 Sample Type: Client
 Inject. Date: 31-Jul-2020 18:27:30 ALS Bottle#: 10 Worklist Smp#: 12
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-012
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 31-Jul-2020 16:43:44 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1030

First Level Reviewer: laveyt

Date: 31-Jul-2020 18:52:22

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	22.3	89.32
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	23.2	92.86
\$ 6 Toluene-d8 (Surr)	25.0	26.9	107.67
\$ 7 4-Bromofluorobenzene (Surr)	25.0	28.7	114.90

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: SB-141 (1-2)_072820 Lab Sample ID: 240-134182-2
 Matrix: Solid Lab File ID: U1279417.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 09:45
 Sample wt/vol: 9.892(g) Date Analyzed: 07/31/2020 18:50
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 2.3 Level: (low/med) Medium
 Analysis Batch No.: 445183 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	42	U	42	17
123-91-1	1,4-Dioxane	13000	U	13000	1200
156-59-2	cis-1,2-Dichloroethene	42	U	42	9.5
127-18-4	Tetrachloroethene	42	U	42	19
156-60-5	trans-1,2-Dichloroethene	42	U	42	11
79-01-6	Trichloroethene	42	U	42	12
75-01-4	Vinyl chloride	34	U	34	13

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	91		47-136
460-00-4	4-Bromofluorobenzene (Surr)	106		51-124
1868-53-7	Dibromofluoromethane (Surr)	88		49-122
2037-26-5	Toluene-d8 (Surr)	105		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279417.D
 Lims ID: 240-134182-A-2-A
 Client ID: SB-141 (1-2)_072820
 Sample Type: Client
 Inject. Date: 31-Jul-2020 18:50:30 ALS Bottle#: 11 Worklist Smp#: 13
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-013
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 31-Jul-2020 17:07:23 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1030

First Level Reviewer: laveyt Date: 31-Jul-2020 19:09:21

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1146389	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	733086	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.970	0.000	96	363896	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.527	4.539	-0.012	94	325857	21.4	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	95	415456	22.3	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1277225	25.8	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.846	8.846	0.000	90	441599	26.0	
12 Vinyl chloride	62		1.688				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166		7.001				ND	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279417.D

Injection Date: 31-Jul-2020 18:50:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-2-A

Lab Sample ID: 240-134182-2

Worklist Smp#: 13

Client ID: SB-141 (1-2)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

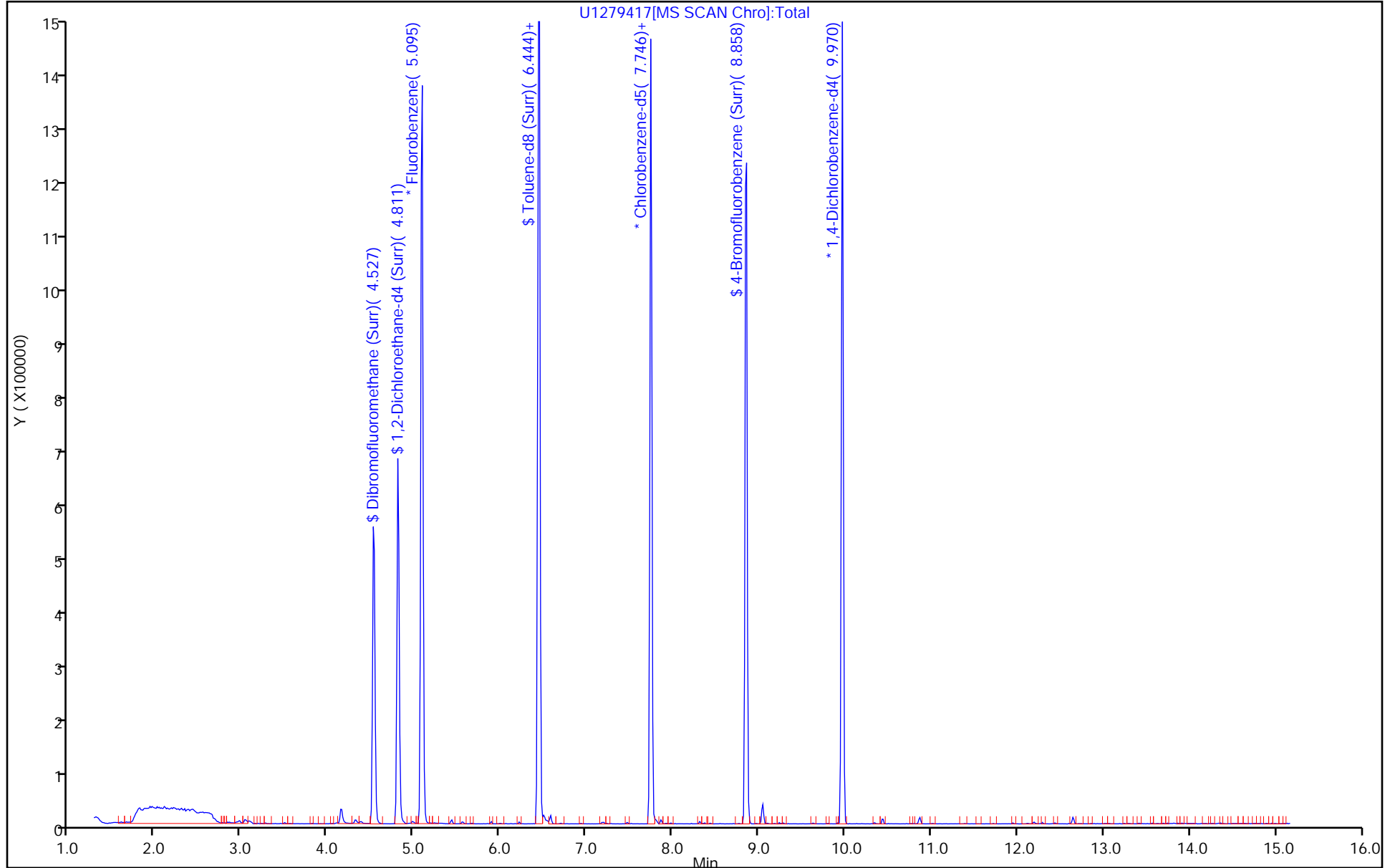
ALS Bottle#: 11

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279417.D
 Lims ID: 240-134182-A-2-A
 Client ID: SB-141 (1-2)_072820
 Sample Type: Client
 Inject. Date: 31-Jul-2020 18:50:30 ALS Bottle#: 11 Worklist Smp#: 13
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-013
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 31-Jul-2020 17:07:23 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1030

First Level Reviewer: laveyt Date: 31-Jul-2020 19:09:21

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	21.4	85.66
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	22.3	89.24
\$ 6 Toluene-d8 (Surr)	25.0	25.8	103.04
\$ 7 4-Bromofluorobenzene (Surr)	25.0	26.0	104.05

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: SB-141 (2-3)_072820 Lab Sample ID: 240-134182-3
 Matrix: Solid Lab File ID: U1279418.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 09:48
 Sample wt/vol: 9.547(g) Date Analyzed: 07/31/2020 19:12
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0 (mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 3.1 Level: (low/med) Medium
 Analysis Batch No.: 445183 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	45	U	45	18
123-91-1	1,4-Dioxane	14000	U	14000	1200
156-59-2	cis-1,2-Dichloroethene	45	U	45	10
127-18-4	Tetrachloroethene	45	U	45	20
156-60-5	trans-1,2-Dichloroethene	45	U	45	11
79-01-6	Trichloroethene	45	U	45	12
75-01-4	Vinyl chloride	36	U	36	13

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	90		47-136
460-00-4	4-Bromofluorobenzene (Surr)	106		51-124
1868-53-7	Dibromofluoromethane (Surr)	86		49-122
2037-26-5	Toluene-d8 (Surr)	106		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279418.D
 Lims ID: 240-134182-A-3-A
 Client ID: SB-141 (2-3)_072820
 Sample Type: Client
 Inject. Date: 31-Jul-2020 19:12:30 ALS Bottle#: 12 Worklist Smp#: 14
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-014
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 31-Jul-2020 17:29:37 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1030

First Level Reviewer: laveyt Date: 31-Jul-2020 19:34:11

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	98	1143625	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	742944	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.970	0.000	96	371616	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	316626	20.9	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.823	4.823	0.000	95	405777	21.8	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	94	1292270	25.7	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.846	8.846	0.000	89	442226	25.7	
12 Vinyl chloride	62		1.688				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166		7.001				ND	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279418.D

Injection Date: 31-Jul-2020 19:12:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-3-A

Lab Sample ID: 240-134182-3

Worklist Smp#: 14

Client ID: SB-141 (2-3)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

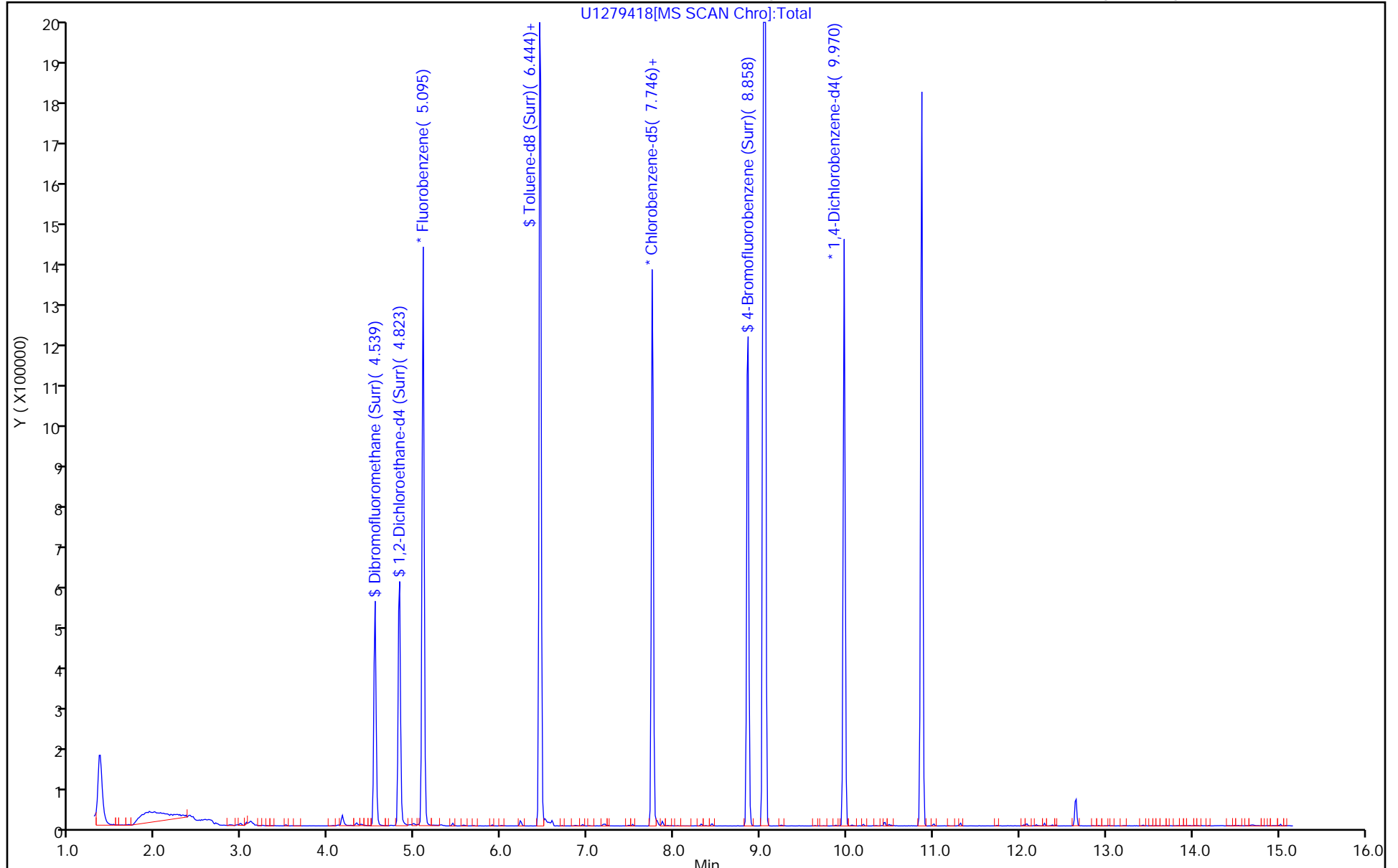
ALS Bottle#: 12

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279418.D
 Lims ID: 240-134182-A-3-A
 Client ID: SB-141 (2-3)_072820
 Sample Type: Client
 Inject. Date: 31-Jul-2020 19:12:30 ALS Bottle#: 12 Worklist Smp#: 14
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-014
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 31-Jul-2020 17:29:37 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1030

First Level Reviewer: laveyt Date: 31-Jul-2020 19:34:11

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	20.9	83.44
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	21.8	87.37
\$ 6 Toluene-d8 (Surr)	25.0	25.7	102.87
\$ 7 4-Bromofluorobenzene (Surr)	25.0	25.7	102.81

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: SB-141 (3-4)_072820 Lab Sample ID: 240-134182-4
 Matrix: Solid Lab File ID: U1279419.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 09:53
 Sample wt/vol: 9.694(g) Date Analyzed: 07/31/2020 19:35
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 2.3 Level: (low/med) Medium
 Analysis Batch No.: 445183 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	43	U	43	17
123-91-1	1,4-Dioxane	13000	U	13000	1200
156-59-2	cis-1,2-Dichloroethene	43	U	43	9.7
127-18-4	Tetrachloroethene	43	U	43	19
156-60-5	trans-1,2-Dichloroethene	43	U	43	11
79-01-6	Trichloroethene	43	U	43	12
75-01-4	Vinyl chloride	35	U	35	13

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	88		47-136
460-00-4	4-Bromofluorobenzene (Surr)	105		51-124
1868-53-7	Dibromofluoromethane (Surr)	85		49-122
2037-26-5	Toluene-d8 (Surr)	102		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279419.D
 Lims ID: 240-134182-A-4-A
 Client ID: SB-141 (3-4)_072820
 Sample Type: Client
 Inject. Date: 31-Jul-2020 19:35:30 ALS Bottle#: 13 Worklist Smp#: 15
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-015
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 31-Jul-2020 17:51:47 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1030

First Level Reviewer: laveyt Date: 31-Jul-2020 20:01:27

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1143606	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	732355	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.970	0.000	96	362809	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	314044	20.7	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.823	4.823	0.000	95	399633	21.5	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1239517	25.0	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.846	8.846	0.000	90	436029	25.7	
12 Vinyl chloride	62		1.688				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166		7.001				ND	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279419.D

Injection Date: 31-Jul-2020 19:35:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-4-A

Lab Sample ID: 240-134182-4

Worklist Smp#: 15

Client ID: SB-141 (3-4)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

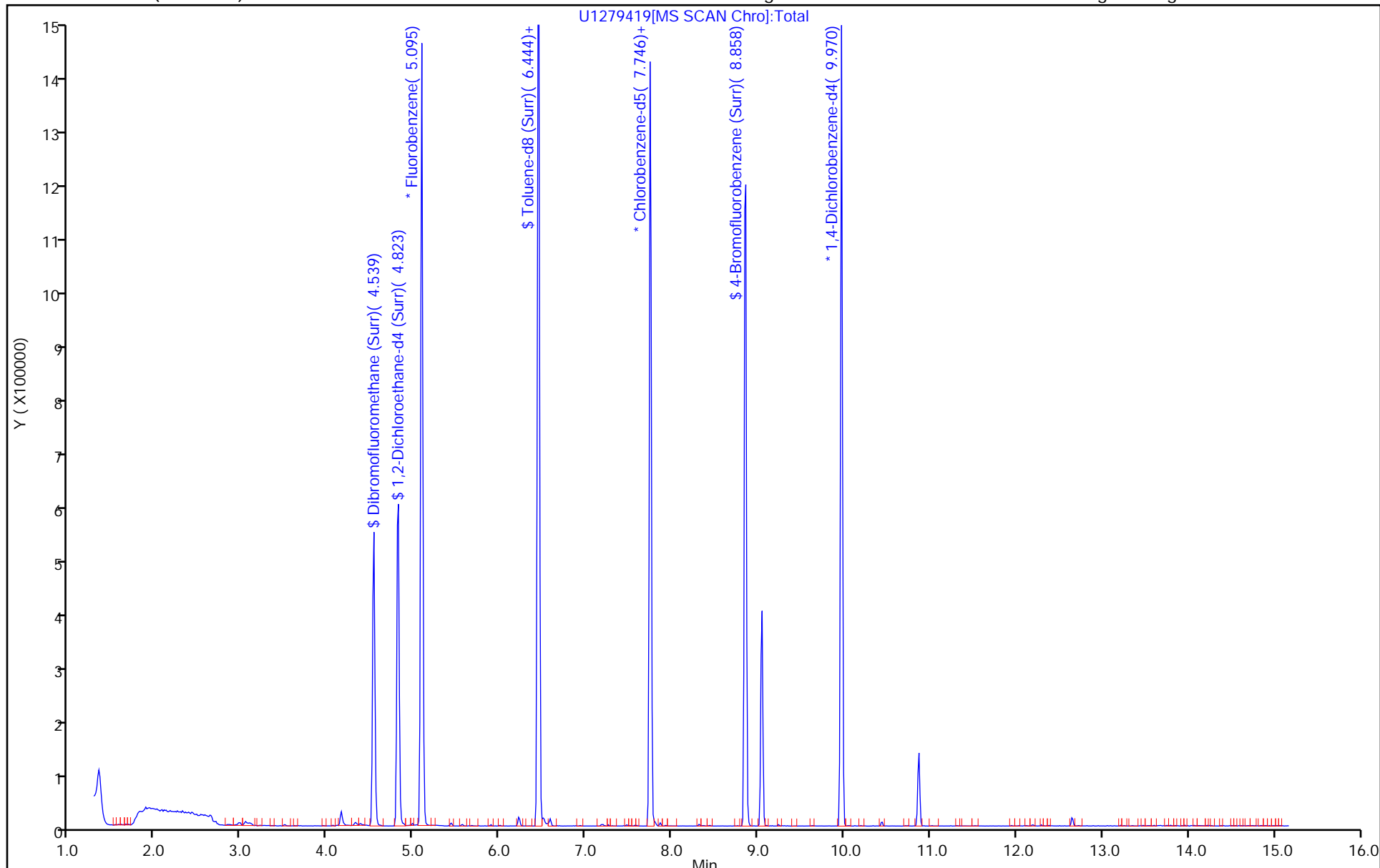
ALS Bottle#: 13

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279419.D
 Lims ID: 240-134182-A-4-A
 Client ID: SB-141 (3-4)_072820
 Sample Type: Client
 Inject. Date: 31-Jul-2020 19:35:30 ALS Bottle#: 13 Worklist Smp#: 15
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-015
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 31-Jul-2020 17:51:47 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1030

First Level Reviewer: laveyt

Date: 31-Jul-2020 20:01:27

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	20.7	82.76
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	21.5	86.05
\$ 6 Toluene-d8 (Surr)	25.0	25.0	100.09
\$ 7 4-Bromofluorobenzene (Surr)	25.0	25.7	102.84

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: SB-141 (4-5)_072820 Lab Sample ID: 240-134182-5
 Matrix: Solid Lab File ID: U1279420.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 09:56
 Sample wt/vol: 9.5(g) Date Analyzed: 07/31/2020 19:57
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 2.5 Level: (low/med) Medium
 Analysis Batch No.: 445183 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	44	U	44	18
123-91-1	1,4-Dioxane	14000	U	14000	1200
156-59-2	cis-1,2-Dichloroethene	44	U	44	9.9
127-18-4	Tetrachloroethene	44	U	44	20
156-60-5	trans-1,2-Dichloroethene	44	U	44	11
79-01-6	Trichloroethene	44	U	44	12
75-01-4	Vinyl chloride	35	U	35	13

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	89		47-136
460-00-4	4-Bromofluorobenzene (Surr)	109		51-124
1868-53-7	Dibromofluoromethane (Surr)	86		49-122
2037-26-5	Toluene-d8 (Surr)	103		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279420.D
 Lims ID: 240-134182-A-5-A
 Client ID: SB-141 (4-5)_072820
 Sample Type: Client
 Inject. Date: 31-Jul-2020 19:57:30 ALS Bottle#: 14 Worklist Smp#: 16
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-016
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 31-Jul-2020 18:13:49 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1030

First Level Reviewer: laveyt Date: 31-Jul-2020 20:15:29

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	98	1136777	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	733138	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.970	0.000	96	379290	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	317112	21.0	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.823	4.823	0.000	95	402295	21.8	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1249314	25.2	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.846	0.012	94	453653	26.7	
12 Vinyl chloride	62		1.688				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166		7.001				ND	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279420.D

Injection Date: 31-Jul-2020 19:57:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-5-A

Lab Sample ID: 240-134182-5

Worklist Smp#: 16

Client ID: SB-141 (4-5)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

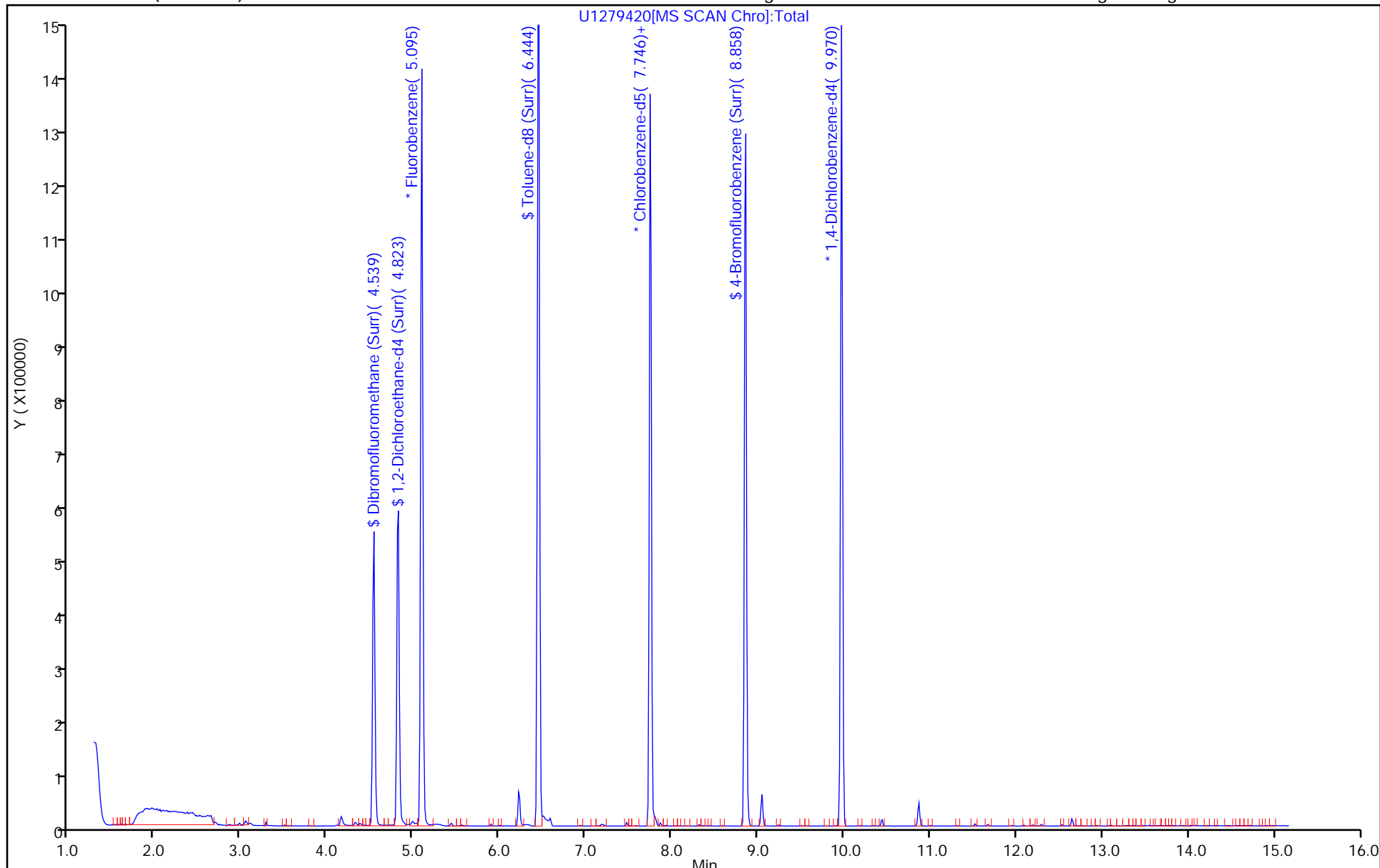
ALS Bottle#: 14

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279420.D
 Lims ID: 240-134182-A-5-A
 Client ID: SB-141 (4-5)_072820
 Sample Type: Client
 Inject. Date: 31-Jul-2020 19:57:30 ALS Bottle#: 14 Worklist Smp#: 16
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-016
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 31-Jul-2020 18:13:49 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1030

First Level Reviewer: laveyt Date: 31-Jul-2020 20:15:29

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	21.0	84.07
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	21.8	87.14
\$ 6 Toluene-d8 (Surr)	25.0	25.2	100.78
\$ 7 4-Bromofluorobenzene (Surr)	25.0	26.7	106.88

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: SB-141 (5-6)_072820 Lab Sample ID: 240-134182-6
 Matrix: Solid Lab File ID: U1279421.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 10:18
 Sample wt/vol: 9.384(g) Date Analyzed: 07/31/2020 20:20
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 2.5 Level: (low/med) Medium
 Analysis Batch No.: 445183 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	45	U	45	18
123-91-1	1,4-Dioxane	14000	U	14000	1200
156-59-2	cis-1,2-Dichloroethene	45	U	45	10
127-18-4	Tetrachloroethene	45	U	45	20
156-60-5	trans-1,2-Dichloroethene	45	U	45	11
79-01-6	Trichloroethene	45	U	45	12
75-01-4	Vinyl chloride	36	U	36	13

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	96		47-136
460-00-4	4-Bromofluorobenzene (Surr)	111		51-124
1868-53-7	Dibromofluoromethane (Surr)	92		49-122
2037-26-5	Toluene-d8 (Surr)	110		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279421.D
 Lims ID: 240-134182-A-6-A
 Client ID: SB-141 (5-6)_072820
 Sample Type: Client
 Inject. Date: 31-Jul-2020 20:20:30 ALS Bottle#: 15 Worklist Smp#: 17
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-017
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Aug-2020 01:43:45 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1049

First Level Reviewer: laveyt Date: 01-Aug-2020 10:09:08

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	98	1167143	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	754506	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.971	9.970	0.001	96	380520	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	348314	22.5	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.823	4.823	0.000	94	446041	23.5	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1375168	26.9	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.846	8.846	0.000	90	475215	27.2	
12 Vinyl chloride	62		1.688				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166		7.001				ND	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279421.D

Injection Date: 31-Jul-2020 20:20:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-6-A

Lab Sample ID: 240-134182-6

Worklist Smp#: 17

Client ID: SB-141 (5-6)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

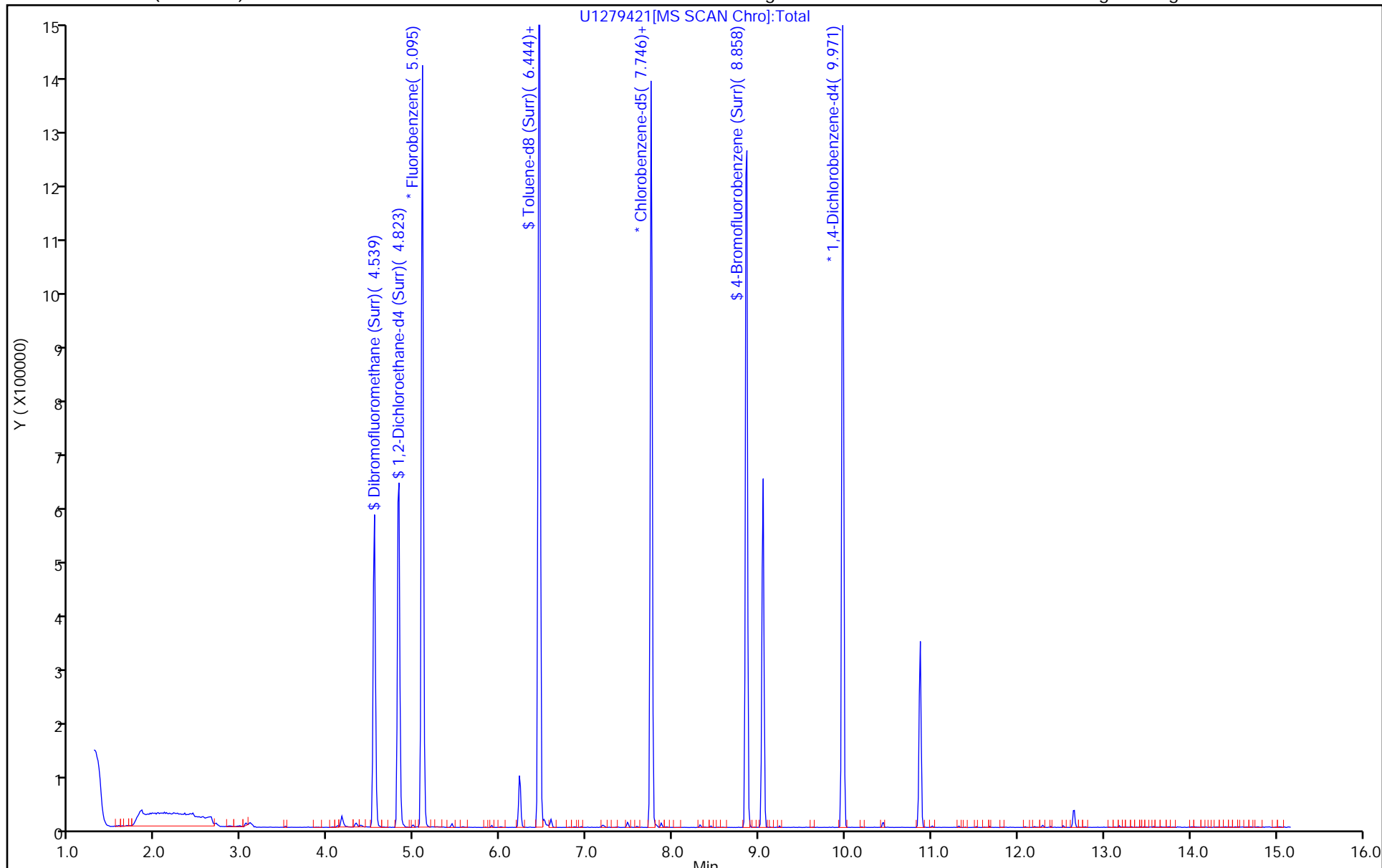
ALS Bottle#: 15

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279421.D
 Lims ID: 240-134182-A-6-A
 Client ID: SB-141 (5-6)_072820
 Sample Type: Client
 Inject. Date: 31-Jul-2020 20:20:30 ALS Bottle#: 15 Worklist Smp#: 17
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-017
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Aug-2020 01:43:45 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1049

First Level Reviewer: laveyt Date: 01-Aug-2020 10:09:08

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	22.5	89.94
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	23.5	94.10
\$ 6 Toluene-d8 (Surr)	25.0	26.9	107.79
\$ 7 4-Bromofluorobenzene (Surr)	25.0	27.2	108.79

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: SB-141 (6-7)_072820 Lab Sample ID: 240-134182-7
 Matrix: Solid Lab File ID: U1279422.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 10:27
 Sample wt/vol: 9.554(g) Date Analyzed: 07/31/2020 20:42
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0 (mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 1.9 Level: (low/med) Medium
 Analysis Batch No.: 445183 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	43	U	43	17
123-91-1	1,4-Dioxane	14000	U	14000	1200
156-59-2	cis-1,2-Dichloroethene	43	U	43	9.8
127-18-4	Tetrachloroethene	43	U	43	20
156-60-5	trans-1,2-Dichloroethene	43	U	43	11
79-01-6	Trichloroethene	43	U	43	12
75-01-4	Vinyl chloride	35	U	35	13

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	91		47-136
460-00-4	4-Bromofluorobenzene (Surr)	109		51-124
1868-53-7	Dibromofluoromethane (Surr)	88		49-122
2037-26-5	Toluene-d8 (Surr)	107		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279422.D
 Lims ID: 240-134182-A-7-A
 Client ID: SB-141 (6-7)_072820
 Sample Type: Client
 Inject. Date: 31-Jul-2020 20:42:30 ALS Bottle#: 16 Worklist Smp#: 18
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-018
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Aug-2020 01:43:45 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1049

First Level Reviewer: laveyt Date: 01-Aug-2020 10:09:13

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	98	1120517	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	717551	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.971	9.970	0.001	96	360027	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	320741	21.6	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.823	4.823	0.000	94	407550	22.4	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1273352	26.2	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.846	0.012	93	445514	26.8	
12 Vinyl chloride	62		1.688				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166		7.001				ND	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurolins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279422.D

Injection Date: 31-Jul-2020 20:42:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-7-A

Lab Sample ID: 240-134182-7

Worklist Smp#: 18

Client ID: SB-141 (6-7)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

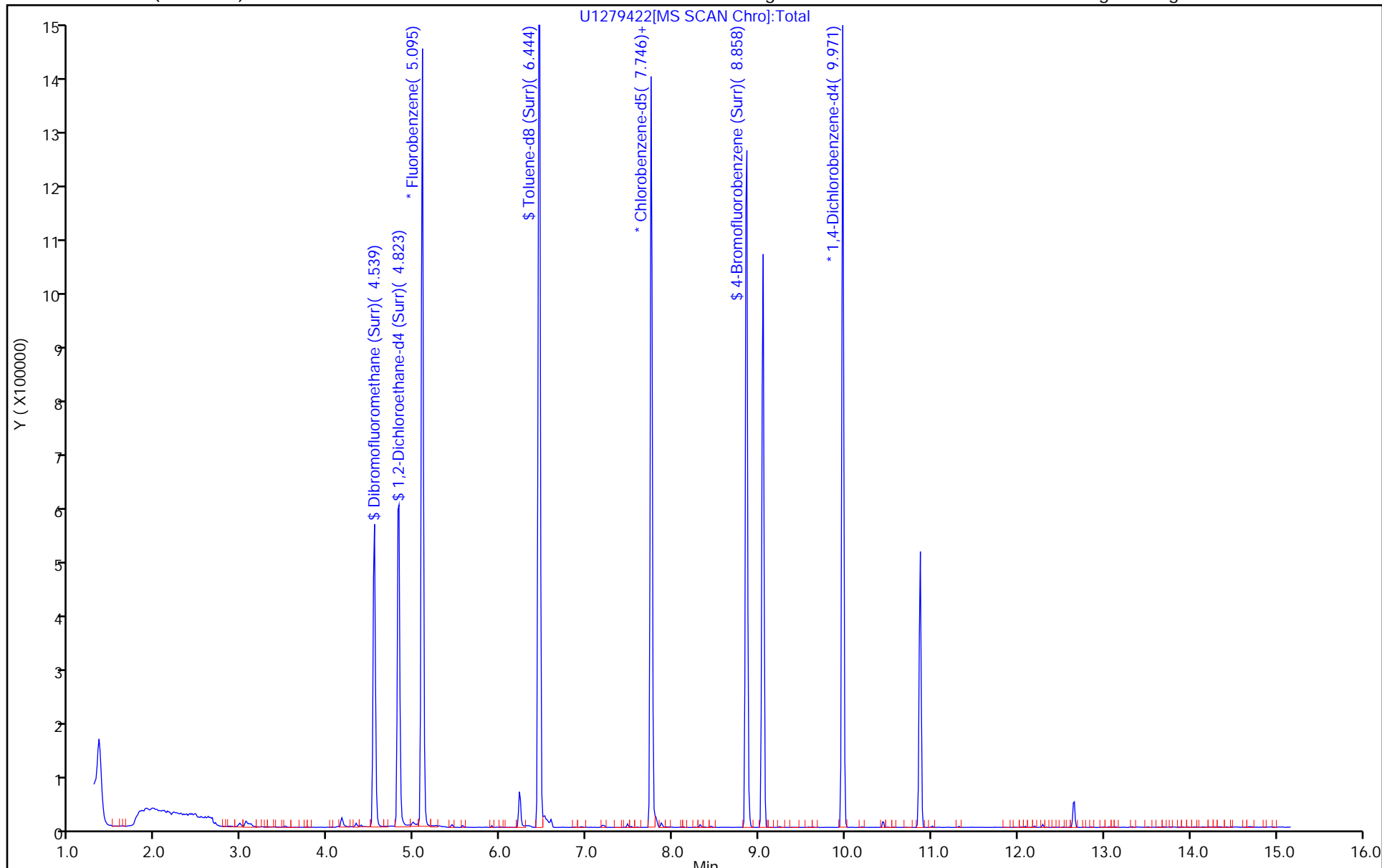
ALS Bottle#: 16

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279422.D
 Lims ID: 240-134182-A-7-A
 Client ID: SB-141 (6-7)_072820
 Sample Type: Client
 Inject. Date: 31-Jul-2020 20:42:30 ALS Bottle#: 16 Worklist Smp#: 18
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-018
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Aug-2020 01:43:45 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1049

First Level Reviewer: laveyt

Date: 01-Aug-2020 10:09:13

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	21.6	86.26
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	22.4	89.56
\$ 6 Toluene-d8 (Surr)	25.0	26.2	104.95
\$ 7 4-Bromofluorobenzene (Surr)	25.0	26.8	107.24

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: SB-141 (7-8)_072820 Lab Sample ID: 240-134182-8
 Matrix: Solid Lab File ID: U1279423.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 10:30
 Sample wt/vol: 9.214(g) Date Analyzed: 07/31/2020 21:05
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 4.8 Level: (low/med) Medium
 Analysis Batch No.: 445183 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	48	U	48	19
123-91-1	1,4-Dioxane	15000	U	15000	1300
156-59-2	cis-1,2-Dichloroethene	48	U	48	11
127-18-4	Tetrachloroethene	48	U	48	21
156-60-5	trans-1,2-Dichloroethene	48	U	48	12
79-01-6	Trichloroethene	48	U	48	13
75-01-4	Vinyl chloride	38	U	38	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	89		47-136
460-00-4	4-Bromofluorobenzene (Surr)	105		51-124
1868-53-7	Dibromofluoromethane (Surr)	86		49-122
2037-26-5	Toluene-d8 (Surr)	103		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279423.D
 Lims ID: 240-134182-A-8-A
 Client ID: SB-141 (7-8)_072820
 Sample Type: Client
 Inject. Date: 31-Jul-2020 21:05:30 ALS Bottle#: 17 Worklist Smp#: 19
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-019
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Aug-2020 01:43:45 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1049

First Level Reviewer: laveyt Date: 01-Aug-2020 10:09:17

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	98	1110876	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	727352	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.971	9.970	0.001	96	363711	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	304412	20.6	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	94	383876	21.3	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1214776	24.7	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.846	0.012	94	422529	25.1	
12 Vinyl chloride	62		1.688				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166		7.001				ND	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279423.D

Injection Date: 31-Jul-2020 21:05:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-8-A

Lab Sample ID: 240-134182-8

Worklist Smp#: 19

Client ID: SB-141 (7-8)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

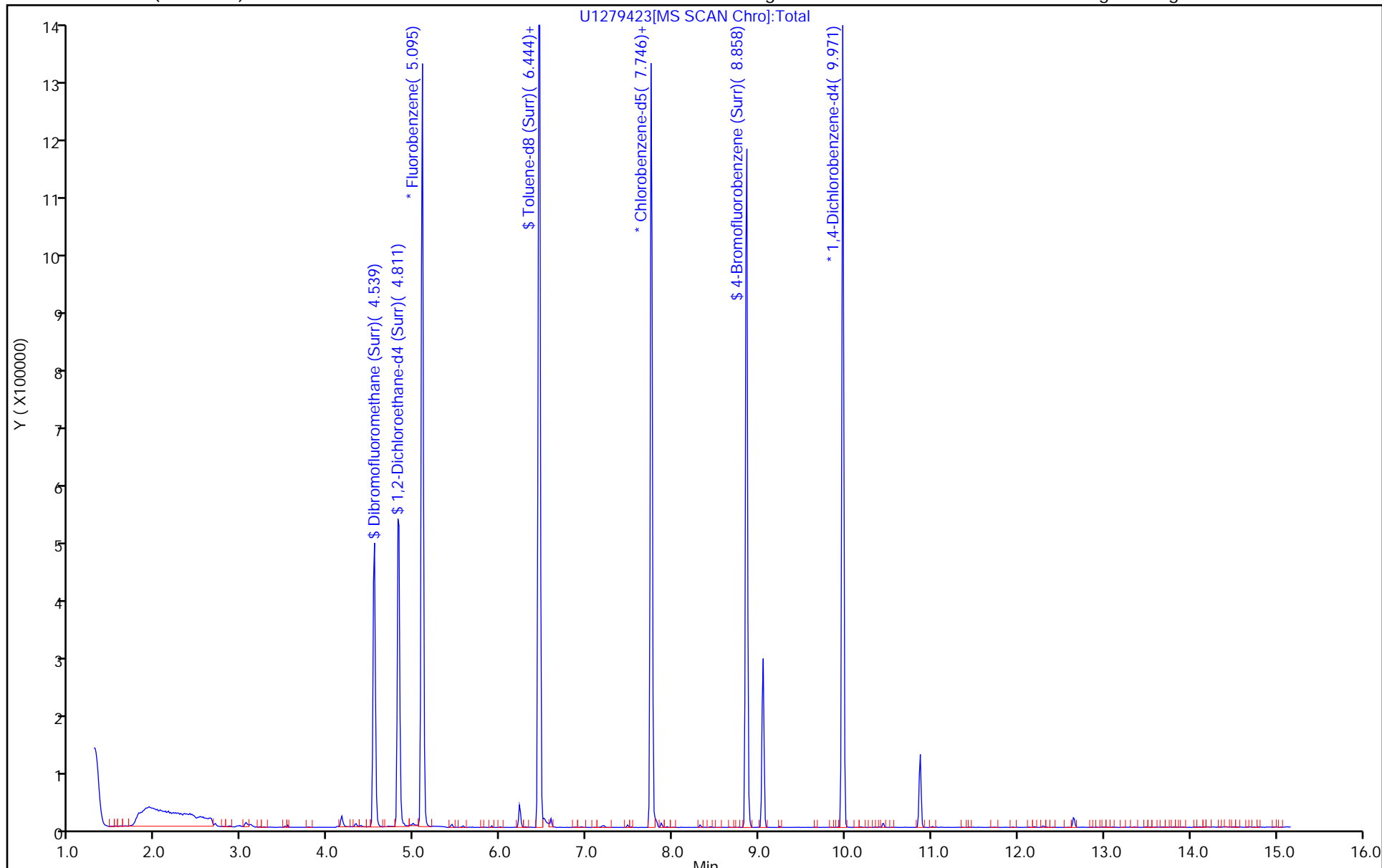
ALS Bottle#: 17

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279423.D
 Lims ID: 240-134182-A-8-A
 Client ID: SB-141 (7-8)_072820
 Sample Type: Client
 Inject. Date: 31-Jul-2020 21:05:30 ALS Bottle#: 17 Worklist Smp#: 19
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-019
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Aug-2020 01:43:45 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1049

First Level Reviewer: laveyt

Date: 01-Aug-2020 10:09:17

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	20.6	82.58
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	21.3	85.09
\$ 6 Toluene-d8 (Surr)	25.0	24.7	98.77
\$ 7 4-Bromofluorobenzene (Surr)	25.0	25.1	100.34

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: TMW-20-02 (0.5-1) 072820 Lab Sample ID: 240-134182-9
 Matrix: Solid Lab File ID: U1279424.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 11:06
 Sample wt/vol: 9.446(g) Date Analyzed: 07/31/2020 21:27
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0 (mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 3.6 Level: (low/med) Medium
 Analysis Batch No.: 445183 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	45	U	45	18
123-91-1	1,4-Dioxane	14000	U	14000	1200
156-59-2	cis-1,2-Dichloroethene	45	U	45	10
127-18-4	Tetrachloroethene	45	U	45	20
156-60-5	trans-1,2-Dichloroethene	45	U	45	11
79-01-6	Trichloroethene	45	U	45	12
75-01-4	Vinyl chloride	36	U	36	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	92		47-136
460-00-4	4-Bromofluorobenzene (Surr)	109		51-124
1868-53-7	Dibromofluoromethane (Surr)	87		49-122
2037-26-5	Toluene-d8 (Surr)	108		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279424.D
 Lims ID: 240-134182-A-9-A
 Client ID: TMW-20-02 (0.5-1)_072820
 Sample Type: Client
 Inject. Date: 31-Jul-2020 21:27:30 ALS Bottle#: 18 Worklist Smp#: 20
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-020
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Aug-2020 01:43:45 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1049

First Level Reviewer: laveyt Date: 01-Aug-2020 10:09:21

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	98	1137013	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	88	734431	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.971	9.970	0.001	96	379619	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	317267	21.0	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	95	408980	22.1	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1299809	26.2	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.846	0.012	93	446686	26.3	
12 Vinyl chloride	62		1.688				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166		7.001				ND	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279424.D

Injection Date: 31-Jul-2020 21:27:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-9-A

Lab Sample ID: 240-134182-9

Worklist Smp#: 20

Client ID: TMW-20-02 (0.5-1)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

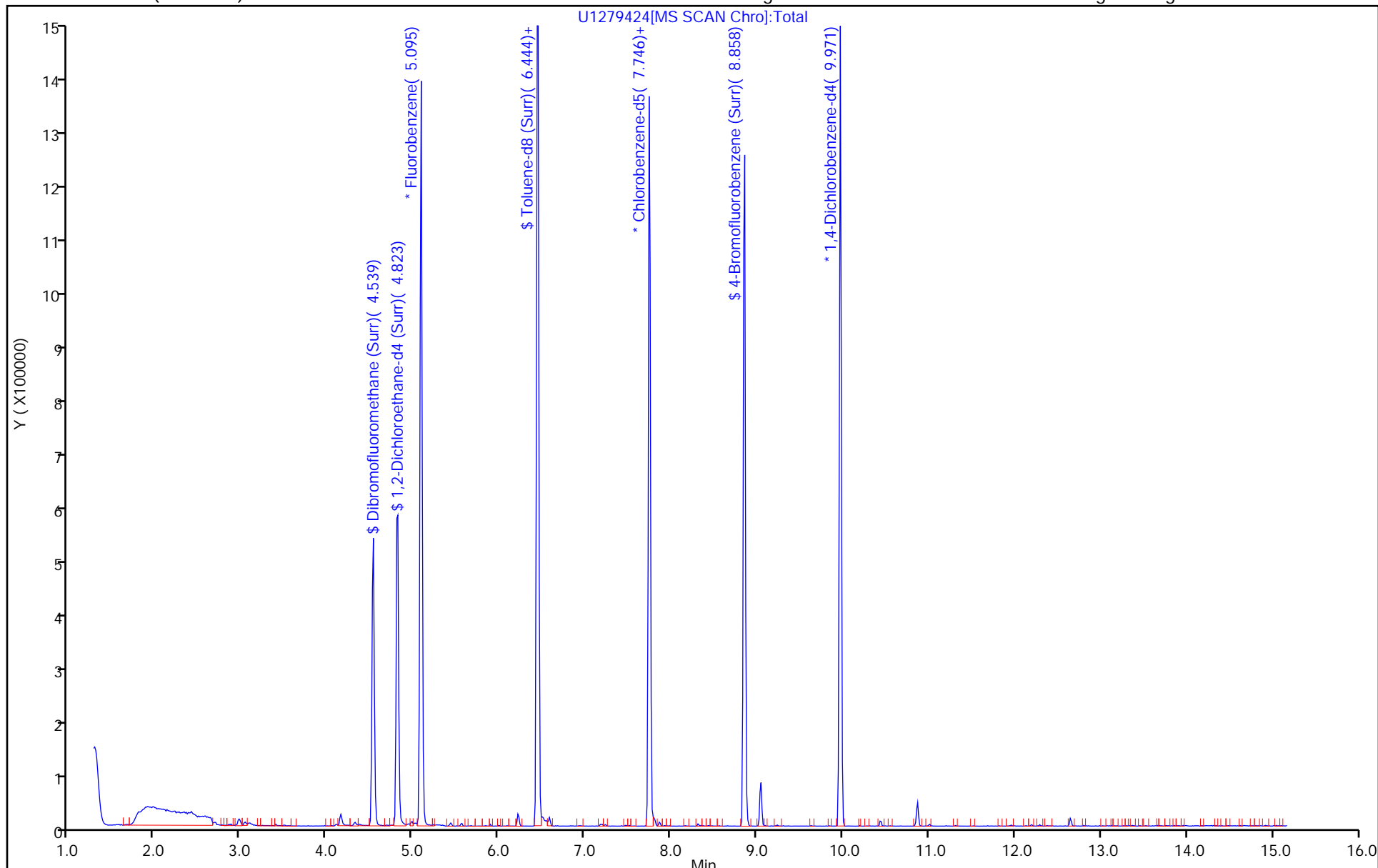
ALS Bottle#: 18

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279424.D
 Lims ID: 240-134182-A-9-A
 Client ID: TMW-20-02 (0.5-1)_072820
 Sample Type: Client
 Inject. Date: 31-Jul-2020 21:27:30 ALS Bottle#: 18 Worklist Smp#: 20
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-020
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Aug-2020 01:43:45 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1049

First Level Reviewer: laveyt

Date: 01-Aug-2020 10:09:21

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	21.0	84.09
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	22.1	88.57
\$ 6 Toluene-d8 (Surr)	25.0	26.2	104.67
\$ 7 4-Bromofluorobenzene (Surr)	25.0	26.3	105.05

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: TMW-20-02 (1-2)_072820 Lab Sample ID: 240-134182-10
 Matrix: Solid Lab File ID: U1279425.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 11:07
 Sample wt/vol: 9.602(g) Date Analyzed: 07/31/2020 21:50
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 3.8 Level: (low/med) Medium
 Analysis Batch No.: 445183 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	45	U	45	18
123-91-1	1,4-Dioxane	14000	U	14000	1200
156-59-2	cis-1,2-Dichloroethene	45	U	45	10
127-18-4	Tetrachloroethene	45	U	45	20
156-60-5	trans-1,2-Dichloroethene	45	U	45	11
79-01-6	Trichloroethene	45	U	45	12
75-01-4	Vinyl chloride	36	U	36	13

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	89		47-136
460-00-4	4-Bromofluorobenzene (Surr)	107		51-124
1868-53-7	Dibromofluoromethane (Surr)	84		49-122
2037-26-5	Toluene-d8 (Surr)	103		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279425.D
 Lims ID: 240-134182-A-10-A
 Client ID: TMW-20-02 (1-2)_072820
 Sample Type: Client
 Inject. Date: 31-Jul-2020 21:50:30 ALS Bottle#: 19 Worklist Smp#: 21
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-021
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Aug-2020 01:43:45 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1049

First Level Reviewer: laveyt

Date: 01-Aug-2020 10:09:25

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	98	1133821	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	747565	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.971	9.970	0.001	96	381766	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	305730	20.3	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	95	397315	21.6	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1261189	24.9	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.846	0.012	93	447492	25.8	
12 Vinyl chloride	62		1.688				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166		7.001				ND	

Reagents:

vm50is_stk_a_00006

Amount Added: 2.00

Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279425.D

Injection Date: 31-Jul-2020 21:50:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-10-A

Lab Sample ID: 240-134182-10

Worklist Smp#: 21

Client ID: TMW-20-02 (1-2)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

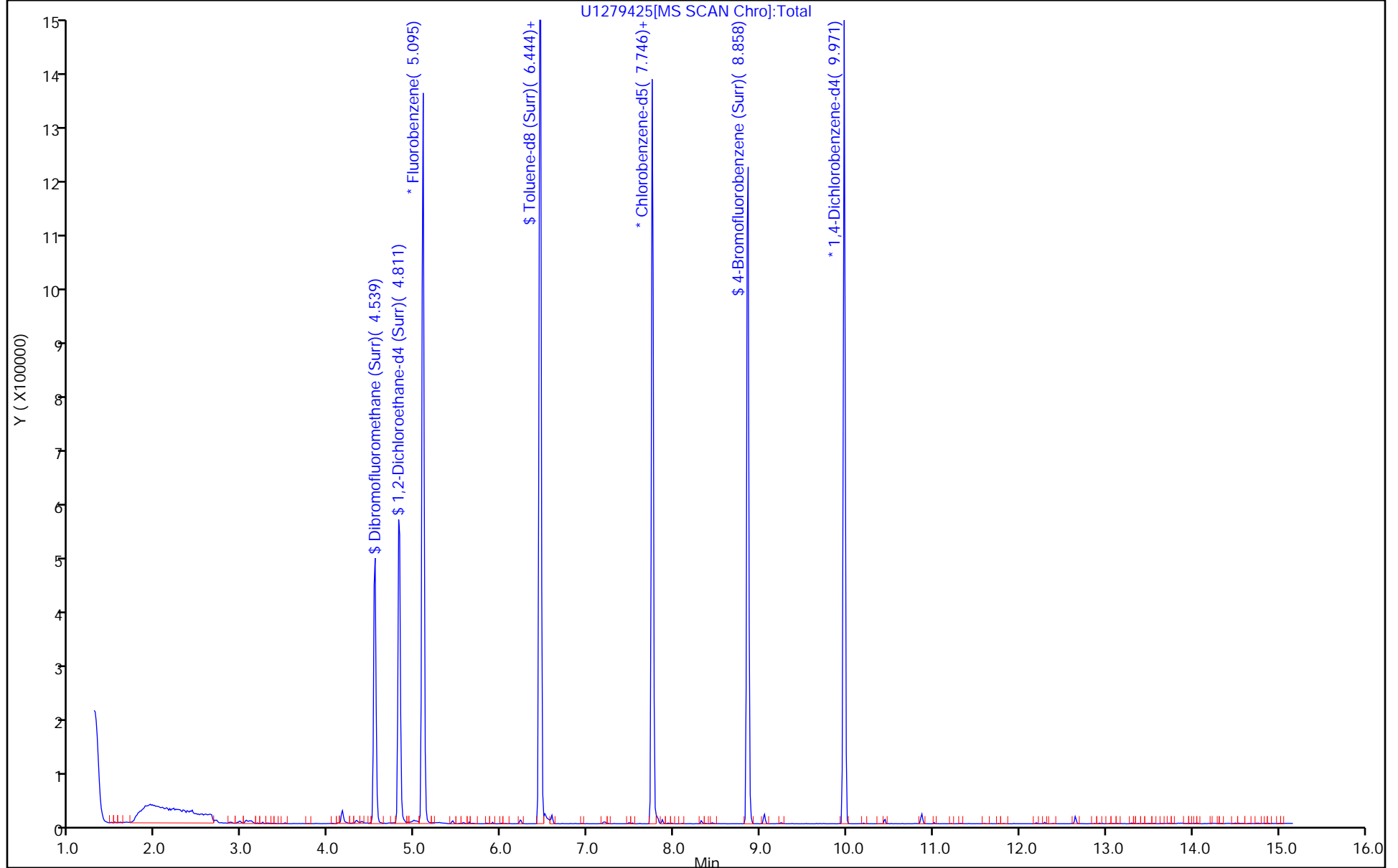
ALS Bottle#: 19

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279425.D
 Lims ID: 240-134182-A-10-A
 Client ID: TMW-20-02 (1-2)_072820
 Sample Type: Client
 Inject. Date: 31-Jul-2020 21:50:30 ALS Bottle#: 19 Worklist Smp#: 21
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-021
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Aug-2020 01:43:45 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1049

First Level Reviewer: laveyt

Date: 01-Aug-2020 10:09:25

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	20.3	81.26
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	21.6	86.29
\$ 6 Toluene-d8 (Surr)	25.0	24.9	99.77
\$ 7 4-Bromofluorobenzene (Surr)	25.0	25.8	103.39

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: TMW-20-02 (2-3)_072820 Lab Sample ID: 240-134182-11
 Matrix: Solid Lab File ID: U1279426.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 11:08
 Sample wt/vol: 9.79(g) Date Analyzed: 07/31/2020 22:13
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0 (mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 7.7 Level: (low/med) Medium
 Analysis Batch No.: 445183 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	48	U	48	19
123-91-1	1,4-Dioxane	15000	U	15000	1300
156-59-2	cis-1,2-Dichloroethene	48	U	48	11
127-18-4	Tetrachloroethene	48	U	48	21
156-60-5	trans-1,2-Dichloroethene	48	U	48	12
79-01-6	Trichloroethene	48	U	48	13
75-01-4	Vinyl chloride	38	U	38	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	99		47-136
460-00-4	4-Bromofluorobenzene (Surr)	114		51-124
1868-53-7	Dibromofluoromethane (Surr)	93		49-122
2037-26-5	Toluene-d8 (Surr)	111		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279426.D
 Lims ID: 240-134182-A-11-A
 Client ID: TMW-20-02 (2-3)_072820
 Sample Type: Client
 Inject. Date: 31-Jul-2020 22:13:30 ALS Bottle#: 20 Worklist Smp#: 22
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-022
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Aug-2020 01:43:45 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1049

First Level Reviewer: laveyt Date: 01-Aug-2020 10:09:28

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1149696	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	758281	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.970	0.000	96	382322	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	328521	21.5	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	95	427862	22.9	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1319845	25.7	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.846	0.012	93	465667	26.5	
12 Vinyl chloride	62		1.688				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166		7.001				ND	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279426.D

Injection Date: 31-Jul-2020 22:13:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-11-A

Lab Sample ID: 240-134182-11

Worklist Smp#: 22

Client ID: TMW-20-02 (2-3)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

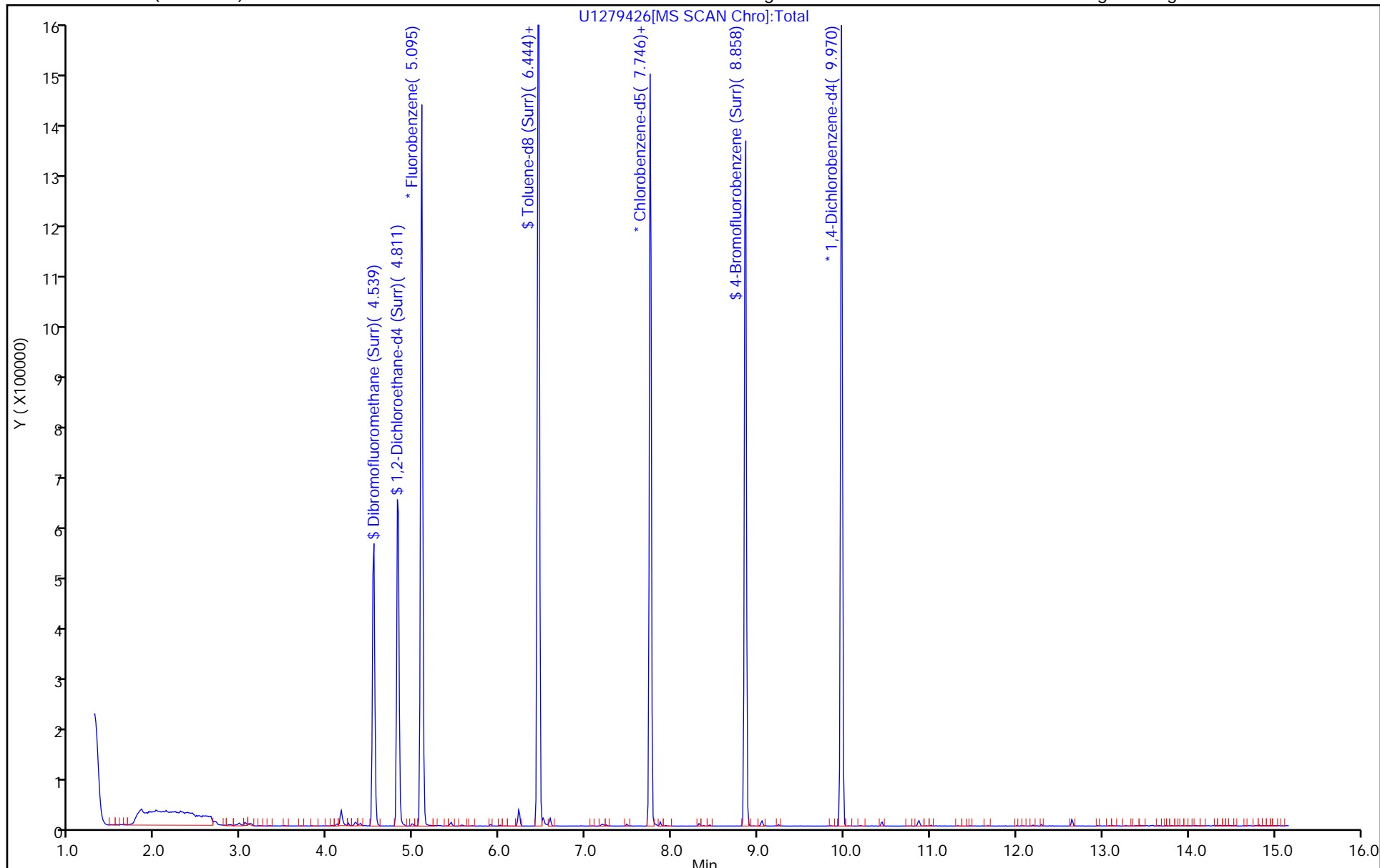
ALS Bottle#: 20

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279426.D
 Lims ID: 240-134182-A-11-A
 Client ID: TMW-20-02 (2-3)_072820
 Sample Type: Client
 Inject. Date: 31-Jul-2020 22:13:30 ALS Bottle#: 20 Worklist Smp#: 22
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-022
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Aug-2020 01:43:45 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1049

First Level Reviewer: laveyt

Date: 01-Aug-2020 10:09:28

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	21.5	86.11
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	22.9	91.64
\$ 6 Toluene-d8 (Surr)	25.0	25.7	102.94
\$ 7 4-Bromofluorobenzene (Surr)	25.0	26.5	106.07

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: TMW-20-02 (3-4)_072820 Lab Sample ID: 240-134182-12
 Matrix: Solid Lab File ID: U1279427.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 11:09
 Sample wt/vol: 9.963(g) Date Analyzed: 07/31/2020 22:35
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0 (mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 2.4 Level: (low/med) Medium
 Analysis Batch No.: 445183 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	42	U	42	17
123-91-1	1,4-Dioxane	13000	U	13000	1100
156-59-2	cis-1,2-Dichloroethene	42	U	42	9.5
127-18-4	Tetrachloroethene	42	U	42	19
156-60-5	trans-1,2-Dichloroethene	42	U	42	11
79-01-6	Trichloroethene	42	U	42	12
75-01-4	Vinyl chloride	34	U	34	13

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	87		47-136
460-00-4	4-Bromofluorobenzene (Surr)	99		51-124
1868-53-7	Dibromofluoromethane (Surr)	83		49-122
2037-26-5	Toluene-d8 (Surr)	99		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279427.D
 Lims ID: 240-134182-A-12-A
 Client ID: TMW-20-02 (3-4)_072820
 Sample Type: Client
 Inject. Date: 31-Jul-2020 22:35:30 ALS Bottle#: 21 Worklist Smp#: 23
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-023
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Aug-2020 01:43:45 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1049

First Level Reviewer: laveyt Date: 01-Aug-2020 10:09:32

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	98	1138415	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	733284	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.970	0.000	96	374630	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	307173	20.3	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	94	394947	21.4	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1199869	24.2	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.846	0.012	93	411837	24.3	
12 Vinyl chloride	62		1.688				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166		7.001				ND	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurolins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279427.D

Injection Date: 31-Jul-2020 22:35:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-12-A

Lab Sample ID: 240-134182-12

Worklist Smp#: 23

Client ID: TMW-20-02 (3-4)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

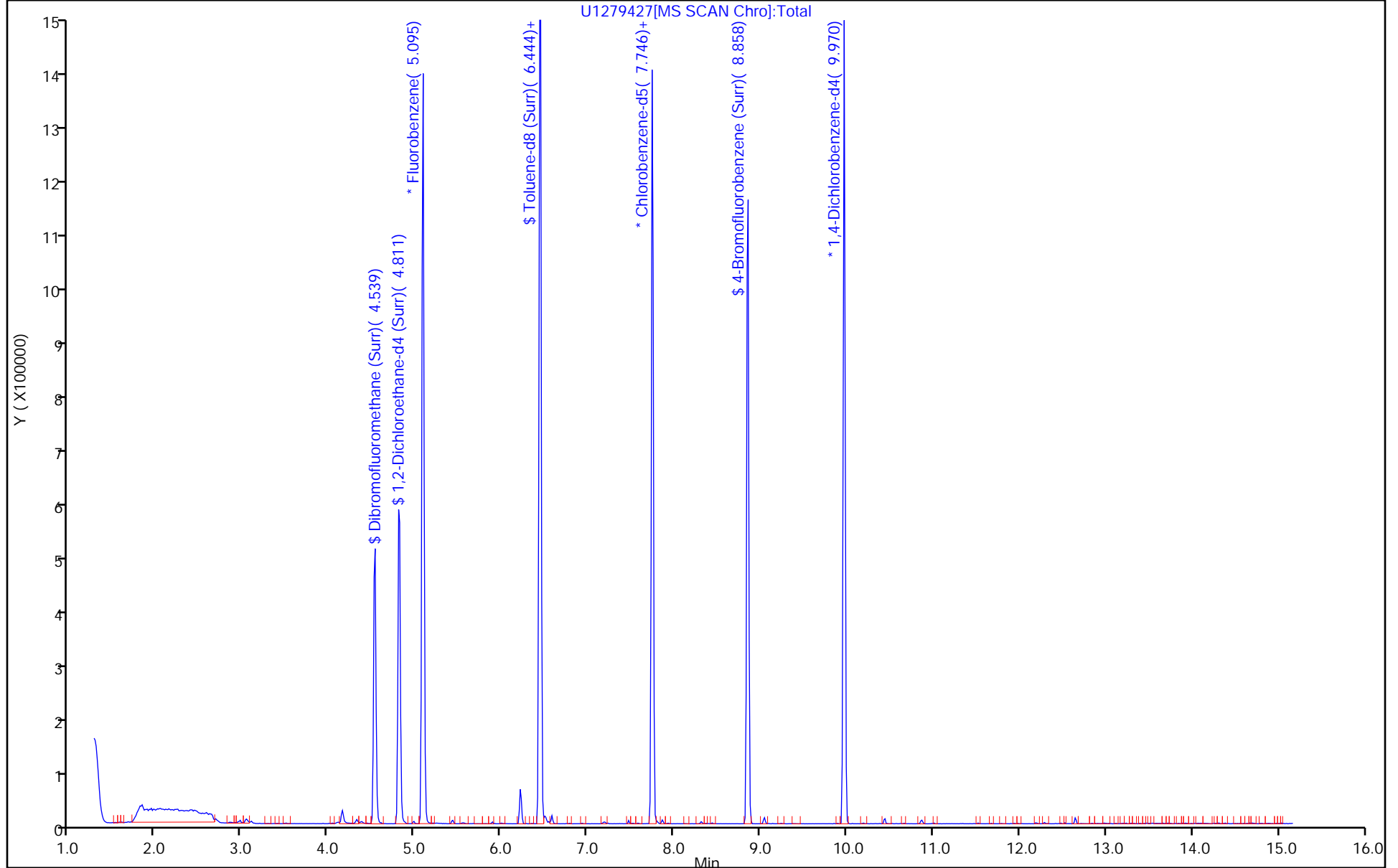
ALS Bottle#: 21

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279427.D
 Lims ID: 240-134182-A-12-A
 Client ID: TMW-20-02 (3-4)_072820
 Sample Type: Client
 Inject. Date: 31-Jul-2020 22:35:30 ALS Bottle#: 21 Worklist Smp#: 23
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-023
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Aug-2020 01:43:45 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1049

First Level Reviewer: laveyt

Date: 01-Aug-2020 10:09:32

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	20.3	81.32
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	21.4	85.43
\$ 6 Toluene-d8 (Surr)	25.0	24.2	96.77
\$ 7 4-Bromofluorobenzene (Surr)	25.0	24.3	97.01

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: TMW-20-02 (4-5)_072820 Lab Sample ID: 240-134182-13
 Matrix: Solid Lab File ID: U1279428.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 11:10
 Sample wt/vol: 9.487(g) Date Analyzed: 07/31/2020 22:57
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0 (mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 2.9 Level: (low/med) Medium
 Analysis Batch No.: 445183 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	45	U	45	18
123-91-1	1,4-Dioxane	14000	U	14000	1200
156-59-2	cis-1,2-Dichloroethene	45	U	45	10
127-18-4	Tetrachloroethene	45	U	45	20
156-60-5	trans-1,2-Dichloroethene	45	U	45	11
79-01-6	Trichloroethene	45	U	45	12
75-01-4	Vinyl chloride	36	U	36	13

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	92		47-136
460-00-4	4-Bromofluorobenzene (Surr)	110		51-124
1868-53-7	Dibromofluoromethane (Surr)	85		49-122
2037-26-5	Toluene-d8 (Surr)	108		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279428.D
 Lims ID: 240-134182-A-13-A
 Client ID: TMW-20-02 (4-5)_072820
 Sample Type: Client
 Inject. Date: 31-Jul-2020 22:57:30 ALS Bottle#: 22 Worklist Smp#: 24
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-024
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Aug-2020 01:43:45 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1049

First Level Reviewer: laveyt

Date: 01-Aug-2020 10:09:36

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1146307	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	762225	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.970	0.000	96	377688	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	314812	20.7	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	94	418395	22.5	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1351905	26.2	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.846	0.012	93	470646	26.7	
12 Vinyl chloride	62		1.688				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166		7.001				ND	

Reagents:

vm50is_stk_a_00006

Amount Added: 2.00

Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279428.D

Injection Date: 31-Jul-2020 22:57:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-13-A

Lab Sample ID: 240-134182-13

Worklist Smp#: 24

Client ID: TMW-20-02 (4-5)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

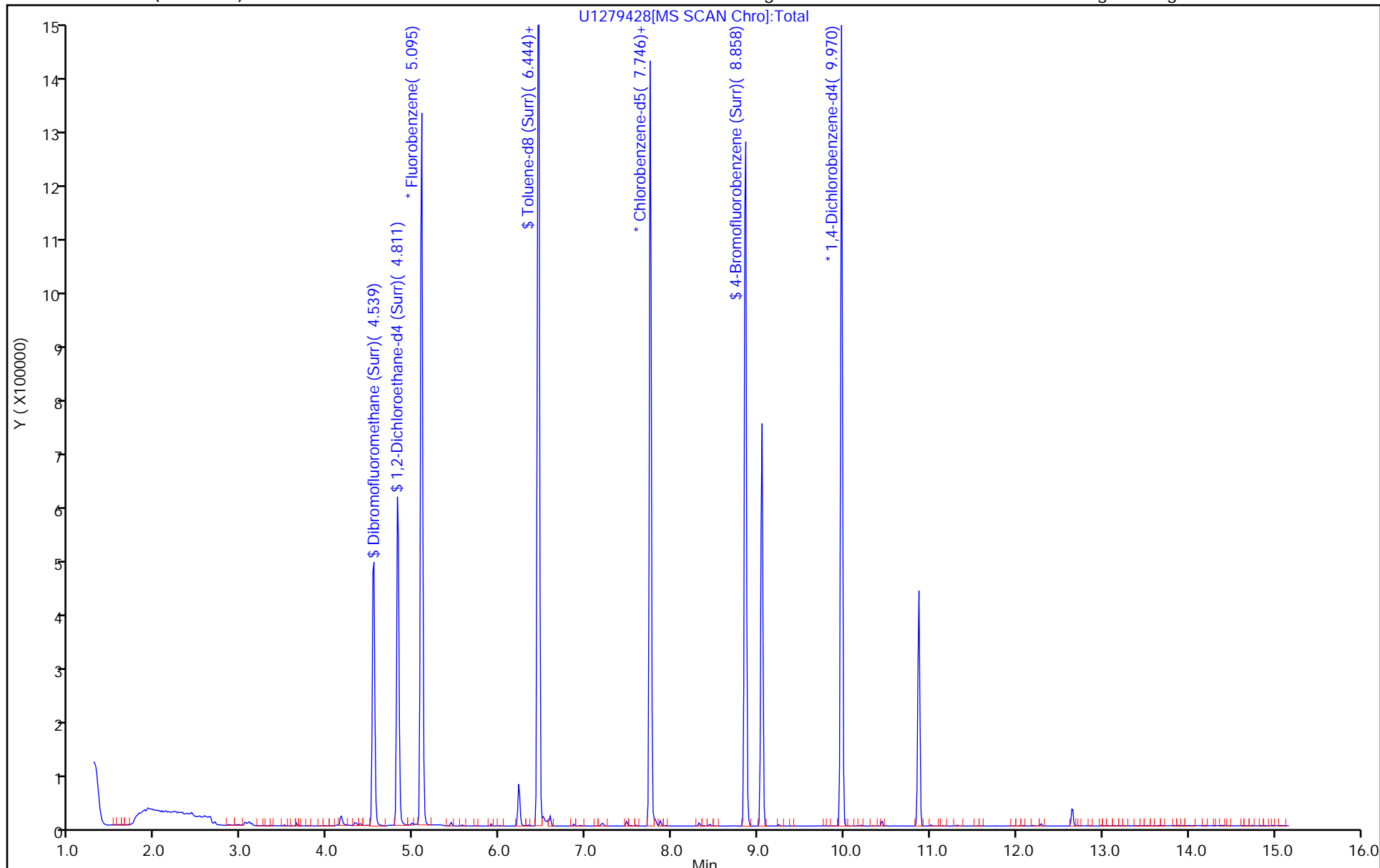
ALS Bottle#: 22

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279428.D
 Lims ID: 240-134182-A-13-A
 Client ID: TMW-20-02 (4-5)_072820
 Sample Type: Client
 Inject. Date: 31-Jul-2020 22:57:30 ALS Bottle#: 22 Worklist Smp#: 24
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-024
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Aug-2020 01:43:45 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1049

First Level Reviewer: laveyt

Date: 01-Aug-2020 10:09:36

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	20.7	82.76
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	22.5	89.87
\$ 6 Toluene-d8 (Surr)	25.0	26.2	104.89
\$ 7 4-Bromofluorobenzene (Surr)	25.0	26.7	106.65

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: TMW-20-02 (5-6)_072820 Lab Sample ID: 240-134182-14
 Matrix: Solid Lab File ID: U1279429.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 11:29
 Sample wt/vol: 9.984(g) Date Analyzed: 07/31/2020 23:20
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0 (mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 10.2 Level: (low/med) Medium
 Analysis Batch No.: 445183 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	49	U	49	20
123-91-1	1,4-Dioxane	15000	U	15000	1300
156-59-2	cis-1,2-Dichloroethene	49	U	49	11
127-18-4	Tetrachloroethene	49	U	49	22
156-60-5	trans-1,2-Dichloroethene	49	U	49	12
79-01-6	Trichloroethene	49	U	49	14
75-01-4	Vinyl chloride	39	U	39	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	97		47-136
460-00-4	4-Bromofluorobenzene (Surr)	111		51-124
1868-53-7	Dibromofluoromethane (Surr)	91		49-122
2037-26-5	Toluene-d8 (Surr)	109		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279429.D
 Lims ID: 240-134182-A-14-A
 Client ID: TMW-20-02 (5-6)_072820
 Sample Type: Client
 Inject. Date: 31-Jul-2020 23:20:30 ALS Bottle#: 23 Worklist Smp#: 25
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-025
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Aug-2020 01:43:45 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1049

First Level Reviewer: laveyt Date: 01-Aug-2020 10:10:01

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	98	1157996	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	88	792266	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.970	0.000	96	398603	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	93	316380	20.6	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	94	414363	22.0	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1330752	24.8	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.846	0.012	94	461624	25.2	
12 Vinyl chloride	62		1.688				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166		7.001				ND	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279429.D

Injection Date: 31-Jul-2020 23:20:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-14-A

Lab Sample ID: 240-134182-14

Worklist Smp#: 25

Client ID: TMW-20-02 (5-6)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

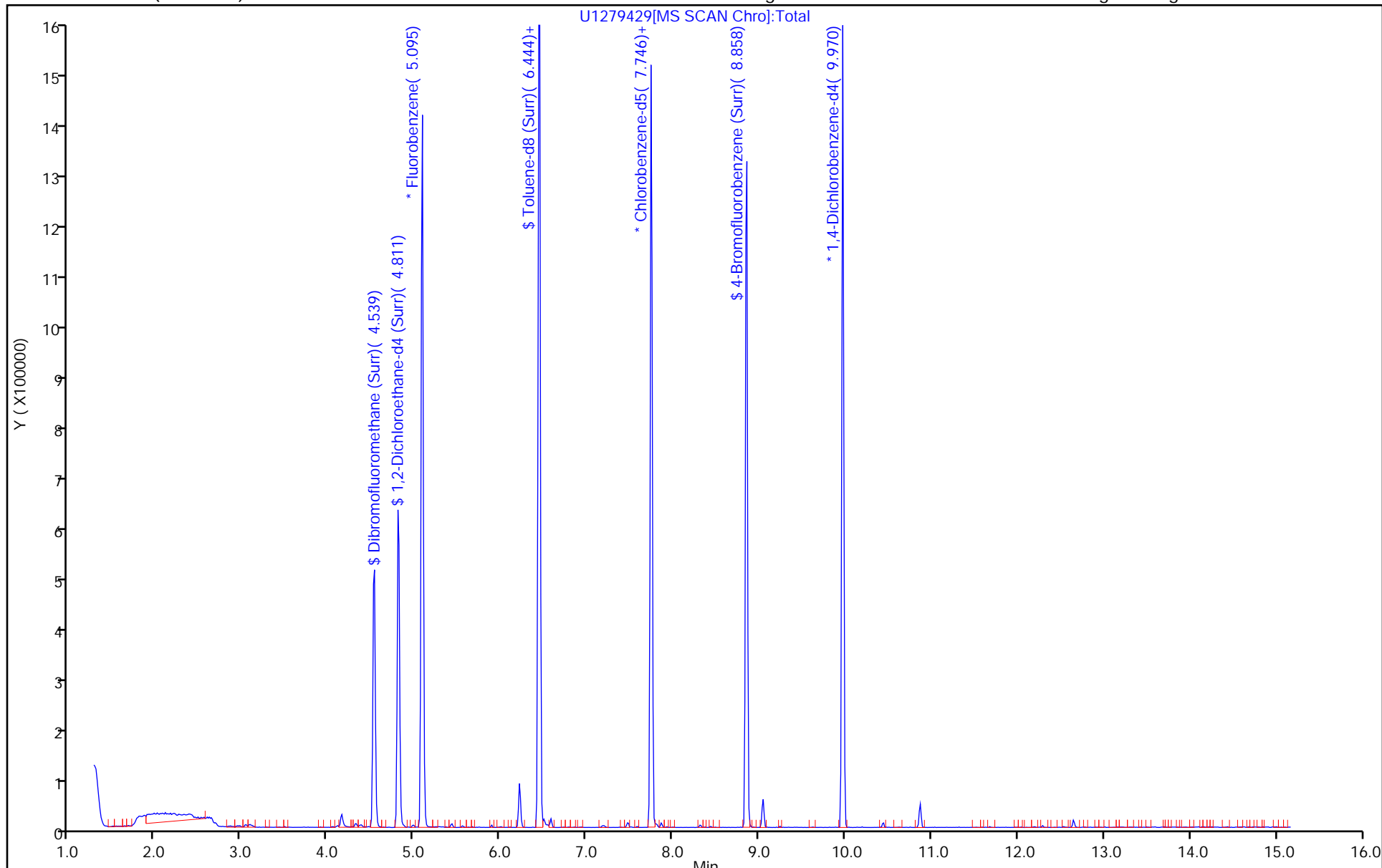
ALS Bottle#: 23

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279429.D
 Lims ID: 240-134182-A-14-A
 Client ID: TMW-20-02 (5-6)_072820
 Sample Type: Client
 Inject. Date: 31-Jul-2020 23:20:30 ALS Bottle#: 23 Worklist Smp#: 25
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-025
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Aug-2020 01:43:45 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1049

First Level Reviewer: laveyt

Date: 01-Aug-2020 10:10:01

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	20.6	82.34
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	22.0	88.11
\$ 6 Toluene-d8 (Surr)	25.0	24.8	99.33
\$ 7 4-Bromofluorobenzene (Surr)	25.0	25.2	100.64

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: TMW-20-02 (6-7)_072820 Lab Sample ID: 240-134182-15
 Matrix: Solid Lab File ID: U1279430.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 11:30
 Sample wt/vol: 9.598(g) Date Analyzed: 07/31/2020 23:42
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 3.9 Level: (low/med) Medium
 Analysis Batch No.: 445183 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	45	U	45	18
123-91-1	1,4-Dioxane	14000	U	14000	1200
156-59-2	cis-1,2-Dichloroethene	45	U	45	10
127-18-4	Tetrachloroethene	45	U	45	20
156-60-5	trans-1,2-Dichloroethene	45	U	45	11
79-01-6	Trichloroethene	45	U	45	12
75-01-4	Vinyl chloride	36	U	36	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	90		47-136
460-00-4	4-Bromofluorobenzene (Surr)	103		51-124
1868-53-7	Dibromofluoromethane (Surr)	84		49-122
2037-26-5	Toluene-d8 (Surr)	101		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279430.D
 Lims ID: 240-134182-A-15-A
 Client ID: TMW-20-02 (6-7)_072820
 Sample Type: Client
 Inject. Date: 31-Jul-2020 23:42:30 ALS Bottle#: 24 Worklist Smp#: 26
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-026
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Aug-2020 01:43:45 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1049

First Level Reviewer: laveyt

Date: 01-Aug-2020 10:10:06

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1145412	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	769756	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.970	0.000	96	387813	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	308442	20.3	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	94	402112	21.6	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1271051	24.4	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.846	0.012	93	440250	24.7	
12 Vinyl chloride	62		1.688				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166		7.001				ND	

Reagents:

vm50is_stk_a_00006

Amount Added: 2.00

Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279430.D

Injection Date: 31-Jul-2020 23:42:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-15-A

Lab Sample ID: 240-134182-15

Worklist Smp#: 26

Client ID: TMW-20-02 (6-7)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

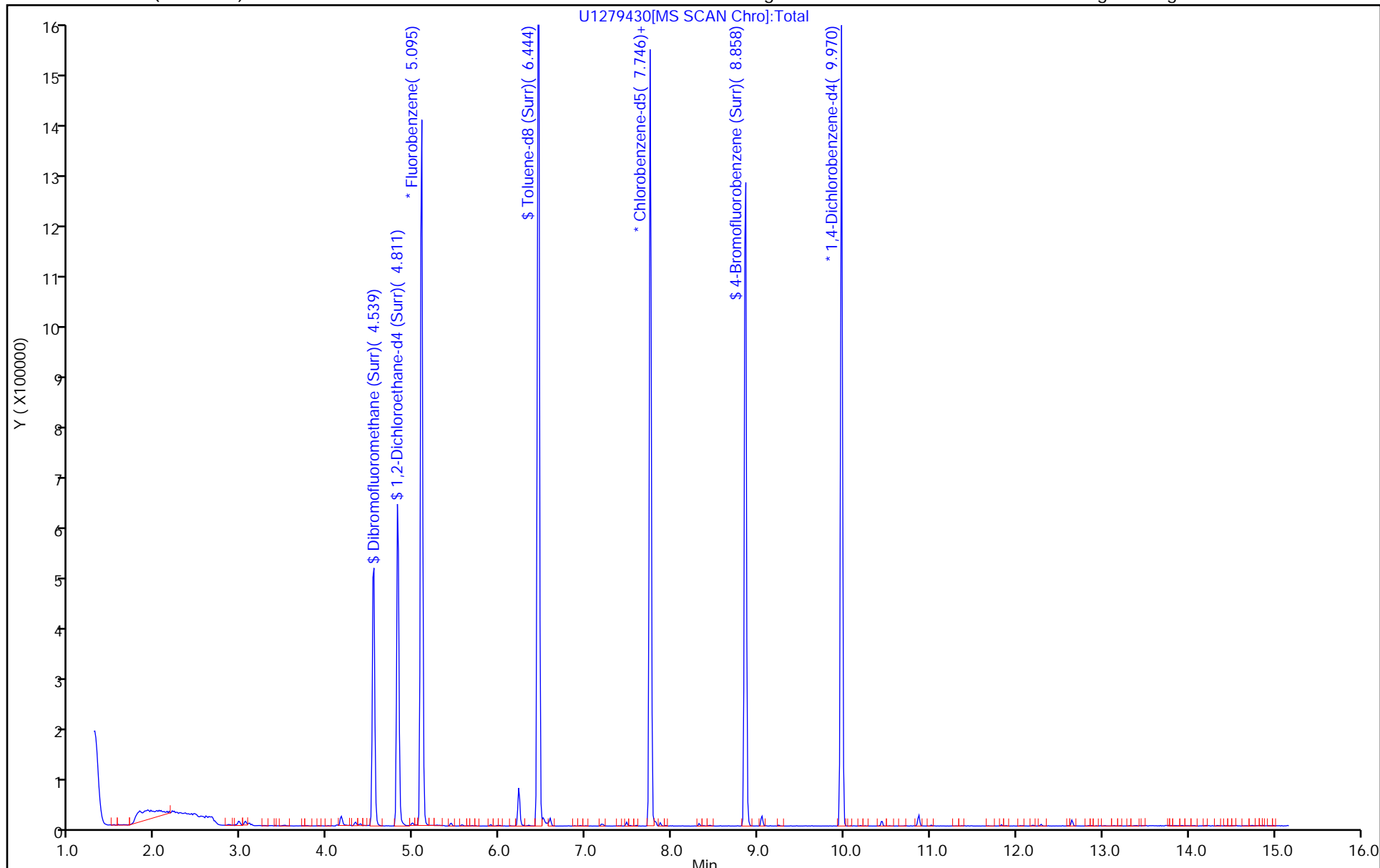
ALS Bottle#: 24

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279430.D
 Lims ID: 240-134182-A-15-A
 Client ID: TMW-20-02 (6-7)_072820
 Sample Type: Client
 Inject. Date: 31-Jul-2020 23:42:30 ALS Bottle#: 24 Worklist Smp#: 26
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-026
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Aug-2020 01:43:45 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1049

First Level Reviewer: laveyt Date: 01-Aug-2020 10:10:06

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	20.3	81.15
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	21.6	86.44
\$ 6 Toluene-d8 (Surr)	25.0	24.4	97.65
\$ 7 4-Bromofluorobenzene (Surr)	25.0	24.7	98.79

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: TMW-20-02 (7-8)_072820 Lab Sample ID: 240-134182-16
 Matrix: Solid Lab File ID: U1279431.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 11:34
 Sample wt/vol: 9.705(g) Date Analyzed: 08/01/2020 00:05
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 5.8 Level: (low/med) Medium
 Analysis Batch No.: 445183 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	46	U	46	18
123-91-1	1,4-Dioxane	14000	U	14000	1300
156-59-2	cis-1,2-Dichloroethene	46	U	46	10
127-18-4	Tetrachloroethene	46	U	46	21
156-60-5	trans-1,2-Dichloroethene	46	U	46	12
79-01-6	Trichloroethene	46	U	46	13
75-01-4	Vinyl chloride	37	U	37	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	95		47-136
460-00-4	4-Bromofluorobenzene (Surr)	108		51-124
1868-53-7	Dibromofluoromethane (Surr)	88		49-122
2037-26-5	Toluene-d8 (Surr)	106		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279431.D
 Lims ID: 240-134182-A-16-A
 Client ID: TMW-20-02 (7-8)_072820
 Sample Type: Client
 Inject. Date: 01-Aug-2020 00:05:30 ALS Bottle#: 25 Worklist Smp#: 27
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-027
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Aug-2020 01:43:45 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1049

First Level Reviewer: laveyt Date: 01-Aug-2020 10:10:11

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.084	5.095	-0.011	98	1105018	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	89	742324	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.971	9.970	0.001	96	375782	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.527	4.539	-0.012	93	305439	20.8	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	94	402083	22.4	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1265000	25.2	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.846	8.846	0.000	90	439459	25.6	
12 Vinyl chloride	62		1.688				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166		7.001				ND	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279431.D

Injection Date: 01-Aug-2020 00:05:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-16-A

Lab Sample ID: 240-134182-16

Worklist Smp#: 27

Client ID: TMW-20-02 (7-8)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

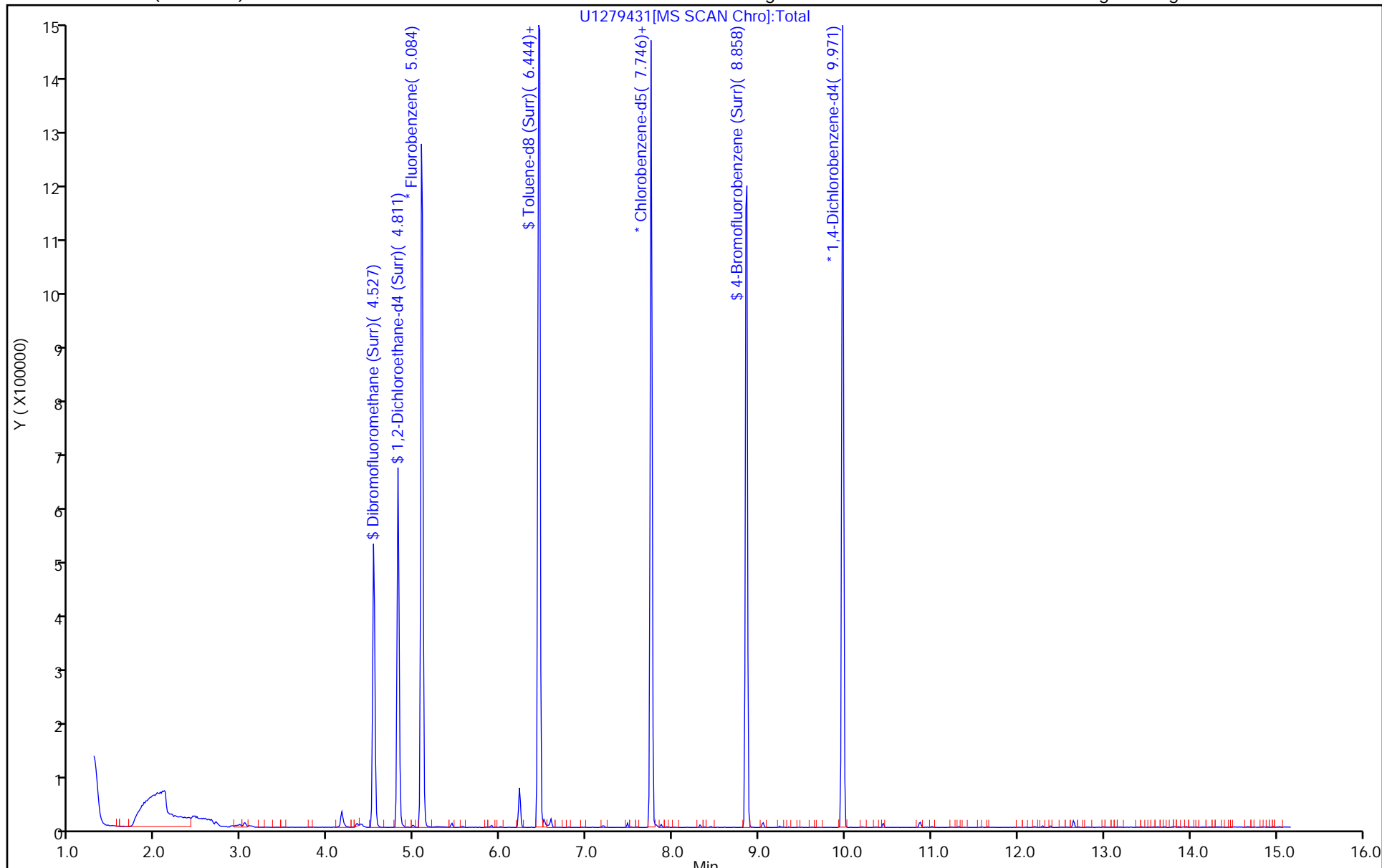
ALS Bottle#: 25

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279431.D
 Lims ID: 240-134182-A-16-A
 Client ID: TMW-20-02 (7-8)_072820
 Sample Type: Client
 Inject. Date: 01-Aug-2020 00:05:30 ALS Bottle#: 25 Worklist Smp#: 27
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-027
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Aug-2020 01:43:45 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1049

First Level Reviewer: laveyt Date: 01-Aug-2020 10:10:11

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	20.8	83.30
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	22.4	89.60
\$ 6 Toluene-d8 (Surr)	25.0	25.2	100.78
\$ 7 4-Bromofluorobenzene (Surr)	25.0	25.6	102.26

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: SB-142 (0.5-1)_072820 Lab Sample ID: 240-134182-17
 Matrix: Solid Lab File ID: U1279432.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 12:40
 Sample wt/vol: 9.721(g) Date Analyzed: 08/01/2020 00:27
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0 (mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 3.5 Level: (low/med) Medium
 Analysis Batch No.: 445183 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	44	U	44	18
123-91-1	1,4-Dioxane	14000	U	14000	1200
156-59-2	cis-1,2-Dichloroethene	44	U	44	9.9
127-18-4	Tetrachloroethene	44	U	44	20
156-60-5	trans-1,2-Dichloroethene	44	U	44	11
79-01-6	Trichloroethene	44	U	44	12
75-01-4	Vinyl chloride	35	U	35	13

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	96		47-136
460-00-4	4-Bromofluorobenzene (Surr)	108		51-124
1868-53-7	Dibromofluoromethane (Surr)	88		49-122
2037-26-5	Toluene-d8 (Surr)	108		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279432.D
 Lims ID: 240-134182-A-17-A
 Client ID: SB-142 (0.5-1)_072820
 Sample Type: Client
 Inject. Date: 01-Aug-2020 00:27:30 ALS Bottle#: 26 Worklist Smp#: 28
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-028
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Aug-2020 01:43:45 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1049

First Level Reviewer: laveyt Date: 01-Aug-2020 10:10:15

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1153641	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	775478	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.971	9.970	0.001	96	383994	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.527	4.539	-0.012	94	325737	21.3	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	94	433299	23.1	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1366118	26.0	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.846	0.012	93	469710	26.2	
12 Vinyl chloride	62		1.688				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166		7.001				ND	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279432.D

Injection Date: 01-Aug-2020 00:27:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-17-A

Lab Sample ID: 240-134182-17

Worklist Smp#: 28

Client ID: SB-142 (0.5-1)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

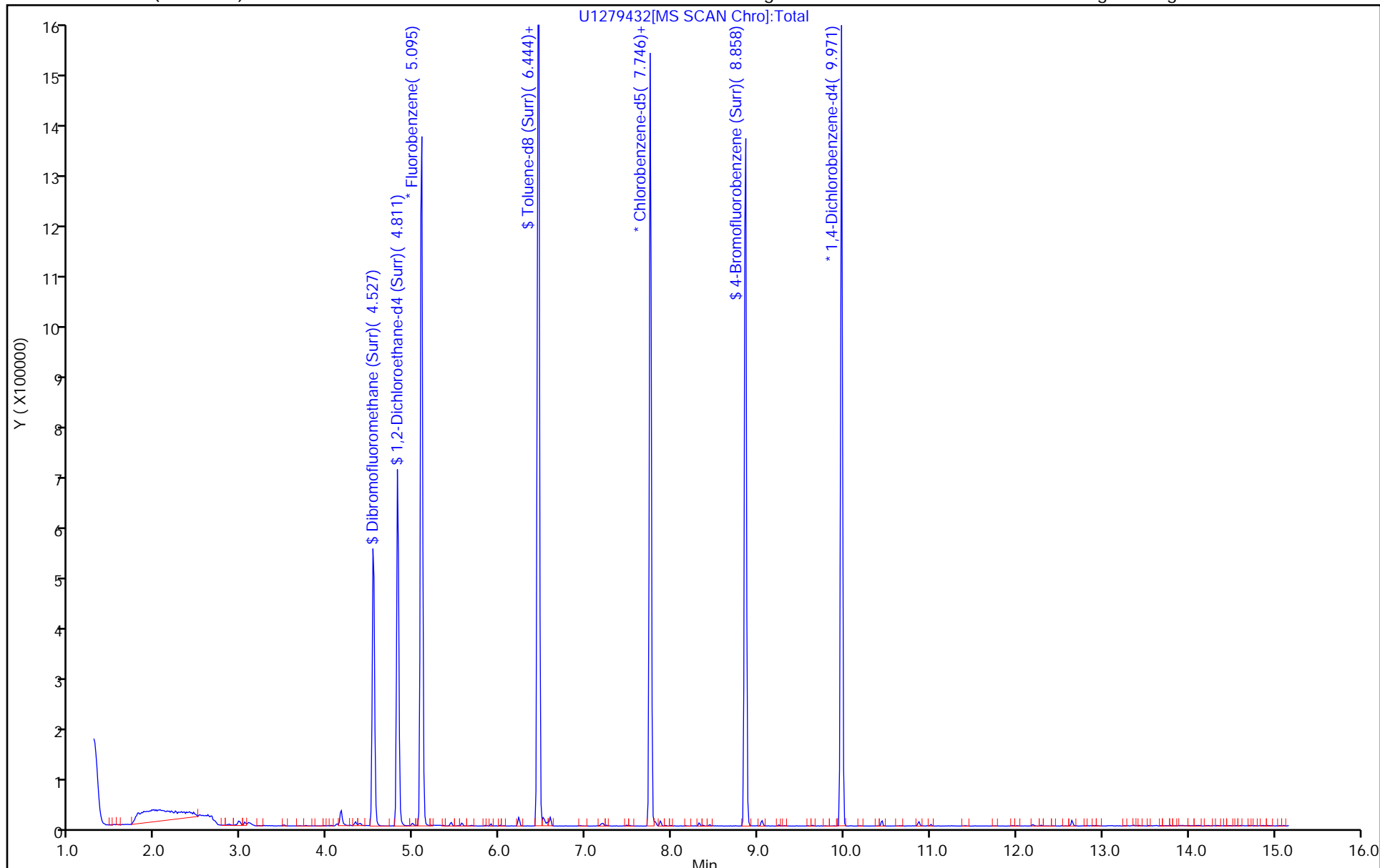
ALS Bottle#: 26

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279432.D
 Lims ID: 240-134182-A-17-A
 Client ID: SB-142 (0.5-1)_072820
 Sample Type: Client
 Inject. Date: 01-Aug-2020 00:27:30 ALS Bottle#: 26 Worklist Smp#: 28
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-028
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Aug-2020 01:43:45 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1049

First Level Reviewer: laveyt Date: 01-Aug-2020 10:10:15

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	21.3	85.09
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	23.1	92.48
\$ 6 Toluene-d8 (Surr)	25.0	26.0	104.18
\$ 7 4-Bromofluorobenzene (Surr)	25.0	26.2	104.62

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: SB-142 (1-2)_072820 Lab Sample ID: 240-134182-18
 Matrix: Solid Lab File ID: U1279433.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 12:41
 Sample wt/vol: 9.82(g) Date Analyzed: 08/01/2020 00:50
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 2.2 Level: (low/med) Medium
 Analysis Batch No.: 445183 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	43	U	43	17
123-91-1	1,4-Dioxane	13000	U	13000	1200
156-59-2	cis-1,2-Dichloroethene	43	U	43	9.6
127-18-4	Tetrachloroethene	43	U	43	19
156-60-5	trans-1,2-Dichloroethene	43	U	43	11
79-01-6	Trichloroethene	43	U	43	12
75-01-4	Vinyl chloride	34	U	34	13

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	90		47-136
460-00-4	4-Bromofluorobenzene (Surr)	104		51-124
1868-53-7	Dibromofluoromethane (Surr)	85		49-122
2037-26-5	Toluene-d8 (Surr)	103		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279433.D
 Lims ID: 240-134182-A-18-A
 Client ID: SB-142 (1-2)_072820
 Sample Type: Client
 Inject. Date: 01-Aug-2020 00:50:30 ALS Bottle#: 27 Worklist Smp#: 29
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-029
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Aug-2020 01:43:45 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1049

First Level Reviewer: laveyt

Date: 01-Aug-2020 10:10:19

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1158756	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	771566	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.971	9.970	0.001	96	379898	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.527	4.539	-0.012	94	318343	20.7	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	94	415800	22.1	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1309601	25.1	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.846	8.846	0.000	89	455426	25.5	
12 Vinyl chloride	62		1.688				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166		7.001				ND	

Reagents:

vm50is_stk_a_00006

Amount Added: 2.00

Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279433.D

Injection Date: 01-Aug-2020 00:50:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-18-A

Lab Sample ID: 240-134182-18

Worklist Smp#: 29

Client ID: SB-142 (1-2)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

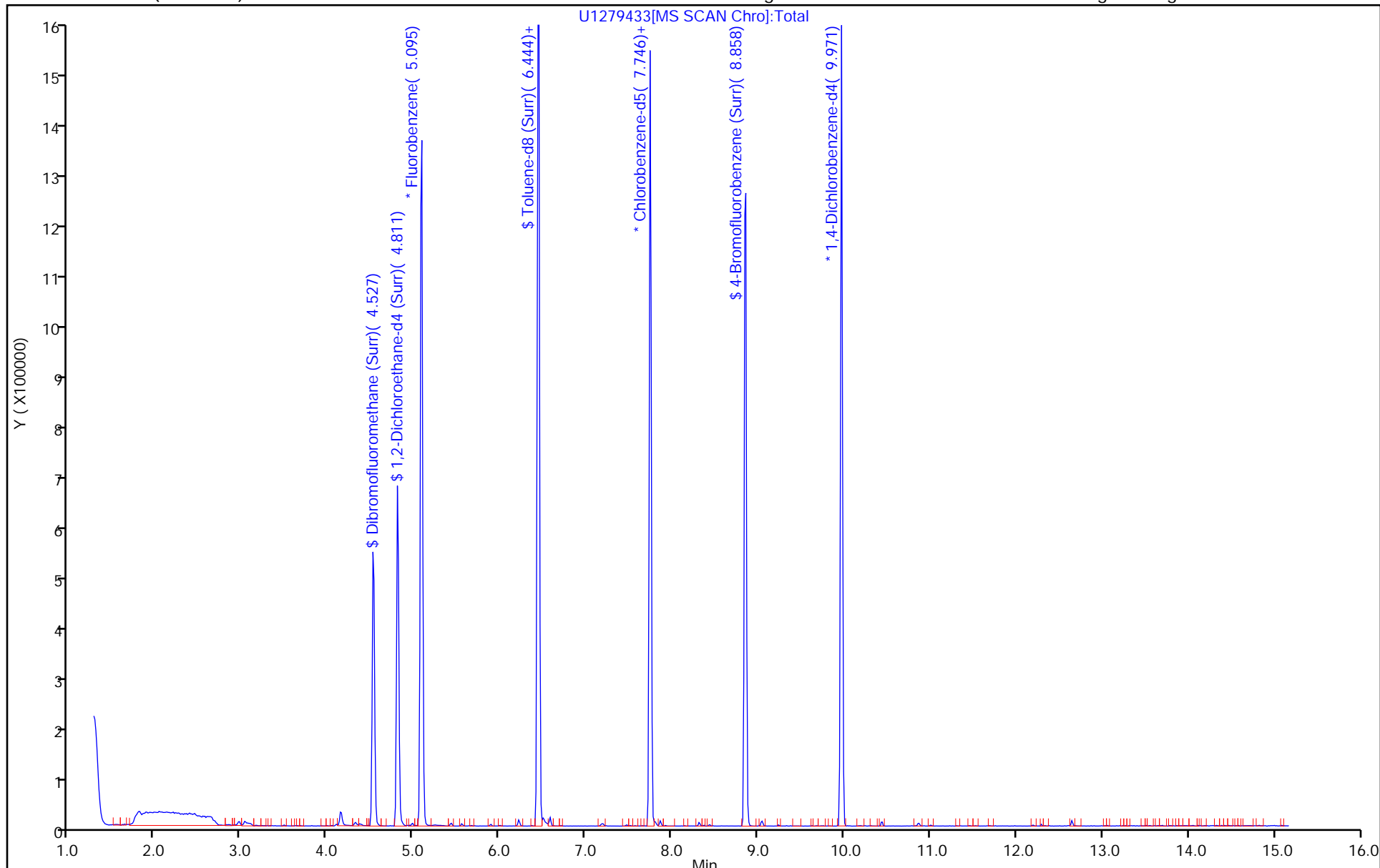
ALS Bottle#: 27

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279433.D
 Lims ID: 240-134182-A-18-A
 Client ID: SB-142 (1-2)_072820
 Sample Type: Client
 Inject. Date: 01-Aug-2020 00:50:30 ALS Bottle#: 27 Worklist Smp#: 29
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-029
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Aug-2020 01:43:45 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1049

First Level Reviewer: laveyt Date: 01-Aug-2020 10:10:19

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	20.7	82.79
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	22.1	88.36
\$ 6 Toluene-d8 (Surr)	25.0	25.1	100.38
\$ 7 4-Bromofluorobenzene (Surr)	25.0	25.5	101.95

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: SB-142 (2-3)_072820 Lab Sample ID: 240-134182-19
 Matrix: Solid Lab File ID: U1279434.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 12:42
 Sample wt/vol: 9.587(g) Date Analyzed: 08/01/2020 01:12
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0 (mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 2.9 Level: (low/med) Medium
 Analysis Batch No.: 445183 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	44	U	44	18
123-91-1	1,4-Dioxane	14000	U	14000	1200
156-59-2	cis-1,2-Dichloroethene	44	U	44	9.9
127-18-4	Tetrachloroethene	44	U	44	20
156-60-5	trans-1,2-Dichloroethene	44	U	44	11
79-01-6	Trichloroethene	44	U	44	12
75-01-4	Vinyl chloride	35	U	35	13

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	86		47-136
460-00-4	4-Bromofluorobenzene (Surr)	106		51-124
1868-53-7	Dibromofluoromethane (Surr)	82		49-122
2037-26-5	Toluene-d8 (Surr)	102		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279434.D
 Lims ID: 240-134182-A-19-A
 Client ID: SB-142 (2-3)_072820
 Sample Type: Client
 Inject. Date: 01-Aug-2020 01:12:30 ALS Bottle#: 28 Worklist Smp#: 30
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-030
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Aug-2020 01:43:45 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1049

First Level Reviewer: laveyt

Date: 01-Aug-2020 10:10:23

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1150060	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	756530	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.970	0.000	96	375978	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.527	4.539	-0.012	94	303475	19.9	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	94	392411	21.0	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1264417	24.7	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.846	8.846	0.000	90	450644	25.7	
12 Vinyl chloride	62		1.688				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166		7.001				ND	

Reagents:

vm50is_stk_a_00006

Amount Added: 2.00

Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279434.D

Injection Date: 01-Aug-2020 01:12:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-19-A

Lab Sample ID: 240-134182-19

Worklist Smp#: 30

Client ID: SB-142 (2-3)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

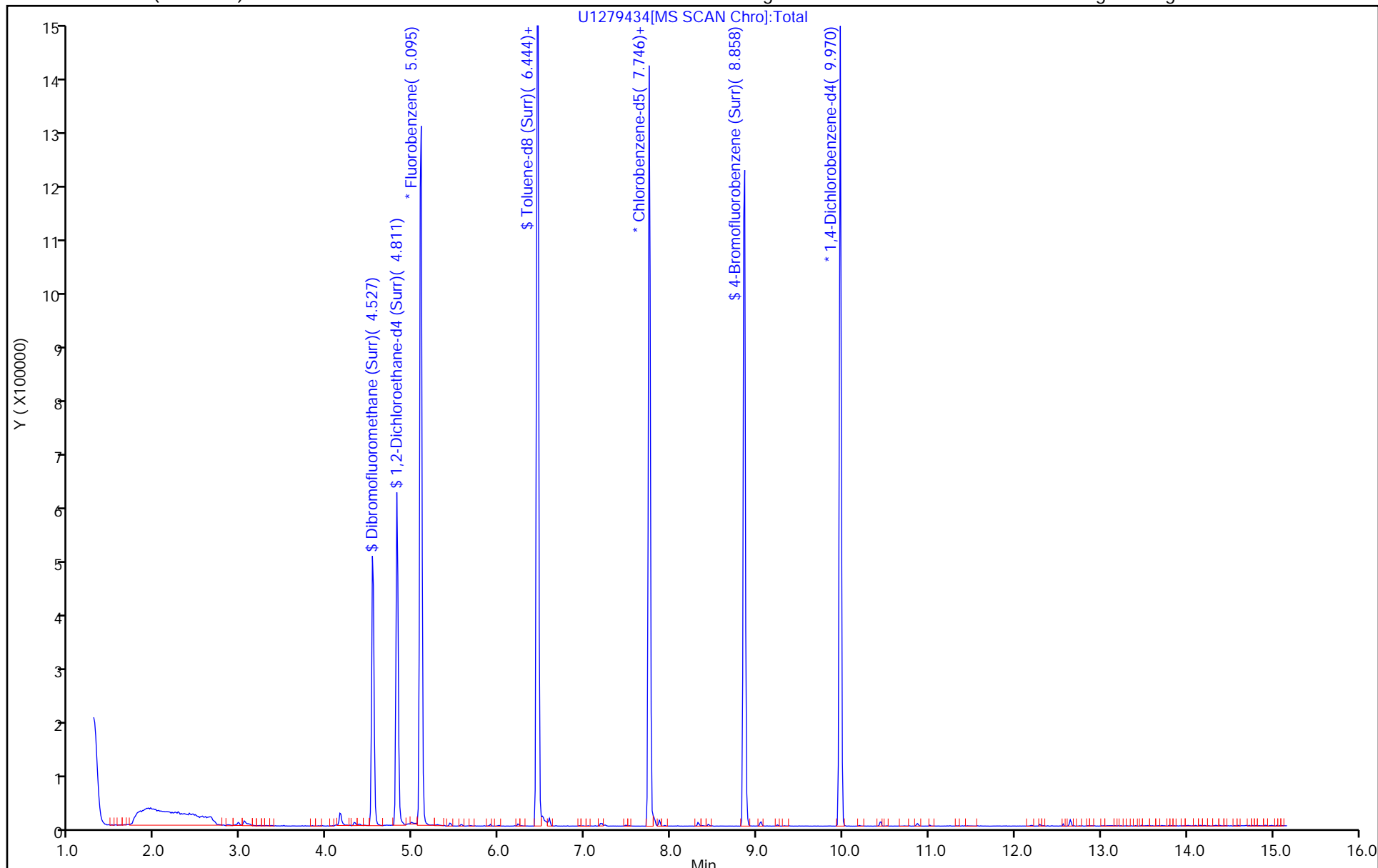
ALS Bottle#: 28

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279434.D
 Lims ID: 240-134182-A-19-A
 Client ID: SB-142 (2-3)_072820
 Sample Type: Client
 Inject. Date: 01-Aug-2020 01:12:30 ALS Bottle#: 28 Worklist Smp#: 30
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-030
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Aug-2020 01:43:45 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1049

First Level Reviewer: laveyt

Date: 01-Aug-2020 10:10:23

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	19.9	79.52
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	21.0	84.02
\$ 6 Toluene-d8 (Surr)	25.0	24.7	98.84
\$ 7 4-Bromofluorobenzene (Surr)	25.0	25.7	102.89

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: SB-142 (3-4)_072820 Lab Sample ID: 240-134182-20
 Matrix: Solid Lab File ID: U1279496a.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 12:43
 Sample wt/vol: 10.58(g) Date Analyzed: 08/04/2020 19:12
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 2.0 Level: (low/med) Medium
 Analysis Batch No.: 445595 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	39	U	39	16
123-91-1	1,4-Dioxane	12000	U	12000	1100
156-59-2	cis-1,2-Dichloroethene	14	J	39	8.9
127-18-4	Tetrachloroethene	19	J	39	18
156-60-5	trans-1,2-Dichloroethene	24	J	39	9.9
79-01-6	Trichloroethene	13	J	39	11
75-01-4	Vinyl chloride	12	J	32	12

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	94		47-136
460-00-4	4-Bromofluorobenzene (Surr)	114		51-124
1868-53-7	Dibromofluoromethane (Surr)	89		49-122
2037-26-5	Toluene-d8 (Surr)	108		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279496a.D
 Lims ID: 240-134182-A-20-A
 Client ID: SB-142 (3-4)_072820
 Sample Type: Client
 Inject. Date: 04-Aug-2020 19:12:30 ALS Bottle#: 9 Worklist Smp#: 11
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-011
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 18:05:34 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1064

First Level Reviewer: laveyt Date: 04-Aug-2020 20:17:08

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1101831	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	738760	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.971	-0.001	95	377371	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.527	4.539	-0.012	94	317016	21.7	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	95	411278	23.0	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1314851	26.3	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.846	8.858	-0.012	90	477648	27.9	
12 Vinyl chloride	62	1.664	1.699	-0.035	90	4969	0.2410	
21 1,1-Dichloroethene	61	2.634	2.634	0.000	91	5665	0.2557	
32 trans-1,2-Dichloroethene	61	3.273	3.285	-0.012	89	10551	0.4963	
41 cis-1,2-Dichloroethene	96	4.125	4.137	-0.012	75	5578	0.2813	
59 Trichloroethene	130	5.403	5.403	0.000	92	4141	0.2708	
65 1,4-Dioxane	88	5.722	5.711	0.011	93	3866	20.3	
76 Tetrachloroethene	166	6.988	7.000	-0.012	92	5525	0.3767	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279496a.D

Injection Date: 04-Aug-2020 19:12:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-20-A

Lab Sample ID: 240-134182-20

Worklist Smp#: 11

Client ID: SB-142 (3-4)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

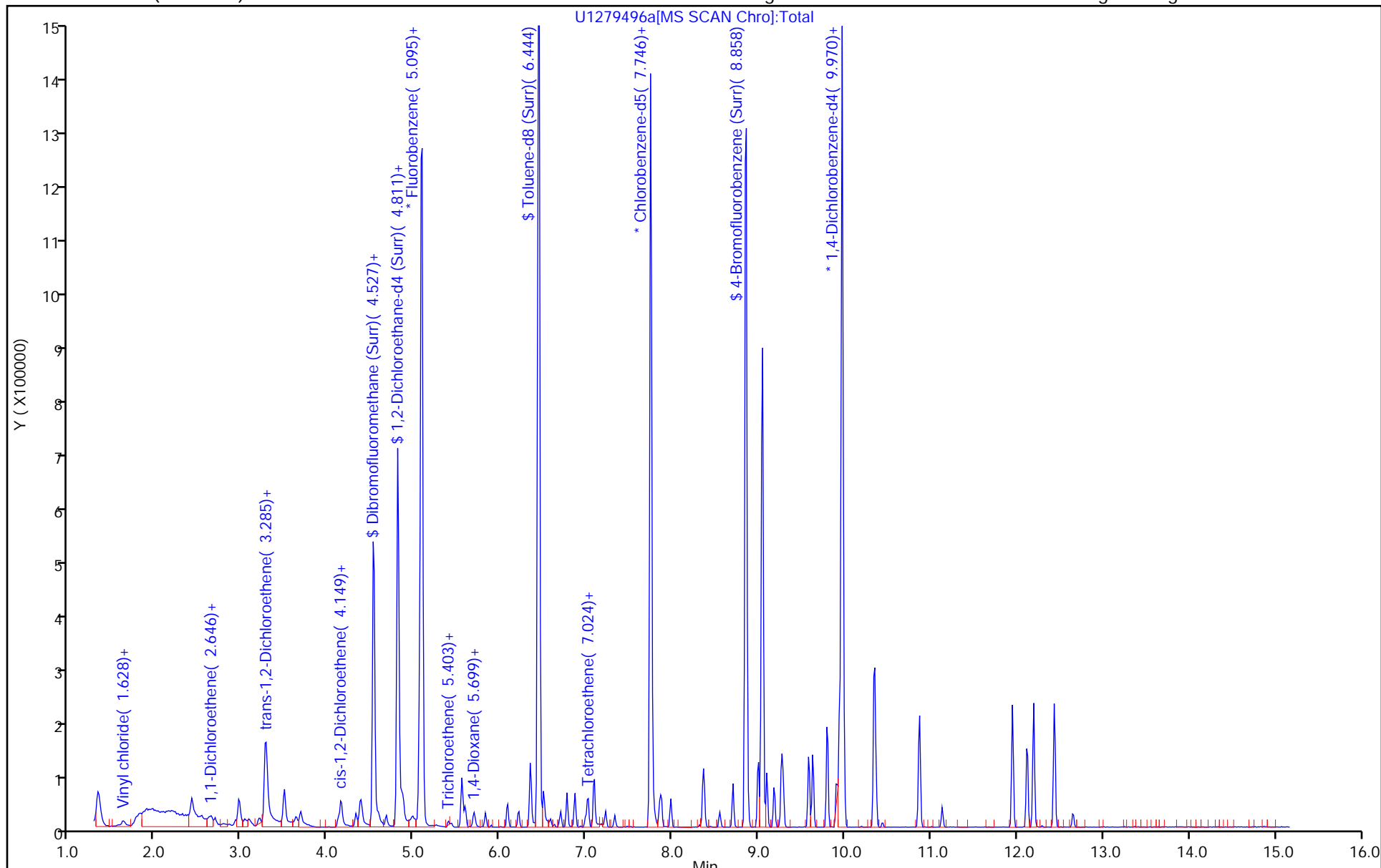
ALS Bottle#: 9

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279496a.D
 Lims ID: 240-134182-A-20-A
 Client ID: SB-142 (3-4)_072820
 Sample Type: Client
 Inject. Date: 04-Aug-2020 19:12:30 ALS Bottle#: 9 Worklist Smp#: 11
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-011
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 18:05:34 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1064

First Level Reviewer: laveyt Date: 04-Aug-2020 20:17:08

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	21.7	86.71
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	23.0	91.91
\$ 6 Toluene-d8 (Surr)	25.0	26.3	105.26
\$ 7 4-Bromofluorobenzene (Surr)	25.0	27.9	111.68

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279496a.D

Injection Date: 04-Aug-2020 19:12:30

Instrument ID: A3UX12

Lims ID: 240-134182-A-20-A

Lab Sample ID: 240-134182-20

Client ID: SB-142 (3-4)_072820

Operator ID: 001904

ALS Bottle#: 9

Worklist Smp#: 11

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

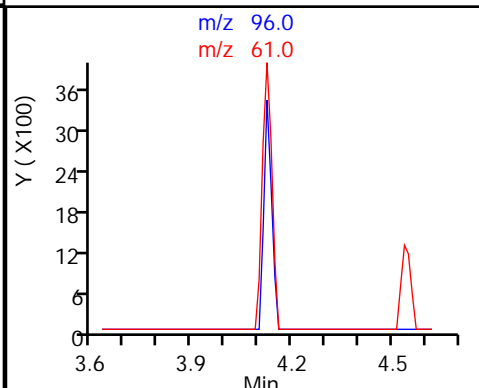
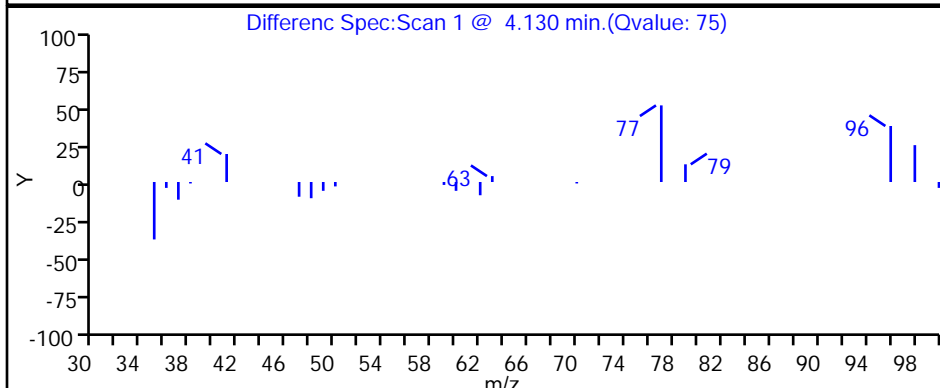
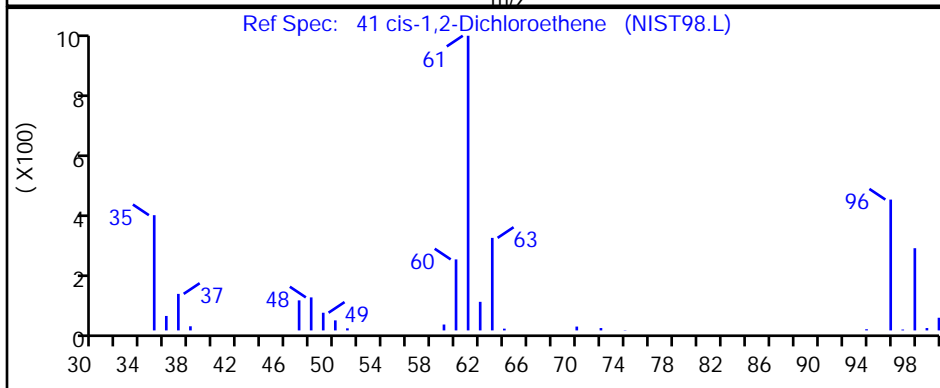
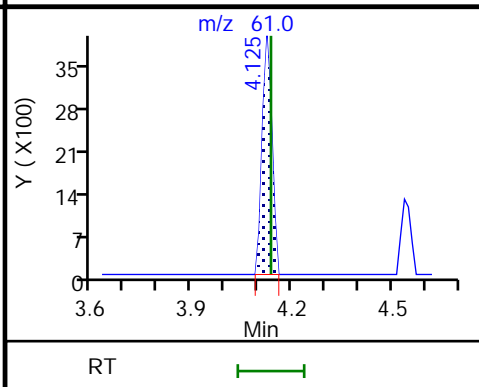
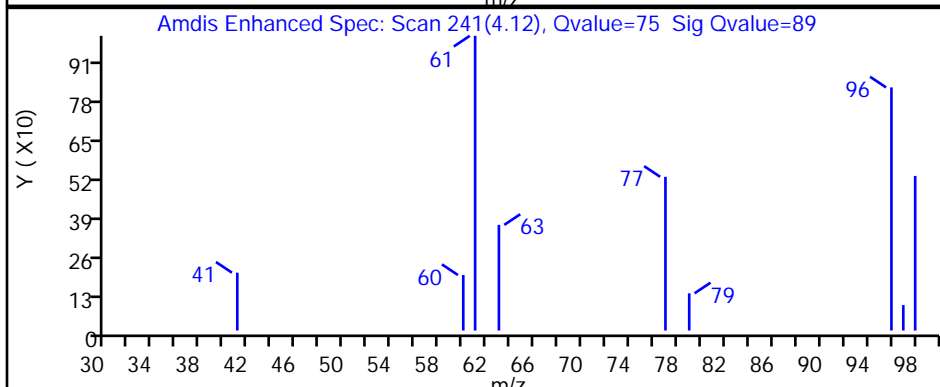
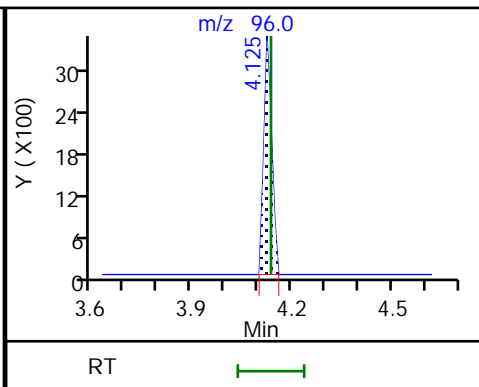
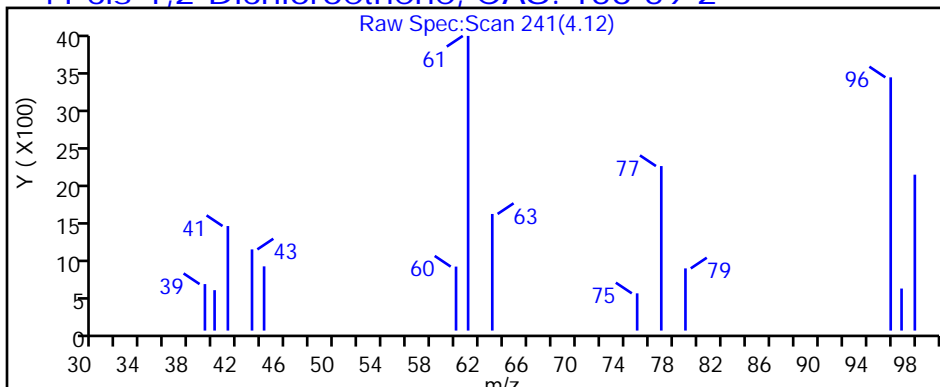
Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

41 cis-1,2-Dichloroethene, CAS: 156-59-2



Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279496a.D

Injection Date: 04-Aug-2020 19:12:30

Instrument ID: A3UX12

Lims ID: 240-134182-A-20-A

Lab Sample ID: 240-134182-20

Client ID: SB-142 (3-4)_072820

Operator ID: 001904

ALS Bottle#: 9

Worklist Smp#: 11

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

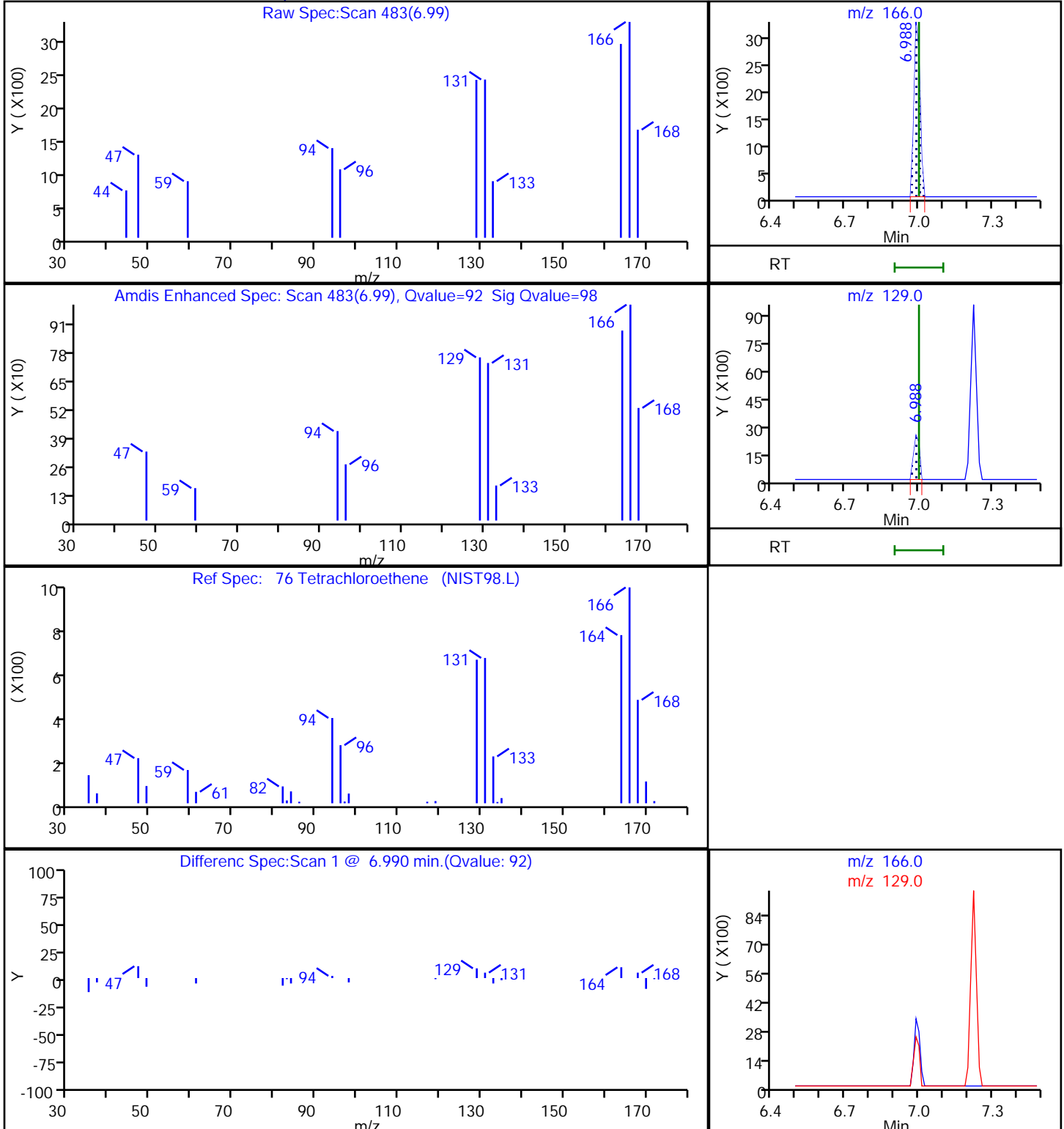
Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

76 Tetrachloroethene, CAS: 127-18-4



Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279496a.D

Injection Date: 04-Aug-2020 19:12:30

Instrument ID: A3UX12

Lims ID: 240-134182-A-20-A

Lab Sample ID: 240-134182-20

Client ID: SB-142 (3-4)_072820

Operator ID: 001904

ALS Bottle#: 9

Worklist Smp#: 11

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

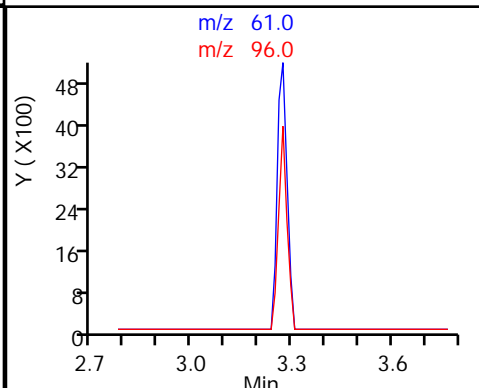
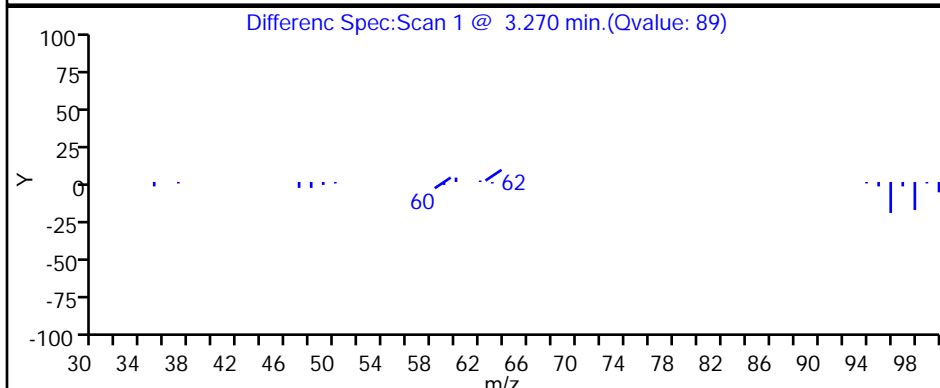
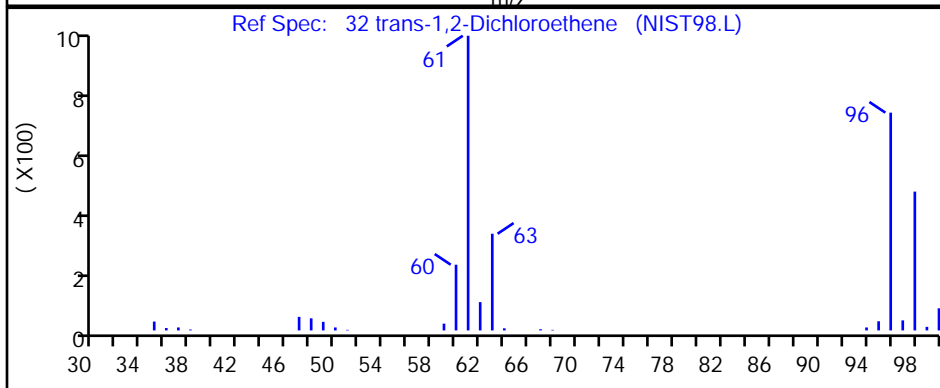
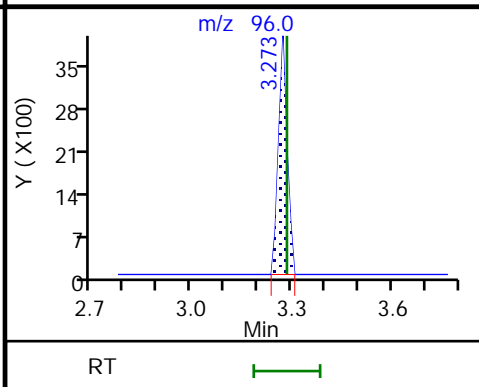
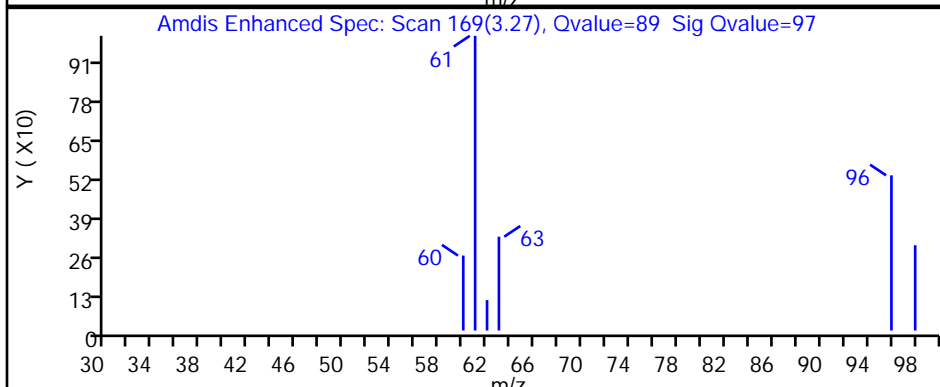
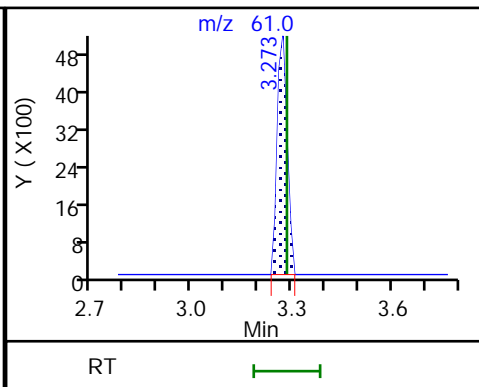
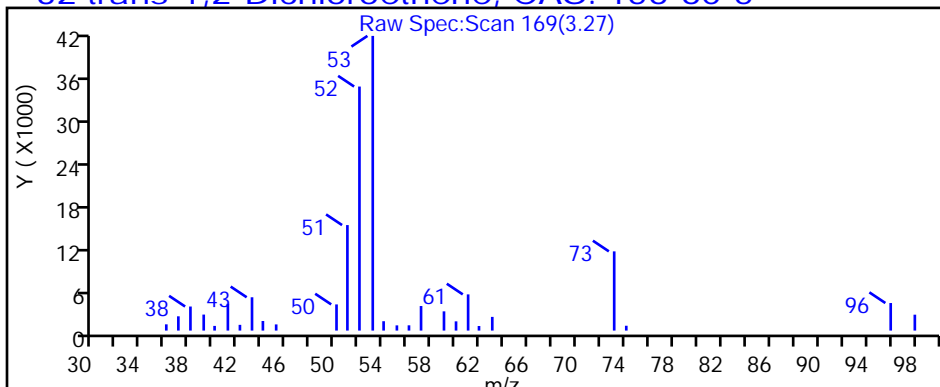
Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

32 trans-1,2-Dichloroethene, CAS: 156-60-5



Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279496a.D

Injection Date: 04-Aug-2020 19:12:30

Instrument ID: A3UX12

Lims ID: 240-134182-A-20-A

Lab Sample ID: 240-134182-20

Client ID: SB-142 (3-4)_072820

Operator ID: 001904

ALS Bottle#: 9 Worklist Smp#: 11

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

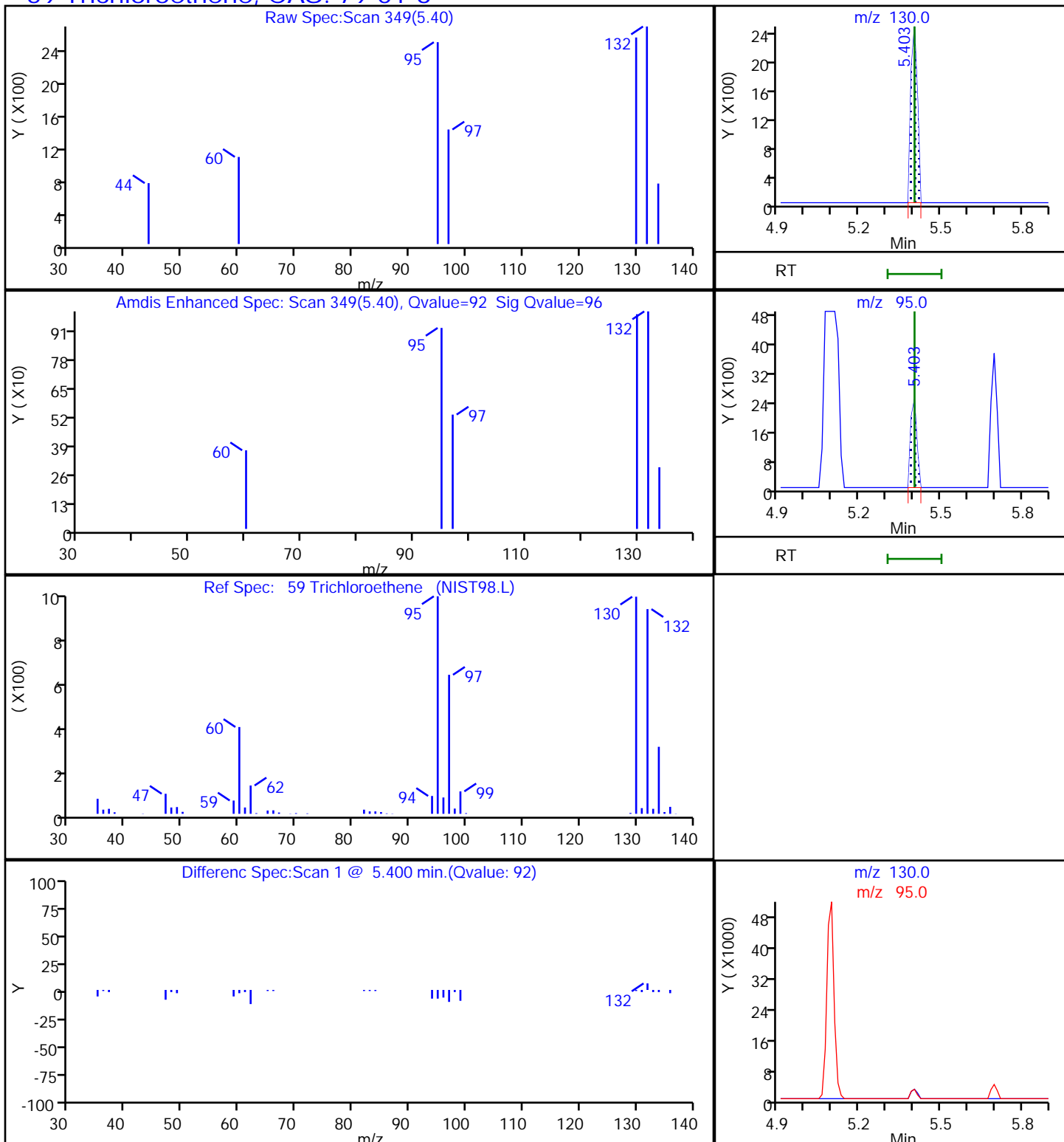
Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

59 Trichloroethene, CAS: 79-01-6



Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279496a.D

Injection Date: 04-Aug-2020 19:12:30

Instrument ID: A3UX12

Lims ID: 240-134182-A-20-A

Lab Sample ID: 240-134182-20

Client ID: SB-142 (3-4)_072820

Operator ID: 001904

ALS Bottle#: 9

Worklist Smp#: 11

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

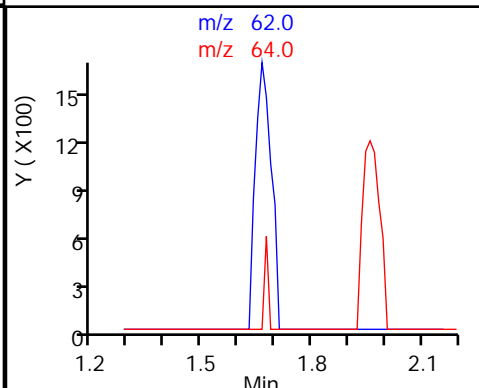
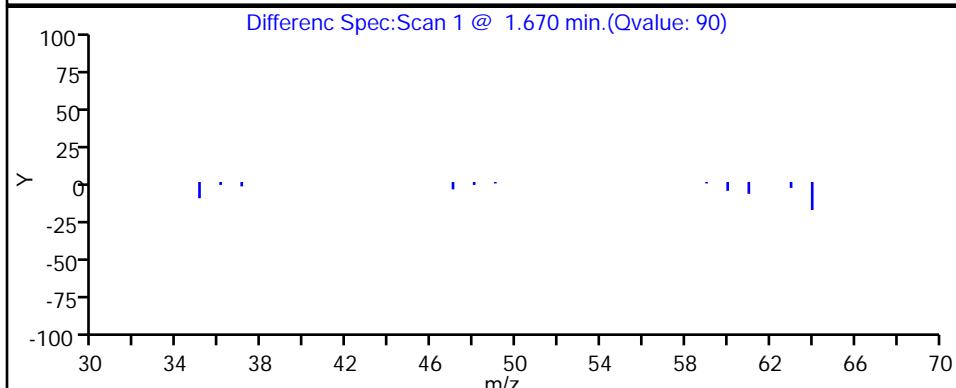
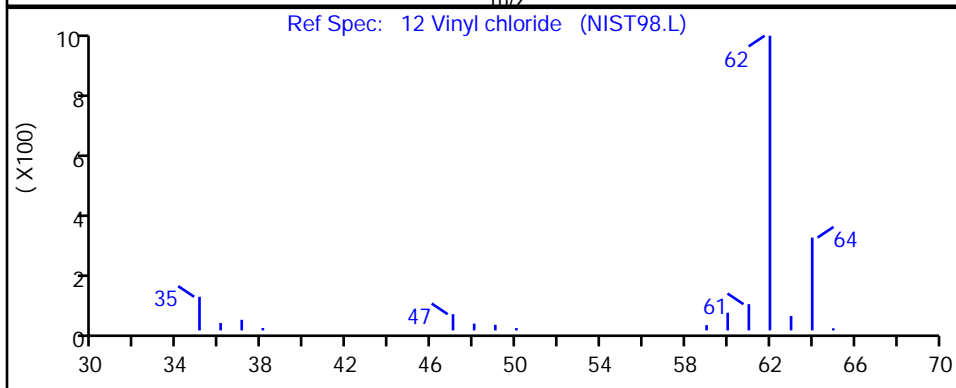
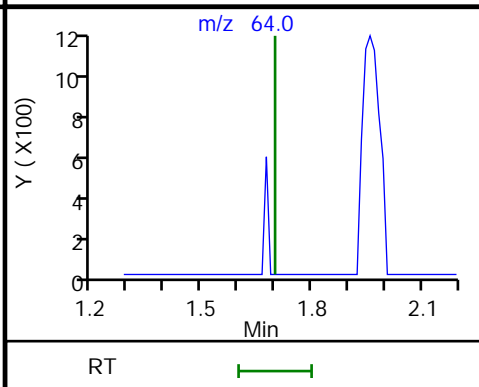
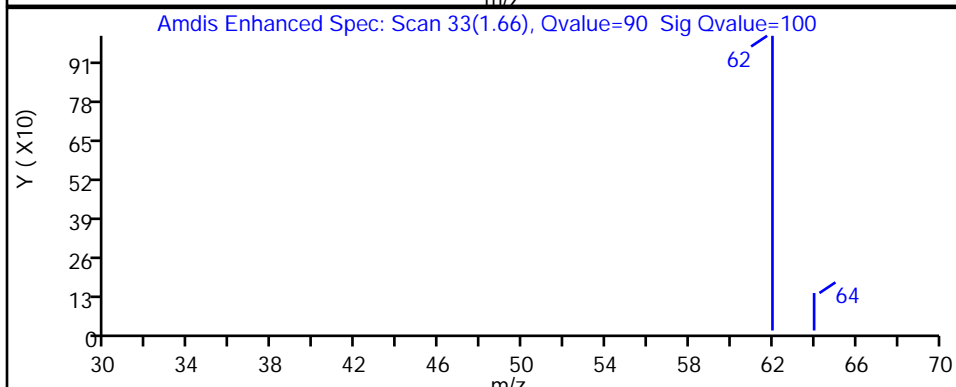
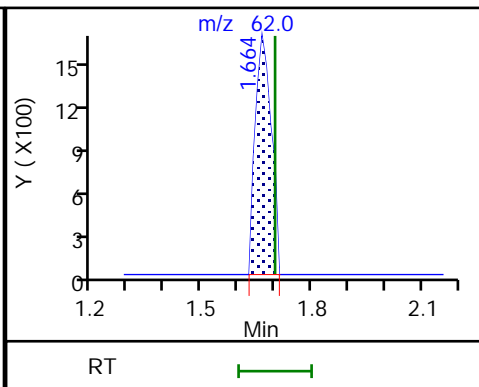
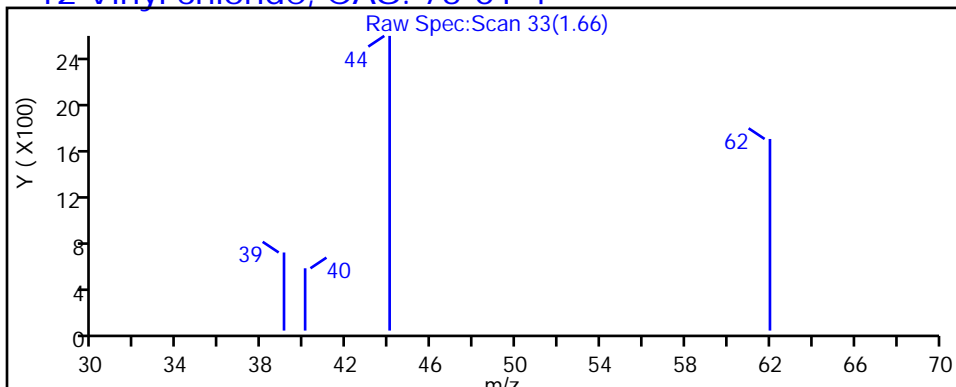
Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

12 Vinyl chloride, CAS: 75-01-4



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: SB-142 (4-5)_072820 Lab Sample ID: 240-134182-21
 Matrix: Solid Lab File ID: U1279435.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 12:44
 Sample wt/vol: 10.056(g) Date Analyzed: 08/01/2020 01:35
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 5.4 Level: (low/med) Medium
 Analysis Batch No.: 445183 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	44	U	44	18
123-91-1	1,4-Dioxane	14000	U	14000	1200
156-59-2	cis-1,2-Dichloroethene	44	U	44	10
127-18-4	Tetrachloroethene	44	U	44	20
156-60-5	trans-1,2-Dichloroethene	44	U	44	11
79-01-6	Trichloroethene	44	U	44	12
75-01-4	Vinyl chloride	35	U	35	13

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	88		47-136
460-00-4	4-Bromofluorobenzene (Surr)	104		51-124
1868-53-7	Dibromofluoromethane (Surr)	83		49-122
2037-26-5	Toluene-d8 (Surr)	102		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279435.D
 Lims ID: 240-134182-A-21-A
 Client ID: SB-142 (4-5)_072820
 Sample Type: Client
 Inject. Date: 01-Aug-2020 01:35:30 ALS Bottle#: 29 Worklist Smp#: 31
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-031
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Aug-2020 01:43:45 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1049

First Level Reviewer: laveyt

Date: 01-Aug-2020 10:10:26

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1119134	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	723882	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.971	9.970	0.001	96	369405	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.527	4.539	-0.012	94	293073	19.7	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	95	379551	20.9	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1179164	24.1	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.846	8.846	0.000	90	414355	24.7	
12 Vinyl chloride	62		1.688				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166		7.001				ND	

Reagents:

vm50is_stk_a_00006

Amount Added: 2.00

Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279435.D

Injection Date: 01-Aug-2020 01:35:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-21-A

Lab Sample ID: 240-134182-21

Worklist Smp#: 31

Client ID: SB-142 (4-5)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

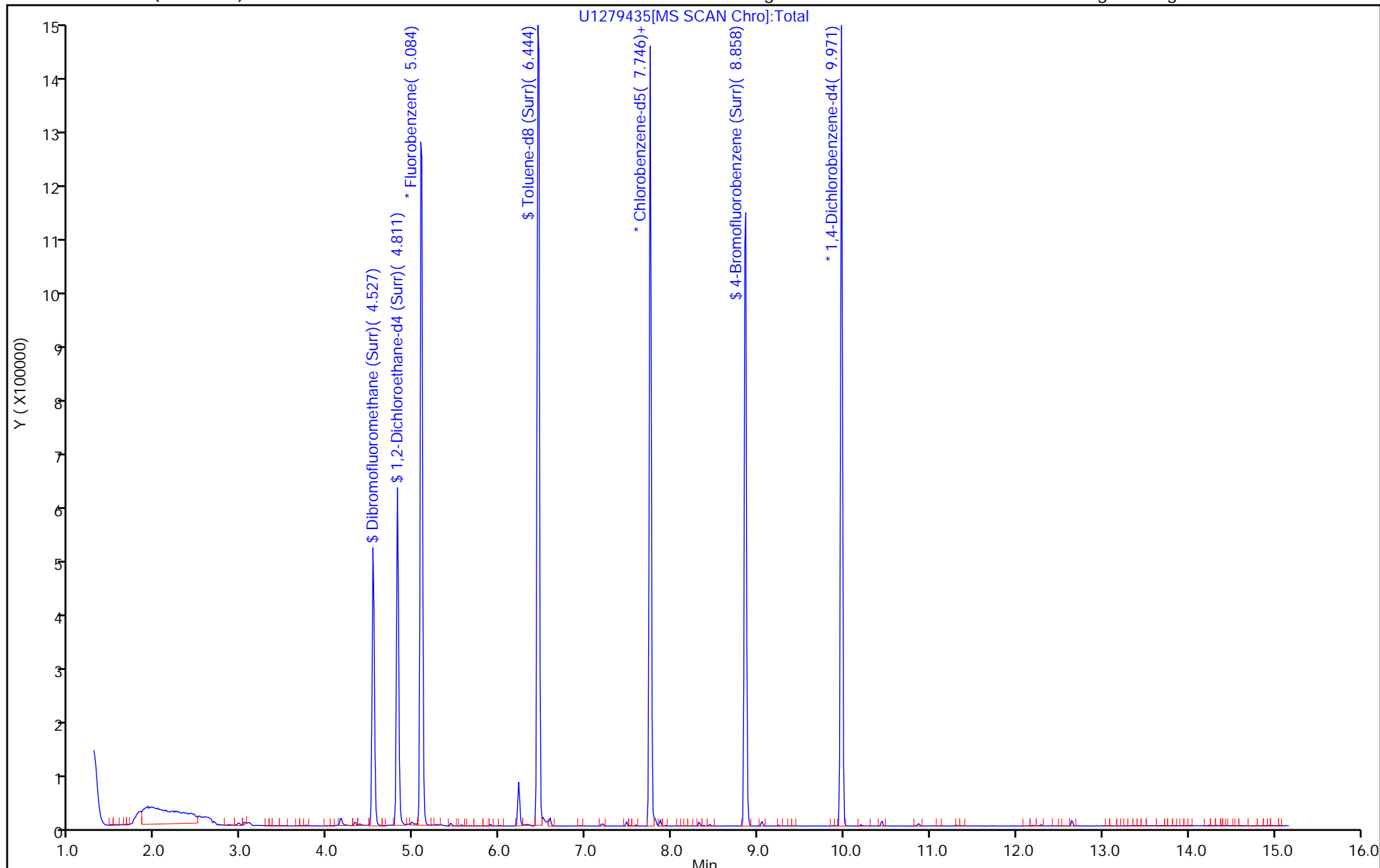
ALS Bottle#: 29

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279435.D
 Lims ID: 240-134182-A-21-A
 Client ID: SB-142 (4-5)_072820
 Sample Type: Client
 Inject. Date: 01-Aug-2020 01:35:30 ALS Bottle#: 29 Worklist Smp#: 31
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-031
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Aug-2020 01:43:45 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1049

First Level Reviewer: laveyt

Date: 01-Aug-2020 10:10:26

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	19.7	78.92
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	20.9	83.51
\$ 6 Toluene-d8 (Surr)	25.0	24.1	96.33
\$ 7 4-Bromofluorobenzene (Surr)	25.0	24.7	98.87

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: SB-142 (5-6)_072820 Lab Sample ID: 240-134182-22
 Matrix: Solid Lab File ID: U1279497.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 12:58
 Sample wt/vol: 9.182(g) Date Analyzed: 08/04/2020 19:35
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 5.4 Level: (low/med) Medium
 Analysis Batch No.: 445595 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	48	U	48	19
123-91-1	1,4-Dioxane	15000	U	15000	1300
156-59-2	cis-1,2-Dichloroethene	48	U	48	11
127-18-4	Tetrachloroethene	48	U	48	22
156-60-5	trans-1,2-Dichloroethene	48	U	48	12
79-01-6	Trichloroethene	48	U	48	13
75-01-4	Vinyl chloride	39	U	39	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	95		47-136
460-00-4	4-Bromofluorobenzene (Surr)	106		51-124
1868-53-7	Dibromofluoromethane (Surr)	88		49-122
2037-26-5	Toluene-d8 (Surr)	106		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279497.D
 Lims ID: 240-134182-A-22-A
 Client ID: SB-142 (5-6)_072820
 Sample Type: Client
 Inject. Date: 04-Aug-2020 19:35:30 ALS Bottle#: 10 Worklist Smp#: 12
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-012
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 18:05:34 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1064

First Level Reviewer: laveyt Date: 04-Aug-2020 20:17:14

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1098055	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	722182	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.971	9.971	0.000	96	374222	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.527	4.539	-0.012	94	305787	21.0	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	95	403148	22.6	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1232766	25.2	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.846	8.858	-0.012	90	421866	25.2	
12 Vinyl chloride	62		1.699				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166		7.000				ND	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Euofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279497.D

Injection Date: 04-Aug-2020 19:35:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-22-A

Lab Sample ID: 240-134182-22

Worklist Smp#: 12

Client ID: SB-142 (5-6)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

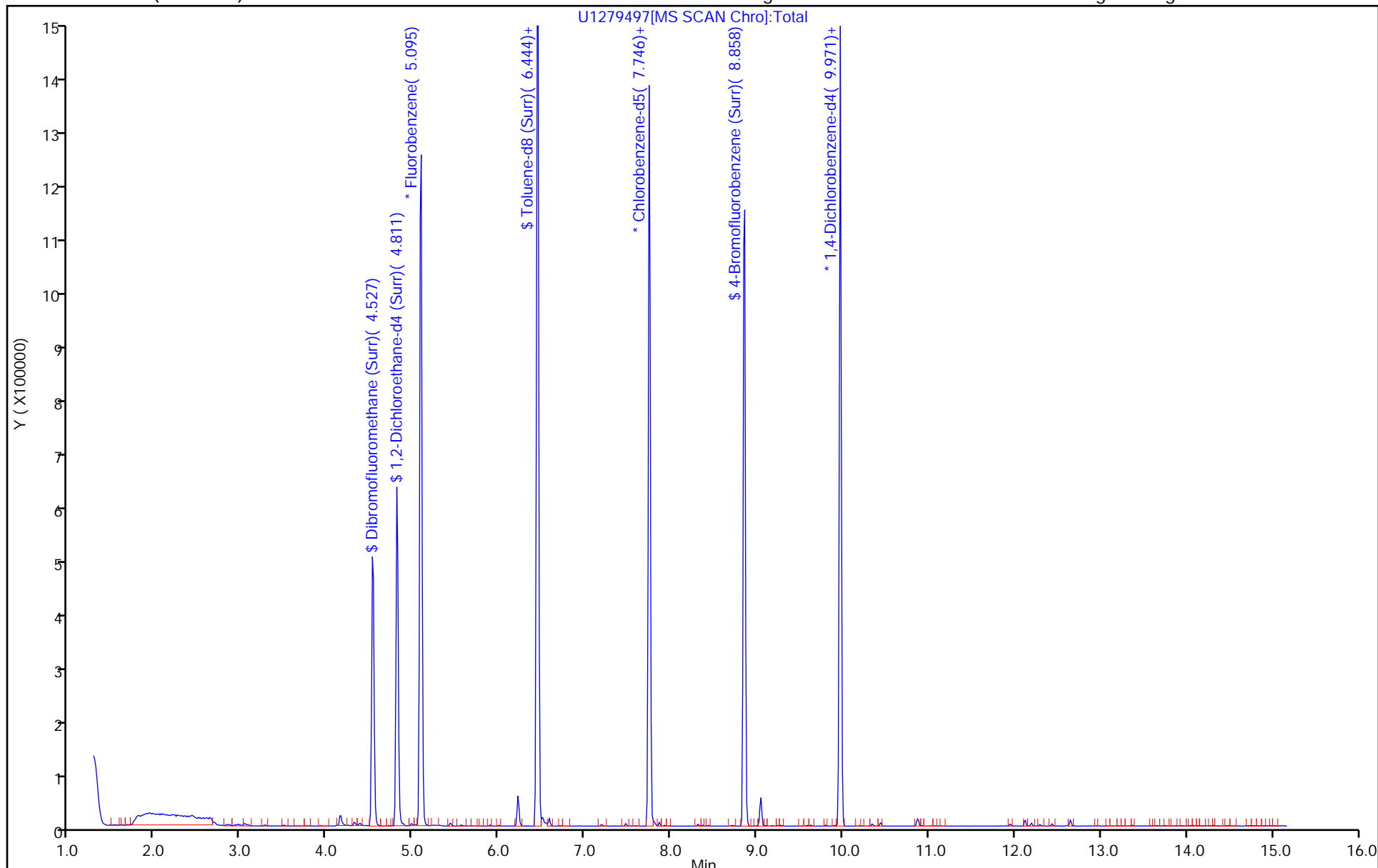
ALS Bottle#: 10

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279497.D
 Lims ID: 240-134182-A-22-A
 Client ID: SB-142 (5-6)_072820
 Sample Type: Client
 Inject. Date: 04-Aug-2020 19:35:30 ALS Bottle#: 10 Worklist Smp#: 12
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-012
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 18:05:34 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1064

First Level Reviewer: laveyt Date: 04-Aug-2020 20:17:14

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	21.0	83.92
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	22.6	90.41
\$ 6 Toluene-d8 (Surr)	25.0	25.2	100.95
\$ 7 4-Bromofluorobenzene (Surr)	25.0	25.2	100.90

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: SB-142 (6-7)_072820 Lab Sample ID: 240-134182-23
 Matrix: Solid Lab File ID: U1279498a.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 13:01
 Sample wt/vol: 10.082(g) Date Analyzed: 08/04/2020 19:57
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 3.4 Level: (low/med) Medium
 Analysis Batch No.: 445595 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	43	U	43	17
123-91-1	1,4-Dioxane	13000	U	13000	1200
156-59-2	cis-1,2-Dichloroethene	43	U	43	9.6
127-18-4	Tetrachloroethene	43	U	43	19
156-60-5	trans-1,2-Dichloroethene	43	U	43	11
79-01-6	Trichloroethene	43	U	43	12
75-01-4	Vinyl chloride	34	U	34	13

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	95		47-136
460-00-4	4-Bromofluorobenzene (Surr)	113		51-124
1868-53-7	Dibromofluoromethane (Surr)	90		49-122
2037-26-5	Toluene-d8 (Surr)	109		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279498a.D
 Lims ID: 240-134182-A-23-A
 Client ID: SB-142 (6-7)_072820
 Sample Type: Client
 Inject. Date: 04-Aug-2020 19:57:30 ALS Bottle#: 11 Worklist Smp#: 13
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-013
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 19:45:46 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1064

First Level Reviewer: laveyt Date: 04-Aug-2020 21:47:00

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1095167	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	722057	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.971	-0.001	96	360751	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.527	4.539	-0.012	93	315795	21.7	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	93	410372	23.1	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1291306	26.4	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	94	455148	27.2	
12 Vinyl chloride	62		1.699				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166		7.000				ND	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279498a.D

Injection Date: 04-Aug-2020 19:57:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-23-A

Lab Sample ID: 240-134182-23

Worklist Smp#: 13

Client ID: SB-142 (6-7)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

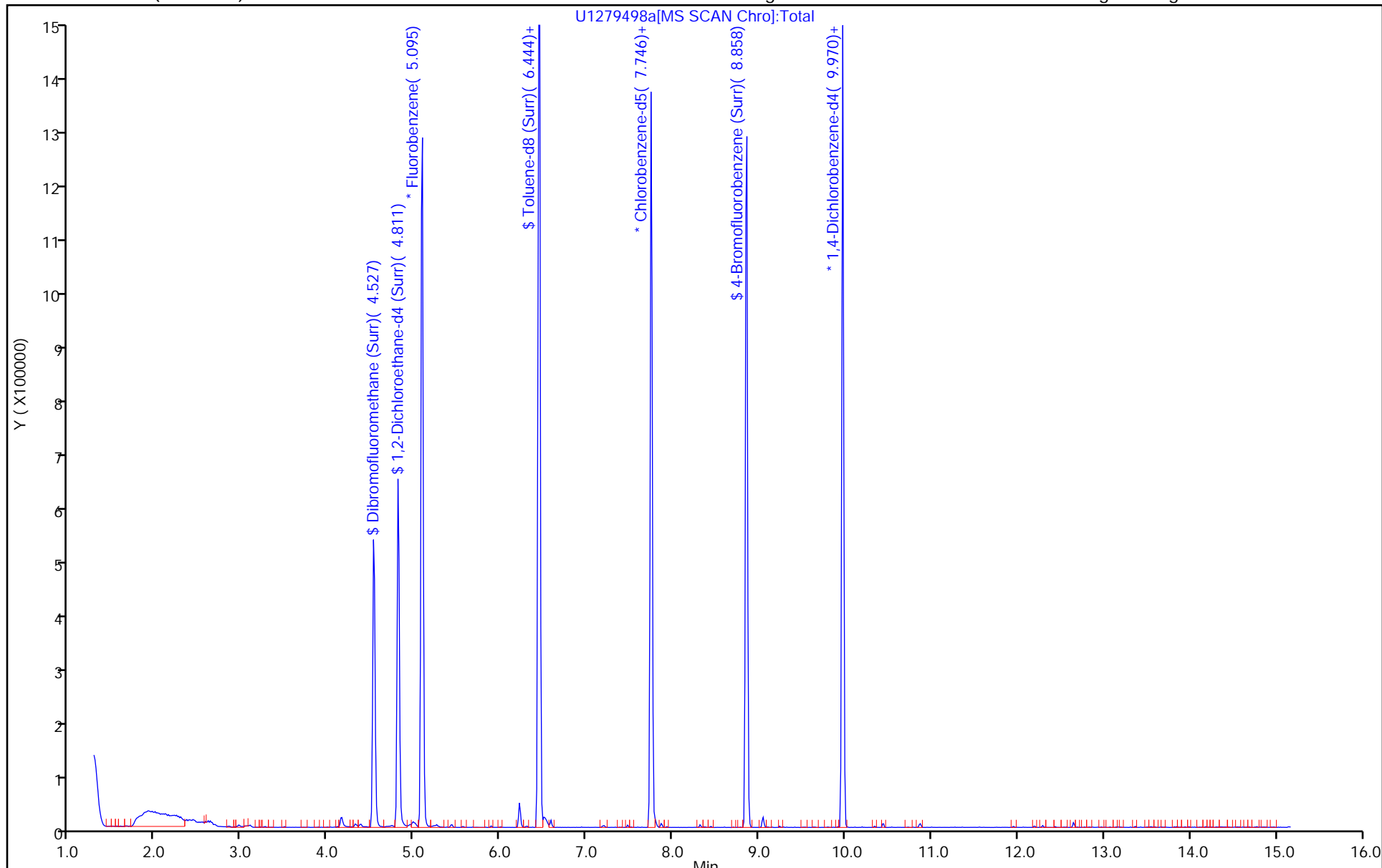
ALS Bottle#: 11

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279498a.D
 Lims ID: 240-134182-A-23-A
 Client ID: SB-142 (6-7)_072820
 Sample Type: Client
 Inject. Date: 04-Aug-2020 19:57:30 ALS Bottle#: 11 Worklist Smp#: 13
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-013
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 19:45:46 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1064

First Level Reviewer: laveyt Date: 04-Aug-2020 21:47:00

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	21.7	86.90
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	23.1	92.27
\$ 6 Toluene-d8 (Surr)	25.0	26.4	105.76
\$ 7 4-Bromofluorobenzene (Surr)	25.0	27.2	108.88

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: SB-142 (7-8)_072820 Lab Sample ID: 240-134182-24
 Matrix: Solid Lab File ID: U1279499a.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 13:00
 Sample wt/vol: 9.484(g) Date Analyzed: 08/04/2020 20:20
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 4.5 Level: (low/med) Medium
 Analysis Batch No.: 445595 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	46	U	46	18
123-91-1	1,4-Dioxane	14000	U	14000	1300
156-59-2	cis-1,2-Dichloroethene	46	U	46	10
127-18-4	Tetrachloroethene	46	U	46	21
156-60-5	trans-1,2-Dichloroethene	46	U	46	12
79-01-6	Trichloroethene	46	U	46	13
75-01-4	Vinyl chloride	37	U	37	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	93		47-136
460-00-4	4-Bromofluorobenzene (Surr)	110		51-124
1868-53-7	Dibromofluoromethane (Surr)	88		49-122
2037-26-5	Toluene-d8 (Surr)	108		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279499a.D
 Lims ID: 240-134182-A-24-A
 Client ID: SB-142 (7-8)_072820
 Sample Type: Client
 Inject. Date: 04-Aug-2020 20:20:30 ALS Bottle#: 12 Worklist Smp#: 14
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-014
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 19:51:46 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1064

First Level Reviewer: laveyt Date: 04-Aug-2020 21:55:54

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1093855	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	692630	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.971	-0.001	96	342611	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.527	4.539	-0.012	94	304794	21.0	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	94	394218	22.2	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1215886	26.0	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.846	8.858	-0.012	90	422329	26.3	
12 Vinyl chloride	62		1.699				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166		7.000				ND	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279499a.D

Injection Date: 04-Aug-2020 20:20:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-24-A

Lab Sample ID: 240-134182-24

Worklist Smp#: 14

Client ID: SB-142 (7-8)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

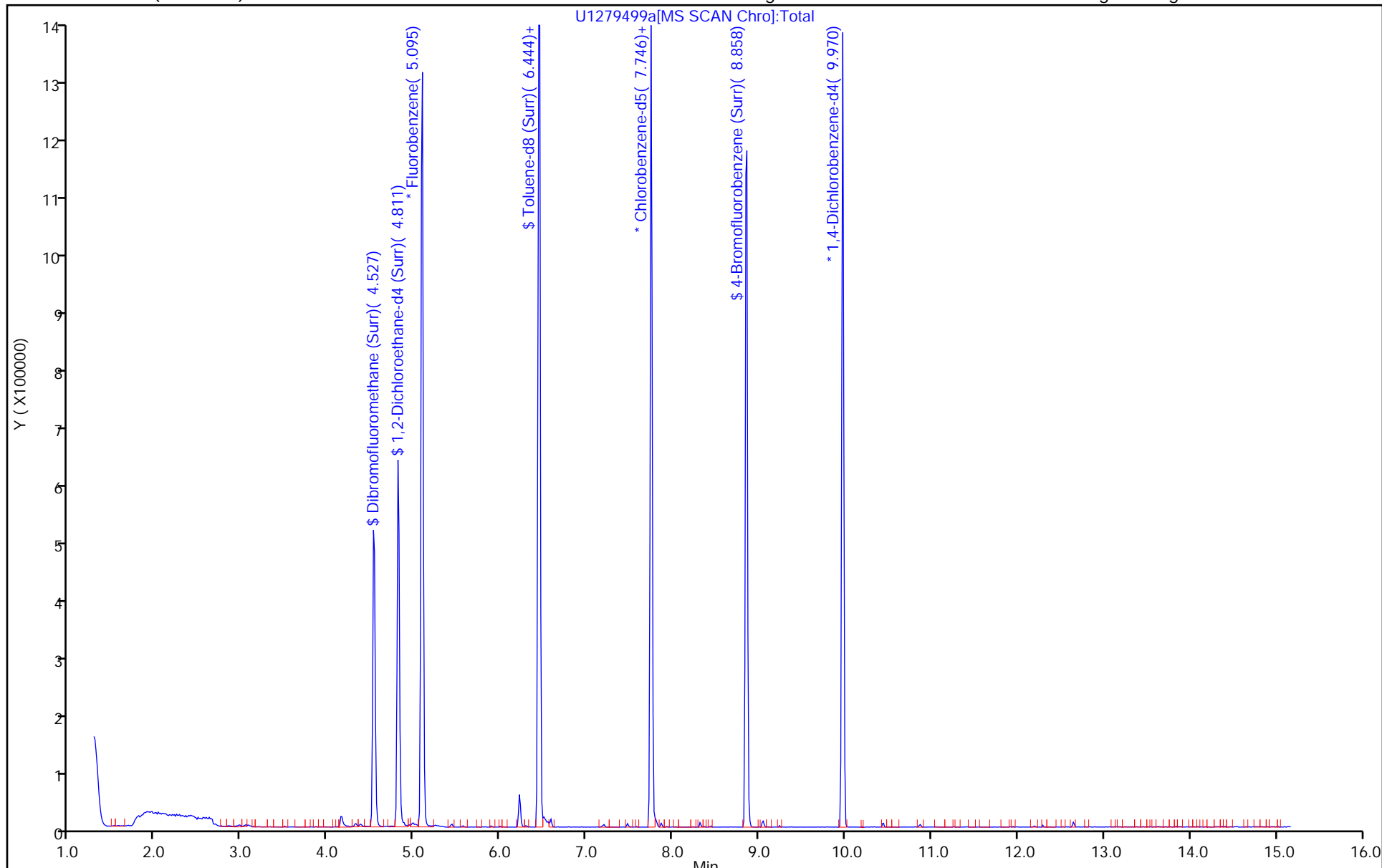
ALS Bottle#: 12

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279499a.D
 Lims ID: 240-134182-A-24-A
 Client ID: SB-142 (7-8)_072820
 Sample Type: Client
 Inject. Date: 04-Aug-2020 20:20:30 ALS Bottle#: 12 Worklist Smp#: 14
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-014
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 19:51:46 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1064

First Level Reviewer: laveyt Date: 04-Aug-2020 21:55:54

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	21.0	83.97
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	22.2	88.74
\$ 6 Toluene-d8 (Surr)	25.0	26.0	103.82
\$ 7 4-Bromofluorobenzene (Surr)	25.0	26.3	105.32

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: SB-143 (0.5-1)_072820 Lab Sample ID: 240-134182-25
 Matrix: Solid Lab File ID: U1279500b.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 13:20
 Sample wt/vol: 9.56(g) Date Analyzed: 08/04/2020 20:42
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0 (mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 2.4 Level: (low/med) Medium
 Analysis Batch No.: 445595 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	44	U	44	18
123-91-1	1,4-Dioxane	14000	U	14000	1200
156-59-2	cis-1,2-Dichloroethene	44	U	44	9.9
127-18-4	Tetrachloroethene	44	U	44	20
156-60-5	trans-1,2-Dichloroethene	44	U	44	11
79-01-6	Trichloroethene	44	U	44	12
75-01-4	Vinyl chloride	35	U	35	13

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	91		47-136
460-00-4	4-Bromofluorobenzene (Surr)	108		51-124
1868-53-7	Dibromofluoromethane (Surr)	87		49-122
2037-26-5	Toluene-d8 (Surr)	105		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279500b.D
 Lims ID: 240-134182-A-25-A
 Client ID: SB-143 (0.5-1)_072820
 Sample Type: Client
 Inject. Date: 04-Aug-2020 20:42:30 ALS Bottle#: 13 Worklist Smp#: 15
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-015
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 12:05:49 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt

Date: 05-Aug-2020 14:27:18

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1062789	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	675993	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.971	9.971	0.000	96	339157	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.527	4.539	-0.012	94	299433	21.2	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	95	384041	22.2	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1175967	25.7	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.846	8.858	-0.012	90	414069	26.5	
12 Vinyl chloride	62		1.699				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166		7.000				ND	

Reagents:

vm50is_stk_a_00006

Amount Added: 2.00

Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279500b.D

Injection Date: 04-Aug-2020 20:42:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-25-A

Lab Sample ID: 240-134182-25

Worklist Smp#: 15

Client ID: SB-143 (0.5-1)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

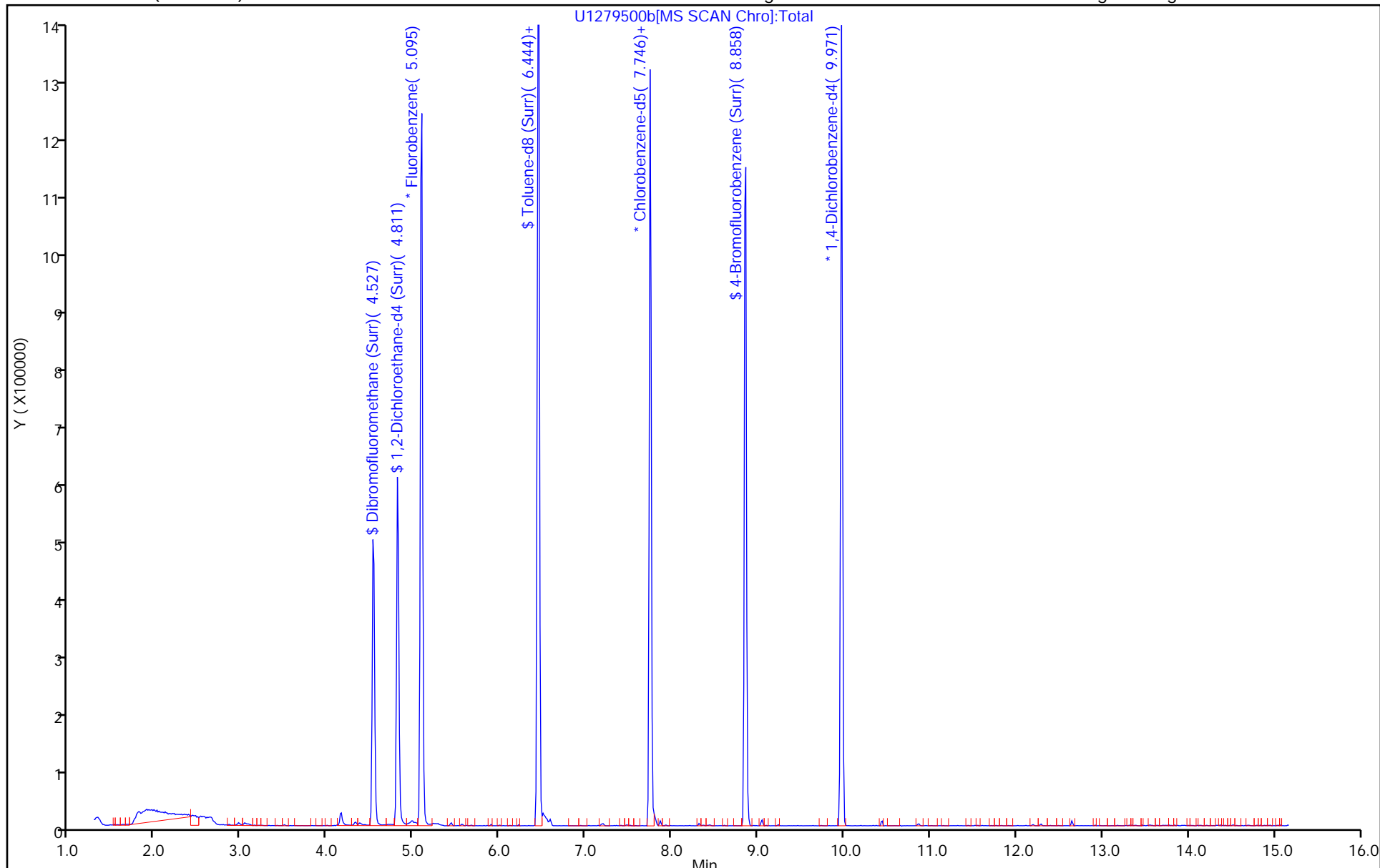
ALS Bottle#: 13

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279500b.D
 Lims ID: 240-134182-A-25-A
 Client ID: SB-143 (0.5-1)_072820
 Sample Type: Client
 Inject. Date: 04-Aug-2020 20:42:30 ALS Bottle#: 13 Worklist Smp#: 15
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-015
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 12:05:49 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 14:27:18

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	21.2	84.91
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	22.2	88.98
\$ 6 Toluene-d8 (Surr)	25.0	25.7	102.88
\$ 7 4-Bromofluorobenzene (Surr)	25.0	26.5	105.80

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: SB-143 (1-2)_072820 Lab Sample ID: 240-134182-26
 Matrix: Solid Lab File ID: U1279503a.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 13:21
 Sample wt/vol: 10.134(g) Date Analyzed: 08/04/2020 21:49
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0 (mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 3.6 Level: (low/med) Medium
 Analysis Batch No.: 445595 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	42	U	42	17
123-91-1	1,4-Dioxane	13000	U	13000	1200
156-59-2	cis-1,2-Dichloroethene	42	U	42	9.5
127-18-4	Tetrachloroethene	42	U	42	19
156-60-5	trans-1,2-Dichloroethene	42	U	42	11
79-01-6	Trichloroethene	42	U	42	12
75-01-4	Vinyl chloride	34	U	34	13

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	91		47-136
460-00-4	4-Bromofluorobenzene (Surr)	104		51-124
1868-53-7	Dibromofluoromethane (Surr)	86		49-122
2037-26-5	Toluene-d8 (Surr)	104		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279503a.D
 Lims ID: 240-134182-A-26-A
 Client ID: SB-143 (1-2)_072820
 Sample Type: Client
 Inject. Date: 04-Aug-2020 21:49:30 ALS Bottle#: 16 Worklist Smp#: 18
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-018
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 12:05:49 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 14:27:29

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	98	1083575	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	698604	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.971	-0.001	96	357743	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	299433	20.8	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.823	4.823	0.000	95	387663	22.0	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	94	1183005	25.0	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	93	407294	25.2	
12 Vinyl chloride	62		1.699				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166		7.000				ND	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279503a.D

Injection Date: 04-Aug-2020 21:49:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-26-A

Lab Sample ID: 240-134182-26

Worklist Smp#: 18

Client ID: SB-143 (1-2)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

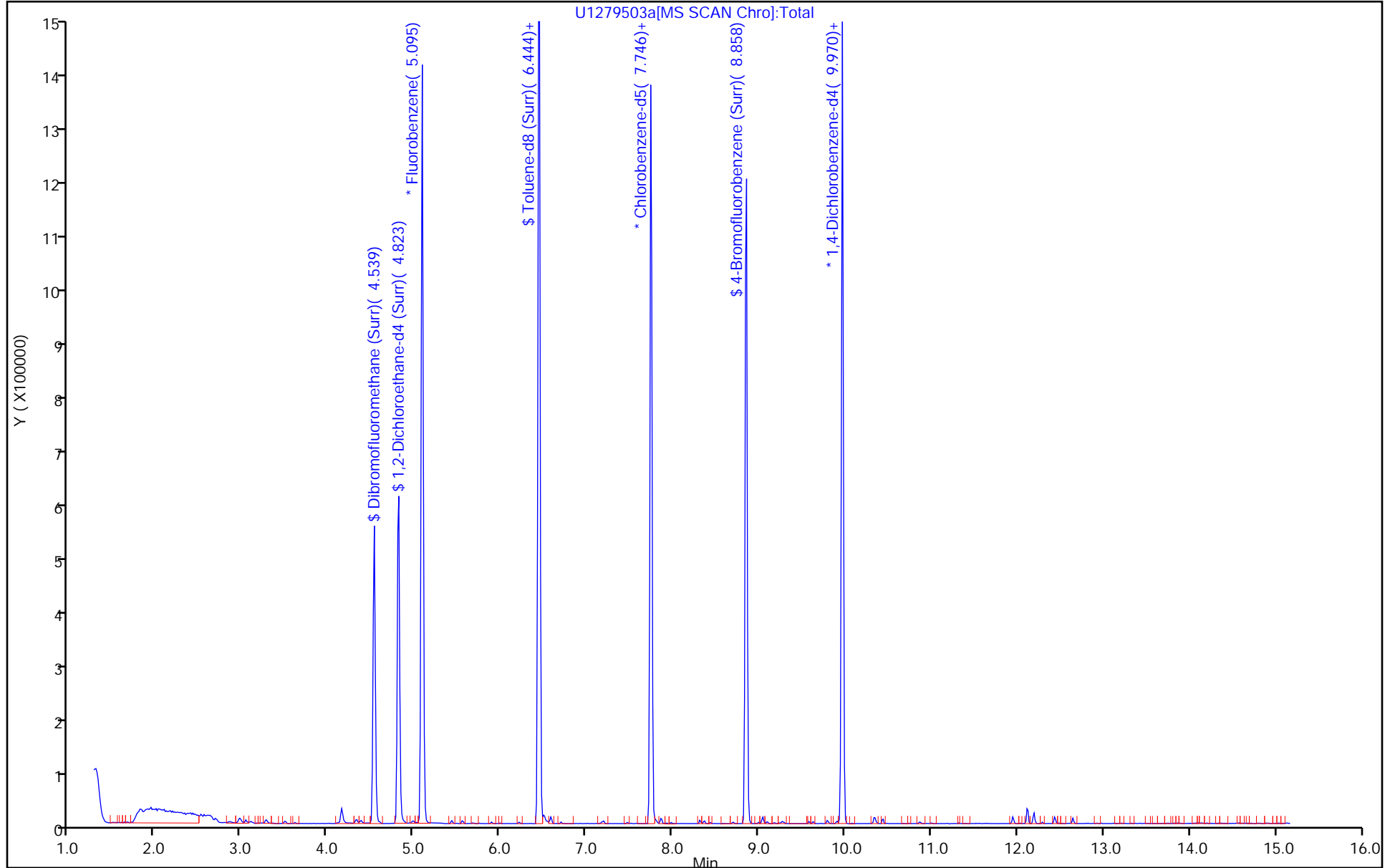
ALS Bottle#: 16

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279503a.D
 Lims ID: 240-134182-A-26-A
 Client ID: SB-143 (1-2)_072820
 Sample Type: Client
 Inject. Date: 04-Aug-2020 21:49:30 ALS Bottle#: 16 Worklist Smp#: 18
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-018
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 12:05:49 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 14:27:29

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	20.8	83.28
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	22.0	88.09
\$ 6 Toluene-d8 (Surr)	25.0	25.0	100.15
\$ 7 4-Bromofluorobenzene (Surr)	25.0	25.2	100.70

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: SB-143 (2-3)_072820 Lab Sample ID: 240-134182-27
 Matrix: Solid Lab File ID: U1279504a.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 13:22
 Sample wt/vol: 9.749(g) Date Analyzed: 08/04/2020 22:12
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0 (mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 4.8 Level: (low/med) Medium
 Analysis Batch No.: 445595 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	45	U	45	18
123-91-1	1,4-Dioxane	14000	U	14000	1200
156-59-2	cis-1,2-Dichloroethene	45	U	45	10
127-18-4	Tetrachloroethene	45	U	45	20
156-60-5	trans-1,2-Dichloroethene	45	U	45	11
79-01-6	Trichloroethene	45	U	45	12
75-01-4	Vinyl chloride	36	U	36	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	93		47-136
460-00-4	4-Bromofluorobenzene (Surr)	105		51-124
1868-53-7	Dibromofluoromethane (Surr)	86		49-122
2037-26-5	Toluene-d8 (Surr)	104		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279504a.D
 Lims ID: 240-134182-A-27-A
 Client ID: SB-143 (2-3)_072820
 Sample Type: Client
 Inject. Date: 04-Aug-2020 22:12:30 ALS Bottle#: 17 Worklist Smp#: 19
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-019
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:07:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt

Date: 05-Aug-2020 15:47:03

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	98	1104467	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	743993	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.971	-0.001	96	383724	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	302027	20.6	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	94	398759	22.2	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	94	1253118	24.9	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.846	8.858	-0.012	90	430785	25.0	
12 Vinyl chloride	62		1.699				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166		7.000				ND	

Reagents:

vm50is_stk_a_00006

Amount Added: 2.00

Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279504a.D

Injection Date: 04-Aug-2020 22:12:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-27-A

Lab Sample ID: 240-134182-27

Worklist Smp#: 19

Client ID: SB-143 (2-3)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

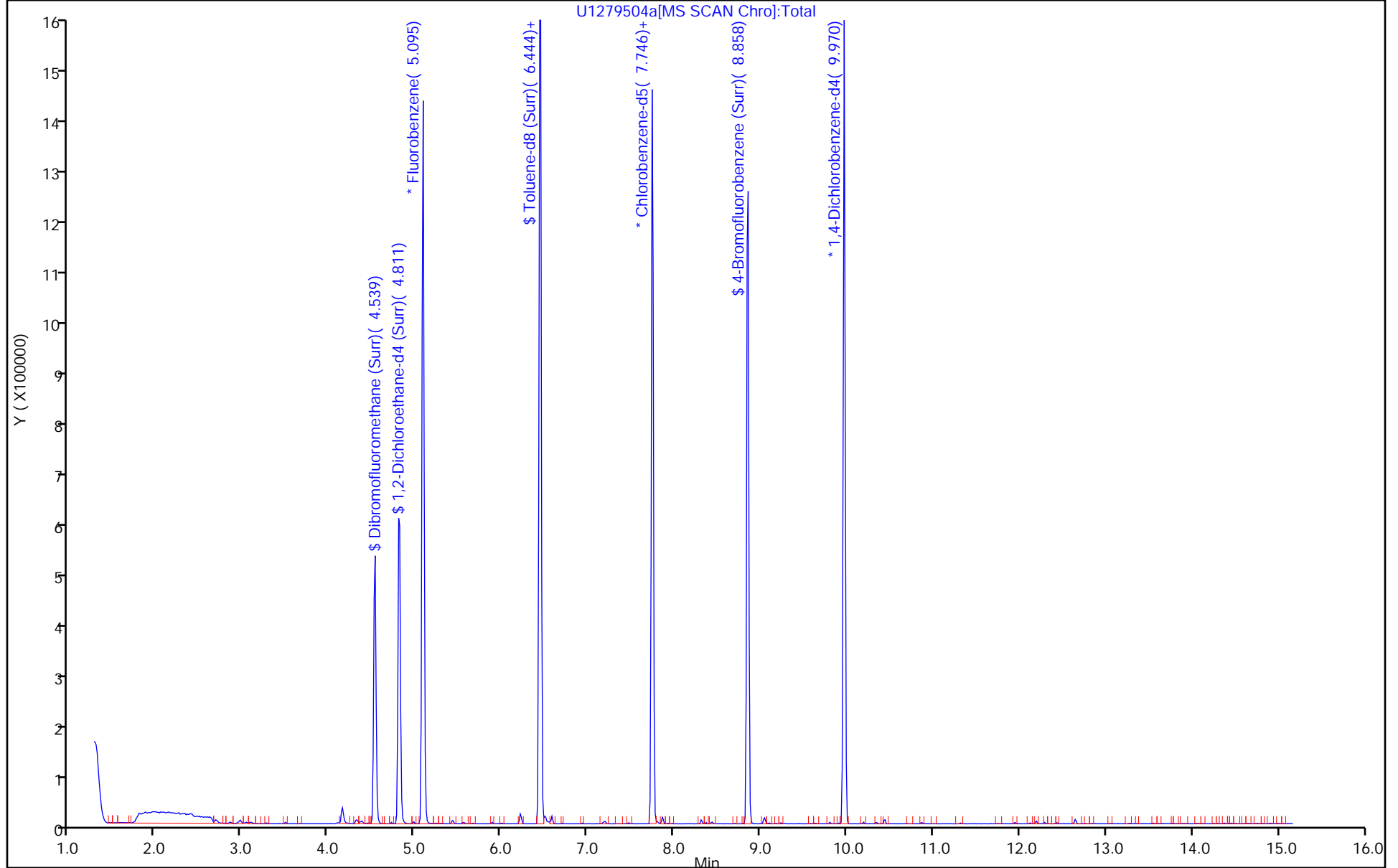
ALS Bottle#: 17

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279504a.D
 Lims ID: 240-134182-A-27-A
 Client ID: SB-143 (2-3)_072820
 Sample Type: Client
 Inject. Date: 04-Aug-2020 22:12:30 ALS Bottle#: 17 Worklist Smp#: 19
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-019
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:07:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 15:47:03

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	20.6	82.41
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	22.2	88.90
\$ 6 Toluene-d8 (Surr)	25.0	24.9	99.61
\$ 7 4-Bromofluorobenzene (Surr)	25.0	25.0	100.01

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: SB-143 (3-4)_072820 Lab Sample ID: 240-134182-28
 Matrix: Solid Lab File ID: U1279505a.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 13:23
 Sample wt/vol: 9.844(g) Date Analyzed: 08/04/2020 22:35
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 2.6 Level: (low/med) Medium
 Analysis Batch No.: 445595 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	43	U	43	17
123-91-1	1,4-Dioxane	13000	U F1	13000	1200
156-59-2	cis-1,2-Dichloroethene	43	U	43	9.6
127-18-4	Tetrachloroethene	43	U	43	19
156-60-5	trans-1,2-Dichloroethene	43	U	43	11
79-01-6	Trichloroethene	43	U	43	12
75-01-4	Vinyl chloride	34	U	34	13

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	90		47-136
460-00-4	4-Bromofluorobenzene (Surr)	104		51-124
1868-53-7	Dibromofluoromethane (Surr)	85		49-122
2037-26-5	Toluene-d8 (Surr)	103		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279505a.D
 Lims ID: 240-134182-A-28-A
 Client ID: SB-143 (3-4)_072820
 Sample Type: Client
 Inject. Date: 04-Aug-2020 22:35:30 ALS Bottle#: 18 Worklist Smp#: 20
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-020
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:07:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 15:47:07

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1086421	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	715017	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.971	-0.001	96	368970	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	93	298883	20.7	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	94	386335	21.9	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	94	1213117	25.1	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	94	418930	25.3	
12 Vinyl chloride	62		1.699				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166		7.000				ND	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279505a.D

Injection Date: 04-Aug-2020 22:35:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-28-A

Lab Sample ID: 240-134182-28

Worklist Smp#: 20

Client ID: SB-143 (3-4)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

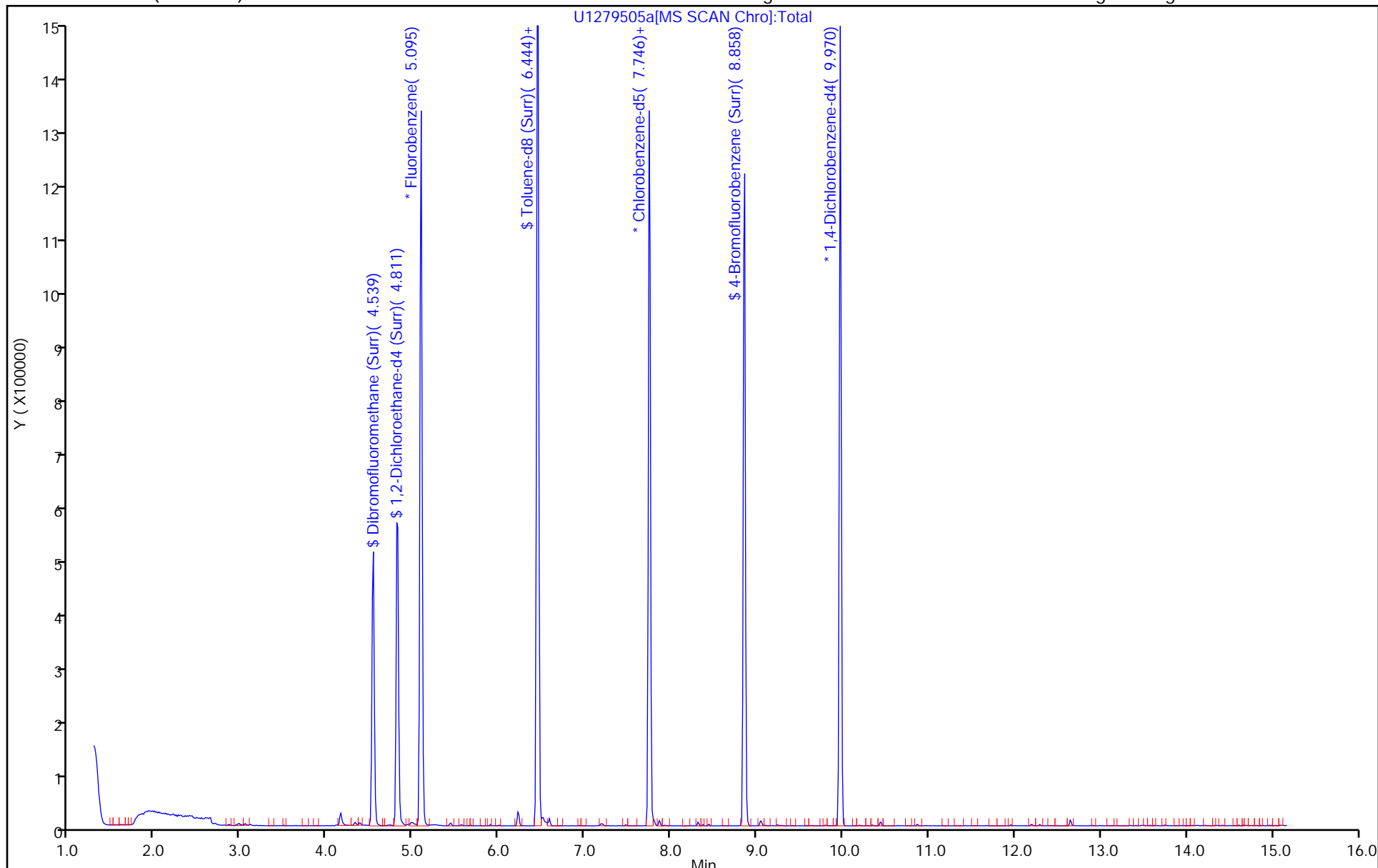
ALS Bottle#: 18

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279505a.D
 Lims ID: 240-134182-A-28-A
 Client ID: SB-143 (3-4)_072820
 Sample Type: Client
 Inject. Date: 04-Aug-2020 22:35:30 ALS Bottle#: 18 Worklist Smp#: 20
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-020
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:07:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt

Date: 05-Aug-2020 15:47:07

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	20.7	82.91
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	21.9	87.56
\$ 6 Toluene-d8 (Surr)	25.0	25.1	100.34
\$ 7 4-Bromofluorobenzene (Surr)	25.0	25.3	101.20

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: SB-143 (4-5)_072820 Lab Sample ID: 240-134182-29
 Matrix: Solid Lab File ID: U1279508b.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 13:24
 Sample wt/vol: 9.801(g) Date Analyzed: 08/04/2020 23:43
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0 (mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 3.1 Level: (low/med) Medium
 Analysis Batch No.: 445595 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	43	U	43	17
123-91-1	1,4-Dioxane	14000	U	14000	1200
156-59-2	cis-1,2-Dichloroethene	43	U	43	9.8
127-18-4	Tetrachloroethene	43	U	43	20
156-60-5	trans-1,2-Dichloroethene	43	U	43	11
79-01-6	Trichloroethene	43	U	43	12
75-01-4	Vinyl chloride	35	U	35	13

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	94		47-136
460-00-4	4-Bromofluorobenzene (Surr)	112		51-124
1868-53-7	Dibromofluoromethane (Surr)	89		49-122
2037-26-5	Toluene-d8 (Surr)	110		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279508b.D
 Lims ID: 240-134182-A-29-A
 Client ID: SB-143 (4-5)_072820
 Sample Type: Client
 Inject. Date: 04-Aug-2020 23:43:30 ALS Bottle#: 21 Worklist Smp#: 23
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-023
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:55:52 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 16:02:21

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1110673	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	748825	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.971	9.971	0.000	96	380566	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.527	4.539	-0.012	94	317998	21.6	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	94	412698	22.9	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1345278	26.6	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	94	469916	27.1	
12 Vinyl chloride	62		1.699				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166		7.000				ND	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279508b.D

Injection Date: 04-Aug-2020 23:43:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-29-A

Lab Sample ID: 240-134182-29

Worklist Smp#: 23

Client ID: SB-143 (4-5)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

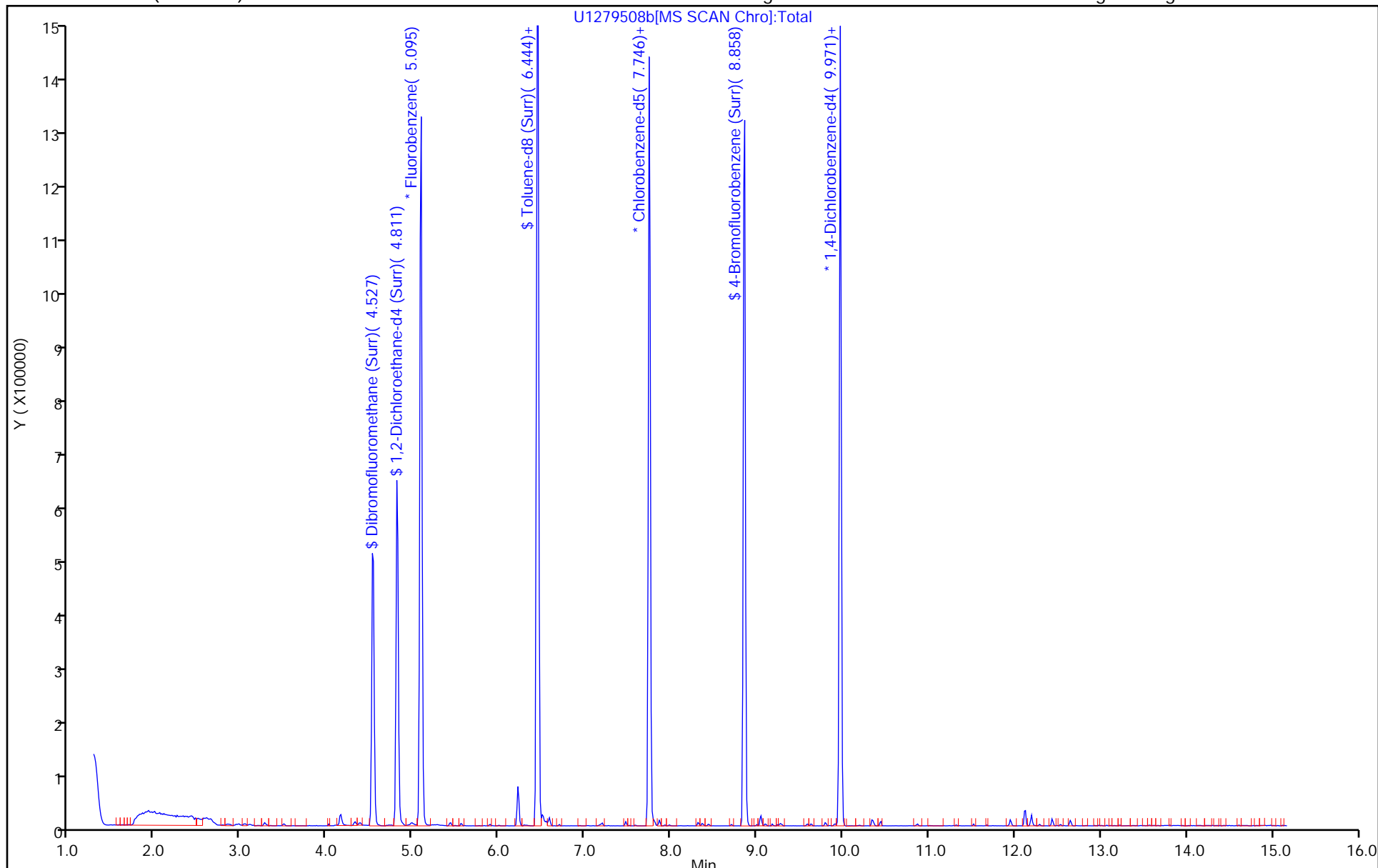
ALS Bottle#: 21

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279508b.D
 Lims ID: 240-134182-A-29-A
 Client ID: SB-143 (4-5)_072820
 Sample Type: Client
 Inject. Date: 04-Aug-2020 23:43:30 ALS Bottle#: 21 Worklist Smp#: 23
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-023
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:55:52 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 16:02:21

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	21.6	86.28
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	22.9	91.50
\$ 6 Toluene-d8 (Surr)	25.0	26.6	106.24
\$ 7 4-Bromofluorobenzene (Surr)	25.0	27.1	108.39

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: SB-143 (5-6)_072820 Lab Sample ID: 240-134182-30
 Matrix: Solid Lab File ID: U1279509.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 13:40
 Sample wt/vol: 9.878(g) Date Analyzed: 08/05/2020 00:05
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 2.9 Level: (low/med) Medium
 Analysis Batch No.: 445595 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	43	U	43	17
123-91-1	1,4-Dioxane	13000	U	13000	1200
156-59-2	cis-1,2-Dichloroethene	43	U	43	9.6
127-18-4	Tetrachloroethene	43	U	43	19
156-60-5	trans-1,2-Dichloroethene	43	U	43	11
79-01-6	Trichloroethene	43	U	43	12
75-01-4	Vinyl chloride	34	U	34	13

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	94		47-136
460-00-4	4-Bromofluorobenzene (Surr)	109		51-124
1868-53-7	Dibromofluoromethane (Surr)	88		49-122
2037-26-5	Toluene-d8 (Surr)	107		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279509.D
 Lims ID: 240-134182-A-30-A
 Client ID: SB-143 (5-6)_072820
 Sample Type: Client
 Inject. Date: 05-Aug-2020 00:05:30 ALS Bottle#: 22 Worklist Smp#: 24
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-024
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 12:05:49 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 15:46:52

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1101562	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	749339	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.971	-0.001	96	379489	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.527	4.539	-0.012	94	311585	21.3	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	94	409276	22.9	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1323732	26.1	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	95	460240	26.5	
12 Vinyl chloride	62		1.699				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166		7.000				ND	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279509.D

Injection Date: 05-Aug-2020 00:05:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-30-A

Lab Sample ID: 240-134182-30

Worklist Smp#: 24

Client ID: SB-143 (5-6)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

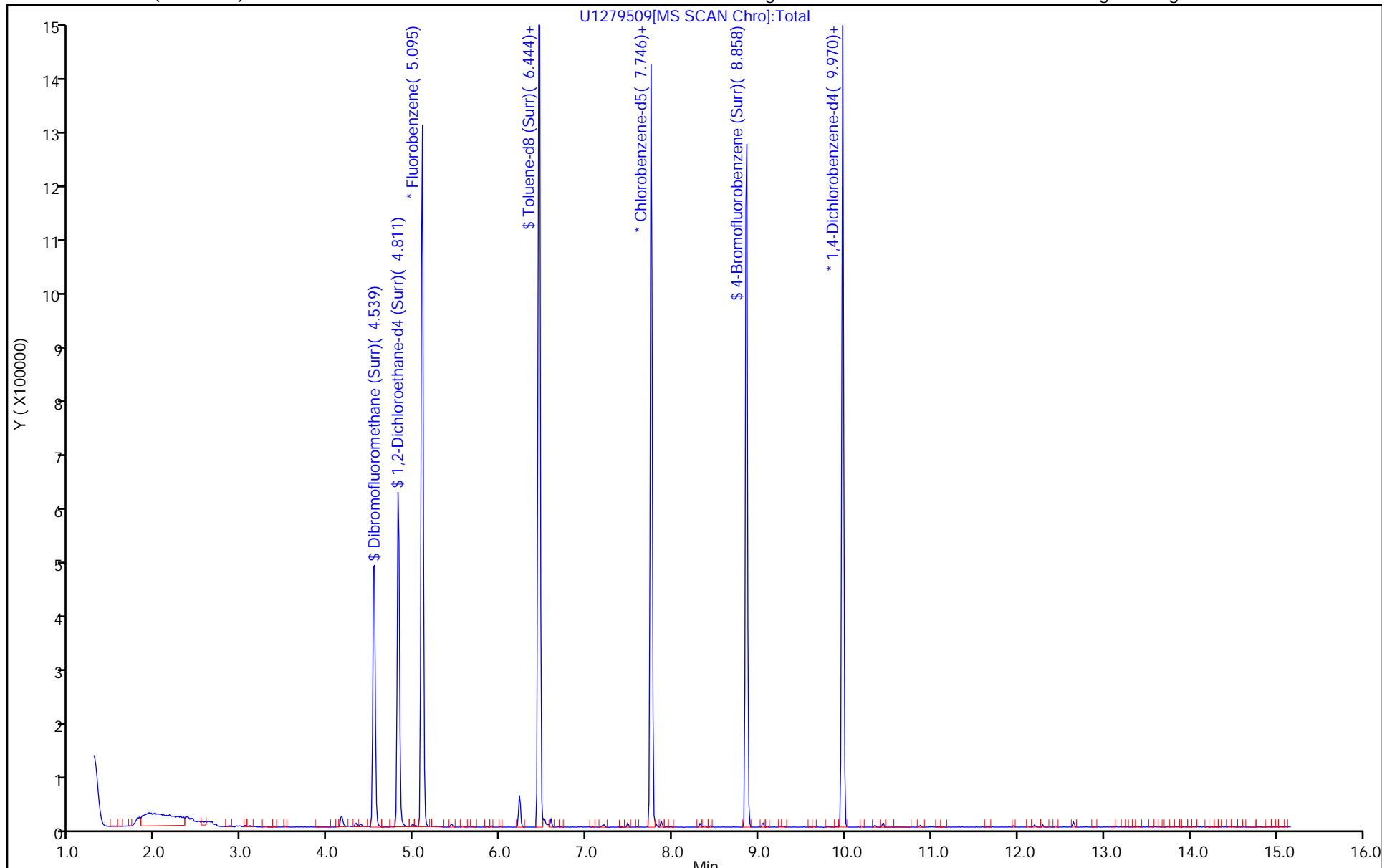
ALS Bottle#: 22

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279509.D
 Lims ID: 240-134182-A-30-A
 Client ID: SB-143 (5-6)_072820
 Sample Type: Client
 Inject. Date: 05-Aug-2020 00:05:30 ALS Bottle#: 22 Worklist Smp#: 24
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-024
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 12:05:49 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt

Date: 05-Aug-2020 15:46:52

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	21.3	85.24
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	22.9	91.49
\$ 6 Toluene-d8 (Surr)	25.0	26.1	104.47
\$ 7 4-Bromofluorobenzene (Surr)	25.0	26.5	106.09

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: SB-143 (6-7)_072820 Lab Sample ID: 240-134182-31
 Matrix: Solid Lab File ID: U1279510a.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 13:45
 Sample wt/vol: 9.278(g) Date Analyzed: 08/05/2020 00:28
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 3.8 Level: (low/med) Medium
 Analysis Batch No.: 445595 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	46	U	46	19
123-91-1	1,4-Dioxane	15000	U	15000	1300
156-59-2	cis-1,2-Dichloroethene	46	U	46	10
127-18-4	Tetrachloroethene	46	U	46	21
156-60-5	trans-1,2-Dichloroethene	46	U	46	12
79-01-6	Trichloroethene	46	U	46	13
75-01-4	Vinyl chloride	37	U	37	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	88		47-136
460-00-4	4-Bromofluorobenzene (Surr)	104		51-124
1868-53-7	Dibromofluoromethane (Surr)	82		49-122
2037-26-5	Toluene-d8 (Surr)	101		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279510a.D
 Lims ID: 240-134182-A-31-A
 Client ID: SB-143 (6-7)_072820
 Sample Type: Client
 Inject. Date: 05-Aug-2020 00:28:30 ALS Bottle#: 23 Worklist Smp#: 25
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-025
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:07:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 15:48:02

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1089260	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	746970	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.971	9.971	0.000	96	386496	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.527	4.539	-0.012	94	286828	19.8	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	95	377498	21.3	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1234872	24.4	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.846	8.858	-0.012	90	435020	25.1	
12 Vinyl chloride	62		1.699				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166		7.000				ND	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Euofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279510a.D

Injection Date: 05-Aug-2020 00:28:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-31-A

Lab Sample ID: 240-134182-31

Worklist Smp#: 25

Client ID: SB-143 (6-7)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

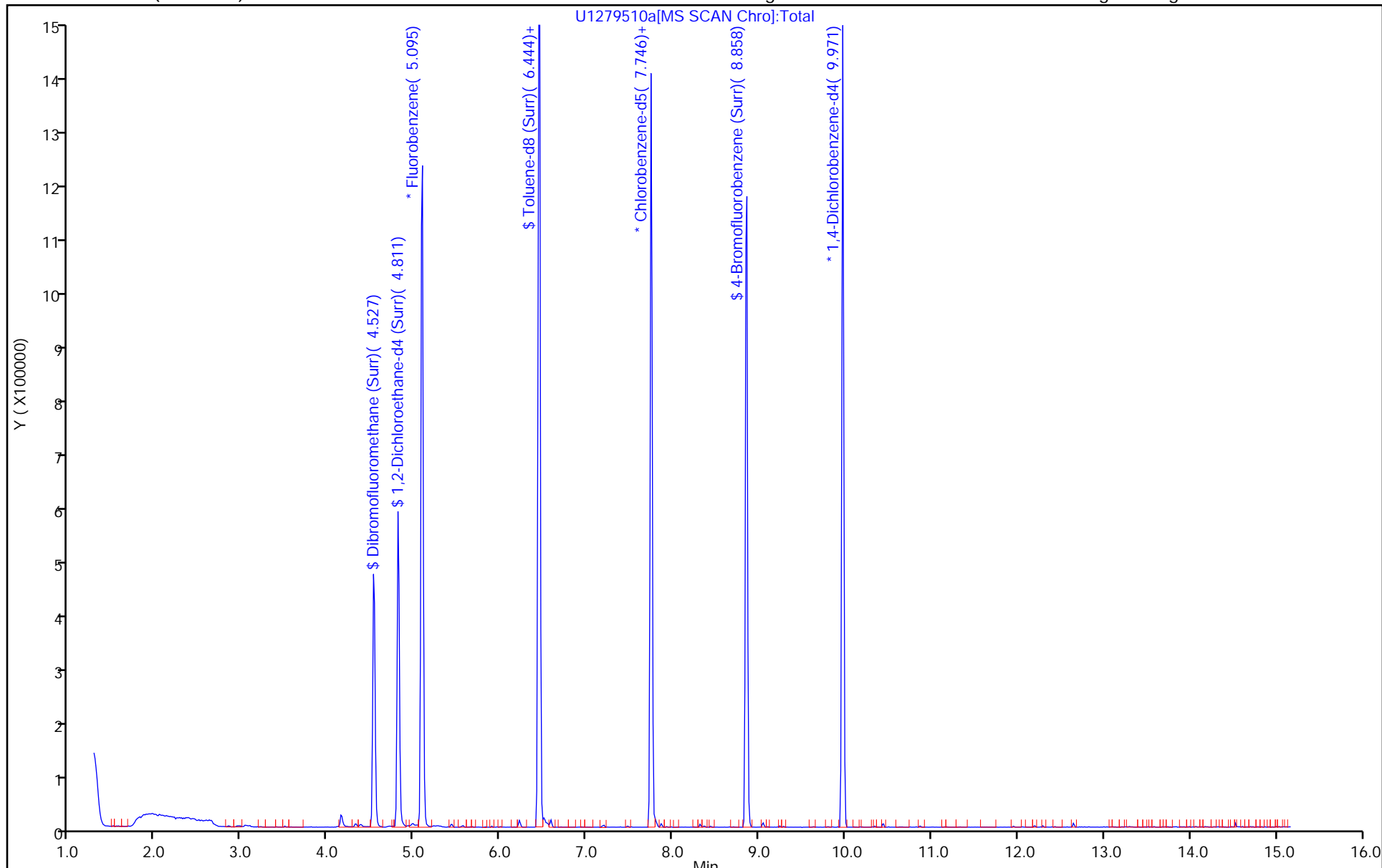
ALS Bottle#: 23

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279510a.D
 Lims ID: 240-134182-A-31-A
 Client ID: SB-143 (6-7)_072820
 Sample Type: Client
 Inject. Date: 05-Aug-2020 00:28:30 ALS Bottle#: 23 Worklist Smp#: 25
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-025
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:07:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt

Date: 05-Aug-2020 15:48:02

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	19.8	79.36
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	21.3	85.34
\$ 6 Toluene-d8 (Surr)	25.0	24.4	97.77
\$ 7 4-Bromofluorobenzene (Surr)	25.0	25.1	100.59

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: SB-143 (7-8)_072820 Lab Sample ID: 240-134182-32
 Matrix: Solid Lab File ID: U1279511.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 13:50
 Sample wt/vol: 8.375(g) Date Analyzed: 08/05/2020 00:50
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 8.0 Level: (low/med) Medium
 Analysis Batch No.: 445595 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	55	U	55	22
123-91-1	1,4-Dioxane	17000	U	17000	1500
156-59-2	cis-1,2-Dichloroethene	55	U	55	12
127-18-4	Tetrachloroethene	55	U	55	25
156-60-5	trans-1,2-Dichloroethene	55	U	55	14
79-01-6	Trichloroethene	55	U	55	15
75-01-4	Vinyl chloride	44	U	44	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	95		47-136
460-00-4	4-Bromofluorobenzene (Surr)	111		51-124
1868-53-7	Dibromofluoromethane (Surr)	89		49-122
2037-26-5	Toluene-d8 (Surr)	110		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279511.D
 Lims ID: 240-134182-A-32-A
 Client ID: SB-143 (7-8)_072820
 Sample Type: Client
 Inject. Date: 05-Aug-2020 00:50:30 ALS Bottle#: 24 Worklist Smp#: 26
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-026
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:07:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 15:48:26

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1064154	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	687208	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.971	-0.001	96	353484	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.527	4.539	-0.012	94	294676	20.9	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	94	383704	22.2	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1202677	25.9	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	94	413984	26.0	
12 Vinyl chloride	62		1.699				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166		7.000				ND	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279511.D

Injection Date: 05-Aug-2020 00:50:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-32-A

Lab Sample ID: 240-134182-32

Worklist Smp#: 26

Client ID: SB-143 (7-8)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

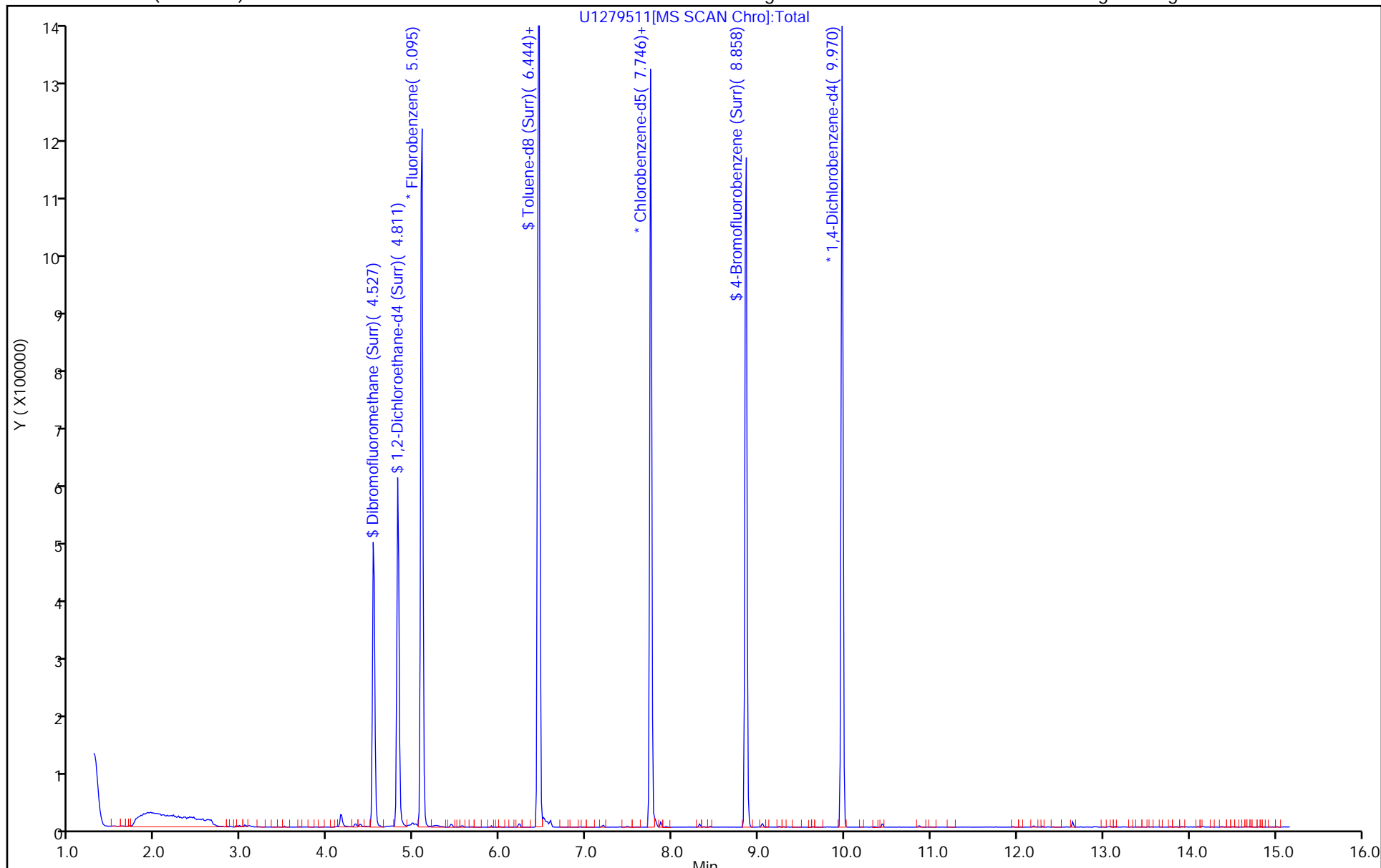
ALS Bottle#: 24

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279511.D
 Lims ID: 240-134182-A-32-A
 Client ID: SB-143 (7-8)_072820
 Sample Type: Client
 Inject. Date: 05-Aug-2020 00:50:30 ALS Bottle#: 24 Worklist Smp#: 26
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-026
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:07:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 15:48:26

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	20.9	83.45
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	22.2	88.79
\$ 6 Toluene-d8 (Surr)	25.0	25.9	103.50
\$ 7 4-Bromofluorobenzene (Surr)	25.0	26.0	104.05

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: DUP-03 Lab Sample ID: 240-134182-33
 Matrix: Solid Lab File ID: U1279512.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 00:00
 Sample wt/vol: 9.112(g) Date Analyzed: 08/05/2020 01:13
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0 (mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 3.2 Level: (low/med) Medium
 Analysis Batch No.: 445595 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	47	U	47	19
123-91-1	1,4-Dioxane	15000	U	15000	1300
156-59-2	cis-1,2-Dichloroethene	47	U	47	11
127-18-4	Tetrachloroethene	47	U	47	21
156-60-5	trans-1,2-Dichloroethene	47	U	47	12
79-01-6	Trichloroethene	47	U	47	13
75-01-4	Vinyl chloride	37	U	37	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	93		47-136
460-00-4	4-Bromofluorobenzene (Surr)	106		51-124
1868-53-7	Dibromofluoromethane (Surr)	87		49-122
2037-26-5	Toluene-d8 (Surr)	105		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279512.D
 Lims ID: 240-134182-A-33-A
 Client ID: DUP-03
 Sample Type: Client
 Inject. Date: 05-Aug-2020 01:13:30 ALS Bottle#: 25 Worklist Smp#: 27
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-027
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:07:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt

Date: 05-Aug-2020 15:48:31

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1088476	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	710269	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.971	-0.001	96	366484	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.527	4.539	-0.012	94	304054	21.0	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	94	398051	22.5	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1225461	25.5	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	94	422432	25.7	
12 Vinyl chloride	62		1.699				ND	
21 1,1-Dichloroethene	61		2.634				ND	
32 trans-1,2-Dichloroethene	61		3.285				ND	
41 cis-1,2-Dichloroethene	96		4.137				ND	
59 Trichloroethene	130		5.403				ND	
65 1,4-Dioxane	88		5.711				ND	
76 Tetrachloroethene	166		7.000				ND	

Reagents:

vm50is_stk_a_00006

Amount Added: 2.00

Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279512.D

Injection Date: 05-Aug-2020 01:13:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-A-33-A

Lab Sample ID: 240-134182-33

Worklist Smp#: 27

Client ID: DUP-03

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

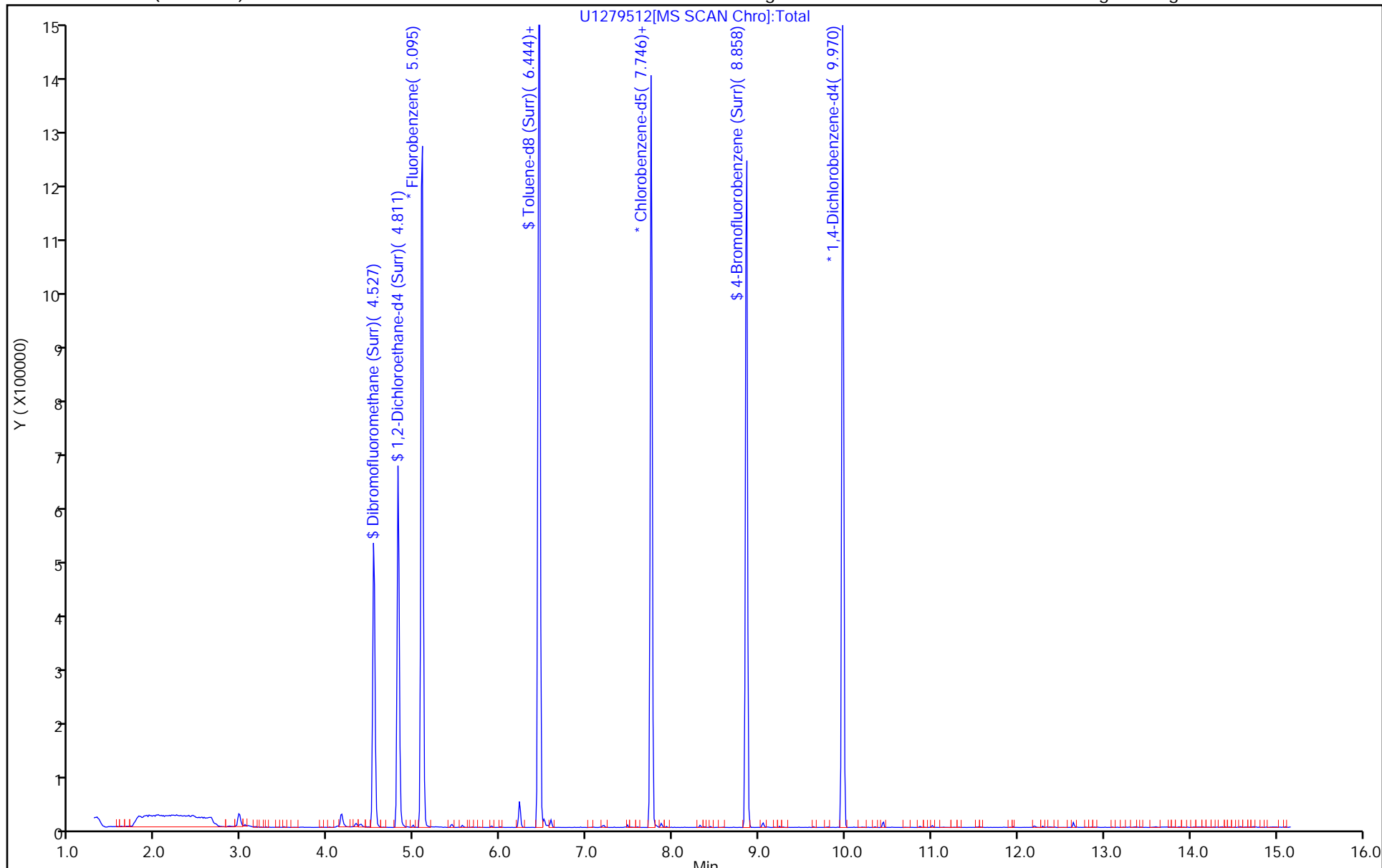
ALS Bottle#: 25

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279512.D
 Lims ID: 240-134182-A-33-A
 Client ID: DUP-03
 Sample Type: Client
 Inject. Date: 05-Aug-2020 01:13:30 ALS Bottle#: 25 Worklist Smp#: 27
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-027
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:07:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 15:48:31

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	21.0	84.18
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	22.5	90.05
\$ 6 Toluene-d8 (Surr)	25.0	25.5	102.04
\$ 7 4-Bromofluorobenzene (Surr)	25.0	25.7	102.73

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1 Analy Batch No.: 442964

SDG No.: _____

Instrument ID: A3UX12 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/16/2020 17:43 Calibration End Date: 07/16/2020 20:20 Calibration ID: 57832

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD8260 240-442964/9	U1279113.D
Level 2	STD8260 240-442964/10	U1279114.D
Level 3	STD8260 240-442964/11	U1279115.D
Level 4	STD8260 240-442964/12	U1279116.D
Level 5	ICIS 240-442964/13	U1279117.D
Level 6	STD8260 240-442964/14	U1279118.D
Level 7	STD8260 240-442964/15	U1279119.D
Level 8	STD8260 240-442964/16	U1279120.D

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7	LVL 8														
Dichlorodifluoromethane	0.2390 0.3129	0.2536 0.3252	0.3597 0.3162	0.3422	0.3504	Ave		0.3124			14.1		15.0				
Chloromethane	++++ 0.4740	0.4519 0.4911	0.6754 0.4935	0.5272	0.6043	Lin1	0.1545	0.5001		0.1000				0.9920		0.9900	
Butadiene	0.3380 0.3348	0.3323 0.3375	0.4655 0.3574	0.3596	0.4197	Ave		0.3681			13.2		15.0				
Vinyl chloride	0.3197 0.3450	0.3366 0.3583	0.4557 0.3547	0.3872	0.4368	Ave		0.3743			13.0		15.0				
Bromomethane	0.2009 0.2274	0.2172 0.2663	0.2724 0.2283	0.2866	0.2859	Ave		0.2481			13.5		15.0				
Chloroethane	0.2176 0.2511	0.2297 0.3069	0.3005 0.2594	0.3072	0.3070	Ave		0.2724			13.8		15.0				
Dichlorofluoromethane	0.4674 0.5232	0.5247 0.6044	0.5900 0.5160	0.6512	0.6735	Ave		0.5688			12.7		15.0				
Trichlorofluoromethane	0.3890 0.4108	0.4376 0.4705	0.4170 0.4108	0.4760	0.4898	Ave		0.4377			8.4		15.0				
Ethyl ether	0.2445 0.3001	0.2923 0.3103	0.3107 0.2846	0.3545	0.3327	Ave		0.3037			10.8		15.0				
Acrolein	0.0233 0.0240	0.0267 0.0272	0.0311 0.0258	0.0257	0.0255	Ave		0.0262			9.1		15.0				
1,1-Dichloroethene	0.3290 0.3749	0.4147 0.4370	0.4520 0.3754	0.4141	0.4198	Ave		0.4021			9.9		15.0				
1,1,2-Trichloro-1,2,2-trifluoroethane	0.1703 0.2344	0.2346 0.2758	0.2511 0.2342	0.2376	0.2515	Ave		0.2362			12.8		15.0				
Acetone	++++ 0.1137	0.1589 0.1130	0.1529 0.0979	0.1343	0.1206	Lin1	0.2017	0.1071						0.9900		0.9900	
Iodomethane	0.3169 0.3908	0.3792 0.4477	0.4301 0.3858	0.4683	0.4537	Ave		0.4091			12.3		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1 Analy Batch No.: 442964

SDG No.: _____

Instrument ID: A3UX12 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/16/2020 17:43 Calibration End Date: 07/16/2020 20:20 Calibration ID: 57832

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7	LVL 8														
Carbon disulfide	0.7494 0.7482	0.7327 0.8730	0.9202 0.7498	0.8549	0.8490	Ave		0.8097			8.9		15.0				
3-Chloro-1-propene	0.3972 0.4081	0.4111 0.4745	0.5803 0.4084	0.4638	0.4643	Ave		0.4509			13.4		15.0				
Methyl acetate	0.2712 0.2890	0.2800 0.3141	0.3954 0.2690	0.3231	0.3105	Ave		0.3065			13.5		15.0				
Methylene Chloride	0.3304 0.3332	0.3430 0.3813	0.4456 0.3268	0.3981	0.3811	Ave		0.3674			11.4		15.0				
2-Methyl-2-propanol	++++ 0.0382	0.0346 0.0353	0.0469 0.0302	0.0431	0.0376	Ave		0.0380			14.7		15.0				
Acrylonitrile	0.1414 0.1448	0.1331 0.1843	0.1893 ++++	0.1631	0.1559	Ave		0.1589			13.5		15.0				
trans-1,2-Dichloroethene	0.3330 0.3645	0.3284 ++++	0.4594 ++++	0.4201	0.4101	Ave		0.3859			13.6		15.0				
Methyl tert-butyl ether	0.7426 0.8255	0.7777 1.0920	0.9611 0.8329	0.9443	0.9124	Ave		0.8861			12.9		15.0				
Hexane	++++ 0.3965	0.3424 0.5392	0.4821 0.4558	0.3818	0.3948	Ave		0.4275			15.9	*	15.0				
1,1-Dichloroethane	0.3935 0.4613	0.4643 0.6142	0.5845 0.5312	0.5344	0.5314	Ave		0.5143		0.1000	13.9		15.0				
Vinyl acetate	++++ 0.6655	0.5617 0.8869	0.7971 0.8155	0.6834	0.6620	Ave		0.7246			15.5	*	15.0				
2,2-Dichloropropane	0.3080 0.3323	0.3239 0.3895	0.3371 ++++	0.3874	0.3904	Ave		0.3526			10.0		15.0				
cis-1,2-Dichloroethene	0.3372 0.3363	0.3440 0.3862	0.3406 ++++	0.3894	0.3856	Ave		0.3599			7.1		15.0				
2-Butanone (MEK)	0.0606 0.0641	0.0495 0.0720	0.0609 ++++	0.0687	0.0660	Ave		0.0631			11.5		15.0				
Chlorobromomethane	0.2767 0.2940	0.2765 0.2741	0.3072 0.2262	0.3458	0.3405	Ave		0.2926			13.3		15.0				
Tetrahydrofuran	0.1824 0.1651	0.1442 0.1424	0.1797 0.1198	0.1690	0.1865	Ave		0.1611			14.6		15.0				
Chloroform	0.4849 0.5027	0.4932 0.4996	0.5081 0.4275	0.5601	0.5977	Ave		0.5092			10.0		15.0				
1,1,1-Trichloroethane	0.3875 0.4270	0.3654 0.4205	0.3958 0.3615	0.3990	0.4730	Ave		0.4037			9.0		15.0				
Cyclohexane	0.4846 0.5068	0.4997 0.4888	0.4787 0.4071	0.4338	0.5234	Ave		0.4779			8.1		15.0				
1,1-Dichloropropene	0.4001 0.4499	0.3812 0.4152	0.4161 0.3569	0.3796	0.4876	Ave		0.4108			10.2		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1 Analy Batch No.: 442964

SDG No.: _____

Instrument ID: A3UX12 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/16/2020 17:43 Calibration End Date: 07/16/2020 20:20 Calibration ID: 57832

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7	LVL 8														
Carbon tetrachloride	0.2846 0.3536	0.3119 0.3516	0.3143 0.3065	0.3201	0.3879	Ave		0.3288			10.1		15.0				
Isobutyl alcohol	0.0172 0.0179	0.0155 0.0146	0.0187 0.0123	0.0155	0.0174	Ave		0.0161			12.9		15.0				
Benzene	1.2306 1.2707	1.2406 1.1849	1.2643 1.0246	1.1853	1.4211	Ave		1.2278			9.0		15.0				
1,2-Dichloroethane	0.4123 0.4133	0.3884 0.3951	0.3965 0.3400	0.3960	0.4497	Ave		0.3989			7.7		15.0				
n-Heptane	++++ 0.2125	0.8760 0.1889	0.3267 0.2082	0.2164	0.1882	Lin1	0.6463	0.1871						0.9910		0.9900	
Trichloroethene	0.2499 0.2624	0.2675 0.2982	0.2855 0.2836	0.2842	0.2896	Ave		0.2776			5.8		15.0				
Methylcyclohexane	0.4902 0.4469	0.5070 0.5110	0.5094 0.5191	0.4459	0.4587	Ave		0.4860			6.3		15.0				
1,2-Dichloropropane	0.2744 0.2396	0.2459 0.2704	0.2867 0.2874	0.2595	0.2573	Ave		0.2651			6.7		15.0				
Dibromomethane	0.1895 0.1728	0.1568 0.2250	0.1821 0.1794	0.2106	0.1896	Ave		0.1882			11.4		15.0				
1,4-Dioxane	++++ 0.0031	++++ 0.0038	0.0030 0.0033	0.0043	0.0032	Ave		0.0035			14.7		15.0				
Dichlorobromomethane	0.3228 0.3084	0.2546 0.3976	0.3199 0.3440	0.3789	0.3236	Ave		0.3312			13.3		15.0				
2-Chloroethyl vinyl ether	0.1829 0.1783	0.1421 0.2594	0.2002 0.2185	0.2316	0.1844	Ave		0.1997			18.2	*	15.0				
cis-1,3-Dichloropropene	0.3945 0.3870	0.3031 0.5372	0.4096 0.4609	0.4701	0.3950	Ave		0.4197			16.6	*	15.0				
4-Methyl-2-pentanone (MIBK)	0.4354 0.3706	0.3274 0.4917	0.4703 0.4482	0.5361	0.3932	Ave		0.4341			15.7	*	15.0				
Toluene	1.8532 1.3460	1.5321 1.8337	1.6256 1.8105	1.9267	1.3466	Ave		1.6593			14.0		15.0				
trans-1,3-Dichloropropene	0.5866 0.4654	0.4692 0.6407	0.5203 0.6635	0.5106	0.4452	Ave		0.5377			15.5	*	15.0				
Ethyl methacrylate	0.5372 0.4804	0.4744 0.6569	0.5628 0.6526	0.5119	0.4617	Ave		0.5422			14.2		15.0				
1,1,2-Trichloroethane	0.3488 0.2740	0.2971 0.3762	0.3194 0.3628	0.3084	0.3128	Ave		0.3249			10.7		15.0				
Tetrachloroethene	0.4672 0.3443	0.3797 0.4470	0.3653 0.4319	0.3757	0.3653	Ave		0.3971			11.3		15.0				
1,3-Dichloropropane	0.6006 0.5055	0.6082 0.6659	0.6094 0.7069	0.5690	0.6114	Ave		0.6096			9.8		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1 Analy Batch No.: 442964

SDG No.: _____

Instrument ID: A3UX12 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/16/2020 17:43 Calibration End Date: 07/16/2020 20:20 Calibration ID: 57832

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7	LVL 8														
2-Hexanone	++++ 0.3462	0.3677 0.5188	0.4753 0.4590	0.4043	0.4737	Ave		0.4350			14.6		15.0				
Chlorodibromomethane	0.2607 0.3295	0.3070 0.3727	0.2990 0.3686	0.3108	0.3066	Ave		0.3194			11.6		15.0				
Ethylene Dibromide	0.2959 0.3490	0.3468 0.3446	0.3234 0.3756	0.3251	0.3269	Ave		0.3359			7.0		15.0				
Chlorobenzene	0.9601 0.9982	0.9577 0.9856	0.9970 0.9625	0.9439	0.9561	Ave		0.9701		0.3000	2.1		15.0				
1,1,1,2-Tetrachloroethane	0.2861 0.3451	0.3082 0.3607	0.3246 0.3482	0.3416	0.3313	Ave		0.3307			7.3		15.0				
Ethylbenzene	0.4726 0.5416	0.5415 0.5535	0.5513 0.5455	0.5158	0.5401	Ave		0.5327			5.0		15.0				
m-Xylene & p-Xylene	0.5474 0.7020	0.6317 0.6953	0.6913 0.6808	0.6540	0.6759	Ave		0.6598			7.7		15.0				
o-Xylene	0.6144 0.6625	0.7873 0.6809	0.6754 0.6788	0.6652	0.6714	Ave		0.6795			7.1		15.0				
Styrene	0.8975 1.1025	1.2328 1.1300	1.0808 1.1354	1.0526	1.0955	Ave		1.0909			8.7		15.0				
Bromoform	0.1816 0.2215	0.2061 0.2498	0.2056 0.2524	0.2241	0.2201	Ave		0.2201		0.1000	10.6		15.0				
Isopropylbenzene	1.6277 1.6644	1.8462 1.7216	1.7216 1.6924	1.6505	1.6999	Ave		1.7030			3.9		15.0				
1,1,2,2-Tetrachloroethane	0.9256 1.0911	1.0665 0.8972	1.0273 1.1690	0.8375	0.9849	Ave		0.9999		0.3000	11.0		15.0				
Bromobenzene	0.7288 0.8081	0.8447 0.7401	0.7929 0.9282	0.6798	0.7304	Ave		0.7816			10.1		15.0				
1,2,3-Trichloropropane	0.3410 0.3591	0.3863 0.3119	0.3528 0.3774	0.2961	0.3349	Ave		0.3449			8.9		15.0				
trans-1,4-Dichloro-2-butene	0.2625 0.3469	0.2454 0.2884	0.3133 0.3529	0.2288	0.3033	Ave		0.2927			15.5	*	15.0				
N-Propylbenzene	0.7726 0.9340	0.8088 0.8290	0.8978 1.0055	0.7202	0.8369	Ave		0.8506			10.8		15.0				
2-Chlorotoluene	0.7922 0.7897	0.7423 0.6969	0.7641 0.8746	0.6279	0.7208	Ave		0.7510			9.8		15.0				
1,3,5-Trimethylbenzene	2.0962 2.7331	2.3810 2.3653	2.6027 2.9725	2.4185	2.4938	Ave		2.5079			10.5		15.0				
4-Chlorotoluene	0.7751 0.7961	0.7602 0.7135	0.7756 0.8974	0.7258	0.7198	Ave		0.7704			7.7		15.0				
tert-Butylbenzene	2.0911 2.3706	2.1569 2.0531	2.1523 2.5782	2.0837	2.0767	Ave		2.1953			8.4		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1 Analy Batch No.: 442964

SDG No.: _____

Instrument ID: A3UX12 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/16/2020 17:43 Calibration End Date: 07/16/2020 20:20 Calibration ID: 57832

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7	LVL 8														
1,2,4-Trimethylbenzene	2.6633 2.7829	2.4414 2.3659	2.6580 3.0077	2.6472	2.5064	Ave		2.6341			7.7		15.0				
sec-Butylbenzene	3.2857 3.3989	3.1011 3.2856	3.1609 3.2757	2.9618	3.0028	Ave		3.1841			4.8		15.0				
1,3-Dichlorobenzene	1.5139 1.5056	1.5517 1.4537	1.4912 1.4993	1.4677	1.3852	Ave		1.4835			3.3		15.0				
4-Isopropyltoluene	2.3317 2.8989	2.5270 2.8114	2.7243 2.8068	2.5023	2.5803	Ave		2.6478			7.3		15.0				
1,4-Dichlorobenzene	1.7142 1.5352	1.6156 1.5115	1.5056 1.5195	1.4720	1.4203	Ave		1.5367			5.9		15.0				
n-Butylbenzene	1.8951 2.4602	2.1133 2.4171	2.2733 2.3109	2.0729	2.2184	Ave		2.2202			8.4		15.0				
1,2-Dichlorobenzene	1.5372 1.4905	1.4933 1.4585	1.4947 1.4453	1.4331	1.4279	Ave		1.4726			2.6		15.0				
1,2-Dibromo-3-Chloropropane	0.2010 0.2669	0.2345 0.2367	0.2385 0.2646	0.2131	0.2135	Ave		0.2336			10.2		15.0				
1,2,4-Trichlorobenzene	0.9887 0.8713	0.8099 0.7417	0.8058 0.8636	0.7082	0.6997	Ave		0.8111			12.0		15.0				
Hexachlorobutadiene	0.4276 0.3159	0.3357 0.2828	0.2887 0.3236	0.2492	0.2598	Lin1	0.0241	0.3001						0.9920		0.9900	
Naphthalene	2.7351 3.0748	2.6527 2.5138	2.8063 2.9241	2.3872	2.3949	Ave		2.6861			9.2		15.0				
1,2,3-Trichlorobenzene	0.8366 0.8012	0.7261 0.6950	0.7707 0.8318	0.6662	0.6501	Ave		0.7472			9.8		15.0				
Dibromofluoromethane (Surr)	++++ 0.2687	++++ 0.2632	0.2565 0.2279	0.2654	0.3110	Ave		0.2655			10.1		15.0				
1,2-Dichloroethane-d4 (Surr)	++++ 0.3299	++++ 0.3169	0.3337 0.2741	0.3228	0.3720	Ave		0.3249			9.7		15.0				
Toluene-d8 (Surr)	++++ 1.1036	++++ 1.5400	1.3670 1.5066	1.4506	1.1486	Ave		1.3527			13.7		15.0				
4-Bromofluorobenzene (Surr)	++++ 0.4348	++++ 0.4579	0.4861 0.5021	0.4378	0.4603	Ave		0.4632			5.7		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1 Analy Batch No.: 442964

SDG No.: _____

Instrument ID: A3UX12 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/16/2020 17:43 Calibration End Date: 07/16/2020 20:20 Calibration ID: 57832

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD8260 240-442964/9	U1279113.D
Level 2	STD8260 240-442964/10	U1279114.D
Level 3	STD8260 240-442964/11	U1279115.D
Level 4	STD8260 240-442964/12	U1279116.D
Level 5	ICIS 240-442964/13	U1279117.D
Level 6	STD8260 240-442964/14	U1279118.D
Level 7	STD8260 240-442964/15	U1279119.D
Level 8	STD8260 240-442964/16	U1279120.D

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5
			LVL 6	LVL 7	LVL 8			LVL 6	LVL 7	LVL 8		
Dichlorodifluoromethane	FB	Ave	6491 692065	12858 952192	95890 1447911	151666	325891	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Chloromethane	FB	Lin1	++++ 1048531	22907 1437896	180045 2259568	233672	562073	++++ 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Butadiene	FB	Ave	9181 740602	16845 988134	124092 1636623	159384	390394	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Vinyl chloride	FB	Ave	8683 763156	17064 1049031	121481 1624267	171618	406302	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Bromomethane	FB	Ave	5457 502951	11010 779653	72628 1045526	127041	265909	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Chloroethane	FB	Ave	5911 555402	11645 898507	80121 1187806	136173	285493	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Dichlorofluoromethane	FB	Ave	12695 1157160	26597 1769403	157289 2362624	288627	626381	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Trichlorofluoromethane	FB	Ave	10566 908548	22183 1377516	111171 1880748	210999	455578	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Ethyl ether	FB	Ave	6641 663810	14820 908584	82827 1303305	157156	309400	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Acrolein	FB	Ave	3163 265086	6778 397800	41496 590629	56998	118799	2.50 200	5.00 300	25.0 400	50.0	100
1,1-Dichloroethene	FB	Ave	8937 829316	21022 1279374	120487 1718675	183544	390469	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,1,2-Trichloro-1,2,2-trifluoroethane	FB	Ave	4626 518516	11895 807578	66947 1072209	105296	233909	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Acetone	FB	Lin1	++++ 503096	16108 661546	81521 896587	119029	224375	++++ 80.0	2.00 120	10.0 160	20.0	40.0
Iodomethane	FB	Ave	8607 864362	19223 1310816	114665 1766617	207558	421954	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Carbon disulfide	FB	Ave	20354 1654881	37146 2555816	245305 3433316	378954	789675	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1 Analy Batch No.: 442964

SDG No.: _____

Instrument ID: A3UX12 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/16/2020 17:43 Calibration End Date: 07/16/2020 20:20 Calibration ID: 57832

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5
3-Chloro-1-propene	FB	Ave	10788 902635	20839 1389182	154691 1869760	205590	431804	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Methyl acetate	FB	Ave	14733 1278569	28394 1839288	210795 2463274	286458	577598	1.00 80.0	2.00 120	10.0 160	20.0	40.0
Methylene Chloride	FB	Ave	8975 737052	17390 1116320	118801 1496408	176439	354472	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
2-Methyl-2-propanol	FB	Ave	++++ 844343	17528 1032059	125121 1383065	191199	349742	++++ 400	10.0 600	50.0 800	100	200
Acrylonitrile	FB	Ave	38417 3202437	67455 5396310	504697 ++++	723158	1450393	5.00 400	10.0 600	50.0 ++++	100	200
trans-1,2-Dichloroethene	FB	Ave	9045 806228	16647 ++++	122478 ++++	186220	381398	0.500 40.0	1.00 ++++	5.00 ++++	10.0	20.0
Methyl tert-butyl ether	FB	Ave	20171 1825802	39426 3196991	256224 3813820	418565	848635	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Hexane	FB	Ave	++++ 877095	17358 1578677	128512 2087141	169215	367216	++++ 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,1-Dichloroethane	FB	Ave	10688 1020403	23537 1798158	155829 2432150	236866	494235	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Vinyl acetate	FB	Ave	++++ 1471981	28476 2596721	212513 3734074	302914	615701	++++ 40.0	1.00 60.0	5.00 80.0	10.0	20.0
2,2-Dichloropropane	FB	Ave	8366 734903	16418 1140347	89862 ++++	171711	363126	0.500 40.0	1.00 60.0	5.00 ++++	10.0	20.0
cis-1,2-Dichloroethene	FB	Ave	9160 743747	17440 1130637	90791 ++++	172589	358669	0.500 40.0	1.00 60.0	5.00 ++++	10.0	20.0
2-Butanone (MEK)	FB	Ave	3292 283584	5020 421345	32487 ++++	60927	122791	1.00 80.0	2.00 120	10.0 ++++	20.0	40.0
Chlorobromomethane	FB	Ave	7517 650336	14016 802370	81886 1035588	153287	316652	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Tetrahydrofuran	FB	Ave	9909 730197	14616 833693	95835 1096878	149777	347004	1.00 80.0	2.00 120	10.0 160	20.0	40.0
Chloroform	FB	Ave	13172 1111892	25004 1462582	135443 1957485	248247	555952	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,1,1-Trichloroethane	FB	Ave	10524 944576	18522 1231118	105527 1655131	176862	439960	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Cyclohexane	FB	Ave	13162 1121049	25331 1431075	127620 1863865	192287	486792	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,1-Dichloropropene	FB	Ave	10867 995105	19325 1215722	110916 1634304	168265	453544	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Carbon tetrachloride	FB	Ave	7731 782108	15810 1029542	83787 1403246	141890	360797	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Isobutyl alcohol	FB	Ave	11663 989777	19594 1065136	124596 1406970	172245	405480	12.5 1000	25.0 1500	125 2000	250	500

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1 Analy Batch No.: 442964

SDG No.: _____

Instrument ID: A3UX12 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/16/2020 17:43 Calibration End Date: 07/16/2020 20:20 Calibration ID: 57832

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5
Benzene	FB	Ave	33425 2810699	62890 3469151	337044 4691183	525396	1321740	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,2-Dichloroethane	FB	Ave	11198 914197	19689 1156634	105694 1556959	175519	418240	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
n-Heptane	FB	Lin1	++++ 470133	44411 552977	87098 953448	95900	175083	++++ 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Trichloroethene	FB	Ave	6788 580360	13562 873131	76118 1298374	125955	269336	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Methylcyclohexane	FB	Ave	13314 988563	25703 1496196	135793 2376794	197666	426646	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,2-Dichloropropane	FB	Ave	7452 529883	12467 791730	76423 1315984	115005	239320	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Dibromomethane	FB	Ave	5148 382258	7950 658845	48536 821478	93337	176342	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,4-Dioxane	FB	Ave	++++ 136471	++++ 224221	15971 304656	38163	59715	++++ 800	++++ 1200	100 1600	200	400
Dichlorobromomethane	FB	Ave	8768 682191	12908 1164000	85277 1575297	167964	300932	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
2-Chloroethyl vinyl ether	FB	Ave	9938 788544	14412 1519041	106727 2001081	205324	343008	1.00 80.0	2.00 120	10.0 160	20.0	40.0
cis-1,3-Dichloropropene	FB	Ave	10714 856087	15367 1572803	109191 2110296	208362	367344	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
4-Methyl-2-pentanone (MIBK)	FB	Ave	23654 1639242	33198 2878867	250773 4104472	475232	731356	1.00 80.0	2.00 120	10.0 160	20.0	40.0
Toluene	CBNZ d5	Ave	29652 2206110	46282 3857470	302953 5188385	609655	1007024	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
trans-1,3-Dichloropropene	CBNZ d5	Ave	9385 762783	14175 1347764	96966 1901312	161548	332918	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Ethyl methacrylate	CBNZ d5	Ave	8596 787358	14331 1381887	104880 1870176	161989	345274	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,1,2-Trichloroethane	CBNZ d5	Ave	5581 449059	8974 791429	59524 1039659	97580	233957	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Tetrachloroethene	CBNZ d5	Ave	7475 564371	11469 940315	68082 1237632	118877	273224	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,3-Dichloropropane	CBNZ d5	Ave	9610 828517	18373 1400884	113574 2025809	180029	457272	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
2-Hexanone	CBNZ d5	Ave	++++ 1134947	22216 2182766	177166 2630745	255826	708445	++++ 80.0	2.00 120	10.0 160	20.0	40.0
Chlorodibromomethane	CBNZ d5	Ave	4171 540110	9274 784117	55714 1056327	98356	229325	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Ethylene Dibromide	CBNZ d5	Ave	4735 572080	10477 724976	60273 1076276	102871	244506	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1 Analy Batch No.: 442964

SDG No.: _____

Instrument ID: A3UX12 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/16/2020 17:43 Calibration End Date: 07/16/2020 20:20 Calibration ID: 57832

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5
Chlorobenzene	CBNZ d5	Ave	15362 1635971	28930 2073291	185806 2758216	298670	715039	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,1,1,2-Tetrachloroethane	CBNZ d5	Ave	4578 565680	9310 758714	60497 997800	108087	247781	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Ethylbenzene	CBNZ d5	Ave	7562 887653	16358 1164276	102746 1563228	163196	403913	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
m-Xylene & p-Xylene	CBNZ d5	Ave	8759 1150536	19083 1462696	128823 1951120	206929	505494	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
o-Xylene	CBNZ d5	Ave	9831 1085881	23782 1432342	125874 1945281	210472	502115	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Styrene	CBNZ d5	Ave	14361 1807037	37239 2377113	201429 3253865	333048	819248	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Bromoform	CBNZ d5	Ave	2906 363030	6225 525428	38309 723239	70911	164608	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Isopropylbenzene	CBNZ d5	Ave	26044 2727885	55771 3621536	320834 4849848	522254	1271237	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,1,2,2-Tetrachloroethane	DCBd 4	Ave	7751 843951	19529 1087689	98841 1682800	164980	394582	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Bromobenzene	DCBd 4	Ave	6103 625073	15468 897214	76292 1336195	133920	292641	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,2,3-Trichloropropane	DCBd 4	Ave	2856 277742	7073 378143	33941 543257	58331	134177	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
trans-1,4-Dichloro-2-butene	DCBd 4	Ave	2198 268293	4494 349603	30147 508069	45074	121536	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
N-Propylbenzene	DCBd 4	Ave	6470 722462	14811 1004987	86386 1447539	141874	335308	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
2-Chlorotoluene	DCBd 4	Ave	6634 610825	13592 844827	73516 1259021	123687	288795	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,3,5-Trimethylbenzene	DCBd 4	Ave	17554 2114062	43601 2867428	250416 4279171	476426	999122	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
4-Chlorotoluene	DCBd 4	Ave	6491 615770	13920 864927	74622 1291849	142976	288403	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
tert-Butylbenzene	DCBd 4	Ave	17511 1833625	39497 2488936	207081 3711556	410479	832037	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,2,4-Trimethylbenzene	DCBd 4	Ave	22303 2152543	44707 2868200	255743 4329767	521486	1004174	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
sec-Butylbenzene	DCBd 4	Ave	27515 2628984	56787 3983089	304124 4715586	583446	1203086	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,3-Dichlorobenzene	DCBd 4	Ave	12678 1164577	28415 1762350	143474 2158288	289123	554995	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
4-Isopropyltoluene	DCBd 4	Ave	19526 2242296	46274 3408231	262116 4040650	492942	1033800	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1 Analy Batch No.: 442964

SDG No.: _____

Instrument ID: A3UX12 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/16/2020 17:43 Calibration End Date: 07/16/2020 20:20 Calibration ID: 57832

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5
1,4-Dichlorobenzene	DCBd 4	Ave	14355 1187495	29584 1832355	144861 2187419	289977	569022	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
n-Butylbenzene	DCBd 4	Ave	15870 1902978	38698 2930188	218725 3326661	408355	888801	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,2-Dichlorobenzene	DCBd 4	Ave	12873 1152915	27344 1768141	143813 2080580	282319	572071	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,2-Dibromo-3-Chloropropane	DCBd 4	Ave	1683 206406	4295 286949	22950 380957	41982	85539	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,2,4-Trichlorobenzene	DCBd 4	Ave	8280 673976	14830 899204	77534 1243231	139512	280319	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Hexachlorobutadiene	DCBd 4	Lin1	3581 244373	6148 342826	27773 465852	49088	104077	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Naphthalene	DCBd 4	Ave	22904 2378356	48575 3047517	270015 4209448	470264	959515	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
1,2,3-Trichlorobenzene	DCBd 4	Ave	7006 619750	13296 842599	74152 1197429	131236	260445	0.500 40.0	1.00 60.0	5.00 80.0	10.0	20.0
Dibromofluoromethane (Surr)	FB	Ave	++++ 594419	++++ 770621	68389 1043625	117634	289228	++++ 40.0	++++ 60.0	5.00 80.0	10.0	20.0
1,2-Dichloroethane-d4 (Surr)	FB	Ave	++++ 729798	++++ 927672	88950 1255009	143083	345986	++++ 40.0	++++ 60.0	5.00 80.0	10.0	20.0
Toluene-d8 (Surr)	CBNZ d5	Ave	++++ 1808749	++++ 3239682	254761 4317396	458994	858996	++++ 40.0	++++ 60.0	5.00 80.0	10.0	20.0
4-Bromofluorobenzene (Surr)	CBNZ d5	Ave	++++ 712692	++++ 963194	90585 1438809	138527	344224	++++ 40.0	++++ 60.0	5.00 80.0	10.0	20.0

Curve Type Legend:

Ave = Average ISTD
Lin1 = Linear 1/conc ISTD

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279113.D
 Lims ID: std8260 L1
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 16-Jul-2020 17:43:30 ALS Bottle#: 5 Worklist Smp#: 9
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100113-009
 Operator ID: 001904 Instrument ID: A3UX12
 Sublist: chrom-8260_12_h2o*sub2
 Method: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 16-Jul-2020 21:23:41 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1057

First Level Reviewer: laveyt Date: 16-Jul-2020 18:10:46

Compound	Sig	RT (min.)	Exp RT (min.)	Diff RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	98	1086472	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	86	640010	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.970	0.000	95	334969	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111		4.539				ND	ND	U
\$ 5 1,2-Dichloroethane-d4 (Surr)	65		4.823				ND	ND	U
\$ 6 Toluene-d8 (Surr)	98		6.456				ND	ND	U
\$ 7 4-Bromofluorobenzene (Surr)	95		8.858				ND	ND	U
9 Dichlorodifluoromethane	85	1.392	1.403	-0.011	95	6491	0.5000	0.3825	
10 Chloromethane	50		1.605				ND	ND	U
11 Butadiene	54	1.640	1.652	-0.012	86	9181	0.5000	0.4591	
12 Vinyl chloride	62	1.687	1.687	0.000	94	8683	0.5000	0.4271	
14 Bromomethane	94	1.948	1.936	0.012	78	5457	0.5000	0.4048	
15 Chloroethane	64	1.983	1.995	-0.012	93	5911	0.5000	0.3994	
16 Dichlorofluoromethane	67	2.173	2.184	-0.011	94	12695	0.5000	0.4109	
17 Trichlorofluoromethane	101	2.173	2.184	-0.011	87	10566	0.5000	0.4444	
19 Ethyl ether	59	2.433	2.445	-0.012	91	6641	0.5000	0.4025	
20 Acrolein	56	2.551	2.563	-0.012	96	3163	2.50	2.22	
21 1,1-Dichloroethene	61	2.622	2.634	-0.012	94	8937	0.5000	0.4091	
22 112TCTFE	101	2.670	2.670	0.000	85	4626	0.5000	0.3605	
23 Acetone	43		2.693				ND	ND	U
24 Iodomethane	142	2.764	2.776	-0.012	95	8607	0.5000	0.3873	
25 Carbon disulfide	76	2.812	2.823	-0.011	99	20354	0.5000	0.4628	
27 3-Chloro-1-propene	41	2.942	2.954	-0.012	89	10788	0.5000	0.4404	
28 Methyl acetate	43	2.965	2.977	-0.012	96	14733	1.00	0.8847	
29 Methylene Chloride	49	3.048	3.060	-0.012	86	8975	0.5000	0.4496	
30 2-Methyl-2-propanol	59		3.167				ND	ND	U
31 Acrylonitrile	53	3.273	3.285	-0.012	99	38417	5.00	4.45	
32 trans-1,2-Dichloroethene	61	3.285	3.297	-0.012	67	9045	0.5000	0.4314	
33 Methyl tert-butyl ether	73	3.285	3.297	-0.012	95	20171	0.5000	0.4191	
34 Hexane	57		3.522				ND	ND	U
35 1,1-Dichloroethane	63	3.640	3.652	-0.012	92	10688	0.5000	0.3825	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
36 Vinyl acetate	43		3.699				ND	ND	U
41 cis-1,2-Dichloroethene	96	4.137	4.137	0.000	80	9160	0.5000	0.4685	
40 2,2-Dichloropropane	77	4.137	4.137	0.000	58	8366	0.5000	0.4367	
42 2-Butanone (MEK)	72	4.149	4.149	0.000	99	3292	1.00	0.9601	
46 Chlorobromomethane	49	4.326	4.338	-0.012	96	7517	0.5000	0.4729	
47 Tetrahydrofuran	42	4.373	4.374	-0.001	91	9909	1.00	1.13	
48 Chloroform	83	4.397	4.409	-0.012	94	13172	0.5000	0.4762	
49 1,1,1-Trichloroethane	97	4.551	4.551	0.000	95	10524	0.5000	0.4799	
50 Cyclohexane	84	4.598	4.598	0.000	89	13162	0.5000	0.5070	
51 1,1-Dichloropropene	75	4.681	4.693	-0.012	92	10867	0.5000	0.4869	
52 Carbon tetrachloride	117	4.693	4.693	0.000	74	7731	0.5000	0.4328	
53 Isobutyl alcohol	41	4.788	4.788	0.000	93	11663	12.5	13.3	
54 Benzene	78	4.859	4.870	-0.011	96	33425	0.5000	0.5012	
55 1,2-Dichloroethane	62	4.882	4.882	0.000	95	11198	0.5000	0.5168	
57 n-Heptane	57		5.083				ND	ND	U
59 Trichloroethene	130	5.403	5.403	0.000	94	6788	0.5000	0.4501	
61 Methylcyclohexane	83	5.569	5.569	0.000	86	13314	0.5000	0.5043	
62 1,2-Dichloropropane	63	5.592	5.604	-0.012	93	7452	0.5000	0.5174	
65 1,4-Dioxane	88		5.711				ND	ND	U
64 Dibromomethane	174	5.699	5.711	-0.012	96	5148	0.5000	0.5035	
66 Dichlorobromomethane	83	5.829	5.829	0.000	95	8768	0.5000	0.4873	
68 2-Chloroethyl vinyl ether	63	6.089	6.089	0.000	92	9938	1.00	0.9162	
69 cis-1,3-Dichloropropene	75	6.219	6.219	0.000	95	10714	0.5000	0.4700	
70 4-Methyl-2-pentanone (MIBK)	43	6.350	6.350	0.000	95	23654	1.00	1.00	
71 Toluene	91	6.503	6.515	-0.012	99	29652	0.5000	0.5584	
72 trans-1,3-Dichloropropene	75	6.705	6.705	0.000	92	9385	0.5000	0.5455	
74 Ethyl methacrylate	69	6.776	6.776	0.000	86	8596	0.5000	0.4954	
75 1,1,2-Trichloroethane	97	6.870	6.870	0.000	86	5581	0.5000	0.5367	
76 Tetrachloroethene	166	7.000	7.000	0.000	91	7475	0.5000	0.5883	
77 1,3-Dichloropropane	76	7.024	7.024	0.000	92	9610	0.5000	0.4926	
78 2-Hexanone	43		7.095				ND	ND	U
80 Chlorodibromomethane	129	7.225	7.225	0.000	85	4171	0.5000	0.4081	
81 Ethylene Dibromide	107	7.332	7.332	0.000	98	4735	0.5000	0.4405	
83 Chlorobenzene	112	7.781	7.781	0.000	96	15362	0.5000	0.4948	
84 1,1,1,2-Tetrachloroethane	131	7.852	7.852	0.000	86	4578	0.5000	0.4326	
85 Ethylbenzene	106	7.876	7.876	0.000	98	7562	0.5000	0.4436	
86 m-Xylene & p-Xylene	106	7.982	7.983	-0.001	98	8759	0.5000	0.4148	
87 o-Xylene	106	8.361	8.361	0.000	95	9831	0.5000	0.4521	
88 Styrene	104	8.373	8.373	0.000	94	14361	0.5000	0.4114	
89 Bromoform	173	8.550	8.551	-0.001	90	2906	0.5000	0.4125	
90 Isopropylbenzene	105	8.704	8.704	0.000	94	26044	0.5000	0.4779	
92 Bromobenzene	156	9.000	9.000	0.000	88	6103	0.5000	0.4662	
93 1,1,2,2-Tetrachloroethane	83	8.988	9.000	-0.012	85	7751	0.5000	0.4628	
94 1,2,3-Trichloropropane	110	9.036	9.036	0.000	81	2856	0.5000	0.4944	
95 trans-1,4-Dichloro-2-butene	53	9.047	9.048	-0.001	70	2198	0.5000	0.4484	
96 N-Propylbenzene	120	9.095	9.095	0.000	99	6470	0.5000	0.4541	
97 2-Chlorotoluene	126	9.178	9.178	0.000	96	6634	0.5000	0.5274	
98 1,3,5-Trimethylbenzene	105	9.272	9.272	0.000	96	17554	0.5000	0.4179	
99 4-Chlorotoluene	126	9.284	9.284	0.000	97	6491	0.5000	0.5030	
102 tert-Butylbenzene	119	9.580	9.580	0.000	92	17511	0.5000	0.4763	
104 1,2,4-Trimethylbenzene	105	9.627	9.627	0.000	97	22303	0.5000	0.5055	
105 sec-Butylbenzene	105	9.793	9.793	0.000	93	27515	0.5000	0.5160	

Compound	Sig	RT (min.)	Exp RT (min.)	Diff RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
106 1,3-Dichlorobenzene	146	9.911	9.911	0.000	96	12678	0.5000	0.5102	
107 4-Isopropyltoluene	119	9.935	9.947	-0.012	95	19526	0.5000	0.4403	
108 1,4-Dichlorobenzene	146	9.994	9.994	0.000	95	14355	0.5000	0.5577	
111 n-Butylbenzene	91	10.337	10.337	0.000	96	15870	0.5000	0.4268	
112 1,2-Dichlorobenzene	146	10.361	10.361	0.000	95	12873	0.5000	0.5220	
113 1,2-Dibromo-3-Chloropropane	157	11.130	11.130	0.000	78	1683	0.5000	0.4302	
115 1,2,4-Trichlorobenzene	180	11.947	11.947	-0.001	87	8280	0.5000	0.6095	
116 Hexachlorobutadiene	225	12.124	12.124	0.000	83	3581	0.5000	0.6319	
117 Naphthalene	128	12.195	12.195	0.000	95	22904	0.5000	0.5091	
118 1,2,3-Trichlorobenzene	180	12.432	12.432	0.000	92	7006	0.5000	0.5598	
S 124 Trihalomethanes, Total	1				0		2.00	1.78	
S 125 Total BTEX	1				0		2.50	2.37	
S 126 1,2-Dichloroethene, Total	96				0			0.9000	
S 127 1,3-Dichloropropene, Total	75				0			1.02	
S 128 Xylenes, Total	106				0		1.00	0.8670	

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

Review Flags

U - Marked Undetected

Reagents:

vm50is_stk_a_00006	Amount Added: 2.00	Units: uL
VMRGAS_00347	Amount Added: 0.40	Units: uL
vmarolistdw_00352	Amount Added: 0.40	Units: uL
vmrprimw_00394	Amount Added: 0.40	Units: uL
vm50ss_00410	Amount Added: 0.40	Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279113.D

Injection Date: 16-Jul-2020 17:43:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: std8260 L1

Worklist Smp#: 9

Client ID:

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

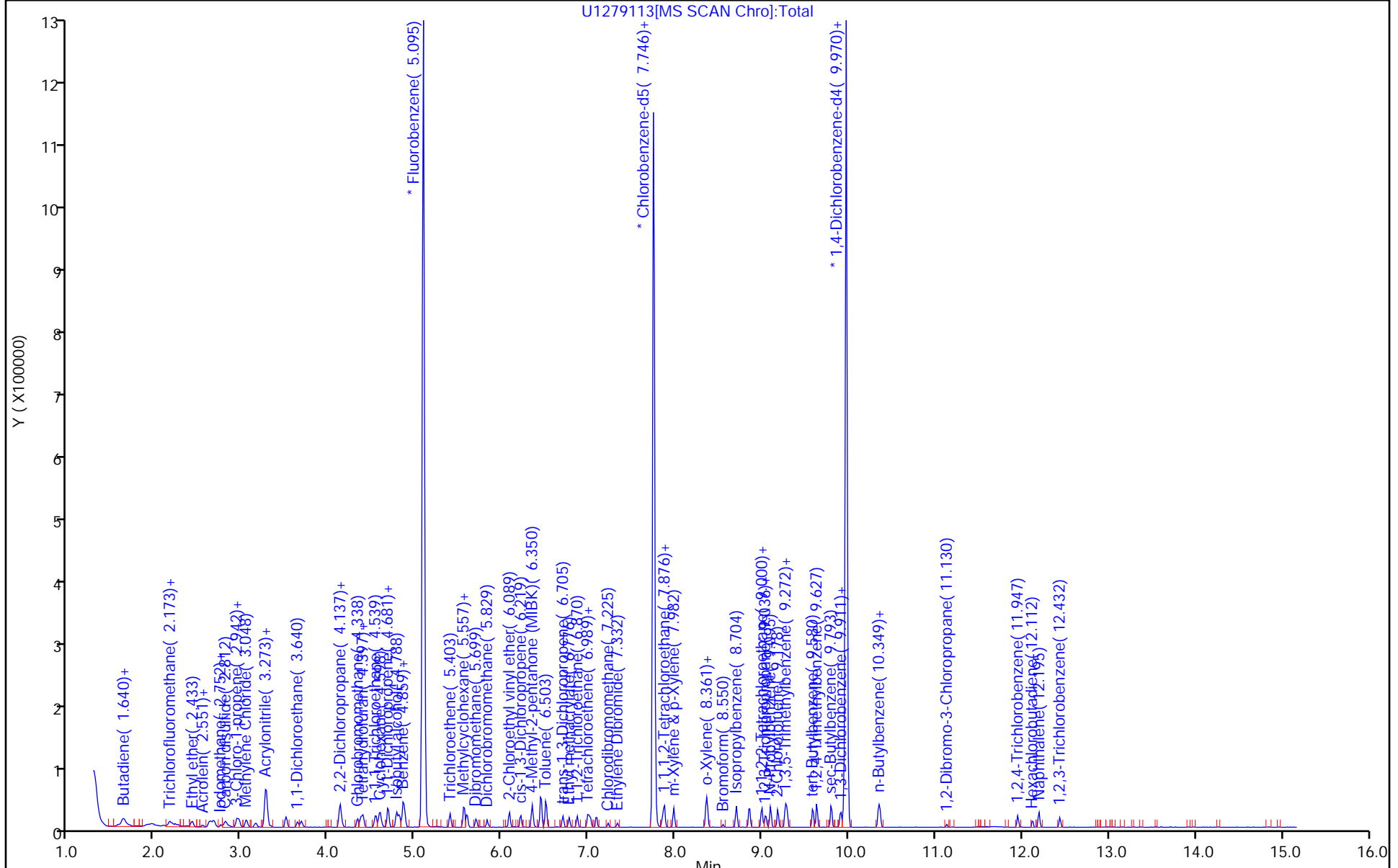
ALS Bottle#: 5

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton

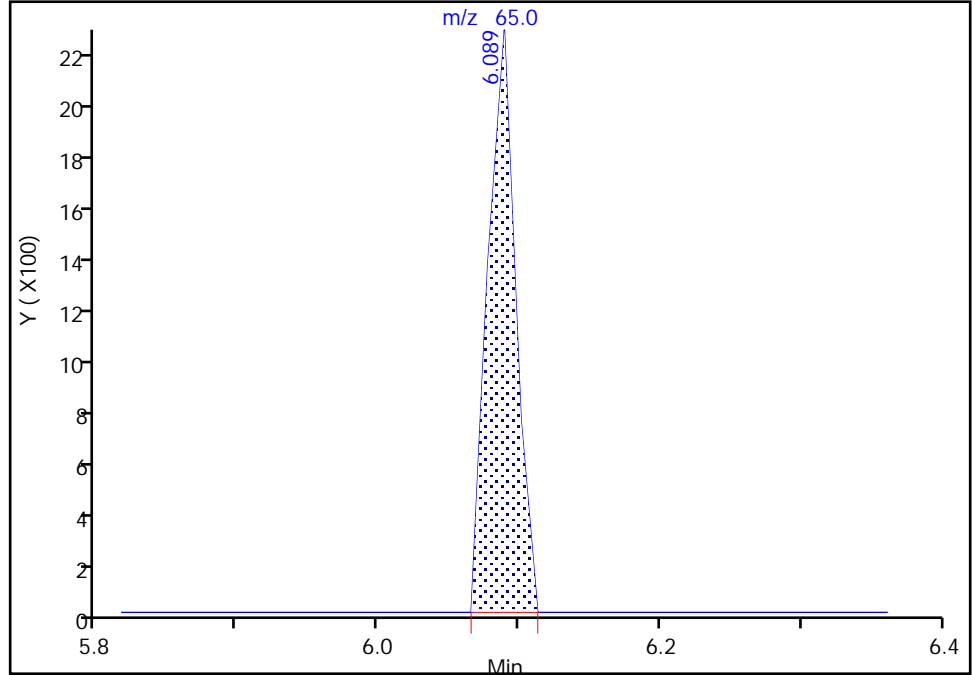
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Injection Date: 16-Jul-2020 17:43:30 Instrument ID: A3UX12
Lims ID: std8260 L1
Client ID:
Operator ID: 001904 ALS Bottle#: 5 Worklist Smp#: 9
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

68 2-Chloroethyl vinyl ether, CAS: 110-75-8

Signal: 2

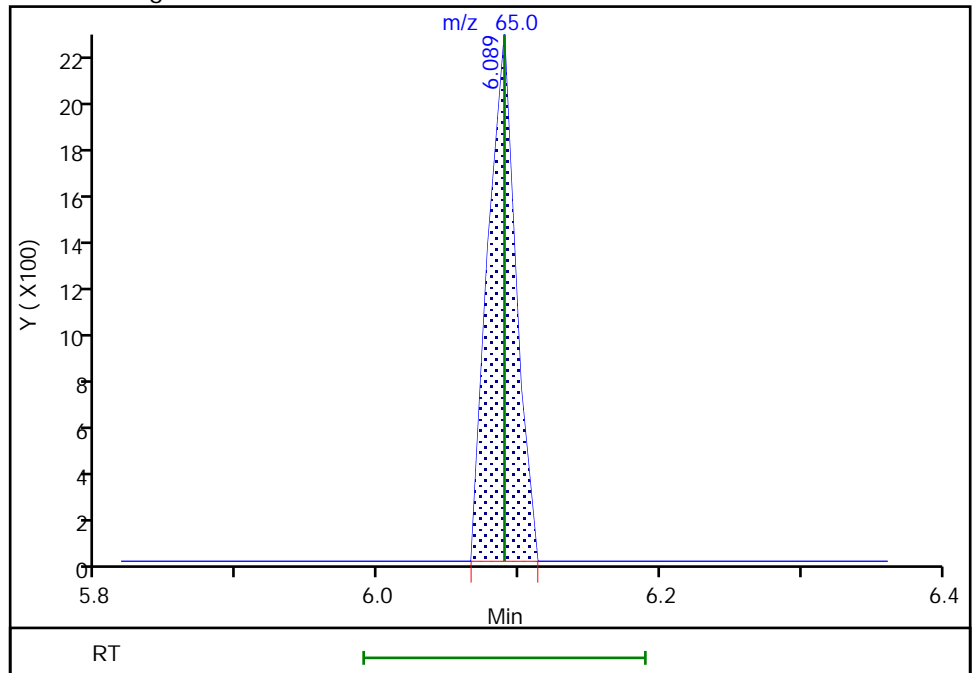
RT: 6.09
Area: 3022
Amount: 0.928679
Amount Units: ug/l

Processing Integration Results



RT: 6.09
Area: 3022
Amount: 0.916162
Amount Units: ug/l

Manual Integration Results



Reviewer: laveyt, 16-Jul-2020 20:34:42

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

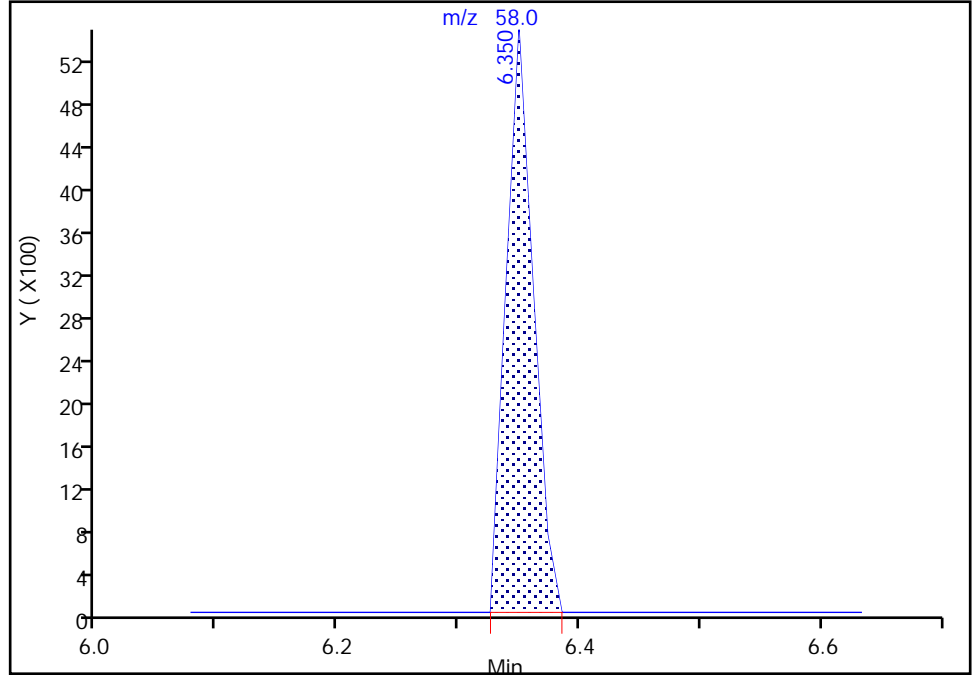
Euofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279113.D
Injection Date: 16-Jul-2020 17:43:30 Instrument ID: A3UX12
Lims ID: std8260 L1
Client ID:
Operator ID: 001904 ALS Bottle#: 5 Worklist Smp#: 9
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

70 4-Methyl-2-pentanone (MIBK), CAS: 108-10-1
Signal: 2

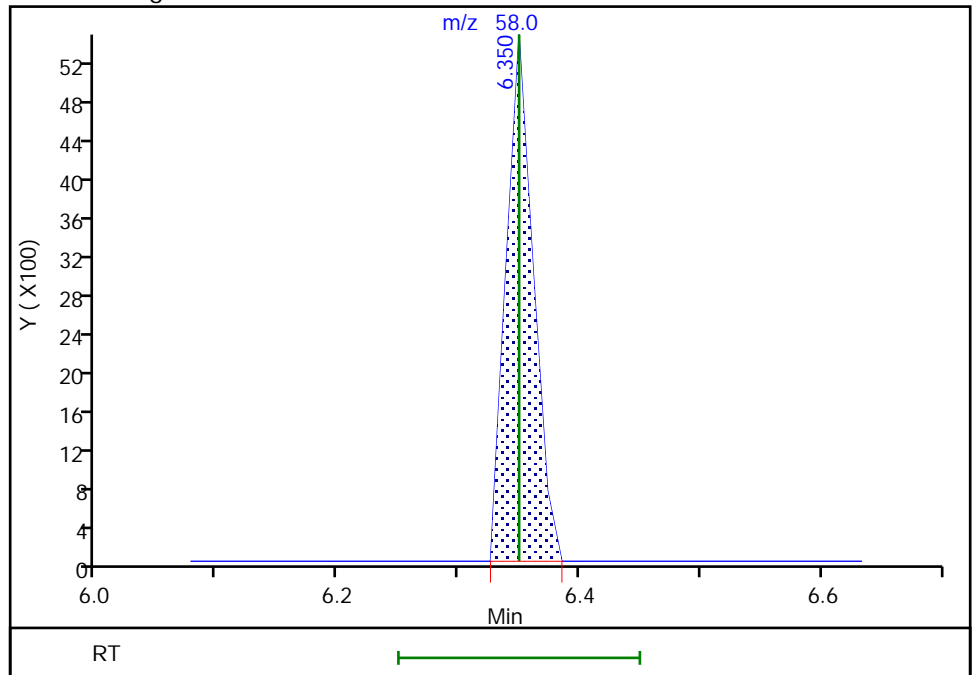
RT: 6.35
Area: 8536
Amount: 1.007725
Amount Units: ug/l

Processing Integration Results



RT: 6.35
Area: 8536
Amount: 1.003046
Amount Units: ug/l

Manual Integration Results



Reviewer: laveyt, 16-Jul-2020 20:54:56
Audit Action: Marked Compound Undetected

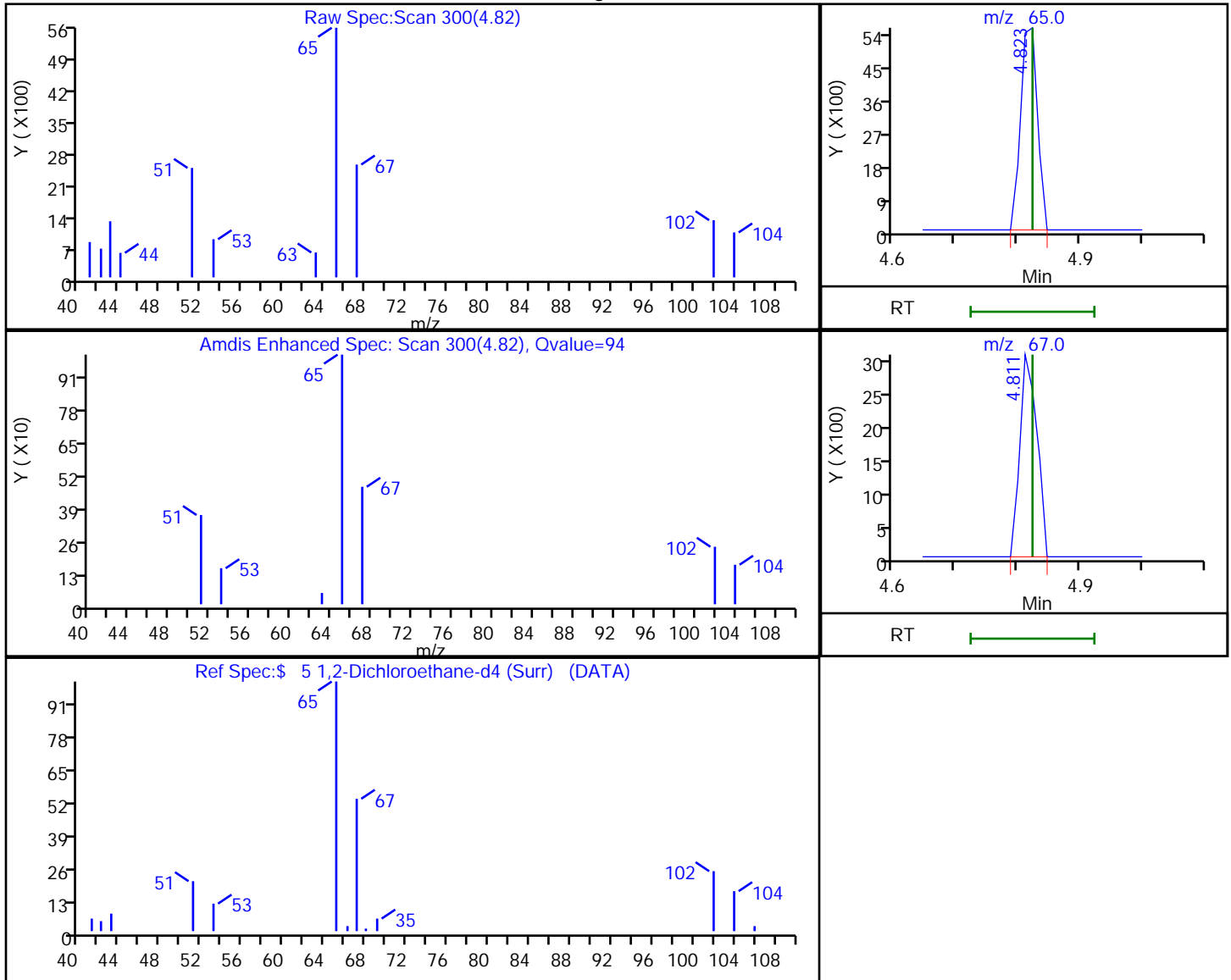
Audit Reason: Invalid Compound ID
Page 329 of 682

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279113.D
 Injection Date: 16-Jul-2020 17:43:30 Instrument ID: A3UX12
 Lims ID: std8260 L1
 Client ID:
 Operator ID: 001904 ALS Bottle#: 5 Worklist Smp#: 9
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
 Column: DB-624 (0.18 mm) Detector: MS SCAN

\$ 5 1,2-Dichloroethane-d4 (Surr), CAS: 17060-07-0

Processing Results



RT	Mass	Response	Amount
4.82	65.00	10451	0.548781
4.81	67.00	5764	

Reviewer: laveyt, 16-Jul-2020 20:28:34

Audit Action: Marked Compound Undetected

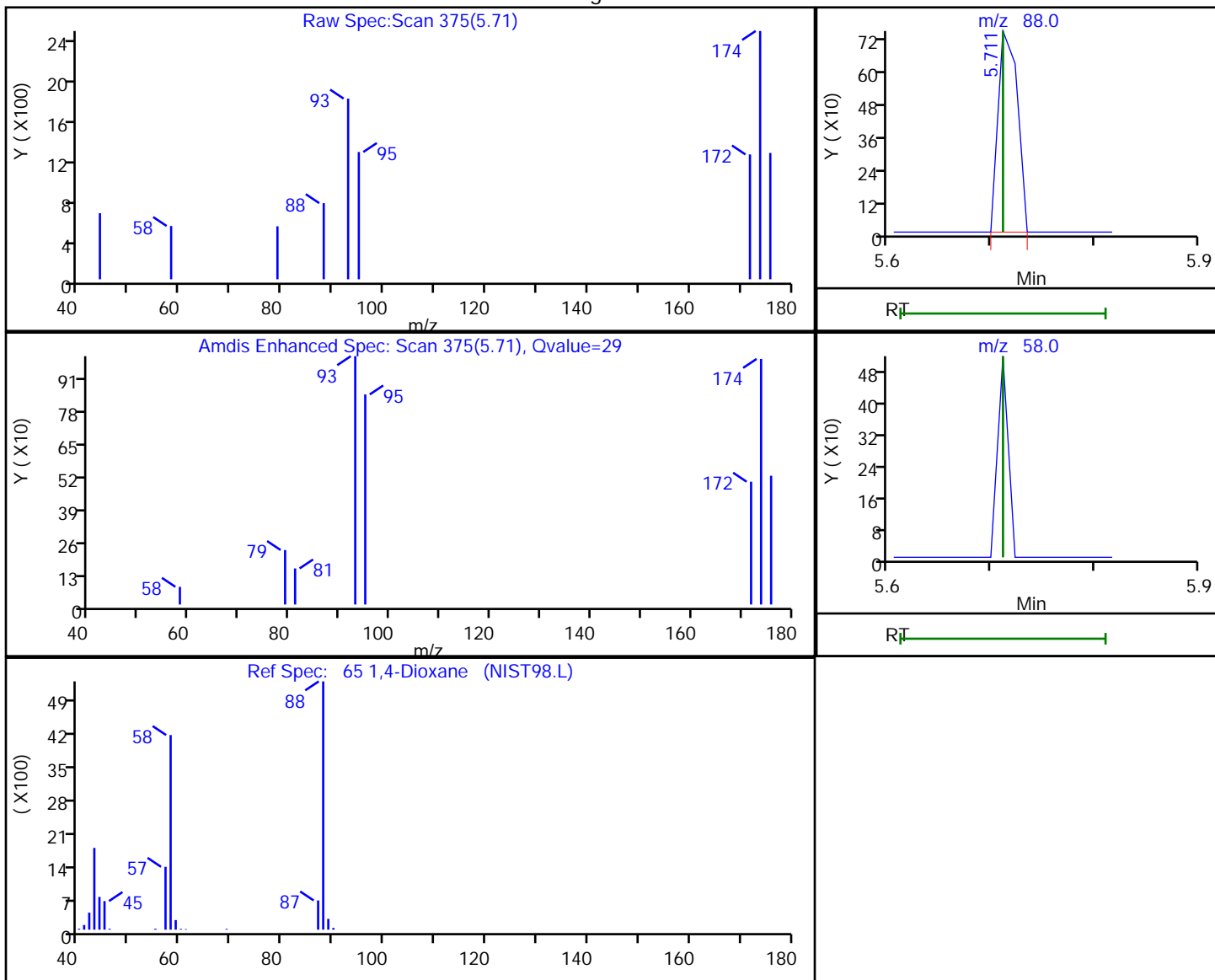
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279113.D
Injection Date: 16-Jul-2020 17:43:30 Instrument ID: A3UX12
Lims ID: std8260 L1
Client ID:
Operator ID: 001904 ALS Bottle#: 5 Worklist Smp#: 9
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

65 1,4-Dioxane, CAS: 123-91-1

Processing Results



RT	Mass	Response	Amount
5.71	88.00	968	6.093216
5.71	58.00	0	

Reviewer: laveyt, 16-Jul-2020 20:33:36

Audit Action: Marked Compound Undetected

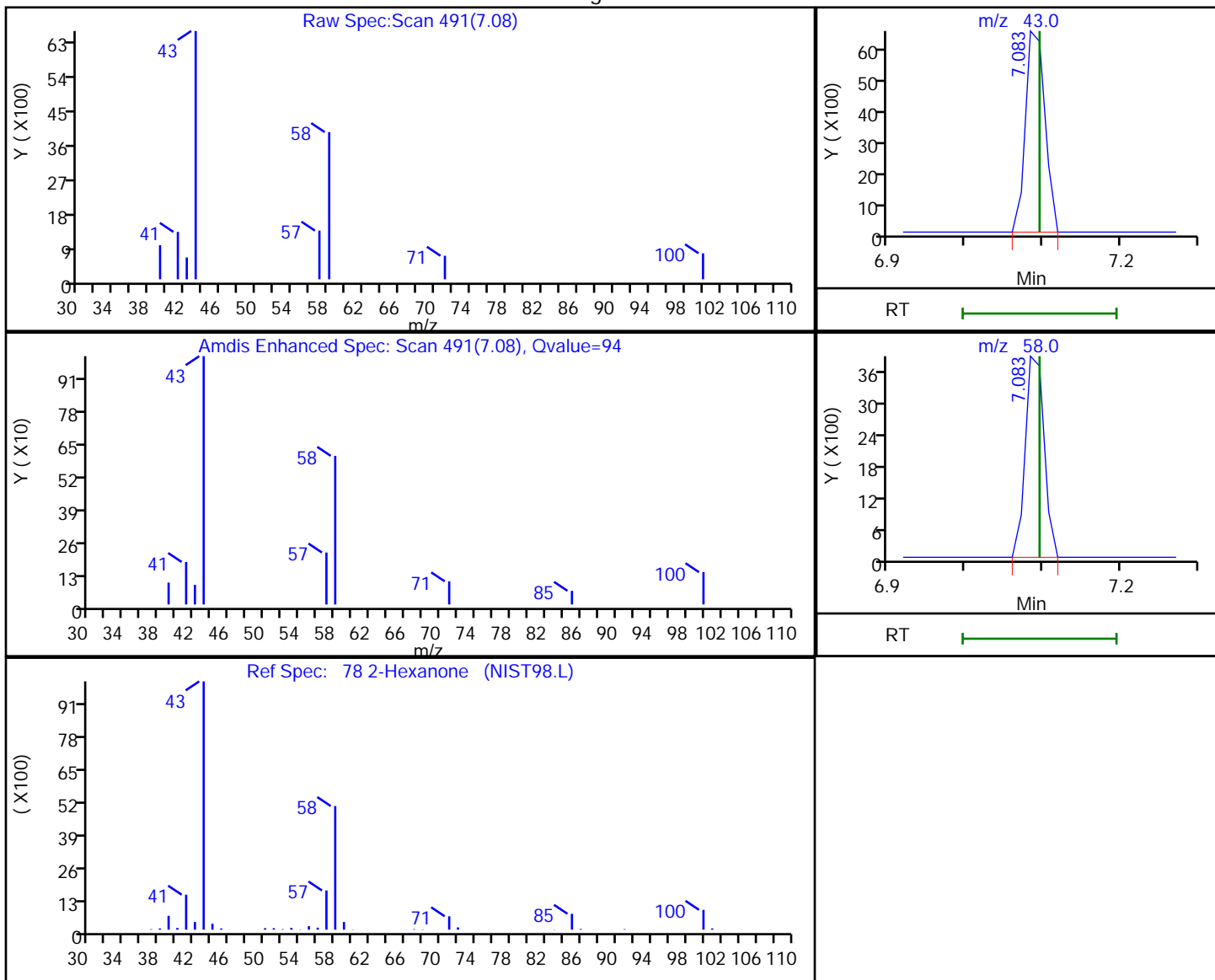
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279113.D
Injection Date: 16-Jul-2020 17:43:30 Instrument ID: A3UX12
Lims ID: std8260 L1
Client ID:
Operator ID: 001904 ALS Bottle#: 5 Worklist Smp#: 9
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

78 2-Hexanone, CAS: 591-78-6

Processing Results



RT	Mass	Response	Amount
7.08	43.00	11432	0.849644
7.08	58.00	6539	

Reviewer: laveyt, 16-Jul-2020 20:55:03

Audit Action: Marked Compound Undetected

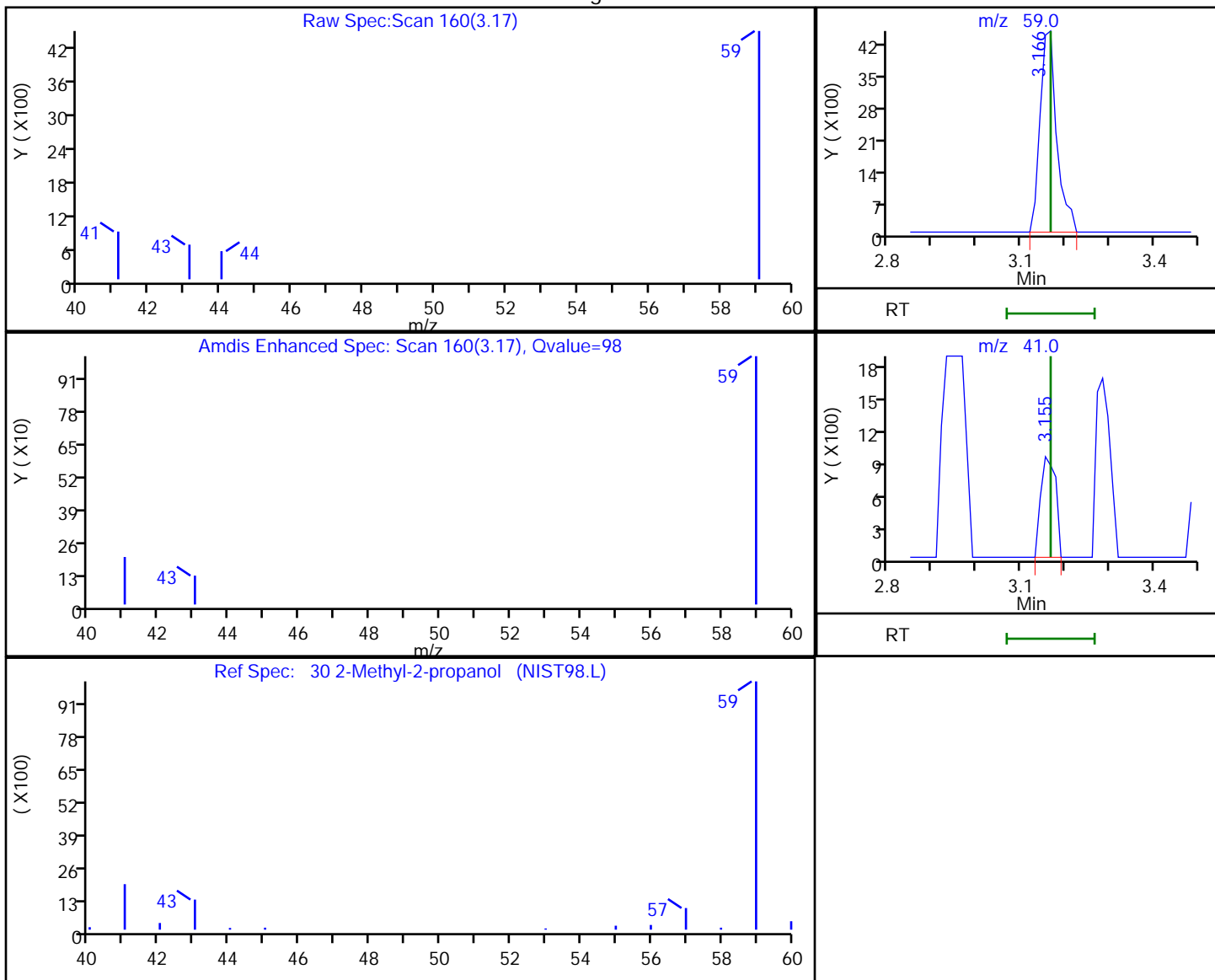
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279113.D
Injection Date: 16-Jul-2020 17:43:30 Instrument ID: A3UX12
Lims ID: std8260 L1
Client ID:
Operator ID: 001904 ALS Bottle#: 5 Worklist Smp#: 9
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

30 2-Methyl-2-propanol, CAS: 75-65-0

Processing Results



RT	Mass	Response	Amount
3.17	59.00	11702	5.577747
3.15	41.00	2196	

Reviewer: laveyt, 16-Jul-2020 21:11:20

Audit Action: Marked Compound Undetected

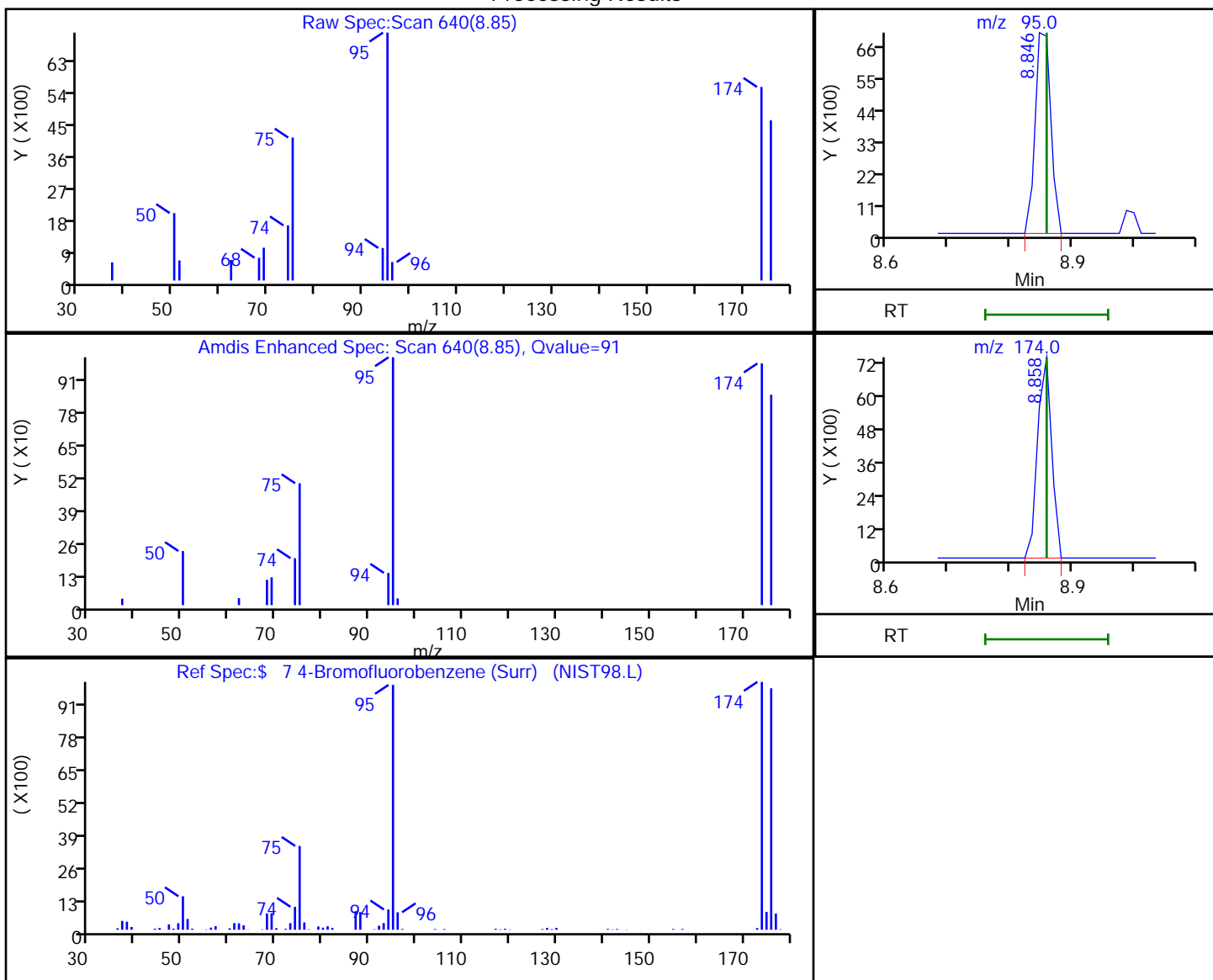
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279113.D
 Injection Date: 16-Jul-2020 17:43:30 Instrument ID: A3UX12
 Lims ID: std8260 L1
 Client ID:
 Operator ID: 001904 ALS Bottle#: 5 Worklist Smp#: 9
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
 Column: DB-624 (0.18 mm) Detector: MS SCAN

\$ 7 4-Bromofluorobenzene (Surr), CAS: 460-00-4

Processing Results



RT	Mass	Response	Amount
8.85	95.00	12505	0.601023
8.86	174.00	11586	

Reviewer: laveyt, 16-Jul-2020 20:28:37

Audit Action: Marked Compound Undetected

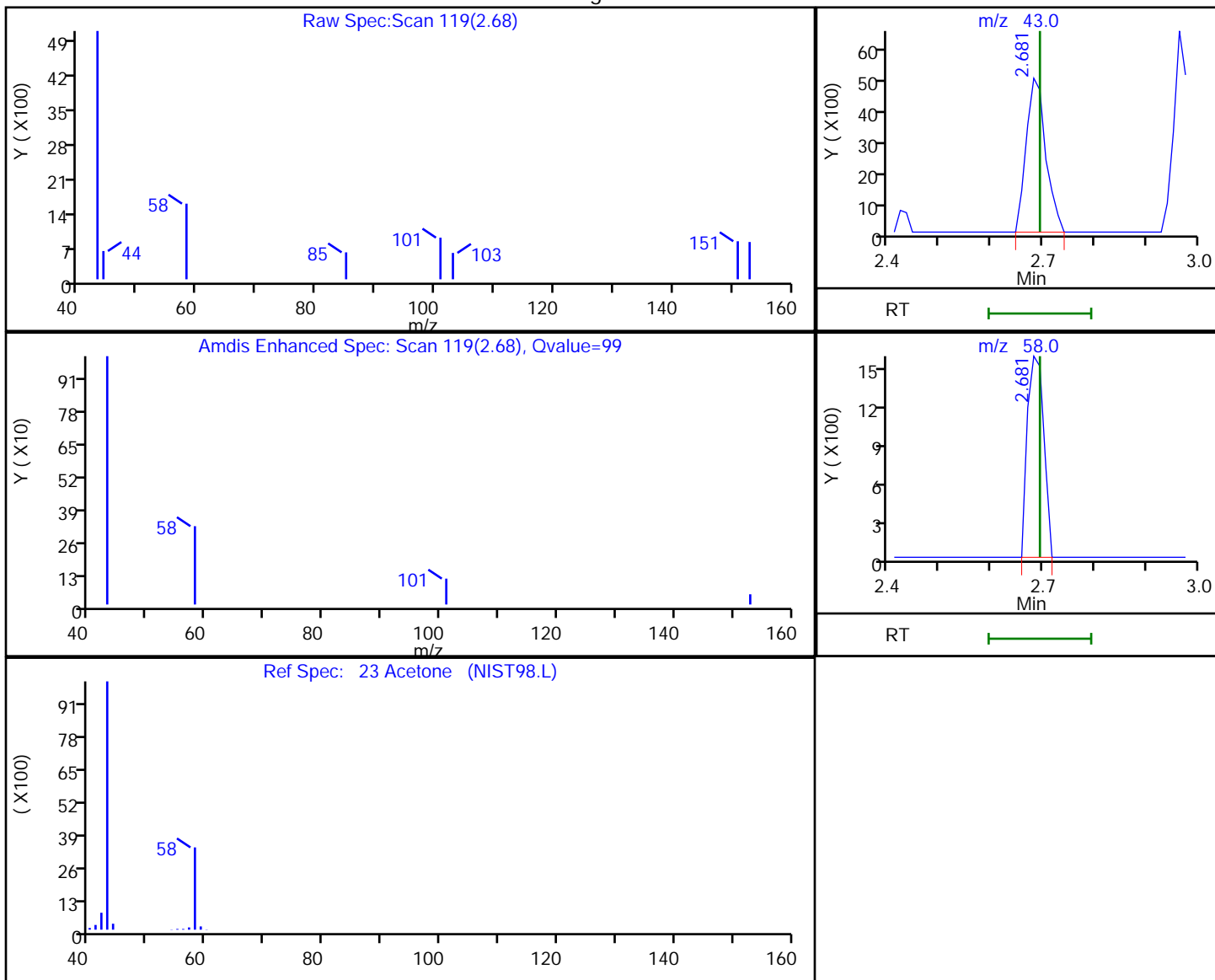
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279113.D
Injection Date: 16-Jul-2020 17:43:30 Instrument ID: A3UX12
Lims ID: std8260 L1
Client ID:
Operator ID: 001904 ALS Bottle#: 5 Worklist Smp#: 9
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

23 Acetone, CAS: 67-64-1

Processing Results



RT	Mass	Response	Amount
2.68	43.00	13251	1.316877
2.68	58.00	3390	

Reviewer: laveyt, 16-Jul-2020 18:54:41

Audit Action: Marked Compound Undetected

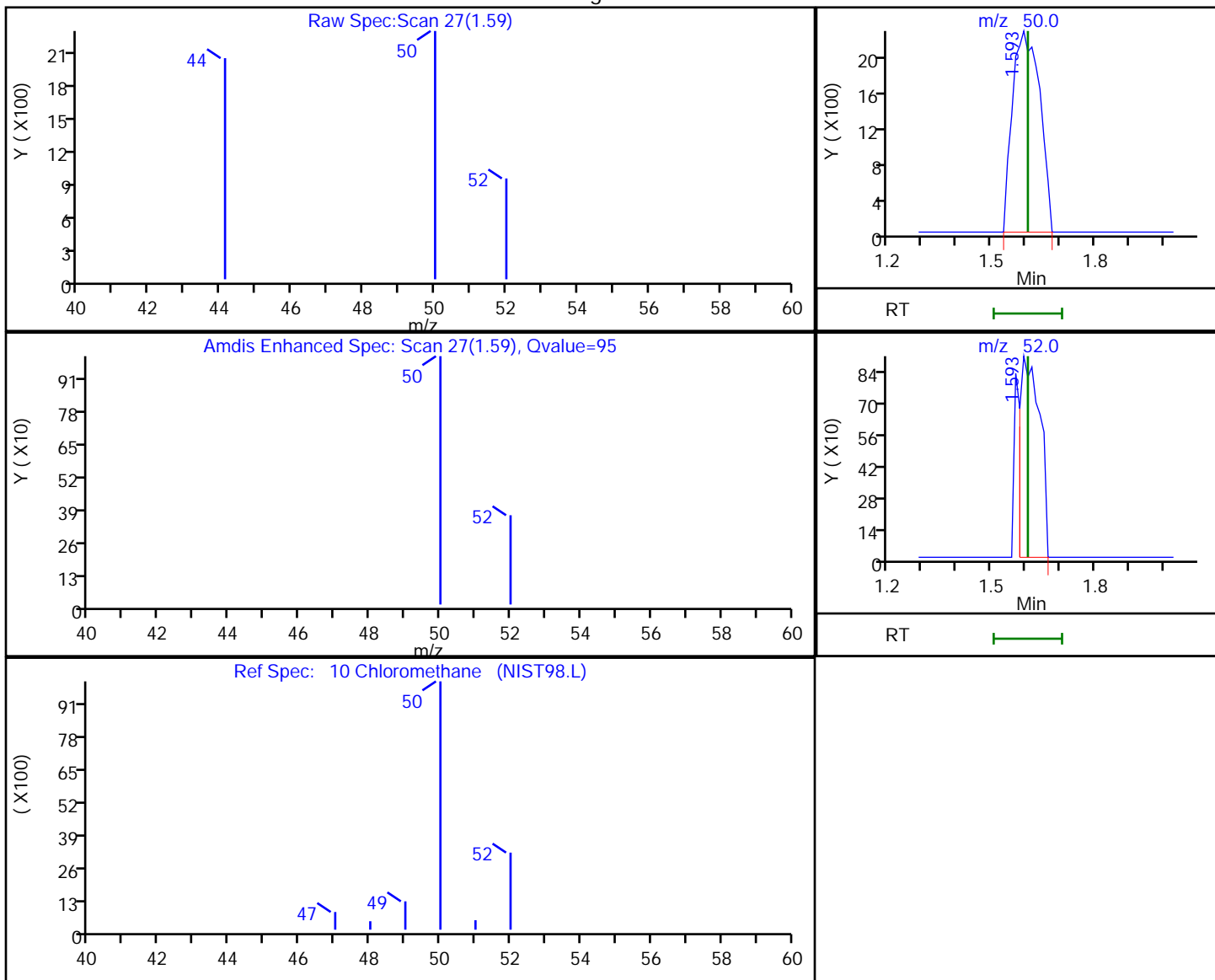
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279113.D
Injection Date: 16-Jul-2020 17:43:30 Instrument ID: A3UX12
Lims ID: std8260 L1
Client ID:
Operator ID: 001904 ALS Bottle#: 5 Worklist Smp#: 9
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

10 Chloromethane, CAS: 74-87-3

Processing Results



RT	Mass	Response	Amount
1.59	50.00	12359	0.432887
1.59	52.00	3652	

Reviewer: laveyt, 16-Jul-2020 20:36:38

Audit Action: Marked Compound Undetected

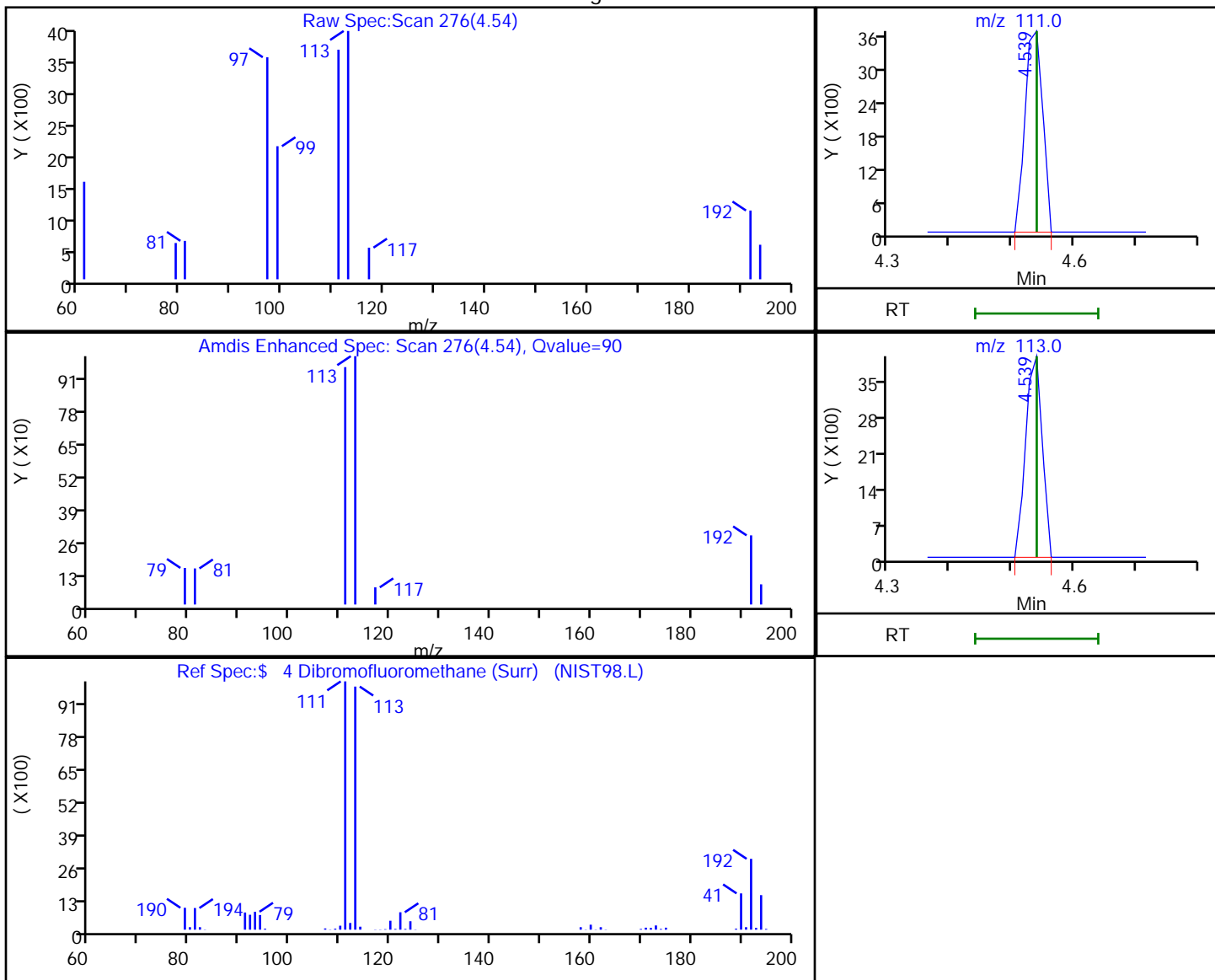
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279113.D
Injection Date: 16-Jul-2020 17:43:30 Instrument ID: A3UX12
Lims ID: std8260 L1
Client ID:
Operator ID: 001904 ALS Bottle#: 5 Worklist Smp#: 9
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

\$ 4 Dibromofluoromethane (Surr), CAS: 1868-53-7

Processing Results



RT	Mass	Response	Amount
4.54	111.00	7389	0.502294
4.54	113.00	7459	

Reviewer: laveyt, 16-Jul-2020 20:28:31

Audit Action: Marked Compound Undetected

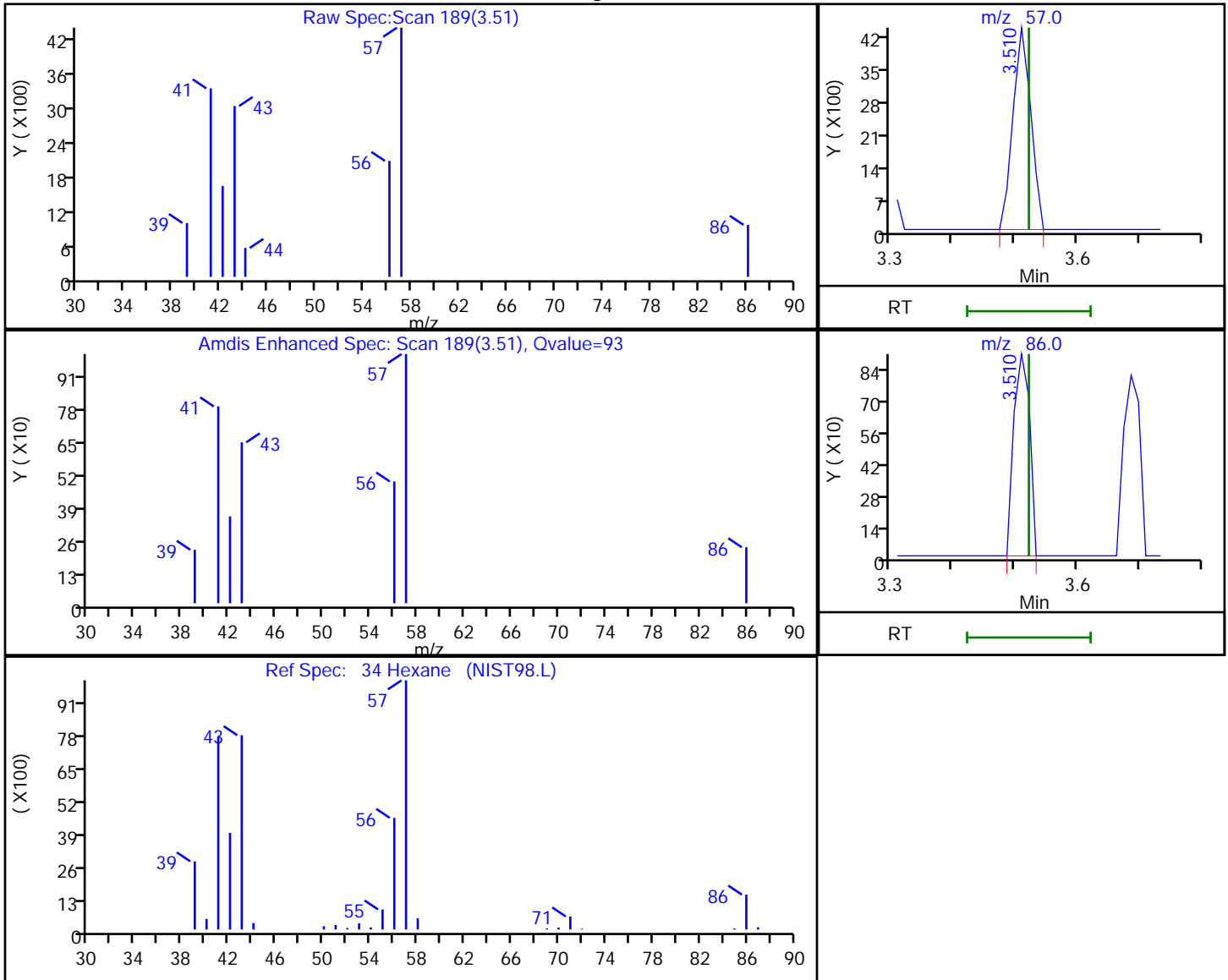
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279113.D
Injection Date: 16-Jul-2020 17:43:30 Instrument ID: A3UX12
Lims ID: std8260 L1
Client ID:
Operator ID: 001904 ALS Bottle#: 5 Worklist Smp#: 9
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

34 Hexane, CAS: 110-54-3

Processing Results



RT	Mass	Response	Amount
3.51	57.00	8658	0.390696
3.51	86.00	1601	

Reviewer: laveyt, 16-Jul-2020 20:37:09

Audit Action: Marked Compound Undetected

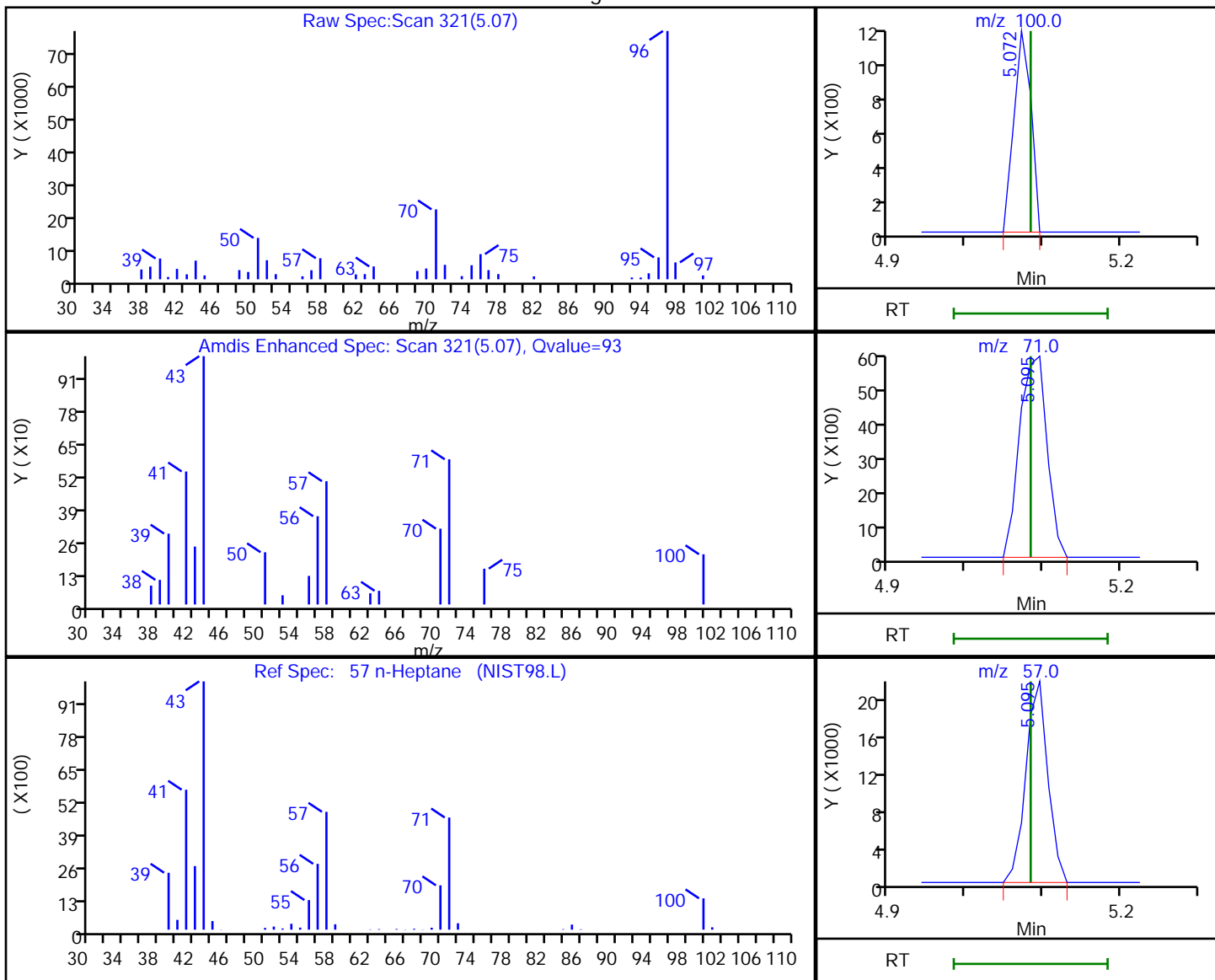
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279113.D
 Injection Date: 16-Jul-2020 17:43:30 Instrument ID: A3UX12
 Lims ID: std8260 L1
 Client ID:
 Operator ID: 001904 ALS Bottle#: 5 Worklist Smp#: 9
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
 Column: DB-624 (0.18 mm) Detector: MS SCAN

57 n-Heptane, CAS: 142-82-5

Processing Results



RT	Mass	Response	Amount
5.07	100.00	1822	
5.10	71.00	14789	
5.10	57.00	43282	0.854800

Reviewer: laveyt, 16-Jul-2020 18:56:12

Audit Action: Marked Compound Undetected

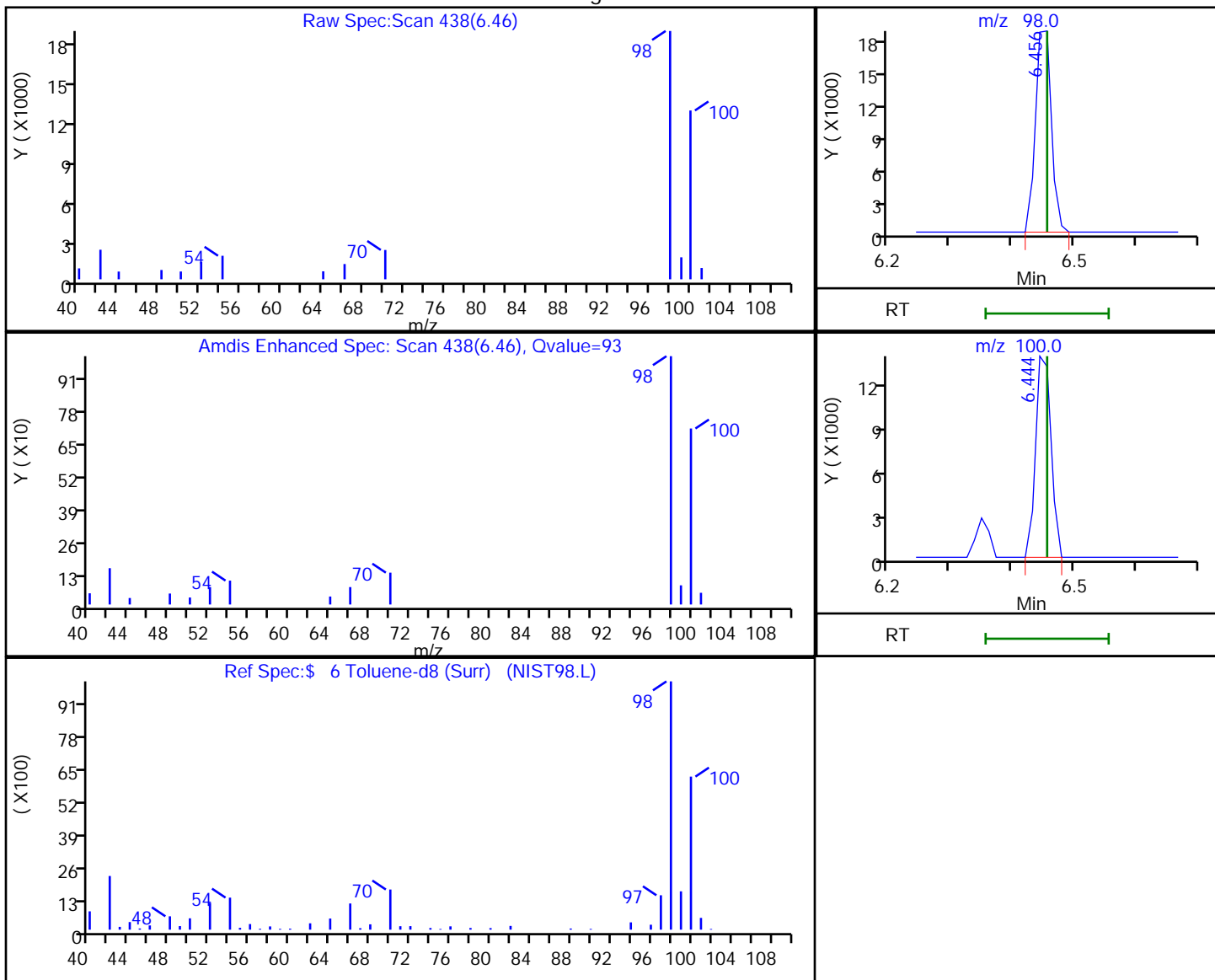
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279113.D
Injection Date: 16-Jul-2020 17:43:30 Instrument ID: A3UX12
Lims ID: std8260 L1
Client ID:
Operator ID: 001904 ALS Bottle#: 5 Worklist Smp#: 9
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

\$ 6 Toluene-d8 (Surr), CAS: 2037-26-5

Processing Results



RT	Mass	Response	Amount
6.46	98.00	32928	0.639609
6.44	100.00	22734	

Reviewer: laveyt, 16-Jul-2020 18:52:03

Audit Action: Marked Compound Undetected

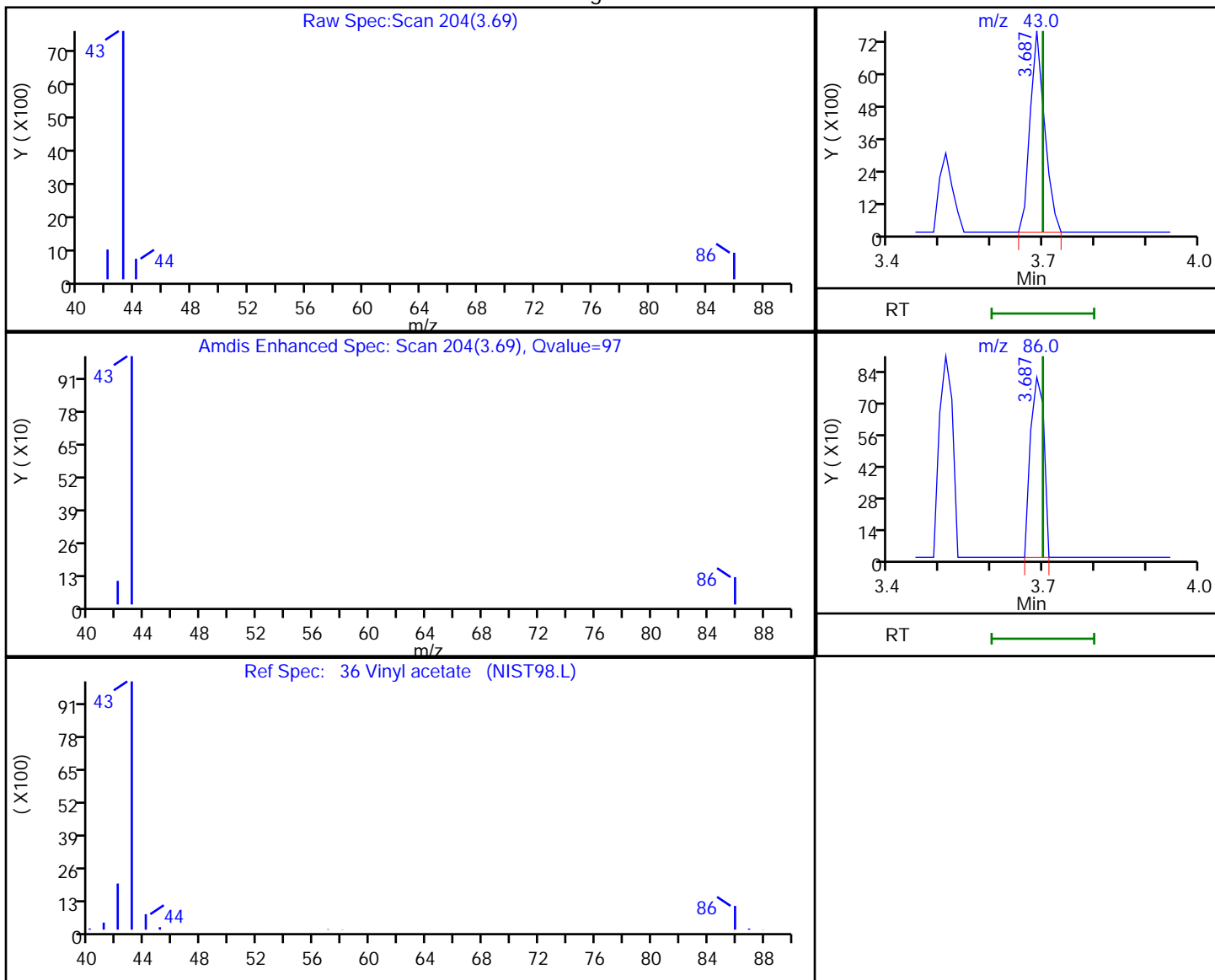
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279113.D
 Injection Date: 16-Jul-2020 17:43:30 Instrument ID: A3UX12
 Lims ID: std8260 L1
 Client ID:
 Operator ID: 001904 ALS Bottle#: 5 Worklist Smp#: 9
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
 Column: DB-624 (0.18 mm) Detector: MS SCAN

36 Vinyl acetate, CAS: 108-05-4

Processing Results



RT	Mass	Response	Amount
3.69	43.00	14773	0.396541
3.69	86.00	1467	

Reviewer: laveyt, 16-Jul-2020 20:37:02

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279114.D
 Lims ID: std8260 L2
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 16-Jul-2020 18:05:30 ALS Bottle#: 6 Worklist Smp#: 10
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100113-010
 Operator ID: 001904 Instrument ID: A3UX12
 Sublist: chrom-8260_12_h2o*sub2
 Method: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 16-Jul-2020 21:23:48 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1057

First Level Reviewer: laveyt

Date: 16-Jul-2020 18:44:20

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1013893	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	604161	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.970	0.000	95	366234	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111		4.539				ND	ND	U
\$ 5 1,2-Dichloroethane-d4 (Surr)	65		4.823				ND	ND	U
\$ 6 Toluene-d8 (Surr)	98		6.456				ND	ND	U
\$ 7 4-Bromofluorobenzene (Surr)	95		8.858				ND	ND	U
9 Dichlorodifluoromethane	85	1.415	1.403	0.012	96	12858	1.00	0.8119	
10 Chloromethane	50	1.605	1.605	0.000	93	22907	1.00	0.5947	
11 Butadiene	54	1.652	1.652	0.000	86	16845	1.00	0.9027	
12 Vinyl chloride	62	1.687	1.687	0.000	95	17064	1.00	0.8994	
14 Bromomethane	94	1.936	1.936	0.000	86	11010	1.00	0.8753	
15 Chloroethane	64	1.995	1.995	0.000	98	11645	1.00	0.8432	
16 Dichlorofluoromethane	67	2.184	2.184	0.000	96	26597	1.00	0.9224	
17 Trichlorofluoromethane	101	2.208	2.184	0.024	88	22183	1.00	1.00	
19 Ethyl ether	59	2.445	2.445	0.000	92	14820	1.00	0.9625	
20 Acrolein	56	2.563	2.563	0.000	94	6778	5.00	5.11	
21 1,1-Dichloroethene	61	2.634	2.634	0.000	96	21022	1.00	1.03	
22 112TCTFE	101	2.670	2.670	0.000	88	11895	1.00	0.99	
23 Acetone	43	2.693	2.693	0.000	99	16108	2.00	1.08	
24 Iodomethane	142	2.776	2.776	0.000	97	19223	1.00	0.9270	
25 Carbon disulfide	76	2.823	2.823	0.000	99	37146	1.00	0.9050	
27 3-Chloro-1-propene	41	2.954	2.954	0.000	91	20839	1.00	0.9116	
28 Methyl acetate	43	2.977	2.977	0.000	98	28394	2.00	1.83	
29 Methylene Chloride	49	3.060	3.060	0.000	91	17390	1.00	0.9336	
30 2-Methyl-2-propanol	59	3.167	3.167	0.000	99	17528	10.0	9.10	
31 Acrylonitrile	53	3.285	3.285	0.000	98	67455	10.0	8.38	
32 trans-1,2-Dichloroethene	61	3.297	3.297	0.000	65	16647	1.00	0.8509	
33 Methyl tert-butyl ether	73	3.297	3.297	0.000	96	39426	1.00	0.8777	
34 Hexane	57	3.522	3.522	0.000	92	17358	1.00	0.8009	
35 1,1-Dichloroethane	63	3.652	3.652	0.000	96	23537	1.00	0.9027	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
36 Vinyl acetate	43	3.699	3.699	0.000	97	28476	1.00	0.7752	
41 cis-1,2-Dichloroethene	96	4.137	4.137	0.000	83	17440	1.00	0.9559	
40 2,2-Dichloropropane	77	4.137	4.137	0.000	60	16418	1.00	0.9184	
42 2-Butanone (MEK)	72	4.160	4.149	0.011	99	5020	2.00	1.57	
46 Chlorobromomethane	49	4.338	4.338	0.000	96	14016	1.00	0.9449	
47 Tetrahydrofuran	42	4.373	4.374	-0.001	86	14616	2.00	1.79	
48 Chloroform	83	4.409	4.409	0.000	93	25004	1.00	0.9686	
49 1,1,1-Trichloroethane	97	4.551	4.551	0.000	98	18522	1.00	0.9050	
50 Cyclohexane	84	4.598	4.598	0.000	91	25331	1.00	1.05	
52 Carbon tetrachloride	117	4.693	4.693	0.000	79	15810	1.00	0.9485	
51 1,1-Dichloropropene	75	4.693	4.693	0.000	92	19325	1.00	0.9279	
53 Isobutyl alcohol	41	4.788	4.788	0.000	94	19594	25.0	24.0	
54 Benzene	78	4.870	4.870	0.000	96	62890	1.00	1.01	
55 1,2-Dichloroethane	62	4.882	4.882	0.000	97	19689	1.00	0.9736	
57 n-Heptane	57	5.095	5.083	0.012	84	44411	1.00	1.23	
59 Trichloroethene	130	5.403	5.403	0.000	97	13562	1.00	0.9637	
61 Methylcyclohexane	83	5.569	5.569	0.000	87	25703	1.00	1.04	
62 1,2-Dichloropropane	63	5.604	5.604	0.000	91	12467	1.00	0.9275	
64 Dibromomethane	174	5.711	5.711	0.000	92	7950	1.00	0.8331	
65 1,4-Dioxane	88	5.711	5.711	0.000	32	1282	20.0	7.31	
66 Dichlorobromomethane	83	5.829	5.829	0.000	96	12908	1.00	0.7687	
68 2-Chloroethyl vinyl ether	63	6.089	6.089	0.000	90	14412	2.00	1.42	
69 cis-1,3-Dichloropropene	75	6.219	6.219	0.000	93	15367	1.00	0.7223	
70 4-Methyl-2-pentanone (MIBK)	43	6.350	6.350	0.000	96	33198	2.00	1.51	
71 Toluene	91	6.515	6.515	0.000	97	46282	1.00	0.9233	
72 trans-1,3-Dichloropropene	75	6.705	6.705	0.000	94	14175	1.00	0.8727	
74 Ethyl methacrylate	69	6.776	6.776	0.000	86	14331	1.00	0.8749	
75 1,1,2-Trichloroethane	97	6.870	6.870	0.000	90	8974	1.00	0.9142	
76 Tetrachloroethene	166	7.000	7.000	0.000	95	11469	1.00	0.9562	
77 1,3-Dichloropropane	76	7.024	7.024	0.000	91	18373	1.00	1.00	
78 2-Hexanone	43	7.095	7.095	0.000	95	22216	2.00	1.69	
80 Chlorodibromomethane	129	7.225	7.225	0.000	83	9274	1.00	0.9613	
81 Ethylene Dibromide	107	7.332	7.332	0.000	90	10477	1.00	1.03	
83 Chlorobenzene	112	7.781	7.781	0.000	92	28930	1.00	0.9872	
84 1,1,1,2-Tetrachloroethane	131	7.852	7.852	0.000	92	9310	1.00	0.9319	
85 Ethylbenzene	106	7.876	7.876	0.000	98	16358	1.00	1.02	
86 m-Xylene & p-Xylene	106	7.983	7.983	0.000	98	19083	1.00	0.9574	
87 o-Xylene	106	8.361	8.361	0.000	97	23782	1.00	1.16	
88 Styrene	104	8.373	8.373	0.000	95	37239	1.00	1.13	
89 Bromoform	173	8.550	8.551	-0.001	96	6225	1.00	0.9361	
90 Isopropylbenzene	105	8.704	8.704	0.000	95	55771	1.00	1.08	
93 1,1,2,2-Tetrachloroethane	83	9.000	9.000	0.000	90	19529	1.00	1.07	
92 Bromobenzene	156	9.000	9.000	0.000	92	15468	1.00	1.08	
94 1,2,3-Trichloropropane	110	9.036	9.036	0.000	85	7073	1.00	1.12	
95 trans-1,4-Dichloro-2-butene	53	9.047	9.048	-0.001	70	4494	1.00	0.8385	
96 N-Propylbenzene	120	9.095	9.095	0.000	99	14811	1.00	0.9509	
97 2-Chlorotoluene	126	9.189	9.178	0.011	96	13592	1.00	0.9883	
98 1,3,5-Trimethylbenzene	105	9.272	9.272	0.000	96	43601	1.00	0.9494	
99 4-Chlorotoluene	126	9.284	9.284	0.000	98	13920	1.00	0.9867	
102 tert-Butylbenzene	119	9.580	9.580	0.000	92	39497	1.00	0.9825	
104 1,2,4-Trimethylbenzene	105	9.627	9.627	0.000	96	44707	1.00	0.9269	
105 sec-Butylbenzene	105	9.793	9.793	0.000	94	56787	1.00	0.9740	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
106 1,3-Dichlorobenzene	146	9.911	9.911	0.000	97	28415	1.00	1.05	
107 4-Isopropyltoluene	119	9.935	9.947	-0.012	97	46274	1.00	0.9544	
108 1,4-Dichlorobenzene	146	9.994	9.994	0.000	96	29584	1.00	1.05	
111 n-Butylbenzene	91	10.337	10.337	0.000	98	38698	1.00	0.9519	
112 1,2-Dichlorobenzene	146	10.361	10.361	0.000	97	27344	1.00	1.01	
113 1,2-Dibromo-3-Chloropropane	157	11.130	11.130	0.000	81	4295	1.00	1.00	
115 1,2,4-Trichlorobenzene	180	11.947	11.947	0.000	92	14830	1.00	1.00	
116 Hexachlorobutadiene	225	12.124	12.124	0.000	91	6148	1.00	1.04	
117 Naphthalene	128	12.195	12.195	0.000	97	48575	1.00	0.9875	
118 1,2,3-Trichlorobenzene	180	12.432	12.432	0.000	94	13296	1.00	0.9717	
S 124 Trihalomethanes, Total	1				0		4.00	3.63	
S 125 Total BTEX	1				0		5.00	5.07	
S 126 1,2-Dichloroethene, Total	96				0			1.81	
S 127 1,3-Dichloropropene, Total	75				0			1.60	
S 128 Xylenes, Total	106				0		2.00	2.12	

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

Review Flags

U - Marked Undetected

Reagents:

vm50is_stk_a_00006	Amount Added: 2.00	Units: uL
VMRGAS_00347	Amount Added: 0.80	Units: uL
vmarolistdw_00352	Amount Added: 0.80	Units: uL
vmrprimw_00394	Amount Added: 0.80	Units: uL
vm50ss_00410	Amount Added: 0.80	Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279114.D

Injection Date: 16-Jul-2020 18:05:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: std8260 L2

Worklist Smp#: 10

Client ID:

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

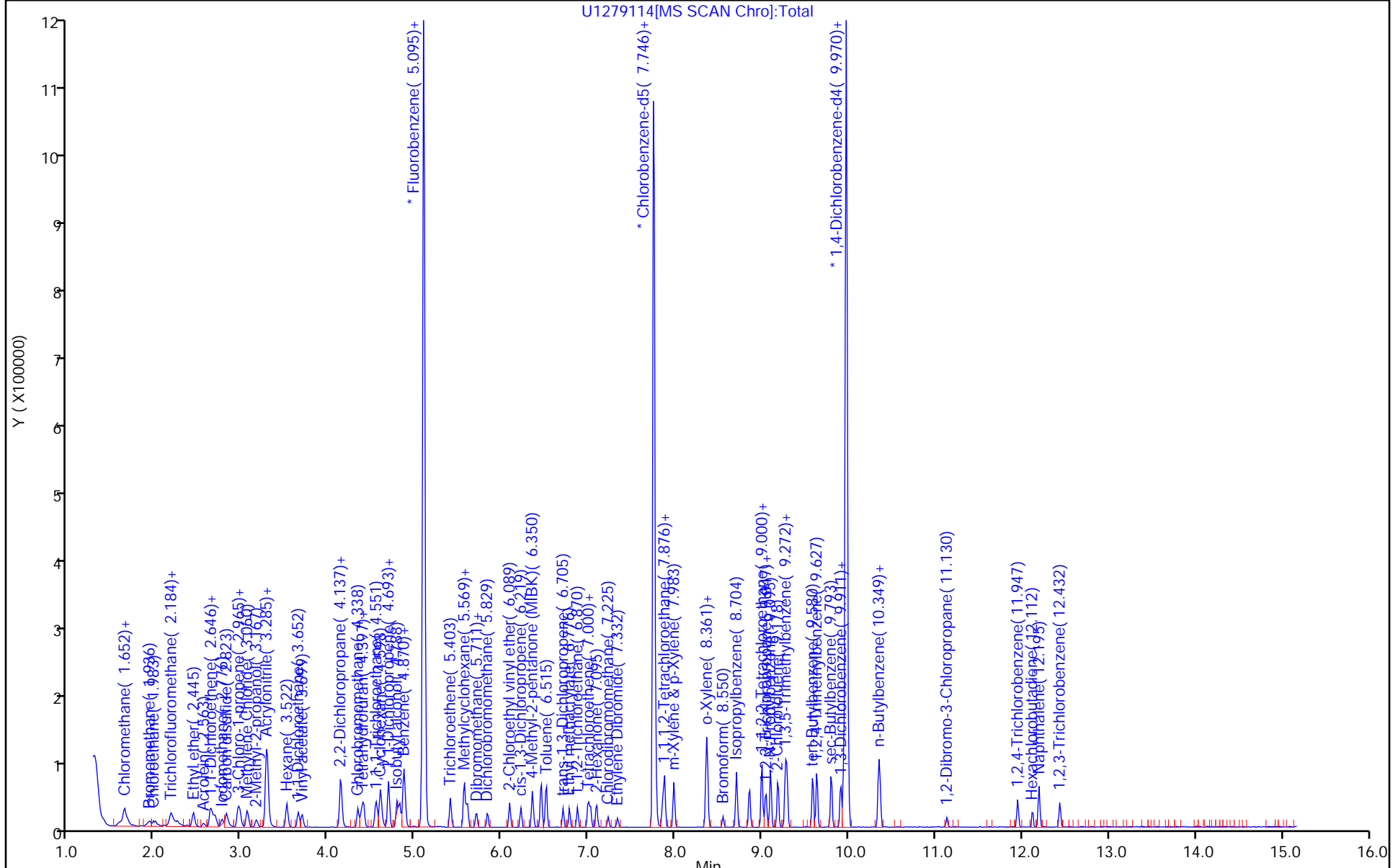
ALS Bottle#: 6

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2

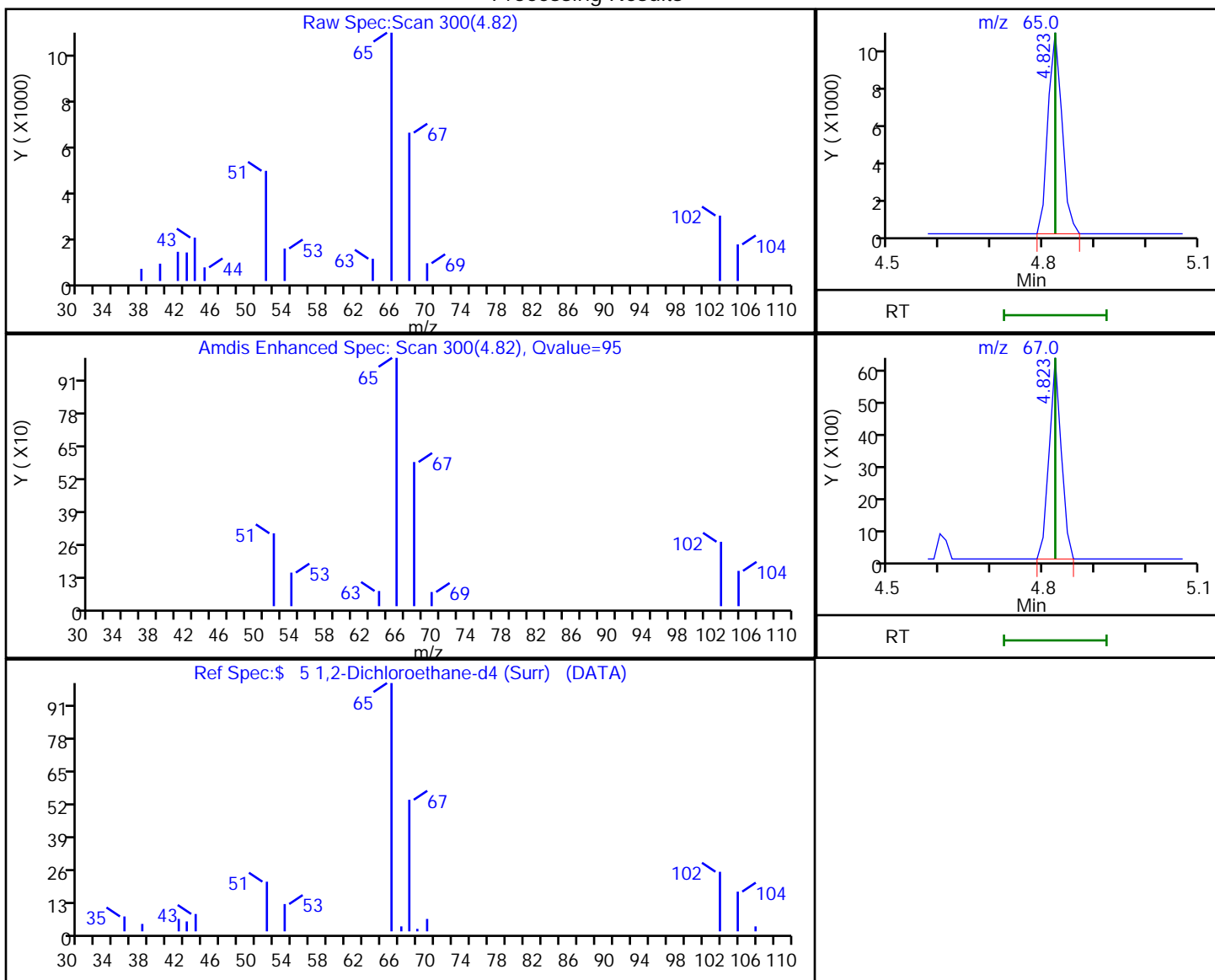


Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279114.D
 Injection Date: 16-Jul-2020 18:05:30 Instrument ID: A3UX12
 Lims ID: std8260 L2
 Client ID:
 Operator ID: 001904 ALS Bottle#: 6 Worklist Smp#: 10
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
 Column: DB-624 (0.18 mm) Detector: MS SCAN

\$ 5 1,2-Dichloroethane-d4 (Surr), CAS: 17060-07-0

Processing Results



RT	Mass	Response	Amount
4.82	65.00	19971	1.142320
4.82	67.00	10329	

Reviewer: laveyt, 16-Jul-2020 20:29:27

Audit Action: Marked Compound Undetected

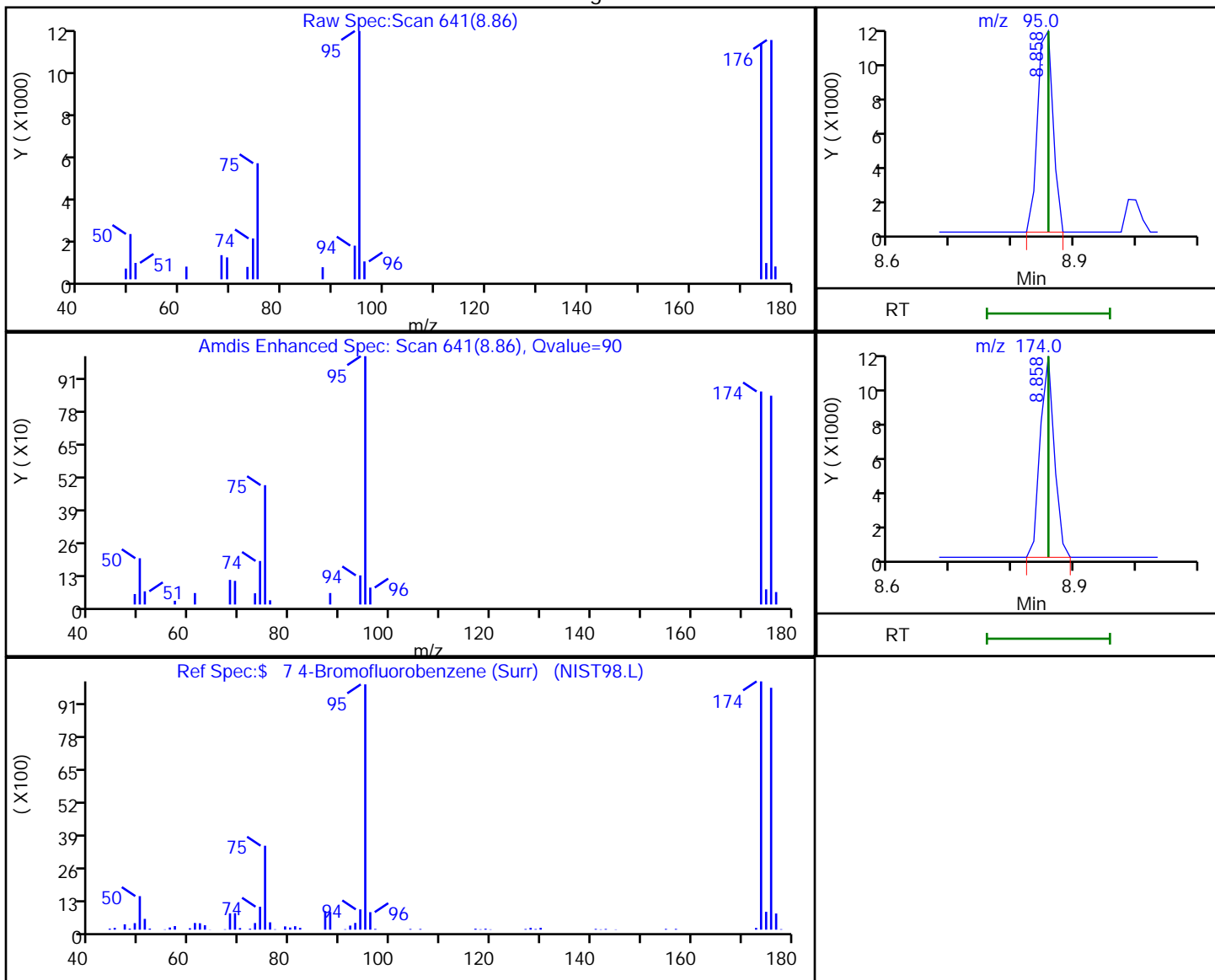
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279114.D
Injection Date: 16-Jul-2020 18:05:30 Instrument ID: A3UX12
Lims ID: std8260 L2
Client ID:
Operator ID: 001904 ALS Bottle#: 6 Worklist Smp#: 10
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

\$ 7 4-Bromofluorobenzene (Surr), CAS: 460-00-4

Processing Results



RT	Mass	Response	Amount
8.86	95.00	20630	1.384413
8.86	174.00	17905	

Reviewer: laveyt, 16-Jul-2020 20:29:33

Audit Action: Marked Compound Undetected

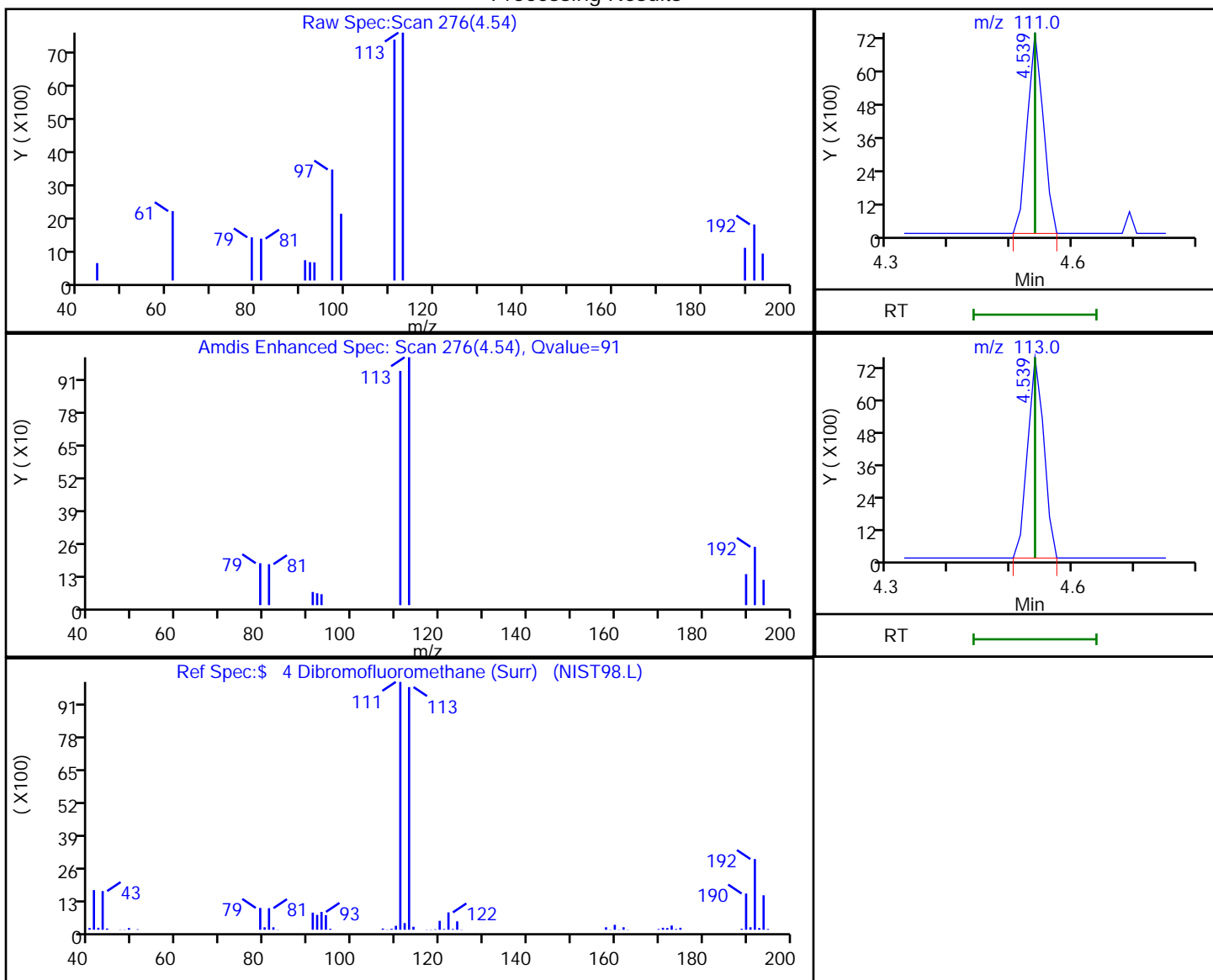
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279114.D
Injection Date: 16-Jul-2020 18:05:30 Instrument ID: A3UX12
Lims ID: std8260 L2
Client ID:
Operator ID: 001904 ALS Bottle#: 6 Worklist Smp#: 10
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

\$ 4 Dibromofluoromethane (Surr), CAS: 1868-53-7

Processing Results



RT	Mass	Response	Amount
4.54	111.00	13114	0.956018
4.54	113.00	13746	

Reviewer: laveyt, 16-Jul-2020 20:29:24

Audit Action: Marked Compound Undetected

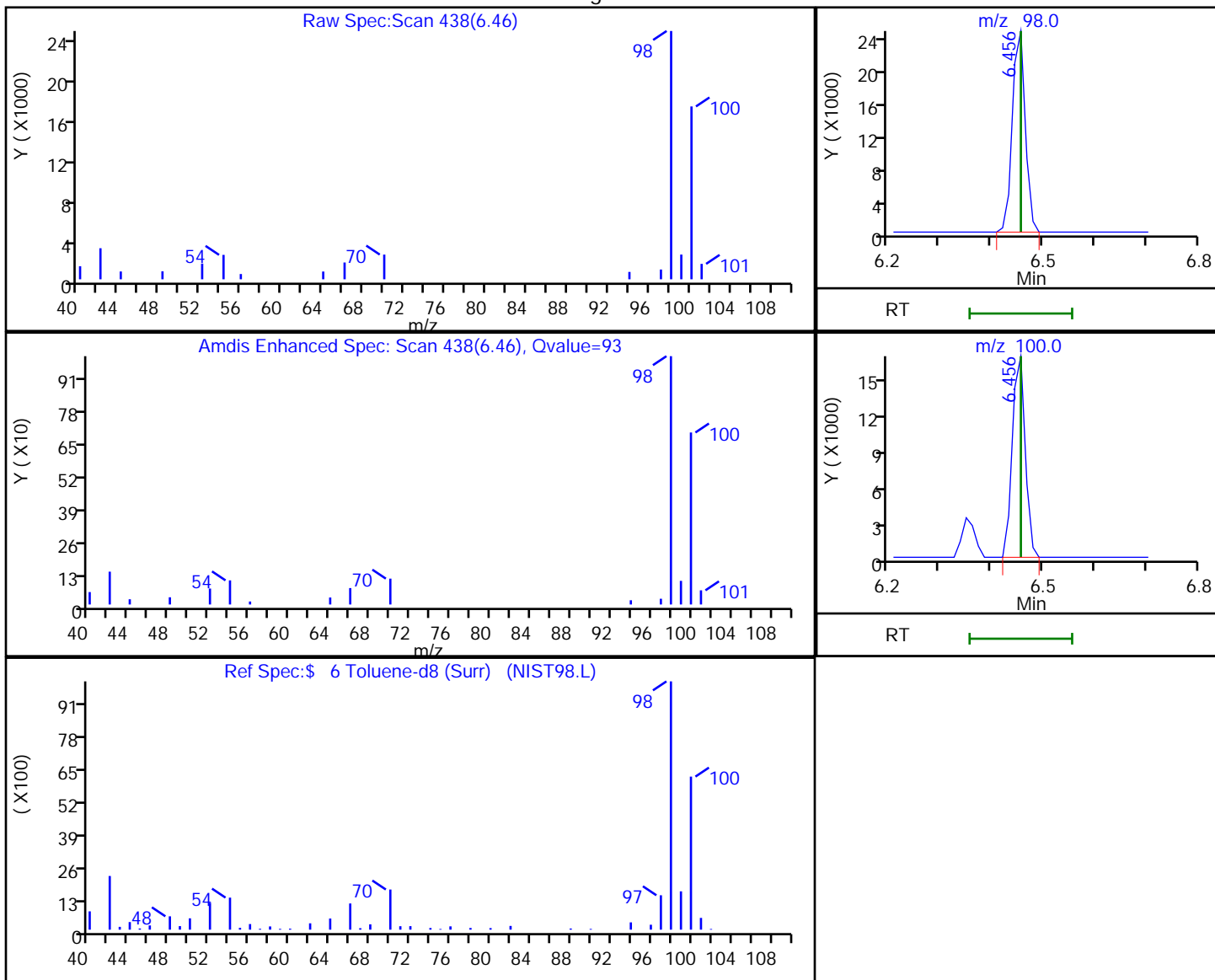
Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279114.D
Injection Date: 16-Jul-2020 18:05:30 Instrument ID: A3UX12
Lims ID: std8260 L2
Client ID:
Operator ID: 001904 ALS Bottle#: 6 Worklist Smp#: 10
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

\$ 6 Toluene-d8 (Surr), CAS: 2037-26-5

Processing Results



RT	Mass	Response	Amount
6.46	98.00	42331	1.049519
6.46	100.00	29407	

Reviewer: laveyt, 16-Jul-2020 20:29:30

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279115.D
 Lims ID: std8260 L3
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 16-Jul-2020 18:27:30 ALS Bottle#: 7 Worklist Smp#: 11
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100113-011
 Operator ID: 001904 Instrument ID: A3UX12
 Sublist: chrom-8260_12_h2o*sub2
 Method: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 16-Jul-2020 21:23:54 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1057

First Level Reviewer: laveyt Date: 16-Jul-2020 18:51:12

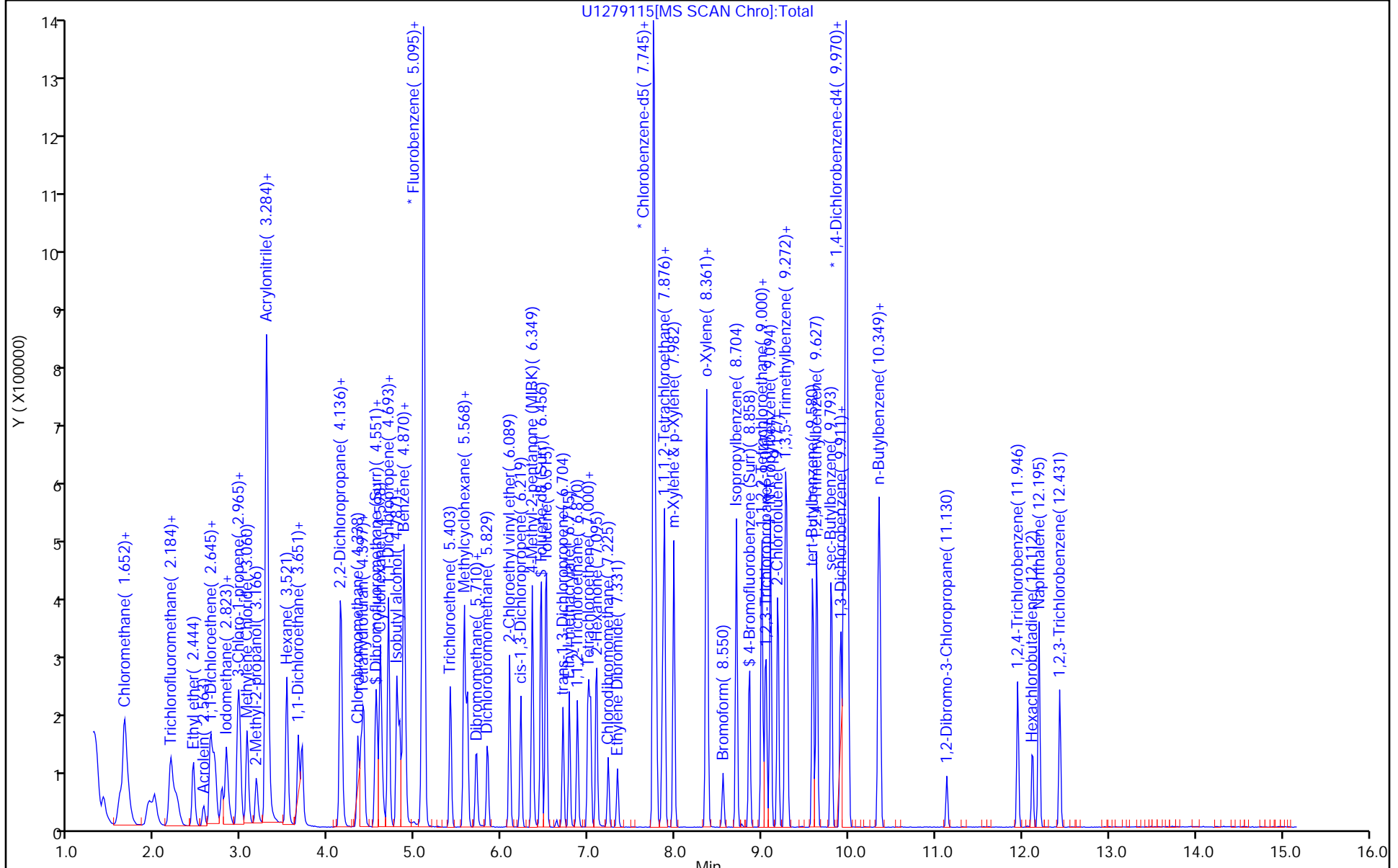
Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1066368	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.745	7.746	-0.001	87	745447	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.970	0.000	95	384863	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	68389	5.00	4.83	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.823	4.823	0.000	96	88950	5.00	5.13	
\$ 6 Toluene-d8 (Surr)	98	6.456	6.456	0.000	92	254761	5.00	5.05	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	92	90585	5.00	5.25	
9 Dichlorodifluoromethane	85	1.403	1.403	0.000	99	95890	5.00	5.76	
10 Chloromethane	50	1.592	1.605	-0.013	98	180045	5.00	6.44	
11 Butadiene	54	1.652	1.652	0.000	89	124092	5.00	6.32	
12 Vinyl chloride	62	1.687	1.687	0.000	97	121481	5.00	6.09	
14 Bromomethane	94	1.936	1.936	0.000	91	72628	5.00	5.49	
15 Chloroethane	64	1.995	1.995	0.000	99	80121	5.00	5.52	
16 Dichlorofluoromethane	67	2.184	2.184	0.000	97	157289	5.00	5.19	
17 Trichlorofluoromethane	101	2.184	2.184	0.000	85	111171	5.00	4.76	
19 Ethyl ether	59	2.444	2.445	-0.001	93	82827	5.00	5.11	
20 Acrolein	56	2.563	2.563	0.000	97	41496	25.0	29.7	
21 1,1-Dichloroethene	61	2.634	2.634	0.000	96	120487	5.00	5.62	
22 112TCTFE	101	2.669	2.670	-0.001	96	66947	5.00	5.32	
23 Acetone	43	2.693	2.693	0.000	100	81521	10.0	12.4	
24 Iodomethane	142	2.776	2.776	0.000	98	114665	5.00	5.26	
25 Carbon disulfide	76	2.823	2.823	0.000	99	245305	5.00	5.68	
27 3-Chloro-1-propene	41	2.953	2.954	-0.001	92	154691	5.00	6.43	
28 Methyl acetate	43	2.977	2.977	0.000	99	210795	10.0	12.9	
29 Methylene Chloride	49	3.060	3.060	0.000	97	118801	5.00	6.06	
30 2-Methyl-2-propanol	59	3.166	3.167	-0.001	99	125121	50.0	61.8	
31 Acrylonitrile	53	3.284	3.285	-0.001	100	504697	50.0	59.6	
32 trans-1,2-Dichloroethene	61	3.296	3.297	-0.001	66	122478	5.00	5.95	
33 Methyl tert-butyl ether	73	3.296	3.297	-0.001	96	256224	5.00	5.42	
34 Hexane	57	3.521	3.522	-0.001	91	128512	5.00	5.64	
35 1,1-Dichloroethane	63	3.651	3.652	-0.001	96	155829	5.00	5.68	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
36 Vinyl acetate	43	3.699	3.699	0.000	97	212513	5.00	5.50	
41 cis-1,2-Dichloroethene	96	4.136	4.137	-0.001	83	90791	5.00	4.73	
40 2,2-Dichloropropane	77	4.136	4.137	-0.001	61	89862	5.00	4.78	
42 2-Butanone (MEK)	72	4.148	4.149	-0.001	100	32487	10.0	9.65	
46 Chlorobromomethane	49	4.338	4.338	0.000	95	81886	5.00	5.25	
47 Tetrahydrofuran	42	4.373	4.374	-0.001	90	95835	10.0	11.2	
48 Chloroform	83	4.409	4.409	0.000	94	135443	5.00	4.99	
49 1,1,1-Trichloroethane	97	4.562	4.551	0.011	98	105527	5.00	4.90	
50 Cyclohexane	84	4.598	4.598	0.000	92	127620	5.00	5.01	
51 1,1-Dichloropropene	75	4.693	4.693	0.000	94	110916	5.00	5.06	
52 Carbon tetrachloride	117	4.693	4.693	0.000	77	83787	5.00	4.78	
53 Isobutyl alcohol	41	4.787	4.788	-0.001	95	124596	125.0	144.9	
54 Benzene	78	4.870	4.870	0.000	96	337044	5.00	5.15	
55 1,2-Dichloroethane	62	4.882	4.882	0.000	96	105694	5.00	4.97	
57 n-Heptane	57	5.083	5.083	0.000	93	87098	5.00	5.28	
59 Trichloroethene	130	5.403	5.403	0.000	97	76118	5.00	5.14	
61 Methylcyclohexane	83	5.568	5.569	-0.001	89	135793	5.00	5.24	
62 1,2-Dichloropropane	63	5.604	5.604	0.000	94	76423	5.00	5.41	
65 1,4-Dioxane	88	5.710	5.711	-0.001	27	15971	100.0	86.6	
64 Dibromomethane	174	5.710	5.711	-0.001	94	48536	5.00	4.84	
66 Dichlorobromomethane	83	5.829	5.829	0.000	98	85277	5.00	4.83	
68 2-Chloroethyl vinyl ether	63	6.089	6.089	0.000	92	106727	10.0	10.0	
69 cis-1,3-Dichloropropene	75	6.219	6.219	0.000	95	109191	5.00	4.88	
70 4-Methyl-2-pentanone (MIBK)	43	6.349	6.350	-0.001	97	250773	10.0	10.8	
71 Toluene	91	6.515	6.515	0.000	98	302953	5.00	4.90	
72 trans-1,3-Dichloropropene	75	6.704	6.705	-0.001	94	96966	5.00	4.84	
74 Ethyl methacrylate	69	6.775	6.776	-0.001	90	104880	5.00	5.19	
75 1,1,2-Trichloroethane	97	6.870	6.870	0.000	92	59524	5.00	4.91	
76 Tetrachloroethene	166	7.000	7.000	0.000	97	68082	5.00	4.60	
77 1,3-Dichloropropane	76	7.024	7.024	0.000	92	113574	5.00	5.00	
78 2-Hexanone	43	7.095	7.095	0.000	95	177166	10.0	10.9	
80 Chlorodibromomethane	129	7.225	7.225	0.000	91	55714	5.00	4.68	
81 Ethylene Dibromide	107	7.331	7.332	-0.001	99	60273	5.00	4.81	
83 Chlorobenzene	112	7.781	7.781	0.000	94	185806	5.00	5.14	
84 1,1,1,2-Tetrachloroethane	131	7.852	7.852	0.000	95	60497	5.00	4.91	
85 Ethylbenzene	106	7.876	7.876	0.000	99	102746	5.00	5.17	
86 m-Xylene & p-Xylene	106	7.982	7.983	-0.001	98	128823	5.00	5.24	
87 o-Xylene	106	8.361	8.361	0.000	95	125874	5.00	4.97	
88 Styrene	104	8.373	8.373	0.000	95	201429	5.00	4.95	
89 Bromoform	173	8.550	8.551	-0.001	95	38309	5.00	4.67	
90 Isopropylbenzene	105	8.704	8.704	0.000	95	320834	5.00	5.05	
92 Bromobenzene	156	9.000	9.000	0.000	94	76292	5.00	5.07	
93 1,1,2,2-Tetrachloroethane	83	9.000	9.000	0.000	83	98841	5.00	5.14	
94 1,2,3-Trichloropropane	110	9.035	9.036	-0.001	86	33941	5.00	5.11	
95 trans-1,4-Dichloro-2-butene	53	9.047	9.048	-0.001	87	30147	5.00	5.35	
96 N-Propylbenzene	120	9.094	9.095	-0.001	99	86386	5.00	5.28	
97 2-Chlorotoluene	126	9.189	9.178	0.011	96	73516	5.00	5.09	
98 1,3,5-Trimethylbenzene	105	9.272	9.272	0.000	95	250416	5.00	5.19	
99 4-Chlorotoluene	126	9.284	9.284	0.000	99	74622	5.00	5.03	
102 tert-Butylbenzene	119	9.580	9.580	0.000	93	207081	5.00	4.90	
104 1,2,4-Trimethylbenzene	105	9.627	9.627	0.000	97	255743	5.00	5.05	
105 sec-Butylbenzene	105	9.793	9.793	0.000	94	304124	5.00	4.96	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
106 1,3-Dichlorobenzene	146	9.911	9.911	0.000	99	143474	5.00	5.03	
107 4-Isopropyltoluene	119	9.935	9.947	-0.012	97	262116	5.00	5.14	
108 1,4-Dichlorobenzene	146	9.994	9.994	0.000	95	144861	5.00	4.90	
111 n-Butylbenzene	91	10.337	10.337	0.000	97	218725	5.00	5.12	
112 1,2-Dichlorobenzene	146	10.361	10.361	0.000	97	143813	5.00	5.08	
113 1,2-Dibromo-3-Chloropropane	157	11.130	11.130	0.000	82	22950	5.00	5.11	
115 1,2,4-Trichlorobenzene	180	11.946	11.947	-0.001	94	77534	5.00	4.97	
116 Hexachlorobutadiene	225	12.124	12.124	0.000	95	27773	5.00	4.73	
117 Naphthalene	128	12.195	12.195	0.000	97	270015	5.00	5.22	
118 1,2,3-Trichlorobenzene	180	12.431	12.432	-0.001	94	74152	5.00	5.16	
S 124 Trihalomethanes, Total	1				0		20.0	19.2	
S 125 Total BTEX	1				0		25.0	25.4	
S 126 1,2-Dichloroethene, Total	96				0			10.7	
S 127 1,3-Dichloropropene, Total	75				0			9.72	
S 128 Xylenes, Total	106				0		10.0	10.2	

Reagents:

vm50is_stk_a_00006	Amount Added: 2.00	Units: uL
VMRGAS_00347	Amount Added: 4.00	Units: uL
vmarolistdw_00352	Amount Added: 4.00	Units: uL
vmrprimw_00394	Amount Added: 4.00	Units: uL
vm50ss_00410	Amount Added: 4.00	Units: uL



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279116.D
 Lims ID: std8260 L4
 Client ID:
 Sample Type: IC Calib Level: 4
 Inject. Date: 16-Jul-2020 18:50:30 ALS Bottle#: 8 Worklist Smp#: 12
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100113-012
 Operator ID: 001904 Instrument ID: A3UX12
 Sublist: chrom-8260_12_h2o*sub2
 Method: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 16-Jul-2020 21:24:04 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1057

First Level Reviewer: laveyt

Date: 16-Jul-2020 19:13:35

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	98	886512	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	86	632834	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.970	0.000	95	393985	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	117634	10.0	10.0	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.811	0.000	97	143083	10.0	9.94	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.444	0.000	93	458994	10.0	10.7	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.846	8.846	0.000	94	138527	10.0	9.45	
9 Dichlorodifluoromethane	85	1.392	1.392	0.000	99	151666	10.0	11.0	
10 Chloromethane	50	1.581	1.581	0.000	98	233672	10.0	10.2	M
11 Butadiene	54	1.628	1.628	0.000	91	159384	10.0	9.77	
12 Vinyl chloride	62	1.664	1.664	0.000	97	171618	10.0	10.3	
14 Bromomethane	94	1.912	1.912	0.000	91	127041	10.0	11.6	
15 Chloroethane	64	1.983	1.983	0.000	100	136173	10.0	11.3	
16 Dichlorofluoromethane	67	2.161	2.161	0.000	97	288627	10.0	11.4	
17 Trichlorofluoromethane	101	2.173	2.173	0.000	84	210999	10.0	10.9	
19 Ethyl ether	59	2.433	2.433	0.000	92	157156	10.0	11.7	
20 Acrolein	56	2.551	2.551	0.000	99	56998	50.0	49.1	
21 1,1-Dichloroethene	61	2.622	2.622	0.000	98	183544	10.0	10.3	
22 112TCTFE	101	2.658	2.658	0.000	94	105296	10.0	10.1	
23 Acetone	43	2.681	2.681	0.000	100	119029	20.0	23.2	
24 Iodomethane	142	2.764	2.764	0.000	98	207558	10.0	11.4	
25 Carbon disulfide	76	2.812	2.812	0.000	100	378954	10.0	10.6	
27 3-Chloro-1-propene	41	2.942	2.942	0.000	89	205590	10.0	10.3	
28 Methyl acetate	43	2.965	2.965	0.000	97	286458	20.0	21.1	
29 Methylene Chloride	49	3.048	3.048	0.000	94	176439	10.0	10.8	
30 2-Methyl-2-propanol	59	3.166	3.166	0.000	99	191199	100.0	113.6	
31 Acrylonitrile	53	3.273	3.273	0.000	99	723158	100.0	102.7	
32 trans-1,2-Dichloroethene	61	3.285	3.285	0.000	66	186220	10.0	10.9	
33 Methyl tert-butyl ether	73	3.285	3.285	0.000	96	418565	10.0	10.7	
34 Hexane	57	3.510	3.510	0.000	91	169215	10.0	8.93	
35 1,1-Dichloroethane	63	3.640	3.640	0.000	96	236866	10.0	10.4	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
36 Vinyl acetate	43	3.687	3.687	0.000	97	302914	10.0	9.43	
41 cis-1,2-Dichloroethene	96	4.137	4.137	0.000	82	172589	10.0	10.8	
40 2,2-Dichloropropane	77	4.137	4.125	0.012	63	171711	10.0	11.0	
42 2-Butanone (MEK)	72	4.149	4.149	0.000	99	60927	20.0	21.8	
46 Chlorobromomethane	49	4.338	4.338	0.000	97	153287	10.0	11.8	
47 Tetrahydrofuran	42	4.373	4.373	0.000	86	149777	20.0	21.0	
48 Chloroform	83	4.397	4.397	0.000	94	248247	10.0	11.0	
49 1,1,1-Trichloroethane	97	4.551	4.551	0.000	99	176862	10.0	9.88	
50 Cyclohexane	84	4.598	4.598	0.000	90	192287	10.0	9.08	
52 Carbon tetrachloride	117	4.693	4.693	0.000	82	141890	10.0	9.74	
51 1,1-Dichloropropene	75	4.681	4.681	0.000	93	168265	10.0	9.24	
53 Isobutyl alcohol	41	4.788	4.788	0.000	94	172245	250.0	240.9	
54 Benzene	78	4.859	4.859	0.000	96	525396	10.0	9.65	
55 1,2-Dichloroethane	62	4.882	4.882	0.000	97	175519	10.0	9.93	
57 n-Heptane	57	5.072	5.072	0.000	89	95900	10.0	8.11	
59 Trichloroethene	130	5.403	5.403	0.000	98	125955	10.0	10.2	
61 Methylcyclohexane	83	5.557	5.557	0.000	90	197666	10.0	9.18	
62 1,2-Dichloropropane	63	5.592	5.592	0.000	93	115005	10.0	9.79	
64 Dibromomethane	174	5.711	5.711	0.000	91	93337	10.0	11.2	
65 1,4-Dioxane	88	5.711	5.711	0.000	92	38163	200.0	248.9	
66 Dichlorobromomethane	83	5.829	5.829	0.000	99	167964	10.0	11.4	
68 2-Chloroethyl vinyl ether	63	6.089	6.089	0.000	92	205324	20.0	23.2	
69 cis-1,3-Dichloropropene	75	6.219	6.219	0.000	95	208362	10.0	11.2	
70 4-Methyl-2-pentanone (MIBK)	43	6.350	6.350	0.000	96	475232	20.0	24.7	
71 Toluene	91	6.503	6.503	0.000	99	609655	10.0	11.6	
72 trans-1,3-Dichloropropene	75	6.705	6.705	0.000	95	161548	10.0	9.50	
74 Ethyl methacrylate	69	6.776	6.776	0.000	88	161989	10.0	9.44	
75 1,1,2-Trichloroethane	97	6.870	6.870	0.000	92	97580	10.0	9.49	
76 Tetrachloroethene	166	6.989	6.989	0.000	96	118877	10.0	9.46	
77 1,3-Dichloropropane	76	7.024	7.024	0.000	91	180029	10.0	9.33	
78 2-Hexanone	43	7.083	7.083	0.000	97	255826	20.0	18.6	
80 Chlorodibromomethane	129	7.225	7.225	0.000	90	98356	10.0	9.73	
81 Ethylene Dibromide	107	7.332	7.332	0.000	98	102871	10.0	9.68	
83 Chlorobenzene	112	7.781	7.781	0.000	95	298670	10.0	9.73	
84 1,1,1,2-Tetrachloroethane	131	7.852	7.852	0.000	94	108087	10.0	10.3	
85 Ethylbenzene	106	7.876	7.876	0.000	99	163196	10.0	9.68	
86 m-Xylene & p-Xylene	106	7.982	7.982	0.000	99	206929	10.0	9.91	
87 o-Xylene	106	8.361	8.361	0.000	96	210472	10.0	9.79	
88 Styrene	104	8.373	8.373	0.000	95	333048	10.0	9.65	
89 Bromoform	173	8.550	8.550	0.000	96	70911	10.0	10.2	
90 Isopropylbenzene	105	8.704	8.704	0.000	96	522254	10.0	9.69	
93 1,1,2,2-Tetrachloroethane	83	9.000	9.000	0.000	86	164980	10.0	8.38	
92 Bromobenzene	156	9.000	9.000	0.000	91	133920	10.0	8.70	
94 1,2,3-Trichloropropane	110	9.036	9.036	0.000	88	58331	10.0	8.58	
95 trans-1,4-Dichloro-2-butene	53	9.047	9.047	0.000	90	45074	10.0	7.82	
96 N-Propylbenzene	120	9.095	9.095	0.000	99	141874	10.0	8.47	
97 2-Chlorotoluene	126	9.178	9.178	0.000	96	123687	10.0	8.36	
98 1,3,5-Trimethylbenzene	105	9.272	9.272	0.000	96	476426	10.0	9.64	
99 4-Chlorotoluene	126	9.284	9.284	0.000	99	142976	10.0	9.42	
102 tert-Butylbenzene	119	9.580	9.580	0.000	93	410479	10.0	9.49	
104 1,2,4-Trimethylbenzene	105	9.627	9.627	0.000	95	521486	10.0	10.0	
105 sec-Butylbenzene	105	9.793	9.793	0.000	94	583446	10.0	9.30	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
106 1,3-Dichlorobenzene	146	9.911	9.911	0.000	98	289123	10.0	9.89	
107 4-Isopropyltoluene	119	9.935	9.935	0.000	97	492942	10.0	9.45	
108 1,4-Dichlorobenzene	146	9.994	9.994	0.000	95	289977	10.0	9.58	
111 n-Butylbenzene	91	10.337	10.337	0.000	97	408355	10.0	9.34	
112 1,2-Dichlorobenzene	146	10.361	10.361	0.000	98	282319	10.0	9.73	
113 1,2-Dibromo-3-Chloropropane	157	11.130	11.130	0.000	85	41982	10.0	9.12	
115 1,2,4-Trichlorobenzene	180	11.947	11.947	0.000	94	139512	10.0	8.73	
116 Hexachlorobutadiene	225	12.124	12.124	0.000	95	49088	10.0	8.22	
117 Naphthalene	128	12.195	12.195	0.000	97	470264	10.0	8.89	
118 1,2,3-Trichlorobenzene	180	12.432	12.432	0.000	96	131236	10.0	8.92	
S 124 Trihalomethanes, Total	1				0		40.0	42.4	
S 125 Total BTEX	1				0		50.0	50.6	
S 126 1,2-Dichloroethene, Total	96				0			21.7	
S 127 1,3-Dichloropropene, Total	75				0			20.7	
S 128 Xylenes, Total	106				0		20.0	19.7	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

vm50is_stk_a_00006	Amount Added: 2.00	Units: uL
VMRGAS_00347	Amount Added: 8.00	Units: uL
vmarolistdw_00352	Amount Added: 8.00	Units: uL
vmrprimw_00394	Amount Added: 8.00	Units: uL
vm50ss_00410	Amount Added: 8.00	Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279116.D

Injection Date: 16-Jul-2020 18:50:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: std8260 L4

Worklist Smp#: 12

Client ID:

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

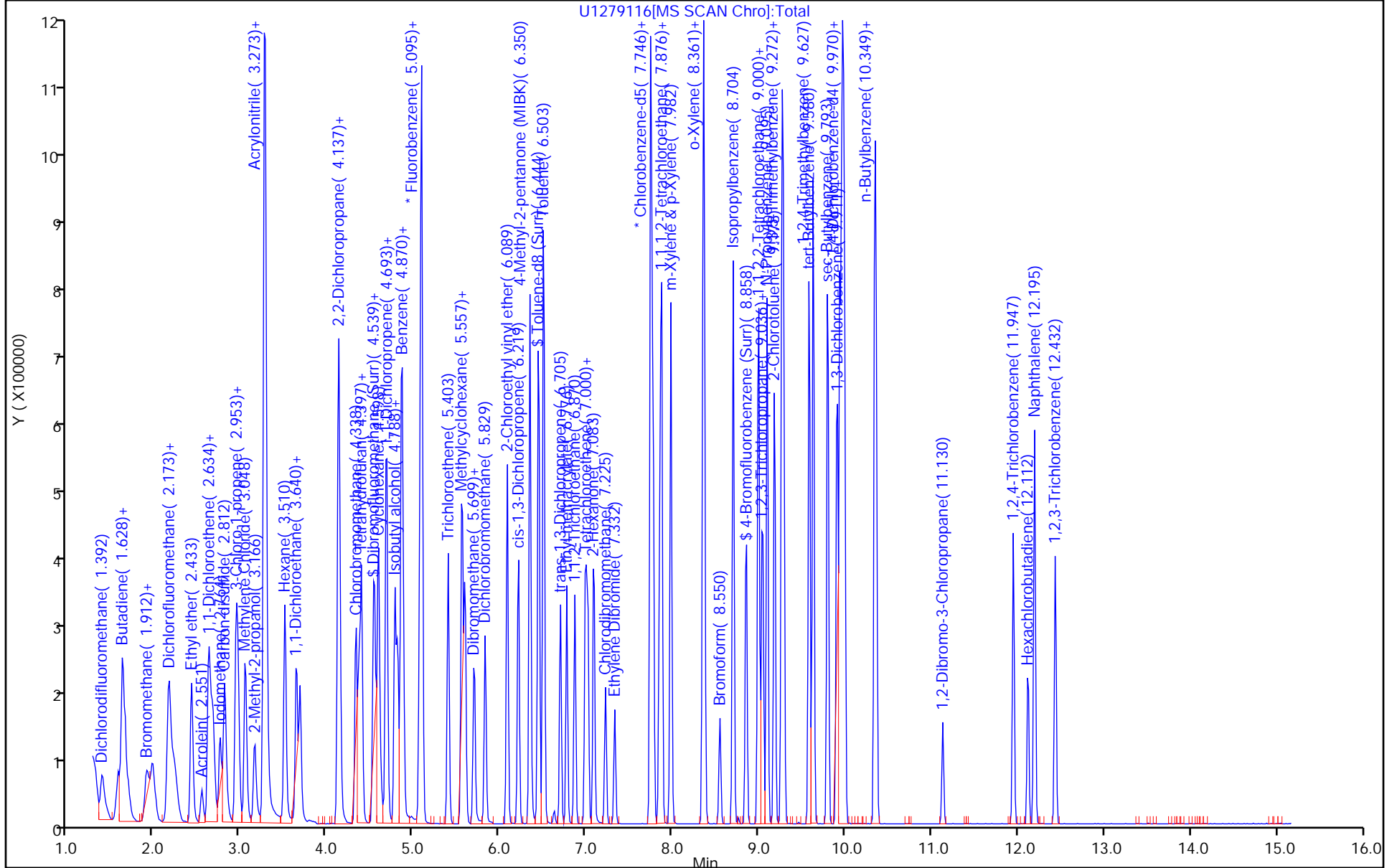
ALS Bottle#: 8

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton

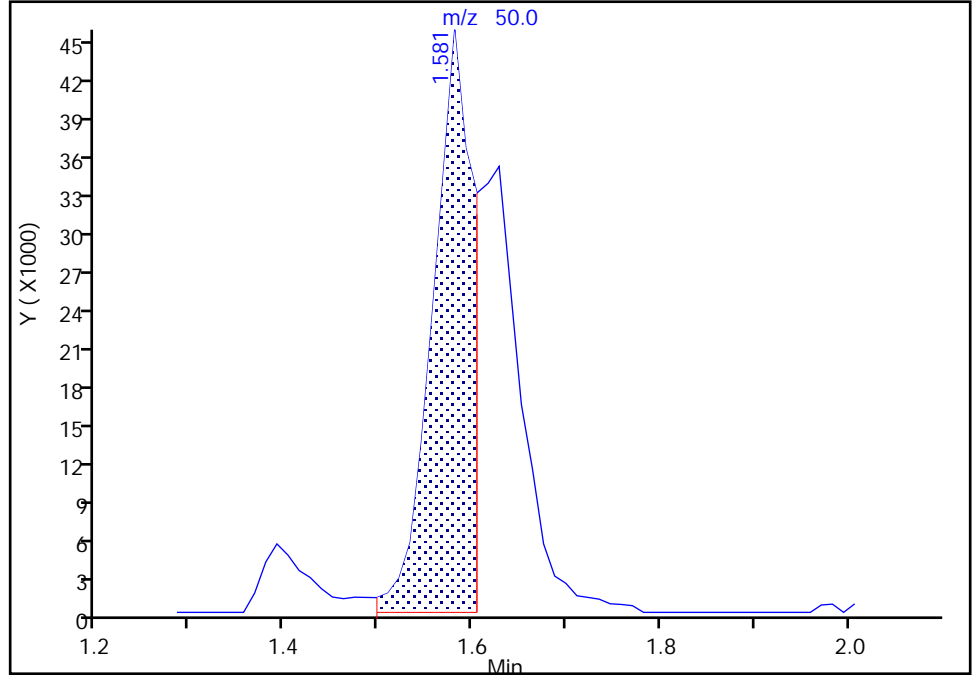
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Injection Date: 16-Jul-2020 18:50:30 Instrument ID: A3UX12
Lims ID: std8260 L4
Client ID:
Operator ID: 001904 ALS Bottle#: 8 Worklist Smp#: 12
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

10 Chloromethane, CAS: 74-87-3

Signal: 1

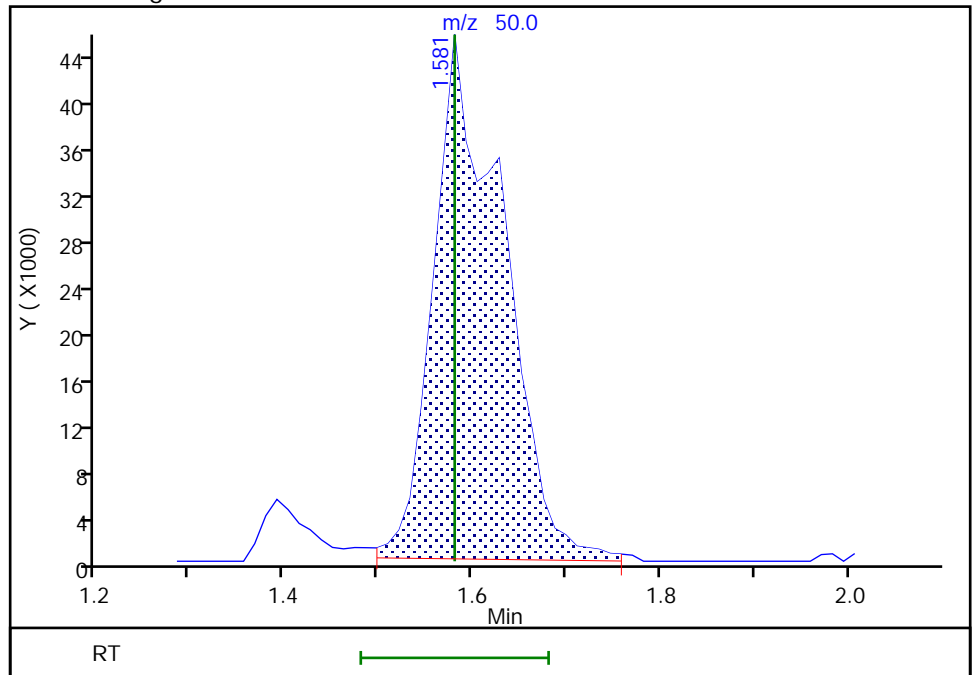
RT: 1.58
Area: 139411
Amount: 6.632730
Amount Units: ug/l

Processing Integration Results



RT: 1.58
Area: 233672
Amount: 10.233113
Amount Units: ug/l

Manual Integration Results



Reviewer: laveyt, 16-Jul-2020 19:12:04
Audit Action: Manually Integrated

Audit Reason: Split Peak

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279117.D
 Lims ID: ICIS L5
 Client ID:
 Sample Type: ICIS Calib Level: 5
 Inject. Date: 16-Jul-2020 19:12:30 ALS Bottle#: 9 Worklist Smp#: 13
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100113-013
 Operator ID: 001904 Instrument ID: A3UX12
 Sublist: chrom-8260_12_h2o*sub2
 Method: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 16-Jul-2020 21:24:13 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1057

First Level Reviewer: laveyt

Date: 16-Jul-2020 19:32:15

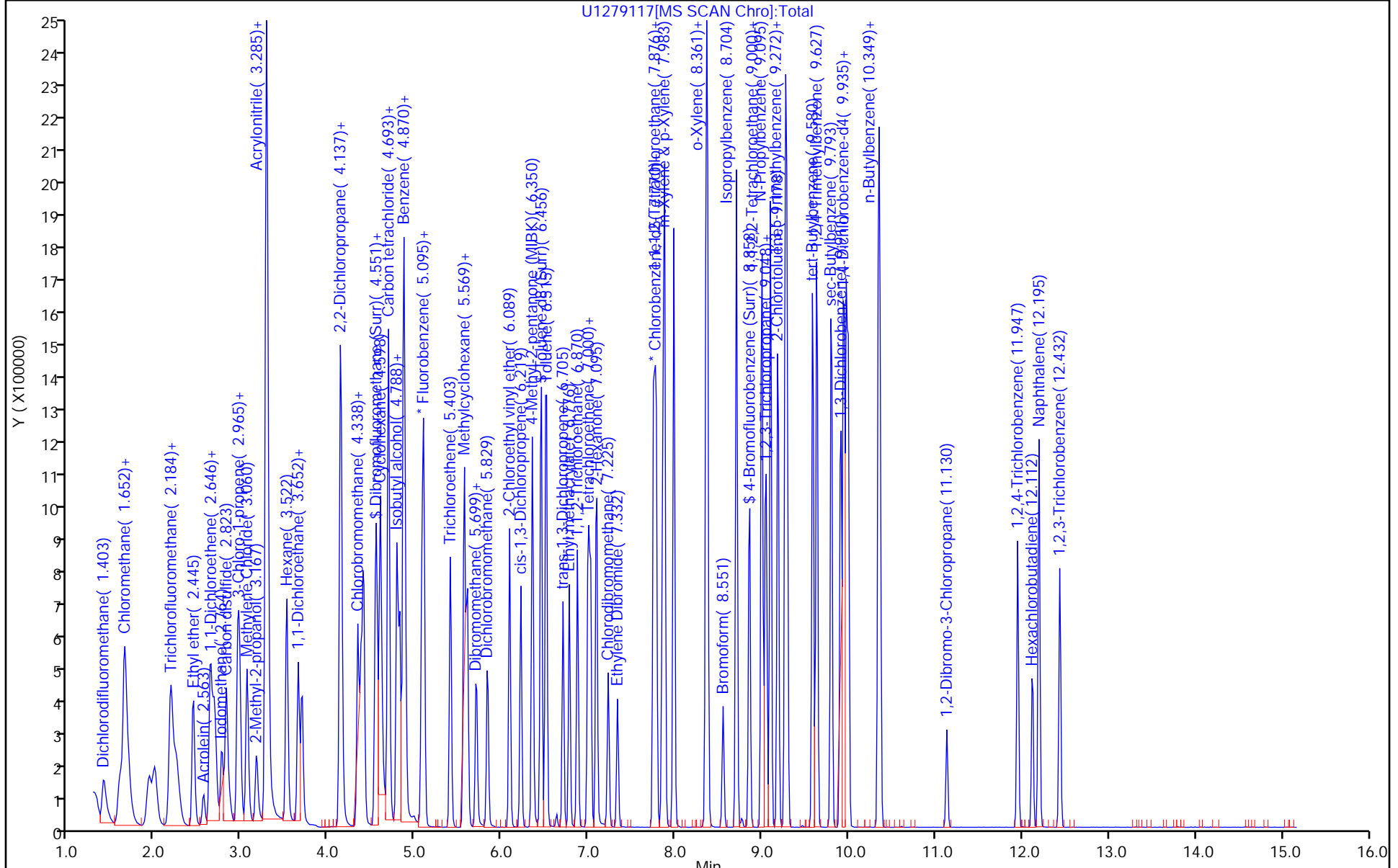
Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	930091	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	747849	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.970	0.000	92	400649	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	289228	20.0	23.4	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.823	4.823	0.000	96	345986	20.0	22.9	
\$ 6 Toluene-d8 (Surr)	98	6.456	6.456	0.000	93	858996	20.0	17.0	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	95	344224	20.0	19.9	
9 Dichlorodifluoromethane	85	1.403	1.403	0.000	99	325891	20.0	22.4	
10 Chloromethane	50	1.605	1.605	0.000	99	562073	20.0	23.9	
11 Butadiene	54	1.652	1.652	0.000	90	390394	20.0	22.8	
12 Vinyl chloride	62	1.687	1.687	0.000	98	406302	20.0	23.3	
14 Bromomethane	94	1.936	1.936	0.000	91	265909	20.0	23.0	
15 Chloroethane	64	1.995	1.995	0.000	100	285493	20.0	22.5	
16 Dichlorofluoromethane	67	2.184	2.184	0.000	97	626381	20.0	23.7	
17 Trichlorofluoromethane	101	2.184	2.184	0.000	98	455578	20.0	22.4	
19 Ethyl ether	59	2.445	2.445	0.000	92	309400	20.0	21.9	
20 Acrolein	56	2.563	2.563	0.000	98	118799	100.0	97.6	
21 1,1-Dichloroethene	61	2.634	2.634	0.000	97	390469	20.0	20.9	
22 112TCTFE	101	2.670	2.670	0.000	94	233909	20.0	21.3	
23 Acetone	43	2.693	2.693	0.000	100	224375	40.0	43.2	
24 Iodomethane	142	2.776	2.776	0.000	98	421954	20.0	22.2	
25 Carbon disulfide	76	2.823	2.823	0.000	100	789675	20.0	21.0	
27 3-Chloro-1-propene	41	2.954	2.954	0.000	90	431804	20.0	20.6	
28 Methyl acetate	43	2.977	2.977	0.000	97	577598	40.0	40.5	
29 Methylene Chloride	49	3.060	3.060	0.000	94	354472	20.0	20.7	
30 2-Methyl-2-propanol	59	3.167	3.167	0.000	99	349742	200.0	198.0	
31 Acrylonitrile	53	3.285	3.285	0.000	99	1450393	200.0	196.3	
32 trans-1,2-Dichloroethene	61	3.297	3.297	0.000	66	381398	20.0	21.3	
33 Methyl tert-butyl ether	73	3.297	3.297	0.000	95	848635	20.0	20.6	
34 Hexane	57	3.522	3.522	0.000	92	367216	20.0	18.5	
35 1,1-Dichloroethane	63	3.652	3.652	0.000	96	494235	20.0	20.7	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
36 Vinyl acetate	43	3.699	3.699	0.000	97	615701	20.0	18.3	
40 2,2-Dichloropropane	77	4.137	4.137	0.000	62	363126	20.0	22.1	
41 cis-1,2-Dichloroethene	96	4.137	4.137	0.000	83	358669	20.0	21.4	
42 2-Butanone (MEK)	72	4.149	4.149	0.000	100	122791	40.0	41.8	
46 Chlorobromomethane	49	4.338	4.338	0.000	97	316652	20.0	23.3	
47 Tetrahydrofuran	42	4.374	4.374	0.000	88	347004	40.0	46.3	
48 Chloroform	83	4.409	4.409	0.000	94	555952	20.0	23.5	
49 1,1,1-Trichloroethane	97	4.551	4.551	0.000	98	439960	20.0	23.4	
50 Cyclohexane	84	4.598	4.598	0.000	91	486792	20.0	21.9	
51 1,1-Dichloropropene	75	4.693	4.693	0.000	94	453544	20.0	23.7	
52 Carbon tetrachloride	117	4.693	4.693	0.000	79	360797	20.0	23.6	
53 Isobutyl alcohol	41	4.788	4.788	0.000	97	405480	500.0	540.5	
54 Benzene	78	4.870	4.870	0.000	96	1321740	20.0	23.1	
55 1,2-Dichloroethane	62	4.882	4.882	0.000	97	418240	20.0	22.5	
57 n-Heptane	57	5.072	5.083	-0.011	90	175083	20.0	16.7	
59 Trichloroethene	130	5.403	5.403	0.000	96	269336	20.0	20.9	
61 Methylcyclohexane	83	5.569	5.569	0.000	89	426646	20.0	18.9	
62 1,2-Dichloropropane	63	5.604	5.604	0.000	92	239320	20.0	19.4	
65 1,4-Dioxane	88	5.711	5.711	0.000	93	59715	400.0	371.3	
64 Dibromomethane	174	5.711	5.711	0.000	93	176342	20.0	20.1	
66 Dichlorobromomethane	83	5.829	5.829	0.000	99	300932	20.0	19.5	
68 2-Chloroethyl vinyl ether	63	6.089	6.089	0.000	92	343008	40.0	36.9	
69 cis-1,3-Dichloropropene	75	6.219	6.219	0.000	95	367344	20.0	18.8	
70 4-Methyl-2-pentanone (MIBK)	43	6.350	6.350	0.000	96	731356	40.0	36.2	
71 Toluene	91	6.515	6.515	0.000	99	1007024	20.0	16.2	
72 trans-1,3-Dichloropropene	75	6.705	6.705	0.000	95	332918	20.0	16.6	
74 Ethyl methacrylate	69	6.776	6.776	0.000	89	345274	20.0	17.0	
75 1,1,2-Trichloroethane	97	6.870	6.870	0.000	92	233957	20.0	19.3	
76 Tetrachloroethene	166	7.000	7.000	0.000	97	273224	20.0	18.4	
77 1,3-Dichloropropane	76	7.024	7.024	0.000	91	457272	20.0	20.1	
78 2-Hexanone	43	7.095	7.095	0.000	96	708445	40.0	43.6	
80 Chlorodibromomethane	129	7.225	7.225	0.000	91	229325	20.0	19.2	
81 Ethylene Dibromide	107	7.332	7.332	0.000	98	244506	20.0	19.5	
83 Chlorobenzene	112	7.781	7.781	0.000	94	715039	20.0	19.7	
84 1,1,1,2-Tetrachloroethane	131	7.852	7.852	0.000	94	247781	20.0	20.0	
85 Ethylbenzene	106	7.876	7.876	0.000	99	403913	20.0	20.3	
86 m-Xylene & p-Xylene	106	7.983	7.983	0.000	99	505494	20.0	20.5	
87 o-Xylene	106	8.361	8.361	0.000	97	502115	20.0	19.8	
88 Styrene	104	8.373	8.373	0.000	96	819248	20.0	20.1	
89 Bromoform	173	8.551	8.551	0.000	97	164608	20.0	20.0	
90 Isopropylbenzene	105	8.704	8.704	0.000	96	1271237	20.0	20.0	
92 Bromobenzene	156	9.000	9.000	0.000	94	292641	20.0	18.7	
93 1,1,2,2-Tetrachloroethane	83	9.000	9.000	0.000	85	394582	20.0	19.7	
94 1,2,3-Trichloropropane	110	9.036	9.036	0.000	86	134177	20.0	19.4	
95 trans-1,4-Dichloro-2-butene	53	9.048	9.048	0.000	91	121536	20.0	20.7	
96 N-Propylbenzene	120	9.095	9.095	0.000	99	335308	20.0	19.7	
97 2-Chlorotoluene	126	9.178	9.178	0.000	96	288795	20.0	19.2	
98 1,3,5-Trimethylbenzene	105	9.272	9.272	0.000	96	999122	20.0	19.9	
99 4-Chlorotoluene	126	9.284	9.284	0.000	99	288403	20.0	18.7	
102 tert-Butylbenzene	119	9.580	9.580	0.000	92	832037	20.0	18.9	
104 1,2,4-Trimethylbenzene	105	9.627	9.627	0.000	97	1004174	20.0	19.0	
105 sec-Butylbenzene	105	9.793	9.793	0.000	95	1203086	20.0	18.9	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
106 1,3-Dichlorobenzene	146	9.911	9.911	0.000	98	554995	20.0	18.7	
107 4-Isopropyltoluene	119	9.947	9.947	0.000	97	1033800	20.0	19.5	
108 1,4-Dichlorobenzene	146	9.994	9.994	0.000	94	569022	20.0	18.5	
111 n-Butylbenzene	91	10.337	10.337	0.000	97	888801	20.0	20.0	
112 1,2-Dichlorobenzene	146	10.361	10.361	0.000	98	572071	20.0	19.4	
113 1,2-Dibromo-3-Chloropropane	157	11.130	11.130	0.000	86	85539	20.0	18.3	
115 1,2,4-Trichlorobenzene	180	11.947	11.947	0.000	94	280319	20.0	17.3	
116 Hexachlorobutadiene	225	12.124	12.124	0.000	95	104077	20.0	17.2	
117 Naphthalene	128	12.195	12.195	0.000	97	959515	20.0	17.8	
118 1,2,3-Trichlorobenzene	180	12.432	12.432	0.000	94	260445	20.0	17.4	
S 124 Trihalomethanes, Total	1				0		80.0	82.2	
S 125 Total BTEX	1				0		100.0	99.9	
S 128 Xylenes, Total	106				0		40.0	40.3	

Reagents:

vm50is_stk_a_00006	Amount Added: 2.00	Units: uL
VMRGAS_00347	Amount Added: 16.00	Units: uL
vmarolistdw_00352	Amount Added: 16.00	Units: uL
vmrprimw_00394	Amount Added: 16.00	Units: uL
vm50ss_00410	Amount Added: 16.00	Units: uL



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279118.D
 Lims ID: std8260 L6
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 16-Jul-2020 19:35:30 ALS Bottle#: 10 Worklist Smp#: 14
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100113-014
 Operator ID: 001904 Instrument ID: A3UX12
 Sublist: chrom-8260_12_h2o*sub2
 Method: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 16-Jul-2020 21:24:23 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1057

First Level Reviewer: laveyt

Date: 16-Jul-2020 20:24:01

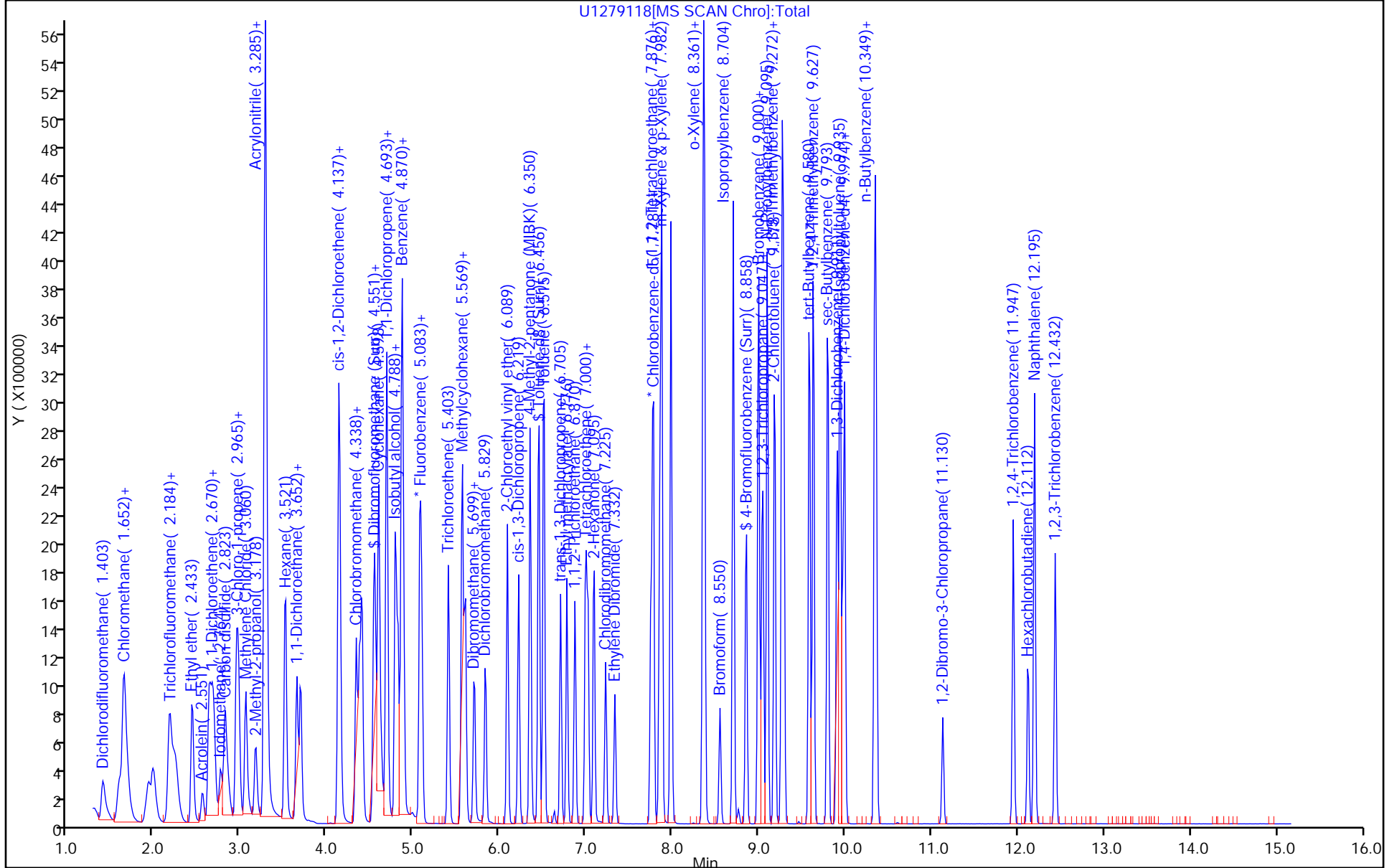
Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1105939	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	86	819483	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.970	0.000	94	386745	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	594419	40.0	40.5	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.823	4.823	0.000	96	729798	40.0	40.6	
\$ 6 Toluene-d8 (Surr)	98	6.456	6.456	0.000	93	1808749	40.0	32.6	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	94	712692	40.0	37.6	
9 Dichlorodifluoromethane	85	1.403	1.403	0.000	99	692065	40.0	40.1	
10 Chloromethane	50	1.593	1.605	-0.012	99	1048531	40.0	37.6	
11 Butadiene	54	1.652	1.652	0.000	89	740602	40.0	36.4	
12 Vinyl chloride	62	1.687	1.687	0.000	98	763156	40.0	36.9	
14 Bromomethane	94	1.936	1.936	0.000	91	502951	40.0	36.7	
15 Chloroethane	64	1.995	1.995	0.000	99	555402	40.0	36.9	
16 Dichlorofluoromethane	67	2.173	2.184	-0.011	97	1157160	40.0	36.8	
17 Trichlorofluoromethane	101	2.184	2.184	0.000	98	908548	40.0	37.5	
19 Ethyl ether	59	2.433	2.445	-0.012	92	663810	40.0	39.5	
20 Acrolein	56	2.551	2.563	-0.012	99	265086	200.0	183.2	
21 1,1-Dichloroethene	61	2.634	2.634	0.000	97	829316	40.0	37.3	
22 112TCTFE	101	2.670	2.670	0.000	94	518516	40.0	39.7	
23 Acetone	43	2.693	2.693	0.000	100	503096	80.0	83.1	
24 Iodomethane	142	2.764	2.776	-0.012	98	864362	40.0	38.2	
25 Carbon disulfide	76	2.823	2.823	0.000	99	1654881	40.0	37.0	
27 3-Chloro-1-propene	41	2.954	2.954	0.000	89	902635	40.0	36.2	
28 Methyl acetate	43	2.977	2.977	0.000	97	1278569	80.0	75.4	
29 Methylene Chloride	49	3.060	3.060	0.000	92	737052	40.0	36.3	
30 2-Methyl-2-propanol	59	3.178	3.167	0.011	99	844343	400.0	402.0	
31 Acrylonitrile	53	3.285	3.285	0.000	98	3202437	400.0	364.6	
32 trans-1,2-Dichloroethene	61	3.285	3.297	-0.012	99	806228	40.0	37.8	
33 Methyl tert-butyl ether	73	3.297	3.297	0.000	96	1825802	40.0	37.3	
34 Hexane	57	3.521	3.522	-0.001	91	877095	40.0	37.1	
35 1,1-Dichloroethane	63	3.652	3.652	0.000	96	1020403	40.0	35.9	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
36 Vinyl acetate	43	3.687	3.699	-0.012	97	1471981	40.0	36.7	
41 cis-1,2-Dichloroethene	96	4.137	4.137	0.000	83	743747	40.0	37.4	
40 2,2-Dichloropropane	77	4.137	4.137	0.000	60	734903	40.0	37.7	
42 2-Butanone (MEK)	72	4.149	4.149	0.000	100	283584	80.0	81.2	
46 Chlorobromomethane	49	4.338	4.338	0.000	97	650336	40.0	40.2	
47 Tetrahydrofuran	42	4.373	4.374	-0.001	87	730197	80.0	82.0	
48 Chloroform	83	4.409	4.409	0.000	94	1111892	40.0	39.5	
49 1,1,1-Trichloroethane	97	4.551	4.551	0.000	99	944576	40.0	42.3	
50 Cyclohexane	84	4.598	4.598	0.000	91	1121049	40.0	42.4	
52 Carbon tetrachloride	117	4.693	4.693	0.000	77	782108	40.0	43.0	
51 1,1-Dichloropropene	75	4.693	4.693	0.000	95	995105	40.0	43.8	
53 Isobutyl alcohol	41	4.788	4.788	0.000	95	989777	1000.0	1109.6	
54 Benzene	78	4.870	4.870	0.000	96	2810699	40.0	41.4	
55 1,2-Dichloroethane	62	4.882	4.882	0.000	97	914197	40.0	41.4	
57 n-Heptane	57	5.072	5.083	-0.011	93	470133	40.0	42.0	
59 Trichloroethene	130	5.403	5.403	0.000	97	580360	40.0	37.8	
61 Methylcyclohexane	83	5.569	5.569	0.000	87	988563	40.0	36.8	
62 1,2-Dichloropropane	63	5.604	5.604	0.000	92	529883	40.0	36.1	
64 Dibromomethane	174	5.711	5.711	0.000	94	382258	40.0	36.7	
65 1,4-Dioxane	88	5.711	5.711	0.000	96	136471	800.0	713.6	
66 Dichlorobromomethane	83	5.829	5.829	0.000	99	682191	40.0	37.2	
68 2-Chloroethyl vinyl ether	63	6.089	6.089	0.000	92	788544	80.0	71.4	
69 cis-1,3-Dichloropropene	75	6.219	6.219	0.000	95	856087	40.0	36.9	
70 4-Methyl-2-pentanone (MIBK)	43	6.350	6.350	0.000	96	1639242	80.0	68.3	
71 Toluene	91	6.515	6.515	0.000	99	2206110	40.0	32.4	
72 trans-1,3-Dichloropropene	75	6.705	6.705	0.000	95	762783	40.0	34.6	
74 Ethyl methacrylate	69	6.776	6.776	0.000	89	787358	40.0	35.4	
75 1,1,2-Trichloroethane	97	6.870	6.870	0.000	92	449059	40.0	33.7	
76 Tetrachloroethene	166	7.000	7.000	0.000	97	564371	40.0	34.7	
77 1,3-Dichloropropane	76	7.024	7.024	0.000	91	828517	40.0	33.2	
78 2-Hexanone	43	7.095	7.095	0.000	94	1134947	80.0	63.7	
80 Chlorodibromomethane	129	7.225	7.225	0.000	91	540110	40.0	41.3	
81 Ethylene Dibromide	107	7.332	7.332	0.000	98	572080	40.0	41.6	
83 Chlorobenzene	112	7.781	7.781	0.000	95	1635971	40.0	41.2	
84 1,1,1,2-Tetrachloroethane	131	7.852	7.852	0.000	94	565680	40.0	41.7	
85 Ethylbenzene	106	7.876	7.876	0.000	99	887653	40.0	40.7	
86 m-Xylene & p-Xylene	106	7.982	7.983	-0.001	99	1150536	40.0	42.6	
87 o-Xylene	106	8.361	8.361	0.000	97	1085881	40.0	39.0	
88 Styrene	104	8.373	8.373	0.000	96	1807037	40.0	40.4	
89 Bromoform	173	8.550	8.551	-0.001	97	363030	40.0	40.2	
90 Isopropylbenzene	105	8.704	8.704	0.000	96	2727885	40.0	39.1	
93 1,1,2,2-Tetrachloroethane	83	9.000	9.000	0.000	84	843951	40.0	43.6	
92 Bromobenzene	156	9.000	9.000	0.000	94	625073	40.0	41.4	
94 1,2,3-Trichloropropane	110	9.036	9.036	0.000	85	277742	40.0	41.6	
95 trans-1,4-Dichloro-2-butene	53	9.047	9.048	-0.001	94	268293	40.0	47.4	
96 N-Propylbenzene	120	9.095	9.095	0.000	99	722462	40.0	43.9	
97 2-Chlorotoluene	126	9.189	9.178	0.011	97	610825	40.0	42.1	
98 1,3,5-Trimethylbenzene	105	9.272	9.272	0.000	96	2114062	40.0	43.6	
99 4-Chlorotoluene	126	9.284	9.284	0.000	99	615770	40.0	41.3	
102 tert-Butylbenzene	119	9.580	9.580	0.000	92	1833625	40.0	43.2	
104 1,2,4-Trimethylbenzene	105	9.627	9.627	0.000	97	2152543	40.0	42.3	
105 sec-Butylbenzene	105	9.793	9.793	0.000	95	2628984	40.0	42.7	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
106 1,3-Dichlorobenzene	146	9.911	9.911	0.000	98	1164577	40.0	40.6	
107 4-Isopropyltoluene	119	9.947	9.947	0.000	97	2242296	40.0	43.8	
108 1,4-Dichlorobenzene	146	9.994	9.994	0.000	95	1187495	40.0	40.0	
111 n-Butylbenzene	91	10.337	10.337	0.000	97	1902978	40.0	44.3	
112 1,2-Dichlorobenzene	146	10.361	10.361	0.000	97	1152915	40.0	40.5	
113 1,2-Dibromo-3-Chloropropane	157	11.130	11.130	0.000	85	206406	40.0	45.7	
115 1,2,4-Trichlorobenzene	180	11.947	11.947	0.000	94	673976	40.0	43.0	
116 Hexachlorobutadiene	225	12.124	12.124	0.000	95	244373	40.0	42.0	
117 Naphthalene	128	12.195	12.195	0.000	97	2378356	40.0	45.8	
118 1,2,3-Trichlorobenzene	180	12.432	12.432	0.000	95	619750	40.0	42.9	
S 124 Trihalomethanes, Total	1				0		160.0	158.3	
S 125 Total BTEX	1				0		200.0	196.1	
S 126 1,2-Dichloroethene, Total	96				0			75.2	
S 127 1,3-Dichloropropene, Total	75				0			71.5	
S 128 Xylenes, Total	106				0		80.0	81.6	

Reagents:

vm50is_stk_a_00006	Amount Added: 2.00	Units: uL
VMRGAS_00347	Amount Added: 32.00	Units: uL
vmarolistdw_00352	Amount Added: 32.00	Units: uL
vmrprimw_00394	Amount Added: 32.00	Units: uL
vm50ss_00410	Amount Added: 32.00	Units: uL



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279119.D
 Lims ID: std8260 L7
 Client ID:
 Sample Type: IC Calib Level: 7
 Inject. Date: 16-Jul-2020 19:57:30 ALS Bottle#: 11 Worklist Smp#: 15
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100113-015
 Operator ID: 001904 Instrument ID: A3UX12
 Sublist: chrom-8260_12_h2o*sub2
 Method: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 16-Jul-2020 21:24:33 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1057

First Level Reviewer: laveyt

Date: 16-Jul-2020 20:26:10

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	975916	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	86	701214	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.970	0.000	94	404097	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	770621	60.0	59.5	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.823	4.823	0.000	96	927672	60.0	58.5	
\$ 6 Toluene-d8 (Surr)	98	6.456	6.456	0.000	93	3239682	60.0	68.3	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	96	963194	60.0	59.3	
9 Dichlorodifluoromethane	85	1.403	1.403	0.000	99	952192	60.0	62.5	
10 Chloromethane	50	1.605	1.605	0.000	98	1437896	60.0	58.6	
11 Butadiene	54	1.640	1.652	-0.012	87	988134	60.0	55.0	
12 Vinyl chloride	62	1.687	1.687	0.000	98	1049031	60.0	57.4	
14 Bromomethane	94	1.936	1.936	0.000	91	779653	60.0	64.4	
15 Chloroethane	64	1.995	1.995	0.000	100	898507	60.0	67.6	
16 Dichlorofluoromethane	67	2.173	2.184	-0.011	97	1769403	60.0	63.8	
17 Trichlorofluoromethane	101	2.184	2.184	0.000	98	1377516	60.0	64.5	
19 Ethyl ether	59	2.445	2.445	0.000	91	908584	60.0	61.3	
20 Acrolein	56	2.551	2.563	-0.012	99	397800	300.0	311.5	
21 1,1-Dichloroethene	61	2.634	2.634	0.000	96	1279374	60.0	65.2	
22 112TCTFE	101	2.670	2.670	0.000	95	807578	60.0	70.1	
23 Acetone	43	2.693	2.693	0.000	100	661546	120.0	124.7	
24 Iodomethane	142	2.764	2.776	-0.012	98	1310816	60.0	65.7	
25 Carbon disulfide	76	2.823	2.823	0.000	99	2555816	60.0	64.7	
27 3-Chloro-1-propene	41	2.954	2.954	0.000	89	1389182	60.0	63.1	
28 Methyl acetate	43	2.977	2.977	0.000	97	1839288	120.0	123.0	
29 Methylene Chloride	49	3.060	3.060	0.000	93	1116320	60.0	62.3	
30 2-Methyl-2-propanol	59	3.178	3.167	0.011	99	1032059	600.0	556.8	
31 Acrylonitrile	53	3.273	3.285	-0.012	99	5396310	600.0	696.2	
32 trans-1,2-Dichloroethene	61	3.285	3.297	-0.012	99	1472482	60.0	78.2	
33 Methyl tert-butyl ether	73	3.297	3.297	0.000	96	3196991	60.0	73.9	
34 Hexane	57	3.510	3.522	-0.012	92	1578677	60.0	75.7	
35 1,1-Dichloroethane	63	3.652	3.652	0.000	96	1798158	60.0	71.6	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
36 Vinyl acetate	43	3.699	3.699	0.000	97	2596721	60.0	73.4	
41 cis-1,2-Dichloroethene	96	4.137	4.137	0.000	83	1130637	60.0	64.4	
40 2,2-Dichloropropane	77	4.137	4.137	0.000	60	1140347	60.0	66.3	
42 2-Butanone (MEK)	72	4.149	4.149	0.000	100	421345	120.0	136.8	
46 Chlorobromomethane	49	4.338	4.338	0.000	97	802370	60.0	56.2	
47 Tetrahydrofuran	42	4.373	4.374	-0.001	86	833693	120.0	106.0	
48 Chloroform	83	4.409	4.409	0.000	94	1462582	60.0	58.9	
49 1,1,1-Trichloroethane	97	4.551	4.551	0.000	99	1231118	60.0	62.5	
50 Cyclohexane	84	4.598	4.598	0.000	90	1431075	60.0	61.4	
51 1,1-Dichloropropene	75	4.693	4.693	0.000	94	1215722	60.0	60.6	
52 Carbon tetrachloride	117	4.693	4.693	0.000	80	1029542	60.0	64.2	
53 Isobutyl alcohol	41	4.788	4.788	0.000	94	1065136	1500.0	1353.1	
54 Benzene	78	4.870	4.870	0.000	96	3469151	60.0	57.9	
55 1,2-Dichloroethane	62	4.882	4.882	0.000	97	1156634	60.0	59.4	
57 n-Heptane	57	5.072	5.083	-0.011	92	552977	60.0	57.1	
59 Trichloroethene	130	5.403	5.403	0.000	97	873131	60.0	64.5	
61 Methylcyclohexane	83	5.569	5.569	0.000	88	1496196	60.0	63.1	
62 1,2-Dichloropropane	63	5.604	5.604	0.000	92	791730	60.0	61.2	
65 1,4-Dioxane	88	5.711	5.711	0.000	94	224221	1200.0	1328.6	
64 Dibromomethane	174	5.711	5.711	0.000	94	658845	60.0	71.7	
66 Dichlorobromomethane	83	5.829	5.829	0.000	99	1164000	60.0	72.0	
68 2-Chloroethyl vinyl ether	63	6.089	6.089	0.000	92	1519041	120.0	155.9	
69 cis-1,3-Dichloropropene	75	6.219	6.219	0.000	95	1572803	60.0	76.8	
70 4-Methyl-2-pentanone (MIBK)	43	6.350	6.350	0.000	96	2878867	120.0	135.9	
71 Toluene	91	6.515	6.515	0.000	99	3857470	60.0	66.3	
72 trans-1,3-Dichloropropene	75	6.705	6.705	0.000	95	1347764	60.0	71.5	
74 Ethyl methacrylate	69	6.776	6.776	0.000	90	1381887	60.0	72.7	
75 1,1,2-Trichloroethane	97	6.870	6.870	0.000	92	791429	60.0	69.5	
76 Tetrachloroethene	166	7.000	7.000	0.000	97	940315	60.0	67.5	
77 1,3-Dichloropropane	76	7.024	7.024	0.000	91	1400884	60.0	65.5	
78 2-Hexanone	43	7.095	7.095	0.000	95	2182766	120.0	143.1	
80 Chlorodibromomethane	129	7.225	7.225	0.000	91	784117	60.0	70.0	
81 Ethylene Dibromide	107	7.332	7.332	0.000	99	724976	60.0	61.6	
83 Chlorobenzene	112	7.781	7.781	0.000	95	2073291	60.0	61.0	
84 1,1,1,2-Tetrachloroethane	131	7.852	7.852	0.000	94	758714	60.0	65.4	
85 Ethylbenzene	106	7.876	7.876	0.000	99	1164276	60.0	62.3	
86 m-Xylene & p-Xylene	106	7.983	7.983	0.000	99	1462696	60.0	63.2	
87 o-Xylene	106	8.361	8.361	0.000	97	1432342	60.0	60.1	
88 Styrene	104	8.373	8.373	0.000	95	2377113	60.0	62.2	
89 Bromoform	173	8.551	8.551	-0.001	97	525428	60.0	68.1	
90 Isopropylbenzene	105	8.704	8.704	0.000	96	3621536	60.0	60.7	
92 Bromobenzene	156	9.000	9.000	0.000	92	897214	60.0	56.8	
93 1,1,2,2-Tetrachloroethane	83	9.000	9.000	0.000	85	1087689	60.0	53.8	
94 1,2,3-Trichloropropane	110	9.036	9.036	0.000	86	378143	60.0	54.3	
95 trans-1,4-Dichloro-2-butene	53	9.047	9.048	-0.001	92	349603	60.0	59.1	
96 N-Propylbenzene	120	9.095	9.095	0.000	99	1004987	60.0	58.5	
97 2-Chlorotoluene	126	9.189	9.178	0.011	97	844827	60.0	55.7	
98 1,3,5-Trimethylbenzene	105	9.272	9.272	0.000	96	2867428	60.0	56.6	
99 4-Chlorotoluene	126	9.284	9.284	0.000	99	864927	60.0	55.6	
102 tert-Butylbenzene	119	9.580	9.580	0.000	92	2488936	60.0	56.1	
104 1,2,4-Trimethylbenzene	105	9.627	9.627	0.000	97	2868200	60.0	53.9	
105 sec-Butylbenzene	105	9.805	9.793	0.012	94	3983089	60.0	61.9	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
106 1,3-Dichlorobenzene	146	9.911	9.911	0.000	98	1762350	60.0	58.8	
107 4-Isopropyltoluene	119	9.947	9.947	0.000	97	3408231	60.0	63.7	
108 1,4-Dichlorobenzene	146	9.994	9.994	0.000	94	1832355	60.0	59.0	
111 n-Butylbenzene	91	10.337	10.337	0.000	97	2930188	60.0	65.3	
112 1,2-Dichlorobenzene	146	10.361	10.361	0.000	97	1768141	60.0	59.4	
113 1,2-Dibromo-3-Chloropropane	157	11.130	11.130	0.000	87	286949	60.0	60.8	
115 1,2,4-Trichlorobenzene	180	11.947	11.947	0.000	93	899204	60.0	54.9	
116 Hexachlorobutadiene	225	12.124	12.124	0.000	95	342826	60.0	56.5	
117 Naphthalene	128	12.195	12.195	0.000	97	3047517	60.0	56.2	
118 1,2,3-Trichlorobenzene	180	12.432	12.432	0.000	95	842599	60.0	55.8	
S 124 Trihalomethanes, Total	1				0		240.0	269.0	
S 125 Total BTEX	1				0		300.0	309.9	
S 126 1,2-Dichloroethene, Total	96				0			142.6	
S 127 1,3-Dichloropropene, Total	75				0			148.3	
S 128 Xylenes, Total	106				0		120.0	123.4	

Reagents:

vm50is_stk_a_00006	Amount Added: 2.00	Units: uL
VMRGAS_00347	Amount Added: 48.00	Units: uL
vmarolistdw_00352	Amount Added: 48.00	Units: uL
vmrprimw_00394	Amount Added: 48.00	Units: uL
vm50ss_00410	Amount Added: 48.00	Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279119.D

Injection Date: 16-Jul-2020 19:57:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: std8260 L7

Worklist Smp#: 15

Client ID:

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

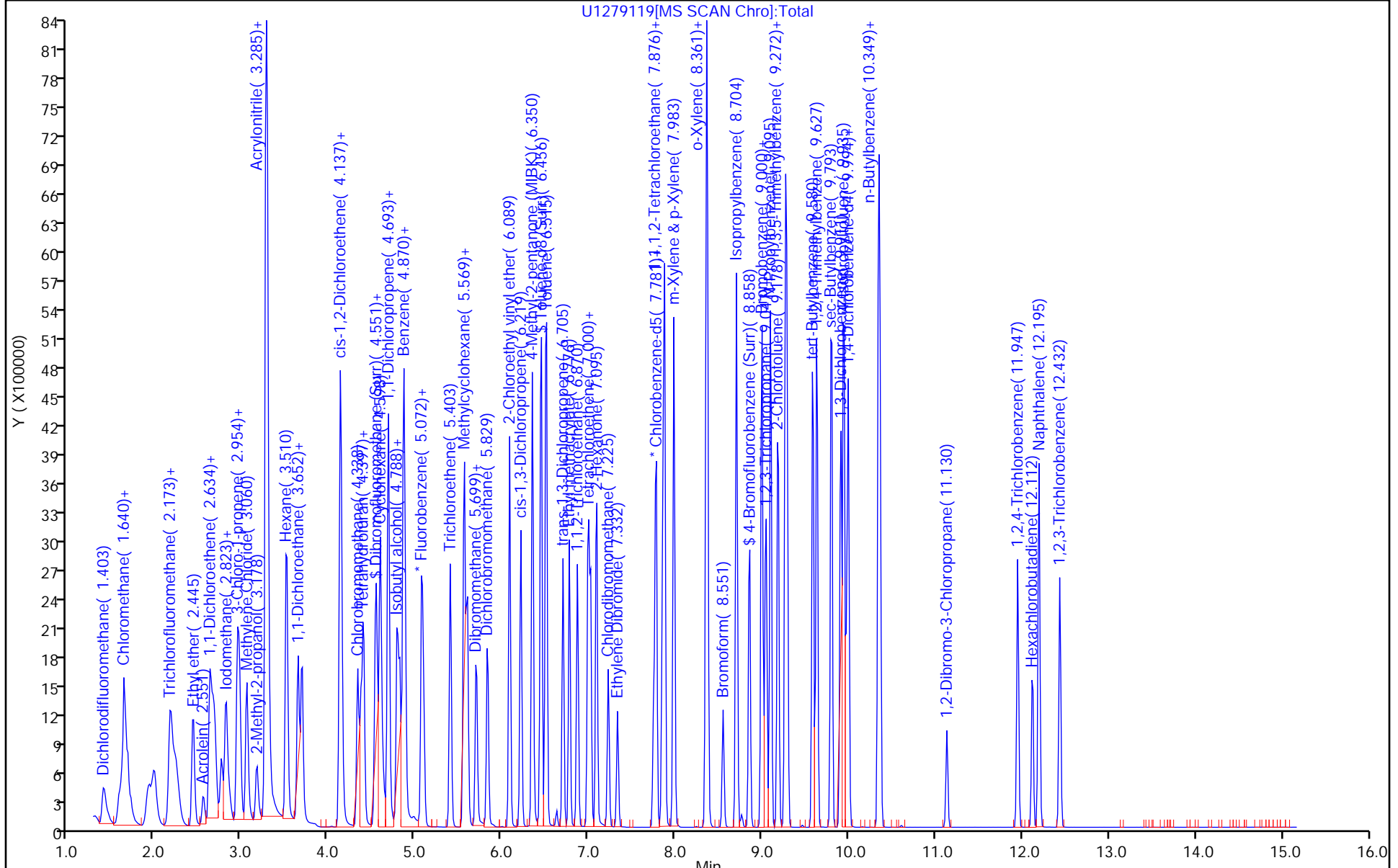
ALS Bottle#: 11

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Lims ID: std8260 L8
 Client ID:
 Sample Type: IC Calib Level: 8
 Inject. Date: 16-Jul-2020 20:20:30 ALS Bottle#: 12 Worklist Smp#: 16
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100113-016
 Operator ID: 001904 Instrument ID: A3UX12
 Sublist: chrom-8260_12_h2o*sub2
 Method: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 16-Jul-2020 21:24:44 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1057

First Level Reviewer: laveyt

Date: 16-Jul-2020 20:40:44

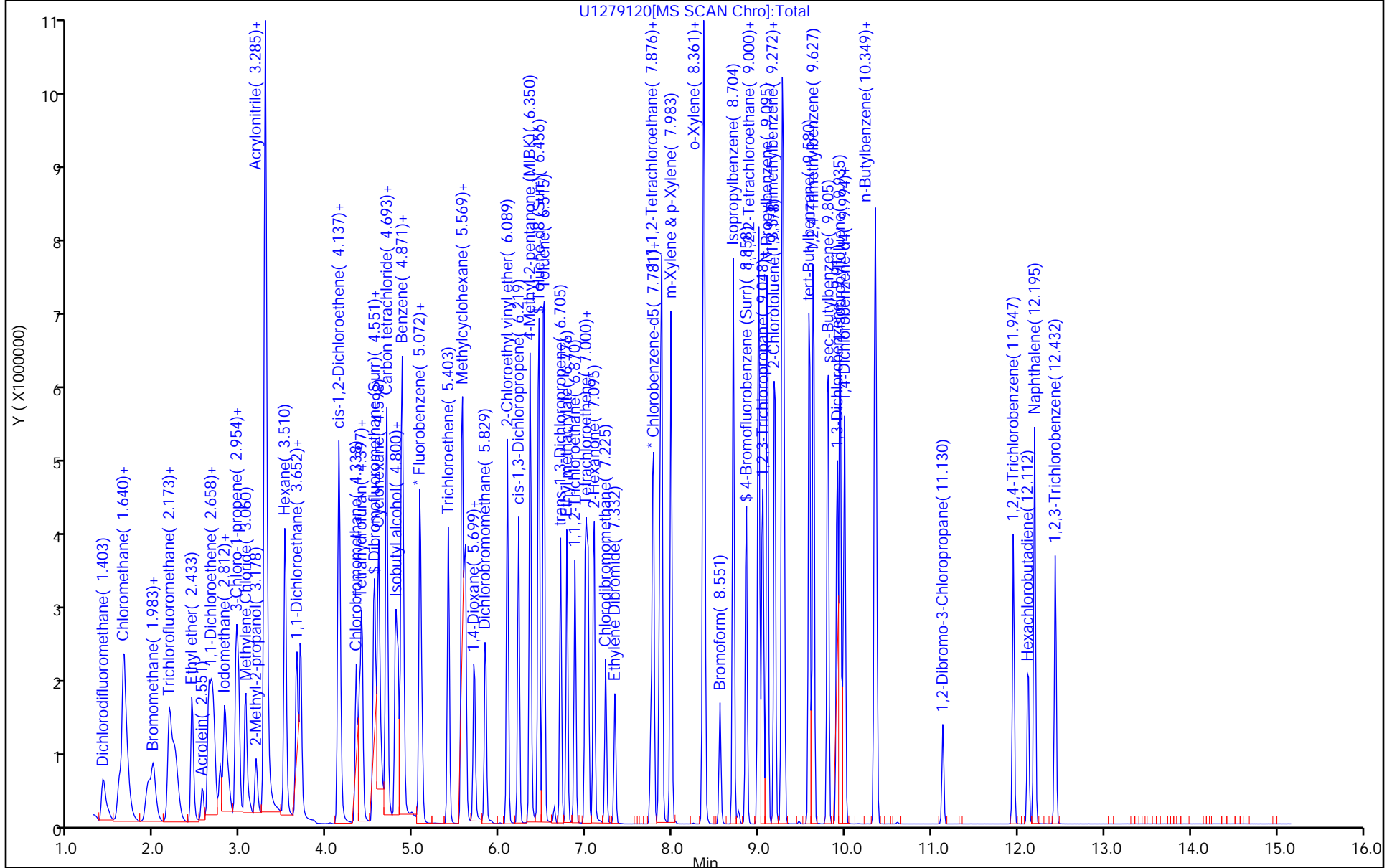
Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1144678	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	716433	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.971	9.970	0.000	92	359893	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	1043625	80.0	68.7	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.823	4.823	0.000	98	1255009	80.0	67.5	
\$ 6 Toluene-d8 (Surr)	98	6.456	6.456	0.000	93	4317396	80.0	89.1	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	95	1438809	80.0	86.7	
9 Dichlorodifluoromethane	85	1.403	1.403	0.000	99	1447911	80.0	81.0	
10 Chloromethane	50	1.605	1.605	0.000	99	2259568	80.0	78.6	
11 Butadiene	54	1.640	1.652	-0.012	88	1636623	80.0	77.7	
12 Vinyl chloride	62	1.687	1.687	0.000	97	1624267	80.0	75.8	
14 Bromomethane	94	1.936	1.936	0.000	91	1045526	80.0	73.6	
15 Chloroethane	64	1.995	1.995	0.000	100	1187806	80.0	76.2	
16 Dichlorofluoromethane	67	2.173	2.184	-0.011	97	2362624	80.0	72.6	
17 Trichlorofluoromethane	101	2.244	2.184	0.060	98	1880748	80.0	75.1	
19 Ethyl ether	59	2.433	2.445	-0.012	93	1303305	80.0	75.0	
20 Acrolein	56	2.551	2.563	-0.012	99	590629	400.0	394.3	
21 1,1-Dichloroethene	61	2.634	2.634	0.000	97	1718675	80.0	74.7	
22 112TCTFE	101	2.670	2.670	0.000	94	1072209	80.0	79.3	
23 Acetone	43	2.693	2.693	0.000	100	896587	160.0	144.4	
24 Iodomethane	142	2.764	2.776	-0.012	98	1766617	80.0	75.5	
25 Carbon disulfide	76	2.812	2.823	-0.011	100	3433316	80.0	74.1	
27 3-Chloro-1-propene	41	2.942	2.954	-0.012	89	1869760	80.0	72.4	
28 Methyl acetate	43	2.977	2.977	0.000	97	2463274	160.0	140.4	
29 Methylene Chloride	49	3.060	3.060	0.000	94	1496408	80.0	71.2	
30 2-Methyl-2-propanol	59	3.178	3.167	0.011	99	1383065	800.0	636.2	
31 Acrylonitrile	53	3.285	3.285	0.000	98	6068696	800.0	667.5	
32 trans-1,2-Dichloroethene	61	3.285	3.297	-0.012	97	1666148	80.0	75.4	
33 Methyl tert-butyl ether	73	3.297	3.297	0.000	97	3813820	80.0	75.2	
34 Hexane	57	3.510	3.522	-0.012	92	2087141	80.0	85.3	
35 1,1-Dichloroethane	63	3.652	3.652	0.000	96	2432150	80.0	82.6	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
36 Vinyl acetate	43	3.687	3.699	-0.012	97	3734074	80.0	90.0	
41 cis-1,2-Dichloroethene	96	4.137	4.137	0.000	82	1294590	80.0	62.9	
40 2,2-Dichloropropane	77	4.137	4.137	0.000	61	1274490	80.0	63.1	
42 2-Butanone (MEK)	72	4.149	4.149	0.000	99	448875	160.0	124.3	
46 Chlorobromomethane	49	4.338	4.338	0.000	97	1035588	80.0	61.8	
47 Tetrahydrofuran	42	4.374	4.374	0.000	86	1096878	160.0	118.9	
48 Chloroform	83	4.409	4.409	0.000	94	1957485	80.0	67.2	
49 1,1,1-Trichloroethane	97	4.551	4.551	0.000	99	1655131	80.0	71.6	
50 Cyclohexane	84	4.598	4.598	0.000	90	1863865	80.0	68.1	
52 Carbon tetrachloride	117	4.693	4.693	0.000	79	1403246	80.0	74.6	
51 1,1-Dichloropropene	75	4.693	4.693	0.000	94	1634304	80.0	69.5	
53 Isobutyl alcohol	41	4.800	4.788	0.012	94	1406970	2000.0	1523.9	
54 Benzene	78	4.871	4.870	0.000	96	4691183	80.0	66.8	
55 1,2-Dichloroethane	62	4.882	4.882	0.000	97	1556959	80.0	68.2	
57 n-Heptane	57	5.072	5.083	-0.011	94	953448	80.0	85.6	
59 Trichloroethene	130	5.403	5.403	0.000	97	1298374	80.0	81.7	
61 Methylcyclohexane	83	5.569	5.569	0.000	91	2376794	80.0	85.4	
62 1,2-Dichloropropane	63	5.604	5.604	0.000	94	1315984	80.0	86.7	
64 Dibromomethane	174	5.711	5.711	0.000	95	821478	80.0	76.3	
65 1,4-Dioxane	88	5.711	5.711	0.000	95	304656	1600.0	1539.1	
66 Dichlorobromomethane	83	5.829	5.829	0.000	99	1575297	80.0	83.1	
68 2-Chloroethyl vinyl ether	63	6.089	6.089	0.000	92	2001081	160.0	175.1	
69 cis-1,3-Dichloropropene	75	6.219	6.219	0.000	95	2110296	80.0	87.9	
70 4-Methyl-2-pentanone (MIBK)	43	6.350	6.350	0.000	96	4104472	160.0	165.2	
71 Toluene	91	6.515	6.515	0.000	99	5188385	80.0	87.3	
72 trans-1,3-Dichloropropene	75	6.705	6.705	0.000	94	1901312	80.0	98.7	
74 Ethyl methacrylate	69	6.776	6.776	0.000	90	1870176	80.0	96.3	
75 1,1,2-Trichloroethane	97	6.870	6.870	0.000	92	1039659	80.0	89.3	
76 Tetrachloroethene	166	7.000	7.000	0.000	97	1237632	80.0	87.0	
77 1,3-Dichloropropane	76	7.024	7.024	0.000	91	2025809	80.0	92.8	
78 2-Hexanone	43	7.095	7.095	0.000	94	2630745	160.0	168.8	
80 Chlorodibromomethane	129	7.225	7.225	0.000	91	1056327	80.0	92.3	
81 Ethylene Dibromide	107	7.332	7.332	0.000	98	1076276	80.0	89.4	
83 Chlorobenzene	112	7.781	7.781	0.000	94	2758216	80.0	79.4	
84 1,1,1,2-Tetrachloroethane	131	7.852	7.852	0.000	94	997800	80.0	84.2	
85 Ethylbenzene	106	7.876	7.876	0.000	99	1563228	80.0	81.9	
86 m-Xylene & p-Xylene	106	7.983	7.983	0.000	99	1951120	80.0	82.6	
87 o-Xylene	106	8.361	8.361	0.000	96	1945281	80.0	79.9	
88 Styrene	104	8.373	8.373	0.000	95	3253865	80.0	83.3	
89 Bromoform	173	8.551	8.551	0.000	97	723239	80.0	91.7	
90 Isopropylbenzene	105	8.704	8.704	0.000	96	4849848	80.0	79.5	
93 1,1,2,2-Tetrachloroethane	83	9.000	9.000	0.000	84	1682800	80.0	93.5	
92 Bromobenzene	156	9.000	9.000	0.000	92	1336195	80.0	95.0	
94 1,2,3-Trichloropropane	110	9.036	9.036	0.000	85	543257	80.0	87.5	
95 trans-1,4-Dichloro-2-butene	53	9.048	9.048	0.000	94	508069	80.0	96.5	
96 N-Propylbenzene	120	9.095	9.095	0.000	99	1447539	80.0	94.6	
97 2-Chlorotoluene	126	9.190	9.178	0.012	97	1259021	80.0	93.2	
98 1,3,5-Trimethylbenzene	105	9.272	9.272	0.000	97	4279171	80.0	94.8	
99 4-Chlorotoluene	126	9.284	9.284	0.000	99	1291849	80.0	93.2	
102 tert-Butylbenzene	119	9.592	9.580	0.012	92	3711556	80.0	94.0	
104 1,2,4-Trimethylbenzene	105	9.627	9.627	0.000	97	4329767	80.0	91.3	
105 sec-Butylbenzene	105	9.805	9.793	0.012	94	4715586	80.0	82.3	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
106 1,3-Dichlorobenzene	146	9.911	9.911	0.000	98	2158288	80.0	80.8	
107 4-Isopropyltoluene	119	9.947	9.947	0.000	97	4040650	80.0	84.8	
108 1,4-Dichlorobenzene	146	9.994	9.994	0.000	95	2187419	80.0	79.1	
111 n-Butylbenzene	91	10.337	10.337	0.000	97	3326661	80.0	83.3	
112 1,2-Dichlorobenzene	146	10.361	10.361	0.000	98	2080580	80.0	78.5	
113 1,2-Dibromo-3-Chloropropane	157	11.130	11.130	0.000	87	380957	80.0	90.6	
115 1,2,4-Trichlorobenzene	180	11.947	11.947	0.000	94	1243231	80.0	85.2	
116 Hexachlorobutadiene	225	12.124	12.124	0.000	96	465852	80.0	86.2	
117 Naphthalene	128	12.195	12.195	0.000	97	4209448	80.0	87.1	
118 1,2,3-Trichlorobenzene	180	12.432	12.432	0.000	96	1197429	80.0	89.1	
S 124 Trihalomethanes, Total	1				0		320.0	334.3	
S 125 Total BTEX	1				0		400.0	398.4	
S 126 1,2-Dichloroethene, Total	96				0			138.3	
S 127 1,3-Dichloropropene, Total	75				0			186.6	
S 128 Xylenes, Total	106				0		160.0	162.5	

Reagents:

vm50is_stk_a_00006	Amount Added: 2.00	Units: uL
VMRGAS_00347	Amount Added: 64.00	Units: uL
vmarolistdw_00352	Amount Added: 64.00	Units: uL
vmrprimw_00394	Amount Added: 64.00	Units: uL
vm50ss_00410	Amount Added: 64.00	Units: uL



FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Lab Sample ID: ICV 240-442964/17 Calibration Date: 07/16/2020 20:43
 Instrument ID: A3UX12 Calib Start Date: 07/16/2020 17:43
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 07/16/2020 20:20
 Lab File ID: U1279121.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.3124	0.3509		0.0225	0.0200	12.3	50.0
Chloromethane	Lin1		0.5904	0.1000	0.0233	0.0200	16.5	50.0
Butadiene	Ave	0.3681	0.4281		0.0233	0.0200	16.3	50.0
Vinyl chloride	Ave	0.3743	0.4391		0.0235	0.0200	17.3	20.0
Bromomethane	Ave	0.2481	0.2751		0.0222	0.0200	10.9	50.0
Chloroethane	Ave	0.2724	0.3111		0.0228	0.0200	14.2	50.0
Dichlorofluoromethane	Ave	0.5688	0.6178		0.0217	0.0200	8.6	50.0
Trichlorofluoromethane	Ave	0.4377	0.4814		0.0220	0.0200	10.0	50.0
Ethyl ether	Ave	0.3037	0.3304		0.0218	0.0200	8.8	50.0
Acrolein	Ave	0.0262	0.0321		0.123	0.100	22.6	50.0
1,1-Dichloroethene	Ave	0.4021	0.4100		0.0204	0.0200	2.0	20.0
1,1,2-Trichloro-1,2,2-trifluoroethane	Ave	0.2362	0.2354		0.0199	0.0200	-0.3	50.0
Acetone	Lin1		0.1438		0.0518	0.0400	29.6	50.0
Iodomethane	Ave	0.4091	0.4420		0.0216	0.0200	8.0	50.0
Carbon disulfide	Ave	0.8097	0.8205		0.0203	0.0200	1.3	50.0
3-Chloro-1-propene	Ave	0.4509	0.4651		0.0206	0.0200	3.1	50.0
Methyl acetate	Ave	0.3065	0.3473		0.0453	0.0400	13.3	50.0
Methylene Chloride	Ave	0.3674	0.4042		0.0220	0.0200	10.0	50.0
2-Methyl-2-propanol	Ave	0.0380	0.0557		0.293	0.200	46.7	50.0
Acrylonitrile	Ave	0.1589	0.1738		0.219	0.200	9.4	50.0
trans-1,2-Dichloroethene	Ave	0.3859	0.4140		0.0215	0.0200	7.3	50.0
Methyl tert-butyl ether	Ave	0.8861	0.9183		0.0207	0.0200	3.6	50.0
Hexane	Ave	0.4275	0.4675		0.0219	0.0200	9.4	20.0
1,1-Dichloroethane	Ave	0.5143	0.6173	0.1000	0.0240	0.0200	20.0	50.0
Vinyl acetate	Ave	0.7246	0.7980		0.0220	0.0200	10.1	50.0
2,2-Dichloropropane	Ave	0.3526	0.3801		0.0216	0.0200	7.8	50.0
cis-1,2-Dichloroethene	Ave	0.3599	0.3890		0.0216	0.0200	8.1	50.0
2-Butanone (MEK)	Ave	0.0631	0.0726		0.0460	0.0400	15.0	50.0
Chlorobromomethane	Ave	0.2926	0.3171		0.0217	0.0200	8.4	50.0
Tetrahydrofuran	Ave	0.1611	0.1994		0.0495	0.0400	23.8	50.0
Chloroform	Ave	0.5092	0.5736		0.0225	0.0200	12.6	20.0
1,1,1-Trichloroethane	Ave	0.4037	0.4657		0.0231	0.0200	15.3	50.0
Cyclohexane	Ave	0.4779	0.5352		0.0224	0.0200	12.0	50.0
1,1-Dichloropropene	Ave	0.4108	0.4615		0.0225	0.0200	12.3	50.0
Carbon tetrachloride	Ave	0.3288	0.3656		0.0222	0.0200	11.2	50.0
Isobutyl alcohol	Ave	0.0161	0.0230		0.714	0.500	42.7	50.0
Benzene	Ave	1.228	1.390		0.0226	0.0200	13.2	50.0
1,2-Dichloroethane	Ave	0.3989	0.4554		0.0228	0.0200	14.2	50.0
n-Heptane	Lin1		0.2072		0.0187	0.0200	-6.5	50.0
Trichloroethene	Ave	0.2776	0.2927		0.0211	0.0200	5.4	50.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Lab Sample ID: ICV 240-442964/17 Calibration Date: 07/16/2020 20:43
 Instrument ID: A3UX12 Calib Start Date: 07/16/2020 17:43
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 07/16/2020 20:20
 Lab File ID: U1279121.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Methylcyclohexane	Ave	0.4860	0.4602		0.0189	0.0200	-5.3	50.0
1,2-Dichloropropane	Ave	0.2651	0.2751		0.0207	0.0200	3.7	20.0
Dibromomethane	Ave	0.1882	0.2021		0.0215	0.0200	7.4	50.0
1,4-Dioxane	Ave	0.0035	0.0039		0.454	0.400	13.5	50.0
Dichlorobromomethane	Ave	0.3312	0.3543		0.0214	0.0200	7.0	50.0
2-Chloroethyl vinyl ether	Ave	0.1997	0.2025		0.0203	0.0200	1.4	50.0
cis-1,3-Dichloropropene	Ave	0.4197	0.4401		0.0210	0.0200	4.9	50.0
4-Methyl-2-pentanone (MIBK)	Ave	0.4341	0.4137		0.0381	0.0400	-4.7	50.0
Toluene	Ave	1.659	1.351		0.0163	0.0200	-18.6	20.0
trans-1,3-Dichloropropene	Ave	0.5377	0.4494		0.0167	0.0200	-16.4	50.0
Ethyl methacrylate	Ave	0.5422	0.4760		0.0176	0.0200	-12.2	50.0
1,1,2-Trichloroethane	Ave	0.3249	0.2775		0.0171	0.0200	-14.6	50.0
Tetrachloroethene	Ave	0.3971	0.3339		0.0168	0.0200	-15.9	50.0
1,3-Dichloropropane	Ave	0.6096	0.5170		0.0170	0.0200	-15.2	50.0
2-Hexanone	Ave	0.4350	0.4478		0.0412	0.0400	2.9	50.0
Chlorodibromomethane	Ave	0.3194	0.3179		0.0199	0.0200	-0.5	50.0
Ethylene Dibromide	Ave	0.3359	0.3434		0.0204	0.0200	2.2	50.0
Chlorobenzene	Ave	0.9701	0.998	0.3000	0.0206	0.0200	2.9	50.0
1,1,1,2-Tetrachloroethane	Ave	0.3307	0.3372		0.0204	0.0200	2.0	50.0
Ethylbenzene	Ave	0.5327	0.5515		0.0207	0.0200	3.5	20.0
m-Xylene & p-Xylene	Ave	0.6598	0.6862		0.0208	0.0200	4.0	50.0
o-Xylene	Ave	0.6795	0.6513		0.0192	0.0200	-4.1	50.0
Styrene	Ave	1.091	1.089		0.0200	0.0200	-0.2	50.0
Bromoform	Ave	0.2201	0.2169	0.1000	0.0197	0.0200	-1.5	50.0
Isopropylbenzene	Ave	1.703	1.642		0.0193	0.0200	-3.6	50.0
1,1,2,2-Tetrachloroethane	Ave	1.000	1.064	0.3000	0.0213	0.0200	6.4	50.0
Bromobenzene	Ave	0.7816	0.8109		0.0207	0.0200	3.7	50.0
1,2,3-Trichloropropane	Ave	0.3449	0.3582		0.0208	0.0200	3.8	50.0
trans-1,4-Dichloro-2-butene	Ave	0.2927	0.3519		0.0240	0.0200	20.2	50.0
N-Propylbenzene	Ave	0.8506	0.9062		0.0213	0.0200	6.5	50.0
2-Chlorotoluene	Ave	0.7510	0.7708		0.0205	0.0200	2.6	50.0
1,3,5-Trimethylbenzene	Ave	2.508	2.720		0.0217	0.0200	8.5	50.0
4-Chlorotoluene	Ave	0.7704	0.7927		0.0206	0.0200	2.9	50.0
tert-Butylbenzene	Ave	2.195	2.312		0.0211	0.0200	5.3	50.0
1,2,4-Trimethylbenzene	Ave	2.634	2.787		0.0212	0.0200	5.8	50.0
sec-Butylbenzene	Ave	3.184	3.288		0.0207	0.0200	3.3	50.0
1,3-Dichlorobenzene	Ave	1.484	1.505		0.0203	0.0200	1.4	50.0
4-Isopropyltoluene	Ave	2.648	2.880		0.0218	0.0200	8.8	50.0
1,4-Dichlorobenzene	Ave	1.537	1.557		0.0203	0.0200	1.3	50.0
n-Butylbenzene	Ave	2.220	2.439		0.0220	0.0200	9.8	50.0
1,2-Dichlorobenzene	Ave	1.473	1.461		0.0198	0.0200	-0.8	50.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Lab Sample ID: ICV 240-442964/17 Calibration Date: 07/16/2020 20:43
 Instrument ID: A3UX12 Calib Start Date: 07/16/2020 17:43
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 07/16/2020 20:20
 Lab File ID: U1279121.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,2-Dibromo-3-Chloropropane	Ave	0.2336	0.2648		0.0227	0.0200	13.4	50.0
1,2,4-Trichlorobenzene	Ave	0.8111	0.9289		0.0229	0.0200	14.5	50.0
Hexachlorobutadiene	Lin1		0.3818		0.0254	0.0200	26.8	50.0
Naphthalene	Ave	2.686	3.079		0.0229	0.0200	14.6	50.0
1,2,3-Trichlorobenzene	Ave	0.7472	0.8510		0.0228	0.0200	13.9	50.0
Dibromofluoromethane (Surr)	Ave	0.2655	0.2811		0.0212	0.0200	5.9	50.0
1,2-Dichloroethane-d4 (Surr)	Ave	0.3249	0.3526		0.0217	0.0200	8.5	50.0
Toluene-d8 (Surr)	Ave	1.353	1.134		0.0168	0.0200	-16.2	50.0
4-Bromofluorobenzene (Surr)	Ave	0.4632	0.4776		0.0206	0.0200	3.1	50.0

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279121.D
 Lims ID: ICV
 Client ID:
 Sample Type: ICV
 Inject. Date: 16-Jul-2020 20:43:30 ALS Bottle#: 13 Worklist Smp#: 17
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100113-017
 Operator ID: 001904 Instrument ID: A3UX12
 Sublist: chrom-8260_12*sub56
 Method: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 17-Jul-2020 16:45:48 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1036

First Level Reviewer: bosworthh

Date: 17-Jul-2020 16:59:59

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	993337	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	838058	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.971	9.970	0.000	92	407737	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	279224	20.0	21.2	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.823	4.823	0.000	97	350252	20.0	21.7	
\$ 6 Toluene-d8 (Surr)	98	6.456	6.456	0.000	93	949955	20.0	16.8	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	95	400258	20.0	20.6	
9 Dichlorodifluoromethane	85	1.403	1.403	0.000	99	348544	20.0	22.5	
10 Chloromethane	50	1.605	1.605	0.000	99	586447	20.0	23.3	
11 Butadiene	54	1.652	1.652	0.000	88	425236	20.0	23.3	
12 Vinyl chloride	62	1.699	1.687	0.012	98	436198	20.0	23.5	
14 Bromomethane	94	1.936	1.936	0.000	91	273299	20.0	22.2	
15 Chloroethane	64	1.995	1.995	0.000	100	309023	20.0	22.8	
16 Dichlorofluoromethane	67	2.184	2.184	0.000	97	613723	20.0	21.7	
17 Trichlorofluoromethane	101	2.184	2.184	0.000	63	478218	20.0	22.0	
19 Ethyl ether	59	2.433	2.445	-0.012	92	328196	20.0	21.8	
20 Acrolein	56	2.551	2.563	-0.012	99	159396	100.0	122.6	
21 1,1-Dichloroethene	61	2.634	2.634	0.000	98	407247	20.0	20.4	
22 112TCTFE	101	2.670	2.670	0.000	94	233841	20.0	19.9	
23 Acetone	43	2.693	2.693	0.000	100	285678	40.0	51.8	
24 Iodomethane	142	2.764	2.776	-0.012	98	439011	20.0	21.6	
25 Carbon disulfide	76	2.823	2.823	0.000	100	815013	20.0	20.3	
27 3-Chloro-1-propene	41	2.954	2.954	0.000	89	461947	20.0	20.6	
28 Methyl acetate	43	2.977	2.977	0.000	97	689875	40.0	45.3	
29 Methylene Chloride	49	3.060	3.060	0.000	93	401453	20.0	22.0	
30 2-Methyl-2-propanol	59	3.167	3.167	0.000	99	553660	200.0	293.5	
31 Acrylonitrile	53	3.273	3.285	-0.012	99	1725957	200.0	218.8	
32 trans-1,2-Dichloroethene	61	3.285	3.297	-0.012	67	411242	20.0	21.5	
33 Methyl tert-butyl ether	73	3.297	3.297	0.000	96	912225	20.0	20.7	
34 Hexane	57	3.522	3.522	0.000	91	464381	20.0	21.9	
35 1,1-Dichloroethane	63	3.652	3.652	0.000	96	613203	20.0	24.0	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
36 Vinyl acetate	43	3.687	3.699	-0.012	97	792663	20.0	22.0	
41 cis-1,2-Dichloroethene	96	4.137	4.137	0.000	83	386440	20.0	21.6	
40 2,2-Dichloropropane	77	4.137	4.137	0.000	60	377531	20.0	21.6	
42 2-Butanone (MEK)	72	4.149	4.149	0.000	100	144149	40.0	46.0	
46 Chlorobromomethane	49	4.338	4.338	0.000	97	314975	20.0	21.7	
47 Tetrahydrofuran	42	4.374	4.374	0.000	88	396167	40.0	49.5	
48 Chloroform	83	4.397	4.409	-0.012	94	569805	20.0	22.5	
49 1,1,1-Trichloroethane	97	4.551	4.551	0.000	99	462552	20.0	23.1	
50 Cyclohexane	84	4.598	4.598	0.000	91	531634	20.0	22.4	
51 1,1-Dichloropropene	75	4.693	4.693	0.000	94	458449	20.0	22.5	
52 Carbon tetrachloride	117	4.693	4.693	0.000	77	363141	20.0	22.2	
53 Isobutyl alcohol	41	4.788	4.788	0.000	95	571724	500.0	713.6	
54 Benzene	78	4.871	4.870	0.001	96	1380254	20.0	22.6	
55 1,2-Dichloroethane	62	4.882	4.882	0.000	97	452321	20.0	22.8	
57 n-Heptane	57	5.072	5.083	-0.011	90	205767	20.0	18.7	
59 Trichloroethene	130	5.403	5.403	0.000	96	290757	20.0	21.1	
61 Methylcyclohexane	83	5.569	5.569	0.000	88	457177	20.0	18.9	
62 1,2-Dichloropropane	63	5.604	5.604	0.000	95	273216	20.0	20.7	
65 1,4-Dioxane	88	5.711	5.711	0.000	92	77958	400.0	453.8	
64 Dibromomethane	174	5.699	5.711	-0.012	94	200761	20.0	21.5	
66 Dichlorobromomethane	83	5.829	5.829	0.000	99	351960	20.0	21.4	
68 2-Chloroethyl vinyl ether	63	6.089	6.089	0.000	92	201159	20.0	20.3	
69 cis-1,3-Dichloropropene	75	6.219	6.219	0.000	95	437123	20.0	21.0	
70 4-Methyl-2-pentanone (MIBK)	43	6.350	6.350	0.000	95	821820	40.0	38.1	
71 Toluene	91	6.515	6.515	0.000	99	1132493	20.0	16.3	
72 trans-1,3-Dichloropropene	75	6.705	6.705	0.000	95	376655	20.0	16.7	
74 Ethyl methacrylate	69	6.776	6.776	0.000	90	398944	20.0	17.6	
75 1,1,2-Trichloroethane	97	6.870	6.870	0.000	93	232540	20.0	17.1	
76 Tetrachloroethene	166	7.000	7.000	0.000	97	279828	20.0	16.8	
77 1,3-Dichloropropane	76	7.024	7.024	0.000	91	433260	20.0	17.0	
78 2-Hexanone	43	7.083	7.095	-0.012	96	750568	40.0	41.2	
80 Chlorodibromomethane	129	7.225	7.225	0.000	90	266384	20.0	19.9	
81 Ethylene Dibromide	107	7.332	7.332	0.000	98	287765	20.0	20.4	
83 Chlorobenzene	112	7.781	7.781	0.000	95	836668	20.0	20.6	
84 1,1,1,2-Tetrachloroethane	131	7.852	7.852	0.000	94	282602	20.0	20.4	
85 Ethylbenzene	106	7.876	7.876	0.000	98	462200	20.0	20.7	
86 m-Xylene & p-Xylene	106	7.983	7.983	0.000	99	575048	20.0	20.8	
87 o-Xylene	106	8.361	8.361	0.000	94	545846	20.0	19.2	
88 Styrene	104	8.373	8.373	0.000	96	912644	20.0	20.0	
89 Bromoform	173	8.551	8.551	0.000	97	181797	20.0	19.7	
90 Isopropylbenzene	105	8.704	8.704	0.000	96	1376423	20.0	19.3	
92 Bromobenzene	156	9.000	9.000	0.000	94	330644	20.0	20.7	
93 1,1,2,2-Tetrachloroethane	83	9.000	9.000	0.000	84	433631	20.0	21.3	
94 1,2,3-Trichloropropane	110	9.036	9.036	0.000	85	146054	20.0	20.8	
95 trans-1,4-Dichloro-2-butene	53	9.048	9.048	0.000	92	143465	20.0	24.0	
96 N-Propylbenzene	120	9.095	9.095	0.000	99	369474	20.0	21.3	
97 2-Chlorotoluene	126	9.190	9.178	0.012	97	314297	20.0	20.5	
98 1,3,5-Trimethylbenzene	105	9.272	9.272	0.000	96	1109190	20.0	21.7	
99 4-Chlorotoluene	126	9.284	9.284	0.000	99	323205	20.0	20.6	
102 tert-Butylbenzene	119	9.580	9.580	0.000	92	942757	20.0	21.1	
104 1,2,4-Trimethylbenzene	105	9.627	9.627	0.000	97	1136160	20.0	21.2	
105 sec-Butylbenzene	105	9.793	9.793	0.000	95	1340543	20.0	20.7	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
106 1,3-Dichlorobenzene	146	9.911	9.911	0.000	98	613552	20.0	20.3	
107 4-Isopropyltoluene	119	9.935	9.947	-0.012	97	1174175	20.0	21.8	
108 1,4-Dichlorobenzene	146	9.994	9.994	0.000	94	634809	20.0	20.3	
111 n-Butylbenzene	91	10.337	10.337	0.000	97	994318	20.0	22.0	
112 1,2-Dichlorobenzene	146	10.361	10.361	0.000	97	595587	20.0	19.8	
113 1,2-Dibromo-3-Chloropropane	157	11.130	11.130	0.000	84	107973	20.0	22.7	
115 1,2,4-Trichlorobenzene	180	11.947	11.947	0.000	94	378752	20.0	22.9	
116 Hexachlorobutadiene	225	12.124	12.124	0.000	95	155689	20.0	25.4	
117 Naphthalene	128	12.195	12.195	0.000	97	1255549	20.0	22.9	
118 1,2,3-Trichlorobenzene	180	12.432	12.432	0.000	95	346971	20.0	22.8	
S 124 Trihalomethanes, Total	1				0		80.0	83.5	
S 125 Total BTEX	1				0		100.0	99.6	
S 128 Xylenes, Total	106				0		40.0	40.0	

Reagents:

vmfasgw_00367	Amount Added: 16.00	Units: uL	
vmfaspw_00358	Amount Added: 16.00	Units: uL	
vmfasaw_00336	Amount Added: 16.00	Units: uL	
vmDist_H2o_00176	Amount Added: 0.00	Units:	Run Reagent
vm50ss_stk_00085	Amount Added: 2.00	Units: uL	Run Reagent
vm50is_stk_a_00006	Amount Added: 2.00	Units: uL	Run Reagent
vm40ml_vials_00015	Amount Added: 0.00	Units:	Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279121.D

Injection Date: 16-Jul-2020 20:43:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: ICV

Worklist Smp#: 17

Client ID:

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

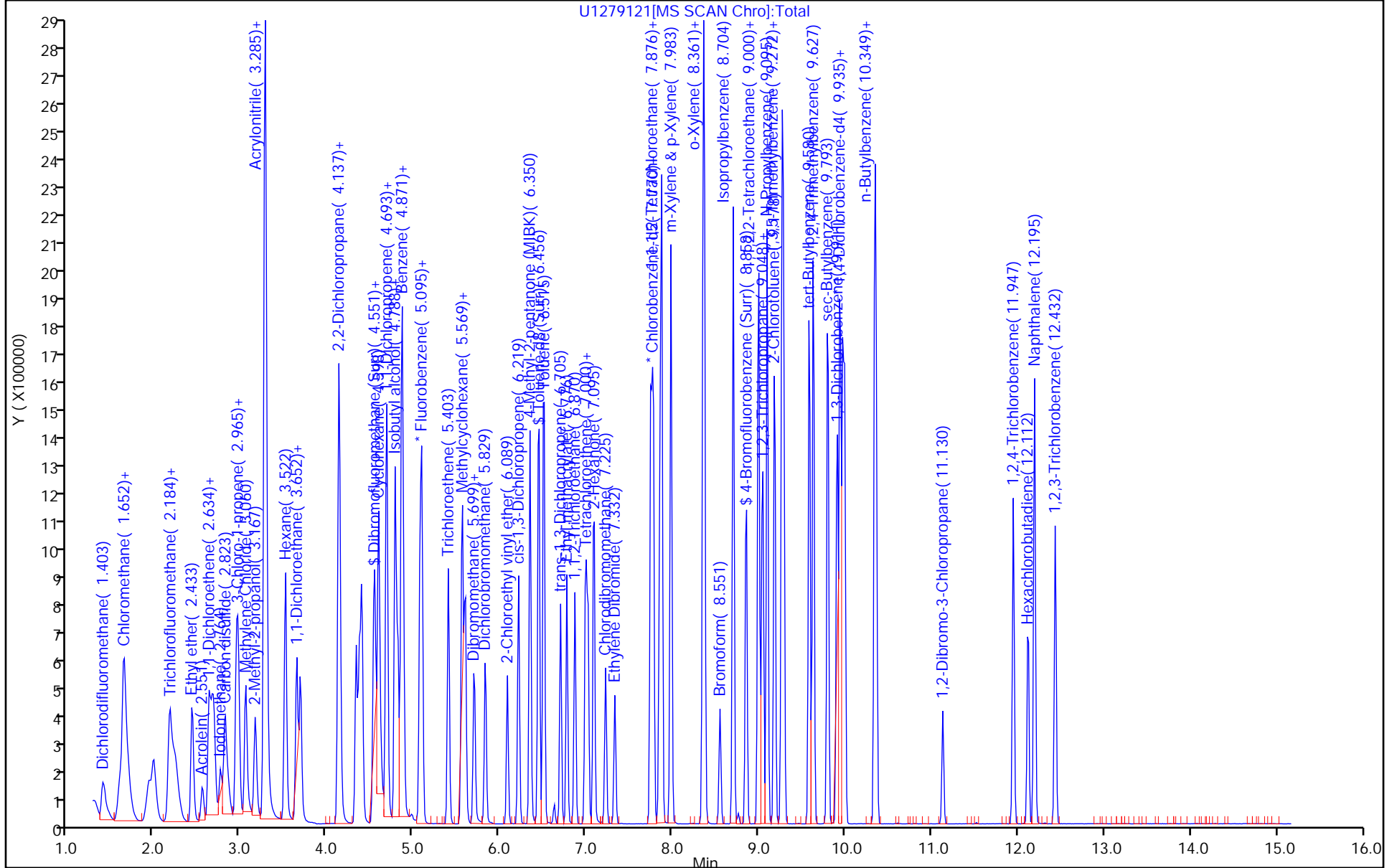
ALS Bottle#: 13

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Lab Sample ID: CCVIS 240-445183/4 Calibration Date: 07/31/2020 15:49
 Instrument ID: A3UX12 Calib Start Date: 07/16/2020 17:43
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 07/16/2020 20:20
 Lab File ID: U1279409.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.3124	0.3705		0.0237	0.0200	18.6	50.0
Chloromethane	Lin1		0.5778	0.1000	0.0228	0.0200	14.0	50.0
Butadiene	Ave	0.3681	0.4154		0.0226	0.0200	12.8	50.0
Vinyl chloride	Ave	0.3743	0.4067		0.0217	0.0200	8.7	20.0
Bromomethane	Ave	0.2481	0.2288		0.0184	0.0200	-7.8	50.0
Chloroethane	Ave	0.2724	0.2600		0.0191	0.0200	-4.6	50.0
Dichlorofluoromethane	Ave	0.5688	0.5174		0.0182	0.0200	-9.0	50.0
Trichlorofluoromethane	Ave	0.4377	0.4127		0.0189	0.0200	-5.7	50.0
Ethyl ether	Ave	0.3037	0.2728		0.0180	0.0200	-10.2	50.0
Acrolein	Ave	0.0262	0.0256		0.0978	0.100	-2.2	50.0
1,1-Dichloroethene	Ave	0.4021	0.4219		0.0210	0.0200	4.9	20.0
1,1,2-Trichloro-1,2,2-trifluoroethane	Ave	0.2362	0.2549		0.0216	0.0200	7.9	50.0
Acetone	Lin1		0.1424		0.0513	0.0400	28.3	50.0
Iodomethane	Ave	0.4091	0.3922		0.0192	0.0200	-4.1	50.0
Carbon disulfide	Ave	0.8097	0.8614		0.0213	0.0200	6.4	50.0
3-Chloro-1-propene	Ave	0.4509	0.5171		0.0229	0.0200	14.7	50.0
Methyl acetate	Ave	0.3065	0.3441		0.0449	0.0400	12.2	50.0
Methylene Chloride	Ave	0.3674	0.3772		0.0205	0.0200	2.7	50.0
2-Methyl-2-propanol	Ave	0.0380	0.0537		0.283	0.200	41.4	50.0
Acrylonitrile	Ave	0.1589	0.1713		0.216	0.200	7.8	50.0
Methyl tert-butyl ether	Ave	0.8861	0.8773		0.0198	0.0200	-1.0	50.0
trans-1,2-Dichloroethene	Ave	0.3859	0.4142		0.0215	0.0200	7.3	50.0
Hexane	Ave	0.4275	0.4829		0.0226	0.0200	12.9	20.0
1,1-Dichloroethane	Ave	0.5143	0.5212	0.1000	0.0203	0.0200	1.3	50.0
Vinyl acetate	Ave	0.7246	0.7745		0.0214	0.0200	6.9	50.0
2,2-Dichloropropane	Ave	0.3526	0.3213		0.0182	0.0200	-8.9	50.0
cis-1,2-Dichloroethene	Ave	0.3599	0.3006		0.0167	0.0200	-16.5	50.0
2-Butanone (MEK)	Ave	0.0631	0.0624		0.0395	0.0400	-1.2	50.0
Chlorobromomethane	Ave	0.2926	0.2635		0.0180	0.0200	-10.0	50.0
Tetrahydrofuran	Ave	0.1611	0.1650		0.0410	0.0400	2.4	50.0
Chloroform	Ave	0.5092	0.4636		0.0182	0.0200	-9.0	20.0
1,1,1-Trichloroethane	Ave	0.4037	0.3882		0.0192	0.0200	-3.9	50.0
Cyclohexane	Ave	0.4779	0.4855		0.0203	0.0200	1.6	50.0
1,1-Dichloropropene	Ave	0.4108	0.4156		0.0202	0.0200	1.2	50.0
Carbon tetrachloride	Ave	0.3288	0.3301		0.0201	0.0200	0.4	50.0
Isobutyl alcohol	Ave	0.0161	0.0199		0.617	0.500	23.4	50.0
Benzene	Ave	1.228	1.183		0.0193	0.0200	-3.7	50.0
1,2-Dichloroethane	Ave	0.3989	0.3673		0.0184	0.0200	-7.9	50.0
n-Heptane	Lin1		0.2337		0.0215	0.0200	7.6	50.0
Trichloroethene	Ave	0.2776	0.2768		0.0199	0.0200	-0.3	50.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Lab Sample ID: CCVIS 240-445183/4 Calibration Date: 07/31/2020 15:49
 Instrument ID: A3UX12 Calib Start Date: 07/16/2020 17:43
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 07/16/2020 20:20
 Lab File ID: U1279409.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Methylcyclohexane	Ave	0.4860	0.5165		0.0213	0.0200	6.3	50.0
1,2-Dichloropropane	Ave	0.2651	0.2767		0.0209	0.0200	4.4	20.0
Dibromomethane	Ave	0.1882	0.1698		0.0180	0.0200	-9.8	50.0
1,4-Dioxane	Ave	0.0035	0.0041		0.471	0.400	17.8	50.0
Dichlorobromomethane	Ave	0.3312	0.3327		0.0201	0.0200	0.5	50.0
2-Chloroethyl vinyl ether	Ave	0.1997	0.2168		0.0434	0.0400	8.6	50.0
cis-1,3-Dichloropropene	Ave	0.4197	0.4428		0.0211	0.0200	5.5	50.0
4-Methyl-2-pentanone (MIBK)	Ave	0.4341	0.4546		0.0419	0.0400	4.7	50.0
Toluene	Ave	1.659	1.687		0.0203	0.0200	1.6	20.0
trans-1,3-Dichloropropene	Ave	0.5377	0.5923		0.0220	0.0200	10.2	50.0
Ethyl methacrylate	Ave	0.5422	0.6146		0.0227	0.0200	13.3	50.0
1,1,2-Trichloroethane	Ave	0.3249	0.3326		0.0205	0.0200	2.3	50.0
Tetrachloroethene	Ave	0.3971	0.4075		0.0205	0.0200	2.6	50.0
1,3-Dichloropropane	Ave	0.6096	0.6360		0.0209	0.0200	4.3	50.0
2-Hexanone	Ave	0.4350	0.4871		0.0448	0.0400	12.0	50.0
Chlorodibromomethane	Ave	0.3194	0.3370		0.0211	0.0200	5.5	50.0
Ethylene Dibromide	Ave	0.3359	0.3477		0.0207	0.0200	3.5	50.0
Chlorobenzene	Ave	0.9701	1.014	0.3000	0.0209	0.0200	4.5	50.0
1,1,1,2-Tetrachloroethane	Ave	0.3307	0.3521		0.0213	0.0200	6.4	50.0
Ethylbenzene	Ave	0.5327	0.5768		0.0217	0.0200	8.3	20.0
m-Xylene & p-Xylene	Ave	0.6598	0.7291		0.0221	0.0200	10.5	50.0
o-Xylene	Ave	0.6795	0.7063		0.0208	0.0200	4.0	50.0
Styrene	Ave	1.091	1.181		0.0216	0.0200	8.2	50.0
Bromoform	Ave	0.2201	0.2504	0.1000	0.0228	0.0200	13.8	50.0
Isopropylbenzene	Ave	1.703	1.846		0.0217	0.0200	8.4	50.0
1,1,2,2-Tetrachloroethane	Ave	1.000	1.089	0.3000	0.0218	0.0200	8.9	50.0
Bromobenzene	Ave	0.7816	0.8371		0.0214	0.0200	7.1	50.0
1,2,3-Trichloropropane	Ave	0.3449	0.3692		0.0214	0.0200	7.0	50.0
trans-1,4-Dichloro-2-butene	Ave	0.2927	0.3823		0.0261	0.0200	30.6	50.0
N-Propylbenzene	Ave	0.8506	1.002		0.0236	0.0200	17.8	50.0
2-Chlorotoluene	Ave	0.7510	0.8102		0.0216	0.0200	7.9	50.0
1,3,5-Trimethylbenzene	Ave	2.508	2.921		0.0233	0.0200	16.5	50.0
4-Chlorotoluene	Ave	0.7704	0.8316		0.0216	0.0200	7.9	50.0
tert-Butylbenzene	Ave	2.195	2.550		0.0232	0.0200	16.2	50.0
1,2,4-Trimethylbenzene	Ave	2.634	2.930		0.0222	0.0200	11.2	50.0
sec-Butylbenzene	Ave	3.184	3.676		0.0231	0.0200	15.5	50.0
1,3-Dichlorobenzene	Ave	1.484	1.564		0.0211	0.0200	5.4	50.0
4-Isopropyltoluene	Ave	2.648	3.115		0.0235	0.0200	17.7	50.0
1,4-Dichlorobenzene	Ave	1.537	1.580		0.0206	0.0200	2.8	50.0
n-Butylbenzene	Ave	2.220	2.632		0.0237	0.0200	18.6	50.0
1,2-Dichlorobenzene	Ave	1.473	1.516		0.0206	0.0200	2.9	50.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Lab Sample ID: CCVIS 240-445183/4 Calibration Date: 07/31/2020 15:49
 Instrument ID: A3UX12 Calib Start Date: 07/16/2020 17:43
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 07/16/2020 20:20
 Lab File ID: U1279409.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,2-Dibromo-3-Chloropropane	Ave	0.2336	0.2842		0.0243	0.0200	21.7	50.0
1,2,4-Trichlorobenzene	Ave	0.8111	0.9001		0.0222	0.0200	11.0	50.0
Hexachlorobutadiene	Lin1		0.3374		0.0224	0.0200	12.0	50.0
Naphthalene	Ave	2.686	3.057		0.0228	0.0200	13.8	50.0
1,2,3-Trichlorobenzene	Ave	0.7472	0.8065		0.0216	0.0200	7.9	50.0
Dibromofluoromethane (Surr)	Ave	0.2655	0.2432		0.0183	0.0200	-8.4	50.0
1,2-Dichloroethane-d4 (Surr)	Ave	0.3249	0.3040		0.0187	0.0200	-6.4	50.0
Toluene-d8 (Surr)	Ave	1.353	1.440		0.0213	0.0200	6.4	50.0
4-Bromofluorobenzene (Surr)	Ave	0.4632	0.5109		0.0221	0.0200	10.3	50.0

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279409.D
 Lims ID: CCVIS
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 31-Jul-2020 15:49:30 ALS Bottle#: 3 Worklist Smp#: 4
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-004
 Operator ID: 001904 Instrument ID: A3UX12
 Sublist: chrom-8260_12_h2o*sub2
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 31-Jul-2020 18:04:47 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1030

First Level Reviewer: laveyt

Date: 31-Jul-2020 16:10:40

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1182046	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	93	798808	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.971	9.971	0.000	96	396386	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	287475	20.0	18.3	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.823	4.823	0.000	96	359357	20.0	18.7	
\$ 6 Toluene-d8 (Surr)	98	6.456	6.456	0.000	93	1150002	20.0	21.3	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.846	8.846	0.000	90	408086	20.0	22.1	
9 Dichlorodifluoromethane	85	1.404	1.404	0.000	99	437918	20.0	23.7	
10 Chloromethane	50	1.593	1.593	0.000	99	683025	20.0	22.8	
11 Butadiene	54	1.640	1.640	0.000	91	490961	20.0	22.6	
12 Vinyl chloride	62	1.688	1.688	0.000	97	480714	20.0	21.7	
14 Bromomethane	94	1.924	1.924	0.000	91	270495	20.0	18.4	
15 Chloroethane	64	1.983	1.983	0.000	100	307350	20.0	19.1	
16 Dichlorofluoromethane	67	2.173	2.173	0.000	97	611547	20.0	18.2	
17 Trichlorofluoromethane	101	2.173	2.173	0.000	97	487799	20.0	18.9	
19 Ethyl ether	59	2.433	2.433	0.000	93	322513	20.0	18.0	
20 Acrolein	56	2.551	2.551	0.000	99	151302	100.0	97.8	
21 1,1-Dichloroethene	61	2.634	2.634	0.000	96	498737	20.0	21.0	
22 112TCTFE	101	2.658	2.658	0.000	95	301252	20.0	21.6	
23 Acetone	43	2.693	2.693	0.000	100	336669	40.0	51.3	
24 Iodomethane	142	2.764	2.764	0.000	98	463600	20.0	19.2	
25 Carbon disulfide	76	2.812	2.812	0.000	99	1018253	20.0	21.3	
27 3-Chloro-1-propene	41	2.942	2.942	0.000	92	611171	20.0	22.9	
28 Methyl acetate	43	2.965	2.965	0.000	98	813358	40.0	44.9	
29 Methylene Chloride	49	3.060	3.060	0.000	95	445902	20.0	20.5	
30 2-Methyl-2-propanol	59	3.167	3.167	0.000	100	634801	200.0	282.8	
31 Acrylonitrile	53	3.273	3.273	0.000	99	2024353	200.0	215.6	
33 Methyl tert-butyl ether	73	3.285	3.285	0.000	96	1036997	20.0	19.8	
32 trans-1,2-Dichloroethene	61	3.285	3.285	0.000	97	489616	20.0	21.5	
34 Hexane	57	3.510	3.510	0.000	92	570763	20.0	22.6	
35 1,1-Dichloroethane	63	3.652	3.652	0.000	96	616134	20.0	20.3	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
36 Vinyl acetate	43	3.687	3.687	0.000	97	915490	20.0	21.4	
41 cis-1,2-Dichloroethene	96	4.137	4.137	0.000	83	355284	20.0	16.7	
40 2,2-Dichloropropane	77	4.137	4.137	0.000	61	379830	20.0	18.2	
42 2-Butanone (MEK)	72	4.149	4.149	0.000	100	147459	40.0	39.5	
46 Chlorobromomethane	49	4.338	4.338	0.000	97	311461	20.0	18.0	
47 Tetrahydrofuran	42	4.374	4.374	0.000	89	390150	40.0	41.0	
48 Chloroform	83	4.397	4.397	0.000	94	548025	20.0	18.2	
49 1,1,1-Trichloroethane	97	4.551	4.551	0.000	99	458831	20.0	19.2	
50 Cyclohexane	84	4.598	4.598	0.000	91	573914	20.0	20.3	
52 Carbon tetrachloride	117	4.693	4.693	0.000	78	390216	20.0	20.1	
51 1,1-Dichloropropene	75	4.693	4.693	0.000	94	491238	20.0	20.2	
53 Isobutyl alcohol	41	4.788	4.788	0.000	95	588365	500.0	617.1	
54 Benzene	78	4.859	4.859	0.000	96	1398078	20.0	19.3	
55 1,2-Dichloroethane	62	4.882	4.882	0.000	97	434139	20.0	18.4	
57 n-Heptane	57	5.072	5.072	0.000	93	276223	20.0	21.5	
59 Trichloroethene	130	5.403	5.403	0.000	98	327201	20.0	19.9	
61 Methylcyclohexane	83	5.569	5.569	0.000	89	610481	20.0	21.3	
62 1,2-Dichloropropane	63	5.604	5.604	0.000	92	327075	20.0	20.9	
64 Dibromomethane	174	5.699	5.699	0.000	96	200660	20.0	18.0	
65 1,4-Dioxane	88	5.711	5.711	0.000	95	96314	400.0	471.2	
66 Dichlorobromomethane	83	5.829	5.829	0.000	99	393317	20.0	20.1	
68 2-Chloroethyl vinyl ether	63	6.089	6.089	0.000	92	512567	40.0	43.4	
69 cis-1,3-Dichloropropene	75	6.220	6.220	0.000	95	523409	20.0	21.1	
70 4-Methyl-2-pentanone (MIBK)	43	6.350	6.350	0.000	97	1074822	40.0	41.9	
71 Toluene	91	6.504	6.504	0.000	99	1347263	20.0	20.3	
72 trans-1,3-Dichloropropene	75	6.705	6.705	0.000	95	473095	20.0	22.0	
74 Ethyl methacrylate	69	6.776	6.776	0.000	90	490910	20.0	22.7	
75 1,1,2-Trichloroethane	97	6.870	6.870	0.000	92	265650	20.0	20.5	
76 Tetrachloroethene	166	7.001	7.001	0.000	98	325550	20.0	20.5	
77 1,3-Dichloropropane	76	7.024	7.024	0.000	92	508010	20.0	20.9	
78 2-Hexanone	43	7.083	7.083	0.000	97	778172	40.0	44.8	
80 Chlorodibromomethane	129	7.225	7.225	0.000	91	269180	20.0	21.1	
81 Ethylene Dibromide	107	7.332	7.332	0.000	98	277748	20.0	20.7	
83 Chlorobenzene	112	7.781	7.781	0.000	97	810030	20.0	20.9	
84 1,1,1,2-Tetrachloroethane	131	7.852	7.852	0.000	95	281218	20.0	21.3	
85 Ethylbenzene	106	7.876	7.876	0.000	99	460730	20.0	21.7	
86 m-Xylene & p-Xylene	106	7.983	7.983	0.000	98	582426	20.0	22.1	
87 o-Xylene	106	8.361	8.361	0.000	95	564227	20.0	20.8	
88 Styrene	104	8.373	8.373	0.000	95	943280	20.0	21.6	
89 Bromoform	173	8.551	8.551	0.000	97	200041	20.0	22.8	
90 Isopropylbenzene	105	8.704	8.704	0.000	96	1474873	20.0	21.7	
92 Bromobenzene	156	9.000	9.000	0.000	94	331802	20.0	21.4	
93 1,1,2,2-Tetrachloroethane	83	9.000	9.000	0.000	83	431538	20.0	21.8	
94 1,2,3-Trichloropropane	110	9.036	9.036	0.000	85	146358	20.0	21.4	
95 trans-1,4-Dichloro-2-butene	53	9.048	9.048	0.000	92	151546	20.0	26.1	
96 N-Propylbenzene	120	9.095	9.095	0.000	99	397115	20.0	23.6	
97 2-Chlorotoluene	126	9.190	9.190	0.000	97	321139	20.0	21.6	
98 1,3,5-Trimethylbenzene	105	9.272	9.272	0.000	95	1157939	20.0	23.3	
99 4-Chlorotoluene	126	9.284	9.284	0.000	99	329618	20.0	21.6	
102 tert-Butylbenzene	119	9.580	9.580	0.000	92	1010735	20.0	23.2	
104 1,2,4-Trimethylbenzene	105	9.627	9.627	0.000	97	1161462	20.0	22.2	
105 sec-Butylbenzene	105	9.793	9.793	0.000	95	1457237	20.0	23.1	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
106 1,3-Dichlorobenzene	146	9.911	9.911	0.000	98	619998	20.0	21.1	
107 4-Isopropyltoluene	119	9.935	9.935	0.000	97	1234926	20.0	23.5	
108 1,4-Dichlorobenzene	146	9.994	9.994	0.000	96	626331	20.0	20.6	
111 n-Butylbenzene	91	10.337	10.337	0.000	97	1043481	20.0	23.7	
112 1,2-Dichlorobenzene	146	10.361	10.361	0.000	98	600727	20.0	20.6	
113 1,2-Dibromo-3-Chloropropane	157	11.130	11.130	0.000	85	112650	20.0	24.3	
115 1,2,4-Trichlorobenzene	180	11.947	11.947	0.000	94	356795	20.0	22.2	
116 Hexachlorobutadiene	225	12.124	12.124	0.000	95	133740	20.0	22.4	
117 Naphthalene	128	12.195	12.195	0.000	97	1211663	20.0	22.8	
118 1,2,3-Trichlorobenzene	180	12.432	12.432	0.000	95	319664	20.0	21.6	
S 124 Trihalomethanes, Total	1				0		80.0	82.2	
S 125 Total BTEX	1				0		100.0	104.1	
S 128 Xylenes, Total	106				0		40.0	42.9	

Reagents:

vmarolistdw_00354	Amount Added: 16.00	Units: uL	
vmrprimw_00397	Amount Added: 16.00	Units: uL	
vmrgas_00349	Amount Added: 16.00	Units: uL	
vmDist_H2o_00177	Amount Added: 0.00	Units:	Run Reagent
vm50ss_stk_00085	Amount Added: 2.00	Units: uL	Run Reagent
vm50is_stk_a_00006	Amount Added: 2.00	Units: uL	Run Reagent
vm40ml_vials_00015	Amount Added: 0.00	Units:	Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromf\Canton\ChromData\A3UX12\20200731-100577.b\U1279409.D

Injection Date: 31-Jul-2020 15:49:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: CCVIS

Worklist Smp#: 4

Client ID:

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

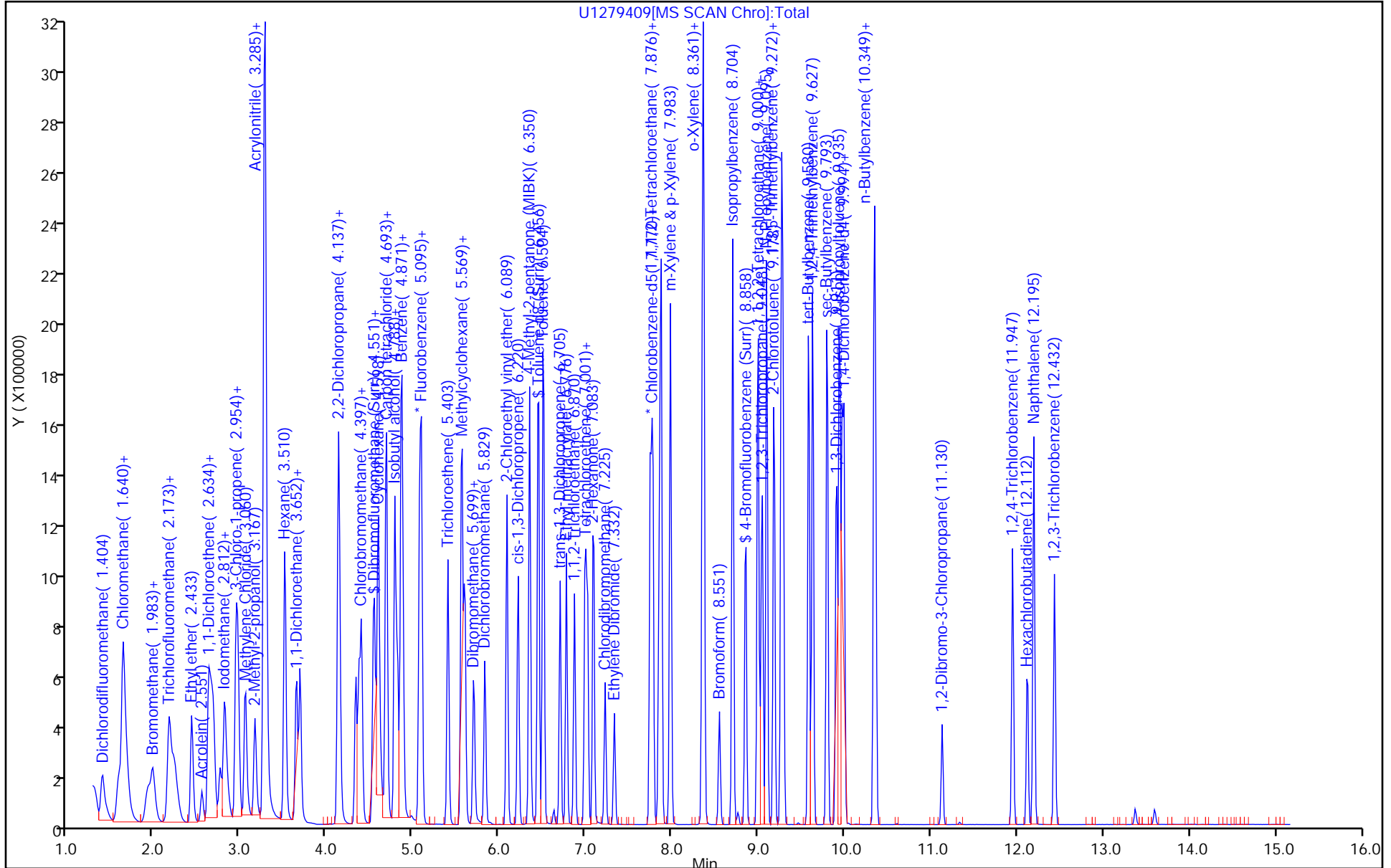
ALS Bottle#: 3

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Lab Sample ID: CCVIS 240-445595/4 Calibration Date: 08/04/2020 16:38
 Instrument ID: A3UX12 Calib Start Date: 07/16/2020 17:43
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 07/16/2020 20:20
 Lab File ID: U1279490.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.3124	0.3679		0.0236	0.0200	17.8	50.0
Chloromethane	Lin1		0.5761	0.1000	0.0227	0.0200	13.7	50.0
Butadiene	Ave	0.3681	0.4155		0.0226	0.0200	12.9	50.0
Vinyl chloride	Ave	0.3743	0.4017		0.0215	0.0200	7.3	20.0
Bromomethane	Ave	0.2481	0.2225		0.0179	0.0200	-10.3	50.0
Chloroethane	Ave	0.2724	0.2573		0.0189	0.0200	-5.6	50.0
Dichlorofluoromethane	Ave	0.5688	0.5057		0.0178	0.0200	-11.1	50.0
Trichlorofluoromethane	Ave	0.4377	0.4064		0.0186	0.0200	-7.2	50.0
Ethyl ether	Ave	0.3037	0.2780		0.0183	0.0200	-8.5	50.0
Acrolein	Ave	0.0262	0.0318		0.121	0.100	21.5	50.0
1,1-Dichloroethene	Ave	0.4021	0.4313		0.0215	0.0200	7.3	20.0
1,1,2-Trichloro-1,2,2-trifluoroethane	Ave	0.2362	0.2552		0.0216	0.0200	8.0	50.0
Acetone	Lin1		0.1468		0.0530	0.0400	32.4	50.0
Iodomethane	Ave	0.4091	0.3915		0.0191	0.0200	-4.3	50.0
Carbon disulfide	Ave	0.8097	0.8506		0.0210	0.0200	5.1	50.0
3-Chloro-1-propene	Ave	0.4509	0.5437		0.0241	0.0200	20.6	50.0
Methyl acetate	Ave	0.3065	0.3627		0.0473	0.0400	18.3	50.0
Methylene Chloride	Ave	0.3674	0.3926		0.0214	0.0200	6.8	50.0
2-Methyl-2-propanol	Ave	0.0380	0.0519		0.273	0.200	36.7	50.0
Acrylonitrile	Ave	0.1589	0.1740		0.219	0.200	9.5	50.0
trans-1,2-Dichloroethene	Ave	0.3859	0.4255		0.0221	0.0200	10.3	50.0
Methyl tert-butyl ether	Ave	0.8861	0.8937		0.0202	0.0200	0.9	50.0
Hexane	Ave	0.4275	0.4935		0.0231	0.0200	15.4	20.0
1,1-Dichloroethane	Ave	0.5143	0.5387	0.1000	0.0209	0.0200	4.7	50.0
Vinyl acetate	Ave	0.7246	0.7464		0.0206	0.0200	3.0	50.0
2,2-Dichloropropane	Ave	0.3526	0.3161		0.0179	0.0200	-10.4	50.0
cis-1,2-Dichloroethene	Ave	0.3599	0.3098		0.0172	0.0200	-13.9	50.0
2-Butanone (MEK)	Ave	0.0631	0.0610		0.0387	0.0400	-3.3	50.0
Chlorobromomethane	Ave	0.2926	0.2731		0.0187	0.0200	-6.7	50.0
Tetrahydrofuran	Ave	0.1611	0.1677		0.0416	0.0400	4.1	50.0
Chloroform	Ave	0.5092	0.4682		0.0184	0.0200	-8.1	20.0
1,1,1-Trichloroethane	Ave	0.4037	0.3945		0.0195	0.0200	-2.3	50.0
Cyclohexane	Ave	0.4779	0.4967		0.0208	0.0200	3.9	50.0
1,1-Dichloropropene	Ave	0.4108	0.4238		0.0206	0.0200	3.1	50.0
Carbon tetrachloride	Ave	0.3288	0.3365		0.0205	0.0200	2.3	50.0
Isobutyl alcohol	Ave	0.0161	0.0189		0.585	0.500	17.0	50.0
Benzene	Ave	1.228	1.195		0.0195	0.0200	-2.7	50.0
1,2-Dichloroethane	Ave	0.3989	0.3780		0.0190	0.0200	-5.2	50.0
n-Heptane	Lin1		0.2323		0.0214	0.0200	6.9	50.0
Trichloroethene	Ave	0.2776	0.2820		0.0203	0.0200	1.6	50.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Lab Sample ID: CCVIS 240-445595/4 Calibration Date: 08/04/2020 16:38
 Instrument ID: A3UX12 Calib Start Date: 07/16/2020 17:43
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 07/16/2020 20:20
 Lab File ID: U1279490.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Methylcyclohexane	Ave	0.4860	0.5267		0.0217	0.0200	8.4	50.0
1,2-Dichloropropane	Ave	0.2651	0.2814		0.0212	0.0200	6.1	20.0
1,4-Dioxane	Ave	0.0035	0.0044		0.514	0.400	28.4	50.0
Dibromomethane	Ave	0.1882	0.1707		0.0181	0.0200	-9.3	50.0
Dichlorobromomethane	Ave	0.3312	0.3355		0.0203	0.0200	1.3	50.0
2-Chloroethyl vinyl ether	Ave	0.1997	0.2053		0.0411	0.0400	2.8	50.0
cis-1,3-Dichloropropene	Ave	0.4197	0.4373		0.0208	0.0200	4.2	50.0
4-Methyl-2-pentanone (MIBK)	Ave	0.4341	0.4422		0.0407	0.0400	1.9	50.0
Toluene	Ave	1.659	1.713		0.0206	0.0200	3.2	20.0
trans-1,3-Dichloropropene	Ave	0.5377	0.5955		0.0222	0.0200	10.8	50.0
Ethyl methacrylate	Ave	0.5422	0.5962		0.0220	0.0200	10.0	50.0
1,1,2-Trichloroethane	Ave	0.3249	0.3350		0.0206	0.0200	3.1	50.0
Tetrachloroethene	Ave	0.3971	0.4154		0.0209	0.0200	4.6	50.0
1,3-Dichloropropane	Ave	0.6096	0.6327		0.0208	0.0200	3.8	50.0
2-Hexanone	Ave	0.4350	0.4810		0.0442	0.0400	10.6	50.0
Chlorodibromomethane	Ave	0.3194	0.3409		0.0213	0.0200	6.7	50.0
Ethylene Dibromide	Ave	0.3359	0.3430		0.0204	0.0200	2.1	50.0
Chlorobenzene	Ave	0.9701	1.031	0.3000	0.0213	0.0200	6.3	50.0
1,1,1,2-Tetrachloroethane	Ave	0.3307	0.3549		0.0215	0.0200	7.3	50.0
Ethylbenzene	Ave	0.5327	0.5822		0.0219	0.0200	9.3	20.0
m-Xylene & p-Xylene	Ave	0.6598	0.7387		0.0224	0.0200	12.0	50.0
o-Xylene	Ave	0.6795	0.7226		0.0213	0.0200	6.3	50.0
Styrene	Ave	1.091	1.183		0.0217	0.0200	8.4	50.0
Bromoform	Ave	0.2201	0.2533	0.1000	0.0230	0.0200	15.1	50.0
Isopropylbenzene	Ave	1.703	1.891		0.0222	0.0200	11.0	50.0
1,1,2,2-Tetrachloroethane	Ave	1.000	1.122	0.3000	0.0224	0.0200	12.2	50.0
Bromobenzene	Ave	0.7816	0.8481		0.0217	0.0200	8.5	50.0
1,2,3-Trichloropropane	Ave	0.3449	0.3668		0.0213	0.0200	6.3	50.0
trans-1,4-Dichloro-2-butene	Ave	0.2927	0.3954		0.0270	0.0200	35.1	50.0
N-Propylbenzene	Ave	0.8506	1.032		0.0243	0.0200	21.3	50.0
2-Chlorotoluene	Ave	0.7510	0.8472		0.0226	0.0200	12.8	50.0
1,3,5-Trimethylbenzene	Ave	2.508	2.998		0.0239	0.0200	19.5	50.0
4-Chlorotoluene	Ave	0.7704	0.8450		0.0219	0.0200	9.7	50.0
tert-Butylbenzene	Ave	2.195	2.592		0.0236	0.0200	18.1	50.0
1,2,4-Trimethylbenzene	Ave	2.634	3.011		0.0229	0.0200	14.3	50.0
sec-Butylbenzene	Ave	3.184	3.750		0.0236	0.0200	17.8	50.0
1,3-Dichlorobenzene	Ave	1.484	1.596		0.0215	0.0200	7.6	50.0
4-Isopropyltoluene	Ave	2.648	3.204		0.0242	0.0200	21.0	50.0
1,4-Dichlorobenzene	Ave	1.537	1.616		0.0210	0.0200	5.2	50.0
n-Butylbenzene	Ave	2.220	2.731		0.0246	0.0200	23.0	50.0
1,2-Dichlorobenzene	Ave	1.473	1.573		0.0214	0.0200	6.8	50.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Lab Sample ID: CCVIS 240-445595/4 Calibration Date: 08/04/2020 16:38
 Instrument ID: A3UX12 Calib Start Date: 07/16/2020 17:43
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 07/16/2020 20:20
 Lab File ID: U1279490.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,2-Dibromo-3-Chloropropane	Ave	0.2336	0.2888		0.0247	0.0200	23.6	50.0
1,2,4-Trichlorobenzene	Ave	0.8111	0.9374		0.0231	0.0200	15.6	50.0
Hexachlorobutadiene	Lin1		0.3387		0.0225	0.0200	12.5	50.0
Naphthalene	Ave	2.686	3.199		0.0238	0.0200	19.1	50.0
1,2,3-Trichlorobenzene	Ave	0.7472	0.8521		0.0228	0.0200	14.0	50.0
Dibromofluoromethane (Surr)	Ave	0.2655	0.2397		0.0181	0.0200	-9.7	50.0
1,2-Dichloroethane-d4 (Surr)	Ave	0.3249	0.3024		0.0186	0.0200	-6.9	50.0
Toluene-d8 (Surr)	Ave	1.353	1.420		0.0210	0.0200	5.0	50.0
4-Bromofluorobenzene (Surr)	Ave	0.4632	0.4982		0.0215	0.0200	7.6	50.0

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279490.D
 Lims ID: CCVIS
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 04-Aug-2020 16:38:30 ALS Bottle#: 3 Worklist Smp#: 4
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-004
 Operator ID: 001904 Instrument ID: A3UX12
 Sublist: chrom-8260_12_h2o*sub2
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 17:00:38 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1064

First Level Reviewer: laveyt Date: 04-Aug-2020 17:00:38

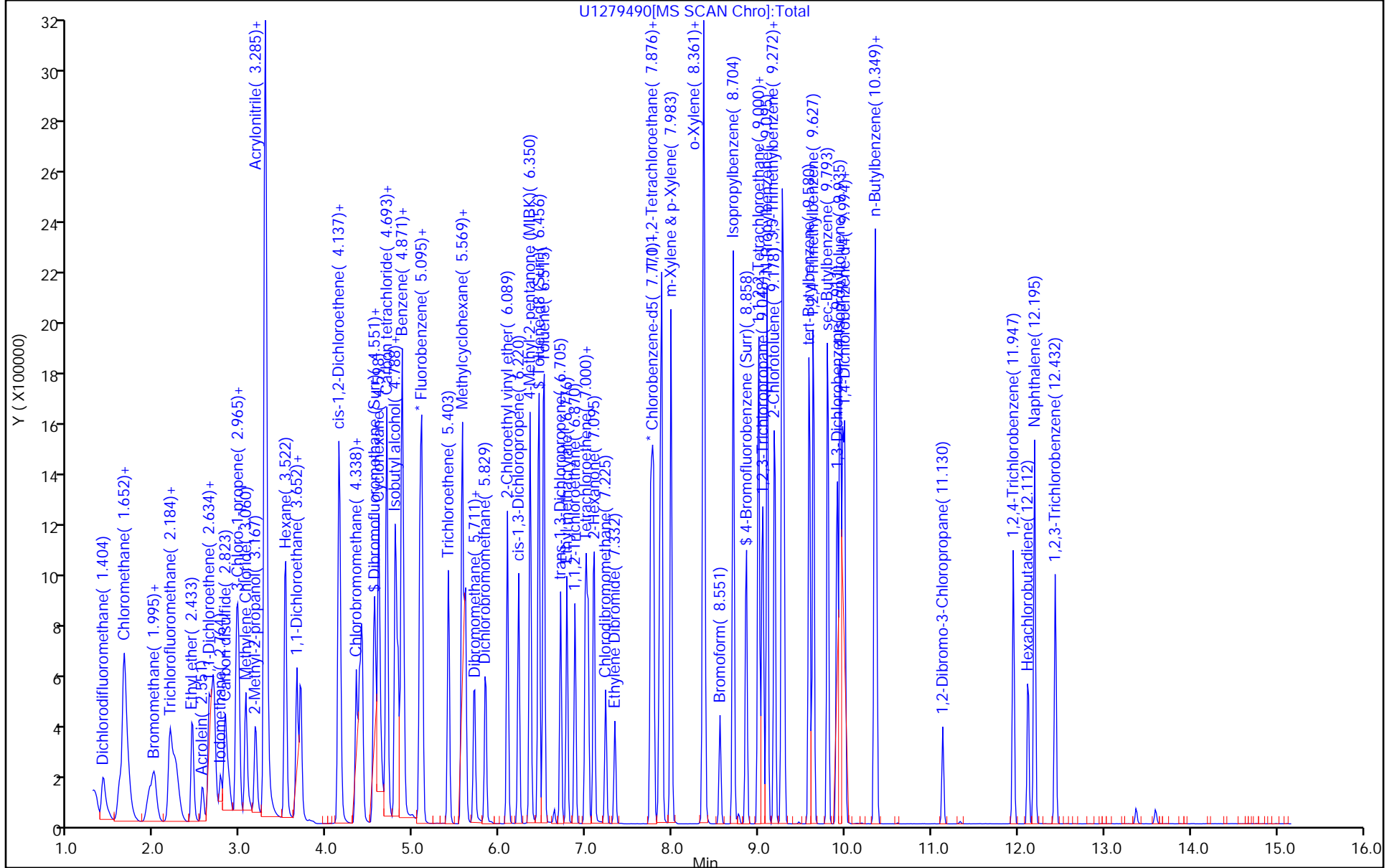
Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1127735	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	738729	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.971	9.971	0.000	93	363181	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	270258	20.0	18.1	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.823	4.823	0.000	96	341005	20.0	18.6	
\$ 6 Toluene-d8 (Surr)	98	6.456	6.456	0.000	93	1048965	20.0	21.0	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	94	368018	20.0	21.5	
9 Dichlorodifluoromethane	85	1.404	1.404	0.000	99	414878	20.0	23.6	
10 Chloromethane	50	1.605	1.605	0.000	99	649664	20.0	22.7	
11 Butadiene	54	1.652	1.652	0.000	91	468566	20.0	22.6	
12 Vinyl chloride	62	1.699	1.699	0.000	97	453032	20.0	21.5	
14 Bromomethane	94	1.948	1.948	0.000	90	250952	20.0	17.9	
15 Chloroethane	64	2.007	2.007	0.000	99	290132	20.0	18.9	
16 Dichlorofluoromethane	67	2.184	2.184	0.000	97	570324	20.0	17.8	
17 Trichlorofluoromethane	101	2.184	2.184	0.000	96	458254	20.0	18.6	
19 Ethyl ether	59	2.433	2.433	0.000	93	313513	20.0	18.3	
20 Acrolein	56	2.551	2.551	0.000	99	179292	100.0	121.5	
21 1,1-Dichloroethene	61	2.634	2.634	0.000	96	486381	20.0	21.5	
22 112TCTFE	101	2.670	2.670	0.000	95	287762	20.0	21.6	
23 Acetone	43	2.693	2.693	0.000	100	331171	40.0	53.0	
24 Iodomethane	142	2.764	2.764	0.000	98	441468	20.0	19.1	
25 Carbon disulfide	76	2.823	2.823	0.000	100	959302	20.0	21.0	
27 3-Chloro-1-propene	41	2.954	2.954	0.000	91	613152	20.0	24.1	
28 Methyl acetate	43	2.977	2.977	0.000	98	818055	40.0	47.3	
29 Methylene Chloride	49	3.060	3.060	0.000	96	442717	20.0	21.4	
30 2-Methyl-2-propanol	59	3.167	3.167	0.000	100	585741	200.0	273.5	
31 Acrylonitrile	53	3.273	3.273	0.000	99	1962312	200.0	219.1	
32 trans-1,2-Dichloroethene	61	3.285	3.285	0.000	99	479898	20.0	22.1	
33 Methyl tert-butyl ether	73	3.297	3.297	0.000	96	1007859	20.0	20.2	
34 Hexane	57	3.522	3.522	0.000	92	556516	20.0	23.1	
35 1,1-Dichloroethane	63	3.652	3.652	0.000	96	607538	20.0	20.9	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
36 Vinyl acetate	43	3.699	3.699	0.000	97	841751	20.0	20.6	
41 cis-1,2-Dichloroethene	96	4.137	4.137	0.000	88	349406	20.0	17.2	
40 2,2-Dichloropropane	77	4.137	4.137	0.000	60	356487	20.0	17.9	
42 2-Butanone (MEK)	72	4.149	4.149	0.000	100	137616	40.0	38.7	
46 Chlorobromomethane	49	4.338	4.338	0.000	95	307970	20.0	18.7	
47 Tetrahydrofuran	42	4.374	4.374	0.000	90	378241	40.0	41.6	
48 Chloroform	83	4.409	4.409	0.000	94	528032	20.0	18.4	
49 1,1,1-Trichloroethane	97	4.551	4.551	0.000	99	444865	20.0	19.5	
50 Cyclohexane	84	4.598	4.598	0.000	91	560096	20.0	20.8	
51 1,1-Dichloropropene	75	4.693	4.693	0.000	95	477885	20.0	20.6	
52 Carbon tetrachloride	117	4.693	4.693	0.000	77	379479	20.0	20.5	
53 Isobutyl alcohol	41	4.788	4.788	0.000	95	532318	500.0	585.2	
54 Benzene	78	4.871	4.871	0.000	96	1347555	20.0	19.5	
55 1,2-Dichloroethane	62	4.882	4.882	0.000	97	426288	20.0	19.0	
57 n-Heptane	57	5.072	5.084	-0.012	93	261925	20.0	21.4	
59 Trichloroethene	130	5.403	5.403	0.000	98	318051	20.0	20.3	
61 Methylcyclohexane	83	5.569	5.569	0.000	90	593947	20.0	21.7	
62 1,2-Dichloropropane	63	5.604	5.604	0.000	94	317314	20.0	21.2	
65 1,4-Dioxane	88	5.711	5.711	0.000	95	100175	400.0	513.7	
64 Dibromomethane	174	5.711	5.711	0.000	95	192472	20.0	18.1	
66 Dichlorobromomethane	83	5.829	5.829	0.000	99	378296	20.0	20.3	
68 2-Chloroethyl vinyl ether	63	6.089	6.089	0.000	92	462940	40.0	41.1	
69 cis-1,3-Dichloropropene	75	6.220	6.220	0.000	95	493098	20.0	20.8	
70 4-Methyl-2-pentanone (MIBK)	43	6.350	6.350	0.000	97	997348	40.0	40.7	
71 Toluene	91	6.515	6.515	0.000	99	1265145	20.0	20.6	
72 trans-1,3-Dichloropropene	75	6.705	6.705	0.000	95	439894	20.0	22.2	
74 Ethyl methacrylate	69	6.776	6.776	0.000	91	440436	20.0	22.0	
75 1,1,2-Trichloroethane	97	6.870	6.870	0.000	92	247444	20.0	20.6	
76 Tetrachloroethene	166	7.000	7.000	0.000	97	306885	20.0	20.9	
77 1,3-Dichloropropane	76	7.024	7.024	0.000	91	467410	20.0	20.8	
78 2-Hexanone	43	7.095	7.095	0.000	96	710718	40.0	44.2	
80 Chlorodibromomethane	129	7.225	7.225	0.000	91	251802	20.0	21.3	
81 Ethylene Dibromide	107	7.332	7.332	0.000	99	253376	20.0	20.4	
83 Chlorobenzene	112	7.781	7.781	0.000	94	761880	20.0	21.3	
84 1,1,1,2-Tetrachloroethane	131	7.852	7.852	0.000	95	262186	20.0	21.5	
85 Ethylbenzene	106	7.876	7.876	0.000	99	430119	20.0	21.9	
86 m-Xylene & p-Xylene	106	7.983	7.983	0.000	99	545710	20.0	22.4	
87 o-Xylene	106	8.361	8.361	0.000	97	533831	20.0	21.3	
88 Styrene	104	8.373	8.373	0.000	95	873632	20.0	21.7	
89 Bromoform	173	8.551	8.551	0.000	97	187139	20.0	23.0	
90 Isopropylbenzene	105	8.704	8.704	0.000	96	1396796	20.0	22.2	
92 Bromobenzene	156	9.000	9.000	0.000	94	307999	20.0	21.7	
93 1,1,2,2-Tetrachloroethane	83	9.000	9.000	0.000	84	407606	20.0	22.4	
94 1,2,3-Trichloropropane	110	9.036	9.036	0.000	85	133211	20.0	21.3	
95 trans-1,4-Dichloro-2-butene	53	9.048	9.048	0.000	93	143585	20.0	27.0	
96 N-Propylbenzene	120	9.095	9.095	0.000	99	374642	20.0	24.3	
97 2-Chlorotoluene	126	9.190	9.190	0.000	97	307678	20.0	22.6	
98 1,3,5-Trimethylbenzene	105	9.272	9.272	0.000	96	1088786	20.0	23.9	
99 4-Chlorotoluene	126	9.284	9.284	0.000	99	306902	20.0	21.9	
102 tert-Butylbenzene	119	9.580	9.580	0.000	93	941417	20.0	23.6	
104 1,2,4-Trimethylbenzene	105	9.627	9.627	0.000	96	1093683	20.0	22.9	
105 sec-Butylbenzene	105	9.793	9.793	0.000	95	1361825	20.0	23.6	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
106 1,3-Dichlorobenzene	146	9.911	9.911	0.000	98	579799	20.0	21.5	
107 4-Isopropyltoluene	119	9.947	9.947	0.000	98	1163638	20.0	24.2	
108 1,4-Dichlorobenzene	146	9.994	9.994	0.000	96	586888	20.0	21.0	
111 n-Butylbenzene	91	10.337	10.337	0.000	97	991814	20.0	24.6	
112 1,2-Dichlorobenzene	146	10.361	10.361	0.000	97	571125	20.0	21.4	
113 1,2-Dibromo-3-Chloropropane	157	11.130	11.130	0.000	85	104901	20.0	24.7	
115 1,2,4-Trichlorobenzene	180	11.947	11.947	0.000	94	340459	20.0	23.1	
116 Hexachlorobutadiene	225	12.124	12.124	0.000	95	123018	20.0	22.5	
117 Naphthalene	128	12.195	12.195	0.000	97	1161730	20.0	23.8	
118 1,2,3-Trichlorobenzene	180	12.432	12.432	0.000	95	309461	20.0	22.8	
S 124 Trihalomethanes, Total	1				0		80.0	83.0	
S 125 Total BTEX	1				0		100.0	105.6	
S 128 Xylenes, Total	106				0		40.0	43.7	

Reagents:

vmarolistdw_00355	Amount Added: 16.00	Units: uL	
vmrprimw_00397	Amount Added: 16.00	Units: uL	
vmrgas_00349	Amount Added: 16.00	Units: uL	
vmDist_H2o_00177	Amount Added: 0.00	Units:	Run Reagent
vm50ss_stk_00085	Amount Added: 2.00	Units: uL	Run Reagent
vm50is_stk_a_00006	Amount Added: 2.00	Units: uL	Run Reagent
vm40ml_vials_00015	Amount Added: 0.00	Units:	Run Reagent



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\BFB4436a.D
 Lims ID: BFB
 Client ID:
 Sample Type: BFB
 Inject. Date: 16-Jul-2020 16:09:30 ALS Bottle#: 1 Worklist Smp#: 1
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: 240-0100113-001
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 16-Jul-2020 16:51:51 Calib Date: 15-Jul-2020 22:21:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200715-100077.b\U1279106.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1017

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 8 BFB	95	3.421	3.421	0.000	0	523292	NR	NR	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

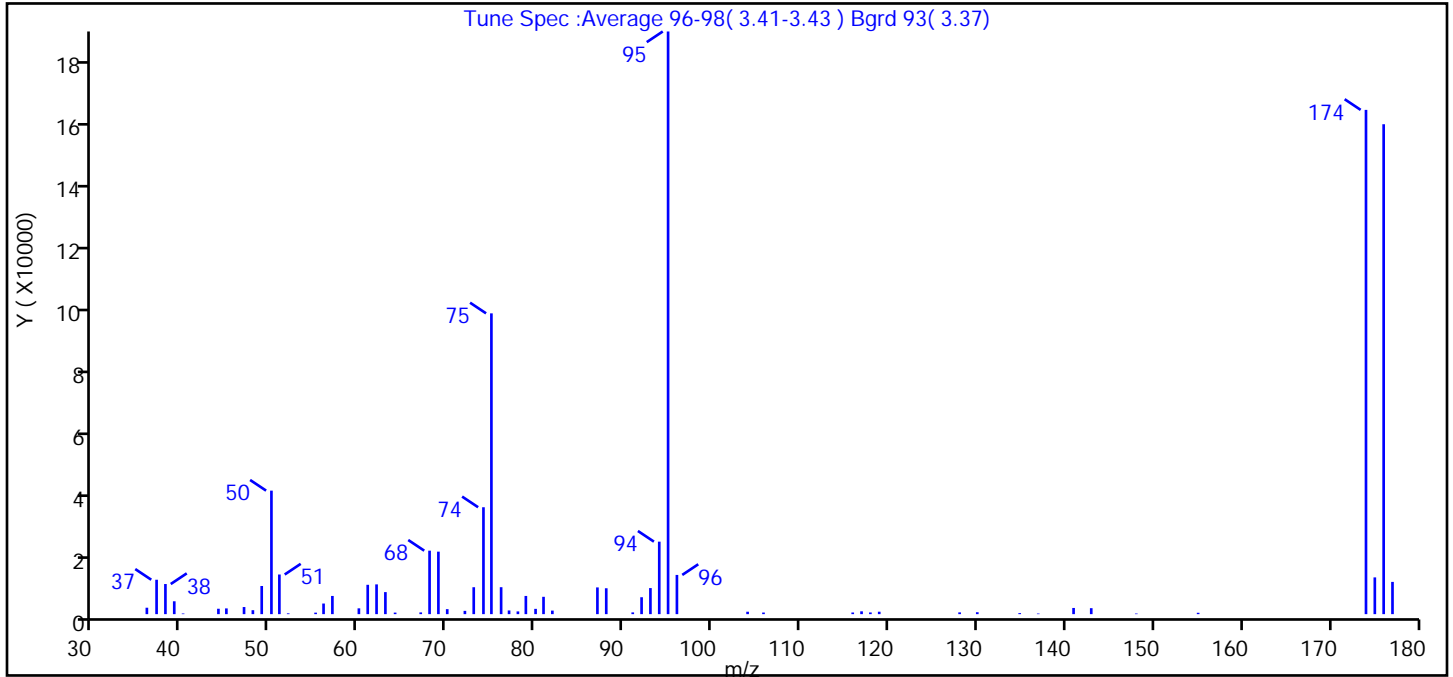
Reagents:

vmbfb_00025 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\BFB4436a.D
 Injection Date: 16-Jul-2020 16:09:30 Instrument ID: A3UX12
 Lims ID: BFB
 Client ID:
 Operator ID: 001904 ALS Bottle#: 1 Worklist Smp#: 1
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
 Tune Method: BFB Method 8260

\$ 8 BFB



m/z	Ion Abundance Criteria	% Relative Abundance
95	Base peak, 100% relative abundance	100.0
50	15 to 40% of m/z 95	21.2
75	30 to 60% of m/z 95	51.6
96	5 to 9% of m/z 95	6.7
173	Less than 2% of m/z 174	0.0 (0.0)
174	50 to 120% of m/z 95	86.5
175	5 to 9% of m/z 174	6.3 (7.3)
176	Greater than 95% but less than 101% of m/z 174	84.1 (97.2)
177	5 to 9% of m/z 176	5.5 (6.6)

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\BFB4436a.D\8260_12_h2o.rsl\spectra.d
Injection Date: 16-Jul-2020 16:09:30
Spectrum: Tune Spec :Average 96-98(3.41-3.43) Bgrd 93(3.37)
Base Peak: 95.00
Minimum % Base Peak: 0
Number of Points: 62

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	2092	60.00	1892	79.00	5925	118.00	553
37.00	11204	61.00	9556	80.00	1722	119.00	790
38.00	9809	62.00	9693	81.00	5646	128.00	579
39.00	4190	63.00	7176	82.00	1157	130.00	628
40.00	211	64.00	505	87.00	8707	135.00	337
44.00	1759	67.00	566	88.00	8430	137.00	194
45.00	1870	68.00	20672	91.00	571	141.00	2014
47.00	2314	69.00	20352	92.00	5506	143.00	1946
48.00	1290	70.00	1628	93.00	8490	148.00	196
49.00	9168	72.00	1068	94.00	23608	155.00	446
50.00	40224	73.00	8768	95.00	189760	174.00	164224
51.00	12908	74.00	34816	96.00	12771	175.00	11968
52.00	259	75.00	97960	104.00	786	176.00	159552
55.00	490	76.00	8776	106.00	525	177.00	10502
56.00	3458	77.00	1200	116.00	539		
57.00	5925	78.00	890	117.00	922		

Report Date: 16-Jul-2020 16:51:52

Chrom Revision: 2.3 30-Jun-2020 12:05:54

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\BFB4436a.D

Injection Date: 16-Jul-2020 16:09:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: BFB

Worklist Smp#: 1

Client ID:

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

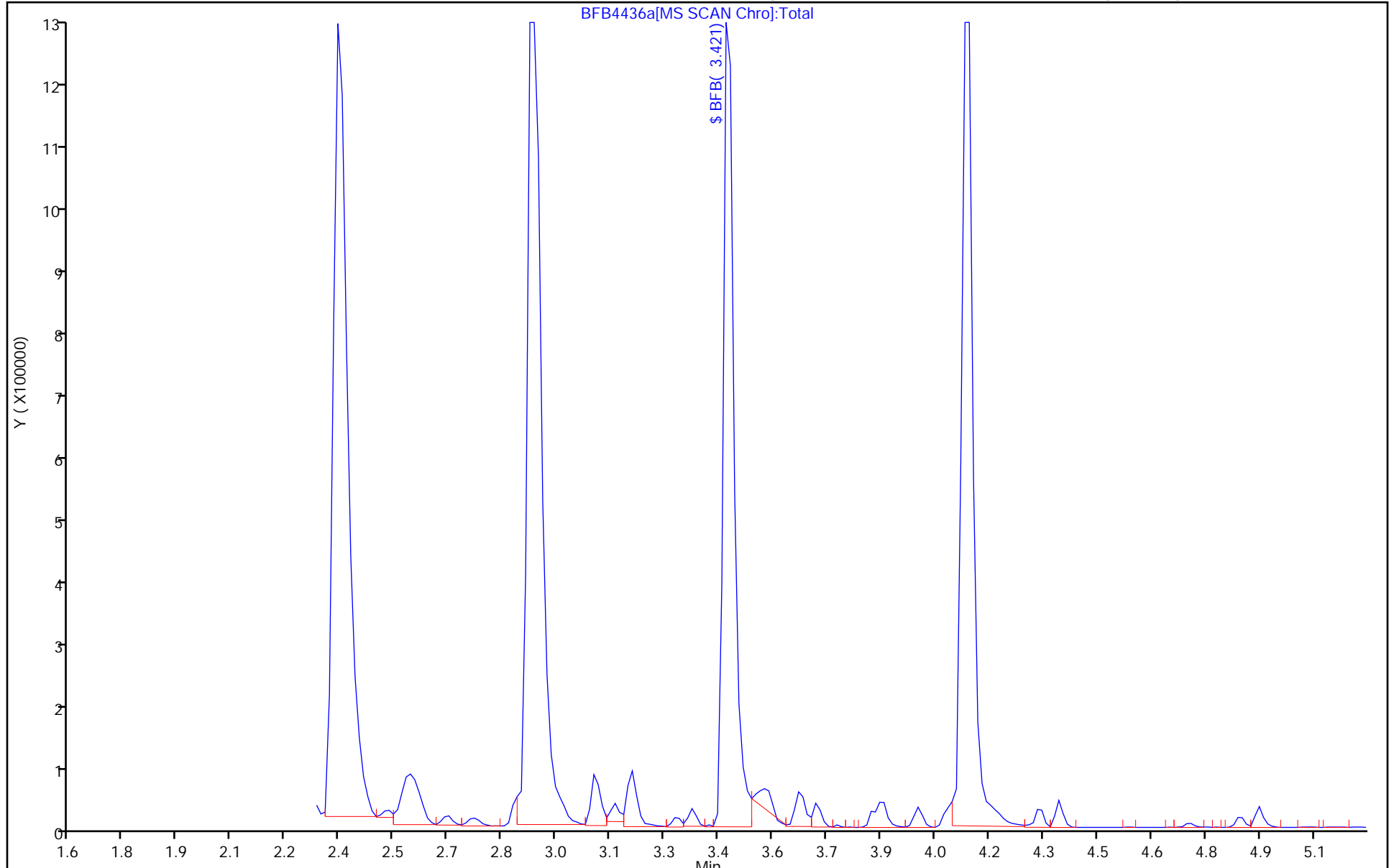
ALS Bottle#: 1

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\BFB4448.D
 Lims ID: BFB
 Client ID:
 Sample Type: BFB
 Inject. Date: 31-Jul-2020 15:04:30 ALS Bottle#: 1 Worklist Smp#: 1
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-001
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 31-Jul-2020 18:04:56 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1030

First Level Reviewer: laveyt Date: 31-Jul-2020 15:13:35

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 8 BFB	95	3.433	3.433	0.000	0	653034	NR	NR	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

Reagents:

vmbfb_00025

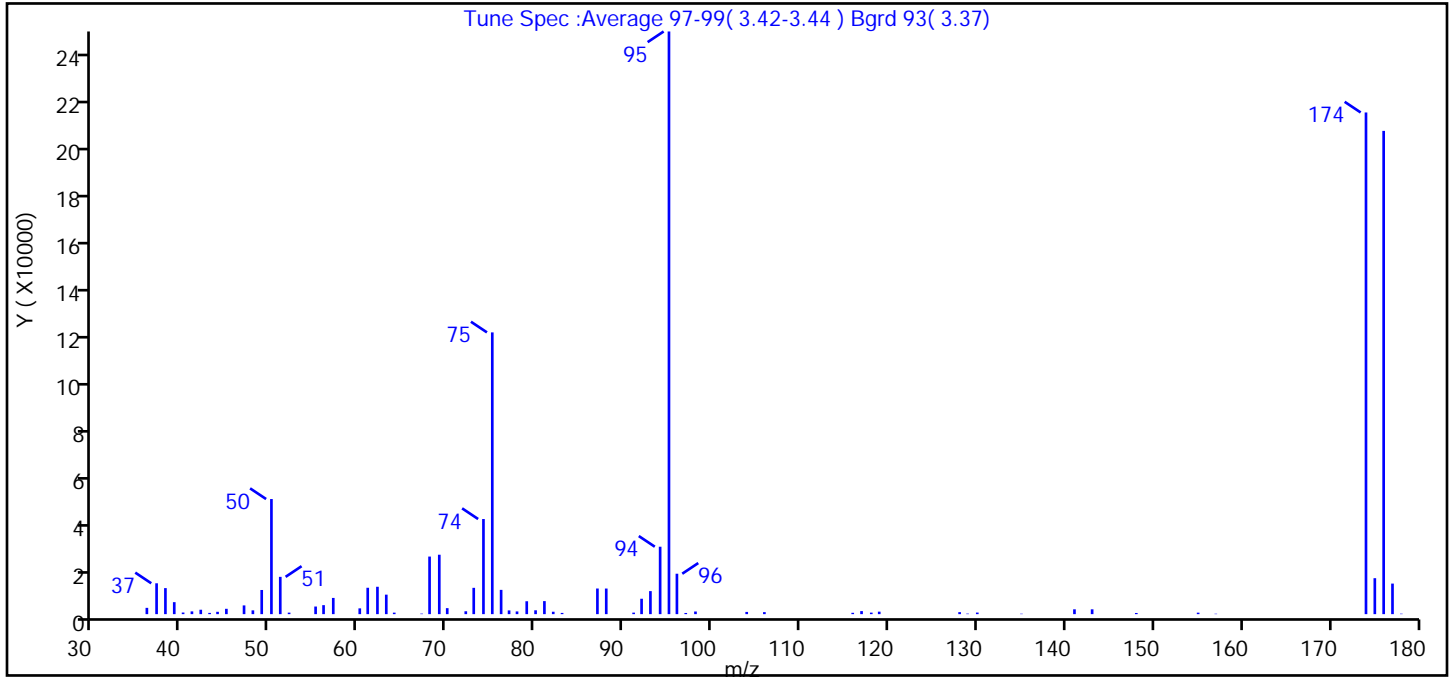
Amount Added: 1.00

Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\BFB4448.D
 Injection Date: 31-Jul-2020 15:04:30 Instrument ID: A3UX12
 Lims ID: BFB
 Client ID:
 Operator ID: 001904 ALS Bottle#: 1 Worklist Smp#: 1
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
 Tune Method: BFB Method 8260

\$ 8 BFB



m/z	Ion Abundance Criteria	% Relative Abundance
95	Base peak, 100% relative abundance	100.0
50	15 to 40% of m/z 95	19.8
75	30 to 60% of m/z 95	48.4
96	5 to 9% of m/z 95	6.9
173	Less than 2% of m/z 174	0.0 (0.0)
174	50 to 120% of m/z 95	86.1
175	5 to 9% of m/z 174	6.2 (7.2)
176	Greater than 95% but less than 101% of m/z 174	82.9 (96.3)
177	5 to 9% of m/z 176	5.2 (6.3)

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\BFB4448.D\8260_12_h2o.rsl\spectra.d
Injection Date: 31-Jul-2020 15:04:30
Spectrum: Tune Spec :Average 97-99(3.42-3.44) Bgrd 93(3.37)
Base Peak: 95.10
Minimum % Base Peak: 0
Number of Points: 70

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	2688	57.00	6934	80.00	1645	118.00	654
37.00	13190	60.00	2473	81.00	5571	119.00	1059
38.00	11128	61.00	11275	82.00	1033	128.00	858
39.00	5123	62.00	11704	83.00	526	129.00	221
40.00	691	63.00	8334	87.00	10957	130.00	681
41.00	1180	64.00	643	88.00	10945	135.00	180
42.00	1883	67.00	225	91.00	649	141.00	2068
43.00	531	68.00	24616	92.00	6584	143.00	2065
44.00	1002	69.00	25400	93.00	9846	148.00	496
45.00	2281	70.00	2561	94.00	28824	155.00	634
47.00	3735	72.00	1231	95.00	249088	157.00	170
48.00	1624	73.00	11249	96.00	17280	174.00	214464
49.00	10327	74.00	40664	97.00	502	175.00	15371
50.00	49208	75.00	120448	98.00	1129	176.00	206592
51.00	15942	76.00	10378	104.00	952	177.00	13065
52.00	649	77.00	1595	106.00	859	178.00	192
55.00	3255	78.00	1157	116.00	576		
56.00	3844	79.00	5515	117.00	1303		

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\BFB4448.D

Injection Date: 31-Jul-2020 15:04:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: BFB

Worklist Smp#: 1

Client ID:

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

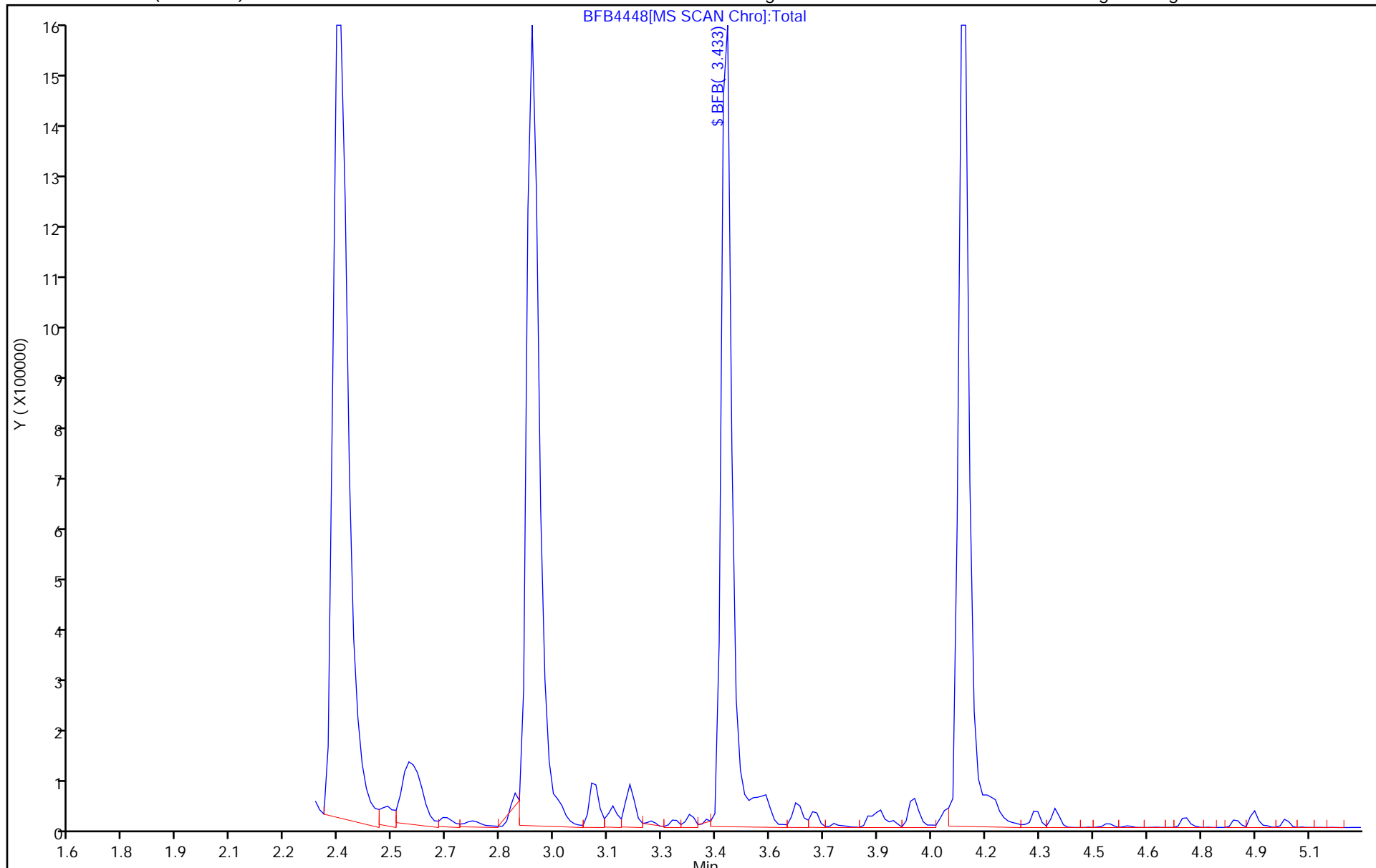
ALS Bottle#: 1

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\BFB4451.D
 Lims ID: BFB
 Client ID:
 Sample Type: BFB
 Inject. Date: 04-Aug-2020 15:54:30 ALS Bottle#: 1 Worklist Smp#: 1
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-001
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 16:08:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1064

First Level Reviewer: laveyt Date: 04-Aug-2020 16:08:51

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 8 BFB	95	3.433	3.433	0.000	0	535058	NR	NR	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

Reagents:

vmbfb_00025

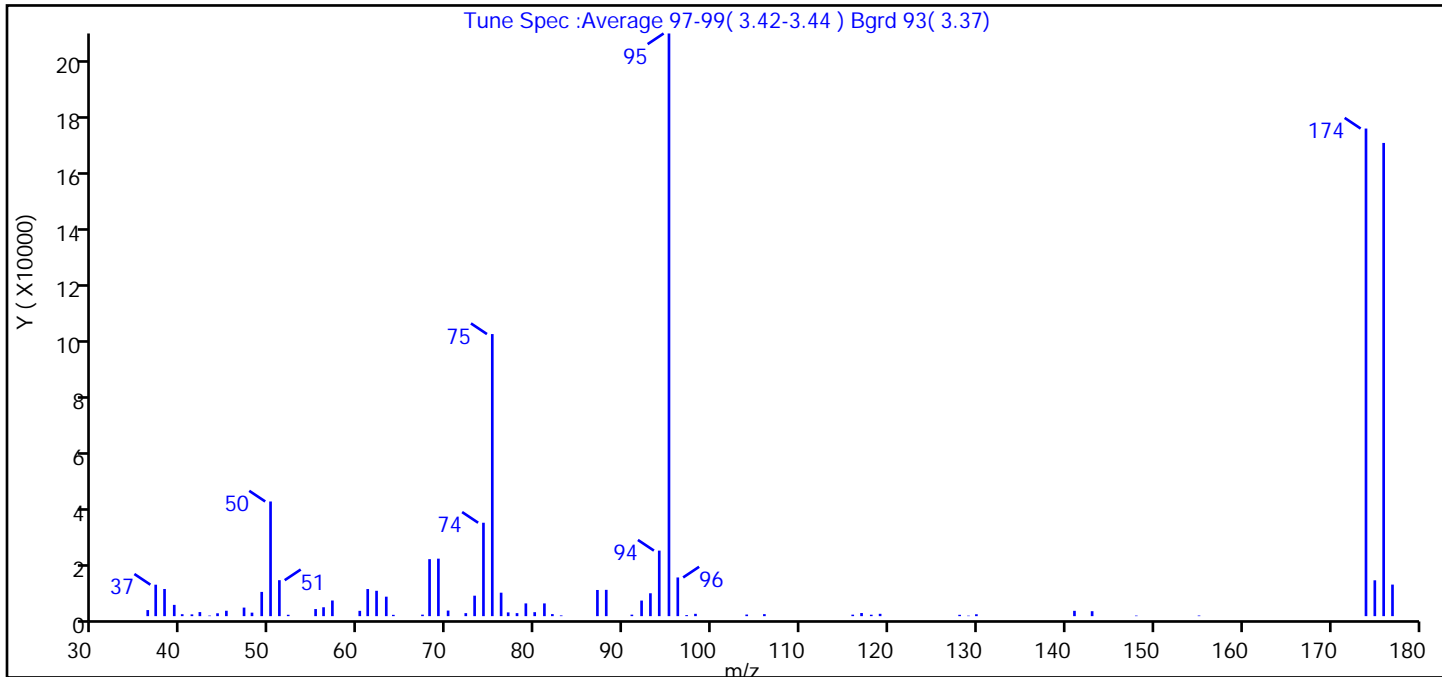
Amount Added: 1.00

Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\BFB4451.D
 Injection Date: 04-Aug-2020 15:54:30 Instrument ID: A3UX12
 Lims ID: BFB
 Client ID:
 Operator ID: 001904 ALS Bottle#: 1 Worklist Smp#: 1
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Method: 8260_12_h2o Limit Group: MSV 8260B ICAL
 Tune Method: BFB Method 8260

\$ 8 BFB



m/z	Ion Abundance Criteria	% Relative Abundance
95	Base peak, 100% relative abundance	100.0
50	15 to 40% of m/z 95	19.7
75	30 to 60% of m/z 95	48.4
96	5 to 9% of m/z 95	6.6
173	Less than 2% of m/z 174	0.0 (0.0)
174	50 to 120% of m/z 95	83.7
175	5 to 9% of m/z 174	6.2 (7.4)
176	Greater than 95% but less than 101% of m/z 174	81.2 (97.1)
177	5 to 9% of m/z 176	5.4 (6.7)

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\BFB4451.D\8260_12_h2o.rslt\spectra.d
Injection Date: 04-Aug-2020 15:54:30
Spectrum: Tune Spec :Average 97-99(3.42-3.44) Bgrd 93(3.37)
Base Peak: 95.10
Minimum % Base Peak: 0
Number of Points: 67

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	2163	56.00	3163	78.00	1073	106.00	712
37.00	11202	57.00	5570	79.00	4540	116.00	529
38.00	9671	60.00	1891	80.00	1413	117.00	1110
39.00	4014	61.00	9650	81.00	4536	118.00	508
40.00	692	62.00	9028	82.00	732	119.00	831
41.00	628	63.00	6934	83.00	251	128.00	480
42.00	1446	64.00	467	87.00	9316	129.00	172
43.00	202	67.00	531	88.00	9365	130.00	672
44.00	1021	68.00	20296	91.00	530	141.00	1894
45.00	1922	69.00	20472	92.00	5552	143.00	1765
47.00	3047	70.00	1991	93.00	8148	148.00	193
48.00	1244	72.00	1071	94.00	23336	155.00	217
49.00	8630	73.00	7285	95.00	207488	174.00	173632
50.00	40832	74.00	33264	96.00	13778	175.00	12763
51.00	12804	75.00	100448	97.00	367	176.00	168512
52.00	491	76.00	8352	98.00	829	177.00	11238
55.00	2522	77.00	1336	104.00	570		

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\BFB4451.D

Injection Date: 04-Aug-2020 15:54:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: BFB

Worklist Smp#: 1

Client ID:

Injection Vol: 5.0 mL

Dil. Factor: 1.0000

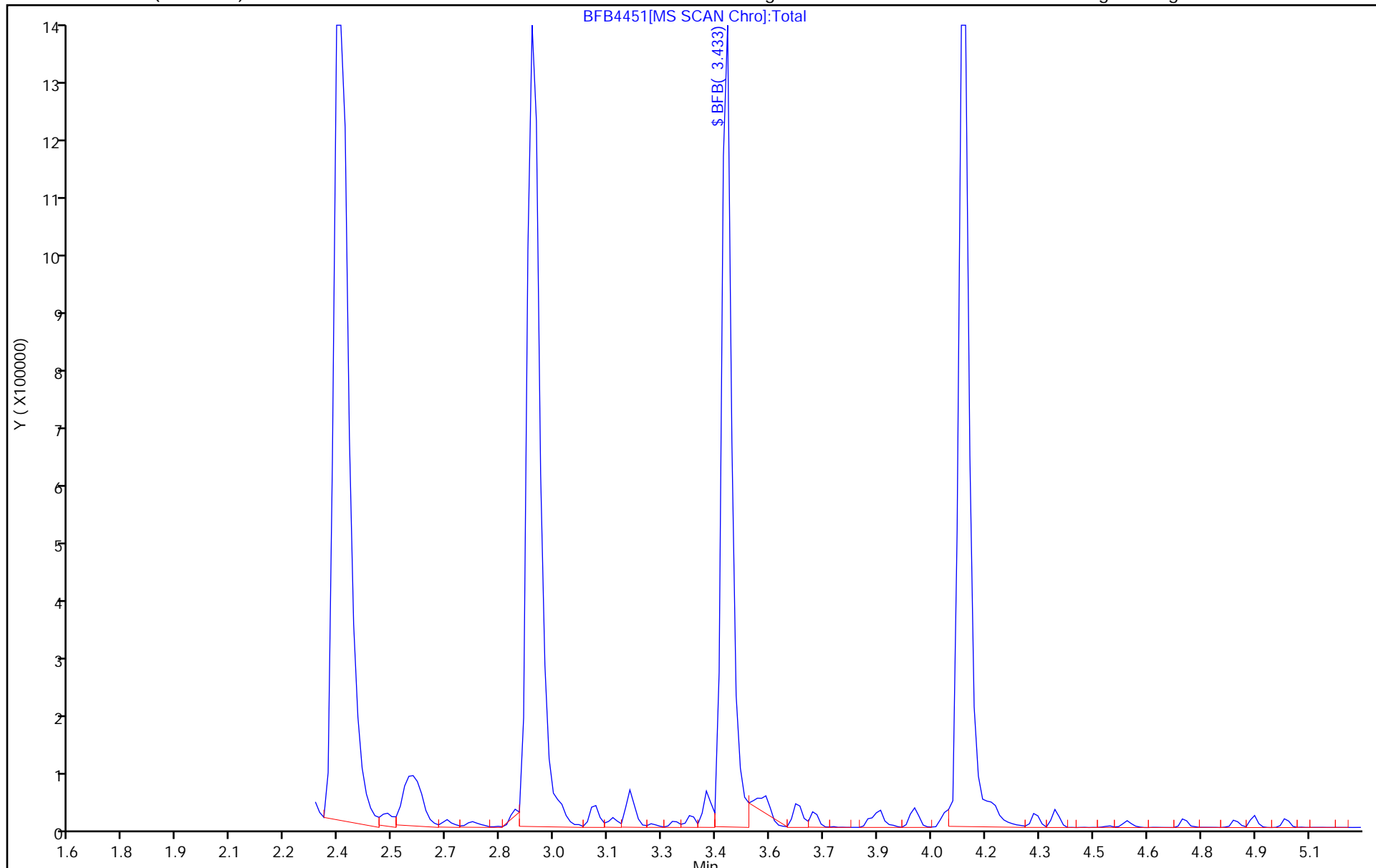
ALS Bottle#: 1

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 240-445021/1-A
 Matrix: Solid Lab File ID: U1279414.D
 Analysis Method: 8260B MI Date Collected: _____
 Sample wt/vol: 10.00(g) Date Analyzed: 07/31/2020 17:42
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Medium
 Analysis Batch No.: 445183 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	40	U	40	16
123-91-1	1,4-Dioxane	13000	U	13000	1100
156-59-2	cis-1,2-Dichloroethene	40	U	40	9.0
127-18-4	Tetrachloroethene	40	U	40	18
156-60-5	trans-1,2-Dichloroethene	40	U	40	10
79-01-6	Trichloroethene	40	U	40	11
75-01-4	Vinyl chloride	32	U	32	12

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	81		47-136
460-00-4	4-Bromofluorobenzene (Surr)	96		51-124
1868-53-7	Dibromofluoromethane (Surr)	79		49-122
2037-26-5	Toluene-d8 (Surr)	95		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279414.D
 Lims ID: MB 240-445021/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 31-Jul-2020 17:42:30 ALS Bottle#: 8 Worklist Smp#: 10
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-010
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 31-Jul-2020 18:04:25 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1030

First Level Reviewer: laveyt

Date: 31-Jul-2020 18:04:25

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1160347	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	757249	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.971	-0.001	96	371953	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.527	4.539	-0.012	93	303025	25.0	19.7	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	94	381874	25.0	20.3	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1211929	25.0	23.7	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.846	8.846	0.000	91	420185	25.0	24.0	
9 Dichlorodifluoromethane	85		1.404					ND	
10 Chloromethane	50		1.593					ND	
11 Butadiene	54		1.640					ND	
12 Vinyl chloride	62		1.688					ND	
13 1-Chloro-1-fluoroethane TIC	47		1.900					ND	
14 Bromomethane	94		1.924					ND	
15 Chloroethane	64		1.983					ND	
16 Dichlorofluoromethane	67		2.173					ND	
17 Trichlorofluoromethane	101		2.173					ND	
18 Methylal	45		2.346					ND	
19 Ethyl ether	59		2.433					ND	
20 Acrolein	56		2.551					ND	U
21 1,1-Dichloroethene	61		2.634					ND	
22 112TCTFE	101		2.658					ND	
23 Acetone	43	2.681	2.693	-0.012	95	12906		0.1941	
24 Iodomethane	142		2.764					ND	
25 Carbon disulfide	76		2.812					ND	
26 Acetonitrile	41		2.930					ND	
27 3-Chloro-1-propene	41		2.942					ND	
28 Methyl acetate	43		2.965					ND	U
29 Methylene Chloride	49	3.084	3.060	0.024	89	4614		0.2164	
30 2-Methyl-2-propanol	59		3.167					ND	
31 Acrylonitrile	53		3.273					ND	
33 Methyl tert-butyl ether	73		3.285					ND	
32 trans-1,2-Dichloroethene	61		3.285					ND	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
34 Hexane	57		3.510					ND	
35 1,1-Dichloroethane	63		3.652					ND	
36 Vinyl acetate	43		3.687					ND	
37 Isopropyl ether	87		3.699					ND	
38 2-Chloro-1,3-butadiene	53		3.723					ND	
39 Tert-butyl ethyl ether	59		4.007					ND	
41 cis-1,2-Dichloroethene	96		4.137					ND	
40 2,2-Dichloropropane	77		4.137					ND	
42 2-Butanone (MEK)	72		4.149					ND	
43 Ethyl acetate	43		4.196					ND	U
44 Propionitrile	54		4.208					ND	
45 Methacrylonitrile	41		4.326					ND	
46 Chlorobromomethane	49		4.338					ND	
47 Tetrahydrofuran	42	4.373	4.374	-0.001	83	9878		1.06	
48 Chloroform	83		4.397					ND	
49 1,1,1-Trichloroethane	97		4.551					ND	
50 Cyclohexane	84		4.598					ND	
52 Carbon tetrachloride	117		4.693					ND	
51 1,1-Dichloropropene	75		4.693					ND	
53 Isobutyl alcohol	41		4.788					ND	
54 Benzene	78		4.859					ND	
55 1,2-Dichloroethane	62		4.882					ND	
56 Tert-amyl methyl ether	73		4.953					ND	
57 n-Heptane	57		5.072					ND	
58 n-Butanol	56		5.344					ND	
59 Trichloroethene	130		5.403					ND	
60 Ethyl acrylate	55		5.486					ND	U
61 Methylcyclohexane	83		5.569					ND	
62 1,2-Dichloropropane	63		5.604					ND	
63 Methyl methacrylate	41		5.687					ND	
64 Dibromomethane	174		5.699					ND	
65 1,4-Dioxane	88		5.711					ND	
66 Dichlorobromomethane	83		5.829					ND	
67 2-Nitropropane	41		6.030					ND	U
68 2-Chloroethyl vinyl ether	63		6.089					ND	
69 cis-1,3-Dichloropropene	75		6.220					ND	
70 4-Methyl-2-pentanone (MIBK)	43		6.350					ND	U
71 Toluene	91		6.504					ND	
72 trans-1,3-Dichloropropene	75		6.705					ND	
73 Tetrahydrothiophene	60		6.745					ND	
74 Ethyl methacrylate	69		6.776					ND	
75 1,1,2-Trichloroethane	97		6.870					ND	
76 Tetrachloroethene	166		7.001					ND	
77 1,3-Dichloropropane	76		7.024					ND	
78 2-Hexanone	43		7.083					ND	
79 n-Butyl acetate	43		7.201					ND	
80 Chlorodibromomethane	129		7.225					ND	
81 Ethylene Dibromide	107		7.332					ND	
82 1-Chlorohexane	91		7.746					ND	
83 Chlorobenzene	112		7.781					ND	
84 1,1,1,2-Tetrachloroethane	131		7.852					ND	
85 Ethylbenzene	106		7.876					ND	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
86 m-Xylene & p-Xylene	106		7.983					ND	
87 o-Xylene	106		8.361					ND	
88 Styrene	104		8.373					ND	
89 Bromoform	173		8.551					ND	
90 Isopropylbenzene	105		8.704					ND	
91 Cyclohexanone	55		8.799					ND	
92 Bromobenzene	156		9.000					ND	
93 1,1,2,2-Tetrachloroethane	83		9.000					ND	
94 1,2,3-Trichloropropane	110		9.036					ND	
95 trans-1,4-Dichloro-2-butene	53		9.048					ND	
96 N-Propylbenzene	120		9.095					ND	
97 2-Chlorotoluene	126		9.190					ND	
98 1,3,5-Trimethylbenzene	105		9.272					ND	
99 4-Chlorotoluene	126		9.284					ND	
100 3-Ethyltoluene	105		9.324					ND	
101 2-Ethyltoluene	105		9.513					ND	
102 tert-Butylbenzene	119		9.580					ND	
103 Pentachloroethane	167		9.604					ND	
104 1,2,4-Trimethylbenzene	105		9.627					ND	
105 sec-Butylbenzene	105		9.793					ND	
106 1,3-Dichlorobenzene	146		9.911					ND	
107 4-Isopropyltoluene	119		9.935					ND	
108 1,4-Dichlorobenzene	146		9.994					ND	
109 1,2,3-Trimethylbenzene	105		10.041					ND	
110 Benzyl chloride	91		10.136					ND	
111 n-Butylbenzene	91		10.337					ND	
112 1,2-Dichlorobenzene	146		10.361					ND	
113 1,2-Dibromo-3-Chloropropane	157		11.130					ND	
114 1,3,5-Trichlorobenzene	180		11.331					ND	
115 1,2,4-Trichlorobenzene	180		11.947					ND	
116 Hexachlorobutadiene	225		12.124					ND	
117 Naphthalene	128		12.195					ND	
118 1,2,3-Trichlorobenzene	180		12.432					ND	
119 2-Methylnaphthalene	142		13.366					ND	
168 1-Methylnaphthalene	142		13.591					ND	
169 Isooctane	57		0.000					ND	
120 1,4-Dichlorobutane	1		-0.510					ND	
123 Epichlorohydrin	1		-0.510					ND	
121 Ethylene oxide	1		-0.510					ND	
122 Propene oxide	1		-0.510					ND	
S 124 Trihalomethanes, Total	1		-0.510					ND	
S 125 Total BTEX	1		-0.510					ND	
S 126 1,2-Dichloroethene, Total	96		0.630					ND	
S 127 1,3-Dichloropropene, Total	75		6.250					ND	
S 128 Xylenes, Total	106		16.020					ND	

QC Flag Legend

Review Flags

U - Marked Undetected

Reagents:

vm50is_stk_a_00006

Amount Added: 2.00

Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279414.D

Injection Date: 31-Jul-2020 17:42:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: MB 240-445021/1-A

Worklist Smp#: 10

Client ID:

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

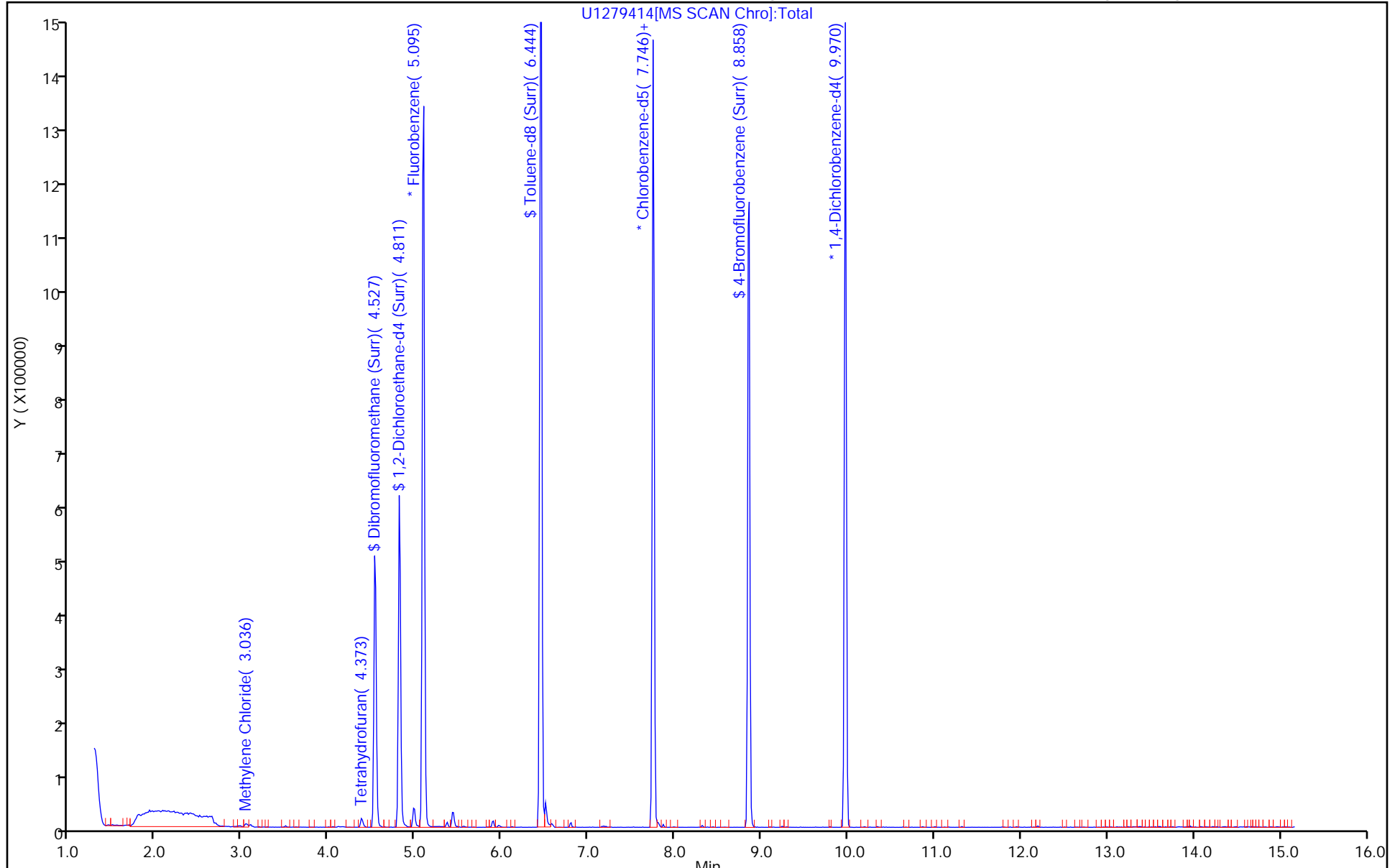
ALS Bottle#: 8

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279414.D
 Lims ID: MB 240-445021/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 31-Jul-2020 17:42:30 ALS Bottle#: 8 Worklist Smp#: 10
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-010
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 31-Jul-2020 18:04:25 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1030

First Level Reviewer: laveyt Date: 31-Jul-2020 18:04:25

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	19.7	78.70
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	20.3	81.04
\$ 6 Toluene-d8 (Surr)	25.0	23.7	94.65
\$ 7 4-Bromofluorobenzene (Surr)	25.0	24.0	95.84

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 240-445424/1-A
 Matrix: Solid Lab File ID: U1279494a.D
 Analysis Method: 8260B MI Date Collected: _____
 Sample wt/vol: 10.00(g) Date Analyzed: 08/04/2020 18:24
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Medium
 Analysis Batch No.: 445595 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	40	U	40	16
123-91-1	1,4-Dioxane	13000	U	13000	1100
156-59-2	cis-1,2-Dichloroethene	40	U	40	9.0
127-18-4	Tetrachloroethene	40	U	40	18
156-60-5	trans-1,2-Dichloroethene	40	U	40	10
79-01-6	Trichloroethene	40	U	40	11
75-01-4	Vinyl chloride	32	U	32	12

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	82		47-136
460-00-4	4-Bromofluorobenzene (Surr)	93		51-124
1868-53-7	Dibromofluoromethane (Surr)	76		49-122
2037-26-5	Toluene-d8 (Surr)	93		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279494a.D
 Lims ID: MB 240-445424/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 04-Aug-2020 18:24:30 ALS Bottle#: 7 Worklist Smp#: 9
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-009
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 20:00:54 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1064

First Level Reviewer: laveyt Date: 04-Aug-2020 20:00:54

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1115717	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	751371	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.971	-0.001	96	374333	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.527	4.539	-0.012	94	281989	25.0	19.0	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	94	369330	25.0	20.4	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1187299	25.0	23.4	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.846	8.858	-0.012	90	406430	25.0	23.4	
9 Dichlorodifluoromethane	85		1.404					ND	
10 Chloromethane	50		1.605					ND	
11 Butadiene	54		1.652					ND	
12 Vinyl chloride	62		1.699					ND	
13 1-Chloro-1-fluoroethane TIC	47		1.900					ND	U
14 Bromomethane	94		1.948					ND	
15 Chloroethane	64		2.007					ND	
16 Dichlorofluoromethane	67		2.184					ND	
17 Trichlorofluoromethane	101		2.184					ND	
18 Methylal	45		2.346					ND	
19 Ethyl ether	59		2.433					ND	
20 Acrolein	56		2.551					ND	
21 1,1-Dichloroethene	61		2.634					ND	
22 112TCTFE	101		2.670					ND	
23 Acetone	43		2.693					ND	
24 Iodomethane	142		2.764					ND	
25 Carbon disulfide	76		2.823					ND	
26 Acetonitrile	41		2.942					ND	
27 3-Chloro-1-propene	41		2.954					ND	
28 Methyl acetate	43		2.977					ND	U
29 Methylene Chloride	49	3.036	3.060	-0.024	81	4788		0.2336	
30 2-Methyl-2-propanol	59		3.167					ND	
31 Acrylonitrile	53		3.273					ND	
32 trans-1,2-Dichloroethene	61		3.285					ND	
33 Methyl tert-butyl ether	73		3.297					ND	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
34 Hexane	57		3.522					ND	
35 1,1-Dichloroethane	63		3.652					ND	
36 Vinyl acetate	43		3.699					ND	
37 Isopropyl ether	87		3.711					ND	
38 2-Chloro-1,3-butadiene	53		3.723					ND	
39 Tert-butyl ethyl ether	59		4.007					ND	
40 2,2-Dichloropropane	77		4.137					ND	
41 cis-1,2-Dichloroethene	96		4.137					ND	
42 2-Butanone (MEK)	72		4.149					ND	
43 Ethyl acetate	43		4.196					ND	
44 Propionitrile	54		4.208					ND	
45 Methacrylonitrile	41		4.338					ND	
46 Chlorobromomethane	49		4.338					ND	
47 Tetrahydrofuran	42	4.373	4.374	-0.001	85	10054		1.12	
48 Chloroform	83		4.409					ND	
49 1,1,1-Trichloroethane	97		4.551					ND	
50 Cyclohexane	84		4.598					ND	
52 Carbon tetrachloride	117		4.693					ND	
51 1,1-Dichloropropene	75		4.693					ND	
53 Isobutyl alcohol	41		4.788					ND	
54 Benzene	78		4.871					ND	
55 1,2-Dichloroethane	62		4.882					ND	
56 Tert-amyl methyl ether	73		4.953					ND	
57 n-Heptane	57		5.084					ND	
58 n-Butanol	56		5.344					ND	
59 Trichloroethene	130		5.403					ND	
60 Ethyl acrylate	55		5.486					ND	U
61 Methylcyclohexane	83		5.569					ND	
62 1,2-Dichloropropane	63		5.604					ND	
63 Methyl methacrylate	41		5.687					ND	
64 Dibromomethane	174		5.711					ND	
65 1,4-Dioxane	88		5.711					ND	
66 Dichlorobromomethane	83		5.829					ND	
67 2-Nitropropane	41		6.030					ND	U
68 2-Chloroethyl vinyl ether	63		6.089					ND	
69 cis-1,3-Dichloropropene	75		6.220					ND	
70 4-Methyl-2-pentanone (MIBK)	43		6.350					ND	U
71 Toluene	91		6.515					ND	
72 trans-1,3-Dichloropropene	75		6.705					ND	
73 Tetrahydrothiophene	60		6.745					ND	
74 Ethyl methacrylate	69		6.776					ND	
75 1,1,2-Trichloroethane	97		6.870					ND	
76 Tetrachloroethene	166		7.000					ND	
77 1,3-Dichloropropane	76		7.024					ND	
78 2-Hexanone	43		7.095					ND	
79 n-Butyl acetate	43		7.201					ND	
80 Chlorodibromomethane	129		7.225					ND	
81 Ethylene Dibromide	107		7.332					ND	
82 1-Chlorohexane	91		7.746					ND	
83 Chlorobenzene	112		7.781					ND	
84 1,1,1,2-Tetrachloroethane	131		7.852					ND	
85 Ethylbenzene	106		7.876					ND	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
86 m-Xylene & p-Xylene	106		7.983					ND	
87 o-Xylene	106		8.361					ND	
88 Styrene	104		8.373					ND	
89 Bromoform	173		8.551					ND	
90 Isopropylbenzene	105		8.704					ND	
91 Cyclohexanone	55		8.799					ND	
92 Bromobenzene	156		9.000					ND	
93 1,1,2,2-Tetrachloroethane	83		9.000					ND	
94 1,2,3-Trichloropropane	110		9.036					ND	
95 trans-1,4-Dichloro-2-butene	53		9.048					ND	
96 N-Propylbenzene	120		9.095					ND	
97 2-Chlorotoluene	126		9.190					ND	
98 1,3,5-Trimethylbenzene	105		9.272					ND	
99 4-Chlorotoluene	126		9.284					ND	
100 3-Ethyltoluene	105		9.324					ND	
101 2-Ethyltoluene	105		9.513					ND	
102 tert-Butylbenzene	119		9.580					ND	
103 Pentachloroethane	167		9.604					ND	
104 1,2,4-Trimethylbenzene	105		9.627					ND	
105 sec-Butylbenzene	105		9.793					ND	
106 1,3-Dichlorobenzene	146		9.911					ND	
107 4-Isopropyltoluene	119		9.947					ND	
108 1,4-Dichlorobenzene	146		9.994					ND	
109 1,2,3-Trimethylbenzene	105		10.041					ND	
110 Benzyl chloride	91		10.136					ND	
111 n-Butylbenzene	91		10.337					ND	
112 1,2-Dichlorobenzene	146		10.361					ND	
113 1,2-Dibromo-3-Chloropropane	157		11.130					ND	
114 1,3,5-Trichlorobenzene	180		11.331					ND	
115 1,2,4-Trichlorobenzene	180		11.947					ND	
116 Hexachlorobutadiene	225		12.124					ND	
117 Naphthalene	128		12.195					ND	
118 1,2,3-Trichlorobenzene	180		12.432					ND	
119 2-Methylnaphthalene	142		13.366					ND	
168 1-Methylnaphthalene	142		13.591					ND	
169 Isooctane	57		0.000					ND	
120 1,4-Dichlorobutane	1		-0.510					ND	
123 Epichlorohydrin	1		-0.510					ND	
121 Ethylene oxide	1		-0.510					ND	
122 Propene oxide	1		-0.510					ND	
S 124 Trihalomethanes, Total	1		-0.510					ND	
S 125 Total BTEX	1		-0.510					ND	
S 126 1,2-Dichloroethene, Total	96		0.630					ND	
S 127 1,3-Dichloropropene, Total	75		6.250					ND	
S 128 Xylenes, Total	106		16.020					ND	

QC Flag Legend

Review Flags

U - Marked Undetected

Reagents:

vm50is_stk_a_00006

Amount Added: 2.00

Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279494a.D

Injection Date: 04-Aug-2020 18:24:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: MB 240-445424/1-A

Worklist Smp#: 9

Client ID:

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

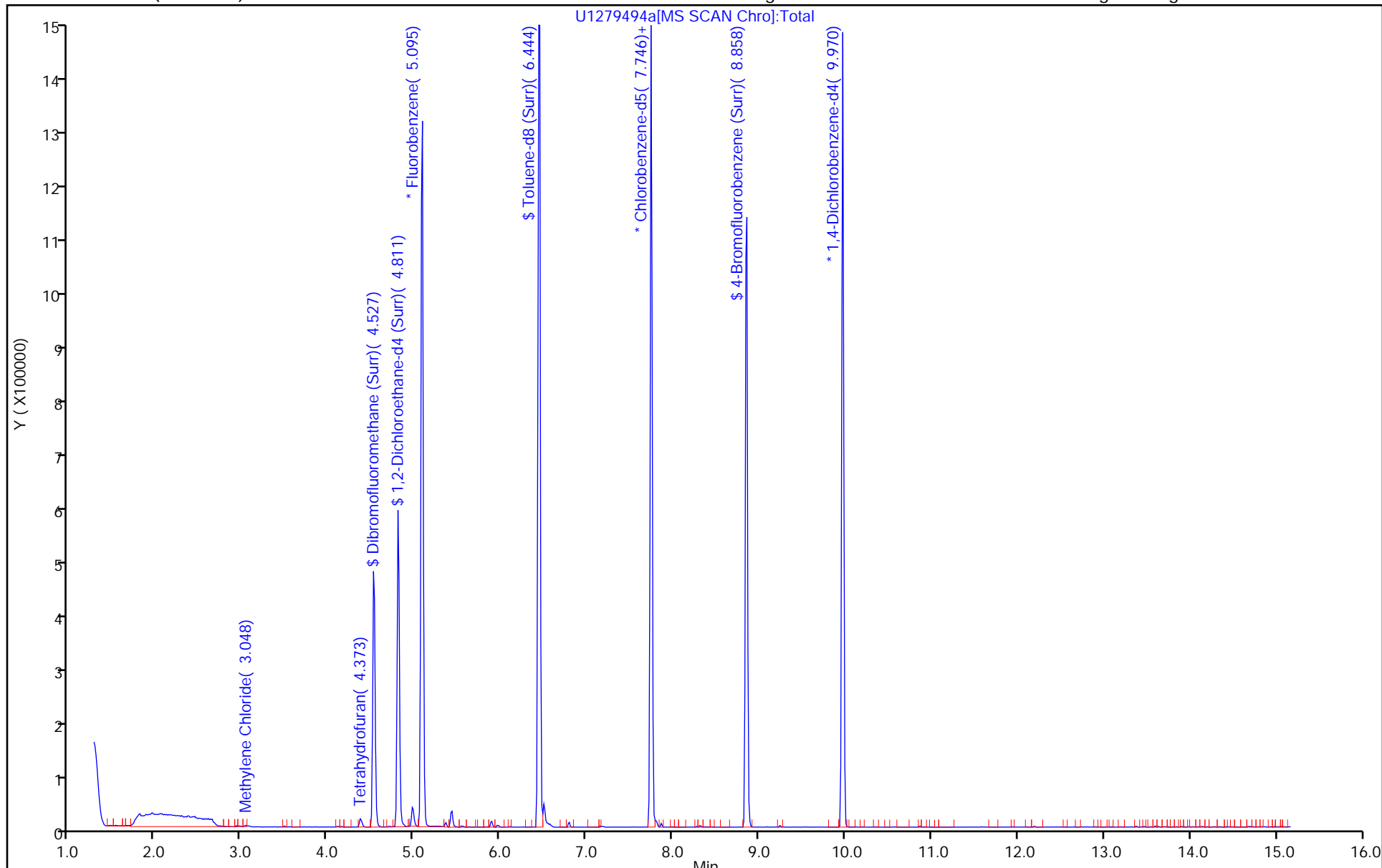
ALS Bottle#: 7

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279494a.D
 Lims ID: MB 240-445424/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 04-Aug-2020 18:24:30 ALS Bottle#: 7 Worklist Smp#: 9
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-009
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 20:00:54 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1064

First Level Reviewer: laveyt

Date: 04-Aug-2020 20:00:54

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	19.0	76.17
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	20.4	81.51
\$ 6 Toluene-d8 (Surr)	25.0	23.4	93.45
\$ 7 4-Bromofluorobenzene (Surr)	25.0	23.4	93.43

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LCS 240-445021/2-A
 Matrix: Solid Lab File ID: U1279415.D
 Analysis Method: 8260B MI Date Collected: _____
 Sample wt/vol: 10.00(g) Date Analyzed: 07/31/2020 18:04
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Medium
 Analysis Batch No.: 445183 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	1130		40	16
123-91-1	1,4-Dioxane	20900		13000	1100
156-59-2	cis-1,2-Dichloroethene	876		40	9.0
127-18-4	Tetrachloroethene	1070		40	18
156-60-5	trans-1,2-Dichloroethene	1120		40	10
79-01-6	Trichloroethene	1040		40	11
75-01-4	Vinyl chloride	968		32	12

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	84		47-136
460-00-4	4-Bromofluorobenzene (Surr)	99		51-124
1868-53-7	Dibromofluoromethane (Surr)	82		49-122
2037-26-5	Toluene-d8 (Surr)	97		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279415.D
 Lims ID: LCS 240-445021/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 31-Jul-2020 18:04:30 ALS Bottle#: 9 Worklist Smp#: 11
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-011
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 31-Jul-2020 16:21:36 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1030

First Level Reviewer: laveyt

Date: 31-Jul-2020 18:37:49

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1161269	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	759880	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.970	0.000	92	368545	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.527	4.539	-0.012	94	315344	25.0	20.5	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	98	396066	25.0	21.0	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1243601	25.0	24.2	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.846	8.846	0.000	90	434372	25.0	24.7	
9 Dichlorodifluoromethane	85	1.392	1.404	-0.012	99	307253	20.0	16.9	
10 Chloromethane	50	1.593	1.593	0.000	98	576160	20.0	19.5	
11 Butadiene	54	1.628	1.640	-0.012	90	435032	20.0	20.4	
12 Vinyl chloride	62	1.676	1.688	-0.012	97	420860	20.0	19.4	
14 Bromomethane	94	1.912	1.924	-0.012	90	216711	20.0	15.0	
15 Chloroethane	64	1.971	1.983	-0.012	100	256745	20.0	16.2	
16 Dichlorofluoromethane	67	2.161	2.173	-0.012	98	567465	20.0	17.2	
17 Trichlorofluoromethane	101	2.232	2.173	0.059	97	422828	20.0	16.6	
19 Ethyl ether	59	2.421	2.433	-0.012	93	329522	20.0	18.7	
20 Acrolein	56	2.539	2.551	-0.012	99	141364	100.0	93.0	
21 1,1-Dichloroethene	61	2.634	2.634	0.000	94	529716	20.0	22.7	
22 112TCTFE	101	2.634	2.658	-0.024	71	286080	20.0	20.9	
23 Acetone	43	2.693	2.693	0.000	100	263250	40.0	40.5	
24 Iodomethane	142	2.788	2.764	0.024	98	376359	20.0	15.8	
25 Carbon disulfide	76	2.835	2.812	0.023	99	953422	20.0	20.3	
27 3-Chloro-1-propene	41	2.930	2.942	-0.012	89	618786	20.0	23.6	
28 Methyl acetate	43	2.965	2.965	0.000	98	833911	40.0	46.9	
29 Methylene Chloride	49	3.036	3.060	-0.024	98	478931	20.0	22.4	
30 2-Methyl-2-propanol	59	3.202	3.167	0.035	99	724098	200.0	328.3	
31 Acrylonitrile	53	3.273	3.273	0.000	100	1897763	200.0	205.7	
33 Methyl tert-butyl ether	73	3.285	3.285	0.000	96	1014781	20.0	19.7	
32 trans-1,2-Dichloroethene	61	3.273	3.285	-0.012	97	501000	20.0	22.4	
34 Hexane	57	3.498	3.510	-0.012	93	606284	20.0	24.4	
35 1,1-Dichloroethane	63	3.640	3.652	-0.012	96	618659	20.0	20.7	
36 Vinyl acetate	43	3.687	3.687	0.000	97	808511	20.0	19.2	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
41 cis-1,2-Dichloroethene	96	4.125	4.137	-0.012	83	366113	20.0	17.5	
40 2,2-Dichloropropane	77	4.125	4.137	-0.012	58	344111	20.0	16.8	
42 2-Butanone (MEK)	72	4.149	4.149	0.000	100	129325	40.0	35.3	
46 Chlorobromomethane	49	4.326	4.338	-0.012	96	311970	20.0	18.4	
47 Tetrahydrofuran	42	4.373	4.374	-0.001	90	383171	40.0	41.0	
48 Chloroform	83	4.397	4.397	0.000	94	546052	20.0	18.5	
49 1,1,1-Trichloroethane	97	4.539	4.551	-0.012	98	468564	20.0	20.0	
50 Cyclohexane	84	4.586	4.598	-0.012	91	545874	20.0	19.7	
52 Carbon tetrachloride	117	4.681	4.693	-0.012	76	395421	20.0	20.7	
51 1,1-Dichloropropene	75	4.681	4.693	-0.012	94	486113	20.0	20.4	
53 Isobutyl alcohol	41	4.799	4.788	0.011	95	454093	500.0	484.8	
54 Benzene	78	4.859	4.859	0.000	96	1402780	20.0	19.7	
55 1,2-Dichloroethane	62	4.882	4.882	0.000	96	433320	20.0	18.7	
57 n-Heptane	57	5.072	5.072	0.000	96	283623	20.0	22.7	
59 Trichloroethene	130	5.403	5.403	0.000	97	335123	20.0	20.8	
61 Methylcyclohexane	83	5.557	5.569	-0.012	91	616801	20.0	21.9	
62 1,2-Dichloropropane	63	5.592	5.604	-0.012	96	336893	20.0	21.9	
64 Dibromomethane	174	5.699	5.699	0.000	96	198079	20.0	18.1	
65 1,4-Dioxane	88	5.711	5.711	0.000	98	83743	400.0	417.0	
66 Dichlorobromomethane	83	5.829	5.829	0.000	99	402953	20.0	21.0	
68 2-Chloroethyl vinyl ether	63	6.089	6.089	0.000	92	243639	20.0	21.0	
69 cis-1,3-Dichloropropene	75	6.219	6.220	-0.001	95	528239	20.0	21.7	
70 4-Methyl-2-pentanone (MIBK)	43	6.350	6.350	0.000	97	948520	40.0	37.6	
71 Toluene	91	6.503	6.504	-0.001	99	1329292	20.0	21.1	
72 trans-1,3-Dichloropropene	75	6.705	6.705	0.000	95	443441	20.0	21.7	
74 Ethyl methacrylate	69	6.776	6.776	0.000	91	467929	20.0	22.7	
75 1,1,2-Trichloroethane	97	6.870	6.870	0.000	92	258088	20.0	20.9	
76 Tetrachloroethene	166	6.989	7.001	-0.011	98	321374	20.0	21.3	
77 1,3-Dichloropropane	76	7.024	7.024	0.000	91	491896	20.0	21.2	
78 2-Hexanone	43	7.095	7.083	0.012	95	668164	40.0	40.4	
80 Chlorodibromomethane	129	7.225	7.225	0.000	91	261720	20.0	21.6	
81 Ethylene Dibromide	107	7.332	7.332	0.000	99	267725	20.0	21.0	
83 Chlorobenzene	112	7.770	7.781	-0.011	95	805212	20.0	21.8	
84 1,1,1,2-Tetrachloroethane	131	7.852	7.852	0.000	95	274249	20.0	21.8	
85 Ethylbenzene	106	7.876	7.876	0.000	99	457115	20.0	22.6	
86 m-Xylene & p-Xylene	106	7.983	7.983	-0.001	99	569615	20.0	22.7	
87 o-Xylene	106	8.361	8.361	0.000	94	559870	20.0	21.7	
88 Styrene	104	8.373	8.373	0.000	96	924157	20.0	22.3	
89 Bromoform	173	8.550	8.551	-0.001	97	194287	20.0	23.2	
90 Isopropylbenzene	105	8.704	8.704	0.000	96	1485478	20.0	23.0	
92 Bromobenzene	156	9.000	9.000	0.000	94	323432	20.0	22.5	
93 1,1,2,2-Tetrachloroethane	83	9.000	9.000	0.000	83	424677	20.0	23.0	
94 1,2,3-Trichloropropane	110	9.036	9.036	0.000	85	138983	20.0	21.9	
95 trans-1,4-Dichloro-2-butene	53	9.047	9.048	-0.001	92	140094	20.0	26.0	
96 N-Propylbenzene	120	9.095	9.095	0.000	99	389324	20.0	24.8	
97 2-Chlorotoluene	126	9.178	9.190	-0.012	96	318264	20.0	23.0	
98 1,3,5-Trimethylbenzene	105	9.272	9.272	0.000	96	1158525	20.0	25.1	
99 4-Chlorotoluene	126	9.284	9.284	0.000	99	326158	20.0	23.0	
102 tert-Butylbenzene	119	9.580	9.580	0.000	92	1000744	20.0	24.7	
104 1,2,4-Trimethylbenzene	105	9.627	9.627	0.000	97	1173944	20.0	24.2	
105 sec-Butylbenzene	105	9.793	9.793	0.000	95	1475607	20.0	25.1	
106 1,3-Dichlorobenzene	146	9.911	9.911	0.000	98	611970	20.0	22.4	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
107 4-Isopropyltoluene	119	9.935	9.935	0.000	97	1250085	20.0	25.6	
108 1,4-Dichlorobenzene	146	9.994	9.994	0.000	96	626207	20.0	22.1	
111 n-Butylbenzene	91	10.337	10.337	0.000	97	1078947	20.0	26.4	
112 1,2-Dichlorobenzene	146	10.361	10.361	0.000	97	589197	20.0	21.7	
113 1,2-Dibromo-3-Chloropropane	157	11.130	11.130	0.000	85	108531	20.0	25.2	
115 1,2,4-Trichlorobenzene	180	11.947	11.947	0.000	94	388415	20.0	26.0	
116 Hexachlorobutadiene	225	12.124	12.124	0.000	96	144661	20.0	26.1	
117 Naphthalene	128	12.195	12.195	0.000	97	1280666	20.0	25.9	
118 1,2,3-Trichlorobenzene	180	12.432	12.432	0.000	95	363801	20.0	26.4	
S 124 Trihalomethanes, Total	1				0		80.0	84.2	
S 125 Total BTEX	1				0		100.0	107.8	
S 128 Xylenes, Total	106				0		40.0	44.4	

Reagents:

vm50is_stk_a_00006

Amount Added: 2.00

Units: uL

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279415.D

Injection Date: 31-Jul-2020 18:04:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: LCS 240-445021/2-A

Worklist Smp#: 11

Client ID:

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

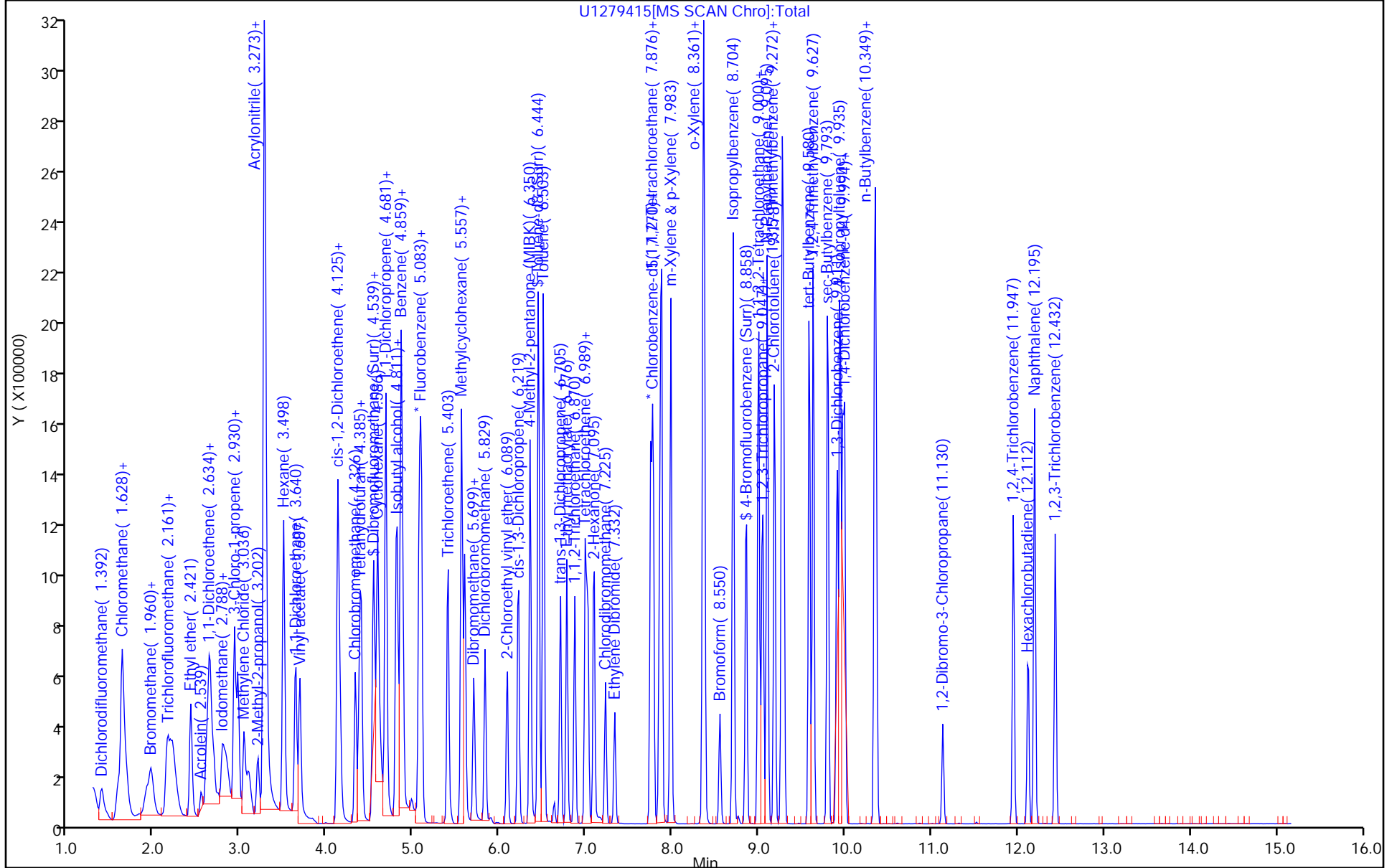
ALS Bottle#: 9

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279415.D
 Lims ID: LCS 240-445021/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 31-Jul-2020 18:04:30 ALS Bottle#: 9 Worklist Smp#: 11
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-011
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 31-Jul-2020 16:21:36 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1030

First Level Reviewer: laveyt Date: 31-Jul-2020 18:37:49

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	20.5	81.84
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	21.0	83.98
\$ 6 Toluene-d8 (Surr)	25.0	24.2	96.79
\$ 7 4-Bromofluorobenzene (Surr)	25.0	24.7	98.74

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LCS 240-445424/2-A
 Matrix: Solid Lab File ID: U1279495a.D
 Analysis Method: 8260B MI Date Collected: _____
 Sample wt/vol: 10.00(g) Date Analyzed: 08/04/2020 18:51
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.0(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Medium
 Analysis Batch No.: 445595 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	1060		40	16
123-91-1	1,4-Dioxane	20300		13000	1100
156-59-2	cis-1,2-Dichloroethene	838		40	9.0
127-18-4	Tetrachloroethene	1020		40	18
156-60-5	trans-1,2-Dichloroethene	1060		40	10
79-01-6	Trichloroethene	995		40	11
75-01-4	Vinyl chloride	1050		32	12

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	84		47-136
460-00-4	4-Bromofluorobenzene (Surr)	98		51-124
1868-53-7	Dibromofluoromethane (Surr)	80		49-122
2037-26-5	Toluene-d8 (Surr)	97		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279495a.D
 Lims ID: LCS 240-445424/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 04-Aug-2020 18:51:30 ALS Bottle#: 8 Worklist Smp#: 10
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-010
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 20:00:54 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1064

First Level Reviewer: laveyt Date: 04-Aug-2020 20:01:30

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.083	5.095	-0.012	99	1167295	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	86	803421	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.971	-0.001	95	396353	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.527	4.539	-0.012	94	309293	25.0	20.0	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	97	398562	25.0	21.0	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1322265	25.0	24.3	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.846	8.858	-0.012	91	456196	25.0	24.5	
9 Dichlorodifluoromethane	85	1.380	1.404	-0.024	99	392872	20.0	21.5	
10 Chloromethane	50	1.569	1.605	-0.036	99	663337	20.0	22.4	
11 Butadiene	54	1.616	1.652	-0.036	91	472902	20.0	22.0	
12 Vinyl chloride	62	1.652	1.699	-0.047	97	456839	20.0	20.9	
14 Bromomethane	94	1.912	1.948	-0.036	90	241395	20.0	16.7	
15 Chloroethane	64	1.959	2.007	-0.048	100	290562	20.0	18.3	
16 Dichlorofluoromethane	67	2.149	2.184	-0.035	97	586929	20.0	17.7	
17 Trichlorofluoromethane	101	2.220	2.184	0.036	98	444054	20.0	17.4	
19 Ethyl ether	59	2.409	2.433	-0.024	93	321724	20.0	18.1	
20 Acrolein	56	2.527	2.551	-0.024	100	114910	100.0	75.2	
21 1,1-Dichloroethene	61	2.634	2.634	0.000	95	495773	20.0	21.1	
22 112TCTFE	101	2.634	2.670	-0.036	95	264298	20.0	19.2	
23 Acetone	43	2.681	2.693	-0.012	100	273044	40.0	41.8	
24 Iodomethane	142	2.788	2.764	0.024	98	345440	20.0	14.5	
25 Carbon disulfide	76	2.823	2.823	0.000	100	875319	20.0	18.5	
27 3-Chloro-1-propene	41	2.918	2.954	-0.036	90	604067	20.0	23.0	
28 Methyl acetate	43	2.965	2.977	-0.012	98	852523	40.0	47.6	
29 Methylene Chloride	49	3.036	3.060	-0.024	97	459257	20.0	21.4	
30 2-Methyl-2-propanol	59	3.190	3.167	0.023	99	557097	200.0	251.3	
31 Acrylonitrile	53	3.261	3.273	-0.012	99	1879868	200.0	202.8	
32 trans-1,2-Dichloroethene	61	3.261	3.285	-0.024	51	477564	20.0	21.2	
33 Methyl tert-butyl ether	73	3.285	3.297	-0.012	96	942004	20.0	18.2	
34 Hexane	57	3.498	3.522	-0.024	92	563659	20.0	22.6	
35 1,1-Dichloroethane	63	3.628	3.652	-0.024	96	599397	20.0	20.0	
36 Vinyl acetate	43	3.675	3.699	-0.024	97	791162	20.0	18.7	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
40 2,2-Dichloropropane	77	4.125	4.137	-0.012	58	307008	20.0	14.9	
41 cis-1,2-Dichloroethene	96	4.125	4.137	-0.012	83	352104	20.0	16.8	
42 2-Butanone (MEK)	72	4.149	4.149	-0.001	100	136416	40.0	37.0	
46 Chlorobromomethane	49	4.326	4.338	-0.012	96	298745	20.0	17.5	
47 Tetrahydrofuran	42	4.373	4.374	-0.001	90	401506	40.0	42.7	
48 Chloroform	83	4.397	4.409	-0.012	94	525607	20.0	17.7	
49 1,1,1-Trichloroethane	97	4.539	4.551	-0.012	99	446854	20.0	19.0	
50 Cyclohexane	84	4.586	4.598	-0.012	91	519523	20.0	18.6	
52 Carbon tetrachloride	117	4.681	4.693	-0.012	74	375833	20.0	19.6	
51 1,1-Dichloropropene	75	4.681	4.693	-0.012	94	465046	20.0	19.4	
53 Isobutyl alcohol	41	4.799	4.788	0.011	94	422473	500.0	448.7	
54 Benzene	78	4.858	4.871	-0.013	97	1366973	20.0	19.1	
55 1,2-Dichloroethane	62	4.870	4.882	-0.012	97	426988	20.0	18.3	
57 n-Heptane	57	5.060	5.084	-0.024	96	281844	20.0	22.4	
59 Trichloroethene	130	5.403	5.403	0.000	97	322417	20.0	19.9	
61 Methylcyclohexane	83	5.557	5.569	-0.012	90	557917	20.0	19.7	
62 1,2-Dichloropropane	63	5.592	5.604	-0.012	95	341445	20.0	22.1	
64 Dibromomethane	174	5.699	5.711	-0.012	97	196483	20.0	17.9	
65 1,4-Dioxane	88	5.710	5.711	-0.001	95	81790	400.0	405.2	
66 Dichlorobromomethane	83	5.829	5.829	0.000	99	393256	20.0	20.3	
68 2-Chloroethyl vinyl ether	63	6.089	6.089	0.000	92	274491	20.0	23.6	
69 cis-1,3-Dichloropropene	75	6.207	6.220	-0.013	95	533696	20.0	21.8	
70 4-Methyl-2-pentanone (MIBK)	43	6.349	6.350	-0.001	96	1048111	40.0	41.4	
71 Toluene	91	6.503	6.515	-0.012	99	1367831	20.0	20.5	
72 trans-1,3-Dichloropropene	75	6.704	6.705	-0.001	95	462941	20.0	21.4	
74 Ethyl methacrylate	69	6.775	6.776	-0.001	91	519140	20.0	23.8	
75 1,1,2-Trichloroethane	97	6.870	6.870	0.000	92	270731	20.0	20.7	
76 Tetrachloroethene	166	6.988	7.000	-0.012	97	325365	20.0	20.4	
77 1,3-Dichloropropane	76	7.024	7.024	0.000	91	530266	20.0	21.7	
78 2-Hexanone	43	7.083	7.095	-0.012	97	819270	40.0	46.9	
80 Chlorodibromomethane	129	7.225	7.225	0.000	91	270586	20.0	21.1	
81 Ethylene Dibromide	107	7.332	7.332	0.000	98	280920	20.0	20.8	
83 Chlorobenzene	112	7.781	7.781	0.000	94	838526	20.0	21.5	
84 1,1,1,2-Tetrachloroethane	131	7.852	7.852	0.000	94	274969	20.0	20.7	
85 Ethylbenzene	106	7.876	7.876	0.000	99	473128	20.0	22.1	
86 m-Xylene & p-Xylene	106	7.982	7.983	-0.001	98	599882	20.0	22.6	
87 o-Xylene	106	8.361	8.361	0.000	97	572606	20.0	21.0	
88 Styrene	104	8.373	8.373	0.000	96	981549	20.0	22.4	
89 Bromoform	173	8.550	8.551	-0.001	97	201368	20.0	22.8	
90 Isopropylbenzene	105	8.704	8.704	0.000	96	1507364	20.0	22.0	
92 Bromobenzene	156	9.000	9.000	0.000	94	340781	20.0	22.0	
93 1,1,2,2-Tetrachloroethane	83	9.000	9.000	0.000	83	442259	20.0	22.3	
94 1,2,3-Trichloropropane	110	9.036	9.036	0.000	85	147642	20.0	21.6	
95 trans-1,4-Dichloro-2-butene	53	9.047	9.048	-0.001	92	166264	20.0	28.7	
96 N-Propylbenzene	120	9.095	9.095	0.000	99	405131	20.0	24.0	
97 2-Chlorotoluene	126	9.178	9.190	-0.012	96	329803	20.0	22.2	
98 1,3,5-Trimethylbenzene	105	9.272	9.272	0.000	95	1187358	20.0	23.9	
99 4-Chlorotoluene	126	9.284	9.284	0.000	99	339336	20.0	22.2	
102 tert-Butylbenzene	119	9.580	9.580	0.000	92	1049715	20.0	24.1	
104 1,2,4-Trimethylbenzene	105	9.627	9.627	0.000	97	1202035	20.0	23.0	
105 sec-Butylbenzene	105	9.793	9.793	0.000	95	1490239	20.0	23.6	
106 1,3-Dichlorobenzene	146	9.911	9.911	0.000	98	640557	20.0	21.8	

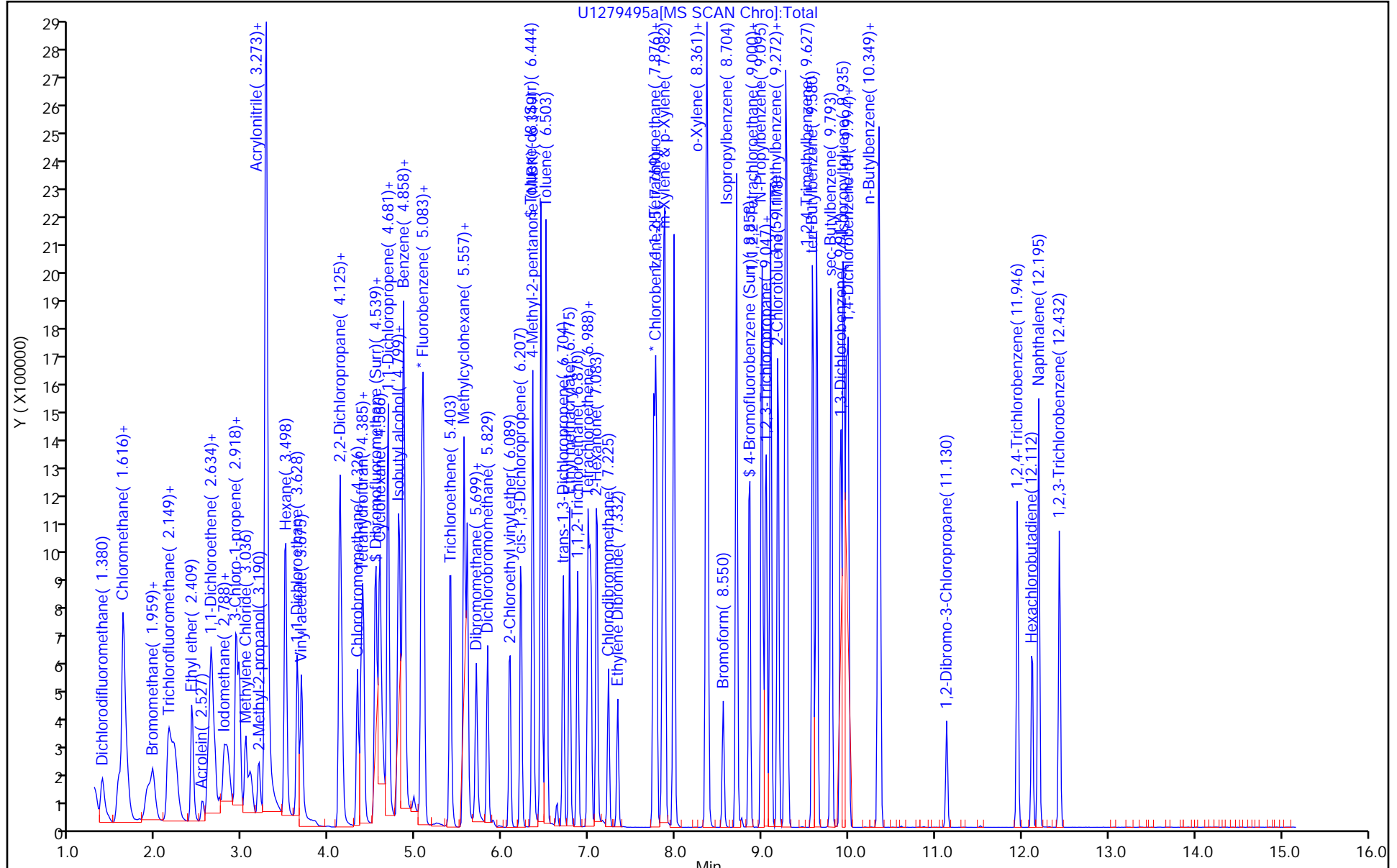
Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
107 4-Isopropyltoluene	119	9.935	9.947	-0.012	97	1273588	20.0	24.3	
108 1,4-Dichlorobenzene	146	9.994	9.994	0.000	96	652514	20.0	21.4	
111 n-Butylbenzene	91	10.337	10.337	0.000	97	1078798	20.0	24.5	
112 1,2-Dichlorobenzene	146	10.361	10.361	0.000	97	602637	20.0	20.7	
113 1,2-Dibromo-3-Chloropropane	157	11.130	11.130	0.000	84	108164	20.0	23.4	
115 1,2,4-Trichlorobenzene	180	11.946	11.947	-0.001	94	369353	20.0	23.0	
116 Hexachlorobutadiene	225	12.124	12.124	0.000	95	140263	20.0	23.5	
117 Naphthalene	128	12.195	12.195	0.000	97	1203921	20.0	22.6	
118 1,2,3-Trichlorobenzene	180	12.432	12.432	0.000	96	341685	20.0	23.1	
S 124 Trihalomethanes, Total	1				0		80.0	81.9	
S 125 Total BTEX	1				0		100.0	105.3	
S 128 Xylenes, Total	106				0		40.0	43.6	

Reagents:

vm50is_stk_a_00006

Amount Added: 2.00

Units: uL



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279495a.D
 Lims ID: LCS 240-445424/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 04-Aug-2020 18:51:30 ALS Bottle#: 8 Worklist Smp#: 10
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-010
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 20:00:54 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1064

First Level Reviewer: laveyt Date: 04-Aug-2020 20:01:30

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	25.0	20.0	79.85
\$ 5 1,2-Dichloroethane-d4 (Surr)	25.0	21.0	84.08
\$ 6 Toluene-d8 (Surr)	25.0	24.3	97.33
\$ 7 4-Bromofluorobenzene (Surr)	25.0	24.5	98.08

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: SB-142 (4-5)_072820 MS Lab Sample ID: 240-134182-21 MS
 Matrix: Solid Lab File ID: U1279436.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 12:44
 Sample wt/vol: 10.148(g) Date Analyzed: 08/01/2020 01:57
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.6(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 5.4 Level: (low/med) Medium
 Analysis Batch No.: 445183 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	979		46	19
123-91-1	1,4-Dioxane	42500		15000	1300
156-59-2	cis-1,2-Dichloroethene	1010		46	10
127-18-4	Tetrachloroethene	1190		46	21
156-60-5	trans-1,2-Dichloroethene	1300		46	12
79-01-6	Trichloroethene	1220		46	13
75-01-4	Vinyl chloride	1120		37	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	93		47-136
460-00-4	4-Bromofluorobenzene (Surr)	115		51-124
1868-53-7	Dibromofluoromethane (Surr)	87		49-122
2037-26-5	Toluene-d8 (Surr)	104		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279436.D
 Lims ID: 240-134182-B-21-A MS
 Client ID: SB-142 (4-5)_072820
 Sample Type: MS
 Inject. Date: 01-Aug-2020 01:57:30 ALS Bottle#: 30 Worklist Smp#: 32
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-032
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Aug-2020 01:43:45 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1049

First Level Reviewer: laveyt Date: 01-Aug-2020 10:10:32

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1092136	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	721535	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.970	0.000	93	360237	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.527	4.539	-0.012	94	284196	23.6	19.6	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	93	369508	23.6	20.8	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1138908	23.6	23.3	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.846	0.012	95	429402	23.6	25.7	
12 Vinyl chloride	62	1.676	1.688	-0.012	97	394515	18.9	19.3	
21 1,1-Dichloroethene	61	2.634	2.634	0.000	94	370239	18.9	16.9	
32 trans-1,2-Dichloroethene	61	3.273	3.285	-0.012	98	470750	18.9	22.3	
41 cis-1,2-Dichloroethene	96	4.125	4.137	-0.012	83	341287	18.9	17.4	
59 Trichloroethene	130	5.403	5.403	0.000	97	319061	18.9	21.0	
65 1,4-Dioxane	88	5.722	5.711	0.011	96	138067	377.4	731.0	
76 Tetrachloroethene	166	6.989	7.001	-0.011	98	294415	18.9	20.6	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279436.D

Injection Date: 01-Aug-2020 01:57:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-B-21-A MS

Worklist Smp#: 32

Client ID: SB-142 (4-5)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

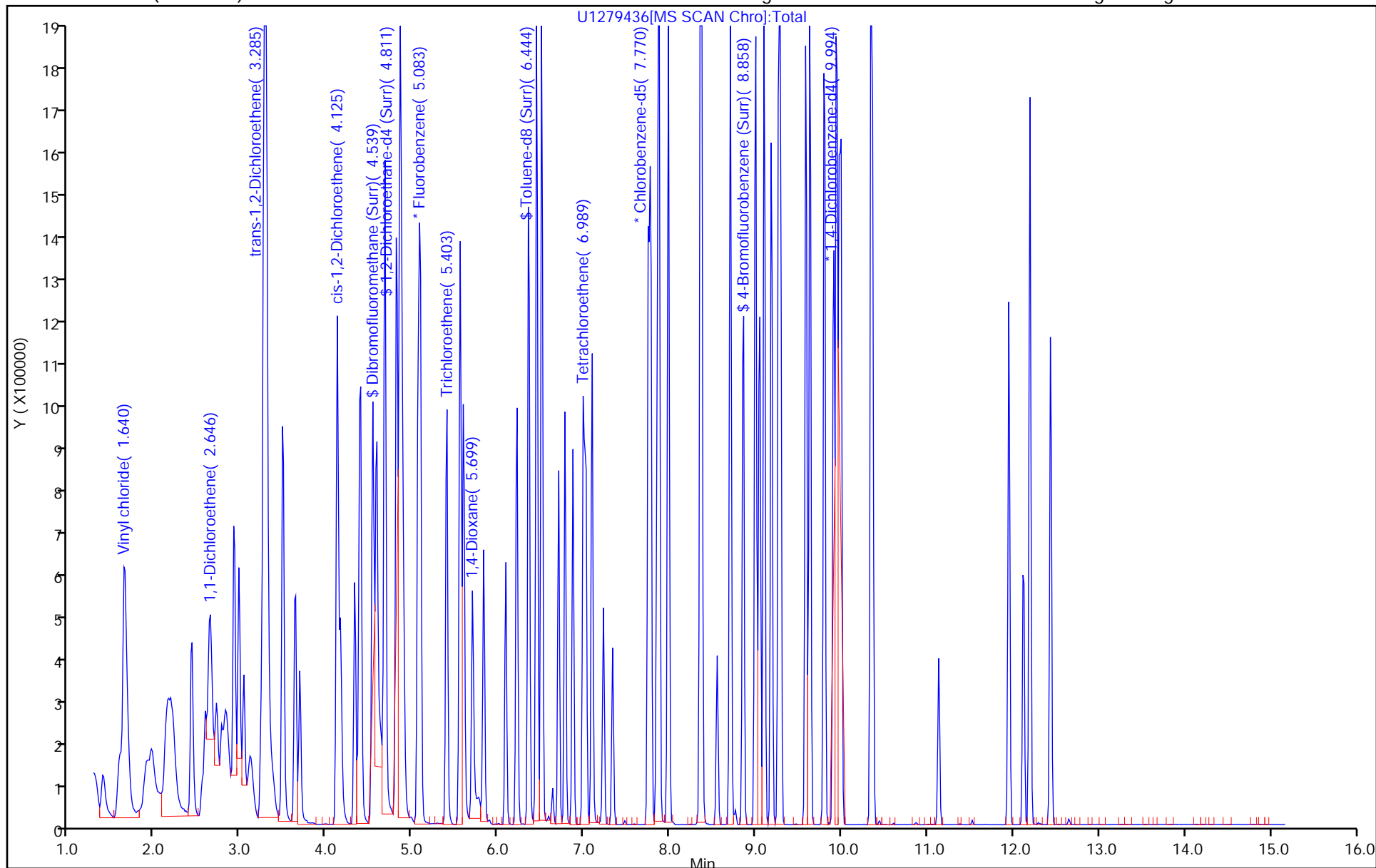
ALS Bottle#: 30

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\U1279436.D
 Lims ID: 240-134182-B-21-A MS
 Client ID: SB-142 (4-5)_072820
 Sample Type: MS
 Inject. Date: 01-Aug-2020 01:57:30 ALS Bottle#: 30 Worklist Smp#: 32
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100577-032
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200731-100577.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 01-Aug-2020 01:43:45 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1049

First Level Reviewer: laveyt

Date: 01-Aug-2020 10:10:32

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	23.6	19.6	83.13
\$ 5 1,2-Dichloroethane-d4 (Surr)	23.6	20.8	88.31
\$ 6 Toluene-d8 (Surr)	23.6	23.3	98.95
\$ 7 4-Bromofluorobenzene (Surr)	23.6	25.7	108.96

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: SB-143 (0.5-1)_072820 MS Lab Sample ID: 240-134182-25 MS
 Matrix: Solid Lab File ID: U1279501a.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 13:20
 Sample wt/vol: 9.914(g) Date Analyzed: 08/04/2020 21:05
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.6(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 2.4 Level: (low/med) Medium
 Analysis Batch No.: 445595 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	1250		45	18
123-91-1	1,4-Dioxane	23200		14000	1200
156-59-2	cis-1,2-Dichloroethene	994		45	10
127-18-4	Tetrachloroethene	1230		45	20
156-60-5	trans-1,2-Dichloroethene	1290		45	11
79-01-6	Trichloroethene	1190		45	12
75-01-4	Vinyl chloride	1250		36	13

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	89		47-136
460-00-4	4-Bromofluorobenzene (Surr)	107		51-124
1868-53-7	Dibromofluoromethane (Surr)	88		49-122
2037-26-5	Toluene-d8 (Surr)	107		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279501a.D
 Lims ID: 240-134182-B-25-A MS
 Client ID: SB-143 (0.5-1)_072820
 Sample Type: MS
 Inject. Date: 04-Aug-2020 21:05:30 ALS Bottle#: 14 Worklist Smp#: 16
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-016
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 12:05:49 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 14:27:07

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	98	1104066	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	733955	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.971	-0.001	93	375656	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	297379	23.6	20.3	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.823	4.823	0.000	96	367344	23.6	20.5	
\$ 6 Toluene-d8 (Surr)	98	6.456	6.456	0.000	93	1224816	23.6	24.7	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	93	420577	23.6	24.7	
12 Vinyl chloride	62	1.687	1.699	-0.012	97	463258	18.9	22.4	
21 1,1-Dichloroethene	61	2.646	2.634	0.012	94	497732	18.9	22.4	
32 trans-1,2-Dichloroethene	61	3.285	3.285	0.000	58	489479	18.9	23.0	
41 cis-1,2-Dichloroethene	96	4.137	4.137	0.000	83	353056	18.9	17.8	
59 Trichloroethene	130	5.403	5.403	0.000	97	327119	18.9	21.3	
65 1,4-Dioxane	88	5.711	5.711	0.000	97	79045	377.4	414.0	
76 Tetrachloroethene	166	7.000	7.000	0.000	97	321000	18.9	22.0	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279501a.D

Injection Date: 04-Aug-2020 21:05:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-B-25-A MS

Worklist Smp#: 16

Client ID: SB-143 (0.5-1)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

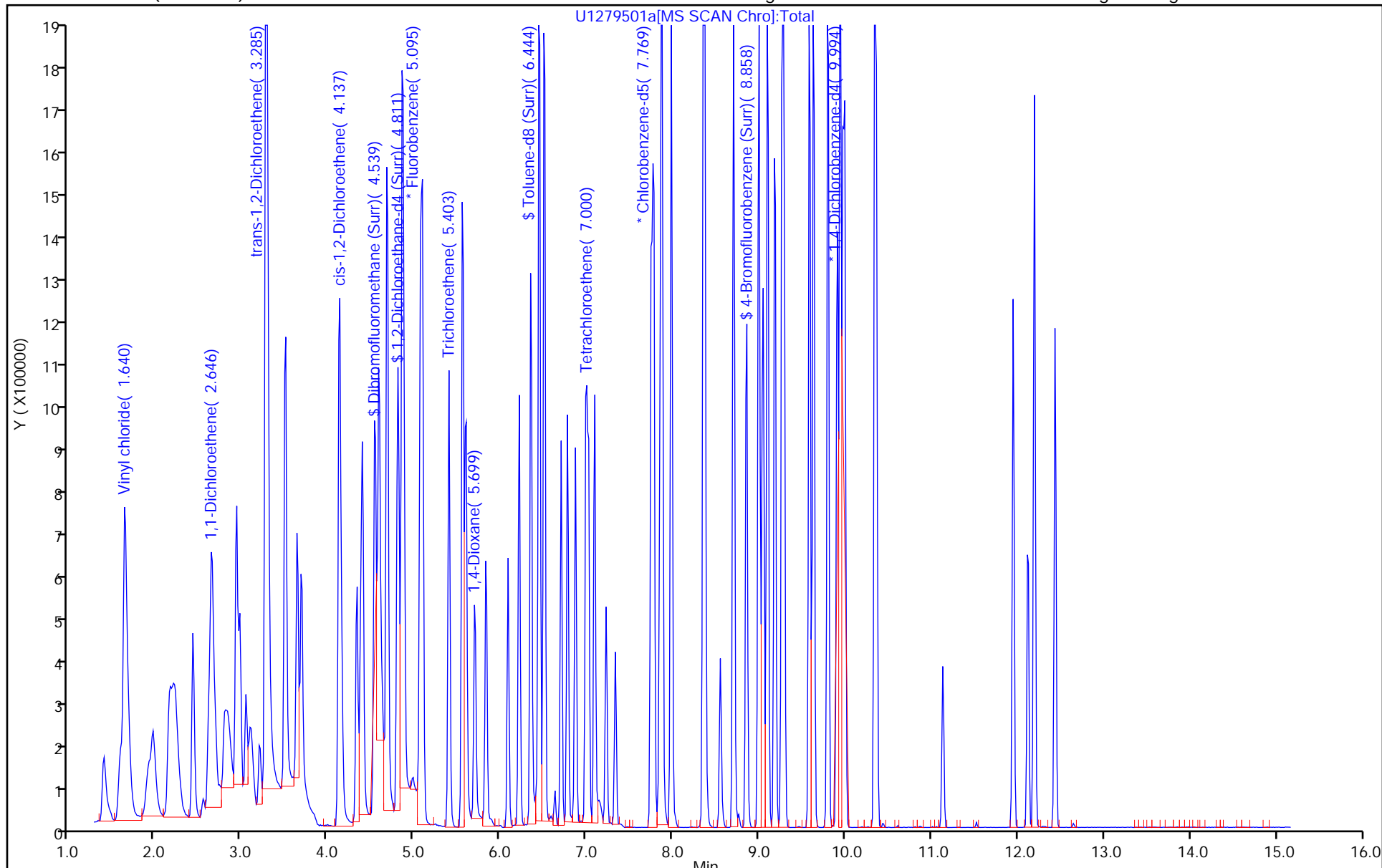
ALS Bottle#: 14

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279501a.D
 Lims ID: 240-134182-B-25-A MS
 Client ID: SB-143 (0.5-1)_072820
 Sample Type: MS
 Inject. Date: 04-Aug-2020 21:05:30 ALS Bottle#: 14 Worklist Smp#: 16
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-016
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 12:05:49 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 14:27:07

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	23.6	20.3	86.04
\$ 5 1,2-Dichloroethane-d4 (Surr)	23.6	20.5	86.84
\$ 6 Toluene-d8 (Surr)	23.6	24.7	104.61
\$ 7 4-Bromofluorobenzene (Surr)	23.6	24.7	104.92

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: SB-143 (3-4)_072820 MS Lab Sample ID: 240-134182-28 MS
 Matrix: Solid Lab File ID: U1279506a.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 13:23
 Sample wt/vol: 9.915(g) Date Analyzed: 08/04/2020 22:57
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.6(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 2.6 Level: (low/med) Medium
 Analysis Batch No.: 445595 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	1100		45	18
123-91-1	1,4-Dioxane	31700		14000	1200
156-59-2	cis-1,2-Dichloroethene	926		45	10
127-18-4	Tetrachloroethene	1120		45	20
156-60-5	trans-1,2-Dichloroethene	1200		45	11
79-01-6	Trichloroethene	1120		45	12
75-01-4	Vinyl chloride	1220		36	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	88		47-136
460-00-4	4-Bromofluorobenzene (Surr)	102		51-124
1868-53-7	Dibromofluoromethane (Surr)	84		49-122
2037-26-5	Toluene-d8 (Surr)	100		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279506a.D
 Lims ID: 240-134182-B-28-A MS
 Client ID: SB-143 (3-4)_072820
 Sample Type: MS
 Inject. Date: 04-Aug-2020 22:57:30 ALS Bottle#: 19 Worklist Smp#: 21
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-021
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:07:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 15:47:12

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1060054	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	741525	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.970	9.971	-0.001	95	391344	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.527	4.539	-0.012	94	270539	23.6	19.2	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	97	347702	23.6	20.2	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1156515	23.6	23.1	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	95	402681	23.6	23.4	
12 Vinyl chloride	62	1.676	1.699	-0.023	97	430926	18.9	21.7	
21 1,1-Dichloroethene	61	2.658	2.634	0.024	95	418262	18.9	19.6	
32 trans-1,2-Dichloroethene	61	3.273	3.285	-0.012	95	434650	18.9	21.2	
41 cis-1,2-Dichloroethene	96	4.125	4.137	-0.012	83	313923	18.9	16.5	
59 Trichloroethene	130	5.403	5.403	0.000	97	293471	18.9	19.9	
65 1,4-Dioxane	88	5.722	5.711	0.011	95	103212	377.4	563.0	
76 Tetrachloroethene	166	6.989	7.000	-0.011	97	292104	18.9	19.8	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279506a.D

Injection Date: 04-Aug-2020 22:57:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-B-28-A MS

Worklist Smp#: 21

Client ID: SB-143 (3-4)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

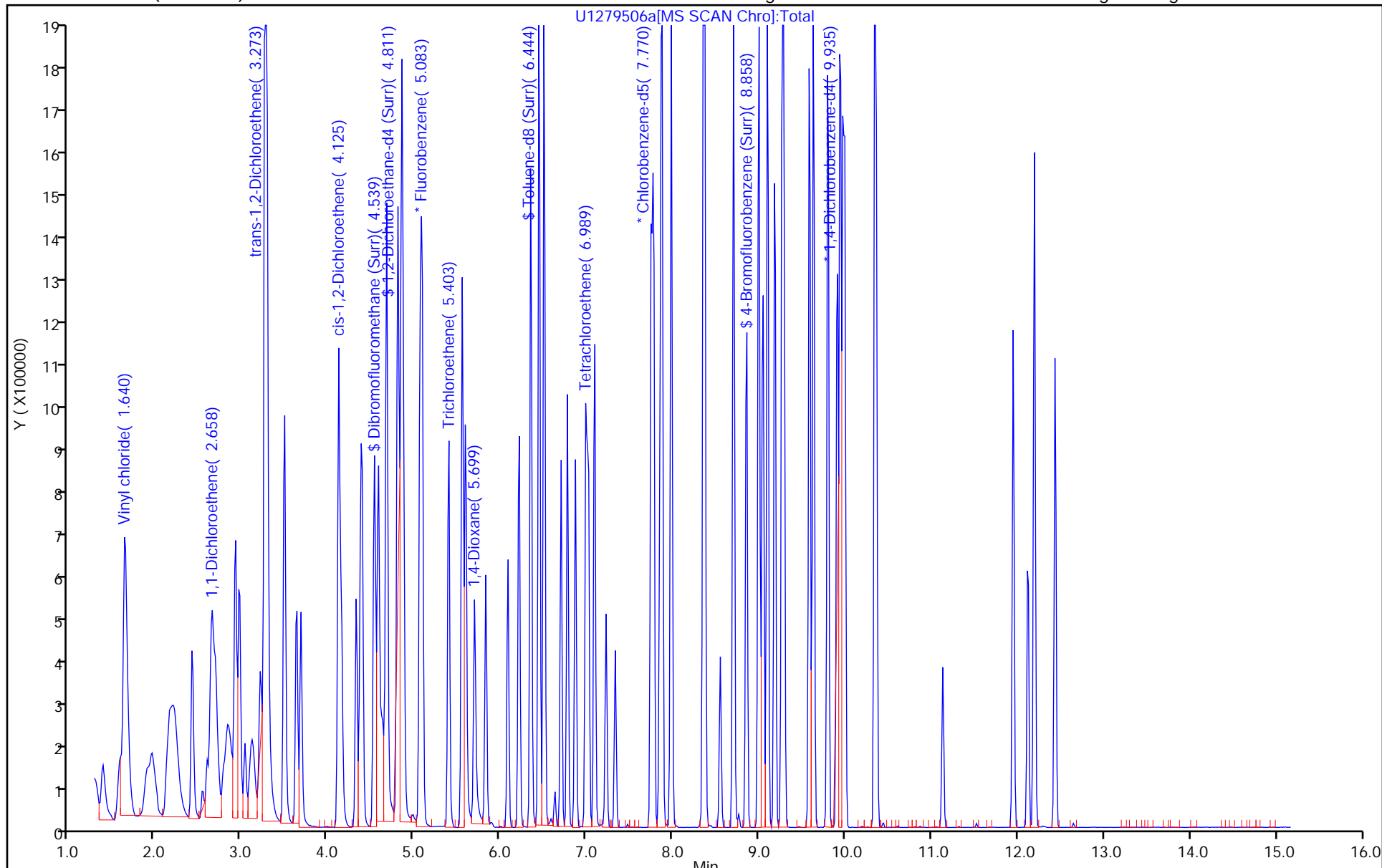
ALS Bottle#: 19

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279506a.D
 Lims ID: 240-134182-B-28-A MS
 Client ID: SB-143 (3-4)_072820
 Sample Type: MS
 Inject. Date: 04-Aug-2020 22:57:30 ALS Bottle#: 19 Worklist Smp#: 21
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-021
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:07:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 15:47:12

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	23.6	19.2	81.53
\$ 5 1,2-Dichloroethane-d4 (Surr)	23.6	20.2	85.61
\$ 6 Toluene-d8 (Surr)	23.6	23.1	97.77
\$ 7 4-Bromofluorobenzene (Surr)	23.6	23.4	99.43

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: SB-143 (0.5-1)_072820 MSD Lab Sample ID: 240-134182-25 MSD
 Matrix: Solid Lab File ID: U1279502.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 13:20
 Sample wt/vol: 9.623(g) Date Analyzed: 08/04/2020 21:27
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.6(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 2.4 Level: (low/med) Medium
 Analysis Batch No.: 445595 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	1280		46	18
123-91-1	1,4-Dioxane	29800		14000	1300
156-59-2	cis-1,2-Dichloroethene	1030		46	10
127-18-4	Tetrachloroethene	1240		46	21
156-60-5	trans-1,2-Dichloroethene	1320		46	12
79-01-6	Trichloroethene	1220		46	13
75-01-4	Vinyl chloride	1250		37	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	96		47-136
460-00-4	4-Bromofluorobenzene (Surr)	109		51-124
1868-53-7	Dibromofluoromethane (Surr)	92		49-122
2037-26-5	Toluene-d8 (Surr)	107		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279502.D
 Lims ID: 240-134182-C-25-A MSD
 Client ID: SB-143 (0.5-1)_072820
 Sample Type: MSD
 Inject. Date: 04-Aug-2020 21:27:30 ALS Bottle#: 15 Worklist Smp#: 17
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-017
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 19:45:46 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1064

First Level Reviewer: laveyt

Date: 04-Aug-2020 21:55:49

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	98	1104309	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	86	745910	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.971	9.971	0.000	93	382113	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.539	4.539	0.000	94	312646	23.6	21.3	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.823	4.823	0.000	96	397100	23.6	22.1	
\$ 6 Toluene-d8 (Surr)	98	6.456	6.456	0.000	93	1242218	23.6	24.6	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	94	434722	23.6	25.2	
12 Vinyl chloride	62	1.676	1.699	-0.023	98	449796	18.9	21.8	
21 1,1-Dichloroethene	61	2.658	2.634	0.024	94	494589	18.9	22.3	
32 trans-1,2-Dichloroethene	61	3.273	3.285	-0.012	95	487064	18.9	22.9	
41 cis-1,2-Dichloroethene	96	4.137	4.137	0.000	83	355379	18.9	17.9	
59 Trichloroethene	130	5.403	5.403	0.000	97	323724	18.9	21.1	
65 1,4-Dioxane	88	5.723	5.711	0.011	94	98887	377.4	517.8	
76 Tetrachloroethene	166	7.000	7.000	0.000	98	318653	18.9	21.5	

Reagents:

vm50is_stk_a_00006

Amount Added: 2.00

Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279502.D

Injection Date: 04-Aug-2020 21:27:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-C-25-A MSD

Worklist Smp#: 17

Client ID: SB-143 (0.5-1)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

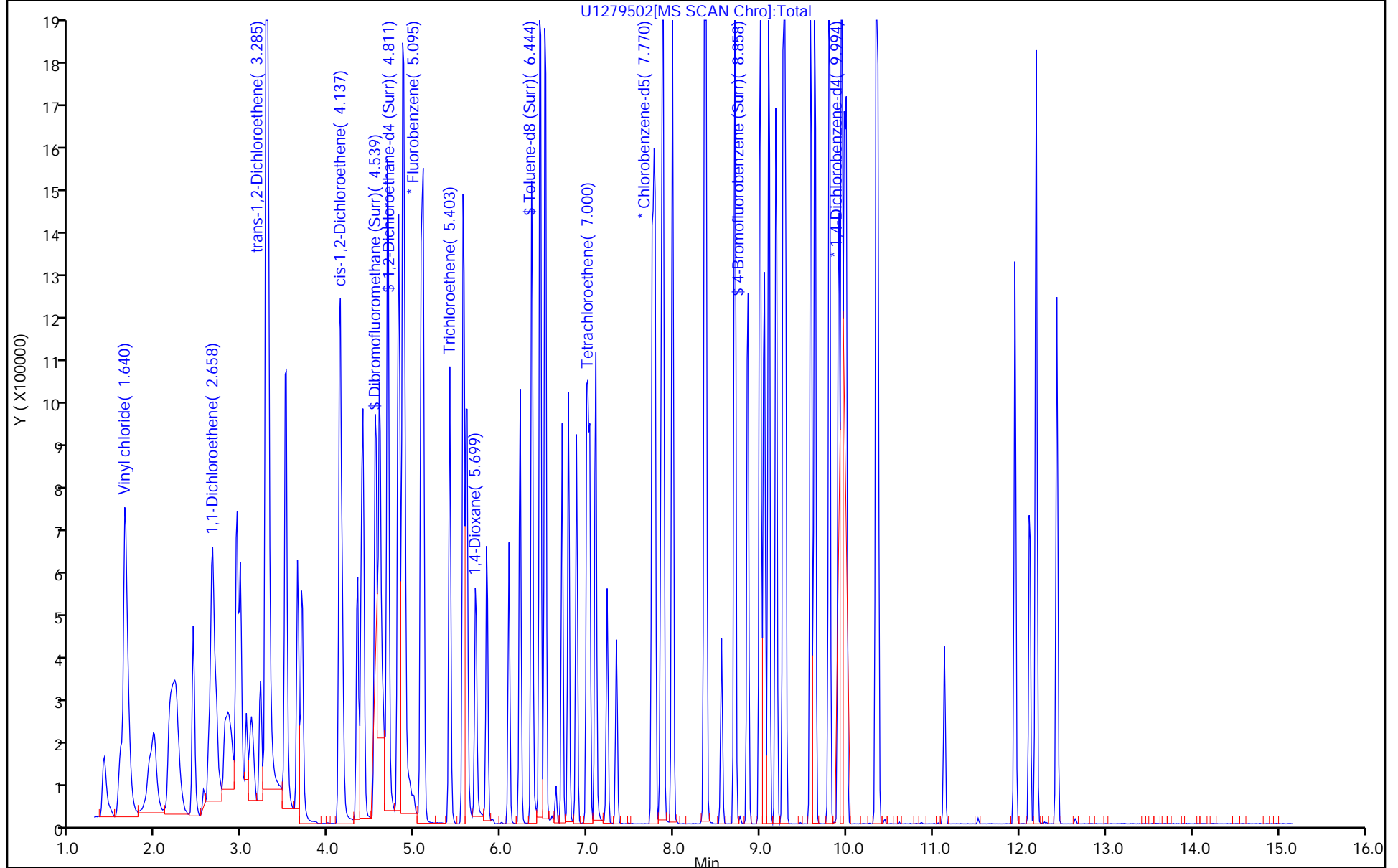
ALS Bottle#: 15

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279502.D
 Lims ID: 240-134182-C-25-A MSD
 Client ID: SB-143 (0.5-1)_072820
 Sample Type: MSD
 Inject. Date: 04-Aug-2020 21:27:30 ALS Bottle#: 15 Worklist Smp#: 17
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-017
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 19:45:46 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1064

First Level Reviewer: laveyt

Date: 04-Aug-2020 21:55:49

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	23.6	21.3	90.44
\$ 5 1,2-Dichloroethane-d4 (Surr)	23.6	22.1	93.86
\$ 6 Toluene-d8 (Surr)	23.6	24.6	104.40
\$ 7 4-Bromofluorobenzene (Surr)	23.6	25.2	106.71

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: SB-143 (3-4)_072820 MSD Lab Sample ID: 240-134182-28 MSD
 Matrix: Solid Lab File ID: U1279507a.D
 Analysis Method: 8260B MI Date Collected: 07/28/2020 13:23
 Sample wt/vol: 9.717(g) Date Analyzed: 08/04/2020 23:20
 Soil Aliquot Vol: 0.1 (mL) Dilution Factor: 1
 Soil Extract Vol.: 10.6(mL) GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: 2.6 Level: (low/med) Medium
 Analysis Batch No.: 445595 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	1240		46	18
123-91-1	1,4-Dioxane	21600		14000	1300
156-59-2	cis-1,2-Dichloroethene	994		46	10
127-18-4	Tetrachloroethene	1210		46	21
156-60-5	trans-1,2-Dichloroethene	1280		46	11
79-01-6	Trichloroethene	1210		46	13
75-01-4	Vinyl chloride	1230		37	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	85		47-136
460-00-4	4-Bromofluorobenzene (Surr)	107		51-124
1868-53-7	Dibromofluoromethane (Surr)	86		49-122
2037-26-5	Toluene-d8 (Surr)	103		55-123

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279507a.D
 Lims ID: 240-134182-C-28-A MSD
 Client ID: SB-143 (3-4)_072820
 Sample Type: MSD
 Inject. Date: 04-Aug-2020 23:20:30 ALS Bottle#: 20 Worklist Smp#: 22
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-022
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:07:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt Date: 05-Aug-2020 15:47:22

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.095	5.095	0.000	99	1098106	20.0	20.0	
* 2 Chlorobenzene-d5	117	7.746	7.746	0.000	87	766667	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	9.971	9.971	-0.001	93	392940	20.0	20.0	
\$ 4 Dibromofluoromethane (Surr)	111	4.527	4.539	-0.012	94	288397	23.6	19.8	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.811	4.823	-0.012	97	350887	23.6	19.7	
\$ 6 Toluene-d8 (Surr)	98	6.444	6.456	-0.012	93	1226318	23.6	23.6	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.858	8.858	0.000	94	437562	23.6	24.6	
12 Vinyl chloride	62	1.664	1.699	-0.035	97	442090	18.9	21.5	
21 1,1-Dichloroethene	61	2.646	2.634	0.012	94	477275	18.9	21.6	
32 trans-1,2-Dichloroethene	61	3.273	3.285	-0.012	62	474220	18.9	22.4	
41 cis-1,2-Dichloroethene	96	4.125	4.137	-0.012	83	342414	18.9	17.3	
59 Trichloroethene	130	5.403	5.403	0.000	98	322322	18.9	21.1	
65 1,4-Dioxane	88	5.711	5.711	0.000	94	71644	377.4	377.3	
76 Tetrachloroethene	166	6.989	7.000	-0.011	98	320698	18.9	21.1	

Reagents:

vm50is_stk_a_00006 Amount Added: 2.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279507a.D

Injection Date: 04-Aug-2020 23:20:30

Instrument ID: A3UX12

Operator ID: 001904

Lims ID: 240-134182-C-28-A MSD

Worklist Smp#: 22

Client ID: SB-143 (3-4)_072820

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

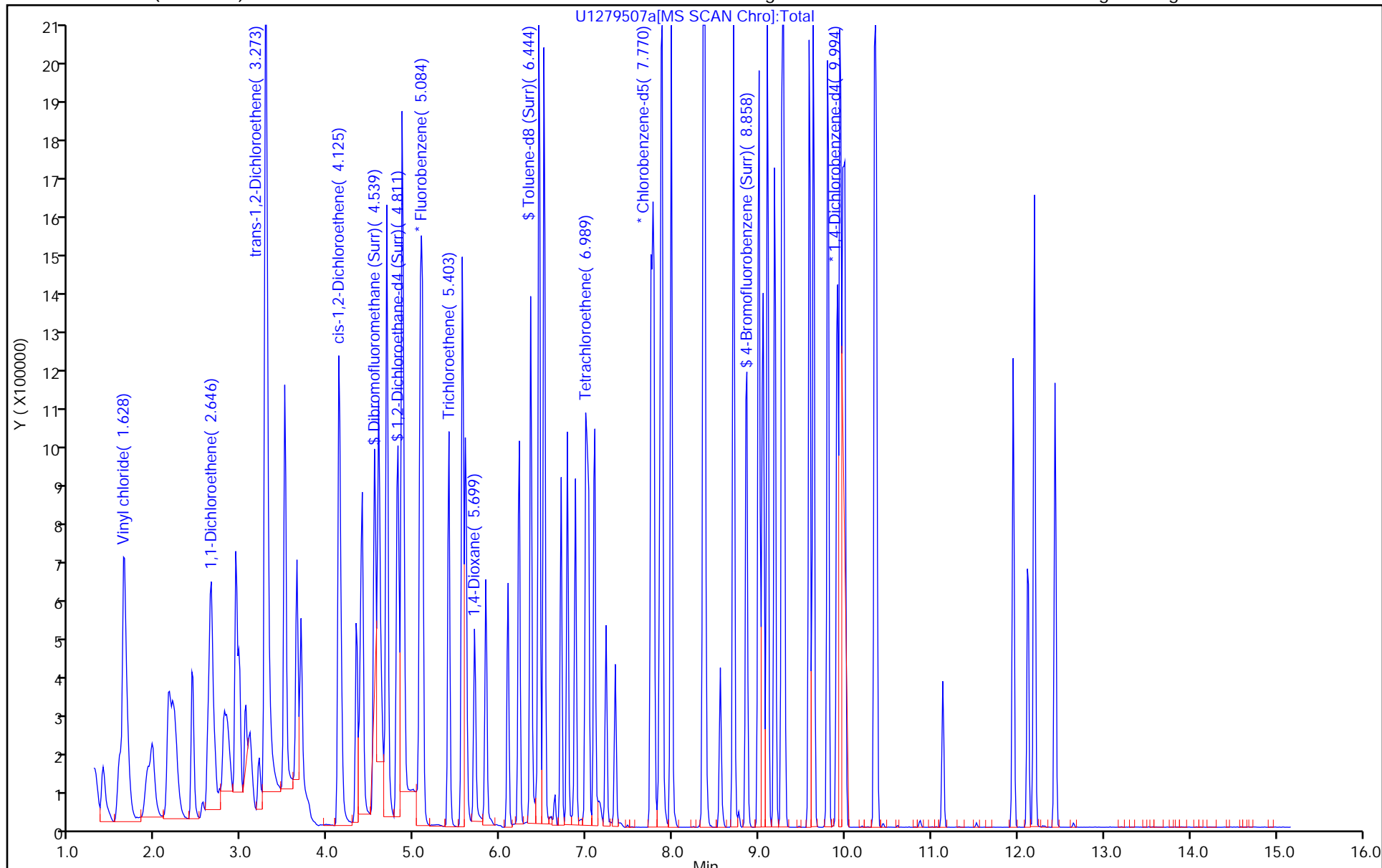
ALS Bottle#: 20

Method: 8260_12_h2o

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\U1279507a.D
 Lims ID: 240-134182-C-28-A MSD
 Client ID: SB-143 (3-4)_072820
 Sample Type: MSD
 Inject. Date: 04-Aug-2020 23:20:30 ALS Bottle#: 20 Worklist Smp#: 22
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100665-022
 Operator ID: 001904 Instrument ID: A3UX12
 Method: \\chromfs\Canton\ChromData\A3UX12\20200804-100665.b\8260_12_h2o.m
 Limit Group: MSV 8260B ICAL
 Last Update: 05-Aug-2020 13:07:51 Calib Date: 16-Jul-2020 20:20:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromfs\Canton\ChromData\A3UX12\20200716-100113.b\U1279120.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1015

First Level Reviewer: laveyt

Date: 05-Aug-2020 15:47:22

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	23.6	19.8	83.90
\$ 5 1,2-Dichloroethane-d4 (Surr)	23.6	19.7	83.40
\$ 6 Toluene-d8 (Surr)	23.6	23.6	100.27
\$ 7 4-Bromofluorobenzene (Surr)	23.6	24.6	104.50

GC/MS VOA ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Instrument ID: A3UX12 Start Date: 07/16/2020 16:09Analysis Batch Number: 442964 End Date: 07/16/2020 21:05

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
BFB 240-442964/1		07/16/2020 16:09	1	BFB4436a.D	DB-624 0.18 (mm)
STD8260 240-442964/9 IC		07/16/2020 17:43	1	U1279113.D	DB-624 0.18 (mm)
STD8260 240-442964/10 IC		07/16/2020 18:05	1	U1279114.D	DB-624 0.18 (mm)
STD8260 240-442964/11 IC		07/16/2020 18:27	1	U1279115.D	DB-624 0.18 (mm)
STD8260 240-442964/12 IC		07/16/2020 18:50	1	U1279116.D	DB-624 0.18 (mm)
ICIS 240-442964/13		07/16/2020 19:12	1	U1279117.D	DB-624 0.18 (mm)
STD8260 240-442964/14 IC		07/16/2020 19:35	1	U1279118.D	DB-624 0.18 (mm)
STD8260 240-442964/15 IC		07/16/2020 19:57	1	U1279119.D	DB-624 0.18 (mm)
STD8260 240-442964/16 IC		07/16/2020 20:20	1	U1279120.D	DB-624 0.18 (mm)
ICV 240-442964/17		07/16/2020 20:43	1	U1279121.D	DB-624 0.18 (mm)
MDLV 240-442964/18		07/16/2020 21:05	1		DB-624 0.18 (mm)

GC/MS VOA ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Instrument ID: A3UX12 Start Date: 07/31/2020 15:04

Analysis Batch Number: 445183 End Date: 08/01/2020 01:57

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
BFB 240-445183/1		07/31/2020 15:04	1	BFB4448.D	DB-624 0.18 (mm)
CCV 240-445183/3		07/31/2020 15:26	1	U1279408.D	DB-624 0.18 (mm)
CCVIS 240-445183/4		07/31/2020 15:49	1	U1279409.D	DB-624 0.18 (mm)
ZZZZZ		07/31/2020 17:19	1		DB-624 0.18 (mm)
MB 240-445021/1-A		07/31/2020 17:42	1	U1279414.D	DB-624 0.18 (mm)
LCS 240-445021/2-A		07/31/2020 18:04	1	U1279415.D	DB-624 0.18 (mm)
240-134182-1		07/31/2020 18:27	1	U1279416.D	DB-624 0.18 (mm)
240-134182-2		07/31/2020 18:50	1	U1279417.D	DB-624 0.18 (mm)
240-134182-3		07/31/2020 19:12	1	U1279418.D	DB-624 0.18 (mm)
240-134182-4		07/31/2020 19:35	1	U1279419.D	DB-624 0.18 (mm)
240-134182-5		07/31/2020 19:57	1	U1279420.D	DB-624 0.18 (mm)
240-134182-6		07/31/2020 20:20	1	U1279421.D	DB-624 0.18 (mm)
240-134182-7		07/31/2020 20:42	1	U1279422.D	DB-624 0.18 (mm)
240-134182-8		07/31/2020 21:05	1	U1279423.D	DB-624 0.18 (mm)
240-134182-9		07/31/2020 21:27	1	U1279424.D	DB-624 0.18 (mm)
240-134182-10		07/31/2020 21:50	1	U1279425.D	DB-624 0.18 (mm)
240-134182-11		07/31/2020 22:13	1	U1279426.D	DB-624 0.18 (mm)
240-134182-12		07/31/2020 22:35	1	U1279427.D	DB-624 0.18 (mm)
240-134182-13		07/31/2020 22:57	1	U1279428.D	DB-624 0.18 (mm)
240-134182-14		07/31/2020 23:20	1	U1279429.D	DB-624 0.18 (mm)
240-134182-15		07/31/2020 23:42	1	U1279430.D	DB-624 0.18 (mm)
240-134182-16		08/01/2020 00:05	1	U1279431.D	DB-624 0.18 (mm)
240-134182-17		08/01/2020 00:27	1	U1279432.D	DB-624 0.18 (mm)
240-134182-18		08/01/2020 00:50	1	U1279433.D	DB-624 0.18 (mm)
240-134182-19		08/01/2020 01:12	1	U1279434.D	DB-624 0.18 (mm)
240-134182-21		08/01/2020 01:35	1	U1279435.D	DB-624 0.18 (mm)
240-134182-21 MS		08/01/2020 01:57	1	U1279436.D	DB-624 0.18 (mm)

GC/MS VOA ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Instrument ID: A3UX12 Start Date: 08/04/2020 15:54

Analysis Batch Number: 445595 End Date: 08/05/2020 03:50

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
BFB 240-445595/1		08/04/2020 15:54	1	BFB4451.D	DB-624 0.18 (mm)
CCV 240-445595/3		08/04/2020 16:16	1	U1279489.D	DB-624 0.18 (mm)
CCVIS 240-445595/4		08/04/2020 16:38	1	U1279490.D	DB-624 0.18 (mm)
MRL 240-445595/6 MDLV		08/04/2020 17:16	1		DB-624 0.18 (mm)
MRL 240-445595/7 MDLV		08/04/2020 17:39	1		DB-624 0.18 (mm)
ZZZZZ		08/04/2020 18:02	1		DB-624 0.18 (mm)
MB 240-445424/1-A		08/04/2020 18:24	1	U1279494a.D	DB-624 0.18 (mm)
LCS 240-445424/2-A		08/04/2020 18:51	1	U1279495a.D	DB-624 0.18 (mm)
240-134182-20		08/04/2020 19:12	1	U1279496a.D	DB-624 0.18 (mm)
240-134182-22		08/04/2020 19:35	1	U1279497.D	DB-624 0.18 (mm)
240-134182-23		08/04/2020 19:57	1	U1279498a.D	DB-624 0.18 (mm)
240-134182-24		08/04/2020 20:20	1	U1279499a.D	DB-624 0.18 (mm)
240-134182-25		08/04/2020 20:42	1	U1279500b.D	DB-624 0.18 (mm)
240-134182-25 MS		08/04/2020 21:05	1	U1279501a.D	DB-624 0.18 (mm)
240-134182-25 MSD		08/04/2020 21:27	1	U1279502.D	DB-624 0.18 (mm)
240-134182-26		08/04/2020 21:49	1	U1279503a.D	DB-624 0.18 (mm)
240-134182-27		08/04/2020 22:12	1	U1279504a.D	DB-624 0.18 (mm)
240-134182-28		08/04/2020 22:35	1	U1279505a.D	DB-624 0.18 (mm)
240-134182-28 MS		08/04/2020 22:57	1	U1279506a.D	DB-624 0.18 (mm)
240-134182-28 MSD		08/04/2020 23:20	1	U1279507a.D	DB-624 0.18 (mm)
240-134182-29		08/04/2020 23:43	1	U1279508b.D	DB-624 0.18 (mm)
240-134182-30		08/05/2020 00:05	1	U1279509.D	DB-624 0.18 (mm)
240-134182-31		08/05/2020 00:28	1	U1279510a.D	DB-624 0.18 (mm)
240-134182-32		08/05/2020 00:50	1	U1279511.D	DB-624 0.18 (mm)
240-134182-33		08/05/2020 01:13	1	U1279512.D	DB-624 0.18 (mm)
ZZZZZ		08/05/2020 01:35	1		DB-624 0.18 (mm)
ZZZZZ		08/05/2020 01:57	1		DB-624 0.18 (mm)
ZZZZZ		08/05/2020 02:20	1		DB-624 0.18 (mm)
ZZZZZ		08/05/2020 02:42	1		DB-624 0.18 (mm)
ZZZZZ		08/05/2020 03:05	1		DB-624 0.18 (mm)
ZZZZZ		08/05/2020 03:28	1		DB-624 0.18 (mm)
ZZZZZ		08/05/2020 03:50	1		DB-624 0.18 (mm)

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Batch Number: 445021 Batch Start Date: 07/30/20 20:24 Batch Analyst: Mancine, Louis

Batch Method: 5030B Batch End Date: 07/30/20 22:10

Lab Sample ID	Client Sample ID	Method Chain	Basis	TareWeight	Vial&SampleWt	InitialAmount	FinalAmount	VMENCORESS 00568	VMENFASA 00589
MB 240-445021/1		5030B, 8260B MI				10.00 g	10.0 mL	5 uL	
LCS 240-445021/2		5030B, 8260B MI				10.00 g	10.0 mL	5 uL	200 uL
240-134182-A-1	SB-141 (0.5-1) 072820	5030B, 8260B MI	T	+031.211 g	40.19 g	8.979 g	10.0 mL	5 uL	
240-134182-A-2	SB-141 (1-2) 072820	5030B, 8260B MI	T	+031.728 g	41.62 g	9.892 g	10.0 mL	5 uL	
240-134182-A-3	SB-141 (2-3) 072820	5030B, 8260B MI	T	+031.353 g	40.90 g	9.547 g	10.0 mL	5 uL	
240-134182-A-4	SB-141 (3-4) 072820	5030B, 8260B MI	T	+031.446 g	41.14 g	9.694 g	10.0 mL	5 uL	
240-134182-A-5	SB-141 (4-5) 072820	5030B, 8260B MI	T	31.450 g	40.95 g	9.5 g	10.0 mL	5 uL	
240-134182-A-6	SB-141 (5-6) 072820	5030B, 8260B MI	T	+031.376 g	40.76 g	9.384 g	10.0 mL	5 uL	
240-134182-A-7	SB-141 (6-7) 072820	5030B, 8260B MI	T	31.236 g	40.79 g	9.554 g	10.0 mL	5 uL	
240-134182-A-8	SB-141 (7-8) 072820	5030B, 8260B MI	T	+031.426 g	40.64 g	9.214 g	10.0 mL	5 uL	
240-134182-A-9	TMW-20-02 (0.5-1) 072820	5030B, 8260B MI	T	+031.164 g	40.61 g	9.446 g	10.0 mL	5 uL	
240-134182-A-10	TMW-20-02 (1-2) 072820	5030B, 8260B MI	T	+031.198 g	40.80 g	9.602 g	10.0 mL	5 uL	
240-134182-A-11	TMW-20-02 (2-3) 072820	5030B, 8260B MI	T	+031.260 g	41.05 g	9.79 g	10.0 mL	5 uL	
240-134182-A-12	TMW-20-02 (3-4) 072820	5030B, 8260B MI	T	+031.547 g	41.51 g	9.963 g	10.0 mL	5 uL	
240-134182-A-13	TMW-20-02 (4-5) 072820	5030B, 8260B MI	T	+031.383 g	40.87 g	9.487 g	10.0 mL	5 uL	
240-134182-A-14	TMW-20-02 (5-6) 072820	5030B, 8260B MI	T	+031.206 g	41.19 g	9.984 g	10.0 mL	5 uL	
240-134182-A-15	TMW-20-02 (6-7) 072820	5030B, 8260B MI	T	31.392 g	40.99 g	9.598 g	10.0 mL	5 uL	
240-134182-A-16	TMW-20-02 (7-8) 072820	5030B, 8260B MI	T	31.435 g	41.14 g	9.705 g	10.0 mL	5 uL	
240-134182-A-17	SB-142 (0.5-1) 072820	5030B, 8260B MI	T	+031.199 g	40.92 g	9.721 g	10.0 mL	5 uL	
240-134182-A-18	SB-142 (1-2) 072820	5030B, 8260B MI	T	+031.280 g	41.10 g	9.82 g	10.0 mL	5 uL	
240-134182-A-19	SB-142 (2-3) 072820	5030B, 8260B MI	T	+031.323 g	40.91 g	9.587 g	10.0 mL	5 uL	

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Batch Number: 445021 Batch Start Date: 07/30/20 20:24 Batch Analyst: Mancine, Louis

Batch Method: 5030B Batch End Date: 07/30/20 22:10

Lab Sample ID	Client Sample ID	Method Chain	Basis	TareWeight	Vial&SampleWt	InitialAmount	FinalAmount	VMENCORESS 00568	VMENFASA 00589
240-134182-A-21	SB-142 (4-5) 072820	5030B, 8260B MI	T	+031.494 g	41.55 g	10.056 g	10.0 mL	5 uL	
240-134182-B-21 MS	SB-142 (4-5) 072820	5030B, 8260B MI	T	+031.082 g	41.23 g	10.148 g	10.6 mL	5 uL	200 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	VMENFASG 00632	VMENFASP 00602				
MB 240-445021/1		5030B, 8260B MI							
LCS 240-445021/2		5030B, 8260B MI		200 uL	200 uL				
240-134182-A-1	SB-141 (0.5-1) 072820	5030B, 8260B MI	T						
240-134182-A-2	SB-141 (1-2) 072820	5030B, 8260B MI	T						
240-134182-A-3	SB-141 (2-3) 072820	5030B, 8260B MI	T						
240-134182-A-4	SB-141 (3-4) 072820	5030B, 8260B MI	T						
240-134182-A-5	SB-141 (4-5) 072820	5030B, 8260B MI	T						
240-134182-A-6	SB-141 (5-6) 072820	5030B, 8260B MI	T						
240-134182-A-7	SB-141 (6-7) 072820	5030B, 8260B MI	T						
240-134182-A-8	SB-141 (7-8) 072820	5030B, 8260B MI	T						
240-134182-A-9	TMW-20-02 (0.5-1) 072820	5030B, 8260B MI	T						
240-134182-A-10	TMW-20-02 (1-2) 072820	5030B, 8260B MI	T						
240-134182-A-11	TMW-20-02 (2-3) 072820	5030B, 8260B MI	T						
240-134182-A-12	TMW-20-02 (3-4) 072820	5030B, 8260B MI	T						
240-134182-A-13	TMW-20-02 (4-5) 072820	5030B, 8260B MI	T						
240-134182-A-14	TMW-20-02 (5-6) 072820	5030B, 8260B MI	T						
240-134182-A-15	TMW-20-02 (6-7) 072820	5030B, 8260B MI	T						

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Batch Number: 445021 Batch Start Date: 07/30/20 20:24 Batch Analyst: Mancine, Louis

Batch Method: 5030B Batch End Date: 07/30/20 22:10

Lab Sample ID	Client Sample ID	Method Chain	Basis	VMENFASG 00632	VMENFASP 00602				
240-134182-A-16	TMW-20-02 (7-8) 072820	5030B, 8260B MI	T						
240-134182-A-17	SB-142 (0.5-1) 072820	5030B, 8260B MI	T						
240-134182-A-18	SB-142 (1-2) 072820	5030B, 8260B MI	T						
240-134182-A-19	SB-142 (2-3) 072820	5030B, 8260B MI	T						
240-134182-A-21	SB-142 (4-5) 072820	5030B, 8260B MI	T						
240-134182-B-21 MS	SB-142 (4-5) 072820	5030B, 8260B MI	T	200 uL	200 uL				

Batch Notes	
Balance ID	B035
Blank Matrix ID	195327
Pipette/Syringe/Dispenser ID	52443, 47398
Preservative ID	+221000000230446J+
Vial Lot Number	4771188

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Batch Number: 445424 Batch Start Date: 08/03/20 17:08 Batch Analyst: Mancine, Louis

Batch Method: 5030B Batch End Date: 08/03/20 19:46

Lab Sample ID	Client Sample ID	Method Chain	Basis	TareWeight	Vial&SampleWt	InitialAmount	FinalAmount	VMENCORESS 00569	VMENFASA 00589
MB 240-445424/1		5030B, 8260B MI				10.00 g	10.0 mL	5 uL	
LCS 240-445424/2		5030B, 8260B MI				10.00 g	10.0 mL	5 uL	200 uL
240-134182-A-20	SB-142 (3-4) 072820	5030B, 8260B MI	T	+031.410 g	41.99 g	10.58 g	10.0 mL	5 uL	
240-134182-A-22	SB-142 (5-6) 072820	5030B, 8260B MI	T	+031.428 g	40.61 g	9.182 g	10.0 mL	5 uL	
240-134182-A-23	SB-142 (6-7) 072820	5030B, 8260B MI	T	+031.548 g	41.63 g	10.082 g	10.0 mL	5 uL	
240-134182-A-24	SB-142 (7-8) 072820	5030B, 8260B MI	T	+031.346 g	40.83 g	9.484 g	10.0 mL	5 uL	
240-134182-A-25	SB-143 (0.5-1) 072820	5030B, 8260B MI	T	+031.200 g	40.76 g	9.56 g	10.0 mL	5 uL	
240-134182-B-25 MS	SB-143 (0.5-1) 072820	5030B, 8260B MI	T	+031.116 g	41.03 g	9.914 g	10.6 mL	5 uL	200 uL
240-134182-C-25 MSD	SB-143 (0.5-1) 072820	5030B, 8260B MI	T	+031.527 g	41.15 g	9.623 g	10.6 mL	5 uL	200 uL
240-134182-A-26	SB-143 (1-2) 072820	5030B, 8260B MI	T	+031.186 g	41.32 g	10.134 g	10.0 mL	5 uL	
240-134182-A-27	SB-143 (2-3) 072820	5030B, 8260B MI	T	+031.341 g	41.09 g	9.749 g	10.0 mL	5 uL	
240-134182-A-28	SB-143 (3-4) 072820	5030B, 8260B MI	T	+031.346 g	41.19 g	9.844 g	10.0 mL	5 uL	
240-134182-B-28 MS	SB-143 (3-4) 072820	5030B, 8260B MI	T	+031.505 g	41.42 g	9.915 g	10.6 mL	5 uL	200 uL
240-134182-C-28 MSD	SB-143 (3-4) 072820	5030B, 8260B MI	T	+031.223 g	40.94 g	9.717 g	10.6 mL	5 uL	200 uL
240-134182-A-29	SB-143 (4-5) 072820	5030B, 8260B MI	T	+031.129 g	40.93 g	9.801 g	10.0 mL	5 uL	
240-134182-A-30	SB-143 (5-6) 072820	5030B, 8260B MI	T	+031.272 g	41.15 g	9.878 g	10.0 mL	5 uL	
240-134182-A-31	SB-143 (6-7) 072820	5030B, 8260B MI	T	+031.132 g	40.41 g	9.278 g	10.0 mL	5 uL	
240-134182-A-32	SB-143 (7-8) 072820	5030B, 8260B MI	T	+031.115 g	39.49 g	8.375 g	10.0 mL	5 uL	
240-134182-A-33	DUP-03	5030B, 8260B MI	T	+031.228 g	40.34 g	9.112 g	10.0 mL	5 uL	

Lab Sample ID	Client Sample ID	Method Chain	Basis	VMENFASG 00633	VMENFASP 00602				

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Batch Number: 445424 Batch Start Date: 08/03/20 17:08 Batch Analyst: Mancine, Louis

Batch Method: 5030B Batch End Date: 08/03/20 19:46

Lab Sample ID	Client Sample ID	Method Chain	Basis	VMENFASG 00633	VMENFASP 00602				
MB 240-445424/1		5030B, 8260B MI							
LCS 240-445424/2		5030B, 8260B MI		200 uL	200 uL				
240-134182-A-20	SB-142 (3-4) 072820	5030B, 8260B MI	T						
240-134182-A-22	SB-142 (5-6) 072820	5030B, 8260B MI	T						
240-134182-A-23	SB-142 (6-7) 072820	5030B, 8260B MI	T						
240-134182-A-24	SB-142 (7-8) 072820	5030B, 8260B MI	T						
240-134182-A-25	SB-143 (0.5-1) 072820	5030B, 8260B MI	T						
240-134182-B-25 MS	SB-143 (0.5-1) 072820	5030B, 8260B MI	T	200 uL	200 uL				
240-134182-C-25 MSD	SB-143 (0.5-1) 072820	5030B, 8260B MI	T	200 uL	200 uL				
240-134182-A-26	SB-143 (1-2) 072820	5030B, 8260B MI	T						
240-134182-A-27	SB-143 (2-3) 072820	5030B, 8260B MI	T						
240-134182-A-28	SB-143 (3-4) 072820	5030B, 8260B MI	T						
240-134182-B-28 MS	SB-143 (3-4) 072820	5030B, 8260B MI	T	200 uL	200 uL				
240-134182-C-28 MSD	SB-143 (3-4) 072820	5030B, 8260B MI	T	200 uL	200 uL				
240-134182-A-29	SB-143 (4-5) 072820	5030B, 8260B MI	T						
240-134182-A-30	SB-143 (5-6) 072820	5030B, 8260B MI	T						
240-134182-A-31	SB-143 (6-7) 072820	5030B, 8260B MI	T						
240-134182-A-32	SB-143 (7-8) 072820	5030B, 8260B MI	T						
240-134182-A-33	DUP-03	5030B, 8260B MI	T						

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Batch Number: 445424 Batch Start Date: 08/03/20 17:08 Batch Analyst: Mancine, Louis

Batch Method: 5030B Batch End Date: 08/03/20 19:46

Batch Notes	
Balance ID	B035
Blank Matrix ID	195327
Pipette/Syringe/Dispenser ID	47398, 47398
Preservative ID	+221000000230446J+
Vial Lot Number	4771188

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Method 8260B

Volatile Organic Compounds (GC/MS)
by Method 8260B

FORM II
GC/MS VOA SURROGATE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Matrix: Water Level: Low

GC Column (1): DB-624 ID: 0.18 (mm)

Client Sample ID	Lab Sample ID	DBFM #	DCA #	TOL #	BFB #
TMW-20-02 (7-12) 072820	240-134182-34	107	129	112	99
TRIP BLANK	240-134182-35	100	122	112	95
	MB 240-445379/7	106	122	112	94
	LCS 240-445379/4	105	127	110	95
	240-133764-G-4 MS	104	128	112	99
	240-133764-H-4 MSD	102	122	109	97

DBFM = Dibromofluoromethane (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)

QC LIMITS
78-129
75-130
69-122
47-134

Column to be used to flag recovery values

FORM II 8260B

FORM III
GC/MS VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: UXX8954.D

Lab ID: LCS 240-445379/4 Client ID: _____

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
1,1-Dichloroethene	10.0	9.38	94	73-129	
cis-1,2-Dichloroethene	10.0	9.02	90	75-124	
Tetrachloroethene	10.0	10.9	109	70-125	
trans-1,2-Dichloroethene	10.0	9.26	93	74-130	
Trichloroethene	10.0	8.49	85	71-121	
Vinyl chloride	10.0	12.0	120	61-134	

Column to be used to flag recovery and RPD values

FORM III
GC/MS VOA MATRIX SPIKE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: UXX8958.D

Lab ID: 240-133764-G-4 MS Client ID: _____

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC	QC LIMITS REC	#
1,1-Dichloroethene	10.0	1.0 U	10.6	106	64-132	
cis-1,2-Dichloroethene	10.0	1.0 U	9.61	96	68-121	
Tetrachloroethene	10.0	1.0 U	12.0	120	52-129	
trans-1,2-Dichloroethene	10.0	1.0 U	9.98	100	69-126	
Trichloroethene	10.0	1.0 U	8.99	90	56-124	
Vinyl chloride	10.0	1.0 U	13.3	133	49-136	

Column to be used to flag recovery and RPD values

FORM III
GC/MS VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: UXX8959.D

Lab ID: 240-133764-H-4 MSD Client ID: _____

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
1,1-Dichloroethene	10.0	10.3	103	3	35	64-132	
cis-1,2-Dichloroethene	10.0	9.82	98	2	35	68-121	
Tetrachloroethene	10.0	11.9	119	1	35	52-129	
trans-1,2-Dichloroethene	10.0	10.3	103	3	35	69-126	
Trichloroethene	10.0	9.31	93	4	35	56-124	
Vinyl chloride	10.0	12.8	128	4	35	49-136	

Column to be used to flag recovery and RPD values

FORM IV
GC/MS VOA METHOD BLANK SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Lab File ID: UXX8956.D Lab Sample ID: MB 240-445379/7
 Matrix: Water Heated Purge: (Y/N) N
 Instrument ID: A3UX10 Date Analyzed: 08/03/2020 16:25
 GC Column: DB-624 ID: 0.18 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 240-445379/4	UXX8954.D	08/03/2020 15:36
	240-133764-G-4 MS	UXX8958.D	08/03/2020 17:14
	240-133764-H-4 MSD	UXX8959.D	08/03/2020 17:39
TMW-20-02 (7-12)_072820	240-134182-34	UXX8975.D	08/04/2020 00:17
TRIP BLANK	240-134182-35	UXX8976.D	08/04/2020 00:42

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Lab File ID: BFB1718.D BFB Injection Date: 01/15/2020
 Instrument ID: A3UX10 BFB Injection Time: 14:40
 Analysis Batch No.: 419116

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0 % of mass 95	23.2
75	30.0 - 60.0 % of mass 95	43.4
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0 % of mass 95	6.9
173	Less than 2.0 % of mass 174	0.1 (0.2) 1
174	50.0 - 120.00 % of mass 95	57.3
175	5.0 - 9.0 % of mass 174	3.9 (6.7) 1
176	95.0 - 101.0 % of mass 174	55.8 (97.3) 1
177	5.0 - 9.0 % of mass 176	3.8 (6.9) 2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	STD8260 240-419116/2	UXX5174.D	01/15/2020	15:09
	STD8260 240-419116/3	UXX5175.D	01/15/2020	15:34
	STD8260 240-419116/4	UXX5176.D	01/15/2020	16:00
	STD8260 240-419116/5	UXX5177.D	01/15/2020	16:25
	STD8260 240-419116/6	UXX5178.D	01/15/2020	16:50
	STD8260 240-419116/7	UXX5179.D	01/15/2020	17:15
	STD8260 240-419116/8	UXX5180.D	01/15/2020	17:40
	ICV 240-419116/9	UXX5181.D	01/15/2020	18:04
	ICV 240-419116/17	UXX5189.D	01/15/2020	21:24

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Lab File ID: BFB1913.D BFB Injection Date: 08/03/2020
 Instrument ID: A3UX10 BFB Injection Time: 13:28
 Analysis Batch No.: 445379

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0 % of mass 95	35.0
75	30.0 - 60.0 % of mass 95	55.3
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0 % of mass 95	6.7
173	Less than 2.0 % of mass 174	0.2 (0.3) 1
174	50.0 - 120.00 % of mass 95	52.3
175	5.0 - 9.0 % of mass 174	3.6 (6.8) 1
176	95.0 - 101.0 % of mass 174	50.0 (95.7) 1
177	5.0 - 9.0 % of mass 176	3.2 (6.5) 2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	CCVIS 240-445379/2	UXX8950.D	08/03/2020	13:55
	CCV 240-445379/3	UXX8951.D	08/03/2020	14:20
	LCS 240-445379/4	UXX8954.D	08/03/2020	15:36
	MB 240-445379/7	UXX8956.D	08/03/2020	16:25
	240-133764-G-4 MS	UXX8958.D	08/03/2020	17:14
	240-133764-H-4 MSD	UXX8959.D	08/03/2020	17:39
TMW-20-02 (7-12)_072820	240-134182-34	UXX8975.D	08/04/2020	0:17
TRIP BLANK	240-134182-35	UXX8976.D	08/04/2020	0:42

FORM VIII
GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Sample No.: STD8260 240-419116/4 Date Analyzed: 01/15/2020 16:00
 Instrument ID: A3UX10 GC Column: DB-624 ID: 0.18 (mm)
 Lab File ID (Standard): UXX5176.D Heated Purge: (Y/N) N
 Calibration ID: 54865

	FB		CBNZd5		DCBd4	
	AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MID-POINT	402471	4.97	261526	7.65	107871	9.87
UPPER LIMIT	804942	5.47	523052	8.15	215742	10.37
LOWER LIMIT	201236	4.47	130763	7.15	53936	9.37
LAB SAMPLE ID	CLIENT SAMPLE ID					
ICV 240-419116/9	391338	4.97	251783	7.65	102138	9.87
ICV 240-419116/17	377866	4.98	240230	7.64	96745	9.86
CCVIS 240-445379/2	402245	4.96	227073	7.64	72107	9.87

FB = Fluorobenzene

CBNZd5 = Chlorobenzene-d5

DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area

RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Sample No.: CCVIS 240-445379/2 Date Analyzed: 08/03/2020 13:55
 Instrument ID: A3UX10 GC Column: DB-624 ID: 0.18 (mm)
 Lab File ID (Standard): UXX8950.D Heated Purge: (Y/N) N
 Calibration ID: 54867

	FB		CBNZd5		DCBd4		
	AREA #	RT #	AREA #	RT #	AREA #	RT #	
12/24 HOUR STD	402245	4.96	227073	7.64	72107	9.87	
UPPER LIMIT	804490	5.46	454146	8.14	144214	10.37	
LOWER LIMIT	201123	4.46	113537	7.14	36054	9.37	
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCV 240-445379/3		399474	4.96	228865	7.64	66831	9.86
LCS 240-445379/4		394923	4.97	228017	7.64	67226	9.87
MB 240-445379/7		389889	4.97	217213	7.65	65062	9.87
240-133764-G-4 MS		388330	4.98	218820	7.65	66417	9.87
240-133764-H-4 MSD		392363	4.97	223878	7.65	69105	9.87
240-134182-34	TMW-20-02 (7-12) 072820	344343	4.97	199737	7.65	63000	9.87
240-134182-35	TRIP BLANK	350653	4.97	199387	7.65	63331	9.87

FB = Fluorobenzene

CBNZd5 = Chlorobenzene-d5

DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area

RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: TMW-20-02 (7-12)_072820 Lab Sample ID: 240-134182-34
 Matrix: Water Lab File ID: UXX8975.D
 Analysis Method: 8260B Date Collected: 07/28/2020 15:05
 Sample wt/vol: 5 (mL) Date Analyzed: 08/04/2020 00:17
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 445379 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	1.0	U	1.0	0.46
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.38
127-18-4	Tetrachloroethene	1.0	U	1.0	0.33
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.43
79-01-6	Trichloroethene	1.0	U	1.0	0.36
75-01-4	Vinyl chloride	1.0	U	1.0	0.50

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	129		75-130
460-00-4	4-Bromofluorobenzene (Surr)	99		47-134
2037-26-5	Toluene-d8 (Surr)	112		69-122
1868-53-7	Dibromofluoromethane (Surr)	107		78-129

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8975.D
 Lims ID: 240-134182-B-34
 Client ID: TMW-20-02 (7-12)_072820
 Sample Type: Client
 Inject. Date: 04-Aug-2020 00:17:30 ALS Bottle#: 26 Worklist Smp#: 26
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100621-026
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 10:20:14 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1067

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.973	4.964	0.009	96	344343	10.0	
* 2 Chlorobenzene-d5	117	7.646	7.638	0.008	96	199737	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.870	9.861	0.009	94	63000	10.0	
\$ 4 Dibromofluoromethane (Surr)	113	4.405	4.396	0.009	90	85838	10.7	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.689	4.680	0.009	94	153040	12.9	
\$ 6 Toluene-d8 (Surr)	98	6.334	6.336	-0.002	96	342707	11.2	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.747	8.749	-0.002	72	95996	9.93	
11 Vinyl chloride	62		1.451				ND	
19 1,1-Dichloroethene	96		2.480				ND	
30 trans-1,2-Dichloroethene	96		3.143				ND	
40 cis-1,2-Dichloroethene	96		3.994				ND	
58 Trichloroethene	130		5.283				ND	
74 Tetrachloroethene	164		6.892				ND	

Reagents:

VM50IS_00084 Amount Added: 1.00 Units: uL Run Reagent
 vm50ss_stk_00085 Amount Added: 1.00 Units: uL Run Reagent
 vm40ml_vials_00015 Amount Added: 0.00 Units: Run Reagent
 vmDist_H2o_00177 Amount Added: 0.00 Units: Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8975.D

Injection Date: 04-Aug-2020 00:17:30

Instrument ID: A3UX10

Operator ID: 001644

Lims ID: 240-134182-B-34

Lab Sample ID: 240-134182-34

Worklist Smp#: 26

Client ID: TMW-20-02 (7-12)_072820

Purge Vol: 5.000 mL

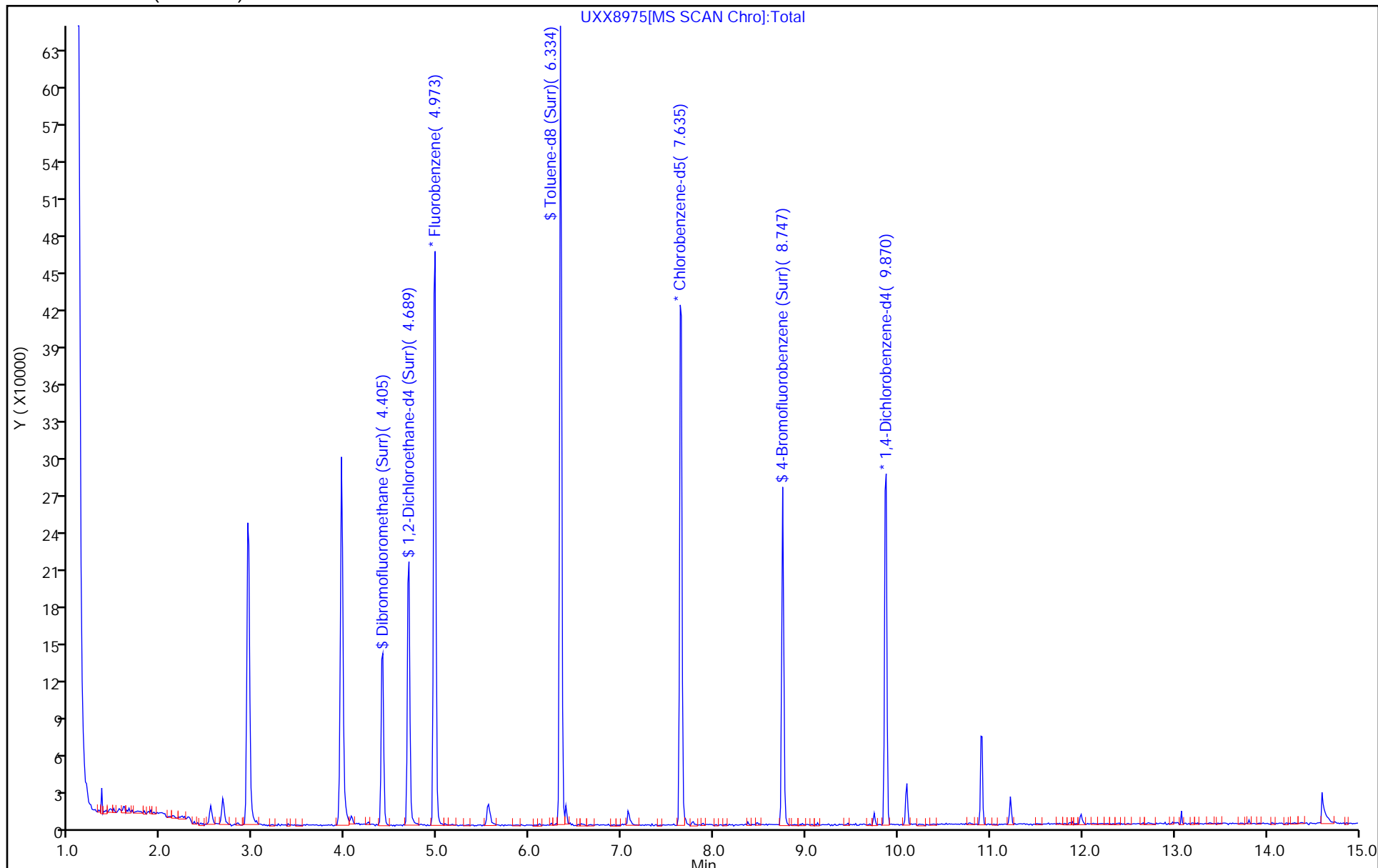
Dil. Factor: 1.0000

ALS Bottle#: 26

Method: 8260_10

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8975.D
 Lims ID: 240-134182-B-34
 Client ID: TMW-20-02 (7-12)_072820
 Sample Type: Client
 Inject. Date: 04-Aug-2020 00:17:30 ALS Bottle#: 26 Worklist Smp#: 26
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100621-026
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 10:20:14 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1067

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	10.0	10.7	106.65
\$ 5 1,2-Dichloroethane-d4 (Surr)	10.0	12.9	129.50
\$ 6 Toluene-d8 (Surr)	10.0	11.2	111.58
\$ 7 4-Bromofluorobenzene (Surr)	10.0	9.93	99.29

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: TRIP BLANK Lab Sample ID: 240-134182-35
 Matrix: Water Lab File ID: UXX8976.D
 Analysis Method: 8260B Date Collected: 07/28/2020 00:00
 Sample wt/vol: 5 (mL) Date Analyzed: 08/04/2020 00:42
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 445379 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	1.0	U	1.0	0.46
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.38
127-18-4	Tetrachloroethene	1.0	U	1.0	0.33
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.43
79-01-6	Trichloroethene	1.0	U	1.0	0.36
75-01-4	Vinyl chloride	1.0	U	1.0	0.50

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	122		75-130
460-00-4	4-Bromofluorobenzene (Surr)	95		47-134
2037-26-5	Toluene-d8 (Surr)	112		69-122
1868-53-7	Dibromofluoromethane (Surr)	100		78-129

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8976.D
 Lims ID: 240-134182-A-35
 Client ID: TRIP BLANK
 Sample Type: Client
 Inject. Date: 04-Aug-2020 00:42:30 ALS Bottle#: 27 Worklist Smp#: 27
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100621-027
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 10:20:14 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1067

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.974	4.964	0.010	96	350653	10.0	
* 2 Chlorobenzene-d5	117	7.647	7.638	0.009	96	199387	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.871	9.861	0.010	94	63331	10.0	
\$ 4 Dibromofluoromethane (Surr)	113	4.406	4.396	0.010	90	82148	10.0	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.690	4.680	0.010	95	146965	12.2	
\$ 6 Toluene-d8 (Surr)	98	6.334	6.336	-0.002	96	344300	11.2	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.747	8.749	-0.002	73	92072	9.54	
11 Vinyl chloride	62		1.451				ND	
19 1,1-Dichloroethene	96		2.480				ND	
30 trans-1,2-Dichloroethene	96		3.143				ND	
40 cis-1,2-Dichloroethene	96		3.994				ND	
58 Trichloroethene	130		5.283				ND	
74 Tetrachloroethene	164		6.892				ND	

Reagents:

VM50IS_00084 Amount Added: 1.00 Units: uL Run Reagent
 vm50ss_stk_00085 Amount Added: 1.00 Units: uL Run Reagent
 vm40ml_vials_00015 Amount Added: 0.00 Units: Run Reagent
 vmDist_H2o_00177 Amount Added: 0.00 Units: Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8976.D

Injection Date: 04-Aug-2020 00:42:30

Instrument ID: A3UX10

Operator ID: 001644

Lims ID: 240-134182-A-35

Lab Sample ID: 240-134182-35

Worklist Smp#: 27

Client ID: TRIP BLANK

Purge Vol: 5.000 mL

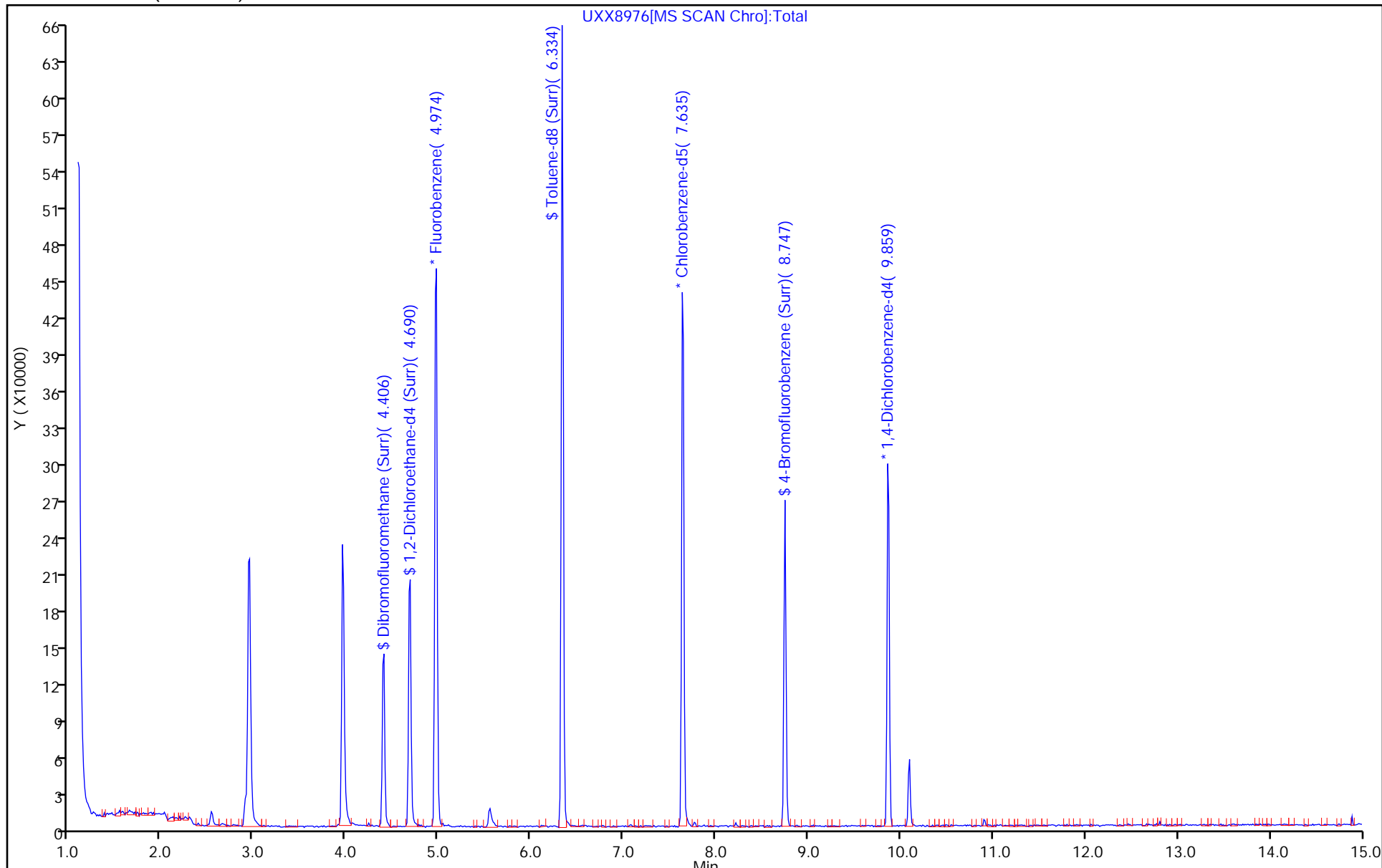
Dil. Factor: 1.0000

ALS Bottle#: 27

Method: 8260_10

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8976.D
 Lims ID: 240-134182-A-35
 Client ID: TRIP BLANK
 Sample Type: Client
 Inject. Date: 04-Aug-2020 00:42:30 ALS Bottle#: 27 Worklist Smp#: 27
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100621-027
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 10:20:14 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1067

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	10.0	10.0	100.23
\$ 5 1,2-Dichloroethane-d4 (Surr)	10.0	12.2	122.12
\$ 6 Toluene-d8 (Surr)	10.0	11.2	112.30
\$ 7 4-Bromofluorobenzene (Surr)	10.0	9.54	95.40

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1 Analy Batch No.: 419116

SDG No.: _____

Instrument ID: A3UX10 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/15/2020 15:09 Calibration End Date: 01/15/2020 17:40 Calibration ID: 54865

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD8260 240-419116/8	UXX5180.D
Level 2	STD8260 240-419116/7	UXX5179.D
Level 3	STD8260 240-419116/6	UXX5178.D
Level 4	STD8260 240-419116/5	UXX5177.D
Level 5	STD8260 240-419116/4	UXX5176.D
Level 6	STD8260 240-419116/3	UXX5175.D
Level 7	STD8260 240-419116/2	UXX5174.D

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
Dichlorodifluoromethane	0.2231 0.2266	0.2138 0.2044	0.2139	0.2119	0.2226	Ave		0.2166			3.6		15.0				
Chloromethane	0.4313 0.4793	0.4329 0.4334	0.4357	0.4347	0.4526	Ave		0.4428		0.1000	4.0		15.0				
Vinyl chloride	0.3215 0.3396	0.3271 0.3129	0.3254	0.3364	0.3217	Ave		0.3264			2.8		15.0				
Butadiene	0.2674 0.1864	0.1841 0.1755	0.1807	0.2254	0.1903	Lin1	0.0770	0.1780						0.9950		0.9900	
Bromomethane	0.1746 0.1417	0.1731 0.1321	0.1551	0.1639	0.1480	Ave		0.1555			10.3		15.0				
Chloroethane	0.1620 0.1933	0.1633 0.1723	0.1652	0.1827	0.1852	Ave		0.1748			7.0		15.0				
Dichlorofluoromethane	0.5744 0.4160	0.4527 0.3593	0.4309	0.4469	0.4094	Ave		0.4414			15.0		15.0				
Trichlorofluoromethane	0.2205 0.2592	0.2133 0.2329	0.2353	0.2461	0.2357	Ave		0.2347			6.5		15.0				
Ethyl ether	0.2863 0.3072	0.3234 0.2892	0.3019	0.3276	0.3216	Ave		0.3082			5.4		15.0				
Acrolein	0.0532 0.0546	0.0659 0.0525	0.0620	0.0652	0.0592	Ave		0.0590			9.5		15.0				
1,1-Dichloroethene	0.2174 0.2346	0.2365 0.2259	0.2416	0.2436	0.2502	Ave		0.2357			4.7		15.0				
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0261 0.1129	0.0445 0.1141	0.0942	0.1061	0.1141	Lin1	-0.101	0.1182						0.9980		0.9900	
Acetone	0.2164 0.1260	0.1933 0.1199	0.1570	0.1459	0.1435	Lin1	0.2457	0.1201						0.9970		0.9900	
Iodomethane	0.2382 0.2814	0.2725 0.2959	0.2717	0.2857	0.2836	Ave		0.2756			6.7		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1 Analy Batch No.: 419116

SDG No.: _____

Instrument ID: A3UX10 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/15/2020 15:09 Calibration End Date: 01/15/2020 17:40 Calibration ID: 54865

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
Carbon disulfide	0.7649 0.8227	0.8241 0.8044	0.8344	0.8601	0.8712	Ave		0.8260			4.3		15.0				
3-Chloro-1-propene	0.1921 0.2288	0.2026 0.2131	0.2224	0.2257	0.2104	Ave		0.2136			6.2		15.0				
Methyl acetate	0.3177 0.3494	0.3440 0.3435	0.3593	0.3871	0.3724	Ave		0.3533			6.3		15.0				
Methylene Chloride	0.2813 0.2925	0.2989 0.2814	0.2793	0.3043	0.2977	Ave		0.2908			3.5		15.0				
2-Methyl-2-propanol	0.0417 0.0403	0.0416 0.0380	0.0395	0.0424	0.0457	Ave		0.0413			5.9		15.0				
Acrylonitrile	0.1619 0.1691	0.1761 0.1662	0.1702	0.1812	0.1808	Ave		0.1722			4.3		15.0				
trans-1,2-Dichloroethene	0.2579 0.2766	0.2619 0.2768	0.2645	0.2926	0.2817	Ave		0.2732			4.5		15.0				
Methyl tert-butyl ether	0.7646 0.8157	0.7784 0.7766	0.7983	0.7932	0.8554	Ave		0.7975			3.8		15.0				
Hexane	0.0479 0.0540	0.0504 0.0530	0.0530	0.0550	0.0555	Ave		0.0527			5.1		15.0				
1,1-Dichloroethane	0.5806 0.6524	0.6629 0.6235	0.6496	0.6745	0.6735	Ave		0.6453		0.1000	5.2		15.0				
Vinyl acetate	0.4330 0.8220	0.5494 ++++	0.6411	0.7034	0.7697	Lin1	-0.497	0.8269						0.9980		0.9900	
2,2-Dichloropropane	0.0549 0.0607	0.0580 0.0582	0.0685	0.0639	0.0645	Ave		0.0612			7.6		15.0				
cis-1,2-Dichloroethene	0.2870 0.3049	0.3008 0.3094	0.2845	0.3160	0.3273	Ave		0.3043			5.0		15.0				
2-Butanone (MEK)	0.2117 0.2052	0.2465 0.1981	0.2190	0.2168	0.2331	Ave		0.2186			7.6		15.0				
Chlorobromomethane	0.1035 0.1315	0.1201 0.1313	0.1205	0.1287	0.1319	Ave		0.1239			8.3		15.0				
Tetrahydrofuran	0.1718 0.1403	0.1641 0.1323	0.1442	0.1607	0.1587	Ave		0.1532			9.4		15.0				
Chloroform	0.4329 0.4666	0.4946 0.4530	0.4790	0.4847	0.4973	Ave		0.4726			4.9		15.0				
1,1,1-Trichloroethane	0.2833 0.2915	0.3142 0.2816	0.3076	0.3062	0.3111	Ave		0.2994			4.5		15.0				
Cyclohexane	0.5332 0.5650	0.5502 0.5422	0.5899	0.5885	0.5987	Ave		0.5668			4.6		15.0				
1,1-Dichloropropene	0.3400 0.3704	0.3756 0.3647	0.3741	0.3789	0.3915	Ave		0.3707			4.3		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1 Analy Batch No.: 419116

SDG No.: _____

Instrument ID: A3UX10 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/15/2020 15:09 Calibration End Date: 01/15/2020 17:40 Calibration ID: 54865

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
Carbon tetrachloride	0.1973 0.2491	0.2266 0.2381	0.2508	0.2592	0.2520	Ave		0.2390			8.9		15.0				
Isobutyl alcohol	0.0195 0.0212	0.0295 0.0209	0.0197	0.0224	0.0233	Lin1	0.0972	0.0212						0.9940		0.9900	
Benzene	1.1617 1.2333	1.2090 1.1865	1.2560	1.3184	1.2952	Ave		1.2372			4.6		15.0				
1,2-Dichloroethane	0.4567 0.4561	0.4396 0.4380	0.4391	0.4803	0.4743	Ave		0.4549			3.8		15.0				
n-Heptane	0.0334 0.0439	0.0389 0.0437	0.0393	0.0447	0.0485	Ave		0.0418			11.8		15.0				
Trichloroethene	0.2218 0.2537	0.2685 0.2593	0.2511	0.2722	0.2716	Ave		0.2569			6.9		15.0				
Methylcyclohexane	0.3242 0.3286	0.3040 0.3151	0.3410	0.3292	0.3503	Ave		0.3275			4.7		15.0				
1,2-Dichloropropane	0.3857 0.3769	0.3873 0.3695	0.3915	0.4040	0.4082	Ave		0.3890			3.5		15.0				
Dibromomethane	0.1477 0.1614	0.1532 0.1597	0.1604	0.1599	0.1659	Ave		0.1583			3.8		15.0				
1,4-Dioxane	++++ 0.0030	0.0021 0.0023	0.0017	0.0021	0.0034	Qua	-0.145	0.0043	-0.000002					0.9960		0.9900	
Dichlorobromomethane	0.3180 0.3532	0.3637 0.3463	0.3597	0.3678	0.3663	Ave		0.3536			4.9		15.0				
2-Chloroethyl vinyl ether	0.2444 0.2801	0.2845 0.2717	0.2829	0.3020	0.3002	Ave		0.2808			6.9		15.0				
cis-1,3-Dichloropropene	0.4266 0.4937	0.4789 0.4784	0.4829	0.5177	0.5104	Ave		0.4841			6.1		15.0				
4-Methyl-2-pentanone (MIBK)	0.4484 0.4254	0.4766 0.3767	0.4756	0.4819	0.4806	Ave		0.4522			8.7		15.0				
Toluene	1.7205 1.7966	1.8772 1.7992	1.8087	1.8914	1.9275	Ave		1.8316			3.9		15.0				
trans-1,3-Dichloropropene	0.5409 0.6732	0.6054 0.6739	0.6471	0.6622	0.6998	Ave		0.6432			8.4		15.0				
Ethyl methacrylate	0.6942 0.6834	0.6980 0.6595	0.6910	0.7715	0.7453	Ave		0.7061			5.5		15.0				
1,1,2-Trichloroethane	0.3803 0.3790	0.3855 0.3720	0.3770	0.4112	0.4116	Ave		0.3881			4.2		15.0				
Tetrachloroethene	0.1902 0.2161	0.2076 0.2215	0.2159	0.2171	0.2200	Ave		0.2126			5.1		15.0				
1,3-Dichloropropane	0.6545 0.7256	0.6722 0.7014	0.7096	0.7265	0.7546	Ave		0.7063			4.8		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1 Analy Batch No.: 419116

SDG No.: _____

Instrument ID: A3UX10 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/15/2020 15:09 Calibration End Date: 01/15/2020 17:40 Calibration ID: 54865

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
2-Hexanone	0.4156 0.4438	0.4863 0.4087	0.4608	0.4840	0.4963	Ave		0.4565			7.7		15.0				
Chlorodibromomethane	0.3264 0.3370	0.3138 0.3376	0.3274	0.3457	0.3617	Ave		0.3357			4.6		15.0				
Ethylene Dibromide	0.3082 0.3424	0.3344 0.3602	0.3331	0.3592	0.3807	Ave		0.3454			6.8		15.0				
Chlorobenzene	0.9030 0.9827	0.9914 0.9576	0.9582	1.0016	1.0531	Ave		0.9782		0.3000	4.7		15.0				
1,1,1,2-Tetrachloroethane	0.2631 0.3177	0.3144 0.2830	0.3055	0.3189	0.3358	Ave		0.3055			8.1		15.0				
Ethylbenzene	0.5341 0.5466	0.5358 0.5226	0.5226	0.5630	0.5835	Ave		0.5440			4.1		15.0				
m-Xylene & p-Xylene	0.6363 0.6459	0.6398 0.6126	0.6348	0.6570	0.7016	Ave		0.6468			4.3		15.0				
o-Xylene	0.5449 0.6027	0.6347 0.5493	0.6147	0.6515	0.6426	Ave		0.6058			7.2		15.0				
Styrene	1.0759 1.0790	1.1060 1.0106	1.0637	1.1055	1.1451	Ave		1.0837			3.9		15.0				
Bromoform	0.1526 0.1820	0.1679 0.1742	0.1670	0.1984	0.2017	Ave		0.1777		0.1000	10.0		15.0				
Isopropylbenzene	1.4441 1.3701	1.4527 1.1836	1.4047	1.4639	1.5067	Ave		1.4037			7.6		15.0				
1,1,2,2-Tetrachloroethane	1.1743 1.2118	1.2388 1.1148	1.2107	1.2743	1.2387	Ave		1.2090		0.3000	4.3		15.0				
Bromobenzene	0.7291 0.7835	0.7638 0.8641	0.7334	0.7727	0.7708	Ave		0.7739			5.8		15.0				
1,2,3-Trichloropropane	0.2226 0.3309	0.3455 0.3203	0.3325	0.3615	0.3476	Ave		0.3230			14.3		15.0				
trans-1,4-Dichloro-2-butene	0.3793 0.5104	0.3885 0.6178	0.4568	0.4813	0.4924	Lin1	-0.350	0.5815						0.9900		0.9900	
N-Propylbenzene	0.8859 0.8798	0.8809 0.9040	0.8833	0.8972	0.9111	Ave		0.8917			1.4		15.0				
2-Chlorotoluene	0.7413 0.8067	0.8092 0.7983	0.8251	0.8399	0.8154	Ave		0.8051			3.9		15.0				
1,3,5-Trimethylbenzene	2.4943 2.6153	2.6057 2.4043	2.5768	2.8374	2.7364	Ave		2.6100			5.5		15.0				
4-Chlorotoluene	0.7566 0.8677	0.8065 0.8884	0.8728	0.9005	0.8737	Ave		0.8523			6.1		15.0				
tert-Butylbenzene	1.8958 1.8968	1.9891 1.7047	2.0520	2.0614	2.0184	Ave		1.9454			6.5		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1 Analy Batch No.: 419116

SDG No.: _____

Instrument ID: A3UX10 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/15/2020 15:09 Calibration End Date: 01/15/2020 17:40 Calibration ID: 54865

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
1,2,4-Trimethylbenzene	2.8613 2.7170	2.8372 2.4453	2.8747	2.9402	2.9039	Ave		2.7971			6.1		15.0				
sec-Butylbenzene	2.7585 2.5997	2.7812 2.3235	2.8021	2.9453	2.8184	Ave		2.7184			7.4		15.0				
1,3-Dichlorobenzene	1.3127 1.4116	1.3949 1.3583	1.4331	1.4774	1.4006	Ave		1.3984			3.8		15.0				
4-Isopropyltoluene	2.1057 2.1201	2.2535 1.8288	2.3016	2.2939	2.2858	Ave		2.1699			7.9		15.0				
1,4-Dichlorobenzene	1.3016 1.4125	1.4017 1.4241	1.4605	1.4951	1.4599	Ave		1.4222			4.4		15.0				
n-Butylbenzene	2.1791 1.9468	2.1065 1.5980	2.1151	2.2093	2.1436	Ave		2.0426			10.4		15.0				
1,2-Dichlorobenzene	1.4293 1.3804	1.4162 1.1577	1.4359	1.4803	1.4604	Ave		1.3943			7.8		15.0				
1,2-Dibromo-3-Chloropropane	0.1480 0.1640	0.2203 0.1043	0.2126	0.2381	0.2136	Qua	-0.004	0.2353	-0.003283					0.9970		0.9900	
1,2,4-Trichlorobenzene	0.5926 0.4504	0.6437 ++++	0.6710	0.6843	0.6575	Ave		0.6166			14.2		15.0				
Hexachlorobutadiene	++++ 0.1124	0.1677 ++++	0.1560	0.1658	0.1535	Ave		0.1511			14.9		15.0				
Naphthalene	3.0521 ++++	3.3633 ++++	3.2929	3.4186	3.0306	Ave		3.2315			5.6		15.0				
1,2,3-Trichlorobenzene	0.6329 ++++	0.5701 ++++	0.6175	0.6528	0.5954	Ave		0.6137			5.2		15.0				
Dibromofluoromethane (Surr)	0.2409 0.2371	0.2333 0.2245	0.2361	0.2274	0.2369	Ave		0.2337			2.5		15.0				
1,2-Dichloroethane-d4 (Surr)	0.3531 0.3409	0.3476 0.3204	0.3544	0.3476	0.3384	Ave		0.3432			3.4		15.0				
Toluene-d8 (Surr)	1.7460 1.5195	1.5440 1.4667	1.5253	1.4774	1.4848	Ave		1.5377			6.2		15.0				
4-Bromofluorobenzene (Surr)	0.5136 0.4885	0.4963 0.4427	0.4843	0.4785	0.4845	Ave		0.4841			4.4		15.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1 Analy Batch No.: 419116

SDG No.: _____

Instrument ID: A3UX10 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/15/2020 15:09 Calibration End Date: 01/15/2020 17:40 Calibration ID: 54865

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD8260 240-419116/8	UXX5180.D
Level 2	STD8260 240-419116/7	UXX5179.D
Level 3	STD8260 240-419116/6	UXX5178.D
Level 4	STD8260 240-419116/5	UXX5177.D
Level 5	STD8260 240-419116/4	UXX5176.D
Level 6	STD8260 240-419116/3	UXX5175.D
Level 7	STD8260 240-419116/2	UXX5174.D

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
Dichlorodifluoromethane	FB	Ave	8588 184971	16579 348415	33680	41891	89573	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Chloromethane	FB	Ave	16600 391156	33571 738754	68617	85933	182157	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Vinyl chloride	FB	Ave	12374 277193	25364 533232	51236	66500	129471	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Butadiene	FB	Lin1	10294 152127	14274 299133	28448	44552	76586	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Bromomethane	FB	Ave	6719 115685	13424 225093	24430	32401	59557	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Chloroethane	FB	Ave	6234 157736	12664 293599	26016	36120	74548	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Dichlorofluoromethane	FB	Ave	22111 339518	35107 612424	67854	88338	164760	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Trichlorofluoromethane	FB	Ave	8487 211561	16539 396905	37050	48652	94875	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Ethyl ether	FB	Ave	11022 250763	25076 492860	47544	64767	129451	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Acrolein	FB	Ave	10247 222686	25566 447463	48809	64403	119223	5.00 100	10.0 200	20.0	25.0	50.0
1,1-Dichloroethene	FB	Ave	8368 191503	18341 384984	38047	48165	100715	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,1,2-Trichloro-1,2,2-trifluoroethane	FB	Lin1	1003 92141	3454 194447	14837	20968	45925	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Acetone	FB	Lin1	16660 205689	29985 408717	49433	57675	115530	2.00 40.0	4.00 80.0	8.00	10.0	20.0
Iodomethane	FB	Ave	9168 229631	21134 504270	42781	56486	114147	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Carbon disulfide	FB	Ave	29441 671488	63899 1371104	131388	170025	350621	1.00 20.0	2.00 40.0	4.00	5.00	10.0

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1 Analy Batch No.: 419116

SDG No.: _____

Instrument ID: A3UX10 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/15/2020 15:09 Calibration End Date: 01/15/2020 17:40 Calibration ID: 54865

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
3-Chloro-1-propene	FB	Ave	7394 186739	15710 363226	35023	44624	84698	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Methyl acetate	FB	Ave	24455 570411	53355 1170999	113148	153053	299742	2.00 40.0	4.00 80.0	8.00	10.0	20.0
Methylene Chloride	FB	Ave	10827 238705	23178 479700	43982	60151	119814	1.00 20.0	2.00 40.0	4.00	5.00	10.0
2-Methyl-2-propanol	FB	Ave	16060 328526	32261 647317	62130	83819	183739	10.0 200	20.0 400	40.0	50.0	100
Acrylonitrile	FB	Ave	62326 1379901	136584 2832530	267966	358288	727779	10.0 200	20.0 400	40.0	50.0	100
trans-1,2-Dichloroethene	FB	Ave	9928 225779	20309 471758	41658	57846	113370	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Methyl tert-butyl ether	FB	Ave	29432 665746	60357 1323684	125702	156813	344262	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Hexane	FB	Ave	1843 44066	3912 90384	8352	10877	22347	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,1-Dichloroethane	FB	Ave	22348 532464	51406 1062752	102290	133331	271075	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Vinyl acetate	FB	Lin1	16668 670872	42604 +++++	100952	139049	309795	1.00 20.0	2.00 +++++	4.00	5.00	10.0
2,2-Dichloropropane	FB	Ave	2112 49556	4499 99183	10781	12641	25966	1.00 20.0	2.00 40.0	4.00	5.00	10.0
cis-1,2-Dichloroethene	FB	Ave	11048 248831	23327 527277	44803	62462	131741	1.00 20.0	2.00 40.0	4.00	5.00	10.0
2-Butanone (MEK)	FB	Ave	16294 334871	38232 675419	68978	85736	187669	2.00 40.0	4.00 80.0	8.00	10.0	20.0
Chlorobromomethane	FB	Ave	3985 107315	9314 223761	18971	25448	53066	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Tetrahydrofuran	FB	Ave	13222 229072	25452 451105	45424	63550	127746	2.00 40.0	4.00 80.0	8.00	10.0	20.0
Chloroform	FB	Ave	16664 380793	38353 772060	75432	95814	200134	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,1,1-Trichloroethane	FB	Ave	10906 237910	24363 479949	48446	60526	125222	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Cyclohexane	FB	Ave	20523 461154	42667 924168	92889	116343	240944	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,1-Dichloropropene	FB	Ave	13086 302315	29124 621625	58913	74907	157561	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Carbon tetrachloride	FB	Ave	7596 203301	17573 405876	39488	51250	101403	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Isobutyl alcohol	CBNZ d5	Lin1	12344 280839	37582 563013	51890	73630	152214	25.0 500	50.0 1000	100	125	250

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1 Analy Batch No.: 419116

SDG No.: _____

Instrument ID: A3UX10 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/15/2020 15:09 Calibration End Date: 01/15/2020 17:40 Calibration ID: 54865

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
Benzene	FB	Ave	44716 1006535	93751 2022315	197778	260636	521274	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,2-Dichloroethane	FB	Ave	17578 372263	34090 746590	69151	94942	190893	1.00 20.0	2.00 40.0	4.00	5.00	10.0
n-Heptane	FB	Ave	1287 35822	3016 74422	6183	8836	19537	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Trichloroethene	FB	Ave	8538 207059	20817 441948	39540	53807	109296	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Methylcyclohexane	FB	Ave	12478 268151	23572 537031	53694	65075	141004	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,2-Dichloropropane	FB	Ave	14848 307572	30035 629714	61647	79871	164272	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Dibromomethane	FB	Ave	5684 131742	11876 272179	25254	31602	66754	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,4-Dioxane	FB	Qua	++++ 49426	3204 78837	5481	8358	27049	++++ 400	40.0 800	80.0	100	200
Dichlorobromomethane	FB	Ave	12241 288240	28201 590156	56640	72710	147444	1.00 20.0	2.00 40.0	4.00	5.00	10.0
2-Chloroethyl vinyl ether	FB	Ave	18817 457211	44119 926284	89098	119394	241641	2.00 40.0	4.00 80.0	8.00	10.0	20.0
cis-1,3-Dichloropropene	FB	Ave	16420 402901	37132 815403	76037	102349	205433	1.00 20.0	2.00 40.0	4.00	5.00	10.0
4-Methyl-2-pentanone (MIBK)	FB	Ave	34518 694450	73911 1284192	149794	190519	386894	2.00 40.0	4.00 80.0	8.00	10.0	20.0
Toluene	CBNZ d5	Ave	43545 952043	95639 1934151	190560	248868	504086	1.00 20.0	2.00 40.0	4.00	5.00	10.0
trans-1,3-Dichloropropene	CBNZ d5	Ave	13691 356734	30847 724427	68179	87136	183024	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Ethyl methacrylate	CBNZ d5	Ave	17569 362159	35561 708973	72802	101519	194915	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,1,2-Trichloroethane	CBNZ d5	Ave	9626 200859	19641 399922	39718	54109	107654	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Tetrachloroethene	CBNZ d5	Ave	4815 114500	10579 238119	22751	28561	57524	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,3-Dichloropropane	CBNZ d5	Ave	16566 384481	34250 753983	74760	95599	197340	1.00 20.0	2.00 40.0	4.00	5.00	10.0
2-Hexanone	CBNZ d5	Ave	21037 470395	49553 878609	97100	127375	259574	2.00 40.0	4.00 80.0	8.00	10.0	20.0
Chlorodibromomethane	CBNZ d5	Ave	8260 178566	15988 362910	34500	45488	94601	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Ethylene Dibromide	CBNZ d5	Ave	7801 181419	17038 387178	35096	47261	99558	1.00 20.0	2.00 40.0	4.00	5.00	10.0

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134182-1

Analy Batch No.: 419116

SDG No.: _____

Instrument ID: A3UX10

GC Column: DB-624

ID: 0.18 (mm)

Heated Purge: (Y/N) N

Calibration Start Date: 01/15/2020 15:09

Calibration End Date: 01/15/2020 17:40

Calibration ID: 54865

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
Chlorobenzene	CBNZ d5	Ave	22854 520761	50513 1029417	100955	131794	275411	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,1,1,2-Tetrachloroethane	CBNZ d5	Ave	6659 168350	16020 304231	32187	41967	87822	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Ethylbenzene	CBNZ d5	Ave	13519 289622	27299 561828	55060	74081	152603	1.00 20.0	2.00 40.0	4.00	5.00	10.0
m-Xylene & p-Xylene	CBNZ d5	Ave	16104 342261	32596 658521	66882	86448	183493	1.00 20.0	2.00 40.0	4.00	5.00	10.0
o-Xylene	CBNZ d5	Ave	13792 319375	32337 590509	64763	85719	168052	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Styrene	CBNZ d5	Ave	27230 571751	56348 1086333	112067	145465	299470	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Bromoform	CBNZ d5	Ave	3862 96445	8554 187221	17599	26105	52762	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Isopropylbenzene	CBNZ d5	Ave	36550 726047	74013 1272350	148004	192618	394049	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,1,2,2-Tetrachloroethane	DCBd 4	Ave	11743 251928	25562 397452	49998	67486	133615	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Bromobenzene	DCBd 4	Ave	7291 162882	15762 308073	30286	40920	83151	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,2,3-Trichloropropane	DCBd 4	Ave	2226 68790	7129 114214	13733	19146	37501	1.00 20.0	2.00 40.0	4.00	5.00	10.0
trans-1,4-Dichloro-2-butene	DCBd 4	Lin1	3793 106104	8016 220280	18866	25489	53115	1.00 20.0	2.00 40.0	4.00	5.00	10.0
N-Propylbenzene	DCBd 4	Ave	8859 182904	18177 322291	36476	47514	98281	1.00 20.0	2.00 40.0	4.00	5.00	10.0
2-Chlorotoluene	DCBd 4	Ave	7413 167723	16698 284610	34073	44478	87963	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,3,5-Trimethylbenzene	DCBd 4	Ave	24944 543712	53769 857216	106414	150264	295183	1.00 20.0	2.00 40.0	4.00	5.00	10.0
4-Chlorotoluene	DCBd 4	Ave	7566 180386	16643 316754	36045	47687	94251	1.00 20.0	2.00 40.0	4.00	5.00	10.0
tert-Butylbenzene	DCBd 4	Ave	18959 394340	41045 607771	84741	109170	217722	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,2,4-Trimethylbenzene	DCBd 4	Ave	28614 564871	58546 871849	118715	155708	313247	1.00 20.0	2.00 40.0	4.00	5.00	10.0
sec-Butylbenzene	DCBd 4	Ave	27586 540475	57391 828401	115720	155977	304021	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,3-Dichlorobenzene	DCBd 4	Ave	13128 293479	28783 484300	59183	78243	151080	1.00 20.0	2.00 40.0	4.00	5.00	10.0
4-Isopropyltoluene	DCBd 4	Ave	21058 440776	46502 652029	95048	121479	246570	1.00 20.0	2.00 40.0	4.00	5.00	10.0

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1 Analy Batch No.: 419116

SDG No.: _____

Instrument ID: A3UX10 GC Column: DB-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/15/2020 15:09 Calibration End Date: 01/15/2020 17:40 Calibration ID: 54865

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
1,4-Dichlorobenzene	DCBd 4	Ave	13017 293656	28924 507740	60314	79180	157477	1.00 20.0	2.00 40.0	4.00	5.00	10.0
n-Butylbenzene	DCBd 4	Ave	21792 404747	43467 569737	87348	117002	231231	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,2-Dichlorobenzene	DCBd 4	Ave	14294 286985	29223 412773	59299	78394	157537	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,2-Dibromo-3-Chloropropane	DCBd 4	Qua	1480 34090	4546 37189	8781	12607	23044	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,2,4-Trichlorobenzene	DCBd 4	Ave	5926 93635	13282 ++++	27711	36240	70921	1.00 20.0	2.00 ++++	4.00	5.00	10.0
Hexachlorobutadiene	DCBd 4	Ave	++++ 23374	3460 ++++	6441	8782	16555	++++ 20.0	2.00 ++++	4.00	5.00	10.0
Naphthalene	DCBd 4	Ave	30522 ++++	69402 ++++	135986	181044	326917	1.00 ++++	2.00 ++++	4.00	5.00	10.0
1,2,3-Trichlorobenzene	DCBd 4	Ave	6329 ++++	11763 ++++	25501	34569	64230	1.00 ++++	2.00 ++++	4.00	5.00	10.0
Dibromofluoromethane (Surr)	FB	Ave	9272 193471	18094 382594	37185	44962	95327	1.00 20.0	2.00 40.0	4.00	5.00	10.0
1,2-Dichloroethane-d4 (Surr)	FB	Ave	13590 278242	26957 546102	55814	68712	136206	1.00 20.0	2.00 40.0	4.00	5.00	10.0
Toluene-d8 (Surr)	CBNZ d5	Ave	44192 805170	78667 1576678	160706	194389	388305	1.00 20.0	2.00 40.0	4.00	5.00	10.0
4-Bromofluorobenzene (Surr)	CBNZ d5	Ave	12999 258874	25288 475939	51023	62957	126701	1.00 20.0	2.00 40.0	4.00	5.00	10.0

Curve Type Legend:

Ave = Average ISTD
Lin1 = Linear 1/conc ISTD
Qua = Quadratic ISTD

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5174.D
 Lims ID: STD8260 L7
 Client ID:
 Sample Type: IC Calib Level: 7
 Inject. Date: 15-Jan-2020 15:09:30 ALS Bottle#: 1 Worklist Smp#: 2
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0094937-002
 Operator ID: 001644 Instrument ID: A3UX10
 Sublist: chrom-8260_10*sub82
 Method: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 20-Jan-2020 17:01:47 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0309

First Level Reviewer: williamsla

Date: 20-Jan-2020 17:01:47

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.976	4.972	0.004	98	426105	10.0	10.0	
* 2 Chlorobenzene-d5	117	7.638	7.646	-0.008	89	268745	10.0	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.861	9.869	-0.008	95	89134	10.0	10.0	
\$ 4 Dibromofluoromethane (Surr	113	4.408	4.408	0.000	92	382594	40.0	38.4	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	4.692	4.691	0.001	96	546102	40.0	37.3	
\$ 6 Toluene-d8 (Surr)	98	6.336	6.336	0.000	94	1576678	40.0	38.2	
\$ 7 4-Bromofluorobenzene (Surr	95	8.749	8.749	0.000	79	475939	40.0	36.6	
9 Dichlorodifluoromethane	85	1.250	1.249	0.001	99	348415	40.0	37.7	
10 Chloromethane	50	1.404	1.391	0.013	99	738754	40.0	39.1	
11 Vinyl chloride	62	1.487	1.486	0.001	98	533232	40.0	38.3	
12 Butadiene	54	1.510	1.510	0.000	94	299133	40.0	39.0	
13 Bromomethane	94	1.759	1.758	0.001	90	225093	40.0	34.0	
14 Chloroethane	64	1.853	1.841	0.012	98	293599	40.0	39.4	
15 Dichlorofluoromethane	67	2.019	2.018	0.001	98	612424	40.0	32.6	
16 Trichlorofluoromethane	101	2.054	2.042	0.012	98	396905	40.0	39.7	
17 Ethyl ether	59	2.291	2.290	0.001	98	492860	40.0	37.5	
18 Acrolein	56	2.409	2.409	0.000	99	447463	200.0	178.1	
19 1,1-Dichloroethene	96	2.492	2.491	0.001	92	384984	40.0	38.3	
20 1,1,2-Trichloro-1,2,2-trif	151	2.528	2.515	0.013	96	194447	40.0	39.5	
21 Acetone	43	2.539	2.539	0.000	100	408717	80.0	77.8	
22 Iodomethane	142	2.646	2.621	0.025	97	504270	40.0	42.9	
24 Carbon disulfide	76	2.693	2.681	0.012	100	1371104	40.0	39.0	
26 3-Chloro-1-propene	76	2.812	2.811	0.001	91	363226	40.0	39.9	
27 Methyl acetate	43	2.835	2.834	0.001	99	1170999	80.0	77.8	
28 Methylene Chloride	84	2.918	2.917	0.001	98	479700	40.0	38.7	
29 2-Methyl-2-propanol	59	3.024	3.024	0.000	98	647317	400.0	367.9	
31 Acrylonitrile	53	3.131	3.130	0.001	100	2832530	400.0	386.0	
30 trans-1,2-Dichloroethene	96	3.143	3.154	-0.011	91	471758	40.0	40.5	
32 Methyl tert-butyl ether	73	3.155	3.154	0.001	98	1323684	40.0	39.0	
33 Hexane	86	3.379	3.378	0.001	93	90384	40.0	40.2	
34 1,1-Dichloroethane	63	3.509	3.509	0.000	96	1062752	40.0	38.7	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
35 Vinyl acetate	43		3.556				ND	ND	U
39 2,2-Dichloropropane	97	3.994	4.005	-0.011	51	99183	40.0	38.0	
40 cis-1,2-Dichloroethene	96	3.994	4.005	-0.011	88	527277	40.0	40.7	
41 2-Butanone (MEK)	43	4.018	4.017	0.001	99	675419	80.0	72.5	
45 Chlorobromomethane	128	4.207	4.206	0.001	92	223761	40.0	42.4	
46 Tetrahydrofuran	42	4.243	4.242	0.001	93	451105	80.0	69.1	
47 Chloroform	83	4.266	4.266	0.000	98	772060	40.0	38.3	
48 1,1,1-Trichloroethane	97	4.420	4.419	0.001	96	479949	40.0	37.6	
49 Cyclohexane	56	4.467	4.467	0.000	91	924168	40.0	38.3	
50 1,1-Dichloropropene	75	4.562	4.561	0.001	92	621625	40.0	39.3	
51 Carbon tetrachloride	117	4.562	4.561	0.001	72	405876	40.0	39.9	
52 Isobutyl alcohol	41	4.669	4.668	0.001	96	563013	1000.0	984.5	
53 Benzene	78	4.740	4.739	0.001	98	2022315	40.0	38.4	
54 1,2-Dichloroethane	62	4.751	4.751	0.000	96	746590	40.0	38.5	
56 n-Heptane	100	4.964	4.963	0.001	97	74422	40.0	41.8	
58 Trichloroethene	130	5.284	5.283	0.001	96	441948	40.0	40.4	
60 Methylcyclohexane	83	5.449	5.448	0.001	98	537031	40.0	38.5	
61 1,2-Dichloropropane	63	5.473	5.472	0.001	97	629714	40.0	38.0	
63 Dibromomethane	93	5.579	5.579	0.000	89	272179	40.0	40.4	
64 1,4-Dioxane	88	5.591	5.590	0.001	97	78837	800.0	799.6	
65 Dichlorobromomethane	83	5.709	5.709	0.000	98	590156	40.0	39.2	
67 2-Chloroethyl vinyl ether	63	5.970	5.969	0.001	91	926284	80.0	77.4	
68 cis-1,3-Dichloropropene	75	6.100	6.099	0.001	92	815403	40.0	39.5	
69 4-Methyl-2-pentanone (MIBK)	43	6.242	6.241	0.001	97	1284192	80.0	66.7	
70 Toluene	91	6.396	6.395	0.001	97	1934151	40.0	39.3	
71 trans-1,3-Dichloropropene	75	6.585	6.596	-0.011	97	724427	40.0	41.9	
72 Ethyl methacrylate	69	6.668	6.667	0.001	95	708973	40.0	37.4	
73 1,1,2-Trichloroethane	97	6.750	6.761	-0.011	93	399922	40.0	38.3	
74 Tetrachloroethene	164	6.892	6.892	0.000	95	238119	40.0	41.7	
75 1,3-Dichloropropane	76	6.904	6.903	0.001	99	753983	40.0	39.7	
76 2-Hexanone	43	6.975	6.986	-0.011	98	878609	80.0	71.6	
78 Chlorodibromomethane	129	7.117	7.116	0.001	91	362910	40.0	40.2	
80 Ethylene Dibromide	107	7.212	7.223	-0.011	97	387178	40.0	41.7	
82 Chlorobenzene	112	7.673	7.672	0.001	93	1029417	40.0	39.2	
83 1,1,1,2-Tetrachloroethane	131	7.744	7.743	0.001	96	304231	40.0	37.1	
84 Ethylbenzene	106	7.768	7.767	0.001	99	561828	40.0	38.4	
85 m-Xylene & p-Xylene	106	7.874	7.873	0.001	99	658521	40.0	37.9	
86 o-Xylene	106	8.253	8.252	0.001	98	590509	40.0	36.3	
87 Styrene	104	8.264	8.264	0.000	94	1086333	40.0	37.3	
88 Bromoform	173	8.442	8.441	0.001	95	187221	40.0	39.2	
89 Isopropylbenzene	105	8.596	8.607	-0.011	97	1272350	40.0	33.7	
93 Bromobenzene	156	8.891	8.891	0.000	96	308073	40.0	44.7	
92 1,1,2,2-Tetrachloroethane	83	8.891	8.891	0.000	75	397452	40.0	36.9	
94 1,2,3-Trichloropropane	110	8.927	8.926	0.001	86	114214	40.0	39.7	
95 trans-1,4-Dichloro-2-buten	53	8.939	8.938	0.001	81	220280	40.0	43.1	
96 N-Propylbenzene	120	8.998	8.997	0.001	100	322291	40.0	40.5	
97 2-Chlorotoluene	126	9.081	9.080	0.001	96	284610	40.0	39.7	
98 1,3,5-Trimethylbenzene	105	9.163	9.163	0.000	93	857216	40.0	36.8	
99 4-Chlorotoluene	126	9.187	9.186	0.001	98	316754	40.0	41.7	
100 tert-Butylbenzene	119	9.483	9.482	0.001	94	607771	40.0	35.0	
102 1,2,4-Trimethylbenzene	105	9.530	9.529	0.001	97	871849	40.0	35.0	
103 sec-Butylbenzene	105	9.696	9.695	0.001	95	828401	40.0	34.2	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
104 1,3-Dichlorobenzene	146	9.802	9.801	0.001	96	484300	40.0	38.9	
105 4-Isopropyltoluene	119	9.838	9.837	0.001	97	652029	40.0	33.7	
106 1,4-Dichlorobenzene	146	9.885	9.884	0.001	92	507740	40.0	40.1	
109 n-Butylbenzene	91	10.240	10.239	0.001	98	569737	40.0	31.3	
110 1,2-Dichlorobenzene	146	10.252	10.251	0.001	94	412773	40.0	33.2	
111 1,2-Dibromo-3-Chloropropan	157	11.021	11.020	0.000	75	37189	40.0	32.4	
113 1,2,4-Trichlorobenzene	180		11.836				ND	ND	U
114 Hexachlorobutadiene	225		12.013				ND	ND	U
115 Naphthalene	128		12.084				ND	ND	U
116 1,2,3-Trichlorobenzene	180		12.321				ND	ND	U
S 128 1,2-Dichloroethene, Total	96				0			81.2	
S 129 1,3-Dichloropropene, Total	75				0			81.4	
S 130 Xylenes, Total	106				0		80.0	74.2	
S 156 Total BTEX	1				0		200.0	190.2	
S 131 Trihalomethanes, Total	1				0		160.0	157.0	

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

Review Flags

U - Marked Undetected

Reagents:

VMRPRIMW_00369	Amount Added: 32.00	Units: uL
VMFASAW_00312	Amount Added: 32.00	Units: uL
VM50IS_00080	Amount Added: 1.00	Units: uL
VMRGAS_00323	Amount Added: 32.00	Units: uL
vm50ss_00387	Amount Added: 32.00	Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5174.D

Injection Date: 15-Jan-2020 15:09:30

Instrument ID: A3UX10

Operator ID: 001644

Lims ID: STD8260 L7

Worklist Smp#: 2

Client ID:

Purge Vol: 5.000 mL

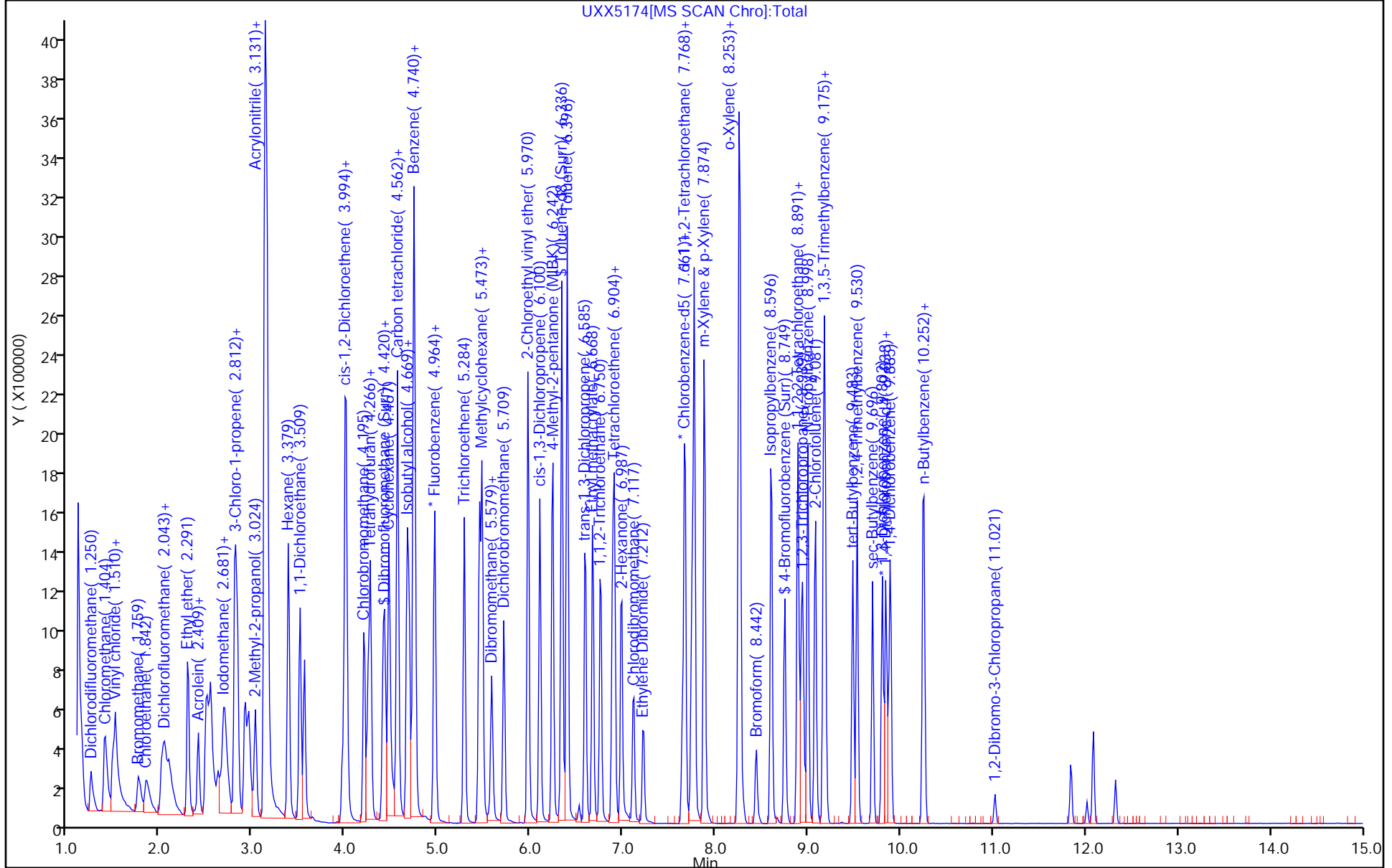
Dil. Factor: 1.0000

ALS Bottle#: 1

Method: 8260_10

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5174.D

Injection Date: 15-Jan-2020 15:09:30

Instrument ID: A3UX10

Lims ID: STD8260 L7

Client ID:

Operator ID: 001644

ALS Bottle#: 1

Worklist Smp#: 2

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

Method: 8260_10

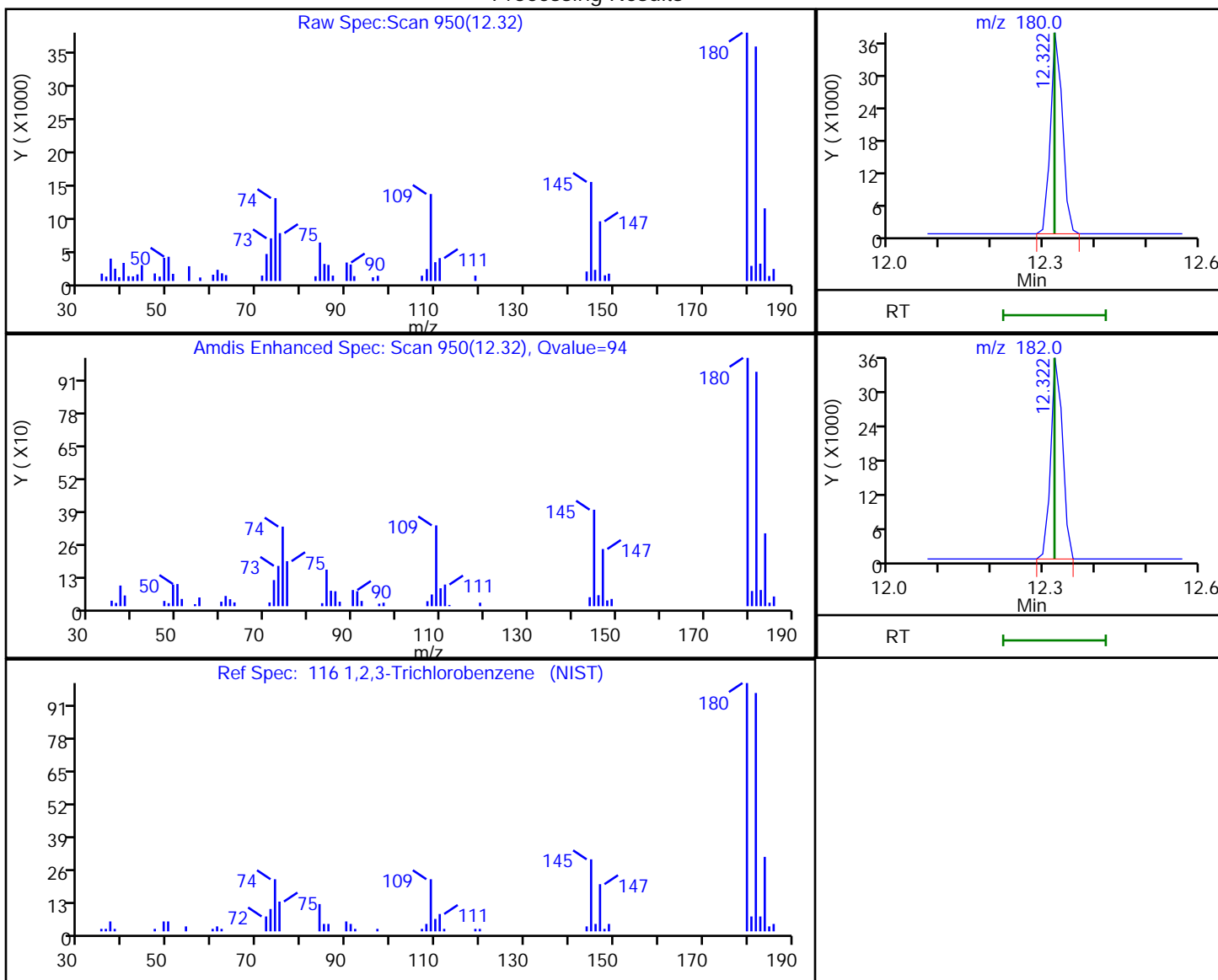
Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

116 1,2,3-Trichlorobenzene, CAS: 87-61-6

Processing Results



RT	Mass	Response	Amount
12.32	180.00	60418	13.207226
12.32	182.00	56546	

Reviewer: williamsa, 20-Jan-2020 15:37:29

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5174.D

Injection Date: 15-Jan-2020 15:09:30

Instrument ID: A3UX10

Lims ID: STD8260 L7

Client ID:

Operator ID: 001644

ALS Bottle#: 1

Worklist Smp#: 2

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

Method: 8260_10

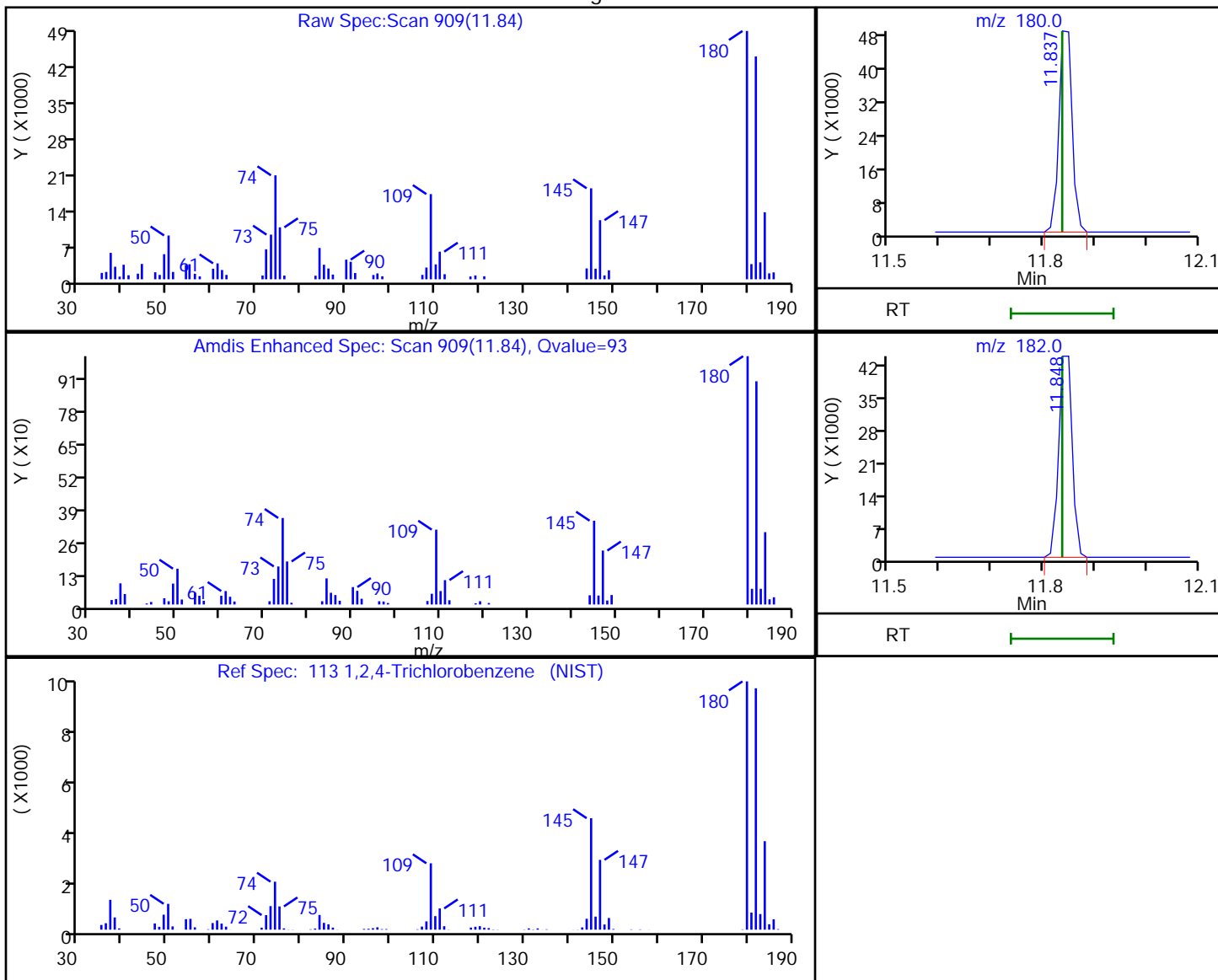
Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

113 1,2,4-Trichlorobenzene, CAS: 120-82-1

Processing Results



RT	Mass	Response	Amount
11.84	180.00	87122	21.282434
11.85	182.00	79970	

Reviewer: williamsa, 20-Jan-2020 16:44:14

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5174.D

Injection Date: 15-Jan-2020 15:09:30

Instrument ID: A3UX10

Lims ID: STD8260 L7

Client ID:

Operator ID: 001644

ALS Bottle#: 1

Worklist Smp#: 2

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

Method: 8260_10

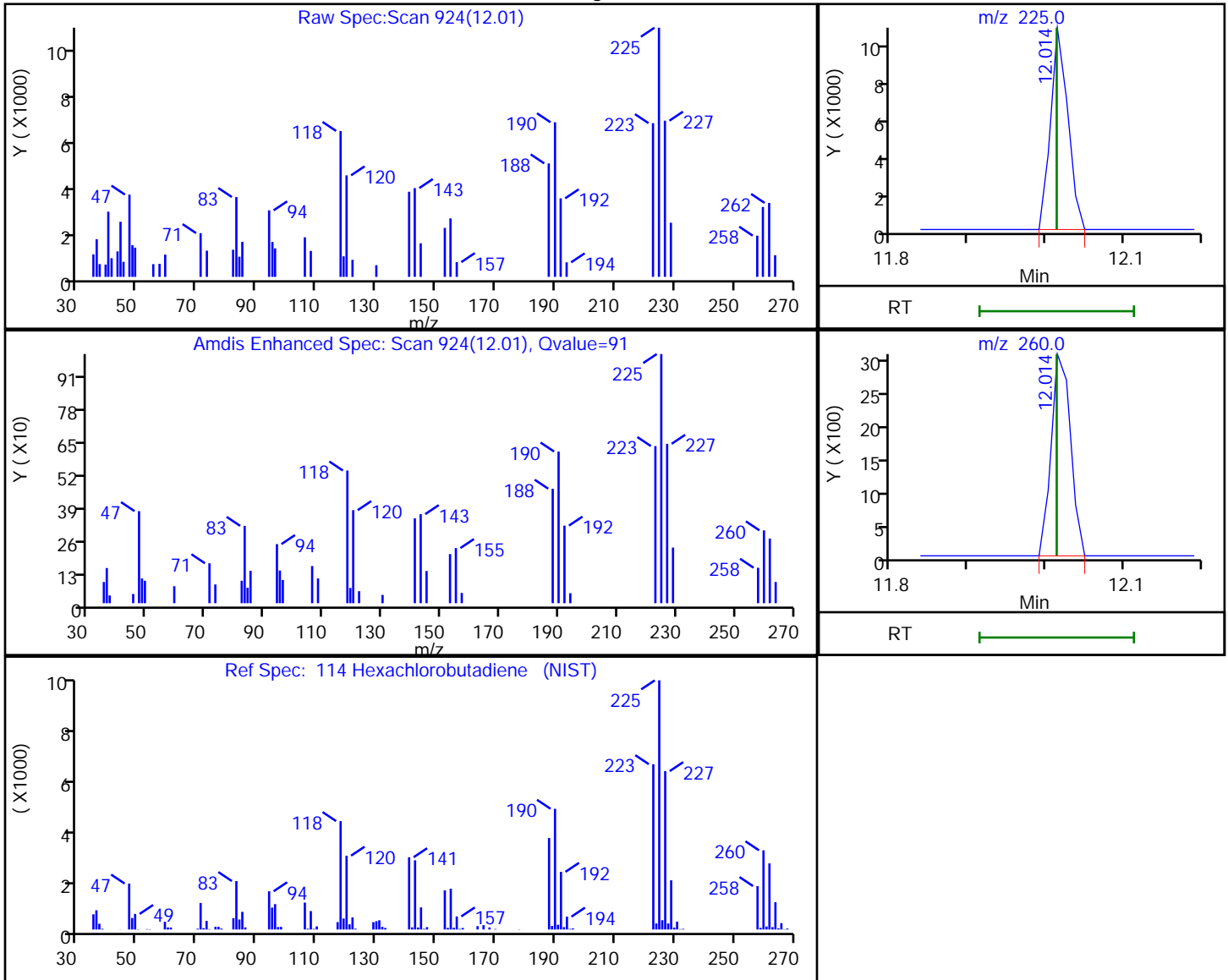
Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

114 Hexachlorobutadiene, CAS: 87-68-3

Processing Results



RT	Mass	Response	Amount
12.01	225.00	16641	13.966535
12.01	260.00	5218	

Reviewer: williamsa, 20-Jan-2020 15:51:31

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5174.D

Injection Date: 15-Jan-2020 15:09:30

Instrument ID: A3UX10

Lims ID: STD8260 L7

Client ID:

Operator ID: 001644

ALS Bottle#: 1

Worklist Smp#: 2

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

Method: 8260_10

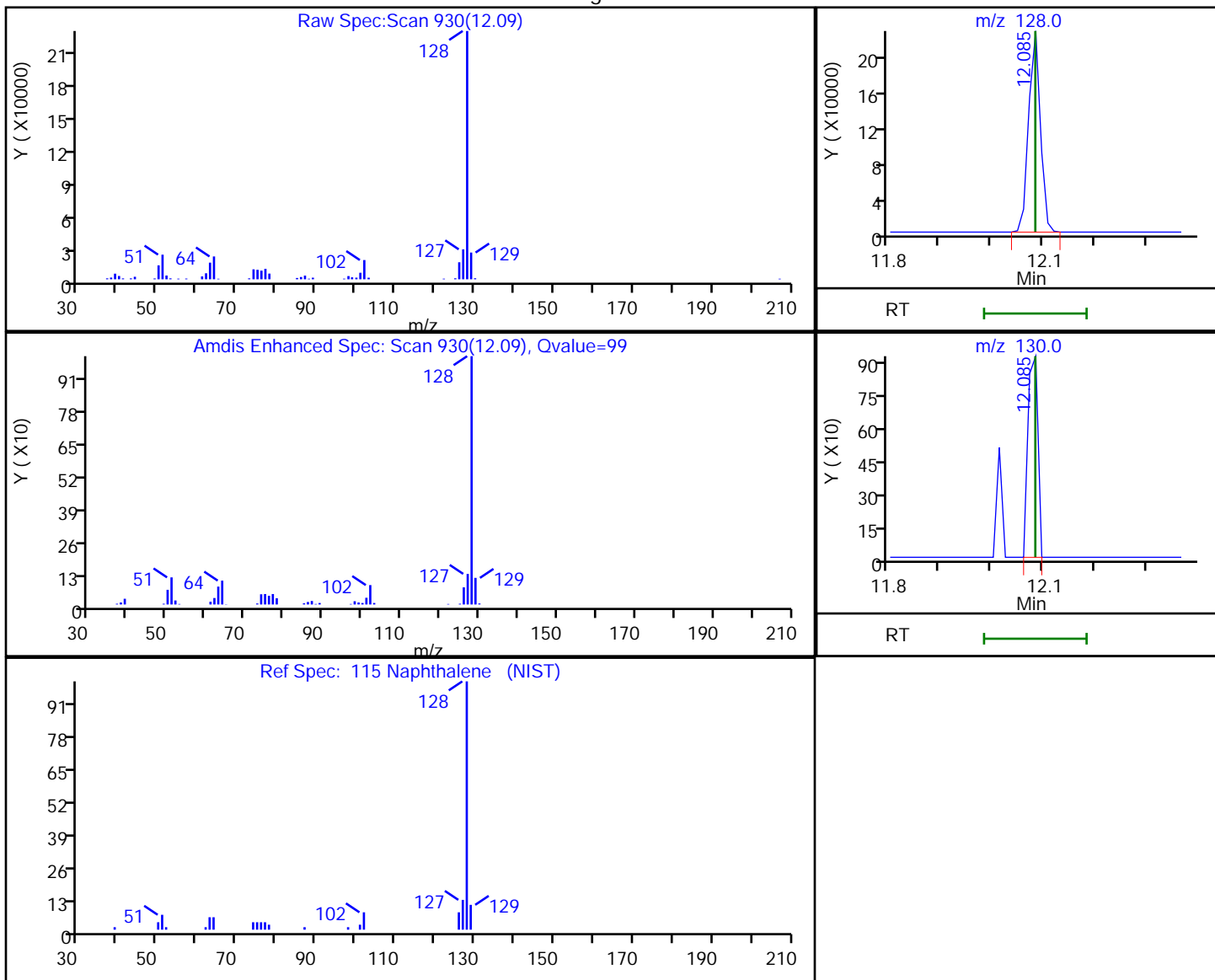
Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

115 Naphthalene, CAS: 91-20-3

Processing Results



RT	Mass	Response	Amount
12.09	128.00	351805	14.522046
12.09	130.00	1251	

Reviewer: williamsla, 20-Jan-2020 15:37:26

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5174.D

Injection Date: 15-Jan-2020 15:09:30

Instrument ID: A3UX10

Lims ID: STD8260 L7

Client ID:

Operator ID: 001644

ALS Bottle#: 1

Worklist Smp#: 2

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

Method: 8260_10

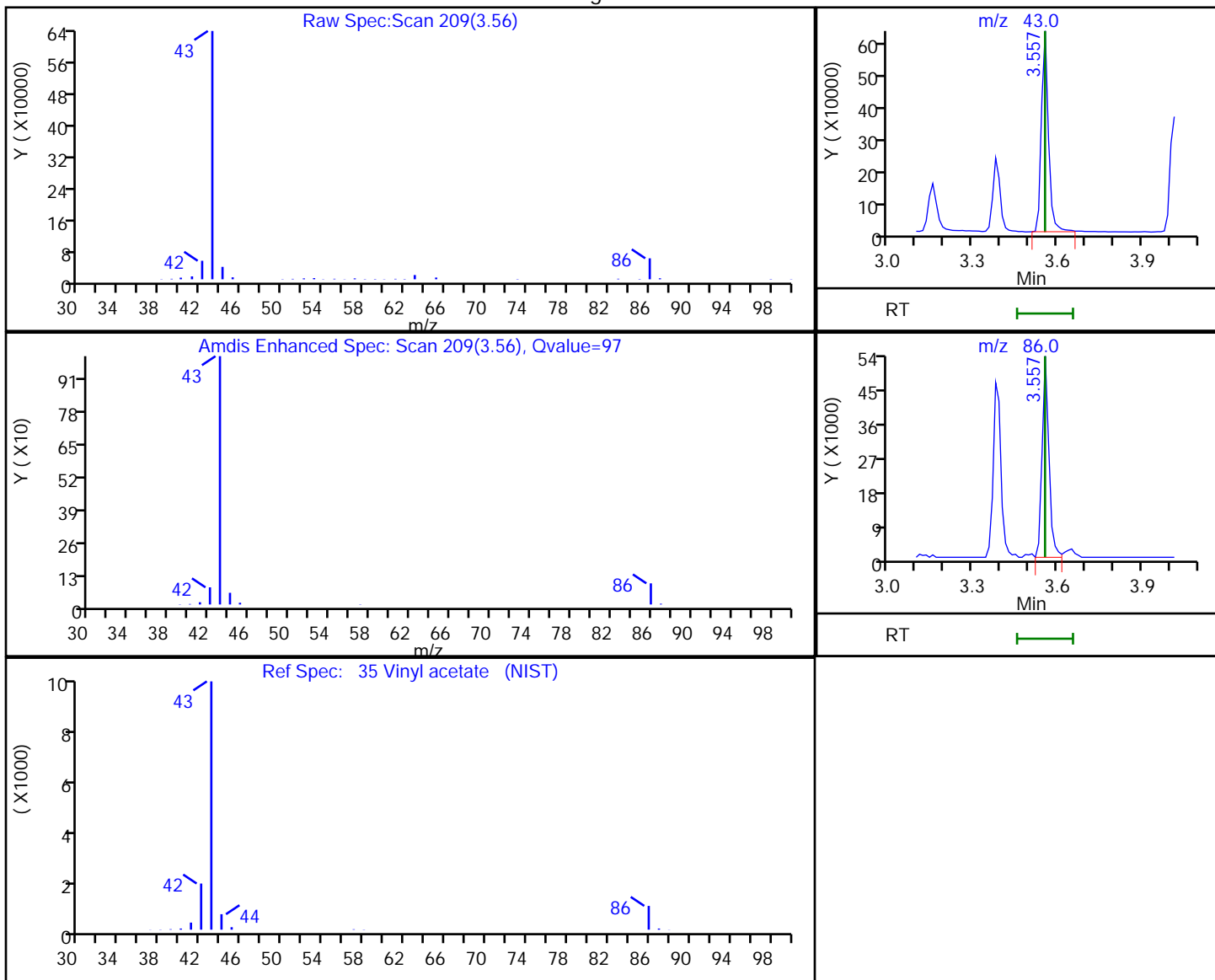
Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

35 Vinyl acetate, CAS: 108-05-4

Processing Results



RT	Mass	Response	Amount
3.56	43.00	1112947	39.993189
3.56	86.00	91366	

Reviewer: williamsla, 20-Jan-2020 15:50:53

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5175.D
 Lims ID: STD8260 L6
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 15-Jan-2020 15:34:30 ALS Bottle#: 2 Worklist Smp#: 3
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0094937-003
 Operator ID: 001644 Instrument ID: A3UX10
 Sublist: chrom-8260_10*sub82
 Method: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 20-Jan-2020 17:08:45 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0309

First Level Reviewer: williamsla

Date: 20-Jan-2020 16:42:08

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.973	4.972	0.001	98	408078	10.0	10.0	
* 2 Chlorobenzene-d5	117	7.635	7.646	-0.011	93	264953	10.0	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.870	9.869	0.001	96	103950	10.0	10.0	
\$ 4 Dibromofluoromethane (Surr	113	4.406	4.408	-0.002	93	193471	20.0	20.3	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	4.690	4.691	-0.001	97	278242	20.0	19.9	
\$ 6 Toluene-d8 (Surr)	98	6.334	6.336	-0.002	94	805170	20.0	19.8	
\$ 7 4-Bromofluorobenzene (Surr	95	8.747	8.749	-0.002	78	258874	20.0	20.2	
9 Dichlorodifluoromethane	85	1.247	1.249	-0.002	99	184971	20.0	20.9	
10 Chloromethane	50	1.401	1.391	0.010	99	391156	20.0	21.6	
11 Vinyl chloride	62	1.484	1.486	-0.002	98	277193	20.0	20.8	
12 Butadiene	54	1.519	1.510	0.009	95	152127	20.0	20.5	
13 Bromomethane	94	1.768	1.758	0.010	89	115685	20.0	18.2	
14 Chloroethane	64	1.851	1.841	0.010	99	157736	20.0	22.1	
15 Dichlorofluoromethane	67	2.016	2.018	-0.002	98	339518	20.0	18.9	
16 Trichlorofluoromethane	101	2.052	2.042	0.010	99	211561	20.0	22.1	
17 Ethyl ether	59	2.300	2.290	0.010	98	250763	20.0	19.9	
18 Acrolein	56	2.407	2.409	-0.002	99	222686	100.0	92.6	
19 1,1-Dichloroethene	96	2.489	2.491	-0.002	92	191503	20.0	19.9	
20 1,1,2-Trichloro-1,2,2-trif	151	2.525	2.515	0.010	97	92141	20.0	20.0	
21 Acetone	43	2.549	2.539	0.010	100	205689	40.0	39.9	
22 Iodomethane	142	2.620	2.621	-0.001	97	229631	20.0	20.4	
24 Carbon disulfide	76	2.691	2.681	0.009	100	671488	20.0	19.9	
26 3-Chloro-1-propene	76	2.809	2.811	-0.002	90	186739	20.0	21.4	
27 Methyl acetate	43	2.832	2.834	-0.002	99	570411	40.0	39.6	
28 Methylene Chloride	84	2.915	2.917	-0.002	97	238705	20.0	20.1	
29 2-Methyl-2-propanol	59	3.022	3.024	-0.002	98	328526	200.0	195.0	
31 Acrylonitrile	53	3.128	3.130	-0.002	99	1379901	200.0	196.3	
30 trans-1,2-Dichloroethene	96	3.152	3.154	-0.002	90	225779	20.0	20.3	
32 Methyl tert-butyl ether	73	3.152	3.154	-0.002	98	665746	20.0	20.5	
33 Hexane	86	3.388	3.378	0.010	91	44066	20.0	20.5	
34 1,1-Dichloroethane	63	3.507	3.509	-0.002	96	532464	20.0	20.2	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
35 Vinyl acetate	43	3.554	3.556	-0.002	97	670872	20.0	20.5	
39 2,2-Dichloropropane	97	4.003	4.005	-0.002	76	49556	20.0	19.8	
40 cis-1,2-Dichloroethene	96	4.003	4.005	-0.002	88	248831	20.0	20.0	
41 2-Butanone (MEK)	43	4.015	4.017	-0.002	99	334871	40.0	37.5	
45 Chlorobromomethane	128	4.205	4.206	-0.001	90	107315	20.0	21.2	
46 Tetrahydrofuran	42	4.240	4.242	-0.002	93	229072	40.0	36.6	
47 Chloroform	83	4.264	4.266	-0.002	97	380793	20.0	19.7	
48 1,1,1-Trichloroethane	97	4.429	4.419	0.010	95	237910	20.0	19.5	
49 Cyclohexane	56	4.465	4.467	-0.002	91	461154	20.0	19.9	
50 1,1-Dichloropropene	75	4.559	4.561	-0.002	91	302315	20.0	20.0	
51 Carbon tetrachloride	117	4.559	4.561	-0.002	74	203301	20.0	20.8	
52 Isobutyl alcohol	41	4.666	4.668	-0.002	95	280839	500.0	495.9	
53 Benzene	78	4.737	4.739	-0.002	98	1006535	20.0	19.9	
54 1,2-Dichloroethane	62	4.749	4.751	-0.002	97	372263	20.0	20.1	
56 n-Heptane	100	4.962	4.963	-0.001	96	35822	20.0	21.0	
58 Trichloroethene	130	5.281	5.283	-0.002	96	207059	20.0	19.8	
60 Methylcyclohexane	83	5.447	5.448	-0.001	98	268151	20.0	20.1	
61 1,2-Dichloropropane	63	5.470	5.472	-0.002	96	307572	20.0	19.4	
63 Dibromomethane	93	5.577	5.579	-0.002	90	131742	20.0	20.4	
64 1,4-Dioxane	88	5.588	5.590	-0.002	95	49426	400.0	397.7	
65 Dichlorobromomethane	83	5.707	5.709	-0.002	98	288240	20.0	20.0	
67 2-Chloroethyl vinyl ether	63	5.967	5.969	-0.002	91	457211	40.0	39.9	
68 cis-1,3-Dichloropropene	75	6.097	6.099	-0.002	91	402901	20.0	20.4	
69 4-Methyl-2-pentanone (MIBK)	43	6.239	6.241	-0.002	97	694450	40.0	37.6	
70 Toluene	91	6.393	6.395	-0.002	97	952043	20.0	19.6	
71 trans-1,3-Dichloropropene	75	6.594	6.596	-0.002	97	356734	20.0	20.9	
72 Ethyl methacrylate	69	6.677	6.667	0.010	95	362159	20.0	19.4	
73 1,1,2-Trichloroethane	97	6.760	6.761	-0.001	93	200859	20.0	19.5	
74 Tetrachloroethene	164	6.890	6.892	-0.002	92	114500	20.0	20.3	
75 1,3-Dichloropropane	76	6.901	6.903	-0.002	97	384481	20.0	20.5	
76 2-Hexanone	43	6.984	6.986	-0.002	97	470395	40.0	38.9	
78 Chlorodibromomethane	129	7.114	7.116	-0.002	90	178566	20.0	20.1	
80 Ethylene Dibromide	107	7.221	7.223	-0.002	98	181419	20.0	19.8	
82 Chlorobenzene	112	7.670	7.672	-0.002	91	520761	20.0	20.1	
83 1,1,1,2-Tetrachloroethane	131	7.741	7.743	-0.002	96	168350	20.0	20.8	
84 Ethylbenzene	106	7.765	7.767	-0.002	99	289622	20.0	20.1	
85 m-Xylene & p-Xylene	106	7.883	7.873	0.010	99	342261	20.0	20.0	
86 o-Xylene	106	8.250	8.252	-0.002	97	319375	20.0	19.9	
87 Styrene	104	8.262	8.264	-0.002	93	571751	20.0	19.9	
88 Bromoform	173	8.439	8.441	-0.002	93	96445	20.0	20.5	
89 Isopropylbenzene	105	8.605	8.607	-0.002	96	726047	20.0	19.5	
93 Bromobenzene	156	8.889	8.891	-0.002	95	162882	20.0	20.2	
92 1,1,2,2-Tetrachloroethane	83	8.889	8.891	-0.002	77	251928	20.0	20.0	
94 1,2,3-Trichloropropane	110	8.924	8.926	-0.002	86	68790	20.0	20.5	
95 trans-1,4-Dichloro-2-buten	53	8.948	8.938	0.010	88	106104	20.0	18.2	
96 N-Propylbenzene	120	8.995	8.997	-0.002	100	182904	20.0	19.7	
97 2-Chlorotoluene	126	9.078	9.080	-0.002	95	167723	20.0	20.0	
98 1,3,5-Trimethylbenzene	105	9.161	9.163	-0.002	94	543712	20.0	20.0	
99 4-Chlorotoluene	126	9.184	9.186	-0.002	99	180386	20.0	20.4	
100 tert-Butylbenzene	119	9.480	9.482	-0.002	95	394340	20.0	19.5	
102 1,2,4-Trimethylbenzene	105	9.527	9.529	-0.002	96	564871	20.0	19.4	
103 sec-Butylbenzene	105	9.693	9.695	-0.002	95	540475	20.0	19.1	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
104 1,3-Dichlorobenzene	146	9.799	9.801	-0.002	96	293479	20.0	20.2	
105 4-Isopropyltoluene	119	9.835	9.837	-0.002	97	440776	20.0	19.5	
106 1,4-Dichlorobenzene	146	9.894	9.884	0.010	93	293656	20.0	19.9	
109 n-Butylbenzene	91	10.237	10.239	-0.002	98	404747	20.0	19.1	
110 1,2-Dichlorobenzene	146	10.249	10.251	-0.002	93	286985	20.0	19.8	
111 1,2-Dibromo-3-Chloropropan	157	11.018	11.020	-0.002	74	34090	20.0	19.0	
113 1,2,4-Trichlorobenzene	180	11.846	11.836	0.010	93	93635	20.0	14.6	
114 Hexachlorobutadiene	225	12.011	12.013	-0.002	90	23374	20.0	14.9	
115 Naphthalene	128		12.084				ND	ND	U
116 1,2,3-Trichlorobenzene	180		12.321				ND	ND	U
S 128 1,2-Dichloroethene, Total	96				0			40.3	
S 129 1,3-Dichloropropene, Total	75				0			41.3	
S 130 Xylenes, Total	106				0		40.0	39.9	
S 156 Total BTEX	1				0		100.0	99.5	
S 131 Trihalomethanes, Total	1				0		80.0	80.3	

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

Review Flags

U - Marked Undetected

Reagents:

VMRPRIMW_00369	Amount Added: 16.00	Units: uL
VMFASAW_00312	Amount Added: 16.00	Units: uL
VM50IS_00080	Amount Added: 1.00	Units: uL
VMRGAS_00323	Amount Added: 16.00	Units: uL
vm50ss_00387	Amount Added: 16.00	Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5175.D

Injection Date: 15-Jan-2020 15:34:30

Instrument ID: A3UX10

Operator ID: 001644

Lims ID: STD8260 L6

Worklist Smp#: 3

Client ID:

Purge Vol: 5.000 mL

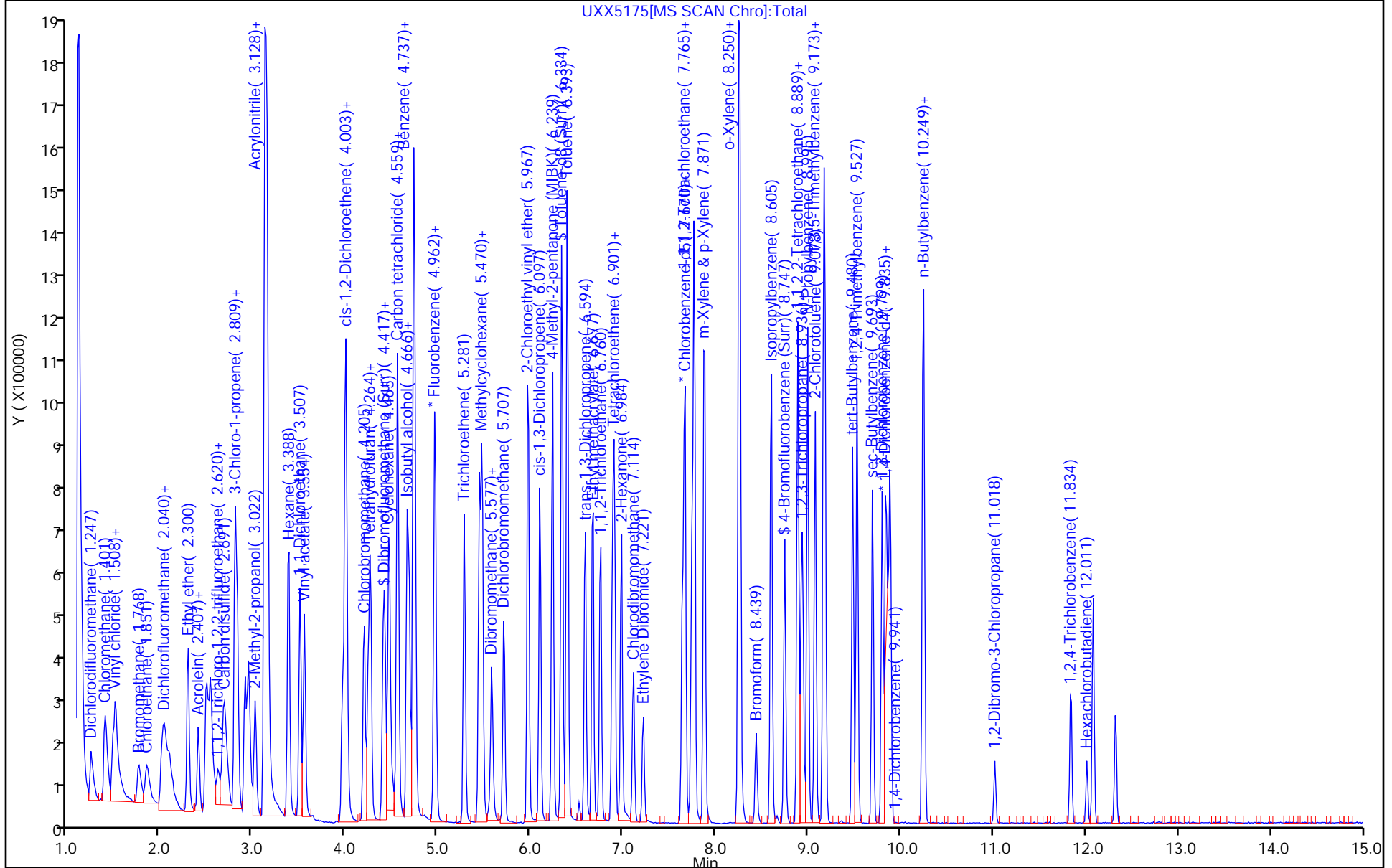
Dil. Factor: 1.0000

ALS Bottle#: 2

Method: 8260_10

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5175.D

Injection Date: 15-Jan-2020 15:34:30

Instrument ID: A3UX10

Lims ID: STD8260 L6

Client ID:

Operator ID: 001644

ALS Bottle#: 2

Worklist Smp#: 3

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

Method: 8260_10

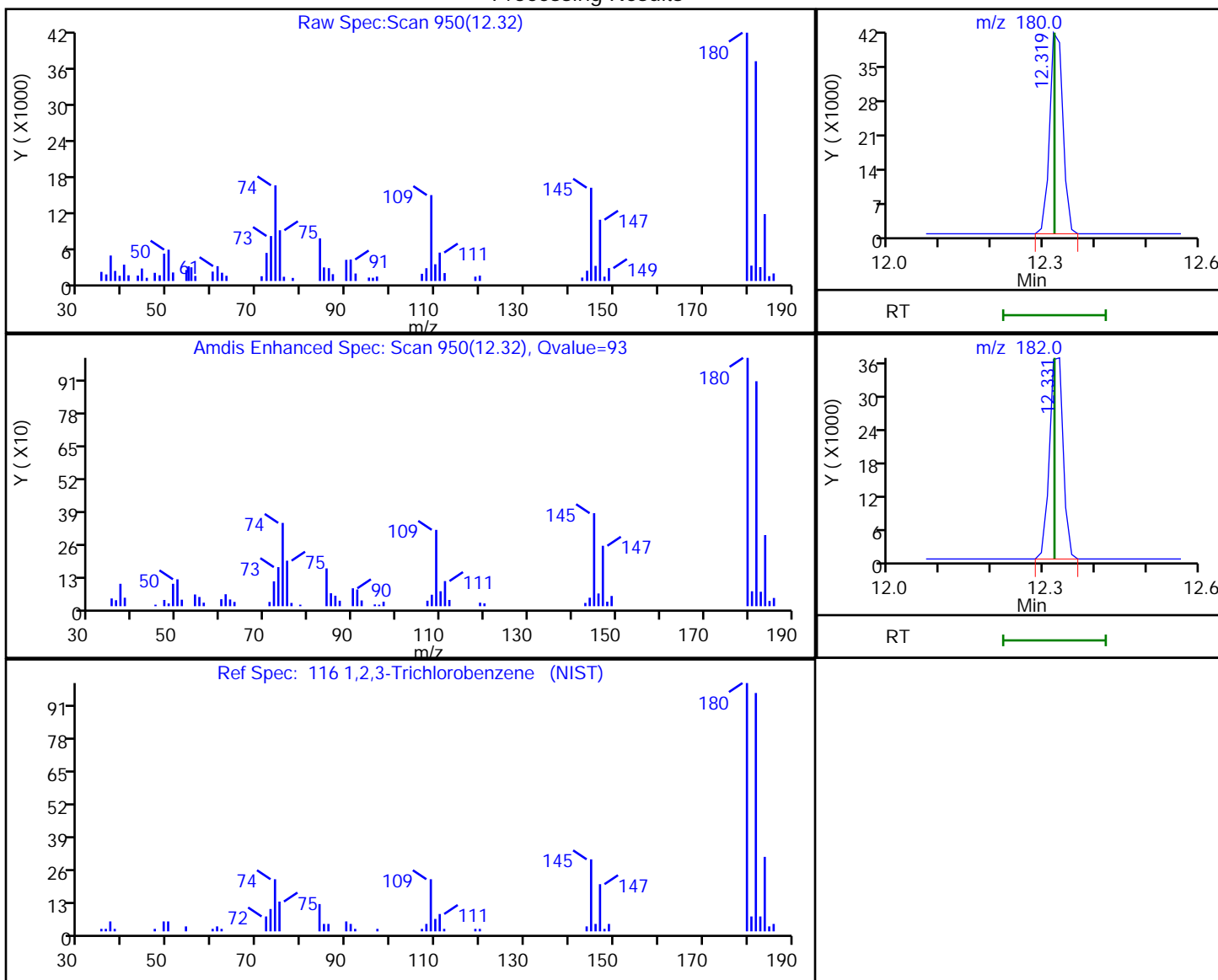
Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

116 1,2,3-Trichlorobenzene, CAS: 87-61-6

Processing Results



RT	Mass	Response	Amount
12.32	180.00	73707	15.139043
12.33	182.00	68027	

Reviewer: williamsa, 20-Jan-2020 15:37:46

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5175.D

Injection Date: 15-Jan-2020 15:34:30

Instrument ID: A3UX10

Lims ID: STD8260 L6

Client ID:

Operator ID: 001644

ALS Bottle#: 2

Worklist Smp#: 3

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

Method: 8260_10

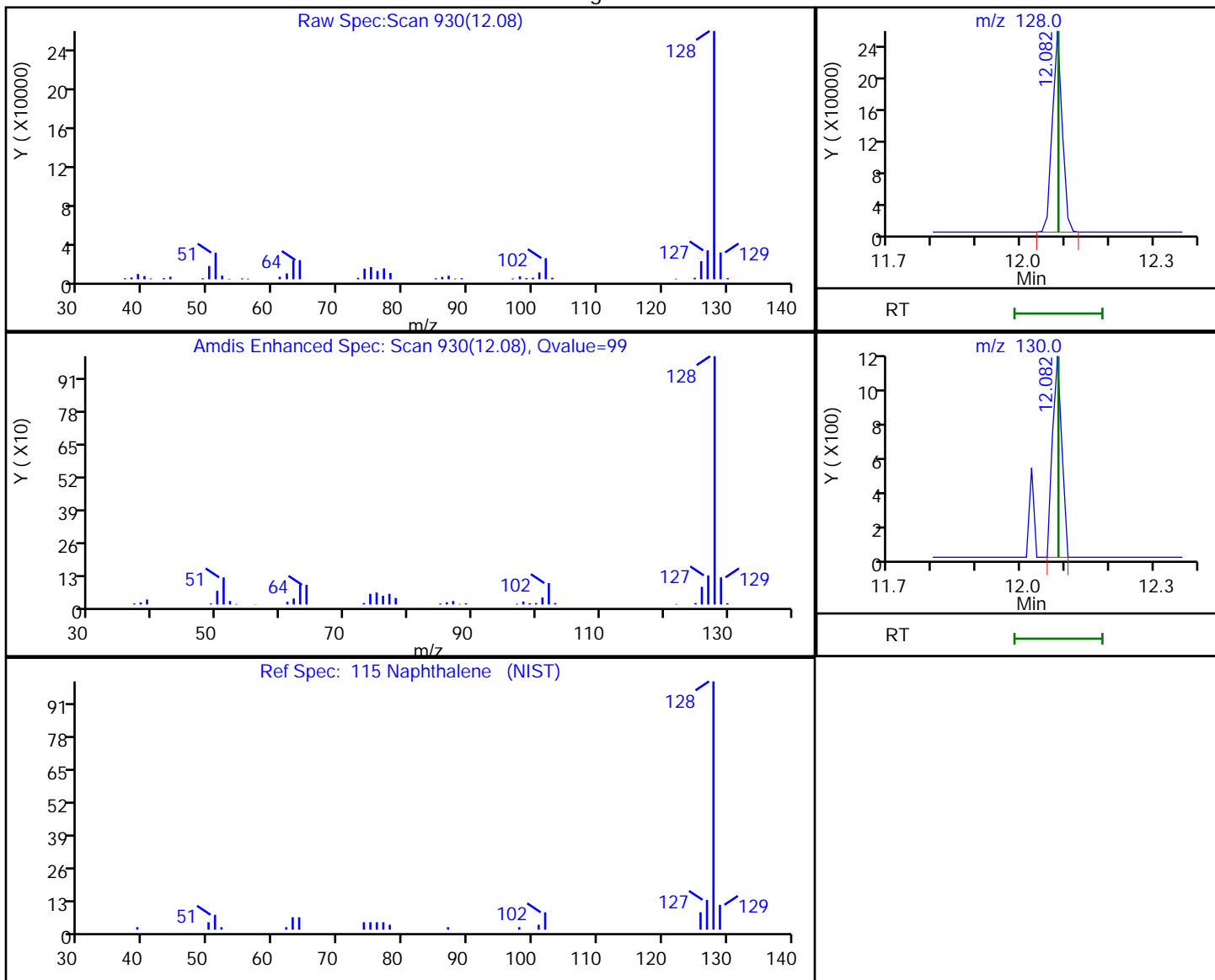
Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

115 Naphthalene, CAS: 91-20-3

Processing Results



RT	Mass	Response	Amount
12.08	128.00	391053	16.421916
12.08	130.00	1711	

Reviewer: williamsla, 20-Jan-2020 15:37:44

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5176.D
 Lims ID: STD8260 L5
 Client ID:
 Sample Type: ICIS Calib Level: 5
 Inject. Date: 15-Jan-2020 16:00:30 ALS Bottle#: 3 Worklist Smp#: 4
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0094937-004
 Operator ID: 001644 Instrument ID: A3UX10
 Sublist: chrom-8260_10*sub82
 Method: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 20-Jan-2020 16:51:21 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0309

First Level Reviewer: williamsla

Date: 20-Jan-2020 15:46:15

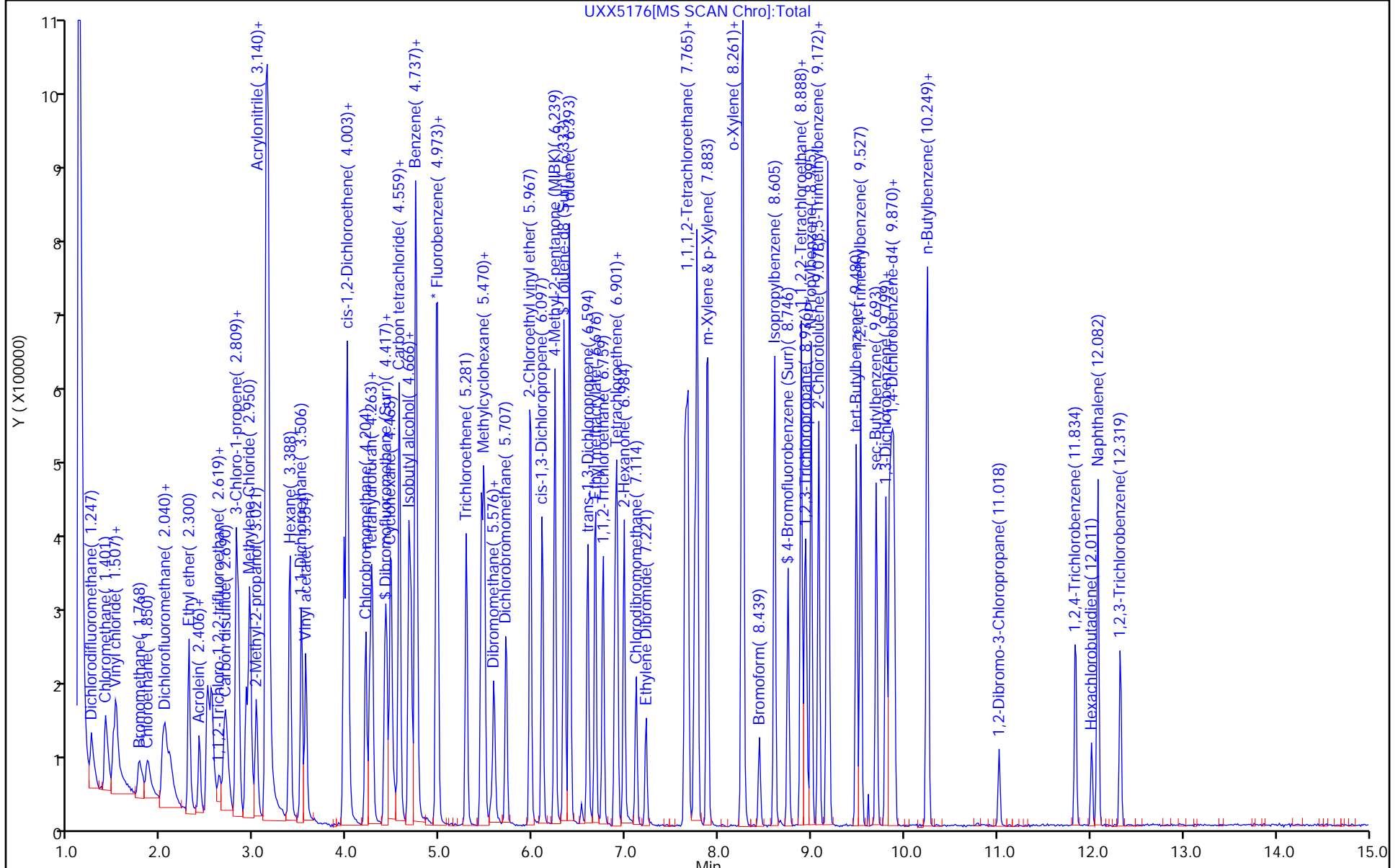
Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.973	4.973	0.000	96	402471	10.0	10.0	
* 2 Chlorobenzene-d5	117	7.646	7.646	0.000	89	261526	10.0	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.870	9.870	0.000	96	107871	10.0	10.0	
\$ 4 Dibromofluoromethane (Surr	113	4.405	4.405	0.000	92	95327	10.0	10.1	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	4.689	4.689	0.000	97	136206	10.0	9.86	
\$ 6 Toluene-d8 (Surr)	98	6.333	6.333	0.000	95	388305	10.0	9.66	
\$ 7 4-Bromofluorobenzene (Surr	95	8.746	8.746	0.000	78	126701	10.0	10.0	
9 Dichlorodifluoromethane	85	1.247	1.247	0.000	99	89573	10.0	10.3	
10 Chloromethane	50	1.401	1.401	0.000	99	182157	10.0	10.2	
11 Vinyl chloride	62	1.484	1.484	0.000	98	129471	10.0	9.86	
12 Butadiene	54	1.519	1.519	0.000	95	76586	10.0	10.3	
13 Bromomethane	94	1.768	1.768	0.000	91	59557	10.0	9.52	
14 Chloroethane	64	1.850	1.850	0.000	98	74548	10.0	10.6	
15 Dichlorofluoromethane	67	2.028	2.028	0.000	99	164760	10.0	9.27	
16 Trichlorofluoromethane	101	2.052	2.052	0.000	99	94875	10.0	10.0	
17 Ethyl ether	59	2.300	2.300	0.000	98	129451	10.0	10.4	
18 Acrolein	56	2.406	2.406	0.000	99	119223	50.0	50.3	
19 1,1-Dichloroethene	96	2.501	2.501	0.000	94	100715	10.0	10.6	
20 1,1,2-Trichloro-1,2,2-trif	151	2.525	2.525	0.000	93	45925	10.0	10.5	
21 Acetone	43	2.548	2.548	0.000	100	115530	20.0	21.8	
22 Iodomethane	142	2.631	2.631	0.000	96	114147	10.0	10.3	
24 Carbon disulfide	76	2.690	2.690	0.000	100	350621	10.0	10.5	
26 3-Chloro-1-propene	76	2.809	2.809	0.000	91	84698	10.0	9.85	
27 Methyl acetate	43	2.832	2.832	0.000	99	299742	20.0	21.1	
28 Methylene Chloride	84	2.915	2.915	0.000	97	119814	10.0	10.2	
29 2-Methyl-2-propanol	59	3.021	3.021	0.000	98	183739	100.0	110.6	
31 Acrylonitrile	53	3.128	3.128	0.000	99	727779	100.0	105.0	
30 trans-1,2-Dichloroethene	96	3.152	3.152	0.000	91	113370	10.0	10.3	
32 Methyl tert-butyl ether	73	3.152	3.152	0.000	98	344262	10.0	10.7	
33 Hexane	86	3.388	3.388	0.000	92	22347	10.0	10.5	
34 1,1-Dichloroethane	63	3.506	3.506	0.000	96	271075	10.0	10.4	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
35 Vinyl acetate	43	3.554	3.554	0.000	97	309795	10.0	9.91	
39 2,2-Dichloropropane	97	4.003	4.003	0.000	50	25966	10.0	10.5	
40 cis-1,2-Dichloroethene	96	4.003	4.003	0.000	87	131741	10.0	10.8	
41 2-Butanone (MEK)	43	4.015	4.015	0.000	99	187669	20.0	21.3	
45 Chlorobromomethane	128	4.204	4.204	0.000	87	53066	10.0	10.6	
46 Tetrahydrofuran	42	4.240	4.240	0.000	93	127746	20.0	20.7	
47 Chloroform	83	4.275	4.275	0.000	98	200134	10.0	10.5	
48 1,1,1-Trichloroethane	97	4.429	4.429	0.000	96	125222	10.0	10.4	
49 Cyclohexane	56	4.465	4.465	0.000	91	240944	10.0	10.6	
50 1,1-Dichloropropene	75	4.559	4.559	0.000	90	157561	10.0	10.6	
51 Carbon tetrachloride	117	4.559	4.559	0.000	73	101403	10.0	10.5	
52 Isobutyl alcohol	41	4.666	4.666	0.000	95	152214	250.0	270.2	
53 Benzene	78	4.737	4.737	0.000	98	521274	10.0	10.5	
54 1,2-Dichloroethane	62	4.748	4.748	0.000	96	190893	10.0	10.4	
56 n-Heptane	100	4.961	4.961	0.000	96	19537	10.0	11.6	
58 Trichloroethene	130	5.281	5.281	0.000	95	109296	10.0	10.6	
60 Methylcyclohexane	83	5.446	5.446	0.000	97	141004	10.0	10.7	
61 1,2-Dichloropropane	63	5.470	5.470	0.000	97	164272	10.0	10.5	
63 Dibromomethane	93	5.576	5.576	0.000	90	66754	10.0	10.5	
64 1,4-Dioxane	88	5.588	5.588	0.000	98	27049	200.0	213.4	
65 Dichlorobromomethane	83	5.707	5.707	0.000	97	147444	10.0	10.4	
67 2-Chloroethyl vinyl ether	63	5.967	5.967	0.000	91	241641	20.0	21.4	
68 cis-1,3-Dichloropropene	75	6.097	6.097	0.000	91	205433	10.0	10.5	
69 4-Methyl-2-pentanone (MIBK)	43	6.239	6.239	0.000	97	386894	20.0	21.3	
70 Toluene	91	6.393	6.393	0.000	97	504086	10.0	10.5	
71 trans-1,3-Dichloropropene	75	6.594	6.594	0.000	97	183024	10.0	10.9	
72 Ethyl methacrylate	69	6.676	6.676	0.000	94	194915	10.0	10.6	
73 1,1,2-Trichloroethane	97	6.759	6.759	0.000	93	107654	10.0	10.6	
74 Tetrachloroethene	164	6.889	6.889	0.000	91	57524	10.0	10.3	
75 1,3-Dichloropropane	76	6.901	6.901	0.000	98	197340	10.0	10.7	
76 2-Hexanone	43	6.984	6.984	0.000	96	259574	20.0	21.7	
78 Chlorodibromomethane	129	7.114	7.114	0.000	91	94601	10.0	10.8	
80 Ethylene Dibromide	107	7.221	7.221	0.000	97	99558	10.0	11.0	
82 Chlorobenzene	112	7.670	7.670	0.000	91	275411	10.0	10.8	
83 1,1,1,2-Tetrachloroethane	131	7.741	7.741	0.000	96	87822	10.0	11.0	
84 Ethylbenzene	106	7.765	7.765	0.000	99	152603	10.0	10.7	
85 m-Xylene & p-Xylene	106	7.883	7.883	0.000	99	183493	10.0	10.8	
86 o-Xylene	106	8.250	8.250	0.000	96	168052	10.0	10.6	
87 Styrene	104	8.261	8.261	0.000	94	299470	10.0	10.6	
88 Bromoform	173	8.439	8.439	0.000	93	52762	10.0	11.4	
89 Isopropylbenzene	105	8.605	8.605	0.000	96	394049	10.0	10.7	
93 Bromobenzene	156	8.888	8.888	0.000	94	83151	10.0	9.96	
92 1,1,2,2-Tetrachloroethane	83	8.888	8.888	0.000	78	133615	10.0	10.2	
94 1,2,3-Trichloropropane	110	8.924	8.924	0.000	85	37501	10.0	10.8	
95 trans-1,4-Dichloro-2-buten	53	8.948	8.948	0.000	88	53115	10.0	9.07	
96 N-Propylbenzene	120	8.995	8.995	0.000	100	98281	10.0	10.2	
97 2-Chlorotoluene	126	9.078	9.078	0.000	95	87963	10.0	10.1	
98 1,3,5-Trimethylbenzene	105	9.172	9.172	0.000	94	295183	10.0	10.5	
99 4-Chlorotoluene	126	9.184	9.184	0.000	98	94251	10.0	10.3	
100 tert-Butylbenzene	119	9.480	9.480	0.000	95	217722	10.0	10.4	
102 1,2,4-Trimethylbenzene	105	9.527	9.527	0.000	96	313247	10.0	10.4	
103 sec-Butylbenzene	105	9.693	9.693	0.000	94	304021	10.0	10.4	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
104 1,3-Dichlorobenzene	146	9.799	9.799	0.000	94	151080	10.0	10.0	
105 4-Isopropyltoluene	119	9.835	9.835	0.000	97	246570	10.0	10.5	
106 1,4-Dichlorobenzene	146	9.882	9.882	0.000	94	157477	10.0	10.3	
109 n-Butylbenzene	91	10.237	10.237	0.000	99	231231	10.0	10.5	
110 1,2-Dichlorobenzene	146	10.249	10.249	0.000	92	157537	10.0	10.5	
111 1,2-Dibromo-3-Chloropropan	157	11.018	11.018	0.000	74	23044	10.0	10.7	
113 1,2,4-Trichlorobenzene	180	11.846	11.846	0.000	92	70921	10.0	10.7	
114 Hexachlorobutadiene	225	12.011	12.011	0.000	87	16555	10.0	10.2	
115 Naphthalene	128	12.082	12.082	0.000	99	326917	10.0	9.38	
116 1,2,3-Trichlorobenzene	180	12.319	12.319	0.000	92	64230	10.0	9.70	
S 130 Xylenes, Total	106				0		20.0	21.5	
S 156 Total BTEX	1				0		50.0	53.2	
S 131 Trihalomethanes, Total	1				0		40.0	43.0	

Reagents:

VMRPRIMW_00369	Amount Added: 8.00	Units: uL
VMFASAW_00312	Amount Added: 8.00	Units: uL
VM50IS_00080	Amount Added: 1.00	Units: uL
VMRGAS_00323	Amount Added: 8.00	Units: uL
vm50ss_00387	Amount Added: 8.00	Units: uL



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5177.D
 Lims ID: STD8260 L4
 Client ID:
 Sample Type: IC Calib Level: 4
 Inject. Date: 15-Jan-2020 16:25:30 ALS Bottle#: 4 Worklist Smp#: 5
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0094937-005
 Operator ID: 001644 Instrument ID: A3UX10
 Sublist: chrom-8260_10*sub82
 Method: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 20-Jan-2020 16:51:30 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0309

First Level Reviewer: williamsla

Date: 20-Jan-2020 13:35:30

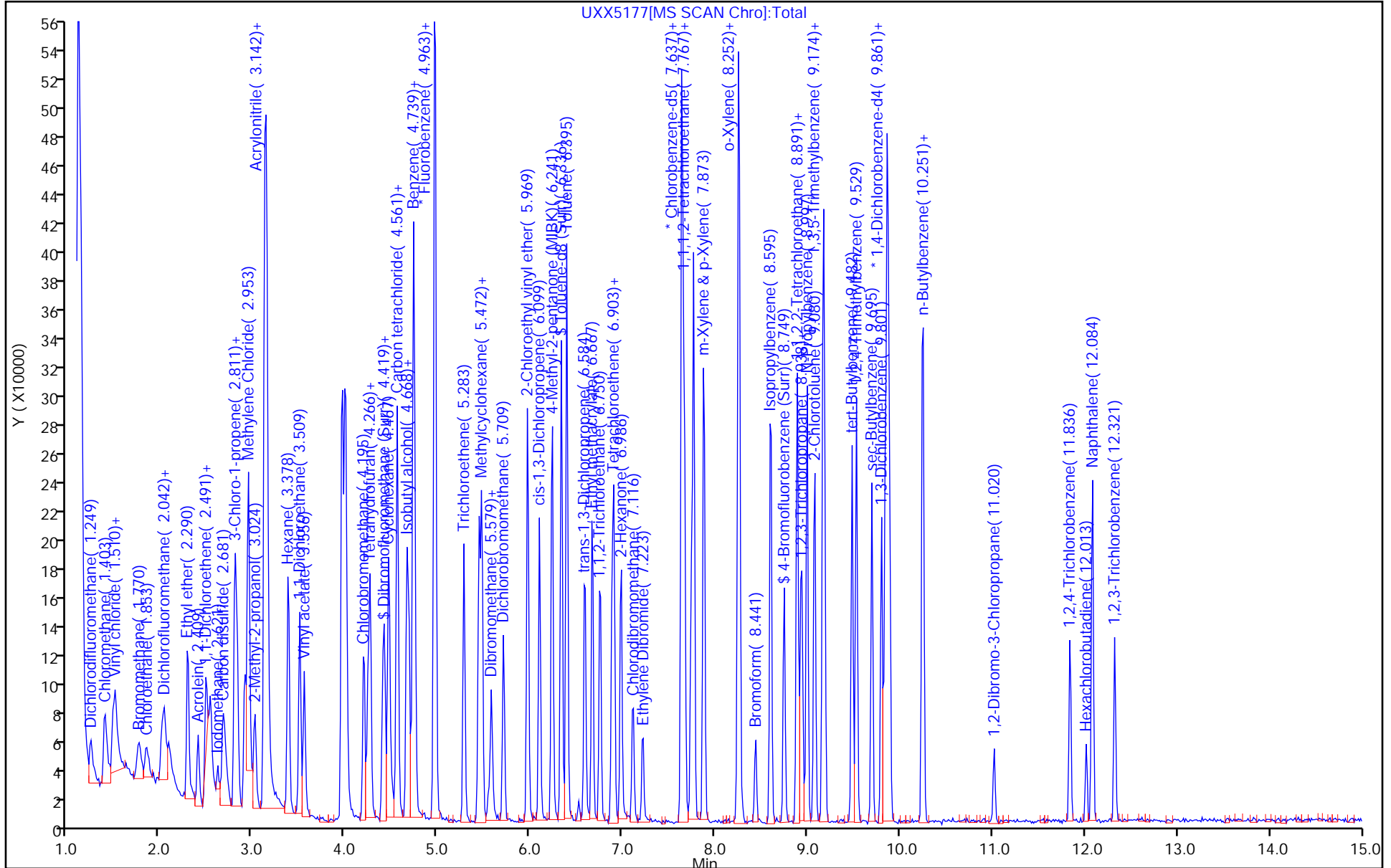
Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.975	4.975	0.000	98	395375	10.0	10.0	
* 2 Chlorobenzene-d5	117	7.637	7.637	0.000	91	263159	10.0	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.861	9.861	0.000	97	105917	10.0	10.0	
\$ 4 Dibromofluoromethane (Surr	113	4.408	4.408	0.000	92	44962	5.00	4.87	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	4.691	4.691	0.000	96	68712	5.00	5.06	
\$ 6 Toluene-d8 (Surr)	98	6.336	6.336	0.000	94	194389	5.00	4.80	
\$ 7 4-Bromofluorobenzene (Surr	95	8.749	8.749	0.000	79	62957	5.00	4.94	
9 Dichlorodifluoromethane	85	1.249	1.249	0.000	98	41891	5.00	4.89	
10 Chloromethane	50	1.391	1.391	0.000	98	85933	5.00	4.91	
11 Vinyl chloride	62	1.486	1.486	0.000	98	66500	5.00	5.15	
12 Butadiene	54	1.510	1.510	0.000	92	44552	5.00	5.90	
13 Bromomethane	94	1.758	1.758	0.000	88	32401	5.00	5.27	
14 Chloroethane	64	1.841	1.841	0.000	98	36120	5.00	5.22	
15 Dichlorofluoromethane	67	2.018	2.018	0.000	98	88338	5.00	5.06	
16 Trichlorofluoromethane	101	2.042	2.042	0.000	95	48652	5.00	5.24	
17 Ethyl ether	59	2.290	2.290	0.000	98	64767	5.00	5.32	
18 Acrolein	56	2.409	2.409	0.000	99	64403	25.0	27.6	
19 1,1-Dichloroethene	96	2.491	2.491	0.000	93	48165	5.00	5.17	
20 1,1,2-Trichloro-1,2,2-trif	151	2.515	2.515	0.000	41	20968	5.00	5.34	
21 Acetone	43	2.539	2.539	0.000	100	57675	10.0	10.1	
22 Iodomethane	142	2.621	2.621	0.000	96	56486	5.00	5.18	
24 Carbon disulfide	76	2.681	2.681	0.000	99	170025	5.00	5.21	
26 3-Chloro-1-propene	76	2.811	2.811	0.000	91	44624	5.00	5.28	
27 Methyl acetate	43	2.834	2.834	0.000	99	153053	10.0	11.0	
28 Methylene Chloride	84	2.917	2.917	0.000	96	60151	5.00	5.23	
29 2-Methyl-2-propanol	59	3.024	3.024	0.000	98	83819	50.0	51.3	
31 Acrylonitrile	53	3.130	3.130	0.000	100	358288	50.0	52.6	
30 trans-1,2-Dichloroethene	96	3.154	3.154	0.000	88	57846	5.00	5.36	
32 Methyl tert-butyl ether	73	3.154	3.154	0.000	97	156813	5.00	4.97	
33 Hexane	86	3.378	3.378	0.000	91	10877	5.00	5.22	
34 1,1-Dichloroethane	63	3.509	3.509	0.000	96	133331	5.00	5.23	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
35 Vinyl acetate	43	3.556	3.556	0.000	97	139049	5.00	4.85	
39 2,2-Dichloropropane	97	4.005	4.005	0.000	50	12641	5.00	5.22	
40 cis-1,2-Dichloroethene	96	4.005	4.005	0.000	88	62462	5.00	5.19	
41 2-Butanone (MEK)	43	4.017	4.017	0.000	99	85736	10.0	9.92	
45 Chlorobromomethane	128	4.206	4.206	0.000	86	25448	5.00	5.19	
46 Tetrahydrofuran	42	4.242	4.242	0.000	93	63550	10.0	10.5	
47 Chloroform	83	4.266	4.266	0.000	98	95814	5.00	5.13	
48 1,1,1-Trichloroethane	97	4.419	4.419	0.000	95	60526	5.00	5.11	
49 Cyclohexane	56	4.467	4.467	0.000	92	116343	5.00	5.19	
51 Carbon tetrachloride	117	4.561	4.561	0.000	75	51250	5.00	5.42	
50 1,1-Dichloropropene	75	4.561	4.561	0.000	88	74907	5.00	5.11	
52 Isobutyl alcohol	41	4.668	4.668	0.000	94	73630	125.0	127.5	
53 Benzene	78	4.739	4.739	0.000	98	260636	5.00	5.33	
54 1,2-Dichloroethane	62	4.751	4.751	0.000	95	94942	5.00	5.28	
56 n-Heptane	100	4.963	4.963	0.000	96	8836	5.00	5.35	
58 Trichloroethene	130	5.283	5.283	0.000	95	53807	5.00	5.30	
60 Methylcyclohexane	83	5.448	5.448	0.000	96	65075	5.00	5.03	
61 1,2-Dichloropropane	63	5.472	5.472	0.000	96	79871	5.00	5.19	
63 Dibromomethane	93	5.579	5.579	0.000	89	31602	5.00	5.05	
64 1,4-Dioxane	88	5.590	5.590	0.000	89	8358	100.0	86.6	
65 Dichlorobromomethane	83	5.709	5.709	0.000	97	72710	5.00	5.20	
67 2-Chloroethyl vinyl ether	63	5.969	5.969	0.000	91	119394	10.0	10.8	
68 cis-1,3-Dichloropropene	75	6.099	6.099	0.000	92	102349	5.00	5.35	
69 4-Methyl-2-pentanone (MIBK)	43	6.241	6.241	0.000	97	190519	10.0	10.7	
70 Toluene	91	6.395	6.395	0.000	98	248868	5.00	5.16	
71 trans-1,3-Dichloropropene	75	6.596	6.596	0.000	97	87136	5.00	5.15	
72 Ethyl methacrylate	69	6.667	6.667	0.000	93	101519	5.00	5.46	
73 1,1,2-Trichloroethane	97	6.761	6.761	0.000	91	54109	5.00	5.30	
74 Tetrachloroethene	164	6.892	6.892	0.000	93	28561	5.00	5.10	
75 1,3-Dichloropropane	76	6.903	6.903	0.000	97	95599	5.00	5.14	
76 2-Hexanone	43	6.986	6.986	0.000	97	127375	10.0	10.6	
78 Chlorodibromomethane	129	7.116	7.116	0.000	89	45488	5.00	5.15	
80 Ethylene Dibromide	107	7.223	7.223	0.000	96	47261	5.00	5.20	
82 Chlorobenzene	112	7.672	7.672	0.000	91	131794	5.00	5.12	
83 1,1,1,2-Tetrachloroethane	131	7.743	7.743	0.000	96	41967	5.00	5.22	
84 Ethylbenzene	106	7.767	7.767	0.000	99	74081	5.00	5.17	
85 m-Xylene & p-Xylene	106	7.873	7.873	0.000	98	86448	5.00	5.08	
86 o-Xylene	106	8.252	8.252	0.000	98	85719	5.00	5.38	
87 Styrene	104	8.264	8.264	0.000	94	145465	5.00	5.10	
88 Bromoform	173	8.441	8.441	0.000	92	26105	5.00	5.58	
89 Isopropylbenzene	105	8.607	8.607	0.000	96	192618	5.00	5.21	
92 1,1,2,2-Tetrachloroethane	83	8.891	8.891	0.000	79	67486	5.00	5.27	
93 Bromobenzene	156	8.891	8.891	0.000	94	40920	5.00	4.99	
94 1,2,3-Trichloropropane	110	8.926	8.926	0.000	86	19146	5.00	5.60	
95 trans-1,4-Dichloro-2-buten	53	8.938	8.938	0.000	87	25489	5.00	4.74	
96 N-Propylbenzene	120	8.997	8.997	0.000	100	47514	5.00	5.03	
97 2-Chlorotoluene	126	9.080	9.080	0.000	95	44478	5.00	5.22	
98 1,3,5-Trimethylbenzene	105	9.163	9.163	0.000	93	150264	5.00	5.44	
99 4-Chlorotoluene	126	9.186	9.186	0.000	98	47687	5.00	5.28	
100 tert-Butylbenzene	119	9.482	9.482	0.000	94	109170	5.00	5.30	
102 1,2,4-Trimethylbenzene	105	9.529	9.529	0.000	97	155708	5.00	5.26	
103 sec-Butylbenzene	105	9.695	9.695	0.000	95	155977	5.00	5.42	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
104 1,3-Dichlorobenzene	146	9.801	9.801	0.000	96	78243	5.00	5.28	
105 4-Isopropyltoluene	119	9.837	9.837	0.000	96	121479	5.00	5.29	
106 1,4-Dichlorobenzene	146	9.884	9.884	0.000	93	79180	5.00	5.26	
109 n-Butylbenzene	91	10.239	10.239	0.000	99	117002	5.00	5.41	
110 1,2-Dichlorobenzene	146	10.251	10.251	0.000	92	78394	5.00	5.31	
111 1,2-Dibromo-3-Chloropropan	157	11.020	11.020	0.000	74	12607	5.00	5.50	
113 1,2,4-Trichlorobenzene	180	11.836	11.836	0.000	93	36240	5.00	5.55	
114 Hexachlorobutadiene	225	12.013	12.013	0.000	88	8782	5.00	5.49	
115 Naphthalene	128	12.084	12.084	0.000	99	181044	5.00	5.29	
116 1,2,3-Trichlorobenzene	180	12.321	12.321	0.000	94	34569	5.00	5.32	
S 128 1,2-Dichloroethene, Total	96				0			10.5	
S 129 1,3-Dichloropropene, Total	75				0			10.5	
S 130 Xylenes, Total	106				0		10.0	10.5	
S 156 Total BTEX	1				0		25.0	26.1	
S 131 Trihalomethanes, Total	1				0		20.0	21.1	

Reagents:

VMRPRIMW_00369	Amount Added: 4.00	Units: uL
VMFASAW_00312	Amount Added: 4.00	Units: uL
VM50IS_00080	Amount Added: 1.00	Units: uL
VMRGAS_00323	Amount Added: 4.00	Units: uL
vm50ss_00387	Amount Added: 4.00	Units: uL



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5178.D
 Lims ID: STD8260 L3
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 15-Jan-2020 16:50:30 ALS Bottle#: 5 Worklist Smp#: 6
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0094937-006
 Operator ID: 001644 Instrument ID: A3UX10
 Sublist: chrom-8260_10*sub82
 Method: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 20-Jan-2020 16:51:39 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0309

First Level Reviewer: williamsla

Date: 20-Jan-2020 15:36:18

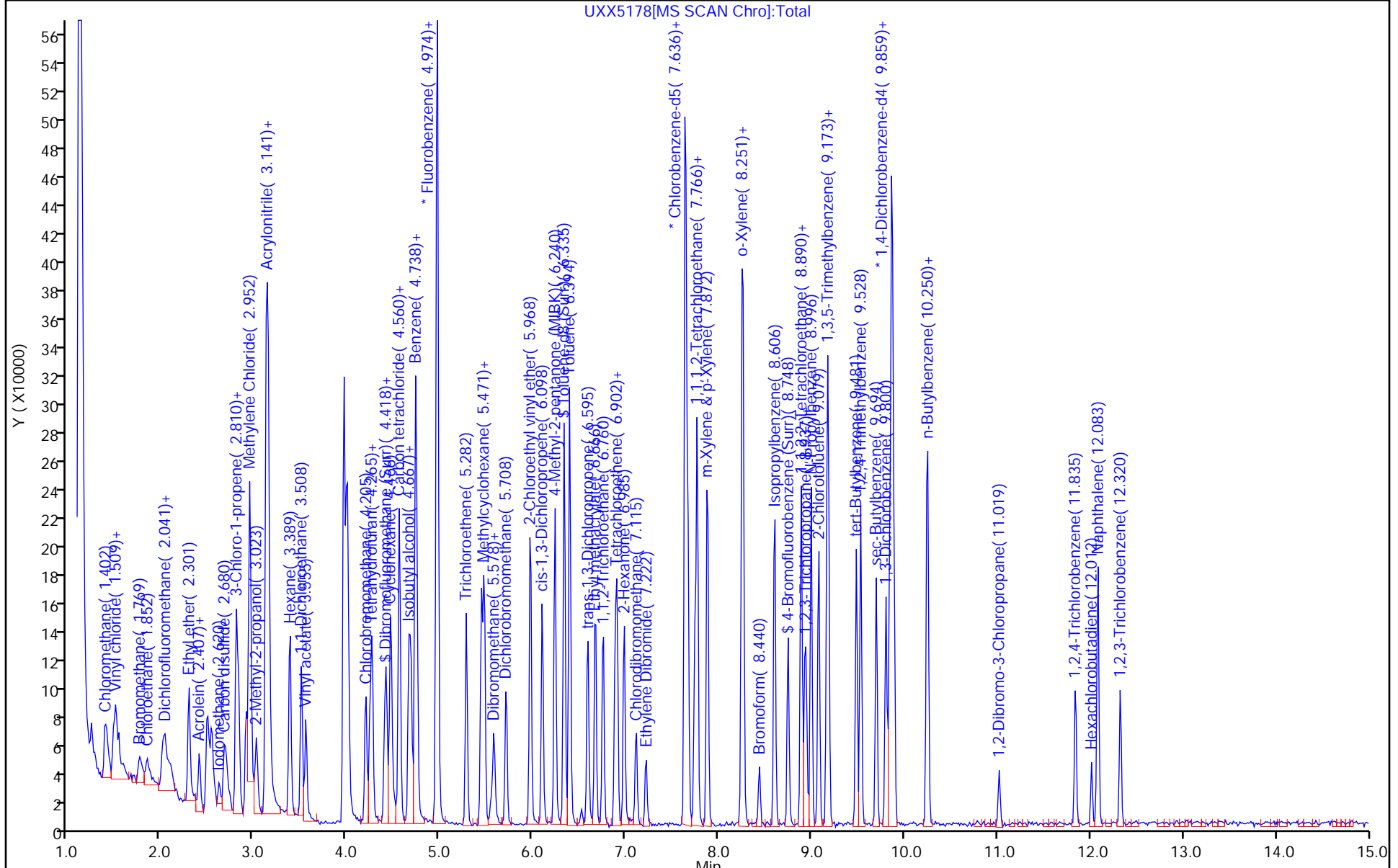
Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.974	4.975	-0.001	97	393679	10.0	10.0	
* 2 Chlorobenzene-d5	117	7.636	7.637	-0.001	90	263400	10.0	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.859	9.861	-0.001	97	103243	10.0	10.0	
\$ 4 Dibromofluoromethane (Surr	113	4.406	4.408	-0.002	92	37185	4.00	4.04	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	4.690	4.691	-0.001	95	55814	4.00	4.13	
\$ 6 Toluene-d8 (Surr)	98	6.335	6.336	-0.001	95	160706	4.00	3.97	
\$ 7 4-Bromofluorobenzene (Surr	95	8.748	8.749	-0.001	79	51023	4.00	4.00	
9 Dichlorodifluoromethane	85	1.248	1.249	-0.001	98	33680	4.00	3.95	
10 Chloromethane	50	1.402	1.391	0.011	99	68617	4.00	3.94	
11 Vinyl chloride	62	1.485	1.486	-0.001	97	51236	4.00	3.99	
12 Butadiene	54	1.520	1.510	0.010	92	28448	4.00	3.63	
13 Bromomethane	94	1.769	1.758	0.011	92	24430	4.00	3.99	
14 Chloroethane	64	1.852	1.841	0.011	97	26016	4.00	3.78	
15 Dichlorofluoromethane	67	2.017	2.018	-0.001	98	67854	4.00	3.91	
16 Trichlorofluoromethane	101	2.053	2.042	0.011	97	37050	4.00	4.01	
17 Ethyl ether	59	2.301	2.290	0.011	99	47544	4.00	3.92	
18 Acrolein	56	2.407	2.409	-0.002	98	48809	20.0	21.0	
19 1,1-Dichloroethene	96	2.490	2.491	-0.001	94	38047	4.00	4.10	
20 1,1,2-Trichloro-1,2,2-trif	151	2.514	2.515	-0.001	45	14837	4.00	4.05	
21 Acetone	43	2.549	2.539	0.010	99	49433	8.00	8.41	
22 Iodomethane	142	2.632	2.621	0.011	97	42781	4.00	3.94	
24 Carbon disulfide	76	2.680	2.681	-0.001	99	131388	4.00	4.04	
26 3-Chloro-1-propene	76	2.810	2.811	-0.001	91	35023	4.00	4.16	
27 Methyl acetate	43	2.833	2.834	-0.001	99	113148	8.00	8.13	
28 Methylene Chloride	84	2.916	2.917	-0.001	97	43982	4.00	3.84	
29 2-Methyl-2-propanol	59	3.023	3.024	-0.001	98	62130	40.0	38.2	
31 Acrylonitrile	53	3.129	3.130	-0.001	99	267966	40.0	39.5	
30 trans-1,2-Dichloroethene	96	3.153	3.154	-0.001	88	41658	4.00	3.87	
32 Methyl tert-butyl ether	73	3.153	3.154	-0.001	97	125702	4.00	4.00	
33 Hexane	86	3.389	3.378	0.011	92	8352	4.00	4.03	
34 1,1-Dichloroethane	63	3.508	3.509	-0.001	95	102290	4.00	4.03	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
35 Vinyl acetate	43	3.555	3.556	-0.001	96	100952	4.00	3.70	
39 2,2-Dichloropropane	97	4.004	4.005	-0.001	61	10781	4.00	4.47	
40 cis-1,2-Dichloroethene	96	4.004	4.005	-0.001	89	44803	4.00	3.74	
41 2-Butanone (MEK)	43	4.016	4.017	-0.001	98	68978	8.00	8.01	
45 Chlorobromomethane	128	4.205	4.206	-0.001	86	18971	4.00	3.89	
46 Tetrahydrofuran	42	4.241	4.242	-0.001	95	45424	8.00	7.53	
47 Chloroform	83	4.265	4.266	-0.001	97	75432	4.00	4.05	
48 1,1,1-Trichloroethane	97	4.430	4.419	0.011	95	48446	4.00	4.11	
49 Cyclohexane	56	4.466	4.467	-0.001	91	92889	4.00	4.16	
50 1,1-Dichloropropene	75	4.560	4.561	-0.001	90	58913	4.00	4.04	
51 Carbon tetrachloride	117	4.560	4.561	-0.001	73	39488	4.00	4.20	
52 Isobutyl alcohol	41	4.667	4.668	-0.001	96	51890	100.0	88.4	
53 Benzene	78	4.738	4.739	-0.001	97	197778	4.00	4.06	
54 1,2-Dichloroethane	62	4.750	4.751	-0.001	95	69151	4.00	3.86	
56 n-Heptane	100	4.962	4.963	-0.001	96	6183	4.00	3.76	
58 Trichloroethene	130	5.282	5.283	-0.001	93	39540	4.00	3.91	
60 Methylcyclohexane	83	5.447	5.448	-0.001	96	53694	4.00	4.16	
61 1,2-Dichloropropane	63	5.471	5.472	-0.001	96	61647	4.00	4.03	
63 Dibromomethane	93	5.578	5.579	-0.001	83	25254	4.00	4.05	
64 1,4-Dioxane	88	5.601	5.590	0.011	81	5481	80.0	68.4	
65 Dichlorobromomethane	83	5.708	5.709	-0.001	98	56640	4.00	4.07	
67 2-Chloroethyl vinyl ether	63	5.968	5.969	-0.001	92	89098	8.00	8.06	
68 cis-1,3-Dichloropropene	75	6.098	6.099	-0.001	91	76037	4.00	3.99	
69 4-Methyl-2-pentanone (MIBK)	43	6.240	6.241	-0.001	97	149794	8.00	8.41	
70 Toluene	91	6.394	6.395	-0.001	96	190560	4.00	3.95	
71 trans-1,3-Dichloropropene	75	6.595	6.596	-0.001	98	68179	4.00	4.02	
72 Ethyl methacrylate	69	6.678	6.667	0.011	95	72802	4.00	3.91	
73 1,1,2-Trichloroethane	97	6.760	6.761	-0.001	93	39718	4.00	3.89	
74 Tetrachloroethene	164	6.890	6.892	-0.002	92	22751	4.00	4.06	
75 1,3-Dichloropropane	76	6.902	6.903	-0.001	97	74760	4.00	4.02	
76 2-Hexanone	43	6.985	6.986	-0.001	97	97100	8.00	8.08	
78 Chlorodibromomethane	129	7.115	7.116	-0.001	89	34500	4.00	3.90	
80 Ethylene Dibromide	107	7.222	7.223	-0.001	99	35096	4.00	3.86	
82 Chlorobenzene	112	7.671	7.672	-0.001	90	100955	4.00	3.92	
83 1,1,1,2-Tetrachloroethane	131	7.742	7.743	-0.001	96	32187	4.00	4.00	
84 Ethylbenzene	106	7.766	7.767	-0.001	99	55060	4.00	3.84	
85 m-Xylene & p-Xylene	106	7.872	7.873	-0.001	99	66882	4.00	3.93	
86 o-Xylene	106	8.251	8.252	-0.001	98	64763	4.00	4.06	
87 Styrene	104	8.263	8.264	-0.001	94	112067	4.00	3.93	
88 Bromoform	173	8.440	8.441	-0.001	90	17599	4.00	3.76	
89 Isopropylbenzene	105	8.606	8.607	-0.001	96	148004	4.00	4.00	
93 Bromobenzene	156	8.890	8.891	-0.001	95	30286	4.00	3.79	
92 1,1,2,2-Tetrachloroethane	83	8.890	8.891	-0.001	78	49998	4.00	4.01	
94 1,2,3-Trichloropropane	110	8.925	8.926	-0.001	86	13733	4.00	4.12	
95 trans-1,4-Dichloro-2-buten	53	8.949	8.938	0.011	90	18866	4.00	3.74	
96 N-Propylbenzene	120	8.996	8.997	-0.001	100	36476	4.00	3.96	
97 2-Chlorotoluene	126	9.079	9.080	-0.001	95	34073	4.00	4.10	
98 1,3,5-Trimethylbenzene	105	9.162	9.163	-0.001	94	106414	4.00	3.95	
99 4-Chlorotoluene	126	9.185	9.186	-0.001	99	36045	4.00	4.10	
100 tert-Butylbenzene	119	9.481	9.482	-0.001	95	84741	4.00	4.22	
102 1,2,4-Trimethylbenzene	105	9.528	9.529	-0.001	96	118715	4.00	4.11	
103 sec-Butylbenzene	105	9.694	9.695	-0.001	95	115720	4.00	4.12	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
104 1,3-Dichlorobenzene	146	9.800	9.801	-0.001	95	59183	4.00	4.10	
105 4-Isopropyltoluene	119	9.836	9.837	-0.001	97	95048	4.00	4.24	
106 1,4-Dichlorobenzene	146	9.883	9.884	-0.001	94	60314	4.00	4.11	
109 n-Butylbenzene	91	10.238	10.239	-0.001	98	87348	4.00	4.14	
110 1,2-Dichlorobenzene	146	10.250	10.251	-0.001	93	59299	4.00	4.12	
111 1,2-Dibromo-3-Chloropropan	157	11.019	11.020	-0.001	75	8781	4.00	3.84	
113 1,2,4-Trichlorobenzene	180	11.847	11.836	0.011	89	27711	4.00	4.35	
114 Hexachlorobutadiene	225	12.012	12.013	-0.001	83	6441	4.00	4.13	
115 Naphthalene	128	12.083	12.084	-0.001	99	135986	4.00	4.08	
116 1,2,3-Trichlorobenzene	180	12.320	12.321	-0.001	93	25501	4.00	4.02	
S 128 1,2-Dichloroethene, Total	96				0			7.61	
S 129 1,3-Dichloropropene, Total	75				0			8.01	
S 130 Xylenes, Total	106				0		8.00	7.98	
S 156 Total BTEX	1				0		20.0	19.8	
S 131 Trihalomethanes, Total	1				0		16.0	15.8	

Reagents:

VMRPRIMW_00369	Amount Added: 3.20	Units: uL
VMFASAW_00312	Amount Added: 3.20	Units: uL
VM50IS_00080	Amount Added: 1.00	Units: uL
VMRGAS_00323	Amount Added: 3.20	Units: uL
vm50ss_00387	Amount Added: 3.20	Units: uL



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5179.D
 Lims ID: STD8260 L2
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 15-Jan-2020 17:15:30 ALS Bottle#: 6 Worklist Smp#: 7
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0094937-007
 Operator ID: 001644 Instrument ID: A3UX10
 Sublist: chrom-8260_10*sub82
 Method: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 20-Jan-2020 16:51:46 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0309

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.976	4.975	0.001	98	387711	10.0	10.0	
* 2 Chlorobenzene-d5	117	7.637	7.637	0.000	91	254745	10.0	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.861	9.861	0.001	97	103175	10.0	10.0	
\$ 4 Dibromofluoromethane (Surr	113	4.408	4.408	0.000	89	18094	2.00	2.00	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	4.692	4.691	0.001	94	26957	2.00	2.03	
\$ 6 Toluene-d8 (Surr)	98	6.336	6.336	0.000	96	78667	2.00	2.01	
\$ 7 4-Bromofluorobenzene (Surr	95	8.749	8.749	0.000	78	25288	2.00	2.05	
9 Dichlorodifluoromethane	85	1.250	1.249	0.001	98	16579	2.00	1.97	
10 Chloromethane	50	1.392	1.391	0.001	99	33571	2.00	1.96	
11 Vinyl chloride	62	1.487	1.486	0.001	97	25364	2.00	2.00	
12 Butadiene	54	1.510	1.510	0.000	91	14274	2.00	1.64	
13 Bromomethane	94	1.770	1.758	0.012	87	13424	2.00	2.23	
14 Chloroethane	64	1.853	1.841	0.012	98	12664	2.00	1.87	
15 Dichlorofluoromethane	67	2.019	2.018	0.001	96	35107	2.00	2.05	
16 Trichlorofluoromethane	101	2.043	2.042	0.001	92	16539	2.00	1.82	
17 Ethyl ether	59	2.303	2.290	0.013	92	25076	2.00	2.10	
18 Acrolein	56	2.409	2.409	0.000	94	25566	10.0	11.2	
19 1,1-Dichloroethene	96	2.492	2.491	0.001	94	18341	2.00	2.01	
20 1,1,2-Trichloro-1,2,2-trif	151	2.516	2.515	0.001	42	3454	2.00	1.61	
21 Acetone	43	2.539	2.539	0.000	99	29985	4.00	4.39	
22 Iodomethane	142	2.622	2.621	0.001	95	21134	2.00	1.98	
24 Carbon disulfide	76	2.693	2.681	0.012	100	63899	2.00	2.00	
26 3-Chloro-1-propene	76	2.811	2.811	0.000	91	15710	2.00	1.90	
27 Methyl acetate	43	2.835	2.834	0.001	99	53355	4.00	3.89	
28 Methylene Chloride	84	2.918	2.917	0.001	98	23178	2.00	2.06	
29 2-Methyl-2-propanol	59	3.024	3.024	0.000	99	32261	20.0	20.1	
31 Acrylonitrile	53	3.131	3.130	0.001	99	136584	20.0	20.5	
30 trans-1,2-Dichloroethene	96	3.143	3.154	-0.011	90	20309	2.00	1.92	
32 Methyl tert-butyl ether	73	3.154	3.154	0.000	97	60357	2.00	1.95	
33 Hexane	86	3.379	3.378	0.001	89	3912	2.00	1.91	
34 1,1-Dichloroethane	63	3.509	3.509	0.000	96	51406	2.00	2.05	
35 Vinyl acetate	43	3.557	3.556	0.001	96	42604	2.00	1.93	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
39 2,2-Dichloropropane	97	4.006	4.005	0.001	40	4499	2.00	1.89	
40 cis-1,2-Dichloroethene	96	4.006	4.005	0.001	87	23327	2.00	1.98	
41 2-Butanone (MEK)	43	4.018	4.017	0.001	99	38232	4.00	4.51	
45 Chlorobromomethane	128	4.207	4.206	0.001	87	9314	2.00	1.94	
46 Tetrahydrofuran	42	4.243	4.242	0.001	90	25452	4.00	4.29	
47 Chloroform	83	4.266	4.266	0.000	95	38353	2.00	2.09	
48 1,1,1-Trichloroethane	97	4.420	4.419	0.001	94	24363	2.00	2.10	
49 Cyclohexane	56	4.467	4.467	0.000	90	42667	2.00	1.94	
51 Carbon tetrachloride	117	4.562	4.561	0.001	68	17573	2.00	1.90	
50 1,1-Dichloropropene	75	4.562	4.561	0.001	90	29124	2.00	2.03	
52 Isobutyl alcohol	41	4.668	4.668	0.000	97	37582	50.0	65.1	
53 Benzene	78	4.739	4.739	0.000	97	93751	2.00	1.95	
54 1,2-Dichloroethane	62	4.751	4.751	0.000	97	34090	2.00	1.93	
56 n-Heptane	100	4.964	4.963	0.001	91	3016	2.00	1.86	
58 Trichloroethene	130	5.284	5.283	0.001	94	20817	2.00	2.09	
60 Methylcyclohexane	83	5.449	5.448	0.001	94	23572	2.00	1.86	
61 1,2-Dichloropropane	63	5.473	5.472	0.001	96	30035	2.00	1.99	
63 Dibromomethane	93	5.579	5.579	0.000	88	11876	2.00	1.94	
64 1,4-Dioxane	88	5.591	5.590	0.001	40	3204	40.0	54.4	
65 Dichlorobromomethane	83	5.709	5.709	0.000	97	28201	2.00	2.06	
67 2-Chloroethyl vinyl ether	63	5.970	5.969	0.001	90	44119	4.00	4.05	
68 cis-1,3-Dichloropropene	75	6.100	6.099	0.001	91	37132	2.00	1.98	
69 4-Methyl-2-pentanone (MIBK)	43	6.242	6.241	0.001	97	73911	4.00	4.22	
70 Toluene	91	6.395	6.395	0.000	96	95639	2.00	2.05	
71 trans-1,3-Dichloropropene	75	6.585	6.596	-0.011	97	30847	2.00	1.88	
72 Ethyl methacrylate	69	6.667	6.667	0.000	95	35561	2.00	1.98	
73 1,1,2-Trichloroethane	97	6.750	6.761	-0.011	92	19641	2.00	1.99	
74 Tetrachloroethene	164	6.880	6.892	-0.012	89	10579	2.00	1.95	
75 1,3-Dichloropropane	76	6.904	6.903	0.001	98	34250	2.00	1.90	
76 2-Hexanone	43	6.975	6.986	-0.011	95	49553	4.00	4.26	
78 Chlorodibromomethane	129	7.117	7.116	0.001	89	15988	2.00	1.87	
80 Ethylene Dibromide	107	7.212	7.223	-0.011	99	17038	2.00	1.94	
82 Chlorobenzene	112	7.673	7.672	0.001	91	50513	2.00	2.03	
83 1,1,1,2-Tetrachloroethane	131	7.744	7.743	0.001	94	16020	2.00	2.06	
84 Ethylbenzene	106	7.768	7.767	0.001	98	27299	2.00	1.97	
85 m-Xylene & p-Xylene	106	7.874	7.873	0.001	98	32596	2.00	1.98	
86 o-Xylene	106	8.253	8.252	0.000	97	32337	2.00	2.10	
87 Styrene	104	8.264	8.264	0.000	95	56348	2.00	2.04	
88 Bromoform	173	8.442	8.441	0.001	78	8554	2.00	1.89	
89 Isopropylbenzene	105	8.596	8.607	-0.011	96	74013	2.00	2.07	
92 1,1,2,2-Tetrachloroethane	83	8.891	8.891	0.000	78	25562	2.00	2.05	
93 Bromobenzene	156	8.891	8.891	0.000	94	15762	2.00	1.97	
94 1,2,3-Trichloropropane	110	8.927	8.926	0.001	86	7129	2.00	2.14	
95 trans-1,4-Dichloro-2-buten	53	8.939	8.938	0.001	71	8016	2.00	1.94	
96 N-Propylbenzene	120	8.998	8.997	0.001	99	18177	2.00	1.98	
97 2-Chlorotoluene	126	9.080	9.080	0.000	95	16698	2.00	2.01	
98 1,3,5-Trimethylbenzene	105	9.163	9.163	0.000	95	53769	2.00	2.00	
99 4-Chlorotoluene	126	9.187	9.186	0.001	99	16643	2.00	1.89	
100 tert-Butylbenzene	119	9.483	9.482	0.001	93	41045	2.00	2.04	
102 1,2,4-Trimethylbenzene	105	9.530	9.529	0.001	97	58546	2.00	2.03	
103 sec-Butylbenzene	105	9.696	9.695	0.001	94	57391	2.00	2.05	
104 1,3-Dichlorobenzene	146	9.802	9.801	0.001	94	28783	2.00	1.99	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
105 4-Isopropyltoluene	119	9.838	9.837	0.001	98	46502	2.00	2.08	
106 1,4-Dichlorobenzene	146	9.885	9.884	0.001	91	28924	2.00	1.97	
109 n-Butylbenzene	91	10.240	10.239	0.001	98	43467	2.00	2.06	
110 1,2-Dichlorobenzene	146	10.252	10.251	0.001	92	29223	2.00	2.03	
111 1,2-Dibromo-3-Chloropropan	157	11.020	11.020	0.000	72	4546	2.00	1.94	
113 1,2,4-Trichlorobenzene	180	11.837	11.836	0.001	92	13282	2.00	2.09	
114 Hexachlorobutadiene	225	12.014	12.013	0.001	87	3460	2.00	2.22	
115 Naphthalene	128	12.085	12.084	0.001	99	69402	2.00	2.08	
116 1,2,3-Trichlorobenzene	180	12.322	12.321	0.001	91	11763	2.00	1.86	
S 128 1,2-Dichloroethene, Total	96				0			3.90	
S 129 1,3-Dichloropropene, Total	75				0			3.86	
S 130 Xylenes, Total	106				0		4.00	4.07	
S 156 Total BTEX	1				0		10.0	10.0	
S 131 Trihalomethanes, Total	1				0		8.00	7.91	

Reagents:

VMRPRIMW_00369	Amount Added: 1.60	Units: uL
VMFASAW_00312	Amount Added: 1.60	Units: uL
VM50IS_00080	Amount Added: 1.00	Units: uL
VMRGAS_00323	Amount Added: 1.60	Units: uL
vm50ss_00387	Amount Added: 1.60	Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5179.D

Injection Date: 15-Jan-2020 17:15:30

Instrument ID: A3UX10

Operator ID: 001644

Lims ID: STD8260 L2

Worklist Smp#: 7

Client ID:

Purge Vol: 5.000 mL

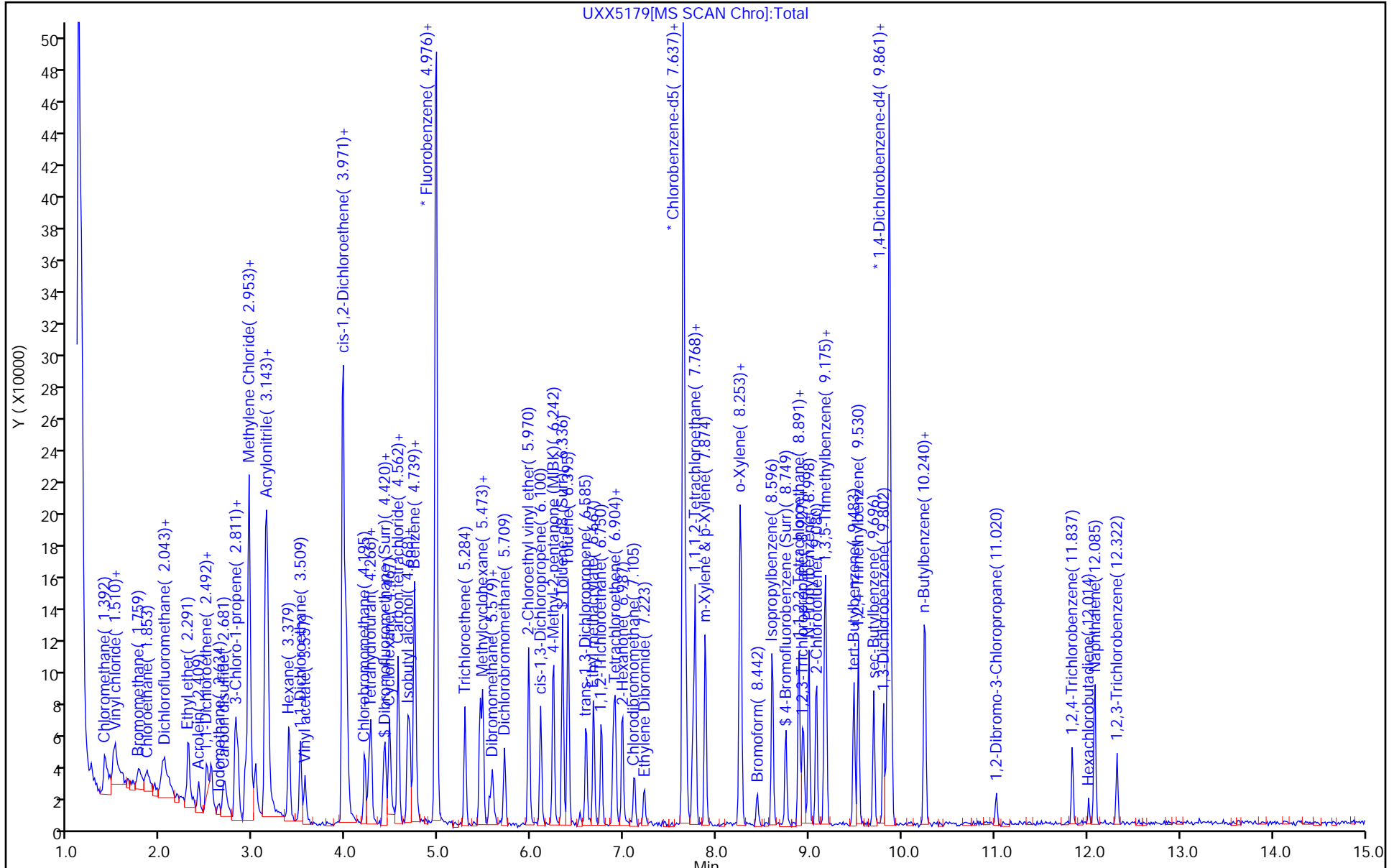
Dil. Factor: 1.0000

ALS Bottle#: 6

Method: 8260_10

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



UXX5179[MS SCAN Chro]:Total

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5180.D
 Lims ID: STD8260 L1
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 15-Jan-2020 17:40:30 ALS Bottle#: 7 Worklist Smp#: 8
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0094937-008
 Operator ID: 001644 Instrument ID: A3UX10
 Sublist: chrom-8260_10*sub82
 Method: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 20-Jan-2020 17:05:45 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0309

First Level Reviewer: williamsla

Date: 16-Jan-2020 10:14:44

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.973	4.972	0.001	98	384916	10.0	10.0	
* 2 Chlorobenzene-d5	117	7.647	7.646	0.001	90	253100	10.0	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.870	9.869	0.001	97	100004	10.0	10.0	
\$ 4 Dibromofluoromethane (Surr	113	4.406	4.408	-0.002	89	9272	1.00	1.03	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	4.689	4.691	-0.002	89	13590	1.00	1.03	
\$ 6 Toluene-d8 (Surr)	98	6.334	6.336	-0.002	95	44192	1.00	1.14	
\$ 7 4-Bromofluorobenzene (Surr	95	8.747	8.749	-0.002	77	12999	1.00	1.06	
9 Dichlorodifluoromethane	85	1.247	1.249	-0.002	93	8588	1.00	1.03	
10 Chloromethane	50	1.401	1.391	0.010	96	16600	1.00	0.9738	
11 Vinyl chloride	62	1.496	1.486	0.010	95	12374	1.00	0.9850	
12 Butadiene	54	1.508	1.510	-0.002	59	10294	1.00	1.07	
13 Bromomethane	94	1.768	1.758	0.010	82	6719	1.00	1.12	
14 Chloroethane	64	1.851	1.841	0.010	89	6234	1.00	0.9263	
15 Dichlorofluoromethane	67	2.028	2.018	0.010	76	22111	1.00	1.30	
16 Trichlorofluoromethane	101	2.064	2.042	0.022	90	8487	1.00	0.9394	
17 Ethyl ether	59	2.300	2.290	0.010	96	11022	1.00	0.9291	
18 Acrolein	56	2.407	2.409	-0.002	97	10247	5.00	4.52	
19 1,1-Dichloroethene	96	2.489	2.491	-0.002	90	8368	1.00	0.9223	
20 1,1,2-Trichloro-1,2,2-trif	151	2.513	2.515	-0.002	40	1003	1.00	1.08	
21 Acetone	43	2.548	2.539	0.009	97	16660	2.00	1.56	
22 Iodomethane	142	2.619	2.621	-0.002	93	9168	1.00	0.8643	
24 Carbon disulfide	76	2.690	2.681	0.009	99	29441	1.00	0.9260	
26 3-Chloro-1-propene	76	2.809	2.811	-0.002	91	7394	1.00	0.8993	
27 Methyl acetate	43	2.832	2.834	-0.002	99	24455	2.00	1.80	
28 Methylene Chloride	84	2.915	2.917	-0.002	92	10827	1.00	0.9674	
29 2-Methyl-2-propanol	59	3.022	3.024	-0.002	99	16060	10.0	10.1	
31 Acrylonitrile	53	3.128	3.130	-0.002	100	62326	10.0	9.40	
30 trans-1,2-Dichloroethene	96	3.152	3.154	-0.002	90	9928	1.00	0.9442	
32 Methyl tert-butyl ether	73	3.152	3.154	-0.002	98	29432	1.00	0.9588	
33 Hexane	86	3.388	3.378	0.010	92	1843	1.00	0.9085	
34 1,1-Dichloroethane	63	3.507	3.509	-0.002	95	22348	1.00	0.8997	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
35 Vinyl acetate	43	3.554	3.556	-0.002	96	16668	1.00	1.12	
40 cis-1,2-Dichloroethene	96	4.003	4.005	-0.002	84	11048	1.00	0.9433	
39 2,2-Dichloropropane	97	4.003	4.005	-0.002	61	2112	1.00	0.8959	
41 2-Butanone (MEK)	43	4.015	4.017	-0.002	82	16294	2.00	1.94	
45 Chlorobromomethane	128	4.204	4.206	-0.002	88	3985	1.00	0.8354	
46 Tetrahydrofuran	42	4.252	4.242	0.010	93	13222	2.00	2.24	
47 Chloroform	83	4.275	4.266	0.009	95	16664	1.00	0.9161	
48 1,1,1-Trichloroethane	97	4.429	4.419	0.010	91	10906	1.00	0.9464	
49 Cyclohexane	56	4.465	4.467	-0.002	93	20523	1.00	0.9407	
51 Carbon tetrachloride	117	4.571	4.561	0.010	80	7596	1.00	0.8256	
50 1,1-Dichloropropene	75	4.559	4.561	-0.002	87	13086	1.00	0.9170	
52 Isobutyl alcohol	41	4.666	4.668	-0.002	96	12344	25.0	18.4	
53 Benzene	78	4.737	4.739	-0.002	98	44716	1.00	0.9390	
54 1,2-Dichloroethane	62	4.760	4.751	0.009	95	17578	1.00	1.00	
56 n-Heptane	100	4.961	4.963	-0.002	33	1287	1.00	0.8005	
58 Trichloroethene	130	5.281	5.283	-0.002	92	8538	1.00	0.8635	
60 Methylcyclohexane	83	5.446	5.448	-0.002	87	12478	1.00	0.9899	
61 1,2-Dichloropropane	63	5.482	5.472	0.010	93	14848	1.00	0.99	
63 Dibromomethane	93	5.577	5.579	-0.002	85	5684	1.00	0.9329	
64 1,4-Dioxane	88		5.590				ND	ND	U
65 Dichlorobromomethane	83	5.707	5.709	-0.002	95	12241	1.00	0.8995	
67 2-Chloroethyl vinyl ether	63	5.967	5.969	-0.002	89	18817	2.00	1.74	
68 cis-1,3-Dichloropropene	75	6.097	6.099	-0.002	89	16420	1.00	0.8812	
69 4-Methyl-2-pentanone (MIBK)	43	6.239	6.241	-0.002	97	34518	2.00	1.98	
70 Toluene	91	6.393	6.395	-0.002	98	43545	1.00	0.9393	
71 trans-1,3-Dichloropropene	75	6.594	6.596	-0.002	96	13691	1.00	0.8410	
72 Ethyl methacrylate	69	6.677	6.667	0.010	93	17569	1.00	0.9830	
73 1,1,2-Trichloroethane	97	6.759	6.761	-0.002	91	9626	1.00	0.9799	
74 Tetrachloroethene	164	6.890	6.892	-0.002	89	4815	1.00	0.8947	
75 1,3-Dichloropropane	76	6.901	6.903	-0.002	97	16566	1.00	0.9266	
76 2-Hexanone	43	6.984	6.986	-0.002	94	21037	2.00	1.82	
78 Chlorodibromomethane	129	7.114	7.116	-0.002	86	8260	1.00	0.9723	
80 Ethylene Dibromide	107	7.221	7.223	-0.002	93	7801	1.00	0.8922	
82 Chlorobenzene	112	7.670	7.672	-0.002	88	22854	1.00	0.9230	
83 1,1,1,2-Tetrachloroethane	131	7.741	7.743	-0.002	90	6659	1.00	0.8612	
84 Ethylbenzene	106	7.765	7.767	-0.002	98	13519	1.00	0.9818	
85 m-Xylene & p-Xylene	106	7.883	7.873	0.010	99	16104	1.00	0.9836	
86 o-Xylene	106	8.250	8.252	-0.002	97	13792	1.00	0.8996	
87 Styrene	104	8.262	8.264	-0.002	94	27230	1.00	0.99	
88 Bromoform	173	8.439	8.441	-0.002	91	3862	1.00	0.8587	
89 Isopropylbenzene	105	8.605	8.607	-0.002	96	36550	1.00	1.03	
93 Bromobenzene	156	8.889	8.891	-0.002	91	7291	1.00	0.9421	
92 1,1,2,2-Tetrachloroethane	83	8.889	8.891	-0.002	72	11743	1.00	0.9712	
94 1,2,3-Trichloropropane	110	8.924	8.926	-0.002	28	2226	1.00	0.6891	
95 trans-1,4-Dichloro-2-buten	53	8.936	8.938	-0.002	67	3793	1.00	1.25	
96 N-Propylbenzene	120	8.995	8.997	-0.002	99	8859	1.00	0.99	
97 2-Chlorotoluene	126	9.078	9.080	-0.002	95	7413	1.00	0.9207	
98 1,3,5-Trimethylbenzene	105	9.161	9.163	-0.002	96	24944	1.00	0.9557	
99 4-Chlorotoluene	126	9.184	9.186	-0.002	97	7566	1.00	0.8877	
100 tert-Butylbenzene	119	9.480	9.482	-0.002	95	18959	1.00	0.9745	
102 1,2,4-Trimethylbenzene	105	9.527	9.529	-0.002	95	28614	1.00	1.02	
103 sec-Butylbenzene	105	9.693	9.695	-0.002	94	27586	1.00	1.01	

Compound	Sig	RT (min.)	Exp RT (min.)	Diff RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
104 1,3-Dichlorobenzene	146	9.799	9.801	-0.002	90	13128	1.00	0.9388	
105 4-Isopropyltoluene	119	9.835	9.837	-0.002	95	21058	1.00	0.9704	
106 1,4-Dichlorobenzene	146	9.882	9.884	-0.002	91	13017	1.00	0.9152	
109 n-Butylbenzene	91	10.237	10.239	-0.002	97	21792	1.00	1.07	
110 1,2-Dichlorobenzene	146	10.249	10.251	-0.002	92	14294	1.00	1.03	
111 1,2-Dibromo-3-Chloropropan	157	11.018	11.020	-0.002	65	1480	1.00	0.6524	
113 1,2,4-Trichlorobenzene	180	11.846	11.836	0.010	87	5926	1.00	0.9611	
114 Hexachlorobutadiene	225		12.013				ND	ND	
115 Naphthalene	128	12.082	12.084	-0.002	98	30522	1.00	0.9445	
116 1,2,3-Trichlorobenzene	180	12.331	12.321	0.010	89	6329	1.00	1.03	
S 128 1,2-Dichloroethene, Total	96				0			1.89	
S 129 1,3-Dichloropropene, Total	75				0			1.72	
S 130 Xylenes, Total	106				0		2.00	1.88	
S 156 Total BTEX	1				0		5.00	4.74	
S 131 Trihalomethanes, Total	1				0		4.00	3.65	

QC Flag Legend

Processing Flags

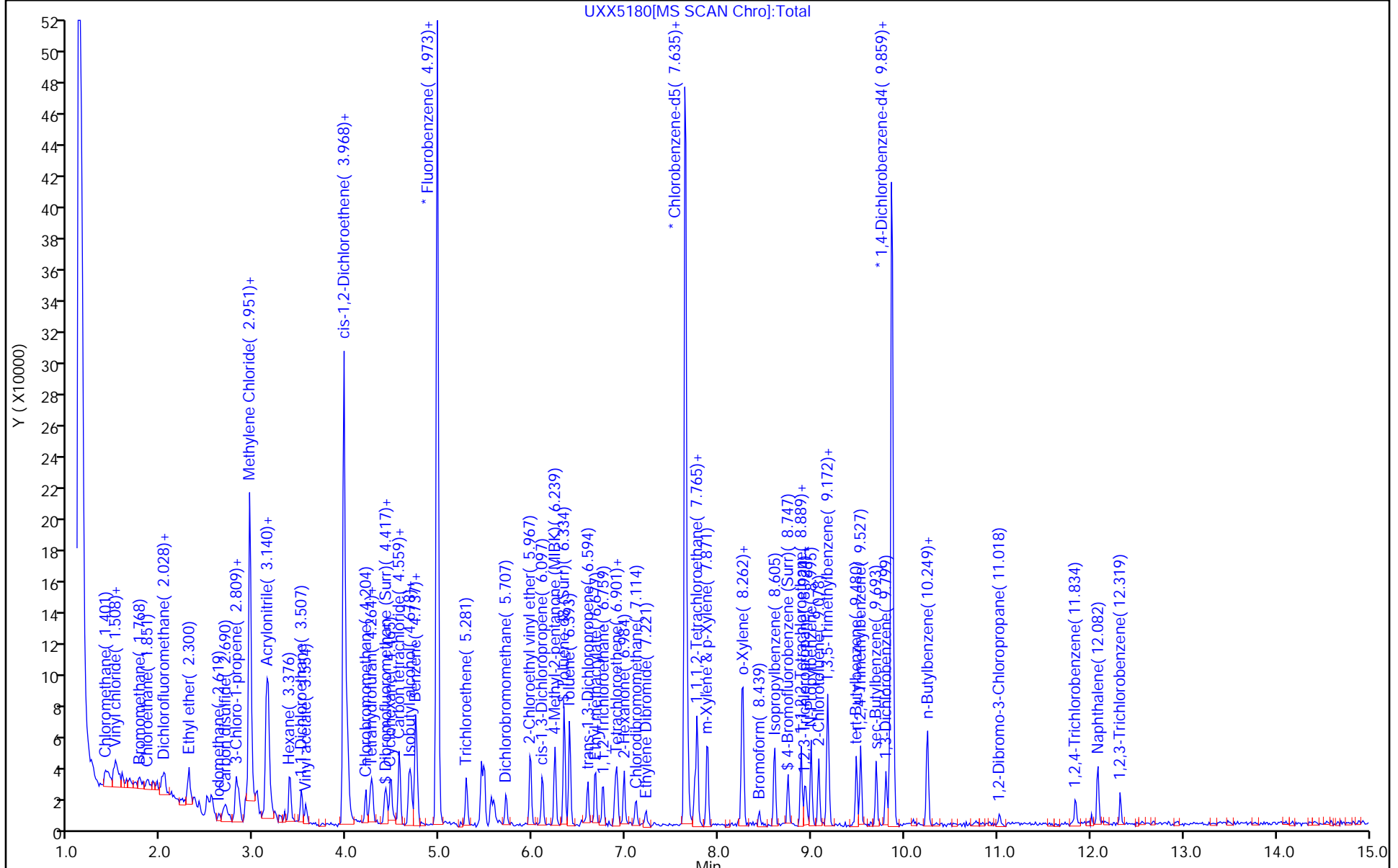
ND - Not Detected or Marked ND

Review Flags

U - Marked Undetected

Reagents:

VMRPRIMW_00369	Amount Added: 0.80	Units: uL
VMFASAW_00312	Amount Added: 0.80	Units: uL
VM50IS_00080	Amount Added: 1.00	Units: uL
VMRGAS_00323	Amount Added: 0.80	Units: uL
vm50ss_00387	Amount Added: 0.80	Units: uL



UXX5180[MS SCAN Chro]:Total

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5180.D

Injection Date: 15-Jan-2020 17:40:30

Instrument ID: A3UX10

Lims ID: STD8260 L1

Client ID:

Operator ID: 001644

ALS Bottle#: 7

Worklist Smp#: 8

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

Method: 8260_10

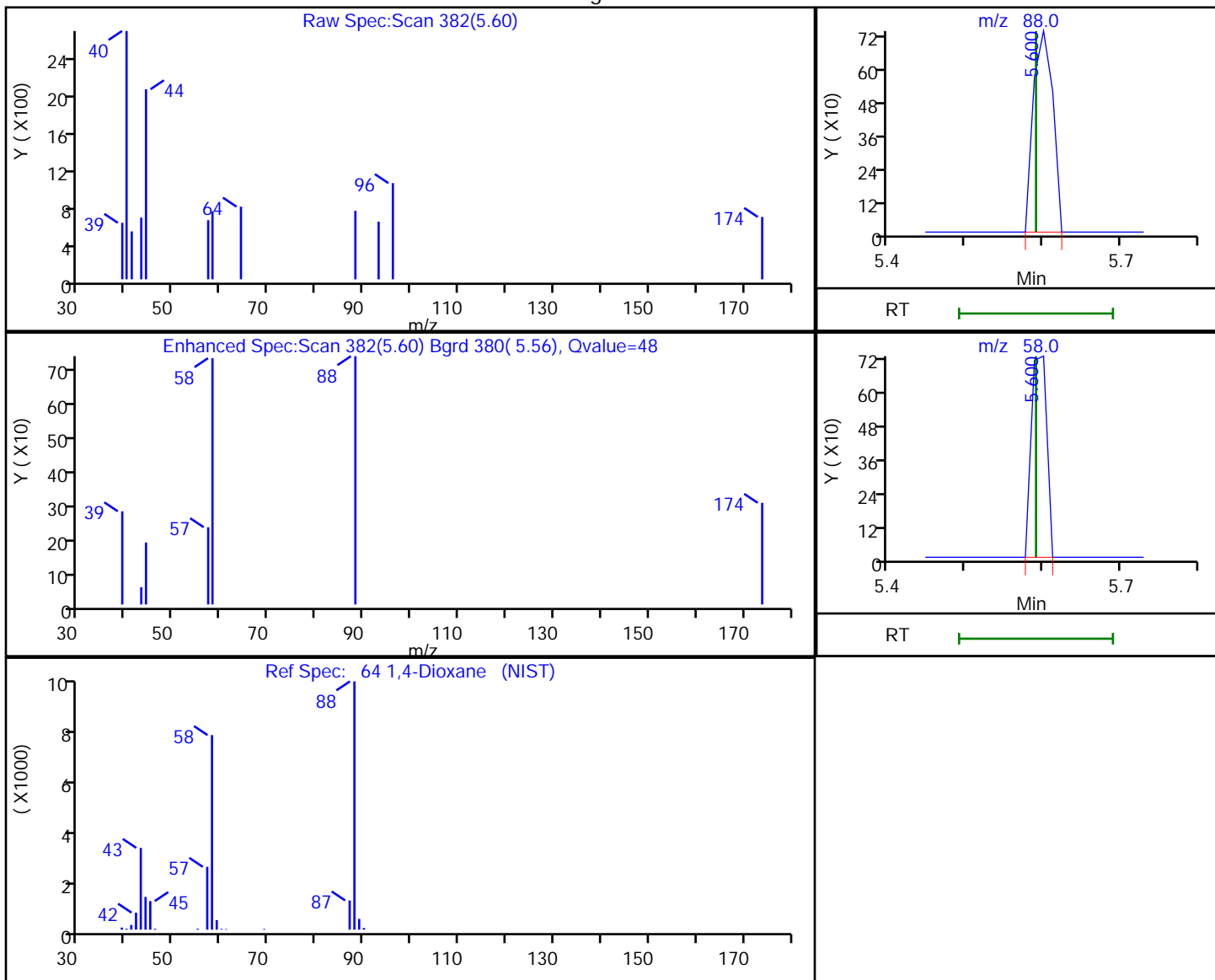
Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)

Detector: MS SCAN

64 1,4-Dioxane, CAS: 123-91-1

Processing Results



RT	Mass	Response	Amount
5.60	88.00	1287	34.766912
5.60	58.00	1022	

Reviewer: williamsla, 20-Jan-2020 16:43:21

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Lab Sample ID: ICV 240-419116/9 Calibration Date: 01/15/2020 18:04
 Instrument ID: A3UX10 Calib Start Date: 01/15/2020 15:09
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 01/15/2020 17:40
 Lab File ID: UXX5181.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.2166	0.1995		0.00921	0.0100	-7.9	50.0
Chloromethane	Ave	0.4428	0.4326	0.1000	0.00977	0.0100	-2.3	50.0
Vinyl chloride	Ave	0.3264	0.3234		0.00991	0.0100	-0.9	20.0
Butadiene	Lin1		0.1908		0.0103	0.0100	2.8	50.0
Bromomethane	Ave	0.1555	0.1436		0.00924	0.0100	-7.6	50.0
Chloroethane	Ave	0.1748	0.1707		0.00976	0.0100	-2.4	50.0
Dichlorofluoromethane	Ave	0.4414	0.4340		0.00983	0.0100	-1.7	50.0
Trichlorofluoromethane	Ave	0.2347	0.2386		0.0102	0.0100	1.6	50.0
Ethyl ether	Ave	0.3082	0.3119		0.0101	0.0100	1.2	50.0
Acrolein	Ave	0.0590	0.0554		0.0470	0.0500	-6.1	50.0
1,1-Dichloroethene	Ave	0.2357	0.2396		0.0102	0.0100	1.6	20.0
1,1,2-Trichloro-1,2,2-trifluoroethane	Lin1		0.1057		0.00980	0.0100	-2.0	50.0
Acetone	Lin1		0.1261		0.0189	0.0200	-5.3	50.0
Iodomethane	Ave	0.2756	0.2852		0.0103	0.0100	3.5	50.0
Carbon disulfide	Ave	0.8260	0.8473		0.0103	0.0100	2.6	50.0
3-Chloro-1-propene	Ave	0.2136	0.2316		0.0108	0.0100	8.4	50.0
Methyl acetate	Ave	0.3533	0.3580		0.0203	0.0200	1.3	50.0
Methylene Chloride	Ave	0.2908	0.2958		0.0102	0.0100	1.7	50.0
2-Methyl-2-propanol	Ave	0.0413	0.0404		0.0977	0.100	-2.3	50.0
Acrylonitrile	Ave	0.1722	0.1675		0.0973	0.100	-2.7	50.0
Methyl tert-butyl ether	Ave	0.7975	0.8002		0.0100	0.0100	0.3	50.0
trans-1,2-Dichloroethene	Ave	0.2732	0.2816		0.0103	0.0100	3.1	50.0
Hexane	Ave	0.0527	0.0544		0.0103	0.0100	3.2	20.0
1,1-Dichloroethane	Ave	0.6453	0.6693	0.1000	0.0104	0.0100	3.7	50.0
Vinyl acetate	Lin1		0.6686		0.00869	0.0100	-13.1	50.0
2,2-Dichloropropane	Ave	0.0612	0.0602		0.00983	0.0100	-1.7	50.0
cis-1,2-Dichloroethene	Ave	0.3043	0.3130		0.0103	0.0100	2.9	50.0
2-Butanone (MEK)	Ave	0.2186	0.1982		0.0181	0.0200	-9.4	50.0
Chlorobromomethane	Ave	0.1239	0.1240		0.0100	0.0100	0.0	50.0
Tetrahydrofuran	Ave	0.1532	0.1379		0.0180	0.0200	-9.9	50.0
Chloroform	Ave	0.4726	0.4588		0.00971	0.0100	-2.9	20.0
1,1,1-Trichloroethane	Ave	0.2994	0.3068		0.0102	0.0100	2.5	50.0
Cyclohexane	Ave	0.5668	0.5620		0.00991	0.0100	-0.9	50.0
1,1-Dichloropropene	Ave	0.3707	0.3656		0.00986	0.0100	-1.4	50.0
Carbon tetrachloride	Ave	0.2390	0.2462		0.0103	0.0100	3.0	50.0
Isobutyl alcohol	Lin1		0.0218		0.253	0.250	1.1	50.0
Benzene	Ave	1.237	1.231		0.00995	0.0100	-0.5	50.0
1,2-Dichloroethane	Ave	0.4549	0.4515		0.00992	0.0100	-0.8	50.0
n-Heptane	Ave	0.0418	0.0390		0.00934	0.0100	-6.6	50.0
Trichloroethene	Ave	0.2569	0.2532		0.00986	0.0100	-1.4	50.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Lab Sample ID: ICV 240-419116/9 Calibration Date: 01/15/2020 18:04
 Instrument ID: A3UX10 Calib Start Date: 01/15/2020 15:09
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 01/15/2020 17:40
 Lab File ID: UXX5181.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Methylcyclohexane	Ave	0.3275	0.3273		0.00999	0.0100	-0.0	50.0
1,2-Dichloropropane	Ave	0.3890	0.3954		0.0102	0.0100	1.7	20.0
Dibromomethane	Ave	0.1583	0.1640		0.0104	0.0100	3.6	50.0
1,4-Dioxane	Qua		0.0021		0.140	0.200	-30.1	50.0
Dichlorobromomethane	Ave	0.3536	0.3595		0.0102	0.0100	1.7	50.0
2-Chloroethyl vinyl ether	Ave	0.2808	0.2842		0.0101	0.0100	1.2	50.0
cis-1,3-Dichloropropene	Ave	0.4841	0.4930		0.0102	0.0100	1.8	50.0
4-Methyl-2-pentanone (MIBK)	Ave	0.4522	0.4292		0.0190	0.0200	-5.1	50.0
Toluene	Ave	1.832	1.849		0.0101	0.0100	0.9	20.0
trans-1,3-Dichloropropene	Ave	0.6432	0.6327		0.00984	0.0100	-1.6	50.0
Ethyl methacrylate	Ave	0.7061	0.7214		0.0102	0.0100	2.2	50.0
1,1,2-Trichloroethane	Ave	0.3881	0.3848		0.00992	0.0100	-0.8	50.0
Tetrachloroethene	Ave	0.2126	0.2099		0.00987	0.0100	-1.3	50.0
1,3-Dichloropropane	Ave	0.7063	0.7204		0.0102	0.0100	2.0	50.0
2-Hexanone	Ave	0.4565	0.4434		0.0194	0.0200	-2.9	50.0
Chlorodibromomethane	Ave	0.3357	0.3450		0.0103	0.0100	2.8	50.0
Ethylene Dibromide	Ave	0.3454	0.3525		0.0102	0.0100	2.0	50.0
Chlorobenzene	Ave	0.9782	0.996	0.3000	0.0102	0.0100	1.8	50.0
1,1,1,2-Tetrachloroethane	Ave	0.3055	0.3183		0.0104	0.0100	4.2	50.0
Ethylbenzene	Ave	0.5440	0.5438		0.0100	0.0100	-0.0	20.0
m-Xylene & p-Xylene	Ave	0.6468	0.6456		0.00998	0.0100	-0.2	50.0
o-Xylene	Ave	0.6058	0.6435		0.0106	0.0100	6.2	50.0
Styrene	Ave	1.084	1.104		0.0102	0.0100	1.8	50.0
Bromoform	Ave	0.1777	0.1798	0.1000	0.0101	0.0100	1.2	50.0
Isopropylbenzene	Ave	1.404	1.412		0.0101	0.0100	0.6	50.0
1,1,2,2-Tetrachloroethane	Ave	1.209	1.188	0.3000	0.00983	0.0100	-1.7	50.0
Bromobenzene	Ave	0.7739	0.7459		0.00964	0.0100	-3.6	50.0
1,2,3-Trichloropropane	Ave	0.3230	0.3332		0.0103	0.0100	3.1	50.0
trans-1,4-Dichloro-2-butene	Lin1		0.4687		0.00866	0.0100	-13.4	50.0
N-Propylbenzene	Ave	0.8917	0.9129		0.0102	0.0100	2.4	50.0
2-Chlorotoluene	Ave	0.8051	0.7696		0.00956	0.0100	-4.4	50.0
1,3,5-Trimethylbenzene	Ave	2.610	2.665		0.0102	0.0100	2.1	50.0
4-Chlorotoluene	Ave	0.8523	0.8373		0.00982	0.0100	-1.8	50.0
tert-Butylbenzene	Ave	1.945	1.967		0.0101	0.0100	1.1	50.0
1,2,4-Trimethylbenzene	Ave	2.797	2.805		0.0100	0.0100	0.3	50.0
sec-Butylbenzene	Ave	2.718	2.775		0.0102	0.0100	2.1	50.0
1,3-Dichlorobenzene	Ave	1.398	1.375		0.00983	0.0100	-1.7	50.0
4-Isopropyltoluene	Ave	2.170	2.233		0.0103	0.0100	2.9	50.0
1,4-Dichlorobenzene	Ave	1.422	1.414		0.00994	0.0100	-0.6	50.0
n-Butylbenzene	Ave	2.043	2.092		0.0102	0.0100	2.4	50.0
1,2-Dichlorobenzene	Ave	1.394	1.391		0.00997	0.0100	-0.3	50.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Lab Sample ID: ICV 240-419116/9 Calibration Date: 01/15/2020 18:04
 Instrument ID: A3UX10 Calib Start Date: 01/15/2020 15:09
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 01/15/2020 17:40
 Lab File ID: UXX5181.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,2-Dibromo-3-Chloropropane	Qua		0.2035		0.0101	0.0100	0.9	50.0
1,2,4-Trichlorobenzene	Ave	0.6166	0.6303		0.0102	0.0100	2.2	50.0
Hexachlorobutadiene	Ave	0.1511	0.1382		0.00915	0.0100	-8.5	50.0
Naphthalene	Ave	3.231	2.958		0.00915	0.0100	-8.5	50.0
1,2,3-Trichlorobenzene	Ave	0.6137	0.5666		0.00923	0.0100	-7.7	50.0
Dibromofluoromethane (Surr)	Ave	0.2337	0.2180		0.00933	0.0100	-6.7	50.0
1,2-Dichloroethane-d4 (Surr)	Ave	0.3432	0.3363		0.00980	0.0100	-2.0	50.0
Toluene-d8 (Surr)	Ave	1.538	1.501		0.00976	0.0100	-2.4	50.0
4-Bromofluorobenzene (Surr)	Ave	0.4841	0.4796		0.00991	0.0100	-0.9	50.0

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5181.D
 Lims ID: ICV
 Client ID:
 Sample Type: ICV
 Inject. Date: 15-Jan-2020 18:04:30 ALS Bottle#: 8 Worklist Smp#: 9
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0094937-009
 Operator ID: 001644 Instrument ID: A3UX10
 Sublist: chrom-8260_10*sub63
 Method: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 20-Jan-2020 16:51:51 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0309

First Level Reviewer: williamsla

Date: 16-Jan-2020 10:42:41

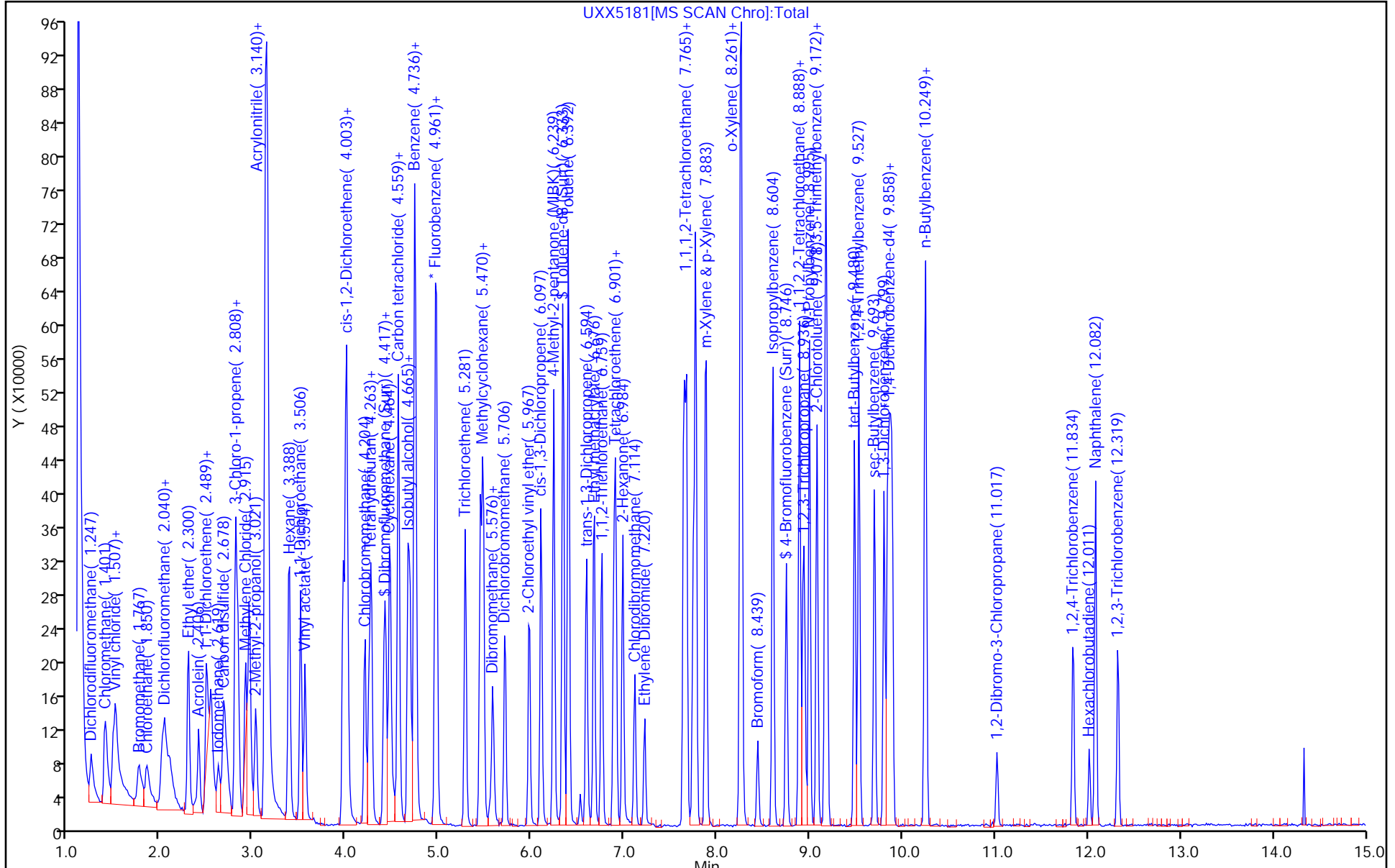
Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.973	4.975	-0.002	97	391338	10.0	10.0	
* 2 Chlorobenzene-d5	117	7.646	7.637	0.009	89	251783	10.0	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.870	9.861	0.010	97	102138	10.0	10.0	
\$ 4 Dibromofluoromethane (Surr	113	4.405	4.408	-0.003	91	85313	10.0	9.33	
\$ 5 1,2-Dichloroethane-d4 (Sur	65	4.689	4.691	-0.002	97	131624	10.0	9.80	
\$ 6 Toluene-d8 (Surr)	98	6.333	6.336	-0.003	94	377905	10.0	9.76	
\$ 7 4-Bromofluorobenzene (Surr	95	8.746	8.749	-0.003	77	120761	10.0	9.91	
9 Dichlorodifluoromethane	85	1.247	1.249	-0.002	98	78076	10.0	9.21	
10 Chloromethane	50	1.401	1.391	0.010	99	169301	10.0	9.77	
11 Vinyl chloride	62	1.484	1.486	-0.002	98	126568	10.0	9.91	
12 Butadiene	54	1.519	1.510	0.009	95	74656	10.0	10.3	
13 Bromomethane	94	1.767	1.758	0.009	91	56209	10.0	9.24	
14 Chloroethane	64	1.850	1.841	0.009	97	66794	10.0	9.76	
15 Dichlorofluoromethane	67	2.016	2.018	-0.002	99	169824	10.0	9.83	
16 Trichlorofluoromethane	101	2.051	2.042	0.009	96	93352	10.0	10.2	
17 Ethyl ether	59	2.300	2.290	0.010	98	122065	10.0	10.1	
18 Acrolein	56	2.406	2.409	-0.003	99	108363	50.0	47.0	
19 1,1-Dichloroethene	96	2.489	2.491	-0.002	92	93746	10.0	10.2	
20 1,1,2-Trichloro-1,2,2-trif	151	2.525	2.515	0.009	94	41369	10.0	9.80	
21 Acetone	43	2.548	2.539	0.009	99	98683	20.0	18.9	
22 Iodomethane	142	2.619	2.621	-0.002	97	111608	10.0	10.3	
24 Carbon disulfide	76	2.678	2.681	-0.003	100	331565	10.0	10.3	
26 3-Chloro-1-propene	76	2.808	2.811	-0.003	90	90644	10.0	10.8	
27 Methyl acetate	43	2.832	2.834	-0.002	99	280177	20.0	20.3	
28 Methylene Chloride	84	2.915	2.917	-0.002	97	115767	10.0	10.2	
29 2-Methyl-2-propanol	59	3.021	3.024	-0.003	99	157943	100.0	97.7	
31 Acrylonitrile	53	3.128	3.130	-0.002	100	655620	100.0	97.3	
30 trans-1,2-Dichloroethene	96	3.151	3.154	-0.003	91	110197	10.0	10.3	
32 Methyl tert-butyl ether	73	3.151	3.154	-0.003	98	313135	10.0	10.0	
33 Hexane	86	3.388	3.378	0.010	92	21293	10.0	10.3	
34 1,1-Dichloroethane	63	3.506	3.509	-0.003	96	261924	10.0	10.4	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
35 Vinyl acetate	43	3.554	3.556	-0.002	97	261660	10.0	8.69	
39 2,2-Dichloropropane	97	4.003	4.005	-0.002	50	23570	10.0	9.83	
40 cis-1,2-Dichloroethene	96	4.003	4.005	-0.002	87	122491	10.0	10.3	
41 2-Butanone (MEK)	43	4.015	4.017	-0.002	99	155088	20.0	18.1	
45 Chlorobromomethane	128	4.204	4.206	-0.002	88	48515	10.0	10.0	
46 Tetrahydrofuran	42	4.240	4.242	-0.002	94	107959	20.0	18.0	
47 Chloroform	83	4.263	4.266	-0.003	98	179562	10.0	9.71	
48 1,1,1-Trichloroethane	97	4.429	4.419	0.010	96	120079	10.0	10.2	
49 Cyclohexane	56	4.464	4.467	-0.003	91	219922	10.0	9.91	
51 Carbon tetrachloride	117	4.559	4.561	-0.002	75	96328	10.0	10.3	
50 1,1-Dichloropropene	75	4.559	4.561	-0.002	89	143053	10.0	9.86	
52 Isobutyl alcohol	41	4.665	4.668	-0.003	94	137209	250.0	252.7	
53 Benzene	78	4.736	4.739	-0.003	98	481646	10.0	9.95	
54 1,2-Dichloroethane	62	4.748	4.751	-0.003	96	176675	10.0	9.92	
56 n-Heptane	100	4.961	4.963	-0.002	96	15262	10.0	9.34	
58 Trichloroethene	130	5.281	5.283	-0.002	94	99093	10.0	9.86	
60 Methylcyclohexane	83	5.446	5.448	-0.002	97	128071	10.0	10.0	
61 1,2-Dichloropropane	63	5.470	5.472	-0.002	97	154750	10.0	10.2	
63 Dibromomethane	93	5.576	5.579	-0.003	88	64180	10.0	10.4	
64 1,4-Dioxane	88	5.588	5.590	-0.002	91	16196	200.0	139.9	
65 Dichlorobromomethane	83	5.706	5.709	-0.003	97	140667	10.0	10.2	
67 2-Chloroethyl vinyl ether	63	5.978	5.969	0.009	91	111225	10.0	10.1	
68 cis-1,3-Dichloropropene	75	6.097	6.099	-0.002	91	192919	10.0	10.2	
69 4-Methyl-2-pentanone (MIBK)	43	6.239	6.241	-0.002	97	335921	20.0	19.0	
70 Toluene	91	6.392	6.395	-0.003	97	465480	10.0	10.1	
71 trans-1,3-Dichloropropene	75	6.594	6.596	-0.002	98	159306	10.0	9.84	
72 Ethyl methacrylate	69	6.676	6.667	0.009	94	181646	10.0	10.2	
73 1,1,2-Trichloroethane	97	6.759	6.761	-0.002	93	96891	10.0	9.92	
74 Tetrachloroethene	164	6.889	6.892	-0.003	89	52853	10.0	9.87	
75 1,3-Dichloropropane	76	6.901	6.903	-0.002	98	181394	10.0	10.2	
76 2-Hexanone	43	6.984	6.986	-0.002	96	223277	20.0	19.4	
78 Chlorodibromomethane	129	7.114	7.116	-0.002	90	86860	10.0	10.3	
80 Ethylene Dibromide	107	7.220	7.223	-0.003	99	88748	10.0	10.2	
82 Chlorobenzene	112	7.670	7.672	-0.002	90	250811	10.0	10.2	
83 1,1,1,2-Tetrachloroethane	131	7.741	7.743	-0.002	96	80153	10.0	10.4	
84 Ethylbenzene	106	7.765	7.767	-0.002	99	136923	10.0	10.0	
85 m-Xylene & p-Xylene	106	7.883	7.873	0.010	99	162550	10.0	9.98	
86 o-Xylene	106	8.250	8.252	-0.002	97	162027	10.0	10.6	
87 Styrene	104	8.261	8.264	-0.003	91	277866	10.0	10.2	
88 Bromoform	173	8.439	8.441	-0.002	92	45272	10.0	10.1	
89 Isopropylbenzene	105	8.604	8.607	-0.003	97	355399	10.0	10.1	
92 1,1,2,2-Tetrachloroethane	83	8.888	8.891	-0.003	79	121382	10.0	9.83	
93 Bromobenzene	156	8.888	8.891	-0.003	94	76181	10.0	9.64	
94 1,2,3-Trichloropropane	110	8.924	8.926	-0.002	84	34029	10.0	10.3	
95 trans-1,4-Dichloro-2-buten	53	8.947	8.938	0.009	83	47870	10.0	8.66	
96 N-Propylbenzene	120	8.995	8.997	-0.002	99	93243	10.0	10.2	
97 2-Chlorotoluene	126	9.078	9.080	-0.002	94	78601	10.0	9.56	
98 1,3,5-Trimethylbenzene	105	9.172	9.163	0.009	94	272178	10.0	10.2	
99 4-Chlorotoluene	126	9.184	9.186	-0.002	99	85523	10.0	9.82	
100 tert-Butylbenzene	119	9.480	9.482	-0.002	94	200889	10.0	10.1	
102 1,2,4-Trimethylbenzene	105	9.527	9.529	-0.002	96	286458	10.0	10.0	
103 sec-Butylbenzene	105	9.693	9.695	-0.002	95	283436	10.0	10.2	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
104 1,3-Dichlorobenzene	146	9.799	9.801	-0.002	95	140447	10.0	9.83	
105 4-Isopropyltoluene	119	9.835	9.837	-0.002	97	228096	10.0	10.3	
106 1,4-Dichlorobenzene	146	9.894	9.884	0.010	92	144406	10.0	9.94	
109 n-Butylbenzene	91	10.237	10.239	-0.002	98	213641	10.0	10.2	
110 1,2-Dichlorobenzene	146	10.249	10.251	-0.002	93	142053	10.0	9.97	
111 1,2-Dibromo-3-Chloropropan	157	11.017	11.020	-0.003	70	20788	10.0	10.1	
113 1,2,4-Trichlorobenzene	180	11.845	11.836	0.009	92	64377	10.0	10.2	
114 Hexachlorobutadiene	225	12.011	12.013	-0.002	89	14113	10.0	9.15	
115 Naphthalene	128	12.082	12.084	-0.002	99	302116	10.0	9.15	
116 1,2,3-Trichlorobenzene	180	12.319	12.321	-0.002	93	57872	10.0	9.23	
S 130 Xylenes, Total	106				0		20.0	20.6	
S 156 Total BTEX	1				0		50.0	50.6	
S 131 Trihalomethanes, Total	1				0		40.0	40.3	

Reagents:

VMFASPW_00334	Amount Added: 8.00	Units: uL
VMFASGW_00343	Amount Added: 8.00	Units: uL
VMAROLISTDW_00328	Amount Added: 8.00	Units: uL
VM50IS_00080	Amount Added: 1.00	Units: uL
vm50ss_00387	Amount Added: 8.00	Units: uL



FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Lab Sample ID: CCVIS 240-445379/2 Calibration Date: 08/03/2020 13:55
 Instrument ID: A3UX10 Calib Start Date: 01/15/2020 15:09
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 01/15/2020 17:40
 Lab File ID: UXX8950.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.2166	0.2801		0.0129	0.0100	29.3	50.0
Chloromethane	Ave	0.4428	0.4113	0.1000	0.00929	0.0100	-7.1	50.0
Vinyl chloride	Ave	0.3264	0.3437		0.0105	0.0100	5.3	20.0
Butadiene	Lin1		0.6022		0.0334	0.0100	234.0*	50.0
Bromomethane	Ave	0.1555	0.0999		0.00643	0.0100	-35.7	50.0
Chloroethane	Ave	0.1748	0.1470		0.00840	0.0100	-16.0	50.0
Dichlorofluoromethane	Ave	0.4414	0.3220		0.00730	0.0100	-27.0	50.0
Trichlorofluoromethane	Ave	0.2347	0.3756		0.0160	0.0100	60.0*	50.0
Ethyl ether	Ave	0.3082	0.3392		0.0110	0.0100	10.1	50.0
Acrolein	Ave	0.0590	0.0387		0.0328	0.0500	-34.4	50.0
1,1-Dichloroethene	Ave	0.2357	0.2118		0.00899	0.0100	-10.1	20.0
1,1,2-Trichloro-1,2,2-trifluoroethane	Lin1		0.1555		0.0140	0.0100	40.1	50.0
Acetone	Lin1		0.1160		0.0173	0.0200	-13.7	50.0
Iodomethane	Ave	0.2756	0.1301		0.00472	0.0100	-52.8*	50.0
Carbon disulfide	Ave	0.8260	0.5994		0.00726	0.0100	-27.4	50.0
3-Chloro-1-propene	Ave	0.2136	0.1901		0.00890	0.0100	-11.0	50.0
Methyl acetate	Ave	0.3533	0.3087		0.0175	0.0200	-12.6	50.0
Methylene Chloride	Ave	0.2908	0.1899		0.00653	0.0100	-34.7	50.0
2-Methyl-2-propanol	Ave	0.0413	0.0432		0.105	0.100	4.5	50.0
Acrylonitrile	Ave	0.1722	0.1363		0.0791	0.100	-20.9	50.0
Methyl tert-butyl ether	Ave	0.7975	0.8534		0.0107	0.0100	7.0	50.0
trans-1,2-Dichloroethene	Ave	0.2732	0.2412		0.00883	0.0100	-11.7	50.0
Hexane	Ave	0.0527	0.0774		0.0147	0.0100	46.8*	20.0
1,1-Dichloroethane	Ave	0.6453	0.6710	0.1000	0.0104	0.0100	4.0	50.0
Vinyl acetate	Lin1		0.8808		0.0113	0.0100	12.5	50.0
2,2-Dichloropropane	Ave	0.0612	0.0931		0.0152	0.0100	52.1*	50.0
cis-1,2-Dichloroethene	Ave	0.3043	0.2654		0.00872	0.0100	-12.8	50.0
2-Butanone (MEK)	Ave	0.2186	0.1834		0.0168	0.0200	-16.1	50.0
Chlorobromomethane	Ave	0.1239	0.1032		0.00833	0.0100	-16.7	50.0
Tetrahydrofuran	Ave	0.1532	0.1286		0.0168	0.0200	-16.1	50.0
Chloroform	Ave	0.4726	0.4836		0.0102	0.0100	2.3	20.0
1,1,1-Trichloroethane	Ave	0.2994	0.4277		0.0143	0.0100	42.9	50.0
Cyclohexane	Ave	0.5668	0.8159		0.0144	0.0100	43.9	50.0
1,1-Dichloropropene	Ave	0.3707	0.3896		0.0105	0.0100	5.1	50.0
Carbon tetrachloride	Ave	0.2390	0.3675		0.0154	0.0100	53.7*	50.0
Isobutyl alcohol	Lin1		0.0217		0.251	0.250	0.4	50.0
Benzene	Ave	1.237	1.062		0.00859	0.0100	-14.1	50.0
1,2-Dichloroethane	Ave	0.4549	0.5273		0.0116	0.0100	15.9	50.0
n-Heptane	Ave	0.0418	0.0749		0.0179	0.0100	79.3*	50.0
Trichloroethene	Ave	0.2569	0.2197		0.00855	0.0100	-14.5	50.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Lab Sample ID: CCVIS 240-445379/2 Calibration Date: 08/03/2020 13:55
 Instrument ID: A3UX10 Calib Start Date: 01/15/2020 15:09
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 01/15/2020 17:40
 Lab File ID: UXX8950.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Methylcyclohexane	Ave	0.3275	0.4562		0.0139	0.0100	39.3	50.0
1,2-Dichloropropane	Ave	0.3890	0.3558		0.00915	0.0100	-8.5	20.0
Dibromomethane	Ave	0.1583	0.1294		0.00818	0.0100	-18.2	50.0
1,4-Dioxane	Qua		0.0018		0.125	0.200	-37.3	50.0
Dichlorobromomethane	Ave	0.3536	0.3563		0.0101	0.0100	0.8	50.0
2-Chloroethyl vinyl ether	Ave	0.2808	0.2317		0.0165	0.0200	-17.5	50.0
cis-1,3-Dichloropropene	Ave	0.4841	0.4103		0.00848	0.0100	-15.2	50.0
4-Methyl-2-pentanone (MIBK)	Ave	0.4522	0.3996		0.0177	0.0200	-11.6	50.0
Toluene	Ave	1.832	1.796		0.00981	0.0100	-1.9	20.0
trans-1,3-Dichloropropene	Ave	0.6432	0.6385		0.00993	0.0100	-0.7	50.0
Ethyl methacrylate	Ave	0.7061	0.6041		0.00856	0.0100	-14.4	50.0
1,1,2-Trichloroethane	Ave	0.3881	0.3411		0.00879	0.0100	-12.1	50.0
Tetrachloroethene	Ave	0.2126	0.2294		0.0108	0.0100	7.9	50.0
1,3-Dichloropropane	Ave	0.7063	0.6666		0.00944	0.0100	-5.6	50.0
2-Hexanone	Ave	0.4565	0.4404		0.0193	0.0200	-3.5	50.0
Chlorodibromomethane	Ave	0.3357	0.3386		0.0101	0.0100	0.9	50.0
Ethylene Dibromide	Ave	0.3454	0.2975		0.00861	0.0100	-13.9	50.0
Chlorobenzene	Ave	0.9782	0.9072	0.3000	0.00927	0.0100	-7.3	50.0
1,1,1,2-Tetrachloroethane	Ave	0.3055	0.3267		0.0107	0.0100	6.9	50.0
Ethylbenzene	Ave	0.5440	0.5024		0.00923	0.0100	-7.7	20.0
m-Xylene & p-Xylene	Ave	0.6468	0.6015		0.00930	0.0100	-7.0	50.0
o-Xylene	Ave	0.6058	0.5475		0.00904	0.0100	-9.6	50.0
Styrene	Ave	1.084	0.8908		0.00822	0.0100	-17.8	50.0
Bromoform	Ave	0.1777	0.1275	0.1000	0.00718	0.0100	-28.2	50.0
Isopropylbenzene	Ave	1.404	1.385		0.00987	0.0100	-1.3	50.0
1,1,2,2-Tetrachloroethane	Ave	1.209	1.049	0.3000	0.00868	0.0100	-13.2	50.0
Bromobenzene	Ave	0.7739	0.7116		0.00920	0.0100	-8.0	50.0
1,2,3-Trichloropropane	Ave	0.3230	0.3024		0.00936	0.0100	-6.4	50.0
trans-1,4-Dichloro-2-butene	Lin1		0.4241		0.00789	0.0100	-21.1	50.0
N-Propylbenzene	Ave	0.8917	1.059		0.0119	0.0100	18.7	50.0
2-Chlorotoluene	Ave	0.8051	0.8367		0.0104	0.0100	3.9	50.0
1,3,5-Trimethylbenzene	Ave	2.610	3.196		0.0122	0.0100	22.5	50.0
4-Chlorotoluene	Ave	0.8523	0.8352		0.00980	0.0100	-2.0	50.0
tert-Butylbenzene	Ave	1.945	2.637		0.0136	0.0100	35.5	50.0
1,2,4-Trimethylbenzene	Ave	2.797	3.053		0.0109	0.0100	9.2	50.0
sec-Butylbenzene	Ave	2.718	3.849		0.0142	0.0100	41.6	50.0
1,3-Dichlorobenzene	Ave	1.398	1.247		0.00892	0.0100	-10.8	50.0
4-Isopropyltoluene	Ave	2.170	2.846		0.0131	0.0100	31.2	50.0
1,4-Dichlorobenzene	Ave	1.422	1.339		0.00941	0.0100	-5.9	50.0
n-Butylbenzene	Ave	2.043	2.695		0.0132	0.0100	31.9	50.0
1,2-Dichlorobenzene	Ave	1.394	1.288		0.00923	0.0100	-7.7	50.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Lab Sample ID: CCVIS 240-445379/2 Calibration Date: 08/03/2020 13:55
 Instrument ID: A3UX10 Calib Start Date: 01/15/2020 15:09
 GC Column: DB-624 ID: 0.18 (mm) Calib End Date: 01/15/2020 17:40
 Lab File ID: UXX8950.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,2-Dibromo-3-Chloropropane	Qua		0.1618		0.00773	0.0100	-22.7	50.0
1,2,4-Trichlorobenzene	Ave	0.6166	0.7344		0.0119	0.0100	19.1	50.0
Hexachlorobutadiene	Ave	0.1511	0.2773		0.0184	0.0100	83.6*	50.0
Naphthalene	Ave	3.231	2.225		0.00688	0.0100	-31.2	50.0
1,2,3-Trichlorobenzene	Ave	0.6137	0.6998		0.0114	0.0100	14.0	50.0
Dibromofluoromethane (Surr)	Ave	0.2337	0.2498		0.0107	0.0100	6.9	50.0
1,2-Dichloroethane-d4 (Surr)	Ave	0.3432	0.4264		0.0124	0.0100	24.2	50.0
Toluene-d8 (Surr)	Ave	1.538	1.731		0.0113	0.0100	12.6	50.0
4-Bromofluorobenzene (Surr)	Ave	0.4841	0.4782		0.00988	0.0100	-1.2	50.0

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8950.D
 Lims ID: CCVIS L4 8260
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 03-Aug-2020 13:55:30 ALS Bottle#: 1 Worklist Smp#: 2
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100621-002
 Operator ID: 001644 Instrument ID: A3UX10
 Sublist: chrom-8260_10*sub82
 Method: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 10:20:09 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1067

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.964	4.964	0.000	96	402245	10.0	10.0	
* 2 Chlorobenzene-d5	117	7.637	7.637	0.000	94	227073	10.0	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.873	9.873	0.000	94	72107	10.0	10.0	
\$ 4 Dibromofluoromethane (Surr)	113	4.396	4.396	0.000	90	100463	10.0	10.7	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.680	4.680	0.000	96	171502	10.0	12.4	
\$ 6 Toluene-d8 (Surr)	98	6.336	6.336	0.000	96	393159	10.0	11.3	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.749	8.749	0.000	73	108588	10.0	9.88	
9 Dichlorodifluoromethane	85	1.226	1.226	0.000	98	112659	10.0	12.9	
10 Chloromethane	50	1.368	1.368	0.000	100	165439	10.0	9.29	
11 Vinyl chloride	62	1.451	1.451	0.000	97	138260	10.0	10.5	
12 Butadiene	54	1.487	1.487	0.000	97	242243	10.0	33.4	
13 Bromomethane	94	1.723	1.723	0.000	92	40194	10.0	6.43	
14 Chloroethane	64	1.818	1.818	0.000	96	59110	10.0	8.40	
15 Dichlorofluoromethane	67	1.983	1.983	0.000	98	129528	10.0	7.30	
16 Trichlorofluoromethane	101	2.031	2.031	0.000	98	151078	10.0	16.0	
17 Ethyl ether	59	2.291	2.291	0.000	96	136455	10.0	11.0	
18 Acrolein	56	2.397	2.397	0.000	98	77782	50.0	32.8	
19 1,1-Dichloroethene	96	2.480	2.480	0.000	88	85205	10.0	8.99	
20 1,1,2-Trichloro-1,2,2-trifluoro	151	2.492	2.492	0.000	95	62556	10.0	14.0	
21 Acetone	43	2.539	2.539	0.000	99	93279	20.0	17.3	
22 Iodomethane	142	2.610	2.610	0.000	97	52324	10.0	4.72	
24 Carbon disulfide	76	2.669	2.669	0.000	99	241090	10.0	7.26	
26 3-Chloro-1-propene	76	2.799	2.799	0.000	87	76456	10.0	8.90	
27 Methyl acetate	43	2.823	2.823	0.000	100	248324	20.0	17.5	
28 Methylene Chloride	84	2.906	2.906	0.000	89	76390	10.0	6.53	
29 2-Methyl-2-propanol	59	3.012	3.012	0.000	98	173601	100.0	104.5	
31 Acrylonitrile	53	3.119	3.119	0.000	97	548244	100.0	79.1	
30 trans-1,2-Dichloroethene	96	3.143	3.143	0.000	84	97030	10.0	8.83	
32 Methyl tert-butyl ether	73	3.143	3.143	0.000	95	343260	10.0	10.7	
33 Hexane	86	3.379	3.379	0.000	93	31131	10.0	14.7	
34 1,1-Dichloroethane	63	3.497	3.497	0.000	97	269913	10.0	10.4	
35 Vinyl acetate	43	3.545	3.545	0.000	97	354284	10.0	11.3	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
39 2,2-Dichloropropane	97	3.994	3.994	0.000	75	37464	10.0	15.2	
40 cis-1,2-Dichloroethene	96	3.994	3.994	0.000	92	106739	10.0	8.72	
41 2-Butanone (MEK)	43	4.006	4.006	0.000	97	147561	20.0	16.8	
45 Chlorobromomethane	128	4.195	4.195	0.000	83	41511	10.0	8.33	
46 Tetrahydrofuran	42	4.243	4.243	0.000	92	103439	20.0	16.8	
47 Chloroform	83	4.266	4.266	0.000	98	194508	10.0	10.2	
48 1,1,1-Trichloroethane	97	4.420	4.420	0.000	93	172033	10.0	14.3	
49 Cyclohexane	56	4.467	4.467	0.000	90	328190	10.0	14.4	
50 1,1-Dichloropropene	75	4.562	4.562	0.000	84	156721	10.0	10.5	
51 Carbon tetrachloride	117	4.562	4.562	0.000	84	147803	10.0	15.4	
52 Isobutyl alcohol	41	4.657	4.657	0.000	94	122934	250.0	251.0	
53 Benzene	78	4.739	4.739	0.000	95	427297	10.0	8.59	
54 1,2-Dichloroethane	62	4.751	4.751	0.000	97	212109	10.0	11.6	
56 n-Heptane	100	4.964	4.964	0.000	96	30131	10.0	17.9	
58 Trichloroethene	130	5.283	5.283	0.000	88	88377	10.0	8.55	
60 Methylcyclohexane	83	5.449	5.449	0.000	93	183495	10.0	13.9	
61 1,2-Dichloropropane	63	5.473	5.473	0.000	92	143112	10.0	9.15	
63 Dibromomethane	93	5.579	5.579	0.000	85	52061	10.0	8.18	
64 1,4-Dioxane	88	5.591	5.591	0.000	84	14473	200.0	125.3	
65 Dichlorobromomethane	83	5.709	5.709	0.000	95	143329	10.0	10.1	
67 2-Chloroethyl vinyl ether	63	5.970	5.970	0.000	91	186380	20.0	16.5	
68 cis-1,3-Dichloropropene	75	6.100	6.100	0.000	86	165045	10.0	8.48	
69 4-Methyl-2-pentanone (MIBK)	43	6.242	6.242	0.000	98	321461	20.0	17.7	
70 Toluene	91	6.395	6.395	0.000	96	407908	10.0	9.81	
71 trans-1,3-Dichloropropene	75	6.596	6.596	0.000	98	144989	10.0	9.93	
72 Ethyl methacrylate	69	6.667	6.667	0.000	92	137174	10.0	8.56	
73 1,1,2-Trichloroethane	97	6.750	6.750	0.000	93	77448	10.0	8.79	
74 Tetrachloroethene	164	6.892	6.892	0.000	89	52095	10.0	10.8	
75 1,3-Dichloropropane	76	6.904	6.904	0.000	95	151364	10.0	9.44	
76 2-Hexanone	43	6.987	6.987	0.000	97	200011	20.0	19.3	
78 Chlorodibromomethane	129	7.117	7.117	0.000	87	76887	10.0	10.1	
80 Ethylene Dibromide	107	7.223	7.223	0.000	96	67564	10.0	8.61	
82 Chlorobenzene	112	7.673	7.673	0.000	89	205993	10.0	9.27	
83 1,1,1,2-Tetrachloroethane	131	7.744	7.744	0.000	91	74186	10.0	10.7	
84 Ethylbenzene	106	7.767	7.767	0.000	99	114082	10.0	9.23	
85 m-Xylene & p-Xylene	106	7.874	7.874	0.000	96	136573	10.0	9.30	
86 o-Xylene	106	8.252	8.252	0.000	98	124330	10.0	9.04	
87 Styrene	104	8.264	8.264	0.000	90	202281	10.0	8.22	
88 Bromoform	173	8.442	8.442	0.000	87	28959	10.0	7.18	
89 Isopropylbenzene	105	8.607	8.607	0.000	98	314504	10.0	9.87	
92 1,1,2,2-Tetrachloroethane	83	8.891	8.891	0.000	74	75670	10.0	8.68	
93 Bromobenzene	156	8.891	8.891	0.000	90	51312	10.0	9.20	
94 1,2,3-Trichloropropane	110	8.927	8.927	0.000	89	21805	10.0	9.36	
95 trans-1,4-Dichloro-2-butene	53	8.938	8.938	0.000	79	30580	10.0	7.89	
96 N-Propylbenzene	120	8.998	8.998	0.000	99	76333	10.0	11.9	
97 2-Chlorotoluene	126	9.080	9.080	0.000	93	60331	10.0	10.4	
98 1,3,5-Trimethylbenzene	105	9.163	9.163	0.000	93	230478	10.0	12.2	
99 4-Chlorotoluene	126	9.187	9.187	0.000	99	60224	10.0	9.80	
100 tert-Butylbenzene	119	9.483	9.483	0.000	93	190146	10.0	13.6	
102 1,2,4-Trimethylbenzene	105	9.530	9.530	0.000	96	220166	10.0	10.9	
103 sec-Butylbenzene	105	9.696	9.696	0.000	97	277546	10.0	14.2	
104 1,3-Dichlorobenzene	146	9.802	9.802	0.000	90	89896	10.0	8.92	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
105 4-Isopropyltoluene	119	9.837	9.837	0.000	97	205236	10.0	13.1	
106 1,4-Dichlorobenzene	146	9.885	9.885	0.000	91	96524	10.0	9.41	
109 n-Butylbenzene	91	10.240	10.240	0.000	99	194331	10.0	13.2	
110 1,2-Dichlorobenzene	146	10.251	10.251	0.000	86	92841	10.0	9.23	
111 1,2-Dibromo-3-Chloropropane	157	11.020	11.020	0.000	65	11665	10.0	7.73	
113 1,2,4-Trichlorobenzene	180	11.848	11.848	0.000	90	52953	10.0	11.9	
114 Hexachlorobutadiene	225	12.014	12.014	0.000	83	19996	10.0	18.4	
115 Naphthalene	128	12.085	12.085	0.000	98	160429	10.0	6.88	
116 1,2,3-Trichlorobenzene	180	12.321	12.321	0.000	87	50458	10.0	11.4	E
S 130 Xylenes, Total	106				0		20.0	18.3	
S 156 Total BTEX	1				0		50.0	46.0	
S 131 Trihalomethanes, Total	1				0		40.0	37.6	

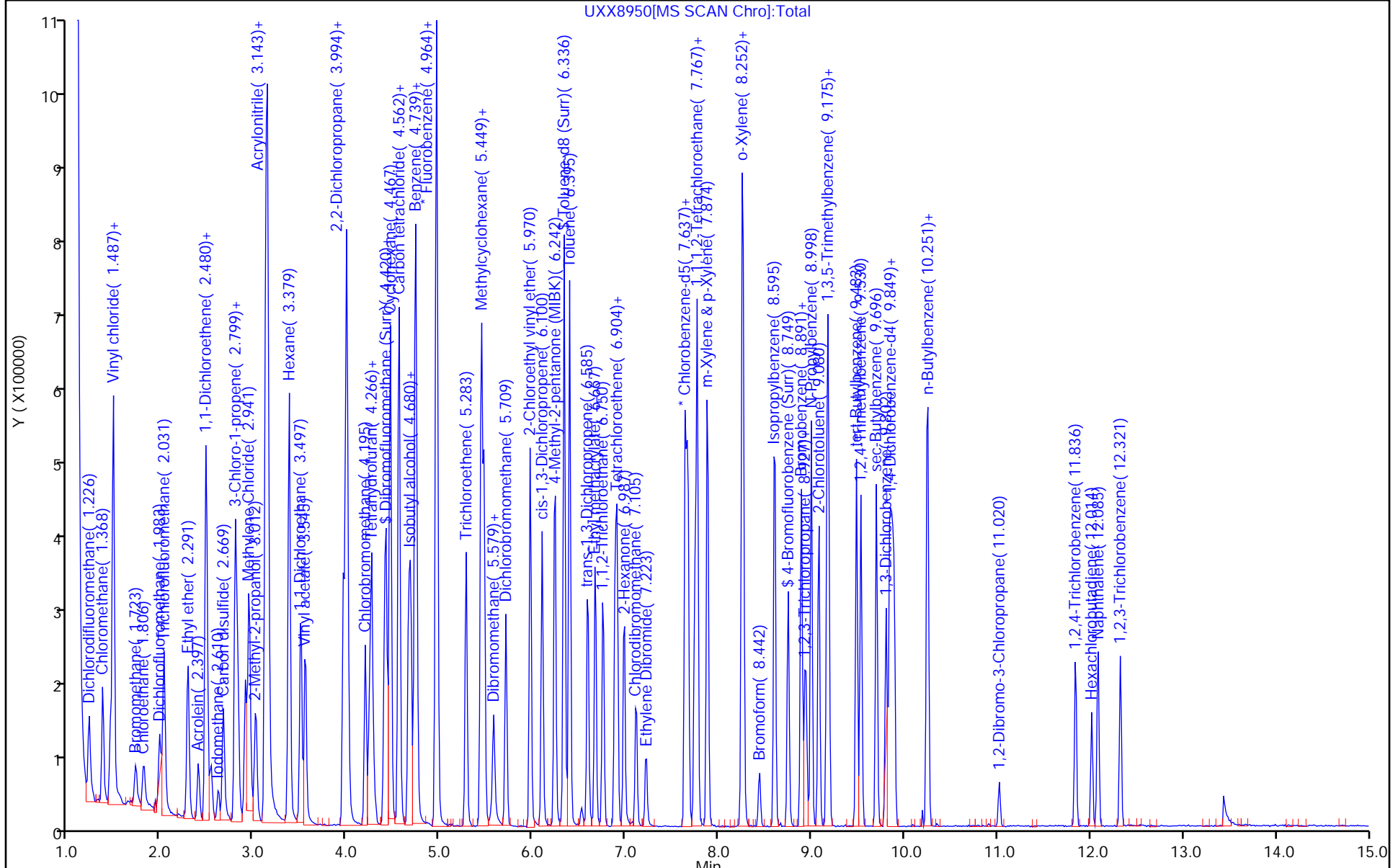
QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount

Reagents:

VMRPRIMW_00397	Amount Added: 8.00	Units: uL	
VMAROLISTDW_00355	Amount Added: 8.00	Units: uL	
VMRGAS_00349	Amount Added: 8.00	Units: uL	
VM50IS_00084	Amount Added: 1.00	Units: uL	Run Reagent
vm50ss_stk_00085	Amount Added: 1.00	Units: uL	Run Reagent
vm40ml_vials_00015	Amount Added: 0.00	Units:	Run Reagent
vmDist_H2o_00177	Amount Added: 0.00	Units:	Run Reagent



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\BFB1718.D
 Lims ID: BFB
 Client ID:
 Sample Type: BFB
 Inject. Date: 15-Jan-2020 14:40:30 ALS Bottle#: 20 Worklist Smp#: 1
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: 240-0094937-001
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 20-Jan-2020 16:50:49 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0309

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 8 BFB	95	3.326	3.326	0.000	0	681278	NR	NR	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

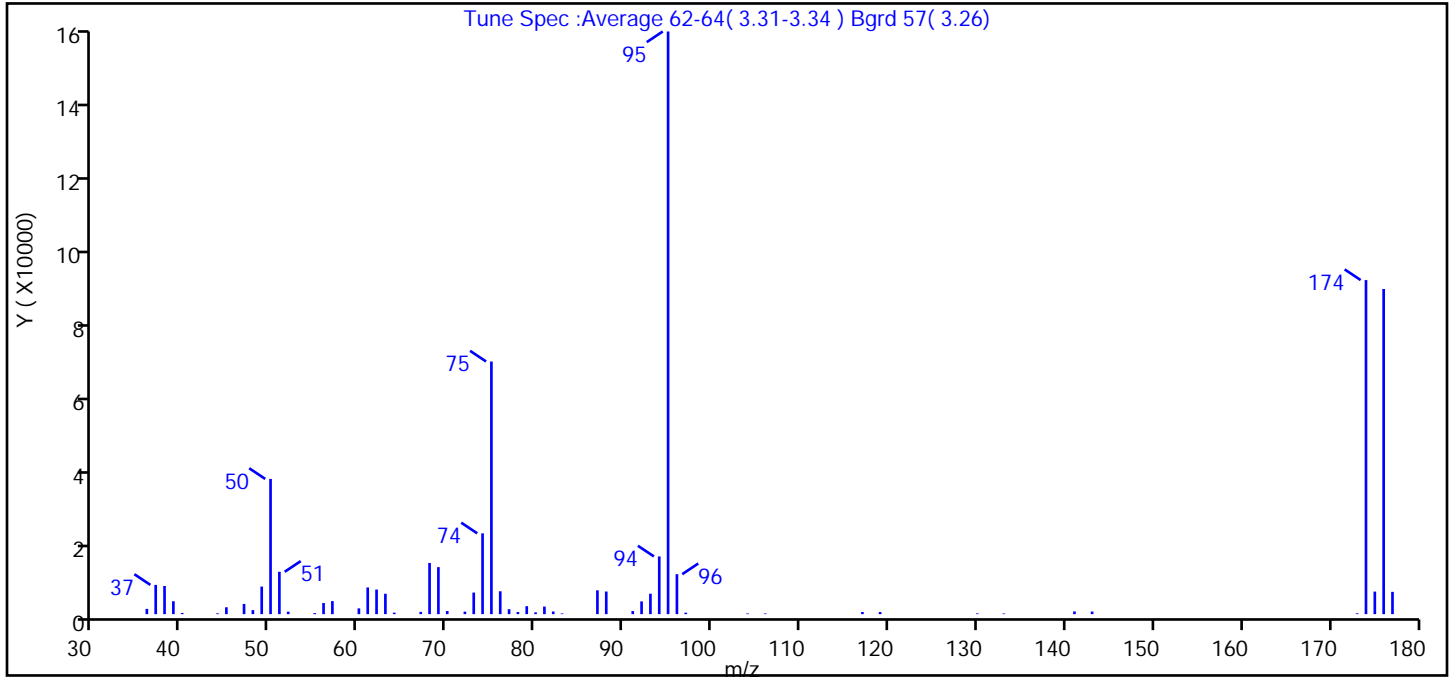
Reagents:

vmbfb_00024 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\BFB1718.D
 Injection Date: 15-Jan-2020 14:40:30 Instrument ID: A3UX10
 Lims ID: BFB
 Client ID:
 Operator ID: 001644 ALS Bottle#: 20 Worklist Smp#: 1
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Method: 8260_10 Limit Group: MSV 8260B ICAL
 Tune Method: BFB Method 8260

\$ 8 BFB



m/z	Ion Abundance Criteria	% Relative Abundance
95	Base peak, 100% relative abundance	100.0
50	15 to 40% of m/z 95	23.2
75	30 to 60% of m/z 95	43.4
96	5 to 9% of m/z 95	6.9
173	Less than 2% of m/z 174	0.1 (0.2)
174	50 to 120% of m/z 95	57.3
175	5 to 9% of m/z 174	3.9 (6.7)
176	Greater than 95% but less than 101% of m/z 174	55.8 (97.3)
177	5 to 9% of m/z 176	3.8 (6.9)

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\BFB1718.D\8260_10.rsl\spectra.d
 Injection Date: 15-Jan-2020 14:40:30
 Spectrum: Tune Spec :Average 62-64(3.31-3.34) Bgrd 57(3.26)
 Base Peak: 95.00
 Minimum % Base Peak: 0
 Number of Points: 59

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1411	57.00	3489	77.00	1320	97.00	394
37.00	7839	60.00	1548	78.00	571	104.00	184
38.00	7546	61.00	7152	79.00	2131	106.00	177
39.00	3454	62.00	6590	80.00	472	117.00	571
40.00	318	63.00	5463	81.00	2034	119.00	573
44.00	227	64.00	406	82.00	706	130.00	199
45.00	1839	67.00	599	83.00	188	133.00	183
47.00	2735	68.00	13720	87.00	6389	141.00	721
48.00	1091	69.00	12599	88.00	6062	143.00	697
49.00	7382	70.00	834	91.00	828	173.00	222
50.00	36240	72.00	671	92.00	3417	174.00	89536
51.00	11354	73.00	5782	93.00	5472	175.00	6043
52.00	667	74.00	21656	94.00	15461	176.00	87144
55.00	289	75.00	67712	95.00	156160	177.00	5975
56.00	2984	76.00	6130	96.00	10712		

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\BFB1718.D

Injection Date: 15-Jan-2020 14:40:30

Instrument ID: A3UX10

Operator ID: 001644

Lims ID: BFB

Worklist Smp#: 1

Client ID:

Injection Vol: 5.0 mL

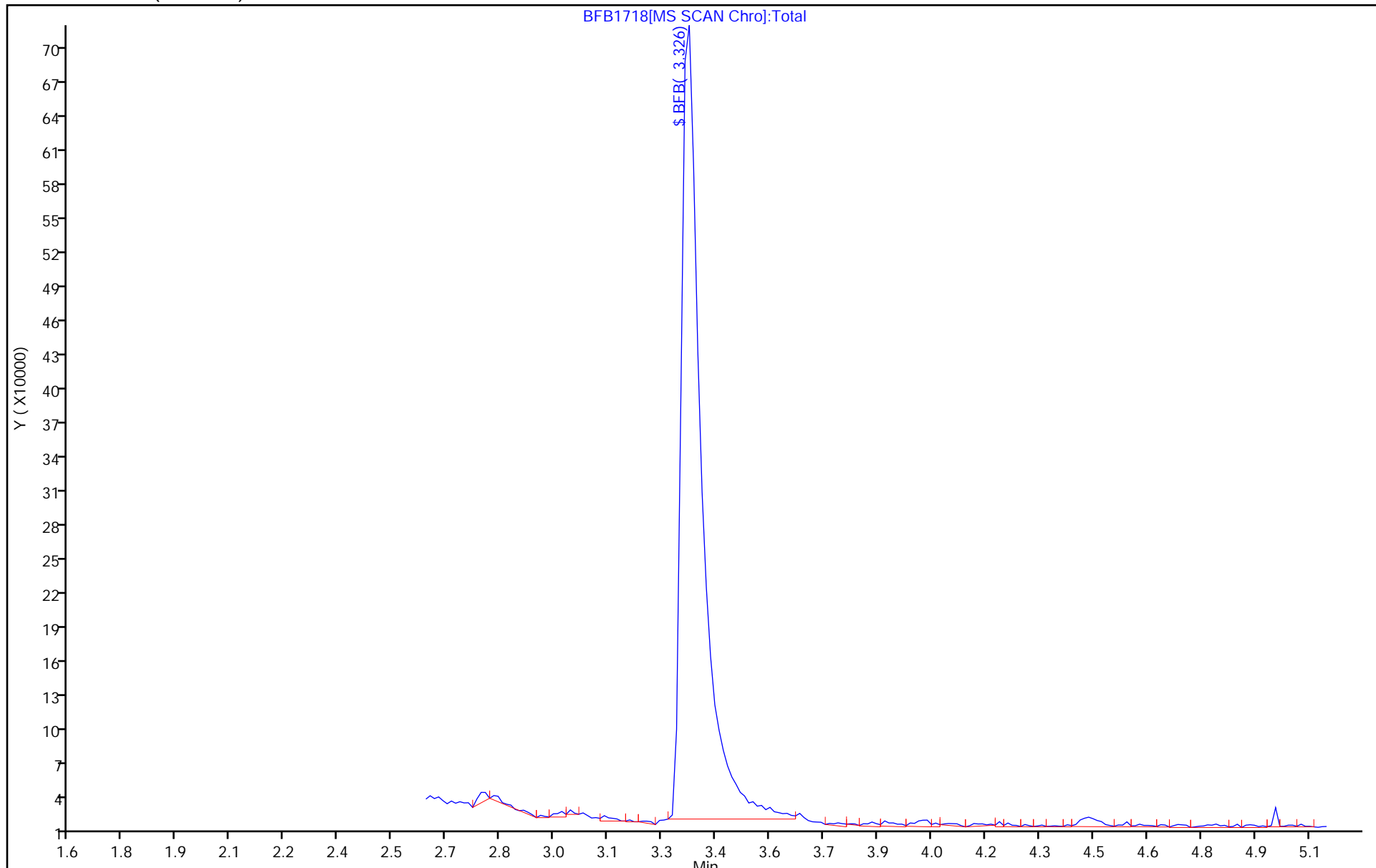
Dil. Factor: 1.0000

ALS Bottle#: 20

Method: 8260_10

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\BFB1913.D
 Lims ID: BFB
 Client ID:
 Sample Type: BFB
 Inject. Date: 03-Aug-2020 13:28:30 ALS Bottle#: 1 Worklist Smp#: 1
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: 240-0100621-001
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 10:20:06 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1067

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 8 BFB	95	3.209	3.209	0.000	0	243351	NR	NR	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

Reagents:

VMBFB_00025

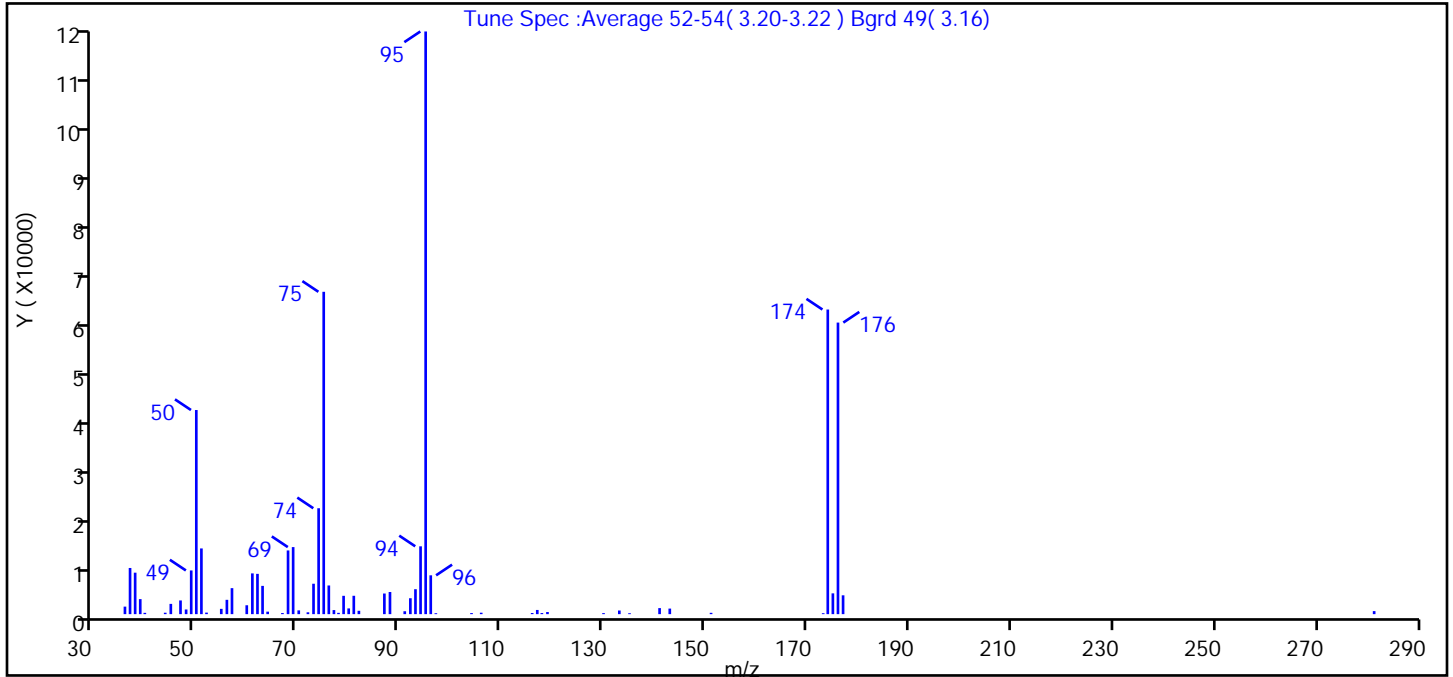
Amount Added: 1.00

Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\BFB1913.D
 Injection Date: 03-Aug-2020 13:28:30 Instrument ID: A3UX10
 Lims ID: BFB
 Client ID:
 Operator ID: 001644 ALS Bottle#: 1 Worklist Smp#: 1
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Method: 8260_10 Limit Group: MSV 8260B ICAL
 Tune Method: BFB Method 8260

\$ 8 BFB



m/z	Ion Abundance Criteria	% Relative Abundance
95	Base peak, 100% relative abundance	100.0
50	15 to 40% of m/z 95	35.0
75	30 to 60% of m/z 95	55.3
96	5 to 9% of m/z 95	6.7
173	Less than 2% of m/z 174	0.2 (0.3)
174	50 to 120% of m/z 95	52.3
175	5 to 9% of m/z 174	3.6 (6.8)
176	Greater than 95% but less than 101% of m/z 174	50.0 (95.7)
177	5 to 9% of m/z 176	3.2 (6.5)

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\BFB1913.D\8260_10.rslt\spectra.d
 Injection Date: 03-Aug-2020 13:28:30
 Spectrum: Tune Spec :Average 52-54(3.20-3.22) Bgrd 49(3.16)
 Base Peak: 95.10
 Minimum % Base Peak: 0
 Number of Points: 63

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1425	60.00	1684	79.00	3472	117.00	793
37.00	8746	61.00	7721	80.00	1085	118.00	210
38.00	7856	62.00	7633	81.00	3479	119.00	403
39.00	2849	63.00	5354	82.00	635	130.00	195
40.00	246	64.00	471	87.00	3908	133.00	688
44.00	269	67.00	211	88.00	4194	135.00	175
45.00	1943	68.00	12069	91.00	549	141.00	1144
47.00	2595	69.00	12703	92.00	3014	143.00	1052
48.00	884	70.00	713	93.00	4724	151.00	251
49.00	8279	72.00	351	94.00	12851	173.00	178
50.00	38672	73.00	5763	95.00	110392	174.00	57712
51.00	12449	74.00	20064	96.00	7356	175.00	3939
52.00	292	75.00	61072	97.00	176	176.00	55240
55.00	1001	76.00	5431	104.00	204	177.00	3568
56.00	2712	77.00	769	106.00	272	281.00	574
57.00	4924	78.00	247	116.00	215		

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\BFB1913.D

Injection Date: 03-Aug-2020 13:28:30

Instrument ID: A3UX10

Operator ID: 001644

Lims ID: BFB

Worklist Smp#: 1

Client ID:

Injection Vol: 5.0 mL

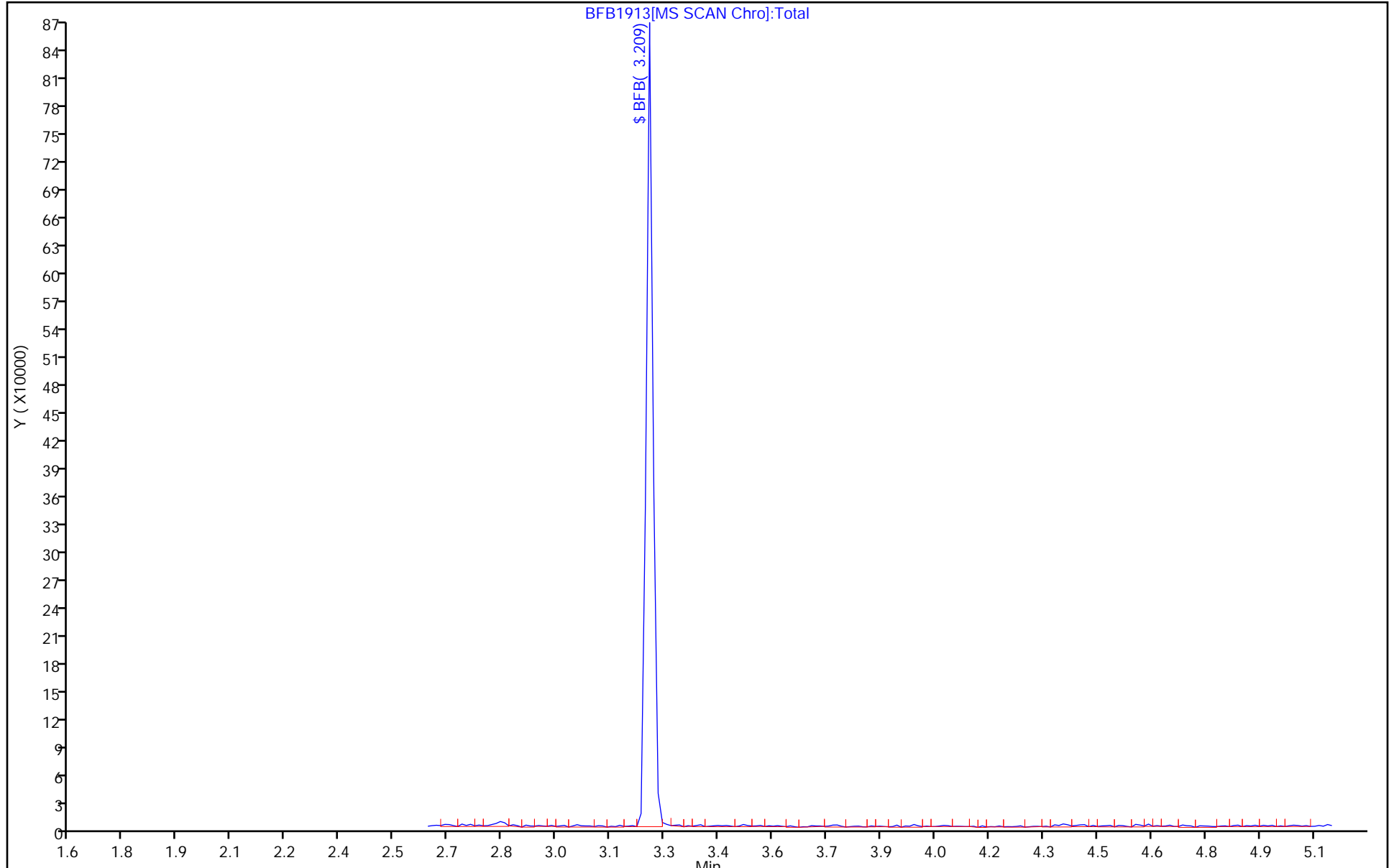
Dil. Factor: 1.0000

ALS Bottle#: 1

Method: 8260_10

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 240-445379/7
 Matrix: Water Lab File ID: UXX8956.D
 Analysis Method: 8260B Date Collected: _____
 Sample wt/vol: 5 (mL) Date Analyzed: 08/03/2020 16:25
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 445379 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	1.0	U	1.0	0.46
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.38
127-18-4	Tetrachloroethene	1.0	U	1.0	0.33
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.43
79-01-6	Trichloroethene	1.0	U	1.0	0.36
75-01-4	Vinyl chloride	1.0	U	1.0	0.50

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	122		75-130
460-00-4	4-Bromofluorobenzene (Surr)	94		47-134
2037-26-5	Toluene-d8 (Surr)	112		69-122
1868-53-7	Dibromofluoromethane (Surr)	106		78-129

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8956.D
 Lims ID: MB
 Client ID:
 Sample Type: MB
 Inject. Date: 03-Aug-2020 16:25:30 ALS Bottle#: 7 Worklist Smp#: 7
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100621-007
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 10:20:14 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1067

First Level Reviewer: williamsla Date: 03-Aug-2020 17:05:42

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.974	4.964	0.010	96	389889	10.0	10.0	
* 2 Chlorobenzene-d5	117	7.647	7.638	0.009	96	217213	10.0	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.871	9.861	0.010	95	65062	10.0	10.0	
\$ 4 Dibromofluoromethane (Surr)	113	4.406	4.396	0.010	90	96159	10.0	10.6	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.690	4.680	0.010	94	163291	10.0	12.2	
\$ 6 Toluene-d8 (Surr)	98	6.334	6.336	-0.002	96	373435	10.0	11.2	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.747	8.749	-0.002	73	99155	10.0	9.43	
9 Dichlorodifluoromethane	85		1.226					ND	
10 Chloromethane	50		1.368					ND	
11 Vinyl chloride	62		1.451					ND	
12 Butadiene	54		1.487					ND	
13 Bromomethane	94		1.723					ND	
14 Chloroethane	64		1.818					ND	
15 Dichlorofluoromethane	67		1.983					ND	
16 Trichlorofluoromethane	101		2.031					ND	
17 Ethyl ether	59		2.291					ND	
18 Acrolein	56		2.397					ND	
19 1,1-Dichloroethene	96		2.480					ND	
20 1,1,2-Trichloro-1,2,2-trifluoro	151		2.492					ND	
21 Acetone	43		2.539					ND	
22 Iodomethane	142		2.610					ND	
24 Carbon disulfide	76		2.669					ND	U
25 Acetonitrile	41		2.788					ND	
26 3-Chloro-1-propene	76		2.799					ND	
27 Methyl acetate	43		2.823					ND	
120 Propene oxide	58		2.856					ND	
28 Methylene Chloride	84		2.906					ND	
29 2-Methyl-2-propanol	59		3.012					ND	
23 Methylal	45		3.057					ND	
31 Acrylonitrile	53		3.119					ND	
30 trans-1,2-Dichloroethene	96		3.143					ND	
32 Methyl tert-butyl ether	73		3.143					ND	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
33 Hexane	86		3.379					ND	
34 1,1-Dichloroethane	63		3.497					ND	
35 Vinyl acetate	43		3.545					ND	
36 Isopropyl ether	87		3.569					ND	
37 2-Chloro-1,3-butadiene	53		3.581					ND	
42 Ethyl acetate	43		3.876					ND	U
38 Tert-butyl ethyl ether	59		3.876					ND	
39 2,2-Dichloropropane	97		3.994					ND	
40 cis-1,2-Dichloroethene	96		3.994					ND	
41 2-Butanone (MEK)	43		4.006					ND	
43 Propionitrile	54		4.065					ND	
45 Chlorobromomethane	128		4.195					ND	
44 Methacrylonitrile	41		4.196					ND	
46 Tetrahydrofuran	42		4.243					ND	
47 Chloroform	83		4.266					ND	
48 1,1,1-Trichloroethane	97		4.420					ND	
49 Cyclohexane	56		4.467					ND	
50 1,1-Dichloropropene	75		4.562					ND	
51 Carbon tetrachloride	117		4.562					ND	
52 Isobutyl alcohol	41		4.657					ND	
53 Benzene	78		4.739					ND	
54 1,2-Dichloroethane	62		4.751					ND	
158 Isooctane	57		4.799					ND	
55 Tert-amyl methyl ether	73		4.834					ND	
56 n-Heptane	100		4.964					ND	
57 n-Butanol	56		5.225					ND	
58 Trichloroethene	130		5.283					ND	
59 Ethyl acrylate	55		5.378					ND	
60 Methylcyclohexane	83		5.449					ND	
61 1,2-Dichloropropane	63		5.473					ND	
62 Methyl methacrylate	41		5.568					ND	
63 Dibromomethane	93		5.579					ND	
64 1,4-Dioxane	88		5.591					ND	
65 Dichlorobromomethane	83		5.709					ND	
66 2-Nitropropane	41		5.911					ND	
67 2-Chloroethyl vinyl ether	63		5.970					ND	
68 cis-1,3-Dichloropropene	75		6.100					ND	
69 4-Methyl-2-pentanone (MIBK)	43		6.242					ND	
70 Toluene	91		6.395					ND	
71 trans-1,3-Dichloropropene	75		6.596					ND	
72 Ethyl methacrylate	69		6.667					ND	
73 1,1,2-Trichloroethane	97		6.750					ND	
74 Tetrachloroethene	164		6.892					ND	
75 1,3-Dichloropropane	76		6.904					ND	
76 2-Hexanone	43		6.987					ND	
77 n-Butyl acetate	56		7.094					ND	
78 Chlorodibromomethane	129		7.117					ND	
80 Ethylene Dibromide	107		7.223					ND	
81 1-Chlorohexane	91		7.650					ND	
82 Chlorobenzene	112		7.673					ND	
79 Tetrahydrothiophene	60		7.696					ND	
83 1,1,1,2-Tetrachloroethane	131		7.744					ND	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
84 Ethylbenzene	106		7.767					ND	
85 m-Xylene & p-Xylene	106		7.874					ND	
86 o-Xylene	106		8.252					ND	
87 Styrene	104		8.264					ND	
88 Bromoform	173		8.442					ND	
89 Isopropylbenzene	105		8.607					ND	
91 Cyclohexanone	55		8.690					ND	
92 1,1,2,2-Tetrachloroethane	83		8.891					ND	
93 Bromobenzene	156		8.891					ND	
94 1,2,3-Trichloropropane	110		8.927					ND	
95 trans-1,4-Dichloro-2-butene	53		8.938					ND	
96 N-Propylbenzene	120		8.998					ND	
97 2-Chlorotoluene	126		9.080					ND	
98 1,3,5-Trimethylbenzene	105		9.163					ND	
99 4-Chlorotoluene	126		9.187					ND	
90 1,4-Dichlorobutane	55		9.294					ND	
100 tert-Butylbenzene	119		9.483					ND	
101 Pentachloroethane	167		9.507					ND	
102 1,2,4-Trimethylbenzene	105		9.530					ND	
126 3-Ethyltoluene	105		9.662					ND	
103 sec-Butylbenzene	105		9.696					ND	
104 1,3-Dichlorobenzene	146		9.802					ND	
105 4-Isopropyltoluene	119		9.837					ND	
106 1,4-Dichlorobenzene	146		9.885					ND	
107 1,2,3-Trimethylbenzene	105		9.944					ND	
119 2-Ethyltoluene	105		9.946					ND	
108 Benzyl chloride	126		10.027					ND	
109 n-Butylbenzene	91		10.240					ND	
110 1,2-Dichlorobenzene	146		10.251					ND	
111 1,2-Dibromo-3-Chloropropane	157		11.020					ND	
112 1,3,5-Trichlorobenzene	180		11.234					ND	
113 1,2,4-Trichlorobenzene	180		11.848					ND	
114 Hexachlorobutadiene	225		12.014					ND	
115 Naphthalene	128		12.085					ND	
116 1,2,3-Trichlorobenzene	180		12.321					ND	
117 2-Methylnaphthalene	142		13.244					ND	
157 1-Methylnaphthalene	142		13.457					ND	
122 Epichlorohydrin	1		0.000					ND	
124 Ethylene oxide	1		0.000					ND	
118 1,3-Diethylbenzene TIC	1		0.000					ND	
S 128 1,2-Dichloroethene, Total	96		1.140					ND	
S 129 1,3-Dichloropropene, Total	75		6.760					ND	
S 130 Xylenes, Total	106		16.530					ND	
S 156 Total BTEX	1		0.000					ND	
S 131 Trihalomethanes, Total	1		0.000					ND	

QC Flag Legend

Review Flags

U - Marked Undetected

Reagents:

VM50IS_00084	Amount Added: 1.00	Units: uL	Run Reagent
vm50ss_stk_00085	Amount Added: 1.00	Units: uL	Run Reagent
vm40ml_vials_00015	Amount Added: 0.00	Units:	Run Reagent
vmDist_H2o_00177	Amount Added: 0.00	Units:	Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8956.D

Injection Date: 03-Aug-2020 16:25:30

Instrument ID: A3UX10

Operator ID: 001644

Lims ID: MB

Worklist Smp#: 7

Client ID:

Purge Vol: 5.000 mL

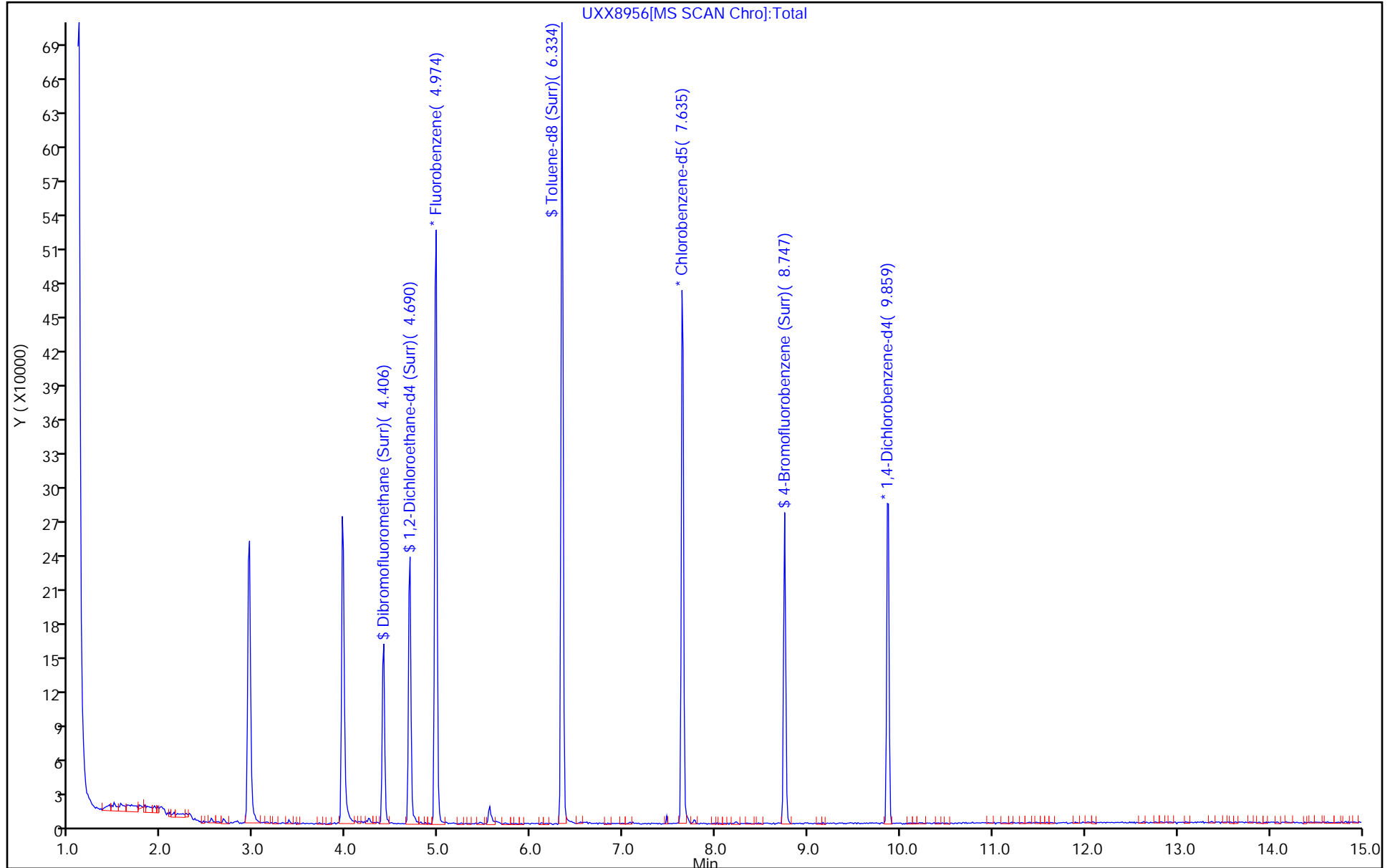
Dil. Factor: 1.0000

ALS Bottle#: 7

Method: 8260_10

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8956.D
 Lims ID: MB
 Client ID:
 Sample Type: MB
 Inject. Date: 03-Aug-2020 16:25:30 ALS Bottle#: 7 Worklist Smp#: 7
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100621-007
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 10:20:14 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1067

First Level Reviewer: williamsla

Date: 03-Aug-2020 17:05:42

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	10.0	10.6	105.52
\$ 5 1,2-Dichloroethane-d4 (Surr)	10.0	12.2	122.03
\$ 6 Toluene-d8 (Surr)	10.0	11.2	111.81
\$ 7 4-Bromofluorobenzene (Surr)	10.0	9.43	94.30

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LCS 240-445379/4
 Matrix: Water Lab File ID: UXX8954.D
 Analysis Method: 8260B Date Collected: _____
 Sample wt/vol: 5 (mL) Date Analyzed: 08/03/2020 15:36
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 445379 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	9.38		1.0	0.46
156-59-2	cis-1,2-Dichloroethene	9.02		1.0	0.38
127-18-4	Tetrachloroethene	10.9		1.0	0.33
156-60-5	trans-1,2-Dichloroethene	9.26		1.0	0.43
79-01-6	Trichloroethene	8.49		1.0	0.36
75-01-4	Vinyl chloride	12.0		1.0	0.50

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	127		75-130
460-00-4	4-Bromofluorobenzene (Surr)	95		47-134
2037-26-5	Toluene-d8 (Surr)	110		69-122
1868-53-7	Dibromofluoromethane (Surr)	105		78-129

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8954.D
 Lims ID: LCS
 Client ID:
 Sample Type: LCS
 Inject. Date: 03-Aug-2020 15:36:30 ALS Bottle#: 5 Worklist Smp#: 4
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100621-004
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 10:20:14 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1067

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.974	4.964	0.010	95	394923	10.0	10.0	
* 2 Chlorobenzene-d5	117	7.636	7.638	-0.002	95	228017	10.0	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.871	9.861	0.010	92	67226	10.0	10.0	
\$ 4 Dibromofluoromethane (Surr)	113	4.395	4.396	-0.001	90	96631	10.0	10.5	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.679	4.680	-0.001	95	171725	10.0	12.7	
\$ 6 Toluene-d8 (Surr)	98	6.335	6.336	-0.001	96	384875	10.0	11.0	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.748	8.749	-0.001	73	104467	10.0	9.46	
9 Dichlorodifluoromethane	85	1.225	1.226	-0.001	98	117894	10.0	13.8	
10 Chloromethane	50	1.367	1.368	-0.001	100	181994	10.0	10.4	
11 Vinyl chloride	62	1.450	1.451	-0.001	97	155018	10.0	12.0	
12 Butadiene	54	1.485	1.487	-0.001	95	260607	10.0	36.6	
13 Bromomethane	94	1.722	1.723	-0.001	93	43899	10.0	7.15	
14 Chloroethane	64	1.804	1.818	-0.014	97	64879	10.0	9.40	
15 Dichlorofluoromethane	67	1.982	1.983	-0.001	97	154838	10.0	8.88	
16 Trichlorofluoromethane	101	2.029	2.031	-0.002	99	155781	10.0	16.8	
17 Ethyl ether	59	2.289	2.291	-0.002	96	140862	10.0	11.6	
18 Acrolein	56	2.396	2.397	-0.001	99	53726	50.0	23.1	
19 1,1-Dichloroethene	96	2.479	2.480	-0.001	89	87302	10.0	9.38	
20 1,1,2-Trichloro-1,2,2-trifluoro	151	2.490	2.492	-0.002	96	51075	10.0	11.8	
21 Acetone	43	2.538	2.539	-0.001	99	87525	20.0	16.4	
22 Iodomethane	142	2.609	2.610	-0.001	97	56865	10.0	5.23	
24 Carbon disulfide	76	2.668	2.669	-0.001	98	225067	10.0	6.90	
26 3-Chloro-1-propene	76	2.798	2.799	-0.001	86	82001	10.0	9.72	
27 Methyl acetate	43	2.822	2.823	-0.001	99	253120	20.0	18.1	
28 Methylene Chloride	84	2.904	2.906	-0.002	90	83665	10.0	7.29	
29 2-Methyl-2-propanol	59	3.011	3.012	-0.001	97	181636	100.0	111.4	
31 Acrylonitrile	53	3.117	3.119	-0.002	99	541516	100.0	79.6	
30 trans-1,2-Dichloroethene	96	3.141	3.143	-0.001	87	99903	10.0	9.26	
32 Methyl tert-butyl ether	73	3.141	3.143	-0.001	96	347743	10.0	11.0	
33 Hexane	86	3.378	3.379	-0.001	93	25880	10.0	12.4	
34 1,1-Dichloroethane	63	3.496	3.497	-0.001	97	265404	10.0	10.4	
35 Vinyl acetate	43	3.555	3.545	0.010	97	321822	10.0	10.5	
39 2,2-Dichloropropane	97	3.993	3.994	-0.001	76	38424	10.0	15.9	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
40 cis-1,2-Dichloroethene	96	3.993	3.994	-0.001	92	108364	10.0	9.02	
41 2-Butanone (MEK)	43	4.016	4.006	0.010	97	147402	20.0	17.1	
45 Chlorobromomethane	128	4.194	4.195	-0.001	82	35392	10.0	7.23	
46 Tetrahydrofuran	42	4.241	4.243	-0.002	91	101266	20.0	16.7	
47 Chloroform	83	4.265	4.266	-0.001	97	193988	10.0	10.4	
48 1,1,1-Trichloroethane	97	4.418	4.420	-0.002	93	177990	10.0	15.1	
49 Cyclohexane	56	4.466	4.467	-0.001	90	288638	10.0	12.9	
50 1,1-Dichloropropene	75	4.560	4.562	-0.002	82	148677	10.0	10.2	
51 Carbon tetrachloride	117	4.560	4.562	-0.002	85	140382	10.0	14.9	
52 Isobutyl alcohol	41	4.667	4.657	0.010	95	128206	250.0	260.9	
53 Benzene	78	4.738	4.739	-0.001	95	423931	10.0	8.68	
54 1,2-Dichloroethane	62	4.750	4.751	-0.001	97	220905	10.0	12.3	
56 n-Heptane	100	4.963	4.964	-0.001	95	26331	10.0	16.0	
58 Trichloroethene	130	5.282	5.283	-0.001	88	86105	10.0	8.49	
60 Methylcyclohexane	83	5.448	5.449	-0.001	92	160083	10.0	12.4	
61 1,2-Dichloropropane	63	5.471	5.473	-0.002	93	150673	10.0	9.81	
63 Dibromomethane	93	5.578	5.579	-0.001	83	57923	10.0	9.27	
64 1,4-Dioxane	88	5.601	5.591	0.010	95	12448	200.0	113.5	
65 Dichlorobromomethane	83	5.708	5.709	-0.001	95	145181	10.0	10.4	
67 2-Chloroethyl vinyl ether	63	5.968	5.970	-0.002	91	92746	10.0	8.36	
68 cis-1,3-Dichloropropene	75	6.098	6.100	-0.002	86	165313	10.0	8.65	
69 4-Methyl-2-pentanone (MIBK)	43	6.240	6.242	-0.002	98	316548	20.0	17.7	
70 Toluene	91	6.394	6.395	-0.001	96	408145	10.0	9.77	
71 trans-1,3-Dichloropropene	75	6.595	6.596	-0.001	95	135433	10.0	9.23	
72 Ethyl methacrylate	69	6.666	6.667	-0.001	91	137981	10.0	8.57	
73 1,1,2-Trichloroethane	97	6.761	6.750	0.011	93	77600	10.0	8.77	
74 Tetrachloroethene	164	6.891	6.892	-0.001	85	52971	10.0	10.9	
75 1,3-Dichloropropane	76	6.902	6.904	-0.002	94	151840	10.0	9.43	
76 2-Hexanone	43	6.985	6.987	-0.002	97	196999	20.0	18.9	
78 Chlorodibromomethane	129	7.115	7.117	-0.002	89	74857	10.0	9.78	
80 Ethylene Dibromide	107	7.222	7.223	-0.001	98	66711	10.0	8.47	
82 Chlorobenzene	112	7.671	7.673	-0.002	87	205548	10.0	9.22	
83 1,1,1,2-Tetrachloroethane	131	7.742	7.744	-0.002	89	73977	10.0	10.6	
84 Ethylbenzene	106	7.766	7.767	-0.001	99	118272	10.0	9.53	
85 m-Xylene & p-Xylene	106	7.872	7.874	-0.002	96	132629	10.0	8.99	
86 o-Xylene	106	8.251	8.252	-0.001	99	122944	10.0	8.90	
87 Styrene	104	8.263	8.264	-0.001	90	204067	10.0	8.26	
88 Bromoform	173	8.440	8.442	-0.002	89	28911	10.0	7.14	
89 Isopropylbenzene	105	8.606	8.607	-0.001	98	325406	10.0	10.2	
92 1,1,2,2-Tetrachloroethane	83	8.890	8.891	-0.001	75	79418	10.0	9.77	
93 Bromobenzene	156	8.890	8.891	-0.001	89	51376	10.0	9.87	
94 1,2,3-Trichloropropane	110	8.925	8.927	-0.002	90	22861	10.0	10.5	
95 trans-1,4-Dichloro-2-butene	53	8.949	8.938	0.011	71	23880	10.0	6.71	
96 N-Propylbenzene	120	8.996	8.998	-0.002	99	73211	10.0	12.2	
97 2-Chlorotoluene	126	9.079	9.080	-0.001	92	59274	10.0	11.0	
98 1,3,5-Trimethylbenzene	105	9.162	9.163	-0.001	92	226617	10.0	12.9	
99 4-Chlorotoluene	126	9.185	9.187	-0.002	98	57507	10.0	10.0	
100 tert-Butylbenzene	119	9.481	9.483	-0.002	93	185333	10.0	14.2	
102 1,2,4-Trimethylbenzene	105	9.528	9.530	-0.002	95	224433	10.0	11.9	
103 sec-Butylbenzene	105	9.694	9.696	-0.002	97	263342	10.0	14.4	
104 1,3-Dichlorobenzene	146	9.800	9.802	-0.002	88	90156	10.0	9.59	
105 4-Isopropyltoluene	119	9.836	9.837	-0.001	96	204176	10.0	14.0	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
106 1,4-Dichlorobenzene	146	9.895	9.885	0.010	84	94063	10.0	9.84	
109 n-Butylbenzene	91	10.238	10.240	-0.002	99	192364	10.0	14.0	
110 1,2-Dichlorobenzene	146	10.250	10.251	-0.001	87	87733	10.0	9.36	
111 1,2-Dibromo-3-Chloropropane	157	11.019	11.020	-0.001	63	11287	10.0	8.06	
113 1,2,4-Trichlorobenzene	180	11.847	11.848	-0.001	89	53747	10.0	13.0	
114 Hexachlorobutadiene	225	12.012	12.014	-0.002	84	22034	10.0	21.7	E
115 Naphthalene	128	12.083	12.085	-0.002	97	164417	10.0	7.57	
116 1,2,3-Trichlorobenzene	180	12.320	12.321	-0.001	85	49890	10.0	12.1	E
S 130 Xylenes, Total	106				0		20.0	17.9	
S 156 Total BTEX	1				0		50.0	45.9	
S 131 Trihalomethanes, Total	1				0		40.0	37.7	

QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount

Reagents:

VMFASPW_00360	Amount Added: 8.00	Units: uL	
VMFASAW_00338	Amount Added: 8.00	Units: uL	
VMFASGW_00370	Amount Added: 8.00	Units: uL	
VM50IS_00084	Amount Added: 1.00	Units: uL	Run Reagent
vm50ss_stk_00085	Amount Added: 1.00	Units: uL	Run Reagent
vm40ml_vials_00015	Amount Added: 0.00	Units:	Run Reagent
vmDist_H2o_00177	Amount Added: 0.00	Units:	Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8954.D

Injection Date: 03-Aug-2020 15:36:30

Instrument ID: A3UX10

Operator ID: 001644

Lims ID: LCS

Worklist Smp#: 4

Client ID:

Purge Vol: 5.000 mL

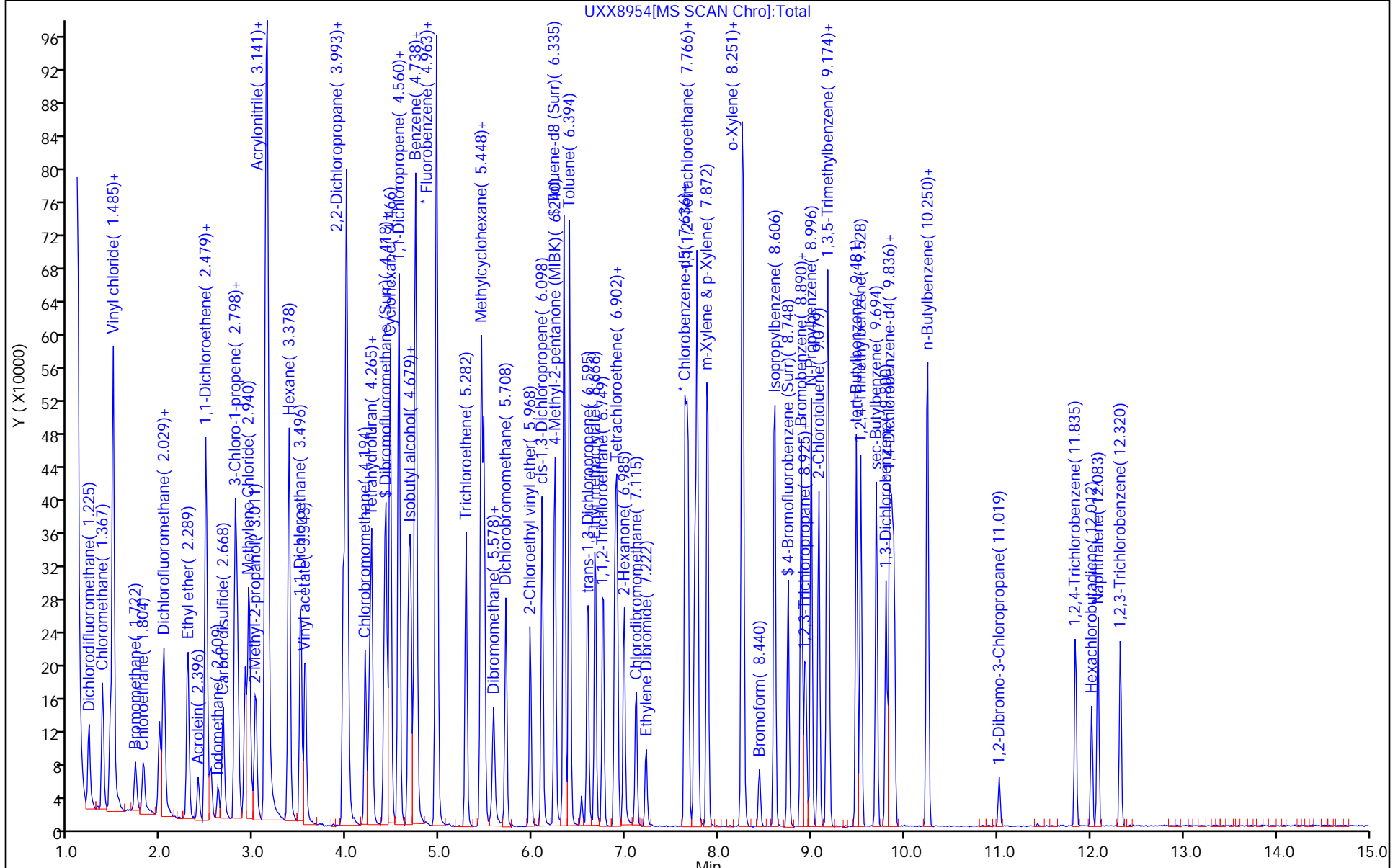
Dil. Factor: 1.0000

ALS Bottle#: 5

Method: 8260_10

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8954.D
 Lims ID: LCS
 Client ID:
 Sample Type: LCS
 Inject. Date: 03-Aug-2020 15:36:30 ALS Bottle#: 5 Worklist Smp#: 4
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100621-004
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 10:20:14 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1067

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	10.0	10.5	104.68
\$ 5 1,2-Dichloroethane-d4 (Surr)	10.0	12.7	126.70
\$ 6 Toluene-d8 (Surr)	10.0	11.0	109.77
\$ 7 4-Bromofluorobenzene (Surr)	10.0	9.46	94.65

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: 240-133764-G-4 MS
 Matrix: Water Lab File ID: UXX8958.D
 Analysis Method: 8260B Date Collected: _____
 Sample wt/vol: 5 (mL) Date Analyzed: 08/03/2020 17:14
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 445379 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	10.6		1.0	0.46
156-59-2	cis-1,2-Dichloroethene	9.61		1.0	0.38
127-18-4	Tetrachloroethene	12.0		1.0	0.33
156-60-5	trans-1,2-Dichloroethene	9.98		1.0	0.43
79-01-6	Trichloroethene	8.99		1.0	0.36
75-01-4	Vinyl chloride	13.3		1.0	0.50

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	128		75-130
460-00-4	4-Bromofluorobenzene (Surr)	99		47-134
2037-26-5	Toluene-d8 (Surr)	112		69-122
1868-53-7	Dibromofluoromethane (Surr)	104		78-129

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8958.D
 Lims ID: 240-133764-G-4 MS
 Client ID: ISMW-07-06223,24,25
 Sample Type: MS
 Inject. Date: 03-Aug-2020 17:14:30 ALS Bottle#: 9 Worklist Smp#: 9
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100621-009
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 10:20:14 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1067

First Level Reviewer: williamsla Date: 03-Aug-2020 17:48:46

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.975	4.964	0.011	97	388330	10.0	10.0	
* 2 Chlorobenzene-d5	117	7.648	7.638	0.010	95	218820	10.0	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.872	9.861	0.011	94	66417	10.0	10.0	
\$ 4 Dibromofluoromethane (Surr)	113	4.407	4.396	0.011	90	94464	10.0	10.4	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.691	4.680	0.011	95	170636	10.0	12.8	
\$ 6 Toluene-d8 (Surr)	98	6.335	6.336	-0.001	96	378313	10.0	11.2	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.748	8.749	-0.001	72	104543	10.0	9.87	
9 Dichlorodifluoromethane	85	1.225	1.226	-0.001	98	148043	10.0	17.6	
10 Chloromethane	50	1.367	1.368	-0.001	99	182261	10.0	10.6	
11 Vinyl chloride	62	1.462	1.451	0.011	97	168312	10.0	13.3	
13 Bromomethane	94	1.722	1.723	-0.001	92	43749	10.0	7.24	
14 Chloroethane	64	1.817	1.818	-0.001	95	71194	10.0	10.5	
16 Trichlorofluoromethane	101	2.029	2.031	-0.002	99	182081	10.0	20.0	
18 Acrolein	56	2.408	2.397	0.011	100	54036	50.0	23.6	
19 1,1-Dichloroethene	96	2.479	2.480	-0.001	90	97004	10.0	10.6	
21 Acetone	43	2.538	2.539	-0.001	98	96141	20.0	18.6	
22 Iodomethane	142	2.621	2.610	0.011	97	59723	10.0	5.58	
24 Carbon disulfide	76	2.668	2.669	-0.001	99	255655	10.0	7.97	
25 Acetonitrile	41	2.798	2.788	0.010	70	293466		157.0	
26 3-Chloro-1-propene	76		2.799				ND	ND	
28 Methylene Chloride	84	2.905	2.906	-0.001	90	79130	10.0	7.01	
31 Acrylonitrile	53	3.118	3.119	-0.001	97	571123	100.0	85.4	
30 trans-1,2-Dichloroethene	96	3.141	3.143	-0.001	84	105882	10.0	9.98	
34 1,1-Dichloroethane	63	3.508	3.497	0.011	97	285150	10.0	11.4	
35 Vinyl acetate	43	3.555	3.545	0.010	97	352982	10.0	11.6	
37 2-Chloro-1,3-butadiene	53		3.581					ND	
40 cis-1,2-Dichloroethene	96	3.993	3.994	-0.001	92	113574	10.0	9.61	
41 2-Butanone (MEK)	43	4.017	4.006	0.011	97	150970	20.0	17.8	
43 Propionitrile	54		4.065					ND	
44 Methacrylonitrile	41		4.196					ND	
47 Chloroform	83	4.265	4.266	-0.001	97	201847	10.0	11.0	
48 1,1,1-Trichloroethane	97	4.419	4.420	-0.001	92	186706	10.0	16.1	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
51 Carbon tetrachloride	117	4.561	4.562	-0.001	86	154274	10.0	16.6	
52 Isobutyl alcohol	41	4.667	4.657	0.010	94	126845	250.0	269.1	
53 Benzene	78	4.738	4.739	-0.001	94	810900	10.0	16.9	
54 1,2-Dichloroethane	62	4.750	4.751	-0.001	96	228116	10.0	12.9	
58 Trichloroethene	130	5.282	5.283	-0.001	90	89639	10.0	8.99	
61 1,2-Dichloropropane	63	5.472	5.473	-0.001	92	153457	10.0	10.2	
62 Methyl methacrylate	41		5.568						ND
63 Dibromomethane	93	5.578	5.579	-0.001	84	57997	10.0	9.44	
64 1,4-Dioxane	88	5.590	5.591	-0.001	84	13406	200.0	121.4	
65 Dichlorobromomethane	83	5.708	5.709	-0.001	96	153752	10.0	11.2	
68 cis-1,3-Dichloropropene	75	6.098	6.100	-0.002	86	169776	10.0	9.03	
69 4-Methyl-2-pentanone (MIBK)	43	6.240	6.242	-0.002	97	330964	20.0	18.8	
70 Toluene	91	6.394	6.395	-0.001	95	427554	10.0	10.7	
71 trans-1,3-Dichloropropene	75	6.595	6.596	-0.001	96	141543	10.0	10.1	
72 Ethyl methacrylate	69	6.666	6.667	-0.001	90	144800	10.0	9.37	
73 1,1,2-Trichloroethane	97	6.761	6.750	0.011	93	78853	10.0	9.28	
74 Tetrachloroethene	164	6.891	6.892	-0.001	84	55890	10.0	12.0	
76 2-Hexanone	43	6.986	6.987	-0.001	97	211988	20.0	21.2	
78 Chlorodibromomethane	129	7.116	7.117	-0.001	88	76914	10.0	10.5	
80 Ethylene Dibromide	107	7.222	7.223	-0.001	98	68316	10.0	9.04	
82 Chlorobenzene	112	7.672	7.673	-0.001	87	213484	10.0	9.97	
83 1,1,1,2-Tetrachloroethane	131	7.743	7.744	-0.001	89	76773	10.0	11.5	
84 Ethylbenzene	106	7.766	7.767	-0.001	99	122772	10.0	10.3	
85 m-Xylene & p-Xylene	106	7.885	7.874	0.011	98	143593	10.0	10.1	
86 o-Xylene	106	8.251	8.252	-0.001	98	130753	10.0	9.86	
87 Styrene	104	8.263	8.264	-0.001	87	211823	10.0	8.93	
88 Bromoform	173	8.441	8.442	-0.001	89	30041	10.0	7.73	
92 1,1,2,2-Tetrachloroethane	83	8.890	8.891	-0.001	74	82488	10.0	10.3	
94 1,2,3-Trichloropropane	110	8.926	8.927	-0.001	90	23082	10.0	10.8	
95 trans-1,4-Dichloro-2-butene	53	8.949	8.938	0.011	70	26208	10.0	7.39	
111 1,2-Dibromo-3-Chloropropane	157	11.019	11.020	-0.001	64	11543	10.0	8.39	
S 130 Xylenes, Total	106				0		20.0	20.0	

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

Reagents:

VMFASPW_00360	Amount Added: 8.00	Units: uL	
VMFASAW_00338	Amount Added: 8.00	Units: uL	
VMFASGW_00370	Amount Added: 8.00	Units: uL	
VM50IS_00084	Amount Added: 1.00	Units: uL	Run Reagent
vm50ss_stk_00085	Amount Added: 1.00	Units: uL	Run Reagent
vm40ml_vials_00015	Amount Added: 0.00	Units:	Run Reagent
vmDist_H2o_00177	Amount Added: 0.00	Units:	Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8958.D

Injection Date: 03-Aug-2020 17:14:30

Instrument ID: A3UX10

Operator ID: 001644

Lims ID: 240-133764-G-4 MS

Worklist Smp#: 9

Client ID: ISMW-07-06223,24,25

Purge Vol: 5.000 mL

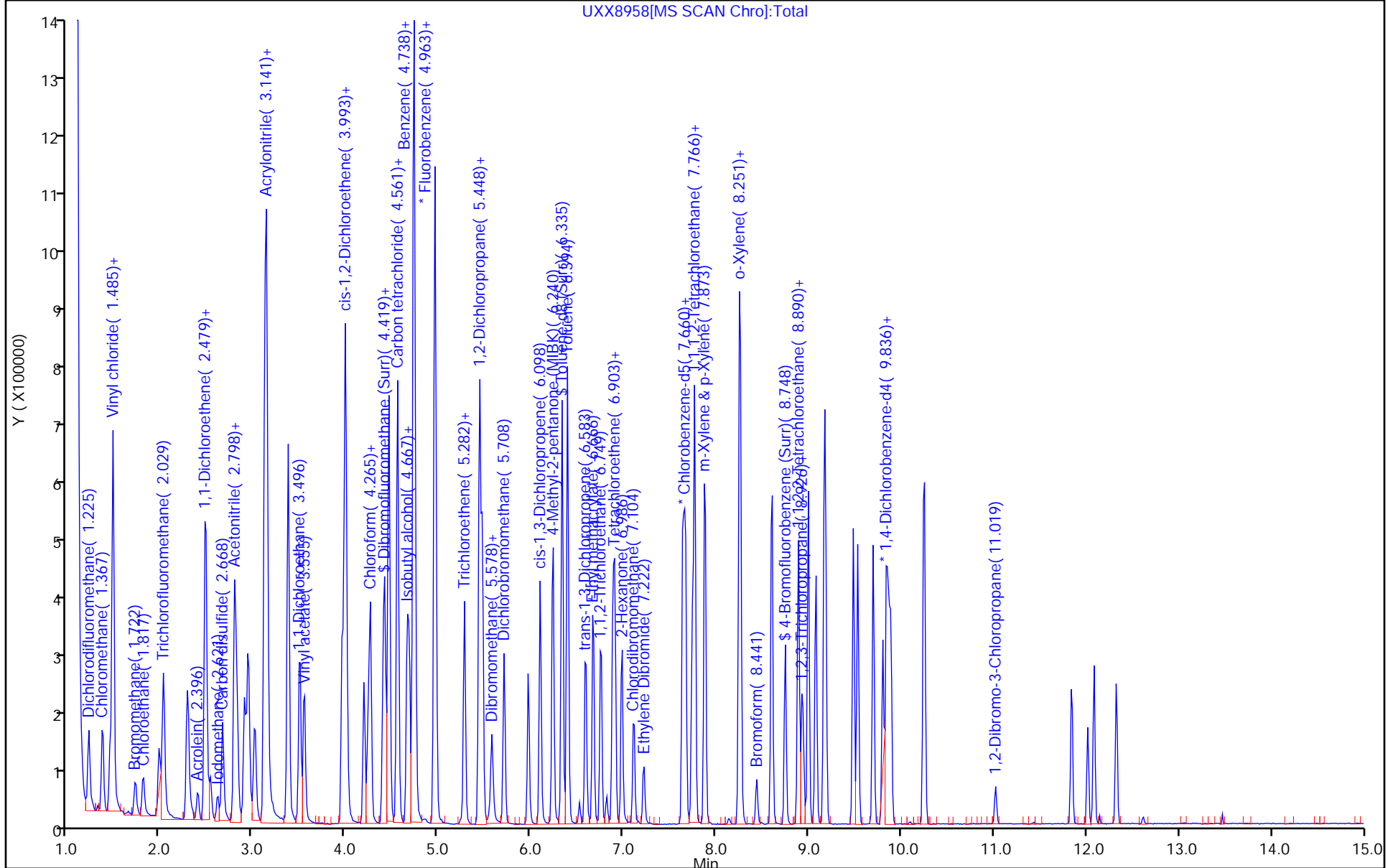
Dil. Factor: 1.0000

ALS Bottle#: 9

Method: 8260_10

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8958.D
 Lims ID: 240-133764-G-4 MS
 Client ID: ISMW-07-06223,24,25
 Sample Type: MS
 Inject. Date: 03-Aug-2020 17:14:30 ALS Bottle#: 9 Worklist Smp#: 9
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100621-009
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 10:20:14 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1067

First Level Reviewer: williamsla

Date: 03-Aug-2020 17:48:46

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	10.0	10.4	104.07
\$ 5 1,2-Dichloroethane-d4 (Surr)	10.0	12.8	128.03
\$ 6 Toluene-d8 (Surr)	10.0	11.2	112.44
\$ 7 4-Bromofluorobenzene (Surr)	10.0	9.87	98.70

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: 240-133764-H-4 MSD
 Matrix: Water Lab File ID: UXX8959.D
 Analysis Method: 8260B Date Collected: _____
 Sample wt/vol: 5 (mL) Date Analyzed: 08/03/2020 17:39
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: DB-624 ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 445379 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	10.3		1.0	0.46
156-59-2	cis-1,2-Dichloroethene	9.82		1.0	0.38
127-18-4	Tetrachloroethene	11.9		1.0	0.33
156-60-5	trans-1,2-Dichloroethene	10.3		1.0	0.43
79-01-6	Trichloroethene	9.31		1.0	0.36
75-01-4	Vinyl chloride	12.8		1.0	0.50

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	122		75-130
460-00-4	4-Bromofluorobenzene (Surr)	97		47-134
2037-26-5	Toluene-d8 (Surr)	109		69-122
1868-53-7	Dibromofluoromethane (Surr)	102		78-129

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8959.D
 Lims ID: 240-133764-H-4 MSD
 Client ID: ISMW-07-06223,24,25
 Sample Type: MSD
 Inject. Date: 03-Aug-2020 17:39:30 ALS Bottle#: 10 Worklist Smp#: 10
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100621-010
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 10:20:14 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1067

First Level Reviewer: williamsla Date: 03-Aug-2020 18:01:26

Compound	Sig	RT (min.)	Exp RT (min.)	Diff RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	4.973	4.964	0.009	97	392363	10.0	10.0	
* 2 Chlorobenzene-d5	117	7.646	7.638	0.008	94	223878	10.0	10.0	
* 3 1,4-Dichlorobenzene-d4	152	9.870	9.861	0.009	93	69105	10.0	10.0	
\$ 4 Dibromofluoromethane (Surr)	113	4.405	4.396	0.009	91	93667	10.0	10.2	
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	4.689	4.680	0.009	95	163915	10.0	12.2	
\$ 6 Toluene-d8 (Surr)	98	6.333	6.336	-0.003	96	376092	10.0	10.9	
\$ 7 4-Bromofluorobenzene (Surr)	95	8.746	8.749	-0.003	72	105330	10.0	9.72	
9 Dichlorodifluoromethane	85	1.223	1.226	-0.003	98	131433	10.0	15.5	
10 Chloromethane	50	1.365	1.368	-0.003	99	181672	10.0	10.5	
11 Vinyl chloride	62	1.448	1.451	-0.003	98	163772	10.0	12.8	
13 Bromomethane	94	1.720	1.723	-0.003	92	43525	10.0	7.13	
14 Chloroethane	64	1.803	1.818	-0.015	96	70341	10.0	10.3	
16 Trichlorofluoromethane	101	2.027	2.031	-0.004	99	175149	10.0	19.0	
18 Acrolein	56	2.394	2.397	-0.003	98	50195	50.0	21.7	
19 1,1-Dichloroethene	96	2.477	2.480	-0.003	88	95471	10.0	10.3	
21 Acetone	43	2.536	2.539	-0.003	99	88285	20.0	16.7	
22 Iodomethane	142	2.607	2.610	-0.003	97	67481	10.0	6.24	
24 Carbon disulfide	76	2.666	2.669	-0.003	98	254228	10.0	7.84	
25 Acetonitrile	41		2.788					ND	U
26 3-Chloro-1-propene	76	2.796	2.799	-0.003	86	92406	10.0	11.0	
28 Methylene Chloride	84	2.903	2.906	-0.003	91	88313	10.0	7.74	
31 Acrylonitrile	53	3.116	3.119	-0.003	98	562286	100.0	83.2	
30 trans-1,2-Dichloroethene	96	3.139	3.143	-0.003	86	110424	10.0	10.3	
34 1,1-Dichloroethane	63	3.494	3.497	-0.003	97	291196	10.0	11.5	
35 Vinyl acetate	43	3.553	3.545	0.008	96	357780	10.0	11.6	
37 2-Chloro-1,3-butadiene	53		3.581					ND	
40 cis-1,2-Dichloroethene	96	3.991	3.994	-0.003	92	117220	10.0	9.82	
41 2-Butanone (MEK)	43	4.014	4.006	0.008	97	159897	20.0	18.6	
43 Propionitrile	54		4.065					ND	
44 Methacrylonitrile	41		4.196					ND	
47 Chloroform	83	4.263	4.266	-0.003	98	211485	10.0	11.4	
48 1,1,1-Trichloroethane	97	4.417	4.420	-0.003	93	187482	10.0	16.0	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
51 Carbon tetrachloride	117	4.559	4.562	-0.003	85	155186	10.0	16.5	
52 Isobutyl alcohol	41	4.665	4.657	0.008	94	141664	250.0	294.2	
53 Benzene	78	4.736	4.739	-0.003	95	860976	10.0	17.7	
54 1,2-Dichloroethane	62	4.748	4.751	-0.003	96	238971	10.0	13.4	
58 Trichloroethene	130	5.280	5.283	-0.003	89	93878	10.0	9.31	
61 1,2-Dichloropropane	63	5.469	5.473	-0.004	96	156303	10.0	10.2	
62 Methyl methacrylate	41		5.568						ND
63 Dibromomethane	93	5.576	5.579	-0.003	83	58644	10.0	9.44	
64 1,4-Dioxane	88	5.600	5.591	0.009	85	16730	200.0	143.3	
65 Dichlorobromomethane	83	5.706	5.709	-0.003	96	158771	10.0	11.4	
68 cis-1,3-Dichloropropene	75	6.096	6.100	-0.004	85	178726	10.0	9.41	
69 4-Methyl-2-pentanone (MIBK)	43	6.238	6.242	-0.004	98	340414	20.0	19.2	
70 Toluene	91	6.392	6.395	-0.003	96	437581	10.0	10.7	
71 trans-1,3-Dichloropropene	75	6.593	6.596	-0.003	95	145197	10.0	10.1	
72 Ethyl methacrylate	69	6.676	6.667	0.009	91	148932	10.0	9.42	
73 1,1,2-Trichloroethane	97	6.759	6.750	0.009	94	82909	10.0	9.54	
74 Tetrachloroethene	164	6.889	6.892	-0.003	81	56488	10.0	11.9	
76 2-Hexanone	43	6.983	6.987	-0.004	98	219829	20.0	21.5	
78 Chlorodibromomethane	129	7.114	7.117	-0.003	87	80449	10.0	10.7	
80 Ethylene Dibromide	107	7.220	7.223	-0.003	98	67627	10.0	8.74	
82 Chlorobenzene	112	7.670	7.673	-0.003	86	222058	10.0	10.1	
83 1,1,1,2-Tetrachloroethane	131	7.740	7.744	-0.004	91	79917	10.0	11.7	
84 Ethylbenzene	106	7.764	7.767	-0.003	98	124773	10.0	10.2	
85 m-Xylene & p-Xylene	106	7.882	7.874	0.008	97	145924	10.0	10.1	
86 o-Xylene	106	8.249	8.252	-0.003	96	136640	10.0	10.1	
87 Styrene	104	8.261	8.264	-0.003	84	222365	10.0	9.17	
88 Bromoform	173	8.438	8.442	-0.004	88	30265	10.0	7.61	
92 1,1,2,2-Tetrachloroethane	83	8.888	8.891	-0.003	75	86278	10.0	10.3	
94 1,2,3-Trichloropropane	110	8.935	8.927	0.008	86	25206	10.0	11.3	
95 trans-1,4-Dichloro-2-butene	53	8.947	8.938	0.009	67	25563	10.0	6.96	
111 1,2-Dibromo-3-Chloropropane	157	11.017	11.020	-0.003	64	13180	10.0	9.34	
S 130 Xylenes, Total	106				0		20.0	20.2	

QC Flag Legend

Review Flags

U - Marked Undetected

Reagents:

VMFASAW_00338	Amount Added: 8.00	Units: uL	
VMFASGW_00370	Amount Added: 8.00	Units: uL	
VMFASPW_00360	Amount Added: 8.00	Units: uL	
VM50IS_00084	Amount Added: 1.00	Units: uL	Run Reagent
vm50ss_stk_00085	Amount Added: 1.00	Units: uL	Run Reagent
vm40ml_vials_00015	Amount Added: 0.00	Units:	Run Reagent
vmDist_H2o_00177	Amount Added: 0.00	Units:	Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8959.D

Injection Date: 03-Aug-2020 17:39:30

Instrument ID: A3UX10

Operator ID: 001644

Lims ID: 240-133764-H-4 MSD

Worklist Smp#: 10

Client ID: ISMW-07-06223,24,25

Purge Vol: 5.000 mL

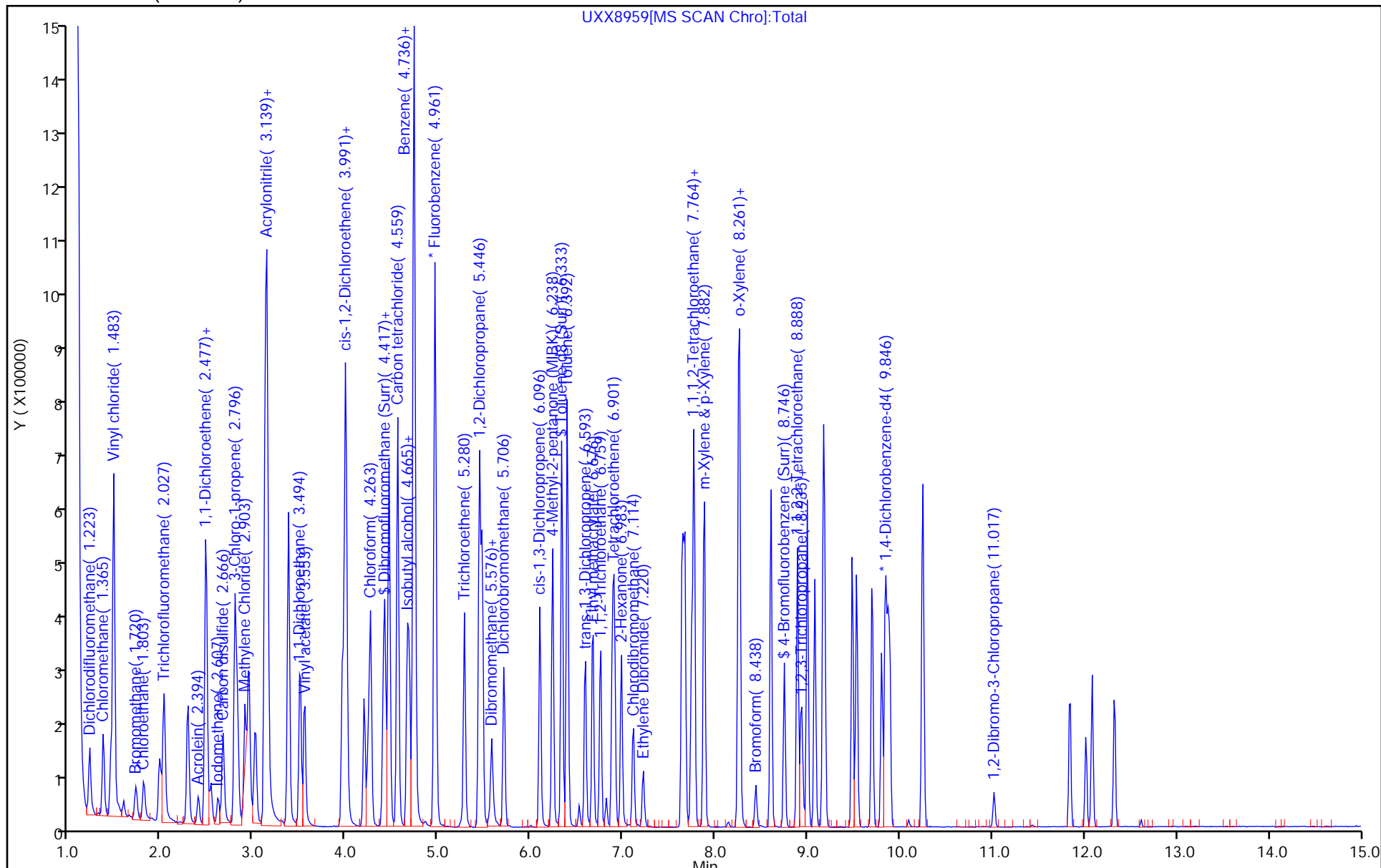
Dil. Factor: 1.0000

ALS Bottle#: 10

Method: 8260_10

Limit Group: MSV 8260B ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\UXX8959.D
 Lims ID: 240-133764-H-4 MSD
 Client ID: ISMW-07-06223,24,25
 Sample Type: MSD
 Inject. Date: 03-Aug-2020 17:39:30 ALS Bottle#: 10 Worklist Smp#: 10
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 240-0100621-010
 Operator ID: 001644 Instrument ID: A3UX10
 Method: \\chromfs\Canton\ChromData\A3UX10\20200803-100621.b\8260_10.m
 Limit Group: MSV 8260B ICAL
 Last Update: 04-Aug-2020 10:20:14 Calib Date: 15-Jan-2020 20:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX10\20200115-94937.b\UXX5188.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1067

First Level Reviewer: williamsla

Date: 03-Aug-2020 18:01:26

Compound	Amount Added	Amount Recovered	% Rec.
\$ 4 Dibromofluoromethane (Surr)	10.0	10.2	102.13
\$ 5 1,2-Dichloroethane-d4 (Surr)	10.0	12.2	121.72
\$ 6 Toluene-d8 (Surr)	10.0	10.9	109.25
\$ 7 4-Bromofluorobenzene (Surr)	10.0	9.72	97.19

GC/MS VOA ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, CantonJob No.: 240-134182-1

SDG No.: _____

Instrument ID: A3UX10Start Date: 01/15/2020 14:40Analysis Batch Number: 419116End Date: 01/15/2020 21:24

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
BFB 240-419116/1		01/15/2020 14:40	1	BFB1718.D	DB-624 0.18 (mm)
STD8260 240-419116/2 IC		01/15/2020 15:09	1	UXX5174.D	DB-624 0.18 (mm)
STD8260 240-419116/3 IC		01/15/2020 15:34	1	UXX5175.D	DB-624 0.18 (mm)
STD8260 240-419116/4 ICIS		01/15/2020 16:00	1	UXX5176.D	DB-624 0.18 (mm)
STD8260 240-419116/5 IC		01/15/2020 16:25	1	UXX5177.D	DB-624 0.18 (mm)
STD8260 240-419116/6 IC		01/15/2020 16:50	1	UXX5178.D	DB-624 0.18 (mm)
STD8260 240-419116/7 IC		01/15/2020 17:15	1	UXX5179.D	DB-624 0.18 (mm)
STD8260 240-419116/8 IC		01/15/2020 17:40	1	UXX5180.D	DB-624 0.18 (mm)
ICV 240-419116/9		01/15/2020 18:04	1	UXX5181.D	DB-624 0.18 (mm)
STDA9 240-419116/10 IC		01/15/2020 18:29	1		DB-624 0.18 (mm)
STDA9 240-419116/11 IC		01/15/2020 18:54	1		DB-624 0.18 (mm)
STDA9 240-419116/12 IC		01/15/2020 19:19	1		DB-624 0.18 (mm)
STDA9 240-419116/13 IC		01/15/2020 19:44	1		DB-624 0.18 (mm)
STDA9 240-419116/14 IC		01/15/2020 20:09	1		DB-624 0.18 (mm)
STDA9 240-419116/15 IC		01/15/2020 20:34	1		DB-624 0.18 (mm)
STDA9 240-419116/16 IC		01/15/2020 20:59	1		DB-624 0.18 (mm)
ICV 240-419116/17		01/15/2020 21:24	1	UXX5189.D	DB-624 0.18 (mm)

GC/MS VOA ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Instrument ID: A3UX10 Start Date: 08/03/2020 13:28

Analysis Batch Number: 445379 End Date: 08/04/2020 00:42

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
BFB 240-445379/1		08/03/2020 13:28	1	BFB1913.D	DB-624 0.18 (mm)
CCVIS 240-445379/2		08/03/2020 13:55	1	UXX8950.D	DB-624 0.18 (mm)
CCV 240-445379/3		08/03/2020 14:20	1	UXX8951.D	DB-624 0.18 (mm)
MRL 240-445379/5 MDLV		08/03/2020 15:10	1		DB-624 0.18 (mm)
LCS 240-445379/4		08/03/2020 15:36	1	UXX8954.D	DB-624 0.18 (mm)
MRL 240-445379/6 MDLV		08/03/2020 16:00	1		DB-624 0.18 (mm)
MB 240-445379/7		08/03/2020 16:25	1	UXX8956.D	DB-624 0.18 (mm)
ZZZZZ		08/03/2020 16:49	1		DB-624 0.18 (mm)
240-133764-G-4 MS		08/03/2020 17:14	1	UXX8958.D	DB-624 0.18 (mm)
240-133764-H-4 MSD		08/03/2020 17:39	1	UXX8959.D	DB-624 0.18 (mm)
ZZZZZ		08/03/2020 18:04	1		DB-624 0.18 (mm)
ZZZZZ		08/03/2020 18:29	1		DB-624 0.18 (mm)
ZZZZZ		08/03/2020 18:54	1		DB-624 0.18 (mm)
ZZZZZ		08/03/2020 19:19	1		DB-624 0.18 (mm)
ZZZZZ		08/03/2020 19:43	1		DB-624 0.18 (mm)
ZZZZZ		08/03/2020 20:08	1		DB-624 0.18 (mm)
ZZZZZ		08/03/2020 20:33	1		DB-624 0.18 (mm)
ZZZZZ		08/03/2020 20:57	1		DB-624 0.18 (mm)
ZZZZZ		08/03/2020 21:23	1		DB-624 0.18 (mm)
ZZZZZ		08/03/2020 22:12	1		DB-624 0.18 (mm)
ZZZZZ		08/03/2020 22:37	1		DB-624 0.18 (mm)
ZZZZZ		08/03/2020 23:02	1		DB-624 0.18 (mm)
ZZZZZ		08/03/2020 23:52	1		DB-624 0.18 (mm)
240-134182-34		08/04/2020 00:17	1	UXX8975.D	DB-624 0.18 (mm)
240-134182-35		08/04/2020 00:42	1	UXX8976.D	DB-624 0.18 (mm)

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Batch Number: 419116 Batch Start Date: 01/15/20 14:40 Batch Analyst: Williams, Larry

Batch Method: 8260B Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	VM50IS 00080	vm50ss 00387	VMAROLISTDW 00328	vmbfb 00024
BFB 240-419116/1		8260B		5 mL	5 mL				1 uL
STD8260 240-419116/2 IC		8260B		5 mL	5 mL	1 uL	32 uL		
STD8260 240-419116/3 IC		8260B		5 mL	5 mL	1 uL	16 uL		
STD8260 240-419116/4 ICIS		8260B		5 mL	5 mL	1 uL	8 uL		
STD8260 240-419116/5 IC		8260B		5 mL	5 mL	1 uL	4 uL		
STD8260 240-419116/6 IC		8260B		5 mL	5 mL	1 uL	3.2 uL		
STD8260 240-419116/7 IC		8260B		5 mL	5 mL	1 uL	1.6 uL		
STD8260 240-419116/8 IC		8260B		5 mL	5 mL	1 uL	0.8 uL		
ICV 240-419116/9		8260B		5 mL	5 mL	1 uL	8 uL	8 uL	
ICV 240-419116/17		8260B		5 mL	5 mL	1 uL			

Lab Sample ID	Client Sample ID	Method Chain	Basis	VMFASA9W 00261	VMFASAW 00312	VMFASGW 00343	VMFASPW 00334	VMRGAS 00323	VMRPRIMW 00369
BFB 240-419116/1		8260B							
STD8260 240-419116/2 IC		8260B			32 uL			32 uL	32 uL
STD8260 240-419116/3 IC		8260B			16 uL			16 uL	16 uL
STD8260 240-419116/4 ICIS		8260B			8 uL			8 uL	8 uL
STD8260 240-419116/5 IC		8260B			4 uL			4 uL	4 uL
STD8260 240-419116/6 IC		8260B			3.2 uL			3.2 uL	3.2 uL
STD8260 240-419116/7 IC		8260B			1.6 uL			1.6 uL	1.6 uL
STD8260 240-419116/8 IC		8260B			0.8 uL			0.8 uL	0.8 uL

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Batch Number: 419116 Batch Start Date: 01/15/20 14:40 Batch Analyst: Williams, Larry

Batch Method: 8260B Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	VMFASA9W 00261	VMFASAW 00312	VMFASGW 00343	VMFASPW 00334	VMRGAS 00323	VMRPRIMW 00369
ICV 240-419116/9		8260B				8 uL	8 uL		
ICV 240-419116/17		8260B		8 uL					

Batch Notes	
pH Indicator ID	HC861525

Basis	Basis Description

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Batch Number: 445379 Batch Start Date: 08/03/20 13:28 Batch Analyst: Williams, Larry

Batch Method: 8260B Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Initial pH	VM50IS 00084	vm50ss_stk 00085	VMAROLISTDW 00355
BFB 240-445379/1		8260B		5 mL	5 mL				
CCVIS 240-445379/2		8260B		5 mL	5 mL		1 uL	1 uL	8 uL
CCV 240-445379/3		8260B		5 mL	5 mL		1 uL		
LCS 240-445379/4		8260B		5 mL	5 mL		1 uL	1 uL	
MB 240-445379/7		8260B		5 mL	5 mL		1 uL	1 uL	
240-133764-G-4 MS	ISMW-07-06223,24 ,25	8260B	T	5 mL	5 mL	<2 SU	1 uL	1 uL	
240-133764-H-4 MSD	ISMW-07-06223,24 ,25	8260B	T	5 mL	5 mL	<2 SU	1 uL	1 uL	
240-134182-B-34	TMW-20-02 (7-12) 072820	8260B	T	5 mL	5 mL	<2 SU	1 uL	1 uL	
240-134182-A-35	TRIP BLANK	8260B	T	5 mL	5 mL	<2 SU	1 uL	1 uL	

Lab Sample ID	Client Sample ID	Method Chain	Basis	VMBFB 00025	VMFASAW 00338	VMFASGW 00370	VMFASPW 00360	VMRA9W 00355	VMRGAS 00349
BFB 240-445379/1		8260B		1 uL					
CCVIS 240-445379/2		8260B							8 uL
CCV 240-445379/3		8260B						8 uL	
LCS 240-445379/4		8260B			8 uL	8 uL	8 uL		
MB 240-445379/7		8260B							
240-133764-G-4 MS	ISMW-07-06223,24 ,25	8260B	T		8 uL	8 uL	8 uL		
240-133764-H-4 MSD	ISMW-07-06223,24 ,25	8260B	T		8 uL	8 uL	8 uL		
240-134182-B-34	TMW-20-02 (7-12) 072820	8260B	T						
240-134182-A-35	TRIP BLANK	8260B	T						

Lab Sample ID	Client Sample ID	Method Chain	Basis	VMRPRIMW 00397					
BFB 240-445379/1		8260B							

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Batch Number: 445379 Batch Start Date: 08/03/20 13:28 Batch Analyst: Williams, Larry

Batch Method: 8260B Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	VMRPRIMW 00397				
CCVIS 240-445379/2		8260B		8 uL				
CCV 240-445379/3		8260B						
LCS 240-445379/4		8260B						
MB 240-445379/7		8260B						
240-133764-G-4 MS	ISMW-07-06223,24 ,25	8260B	T					
240-133764-H-4 MSD	ISMW-07-06223,24 ,25	8260B	T					
240-134182-B-34	TMW-20-02 (7-12) 072820	8260B	T					
240-134182-A-35	TRIP BLANK	8260B	T					

Batch Notes	
pH Indicator ID	HC861525

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Method 8260B SIM

Volatile Organic Compounds (GC/MS
SIM) by Method 8260B

FORM II
GC/MS VOA SURROGATE RECOVERY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134182-1

SDG No.: _____

Matrix: Water

Level: Low

GC Column (1): ZB-624 ID: 0.53 (mm)

Client Sample ID	Lab Sample ID	DCA #
TMW-20-02 (7-12) 072820	240-134182-34	85
TRIP BLANK	240-134182-35	85
	MB 240-445137/5	82
	LCS 240-445137/4	82
	240-134235-C-2 MS	87
	240-134235-C-2 MSD	85

DCA = 1,2-Dichloroethane-d4 (Surr)

QC LIMITS
70-133

Column to be used to flag recovery values

FORM II 8260B SIM

FORM III
GC/MS VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: X21082.D

Lab ID: LCS 240-445137/4 Client ID: _____

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
1,4-Dioxane	10.0	12.0	120	80-135	

Column to be used to flag recovery and RPD values

FORM III
GC/MS VOA MATRIX SPIKE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: X21092.D

Lab ID: 240-134235-C-2 MS Client ID: _____

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC	QC LIMITS REC	#
1,4-Dioxane	20.0	33	56.5	116	46-170	

Column to be used to flag recovery and RPD values

FORM III
GC/MS VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: X21093.D

Lab ID: 240-134235-C-2 MSD Client ID: _____

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
1,4-Dioxane	20.0	58.9	127	4	26	46-170	

Column to be used to flag recovery and RPD values

FORM IV
GC/MS VOA METHOD BLANK SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Lab File ID: X21083.D Lab Sample ID: MB 240-445137/5
 Matrix: Water Heated Purge: (Y/N) Y
 Instrument ID: A3UX2 Date Analyzed: 07/31/2020 13:43
 GC Column: ZB-624 ID: 0.53 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 240-445137/4	X21082.D	07/31/2020 13:18
TRIP BLANK	240-134182-35	X21086.D	07/31/2020 14:58
	240-134235-C-2 MS	X21092.D	07/31/2020 17:27
	240-134235-C-2 MSD	X21093.D	07/31/2020 17:51
TMW-20-02 (7-12)_072820	240-134182-34	X21096.D	07/31/2020 19:06

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Lab File ID: BFBX2567.D BFB Injection Date: 02/25/2020
 Instrument ID: A3UX2 BFB Injection Time: 16:03
 Analysis Batch No.: 424238

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0 % of mass 95	34.9
75	30.0 - 60.0 % of mass 95	56.1
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0 % of mass 95	6.2
173	Less than 2.0 % of mass 174	0.0 (0.0) 1
174	50.0 - 120.00 % of mass 95	80.4
175	5.0 - 9.0 % of mass 174	7.2 (8.9) 1
176	95.0 - 101.0 % of mass 174	79.8 (99.3) 1
177	5.0 - 9.0 % of mass 176	5.1 (6.3) 2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	IC 240-424238/3	X29300.D	02/25/2020	16:49
	IC 240-424238/4	X29301.D	02/25/2020	17:15
	IC 240-424238/5	X29302.D	02/25/2020	17:40
	ICIS 240-424238/6	X29303.D	02/25/2020	18:06
	IC 240-424238/7	X29304.D	02/25/2020	18:32
	IC 240-424238/8	X29305.D	02/25/2020	18:58
	IC 240-424238/9	X29306.D	02/25/2020	19:24
	ICV 240-424238/11	X29308.D	02/25/2020	20:15

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Lab File ID: BFBX2651.D BFB Injection Date: 07/31/2020
 Instrument ID: A3UX2 BFB Injection Time: 12:09
 Analysis Batch No.: 445137

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0 % of mass 95	24.2
75	30.0 - 60.0 % of mass 95	47.3
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0 % of mass 95	6.6
173	Less than 2.0 % of mass 174	0.0 (0.0) 1
174	50.0 - 120.00 % of mass 95	85.1
175	5.0 - 9.0 % of mass 174	6.1 (7.1) 1
176	95.0 - 101.0 % of mass 174	81.9 (96.2) 1
177	5.0 - 9.0 % of mass 176	5.3 (6.4) 2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	CCVIS 240-445137/3	X21081.D	07/31/2020	12:53
	LCS 240-445137/4	X21082.D	07/31/2020	13:18
	MB 240-445137/5	X21083.D	07/31/2020	13:43
TRIP BLANK	240-134182-35	X21086.D	07/31/2020	14:58
	240-134235-C-2 MS	X21092.D	07/31/2020	17:27
	240-134235-C-2 MSD	X21093.D	07/31/2020	17:51
TMW-20-02 (7-12)_072820	240-134182-34	X21096.D	07/31/2020	19:06

FORM VIII
GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Sample No.: ICIS 240-424238/6 Date Analyzed: 02/25/2020 18:06
 Instrument ID: A3UX2 GC Column: ZB-624 ID: 0.53 (mm)
 Lab File ID (Standard): X29303.D Heated Purge: (Y/N) Y
 Calibration ID: 55819

	FB		14DD8		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
INITIAL CALIBRATION MID-POINT	7706070	4.51	163826	5.81		
UPPER LIMIT	15412140	5.01	327652	6.31		
LOWER LIMIT	3853035	4.01	81913	5.31		
LAB SAMPLE ID	CLIENT SAMPLE ID					
ICV 240-424238/11		7639619	4.51	165520	5.81	
CCVIS 240-445137/3		7802348	4.50	158535	5.80	

FB = Fluorobenzene
 14DD8 = 1,4-Dioxane (IS)

Area Limit = 50%-200% of internal standard area
 RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Sample No.: CCVIS 240-445137/3 Date Analyzed: 07/31/2020 12:53
 Instrument ID: A3UX2 GC Column: ZB-624 ID: 0.53 (mm)
 Lab File ID (Standard): X21081.D Heated Purge: (Y/N) Y
 Calibration ID: 55819

	FB		14DD8		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	7802348	4.50	158535	5.80		
UPPER LIMIT	15604696	5.00	317070	6.30		
LOWER LIMIT	3901174	4.00	79268	5.30		
LAB SAMPLE ID	CLIENT SAMPLE ID					
LCS 240-445137/4		7557837	4.51	157765	5.81	
MB 240-445137/5		7622076	4.51	158669	5.81	
240-134182-35	TRIP BLANK	7192121	4.51	157649	5.81	
240-134235-C-2 MS		7666165	4.50	170129	5.80	
240-134235-C-2 MSD		7072357	4.50	151926	5.80	
240-134182-34	TMW-20-02 (7-12) 072820	6852173	4.51	155695	5.81	

FB = Fluorobenzene
 14DD8 = 1,4-Dioxane (IS)

Area Limit = 50%-200% of internal standard area
 RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: TMW-20-02 (7-12)_072820 Lab Sample ID: 240-134182-34
 Matrix: Water Lab File ID: X21096.D
 Analysis Method: 8260B SIM Date Collected: 07/28/2020 15:05
 Sample wt/vol: 15 (mL) Date Analyzed: 07/31/2020 19:06
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: ZB-624 ID: 0.53 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 445137 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	2.0	U	2.0	0.86

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	85		70-133

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21096.D
 Lims ID: 240-134182-F-34
 Client ID: TMW-20-02 (7-12)_072820
 Sample Type: Client
 Inject. Date: 31-Jul-2020 19:06:30 ALS Bottle#: 17 Worklist Smp#: 19
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Sample Info: 240-134182-f-34
 Misc. Info.: 240-0100568-019
 Operator ID: 402279 Instrument ID: A3UX2
 Method: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 03-Aug-2020 11:30:42 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1008

First Level Reviewer: macenczaks Date: 03-Aug-2020 10:41:17

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
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\$ 5 1,2-Dichloroethane-d4 (Surr)	65	3.954	3.941	0.013	100	2002935	8.47	
* 7 Fluorobenzene	96	4.511	4.497	0.014	100	6852173	10.0	
* 9 Dioxane-d8 (IS)	96	5.806	5.799	0.007	99	155695	200.0	

Reagents:

vm40ml_vials_00014	Amount Added: 0.00	Units:	Run Reagent
vm150is_00174	Amount Added: 1.00	Units: uL	Run Reagent
vmDist_H2o_00177	Amount Added: 0.00	Units:	Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21096.D

Injection Date: 31-Jul-2020 19:06:30

Instrument ID: A3UX2

Operator ID: 402279

Lims ID: 240-134182-F-34

Lab Sample ID: 240-134182-34

Worklist Smp#: 19

Client ID: TMW-20-02 (7-12)_072820

Purge Vol: 15.000 mL

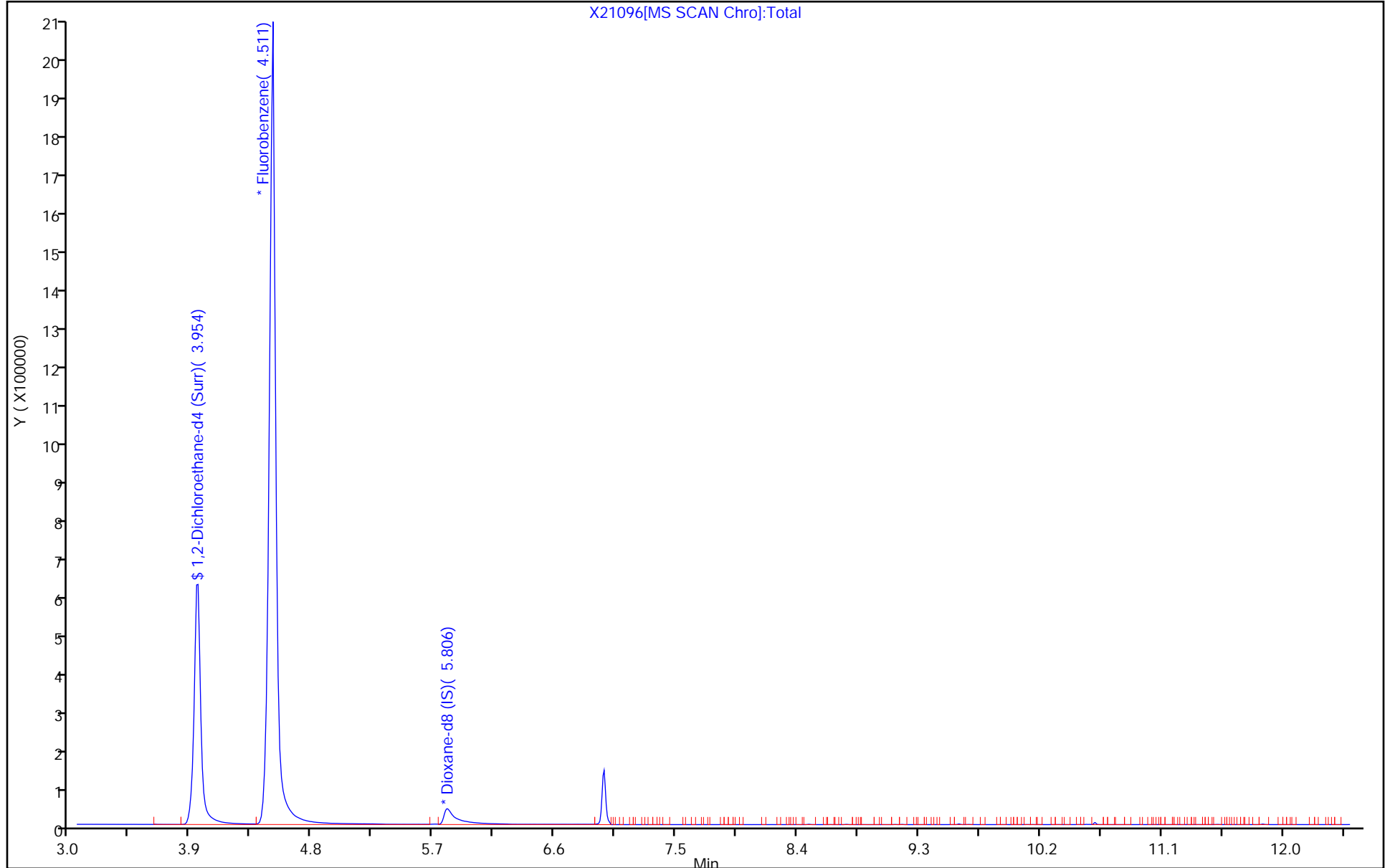
Dil. Factor: 1.0000

ALS Bottle#: 17

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



X21096[MS SCAN Chro]:Total

Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21096.D
 Lims ID: 240-134182-F-34
 Client ID: TMW-20-02 (7-12)_072820
 Sample Type: Client
 Inject. Date: 31-Jul-2020 19:06:30 ALS Bottle#: 17 Worklist Smp#: 19
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Sample Info: 240-134182-f-34
 Misc. Info.: 240-0100568-019
 Operator ID: 402279 Instrument ID: A3UX2
 Method: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 03-Aug-2020 11:30:42 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1008

First Level Reviewer: macenczaks Date: 03-Aug-2020 10:41:17

Compound	Amount Added	Amount Recovered	% Rec.
\$ 5 1,2-Dichloroethane-d4 (Surr)	10.0	8.47	84.69

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: TRIP BLANK Lab Sample ID: 240-134182-35
 Matrix: Water Lab File ID: X21086.D
 Analysis Method: 8260B SIM Date Collected: 07/28/2020 00:00
 Sample wt/vol: 15 (mL) Date Analyzed: 07/31/2020 14:58
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: ZB-624 ID: 0.53 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 445137 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	2.0	U	2.0	0.86

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	85		70-133

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21086.D
 Lims ID: 240-134182-B-35
 Client ID: TRIP BLANK
 Sample Type: Client
 Inject. Date: 31-Jul-2020 14:58:30 ALS Bottle#: 7 Worklist Smp#: 9
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Sample Info: 240-134182-b-35
 Misc. Info.: 240-0100568-009
 Operator ID: 402279 Instrument ID: A3UX2
 Method: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 03-Aug-2020 11:30:42 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1008

First Level Reviewer: macenczaks Date: 31-Jul-2020 15:18:17

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
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\$ 5 1,2-Dichloroethane-d4 (Surr)	65	3.944	3.941	0.003	100	2119799	8.54	
* 7 Fluorobenzene	96	4.510	4.497	0.013	100	7192121	10.0	
* 9 Dioxane-d8 (IS)	96	5.805	5.799	0.006	99	157649	200.0	

Reagents:

vm40ml_vials_00014	Amount Added: 0.00	Units:	Run Reagent
vm150is_00174	Amount Added: 1.00	Units: uL	Run Reagent
vmDist_H2o_00177	Amount Added: 0.00	Units:	Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21086.D

Injection Date: 31-Jul-2020 14:58:30

Instrument ID: A3UX2

Operator ID: 402279

Lims ID: 240-134182-B-35

Lab Sample ID: 240-134182-35

Worklist Smp#: 9

Client ID: TRIP BLANK

Purge Vol: 15.000 mL

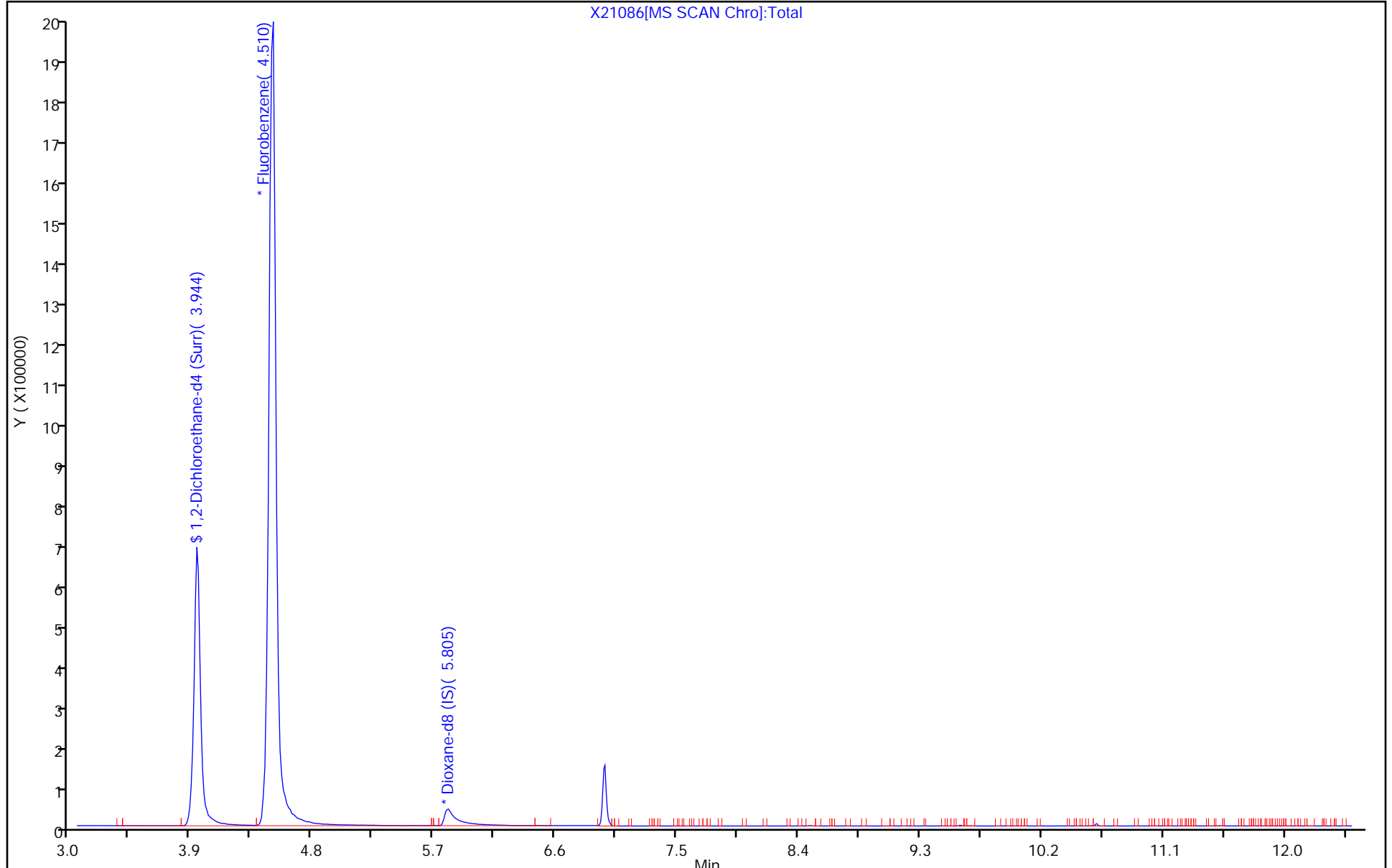
Dil. Factor: 1.0000

ALS Bottle#: 7

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



X21086[MS SCAN Chro]:Total

Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21086.D
 Lims ID: 240-134182-B-35
 Client ID: TRIP BLANK
 Sample Type: Client
 Inject. Date: 31-Jul-2020 14:58:30 ALS Bottle#: 7 Worklist Smp#: 9
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Sample Info: 240-134182-b-35
 Misc. Info.: 240-0100568-009
 Operator ID: 402279 Instrument ID: A3UX2
 Method: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 03-Aug-2020 11:30:42 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1008

First Level Reviewer: macenczaks Date: 31-Jul-2020 15:18:17

Compound	Amount Added	Amount Recovered	% Rec.
\$ 5 1,2-Dichloroethane-d4 (Surr)	10.0	8.54	85.40

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1 Analy Batch No.: 424238

SDG No.: _____

Instrument ID: A3UX2 GC Column: ZB-624 ID: 0.53 (mm) Heated Purge: (Y/N) Y

Calibration Start Date: 02/25/2020 16:49 Calibration End Date: 02/25/2020 19:24 Calibration ID: 55819

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 240-424238/9	X29306.D
Level 2	IC 240-424238/8	X29305.D
Level 3	IC 240-424238/7	X29304.D
Level 4	ICIS 240-424238/6	X29303.D
Level 5	IC 240-424238/5	X29302.D
Level 6	IC 240-424238/4	X29301.D
Level 7	IC 240-424238/3	X29300.D

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
1,4-Dioxane	0.8534 1.1297	0.9392 1.2260	1.0453	1.1581	1.1610	Lin1	-0.975	1.1966						0.9990		0.9900	
1,2-Dichloroethane-d4 (Surr)	0.3342 0.3678	0.3259 0.3525	0.3413	0.3588	0.3499	Ave		0.3451			4.2		35.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1 Analy Batch No.: 424238

SDG No.: _____

Instrument ID: A3UX2 GC Column: ZB-624 ID: 0.53 (mm) Heated Purge: (Y/N) Y

Calibration Start Date: 02/25/2020 16:49 Calibration End Date: 02/25/2020 19:24 Calibration ID: 55819

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 240-424238/9	X29306.D
Level 2	IC 240-424238/8	X29305.D
Level 3	IC 240-424238/7	X29304.D
Level 4	ICIS 240-424238/6	X29303.D
Level 5	IC 240-424238/5	X29302.D
Level 6	IC 240-424238/4	X29301.D
Level 7	IC 240-424238/3	X29300.D

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5
			LVL 6	LVL 7				LVL 6	LVL 7			
1,4-Dioxane	14DD 8	Lin1	1380 93584	3789 214778	8189	18972	46289	2.00 100	5.00 200	10.0	20.0	50.0
1,2-Dichloroethane-d4 (Surr)	FB	Ave	252979 14203789	633205 27877543	1295930	2764586	7098479	1.00 50.0	2.50 100	5.00	10.0	25.0

Curve Type Legend:

Ave = Average ISTD
Lin1 = Linear 1/conc ISTD

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29300.D
 Lims ID: IC
 Client ID:
 Sample Type: IC Calib Level: 8
 Inject. Date: 25-Feb-2020 16:49:30 ALS Bottle#: 2 Worklist Smp#: 3
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Sample Info: ic
 Misc. Info.: 240-0096076-003
 Operator ID: 002808 Instrument ID: A3UX2
 Sublist: chrom-8260SIM_X2*sub2
 Method: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 26-Feb-2020 09:16:48 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0337

First Level Reviewer: macenczaks Date: 25-Feb-2020 17:20:00

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 5 1,2-Dichloroethane-d4 (Sur	65	3.945	3.955	-0.010	100	27877543	100.0	102.1	
* 7 Fluorobenzene	96	4.497	4.510	-0.013	100	7908003	10.0	10.0	
* 9 Dioxane-d8 (IS)	96	5.805	5.813	-0.008	98	175184	200.0	200.0	
8 1,4-Dioxane	88	5.875	5.875	0.000	97	214778	200.0	205.7	

Reagents:

vmdioxanew_00200 Amount Added: 30.00 Units: uL
 vm50ss_00391 Amount Added: 30.00 Units: uL
 vm150is_00164 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29300.D

Injection Date: 25-Feb-2020 16:49:30

Instrument ID: A3UX2

Operator ID: 002808

Lims ID: IC

Worklist Smp#: 3

Client ID:

Purge Vol: 15.000 mL

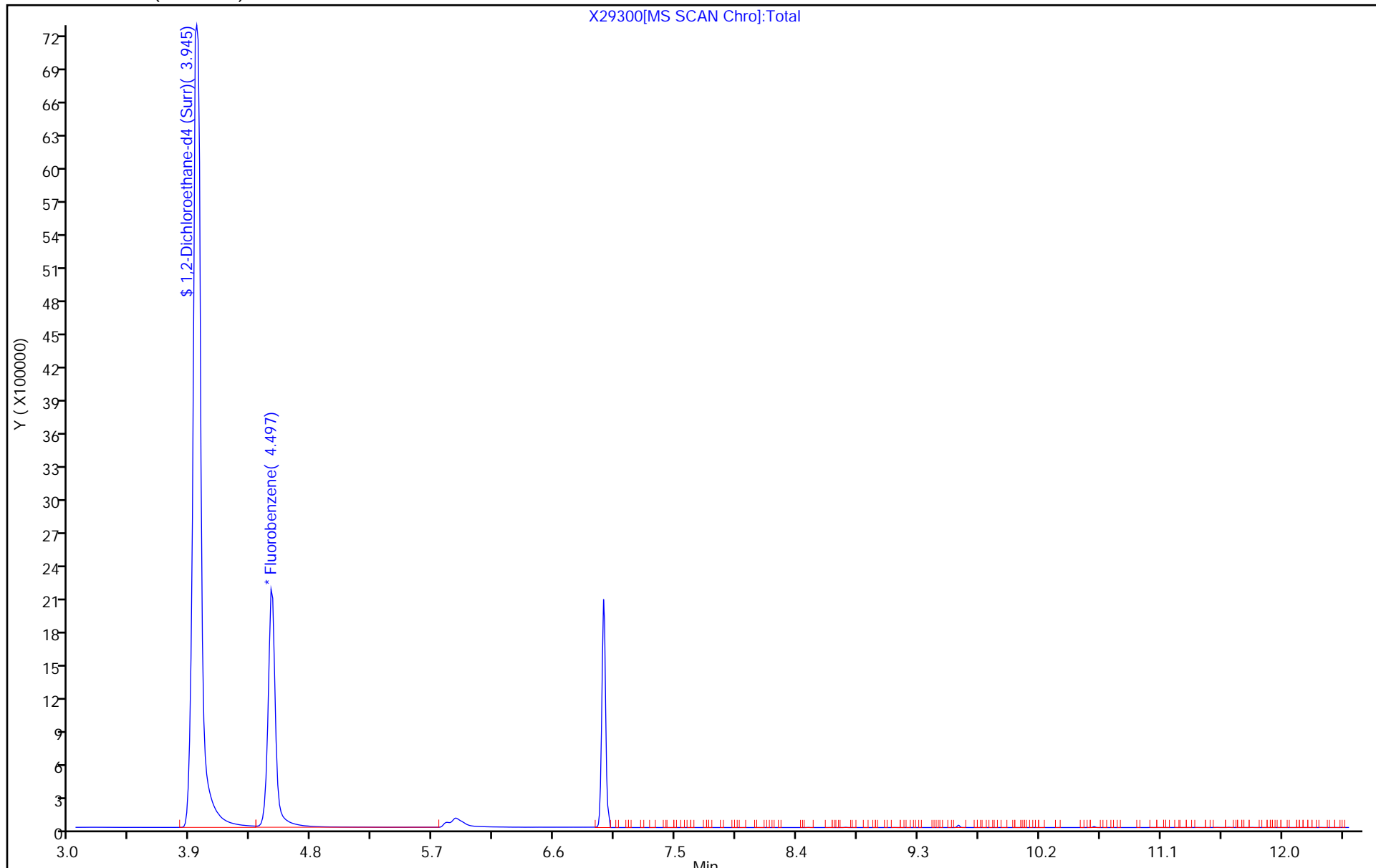
Dil. Factor: 1.0000

ALS Bottle#: 2

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29301.D
 Lims ID: IC
 Client ID:
 Sample Type: IC Calib Level: 7
 Inject. Date: 25-Feb-2020 17:15:30 ALS Bottle#: 3 Worklist Smp#: 4
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Sample Info: ic
 Misc. Info.: 240-0096076-004
 Operator ID: 002808 Instrument ID: A3UX2
 Sublist: chrom-8260SIM_X2*sub2
 Method: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 26-Feb-2020 09:16:49 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0337

First Level Reviewer: macenczaks Date: 26-Feb-2020 08:58:24

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 5 1,2-Dichloroethane-d4 (Sur	65	3.945	3.955	-0.010	100	14203789	50.0	53.3	
* 7 Fluorobenzene	96	4.509	4.510	-0.001	100	7723637	10.0	10.0	
* 9 Dioxane-d8 (IS)	96	5.806	5.813	-0.007	99	165679	200.0	200.0	
8 1,4-Dioxane	88	5.876	5.875	0.001	97	93584	100.0	95.2	

Reagents:

vmdioxanew_00200 Amount Added: 15.00 Units: uL
 vm50ss_00391 Amount Added: 15.00 Units: uL
 vm150is_00164 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29301.D

Injection Date: 25-Feb-2020 17:15:30

Instrument ID: A3UX2

Operator ID: 002808

Lims ID: IC

Worklist Smp#: 4

Client ID:

Purge Vol: 15.000 mL

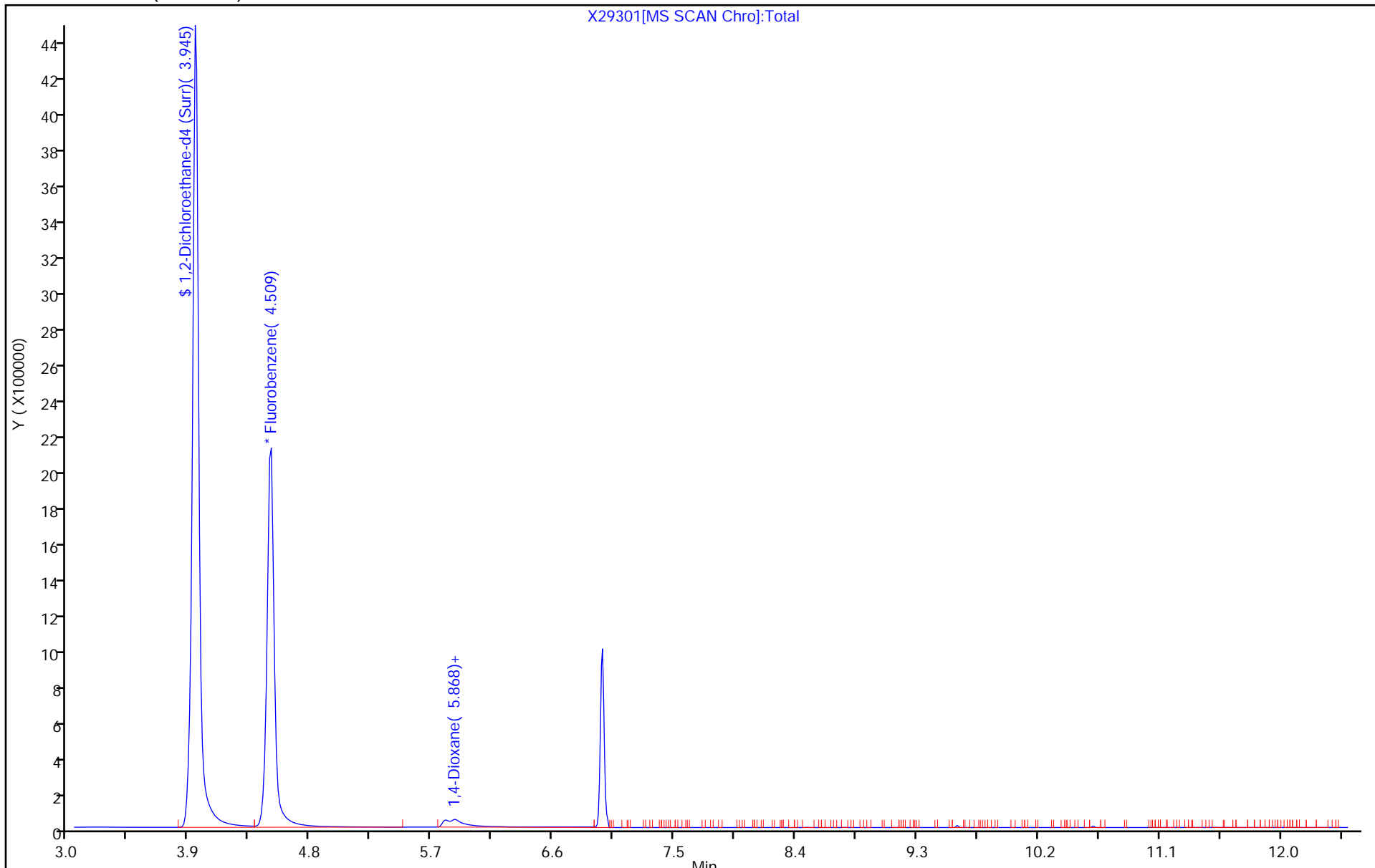
Dil. Factor: 1.0000

ALS Bottle#: 3

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



X29301[MS SCAN Chro]:Total

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29302.D
 Lims ID: IC
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 25-Feb-2020 17:40:30 ALS Bottle#: 4 Worklist Smp#: 5
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Sample Info: ic
 Misc. Info.: 240-0096076-005
 Operator ID: 002808 Instrument ID: A3UX2
 Sublist: chrom-8260SIM_X2*sub2
 Method: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 26-Feb-2020 09:16:50 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0337

First Level Reviewer: macenczaks Date: 26-Feb-2020 08:58:12

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 5 1,2-Dichloroethane-d4 (Sur	65	3.944	3.955	-0.011	100	7098479	25.0	25.3	
* 7 Fluorobenzene	96	4.497	4.510	-0.013	100	8115003	10.0	10.0	
* 9 Dioxane-d8 (IS)	96	5.805	5.813	-0.008	98	159484	200.0	200.0	
8 1,4-Dioxane	88	5.875	5.875	0.000	98	46289	50.0	49.3	M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

vmdioxanew_00200 Amount Added: 7.50 Units: uL
 vm50ss_00391 Amount Added: 7.50 Units: uL
 vm150is_00164 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29302.D

Injection Date: 25-Feb-2020 17:40:30

Instrument ID: A3UX2

Operator ID: 002808

Lims ID: IC

Worklist Smp#: 5

Client ID:

Purge Vol: 15.000 mL

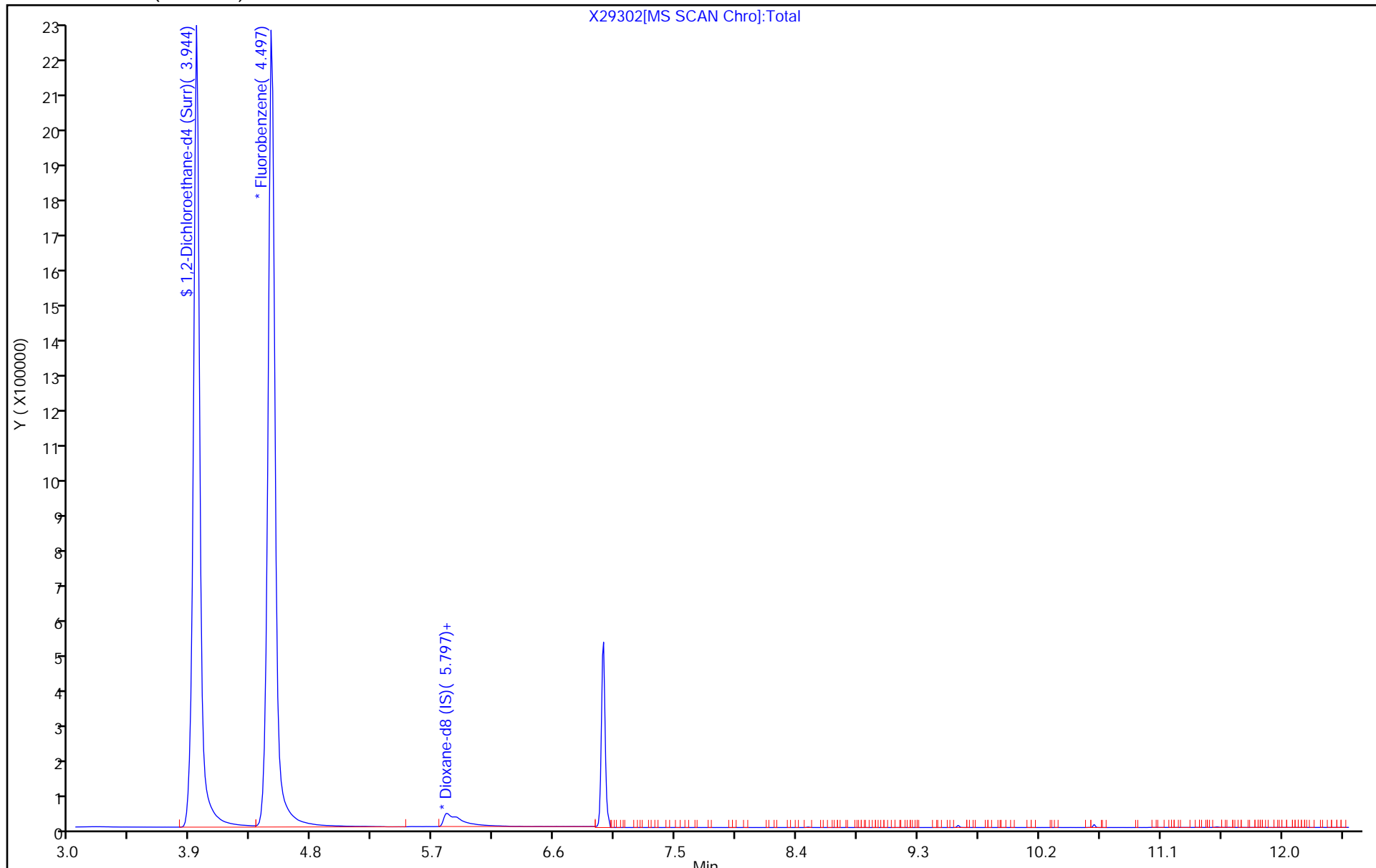
Dil. Factor: 1.0000

ALS Bottle#: 4

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton

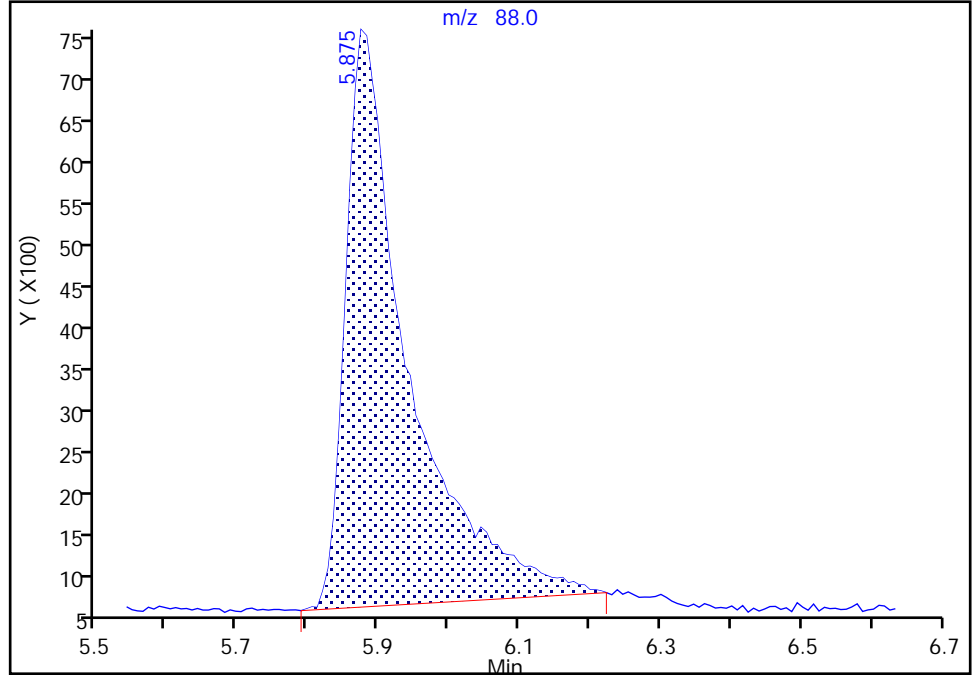
Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29302.D
Injection Date: 25-Feb-2020 17:40:30 Instrument ID: A3UX2
Lims ID: IC
Client ID:
Operator ID: 002808 ALS Bottle#: 4 Worklist Smp#: 5
Purge Vol: 15.000 mL Dil. Factor: 1.0000
Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

8 1,4-Dioxane, CAS: 123-91-1

Signal: 1

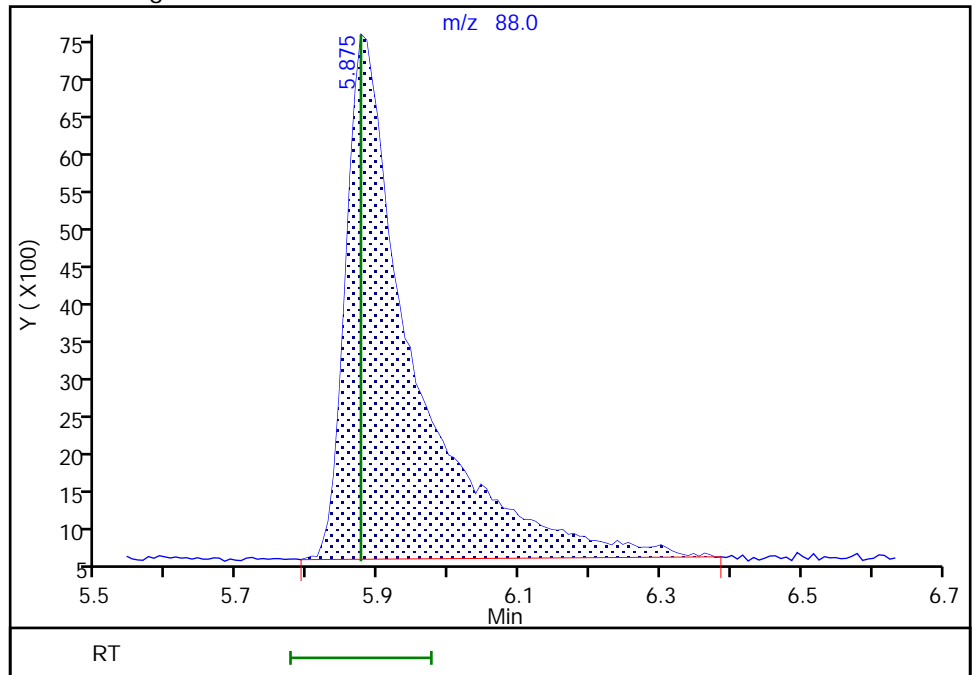
RT: 5.87
Area: 42856
Amount: 50.656456
Amount Units: ug/l

Processing Integration Results



RT: 5.87
Area: 46289
Amount: 49.328212
Amount Units: ug/l

Manual Integration Results



Reviewer: macenczaks, 26-Feb-2020 08:58:06
Audit Action: Manually Integrated

Audit Reason: Poor chromatography

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29303.D
 Lims ID: ICIS
 Client ID:
 Sample Type: ICIS Calib Level: 5
 Inject. Date: 25-Feb-2020 18:06:30 ALS Bottle#: 5 Worklist Smp#: 6
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Sample Info: icis
 Misc. Info.: 240-0096076-006
 Operator ID: 002808 Instrument ID: A3UX2
 Sublist: chrom-8260SIM_X2*sub2
 Method: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 26-Feb-2020 09:16:51 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0337

First Level Reviewer: macenczaks Date: 26-Feb-2020 08:57:46

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 5 1,2-Dichloroethane-d4 (Sur	65	3.955	3.955	0.000	100	2764586	10.0	10.4	
* 7 Fluorobenzene	96	4.510	4.510	0.000	100	7706070	10.0	10.0	
* 9 Dioxane-d8 (IS)	96	5.813	5.813	0.000	98	163826	200.0	200.0	
8 1,4-Dioxane	88	5.875	5.875	0.000	82	18972	20.0	20.2	M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

vmdioxanew_00200 Amount Added: 3.00 Units: uL
 vm50ss_00391 Amount Added: 3.00 Units: uL
 vm150is_00164 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29303.D

Injection Date: 25-Feb-2020 18:06:30

Instrument ID: A3UX2

Operator ID: 002808

Lims ID: ICIS

Worklist Smp#: 6

Client ID:

Purge Vol: 15.000 mL

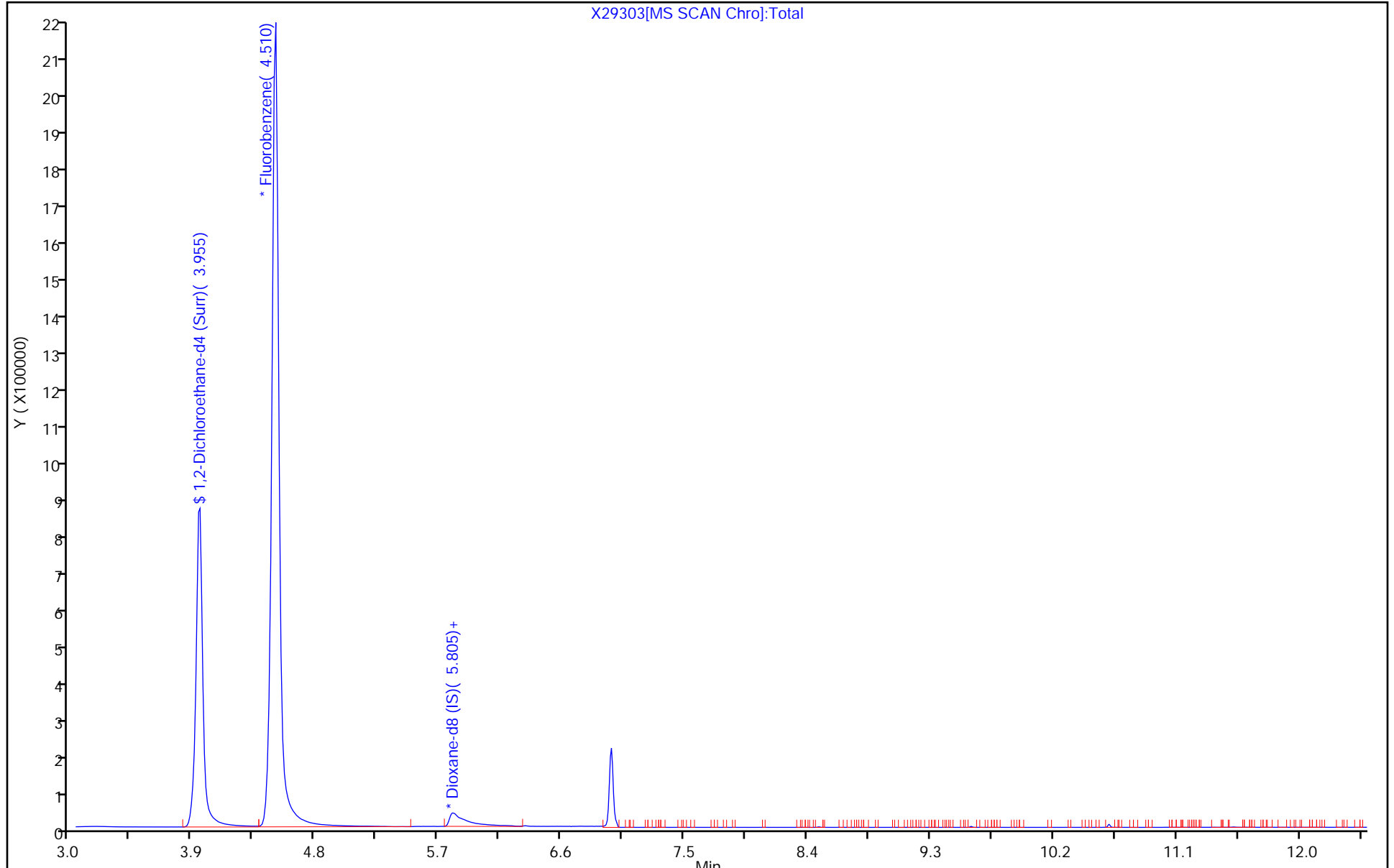
Dil. Factor: 1.0000

ALS Bottle#: 5

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



X29303[MS SCAN Chro]:Total

Eurofins TestAmerica, Canton

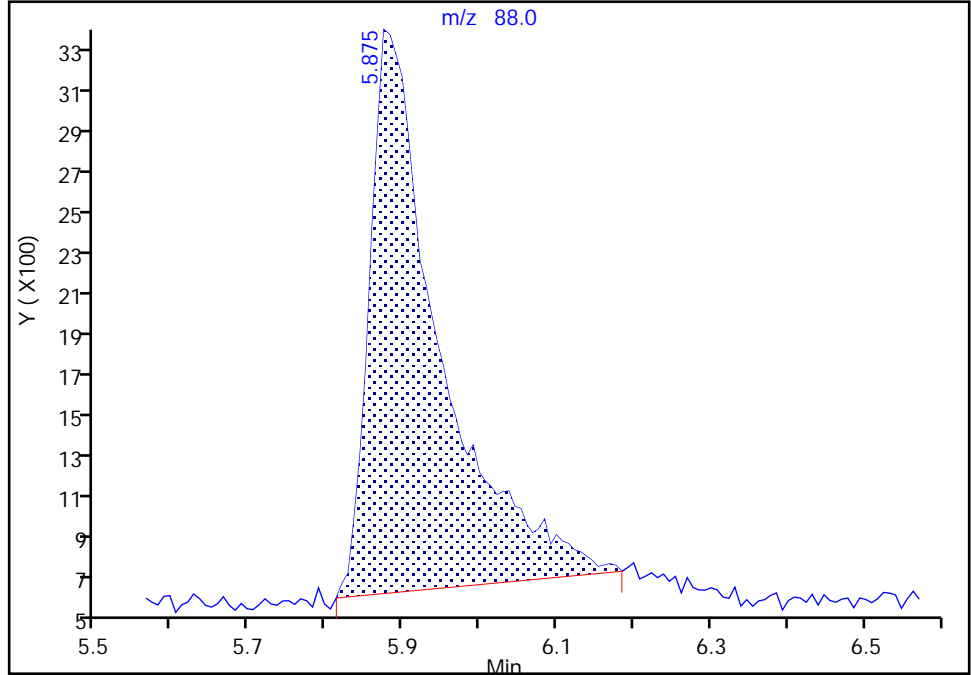
Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29303.D
Injection Date: 25-Feb-2020 18:06:30 Instrument ID: A3UX2
Lims ID: ICIS
Client ID:
Operator ID: 002808 ALS Bottle#: 5 Worklist Smp#: 6
Purge Vol: 15.000 mL Dil. Factor: 1.0000
Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

8 1,4-Dioxane, CAS: 123-91-1

Signal: 1

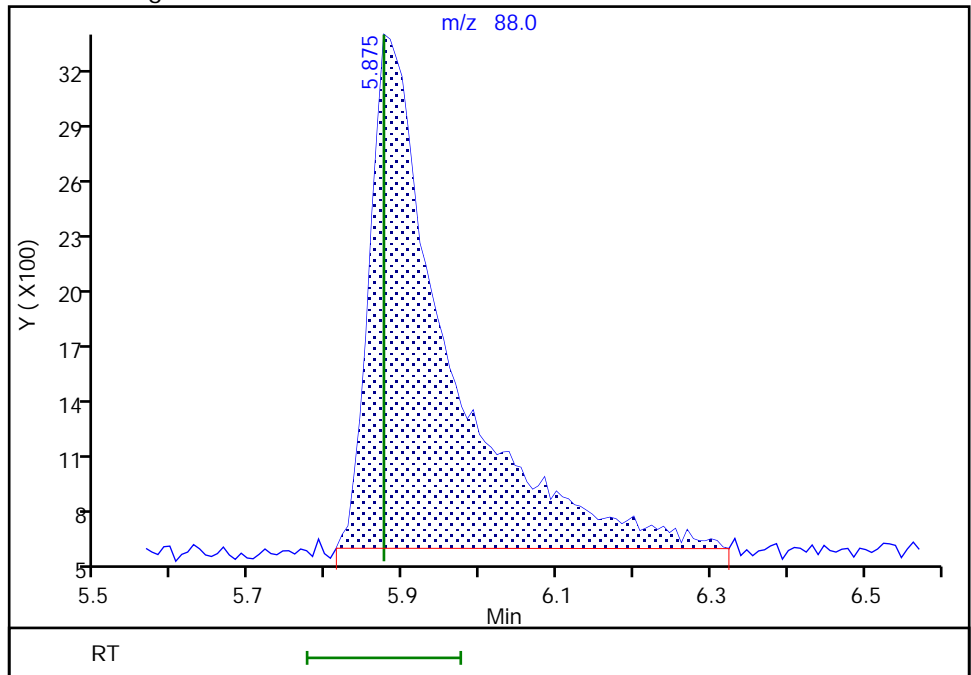
RT: 5.87
Area: 16882
Amount: 19.765443
Amount Units: ug/l

Processing Integration Results



RT: 5.87
Area: 18972
Amount: 20.171719
Amount Units: ug/l

Manual Integration Results



Reviewer: macenczaks, 26-Feb-2020 08:57:41
Audit Action: Manually Integrated

Audit Reason: Poor chromatography
Page 607 of 682

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29304.D
 Lims ID: IC
 Client ID:
 Sample Type: IC Calib Level: 4
 Inject. Date: 25-Feb-2020 18:32:30 ALS Bottle#: 6 Worklist Smp#: 7
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Sample Info: ic
 Misc. Info.: 240-0096076-007
 Operator ID: 002808 Instrument ID: A3UX2
 Sublist: chrom-8260SIM_X2*sub2
 Method: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 26-Feb-2020 09:16:54 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0337

First Level Reviewer: macenczaks Date: 26-Feb-2020 08:57:24

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 5 1,2-Dichloroethane-d4 (Sur	65	3.954	3.955	-0.001	100	1295930	5.00	4.94	
* 7 Fluorobenzene	96	4.510	4.510	0.000	100	7595189	10.0	10.0	
* 9 Dioxane-d8 (IS)	96	5.806	5.813	-0.007	99	156682	200.0	200.0	
8 1,4-Dioxane	88	5.883	5.875	0.008	96	8189	10.0	9.55	M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

vmdioxanew_00200 Amount Added: 1.50 Units: uL
 vm50ss_00391 Amount Added: 1.50 Units: uL
 vm150is_00164 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29304.D

Injection Date: 25-Feb-2020 18:32:30

Instrument ID: A3UX2

Operator ID: 002808

Lims ID: IC

Worklist Smp#: 7

Client ID:

Purge Vol: 15.000 mL

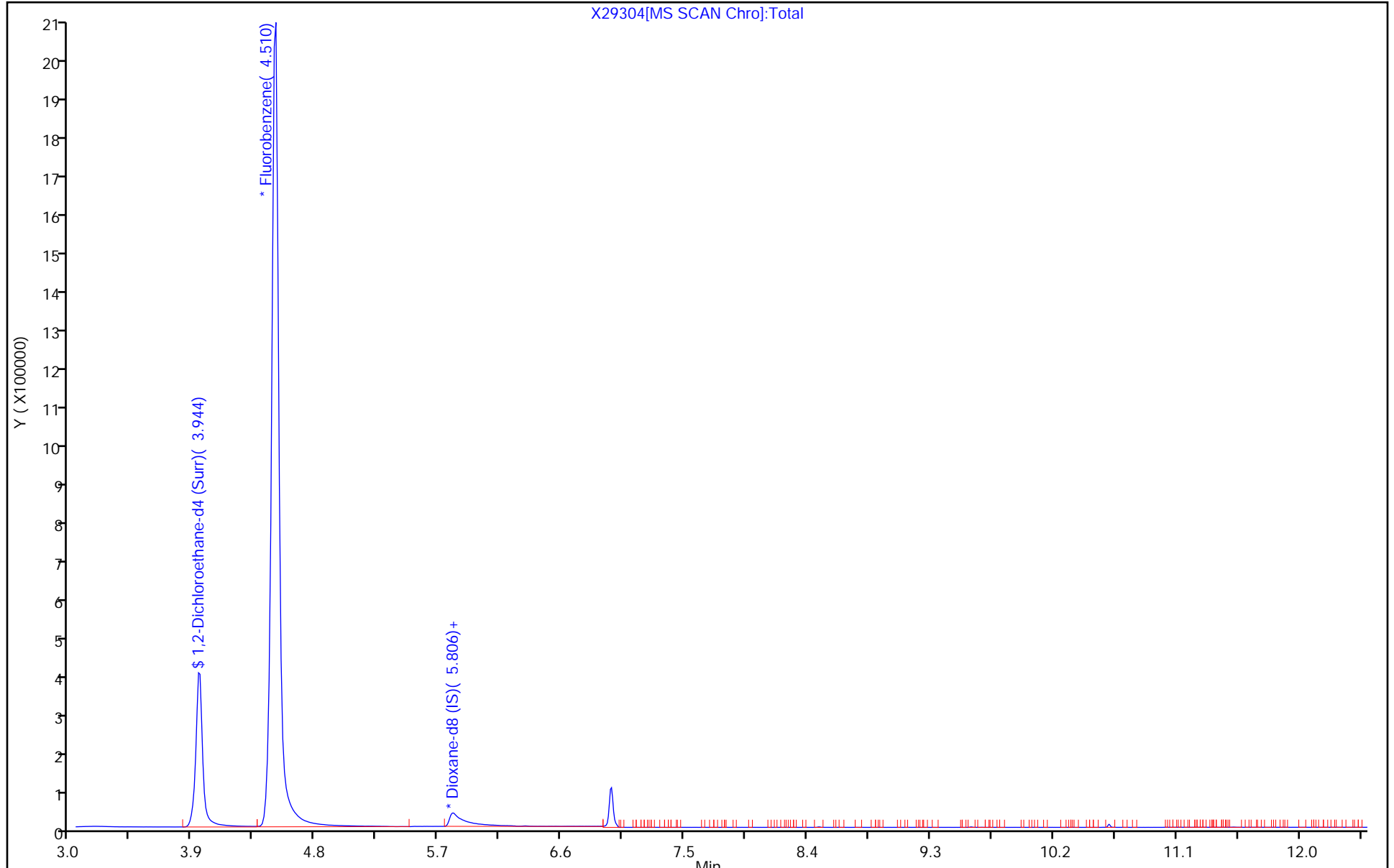
Dil. Factor: 1.0000

ALS Bottle#: 6

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton

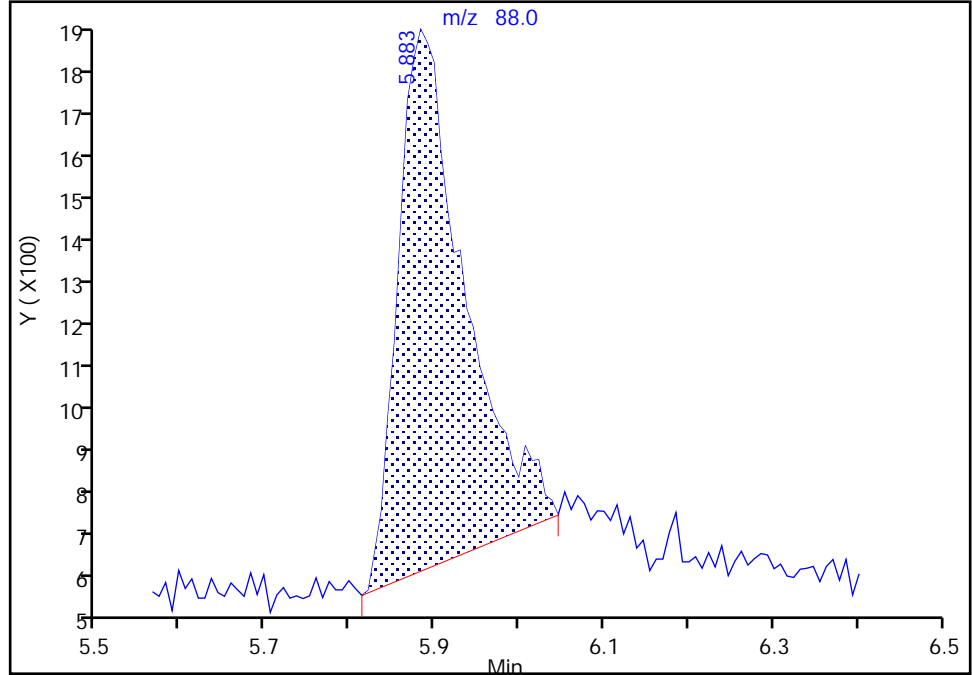
Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29304.D
Injection Date: 25-Feb-2020 18:32:30 Instrument ID: A3UX2
Lims ID: IC
Client ID:
Operator ID: 002808 ALS Bottle#: 6 Worklist Smp#: 7
Purge Vol: 15.000 mL Dil. Factor: 1.0000
Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

8 1,4-Dioxane, CAS: 123-91-1

Signal: 1

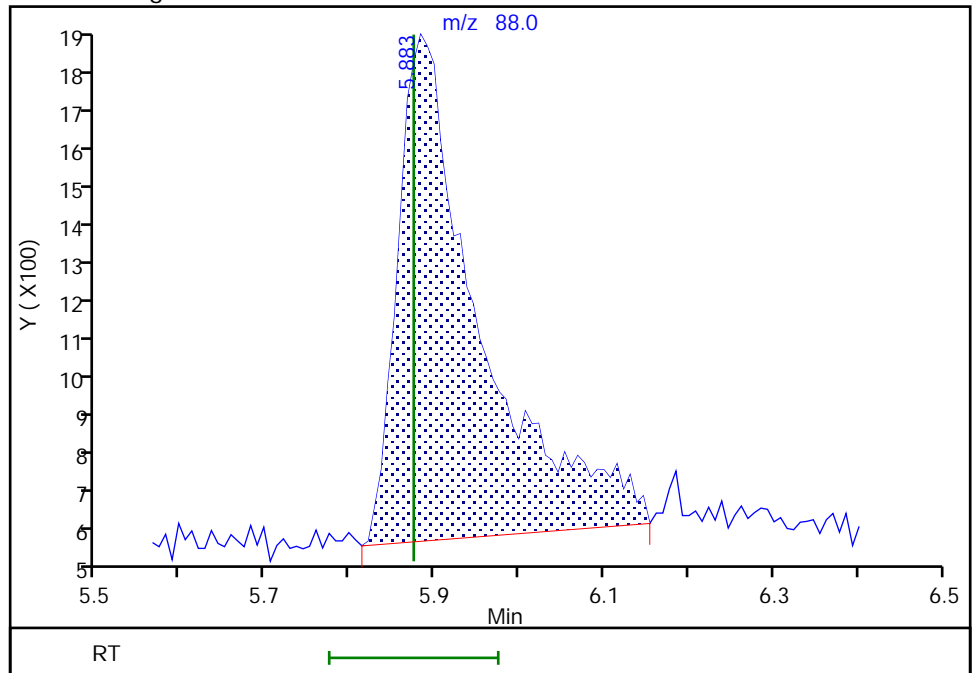
RT: 5.88
Area: 6424
Amount: 8.114625
Amount Units: ug/l

Processing Integration Results



RT: 5.88
Area: 8189
Amount: 9.551098
Amount Units: ug/l

Manual Integration Results



Reviewer: macenczaks, 26-Feb-2020 08:57:17
Audit Action: Manually Integrated

Audit Reason: Poor chromatography

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29305.D
 Lims ID: IC
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 25-Feb-2020 18:58:30 ALS Bottle#: 7 Worklist Smp#: 8
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Sample Info: ic
 Misc. Info.: 240-0096076-008
 Operator ID: 002808 Instrument ID: A3UX2
 Sublist: chrom-8260SIM_X2*sub2
 Method: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 26-Feb-2020 09:16:56 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0337

First Level Reviewer: macenczaks Date: 26-Feb-2020 08:57:00

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 5 1,2-Dichloroethane-d4 (Sur	65	3.943	3.955	-0.012	100	633205	2.50	2.36	
* 7 Fluorobenzene	96	4.497	4.510	-0.013	100	7770614	10.0	10.0	
* 9 Dioxane-d8 (IS)	96	5.805	5.813	-0.008	99	161372	200.0	200.0	
8 1,4-Dioxane	88	5.874	5.875	-0.001	84	3789	5.00	4.74	M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

vmdioxanew_00200 Amount Added: 0.75 Units: uL
 vm50ss_00391 Amount Added: 0.75 Units: uL
 vm150is_00164 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29305.D

Injection Date: 25-Feb-2020 18:58:30

Instrument ID: A3UX2

Operator ID: 002808

Lims ID: IC

Worklist Smp#: 8

Client ID:

Purge Vol: 15.000 mL

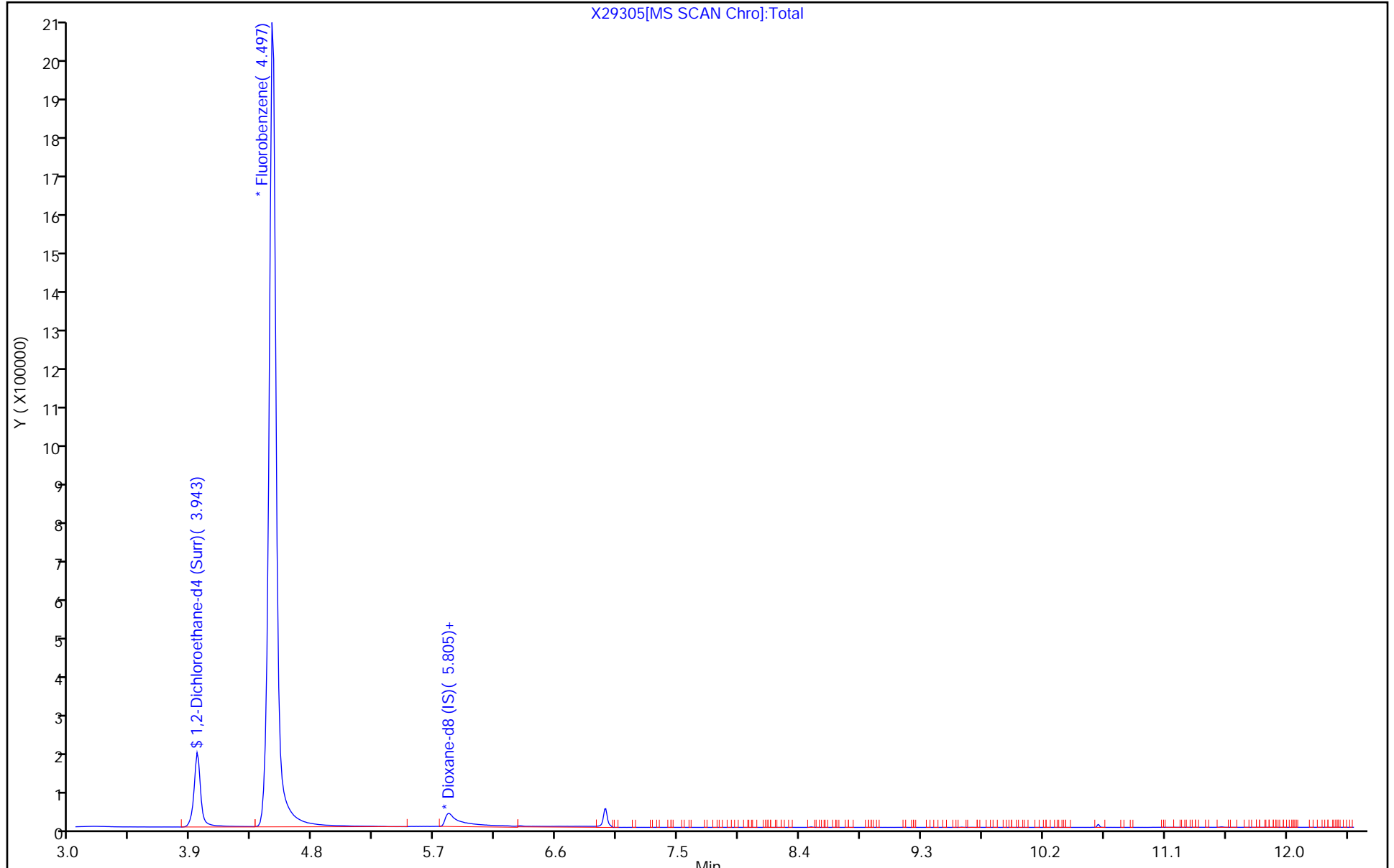
Dil. Factor: 1.0000

ALS Bottle#: 7

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



Euofins TestAmerica, Canton

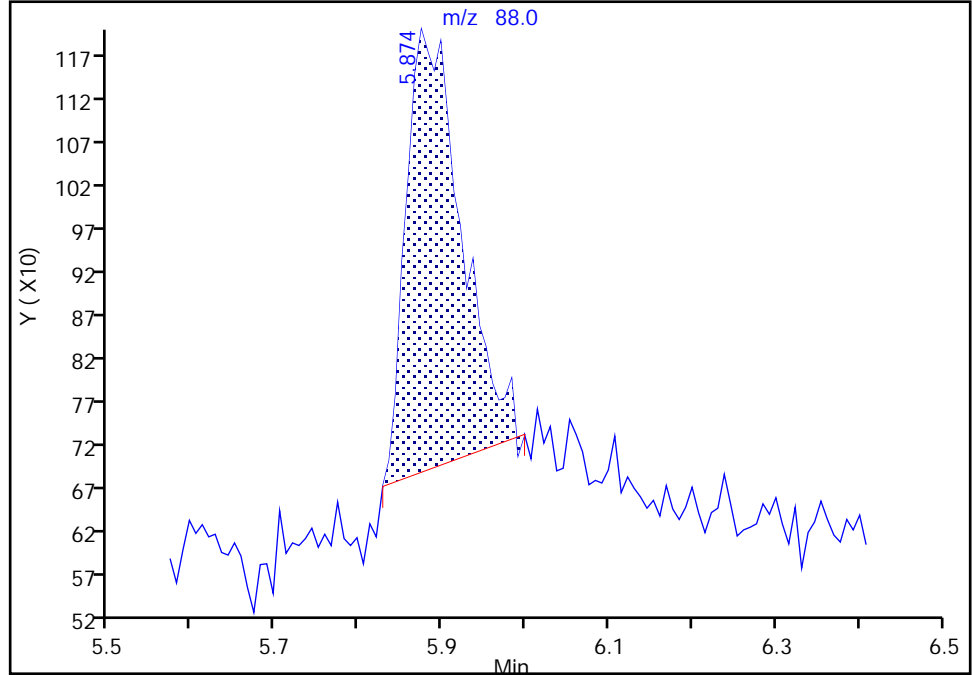
Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29305.D
Injection Date: 25-Feb-2020 18:58:30 Instrument ID: A3UX2
Lims ID: IC
Client ID:
Operator ID: 002808 ALS Bottle#: 7 Worklist Smp#: 8
Purge Vol: 15.000 mL Dil. Factor: 1.0000
Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

8 1,4-Dioxane, CAS: 123-91-1

Signal: 1

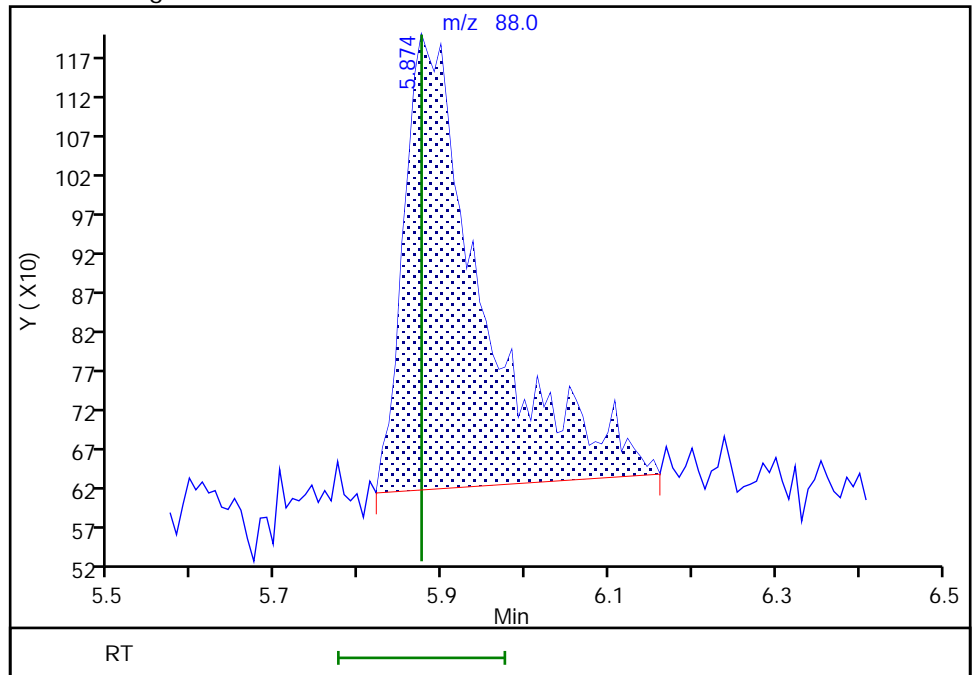
RT: 5.87
Area: 2320
Amount: 2.999810
Amount Units: ug/l

Processing Integration Results



RT: 5.87
Area: 3789
Amount: 4.739747
Amount Units: ug/l

Manual Integration Results



Reviewer: macenczaks, 26-Feb-2020 08:56:55
Audit Action: Manually Integrated

Audit Reason: Poor chromatography

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29306.D
 Lims ID: IC
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 25-Feb-2020 19:24:30 ALS Bottle#: 8 Worklist Smp#: 9
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Sample Info: ic
 Misc. Info.: 240-0096076-009
 Operator ID: 002808 Instrument ID: A3UX2
 Sublist: chrom-8260SIM_X2*sub2
 Method: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 26-Feb-2020 09:16:57 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0337

First Level Reviewer: macenczaks Date: 26-Feb-2020 08:56:30

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 5 1,2-Dichloroethane-d4 (Sur	65	3.953	3.955	-0.002	100	252979	1.00	0.9683	
* 7 Fluorobenzene	96	4.510	4.510	0.000	100	7570065	10.0	10.0	
* 9 Dioxane-d8 (IS)	96	5.813	5.813	0.000	99	161702	200.0	200.0	
8 1,4-Dioxane	88	5.898	5.875	0.023	79	1380	2.00	2.24	M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

vmdioxanew_00200 Amount Added: 0.30 Units: uL
 vm50ss_00391 Amount Added: 0.30 Units: uL
 vm150is_00164 Amount Added: 1.00 Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29306.D

Injection Date: 25-Feb-2020 19:24:30

Instrument ID: A3UX2

Operator ID: 002808

Lims ID: IC

Worklist Smp#: 9

Client ID:

Purge Vol: 15.000 mL

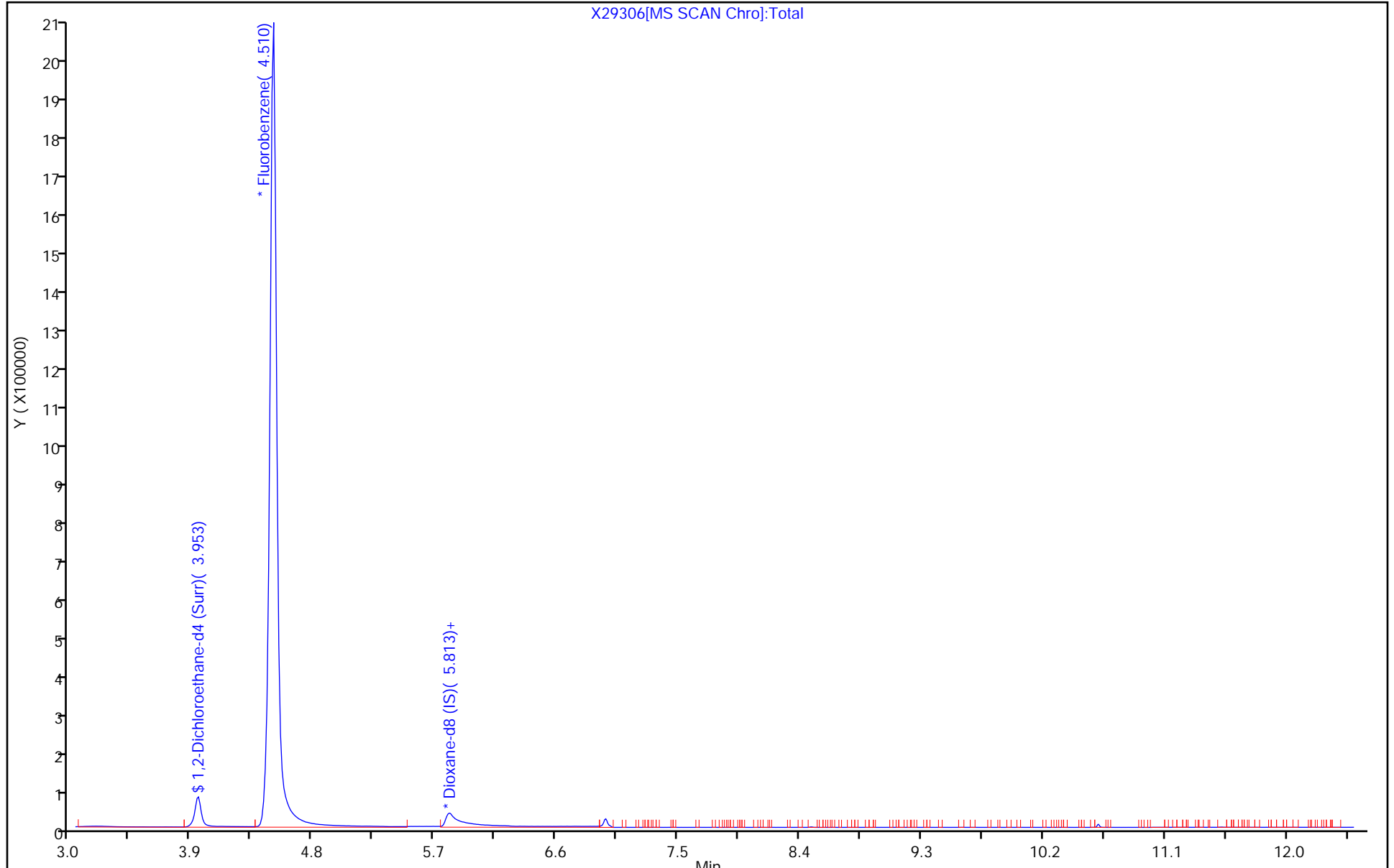
Dil. Factor: 1.0000

ALS Bottle#: 8

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



X29306[MS SCAN Chro]:Total

Eurofins TestAmerica, Canton

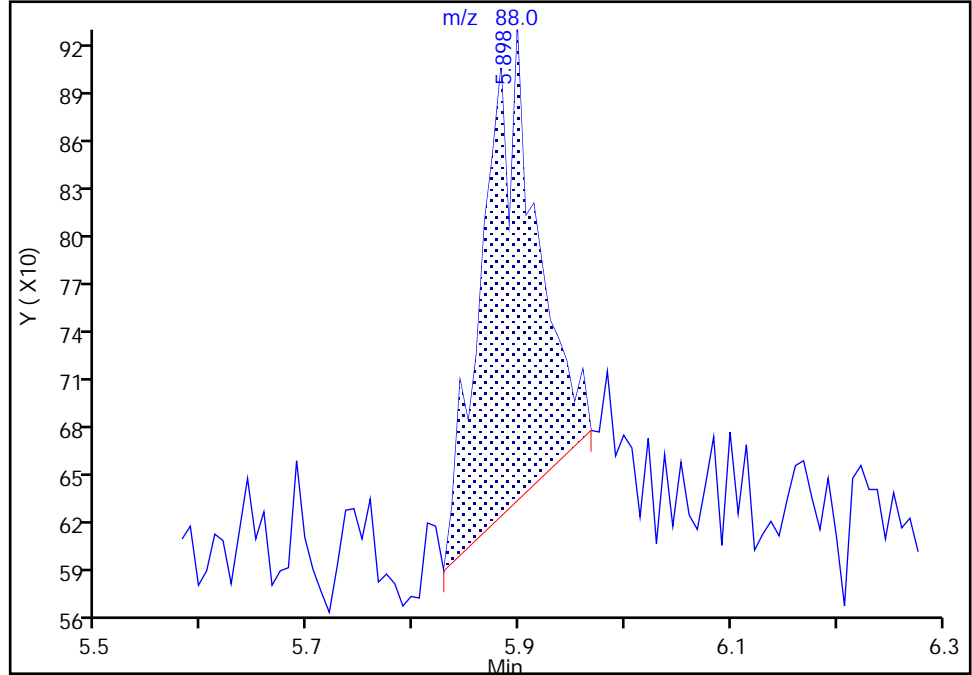
Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29306.D
Injection Date: 25-Feb-2020 19:24:30 Instrument ID: A3UX2
Lims ID: IC
Client ID:
Operator ID: 002808 ALS Bottle#: 8 Worklist Smp#: 9
Purge Vol: 15.000 mL Dil. Factor: 1.0000
Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

8 1,4-Dioxane, CAS: 123-91-1

Signal: 1

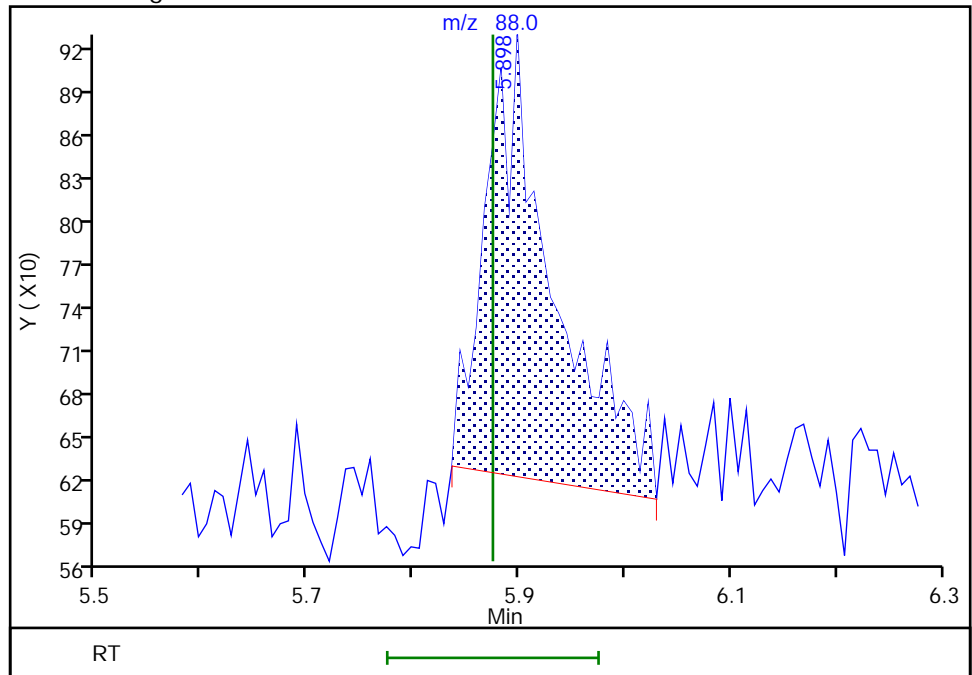
RT: 5.90
Area: 1067
Amount: 1.417739
Amount Units: ug/l

Processing Integration Results



RT: 5.90
Area: 1380
Amount: 2.241623
Amount Units: ug/l

Manual Integration Results



Reviewer: macenczaks, 26-Feb-2020 08:56:18
Audit Action: Manually Integrated

Audit Reason: Poor chromatography

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Lab Sample ID: ICV 240-424238/11 Calibration Date: 02/25/2020 20:15
 Instrument ID: A3UX2 Calib Start Date: 02/25/2020 16:49
 GC Column: ZB-624 ID: 0.53 (mm) Calib End Date: 02/25/2020 19:24
 Lab File ID: X29308.D Conc. Units: ng/uL Heated Purge: (Y/N) Y

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,4-Dioxane	Lin1		1.048		0.00957	0.0100	-4.3	
1,2-Dichloroethane-d4 (Surr)	Ave	0.3451	0.3666		0.0106	0.0100	6.2	

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29308.D
 Lims ID: ICV
 Client ID:
 Sample Type: ICV
 Inject. Date: 25-Feb-2020 20:15:30 ALS Bottle#: 10 Worklist Smp#: 11
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Sample Info: icv
 Misc. Info.: 240-0096076-011
 Operator ID: 002808 Instrument ID: A3UX2
 Sublist:

Method: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 26-Feb-2020 09:16:57 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0337

First Level Reviewer: macenczaks Date: 26-Feb-2020 09:03:44

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 5 1,2-Dichloroethane-d4 (Sur	65	3.954	3.955	-0.001	100	2800470	10.0	10.6	
* 7 Fluorobenzene	96	4.510	4.510	0.000	100	7639619	10.0	10.0	
* 9 Dioxane-d8 (IS)	96	5.806	5.813	-0.007	98	165520	200.0	200.0	
8 1,4-Dioxane	88	5.883	5.875	0.008	98	8674	10.0	9.57	M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

vmdiox_spike_00213	Amount Added: 3.00	Units: uL	
vmDist_H2o_00162	Amount Added: 0.00	Units:	Run Reagent
vm40ml_vials_00014	Amount Added: 0.00	Units:	Run Reagent
vm150is_00164	Amount Added: 1.00	Units: uL	Run Reagent
vm50ss_00391	Amount Added: 3.00	Units: uL	Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29308.D

Injection Date: 25-Feb-2020 20:15:30

Instrument ID: A3UX2

Operator ID: 002808

Lims ID: ICV

Worklist Smp#: 11

Client ID:

Purge Vol: 15.000 mL

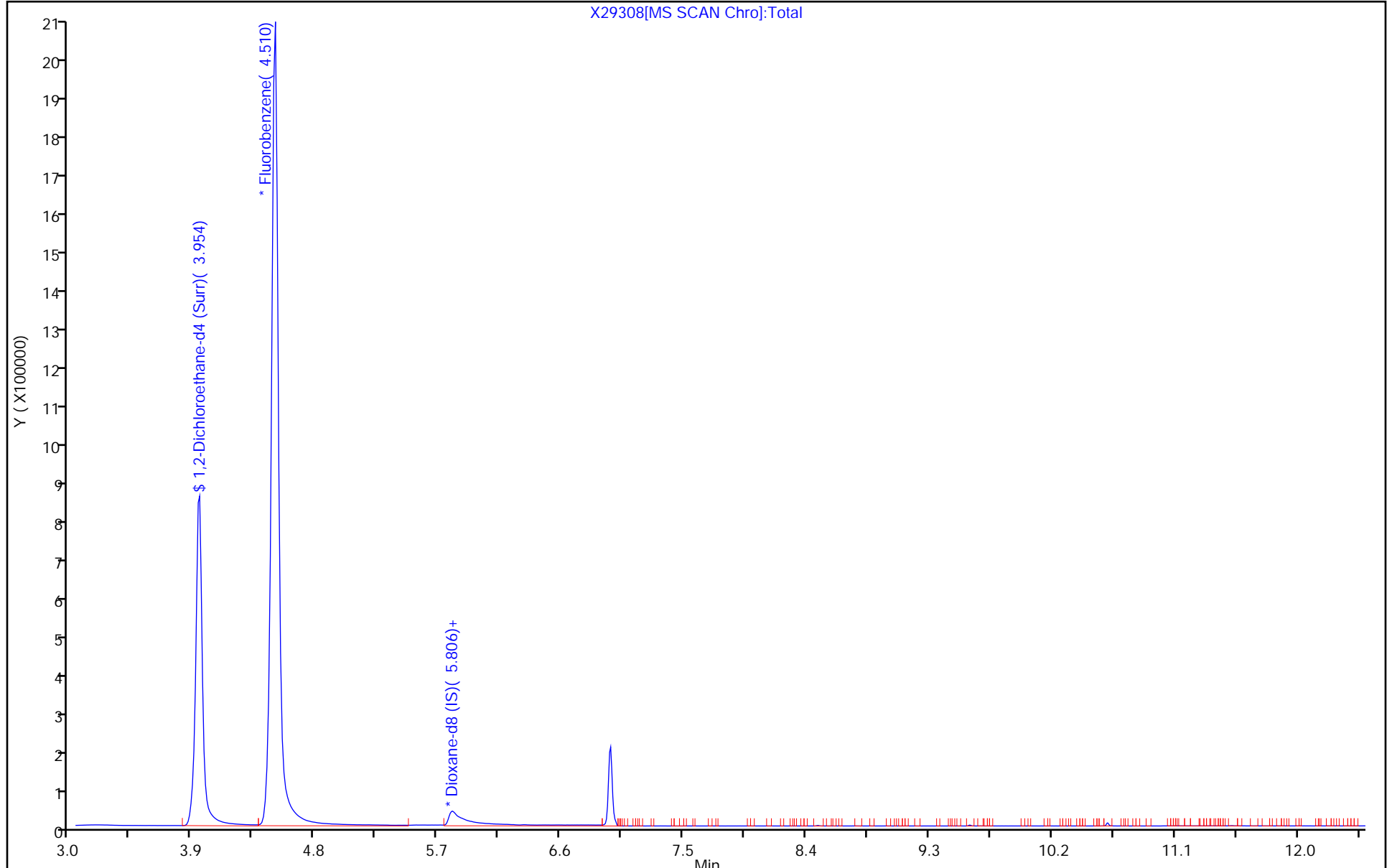
Dil. Factor: 1.0000

ALS Bottle#: 10

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



X29308[MS SCAN Chro]:Total

Eurofins TestAmerica, Canton

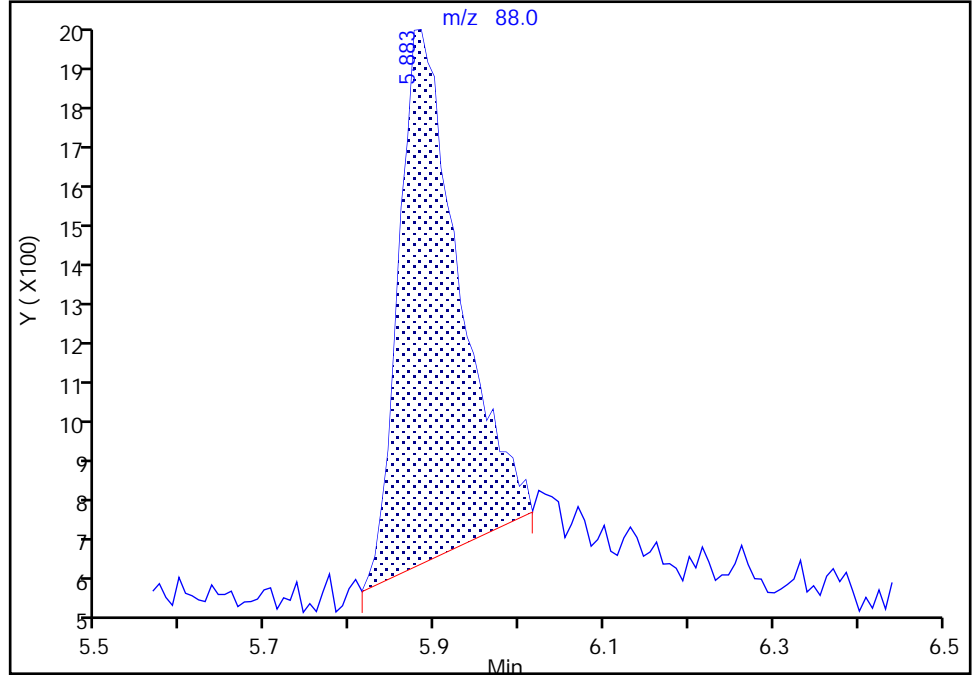
Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29308.D
Injection Date: 25-Feb-2020 20:15:30 Instrument ID: A3UX2
Lims ID: ICV
Client ID:
Operator ID: 002808 ALS Bottle#: 10 Worklist Smp#: 11
Purge Vol: 15.000 mL Dil. Factor: 1.0000
Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

8 1,4-Dioxane, CAS: 123-91-1

Signal: 1

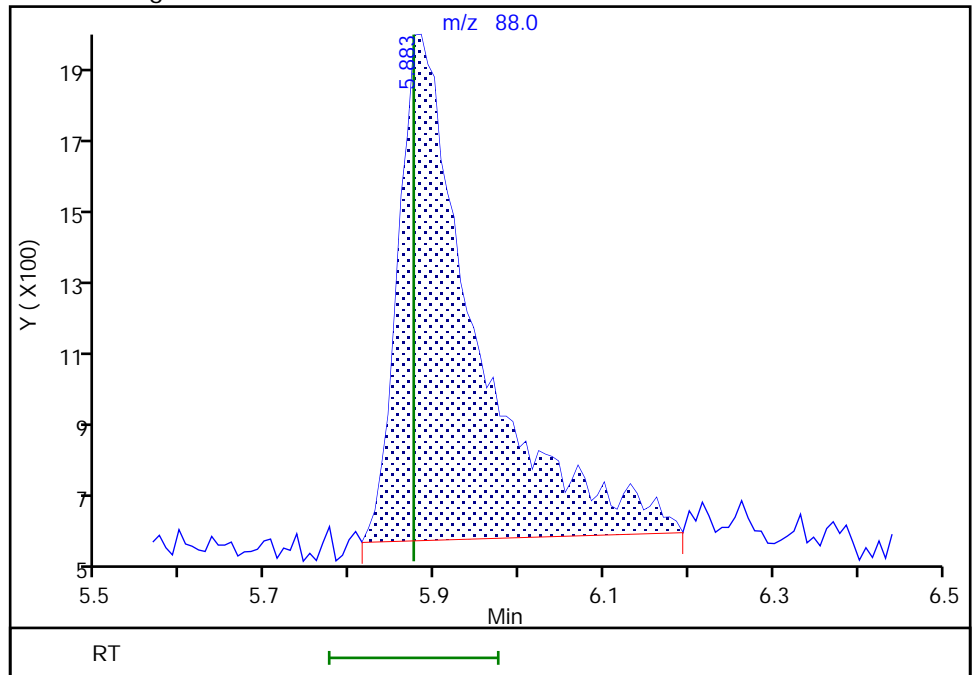
RT: 5.88
Area: 6342
Amount: 7.219486
Amount Units: ug/l

Processing Integration Results



RT: 5.88
Area: 8674
Amount: 9.574406
Amount Units: ug/l

Manual Integration Results



Reviewer: macenczaks, 26-Feb-2020 09:03:38

Audit Action: Manually Integrated

Audit Reason: Poor chromatography

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Lab Sample ID: CCVIS 240-445137/3 Calibration Date: 07/31/2020 12:53
 Instrument ID: A3UX2 Calib Start Date: 02/25/2020 16:49
 GC Column: ZB-624 ID: 0.53 (mm) Calib End Date: 02/25/2020 19:24
 Lab File ID: X21081.D Conc. Units: ng/uL Heated Purge: (Y/N) Y

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,4-Dioxane	Lin1		1.264		0.0219	0.0200	9.7	35.0
1,2-Dichloroethane-d4 (Surr)	Ave	0.3451	0.2789		0.00808	0.0100	-19.2	35.0

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21081.D
 Lims ID: CCVIS
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 31-Jul-2020 12:53:30 ALS Bottle#: 2 Worklist Smp#: 3
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Sample Info: ccvis
 Misc. Info.: 240-0100568-003
 Operator ID: 402279 Instrument ID: A3UX2
 Sublist: chrom-8260SIM_X2*sub2
 Method: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 03-Aug-2020 11:30:42 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1008

First Level Reviewer: macenczaks Date: 31-Jul-2020 13:11:40

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	3.941	3.941	0.000	100	2176253	10.0	8.08	
* 7 Fluorobenzene	96	4.497	4.497	0.000	100	7802348	10.0	10.0	
* 9 Dioxane-d8 (IS)	96	5.799	5.799	0.000	98	158535	200.0	200.0	M
8 1,4-Dioxane	88	5.876	5.876	0.000	88	20035	20.0	21.9	M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

vmdioxanew_00219	Amount Added: 3.00	Units: uL	
vm40ml_vials_00014	Amount Added: 0.00	Units:	Run Reagent
vm150is_00174	Amount Added: 1.00	Units: uL	Run Reagent
vmDist_H2o_00177	Amount Added: 0.00	Units:	Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21081.D

Injection Date: 31-Jul-2020 12:53:30

Instrument ID: A3UX2

Operator ID: 402279

Lims ID: CCVIS

Worklist Smp#: 3

Client ID:

Purge Vol: 15.000 mL

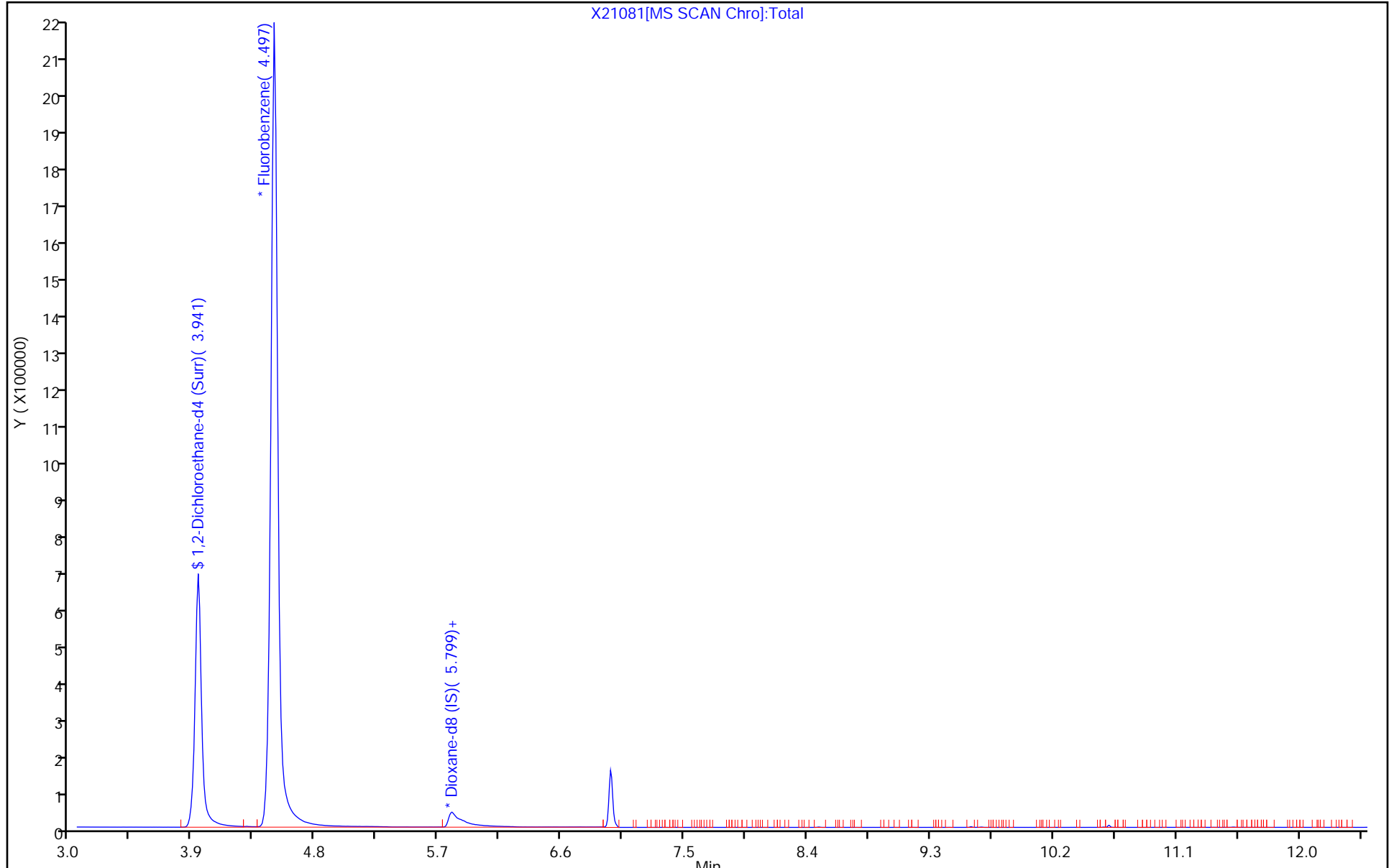
Dil. Factor: 1.0000

ALS Bottle#: 2

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



X21081[MS SCAN Chro]:Total

Eurofins TestAmerica, Canton

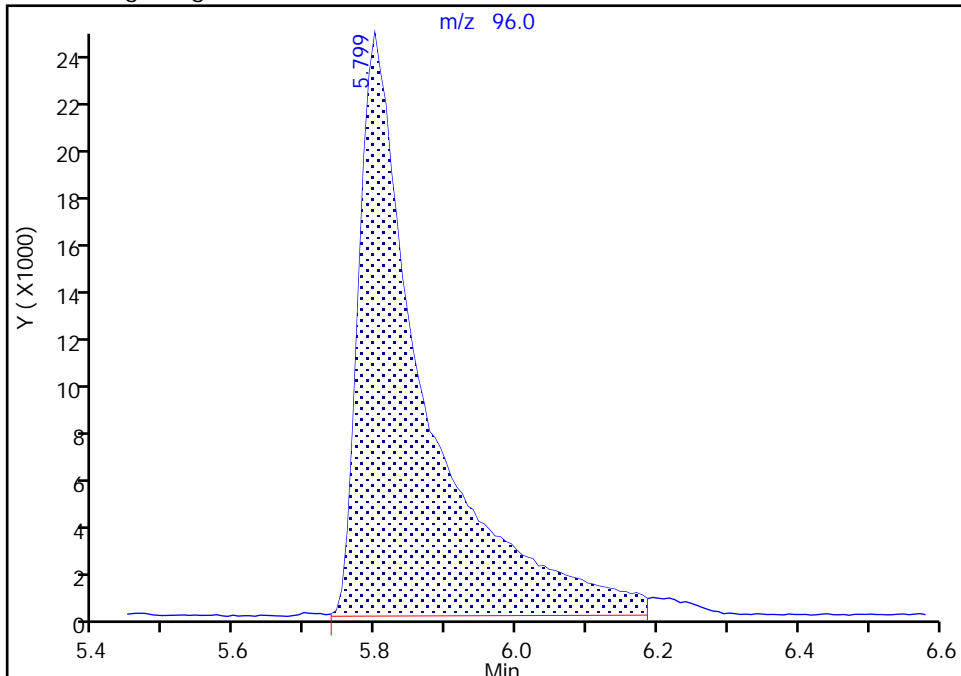
Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21081.D
Injection Date: 31-Jul-2020 12:53:30 Instrument ID: A3UX2
Lims ID: CCVIS
Client ID:
Operator ID: 402279 ALS Bottle#: 2 Worklist Smp#: 3
Purge Vol: 15.000 mL Dil. Factor: 1.0000
Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

* 9 Dioxane-d8 (IS), CAS: 17647-74-4

Signal: 1

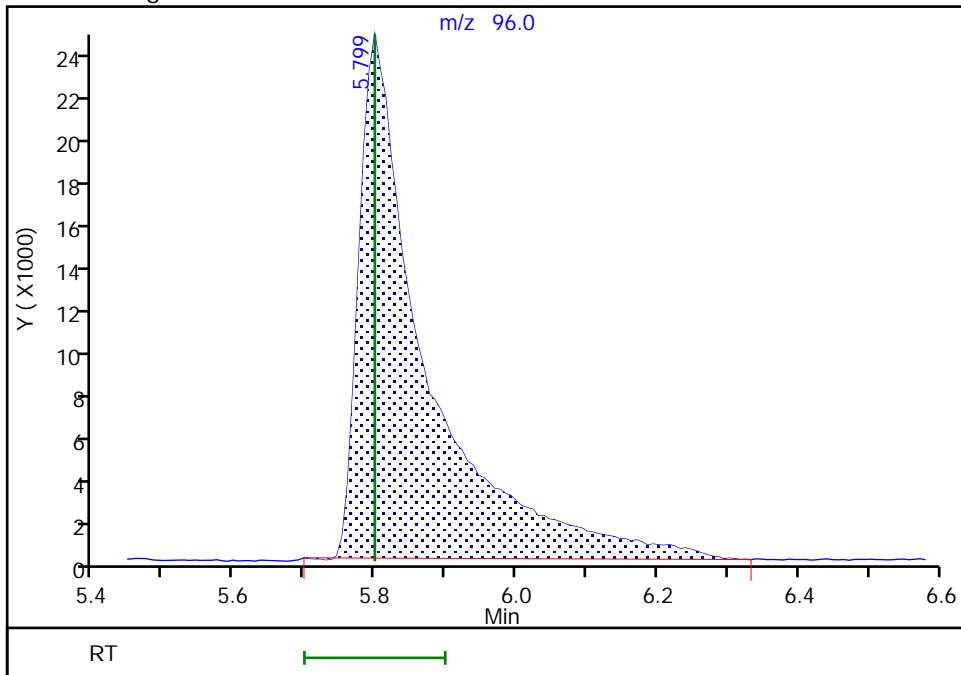
RT: 5.80
Area: 158459
Amount: 200.0000
Amount Units: ug/l

Processing Integration Results



RT: 5.80
Area: 158535
Amount: 200.0000
Amount Units: ug/l

Manual Integration Results



Reviewer: macenczaks, 31-Jul-2020 13:11:27
Audit Action: Manually Integrated

Audit Reason: Poor chromatography

Eurofins TestAmerica, Canton

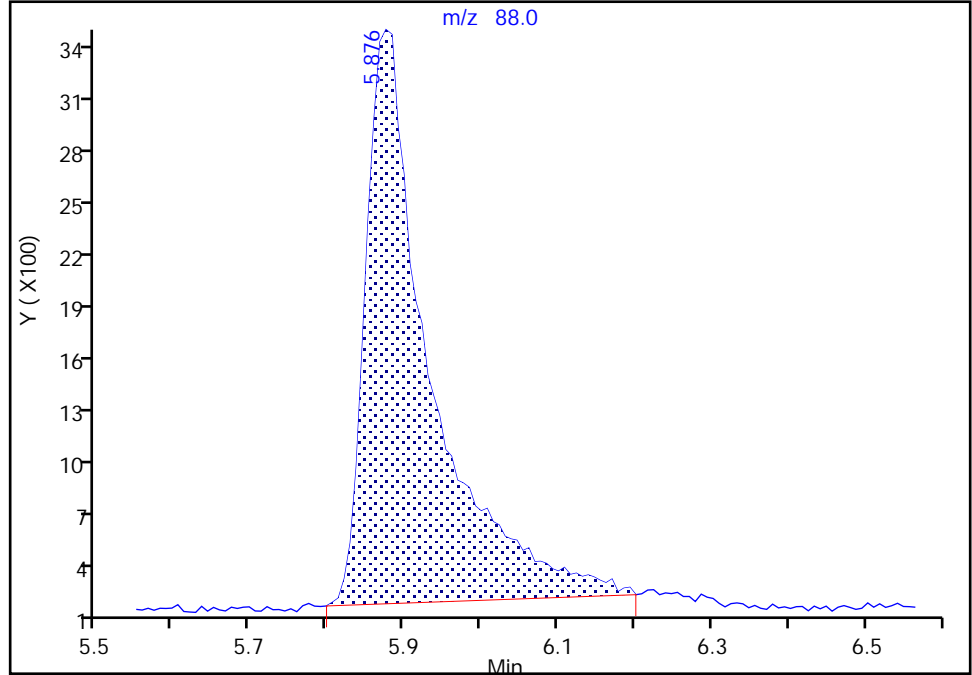
Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21081.D
Injection Date: 31-Jul-2020 12:53:30 Instrument ID: A3UX2
Lims ID: CCVIS
Client ID:
Operator ID: 402279 ALS Bottle#: 2 Worklist Smp#: 3
Purge Vol: 15.000 mL Dil. Factor: 1.0000
Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

8 1,4-Dioxane, CAS: 123-91-1

Signal: 1

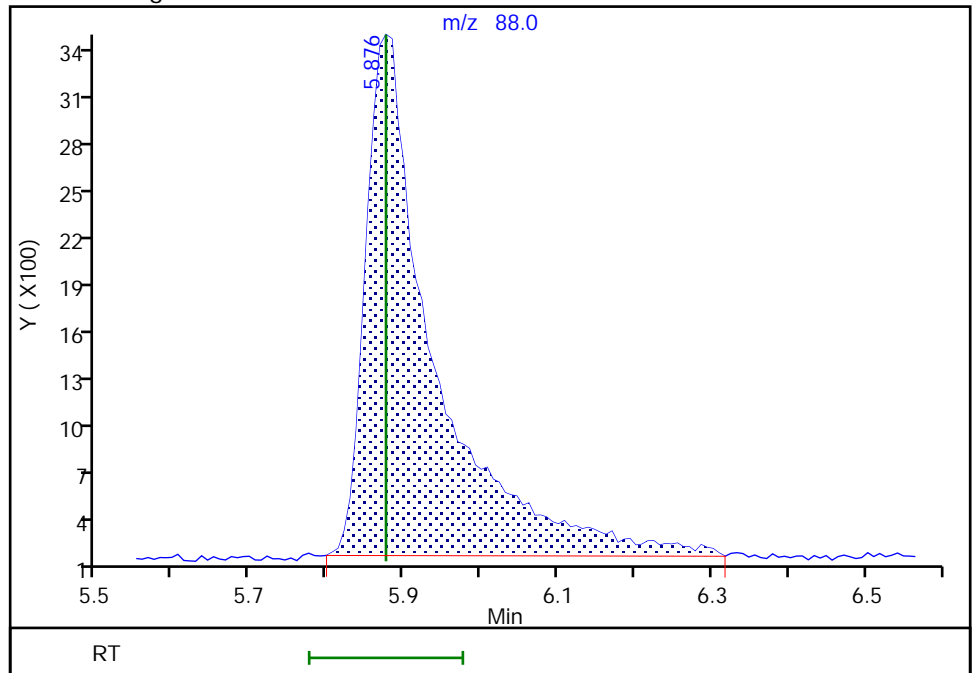
RT: 5.88
Area: 18797
Amount: 20.633225
Amount Units: ug/l

Processing Integration Results



RT: 5.88
Area: 20035
Amount: 21.938474
Amount Units: ug/l

Manual Integration Results



Reviewer: macenczaks, 31-Jul-2020 13:11:36
Audit Action: Manually Integrated

Audit Reason: Poor chromatography

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\BFBX2567.D
 Lims ID: BFB
 Client ID:
 Sample Type: BFB
 Inject. Date: 25-Feb-2020 16:03:30 ALS Bottle#: 1 Worklist Smp#: 16
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: BFB
 Misc. Info.: 240-0096076-016
 Operator ID: 002808 Instrument ID: A3UX2
 Method: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 26-Feb-2020 09:16:45 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX0337

First Level Reviewer: macenczaks Date: 25-Feb-2020 16:13:14

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
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\$ 3 BFB	95	2.618	2.618	0.000	0	1281	NR	NR	a
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QC Flag Legend

Processing Flags

NR - Missing Quant Standard

Review Flags

a - User Assigned ID

Reagents:

vmbfb_00024 Amount Added: 1.00 Units: uL

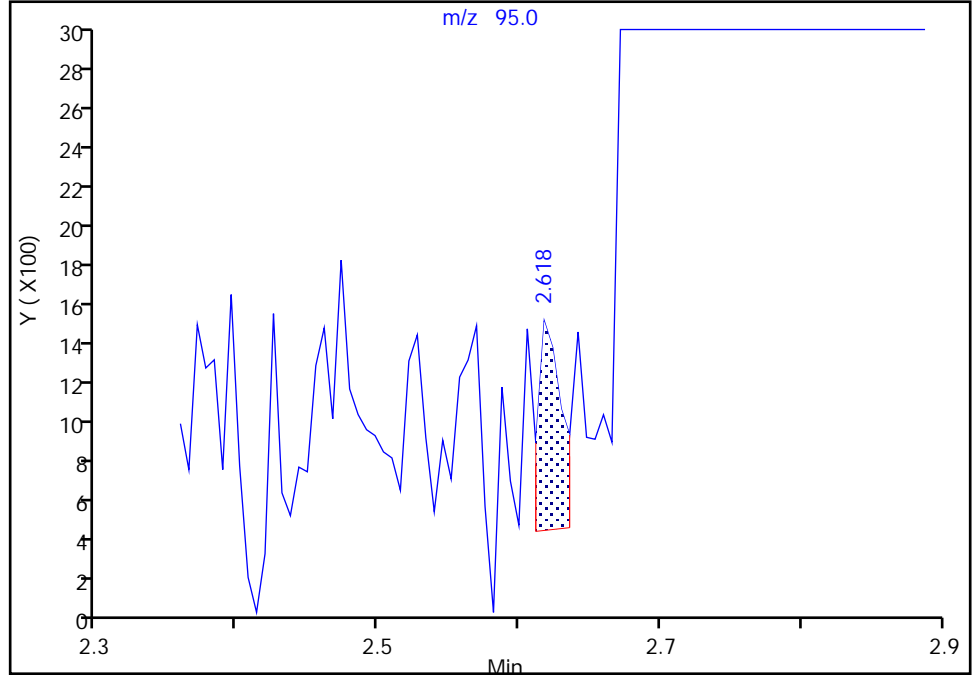
Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\BFBX2567.D
Injection Date: 25-Feb-2020 16:03:30 Instrument ID: A3UX2
Lims ID: BFB
Client ID:
Operator ID: 002808 ALS Bottle#: 1 Worklist Smp#: 16
Injection Vol: 5.0 mL Dil. Factor: 1.0000
Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

\$ 3 BFB, CAS: 460-00-4
Signal: 1

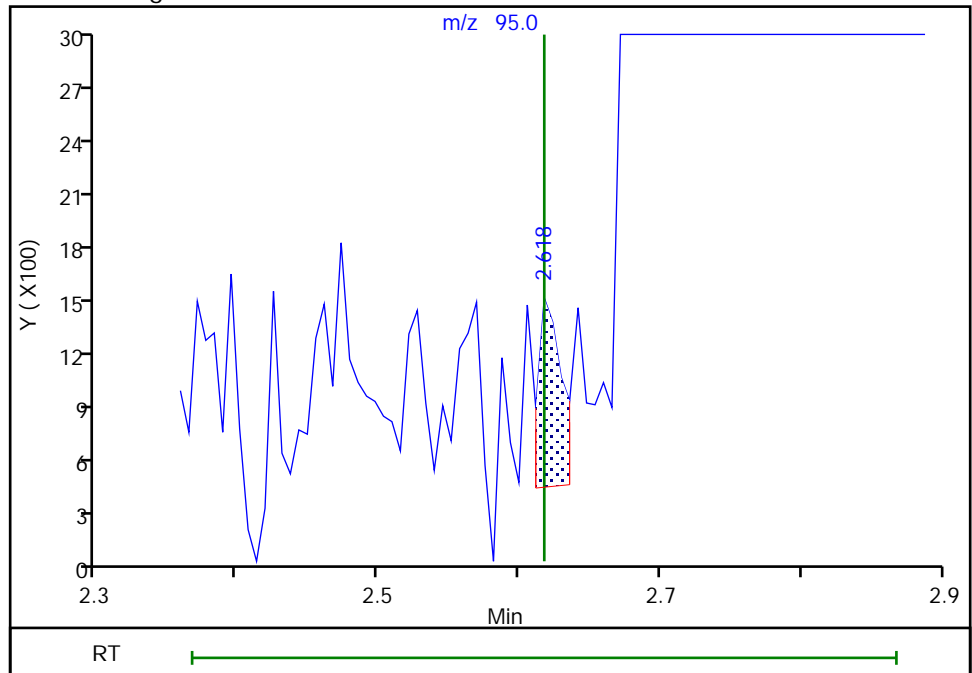
RT: 2.62
Area: 1281
Amount: 0
Amount Units: ug/l

Processing Integration Results



RT: 2.62
Area: 1281
Amount: 0
Amount Units: ug/l

Manual Integration Results



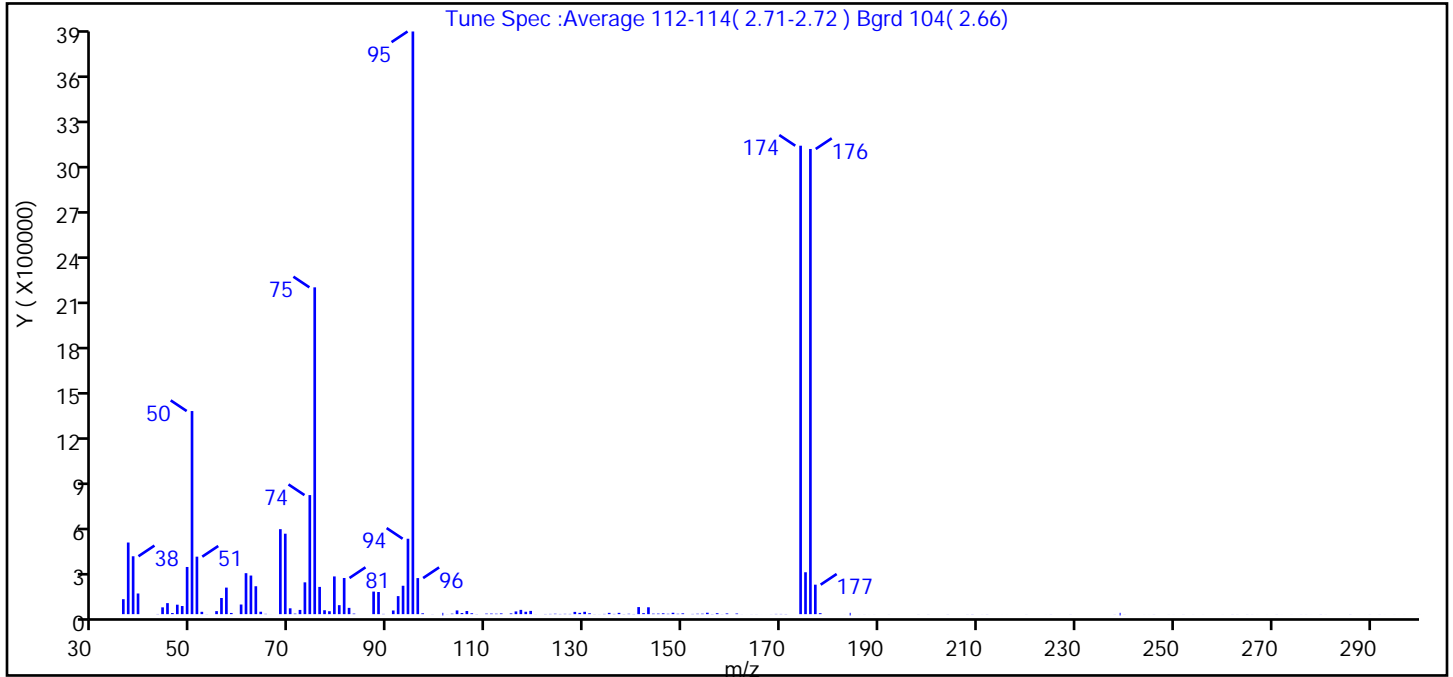
Reviewer: macenczaks, 25-Feb-2020 16:11:21
Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\BFBX2567.D
 Injection Date: 25-Feb-2020 16:03:30 Instrument ID: A3UX2
 Lims ID: BFB
 Client ID:
 Operator ID: 002808 ALS Bottle#: 1 Worklist Smp#: 16
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
 Tune Method: BFB Method 8260

\$ 3 BFB



m/z	Ion Abundance Criteria	% Relative Abundance
95	Base peak, 100% relative abundance	100.0
50	15 to 40% of m/z 95	34.9
75	30 to 60% of m/z 95	56.1
96	5 to 9% of m/z 95	6.2
173	Less than 2% of m/z 174	0.0 (0.0)
174	50 to 120% of m/z 95	80.4
175	5 to 9% of m/z 174	7.2 (8.9)
176	Greater than 95% but less than 101% of m/z 174	79.8 (99.3)
177	5 to 9% of m/z 176	5.1 (6.3)

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\BFBX2567.D\8260SIM_X2.rsl\spectra.d
Injection Date: 25-Feb-2020 16:03:30
Spectrum: Tune Spec :Average 112-114(2.71-2.72) Bgrd 104(2.66)
Base Peak: 95.00
Minimum % Base Peak: 0
Number of Points: 189

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	98664	94.00	497472	147.00	2448	220.00	278
37.00	472512	95.00	3844096	148.00	9123	224.00	86
38.00	381824	96.00	238016	149.00	2492	225.00	384
39.00	136320	97.00	5526	150.00	5282	229.00	374
43.00	1088	99.00	543	151.00	55	230.00	40
44.00	44856	101.00	2	152.00	1406	233.00	41
45.00	72720	102.00	380	153.00	2666	238.00	452
46.00	7304	103.00	3013	154.00	2942	239.00	1
47.00	62360	104.00	24456	155.00	9364	240.00	395
48.00	53632	105.00	7306	156.00	1007	244.00	151
49.00	311232	106.00	20672	157.00	6391	245.00	119
50.00	1339904	107.00	5840	158.00	501	246.00	415
51.00	379200	108.00	784	159.00	4769	248.00	14
52.00	15450	110.00	3449	161.00	4204	249.00	205
53.00	522	111.00	3781	162.00	294	250.00	155
55.00	19896	112.00	2814	163.00	87	252.00	314
56.00	106576	113.00	4870	164.00	375	254.00	203
57.00	175104	115.00	4820	165.00	414	256.00	184
58.00	7875	116.00	17952	166.00	128	260.00	141
60.00	63488	117.00	28112	167.00	73	262.00	411
61.00	270272	118.00	15866	168.00	340	263.00	256
62.00	254656	119.00	21464	169.00	1431	265.00	321
63.00	184064	120.00	346	170.00	1283	266.00	254
64.00	15902	122.00	1099	171.00	989	267.00	85
65.00	1898	123.00	1492	174.00	3090432	269.00	124
66.00	167	124.00	2614	175.00	276416	271.00	339
68.00	560640	125.00	1214	176.00	3068928	272.00	107
69.00	530688	126.00	1983	177.00	194432	273.00	18
70.00	38520	127.00	1481	178.00	6262	274.00	188
71.00	3507	128.00	14868	179.00	92	276.00	228
72.00	27880	129.00	8496	183.00	174	277.00	218
73.00	209856	130.00	15435	184.00	13	278.00	105
74.00	785408	131.00	5762	186.00	164	280.00	436

Report Date: 26-Feb-2020 09:16:46

Chrom Revision: 2.3 19-Feb-2020 16:45:46

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\BFBX2567.D\8260SIM_X2.rsl\spectra.d

Injection Date: 25-Feb-2020 16:03:30

Spectrum: Tune Spec :Average 112-114(2.71-2.72) Bgrd 104(2.66)

Base Peak: 95.00

Minimum % Base Peak: 0

Number of Points: 189

m/z	Y	m/z	Y	m/z	Y	m/z	Y
75.00	2156032	132.00	590	187.00	311	281.00	162
76.00	179712	133.00	344	188.00	127	285.00	42
77.00	25720	134.00	1457	189.00	217	286.00	449
78.00	19312	135.00	8473	192.00	237	288.00	70
79.00	248832	136.00	1432	198.00	316	289.00	72
80.00	59216	137.00	8509	200.00	341	290.00	298
81.00	238528	138.00	796	202.00	46	292.00	301
82.00	41432	139.00	2465	204.00	469	293.00	130
83.00	3543	140.00	1063	208.00	334	295.00	177
87.00	148864	141.00	46560	209.00	679	296.00	49
88.00	145984	142.00	6613	211.00	211	297.00	105
89.00	1549	143.00	45320	212.00	474	300.00	230
91.00	24080	144.00	3203	215.00	95		
92.00	118920	145.00	3555	216.00	68		
93.00	187264	146.00	5472	218.00	31		

Eurofins TestAmerica, Canton

Data File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\BFBX2567.D

Injection Date: 25-Feb-2020 16:03:30

Instrument ID: A3UX2

Operator ID: 002808

Lims ID: BFB

Worklist Smp#: 16

Client ID:

Injection Vol: 5.0 mL

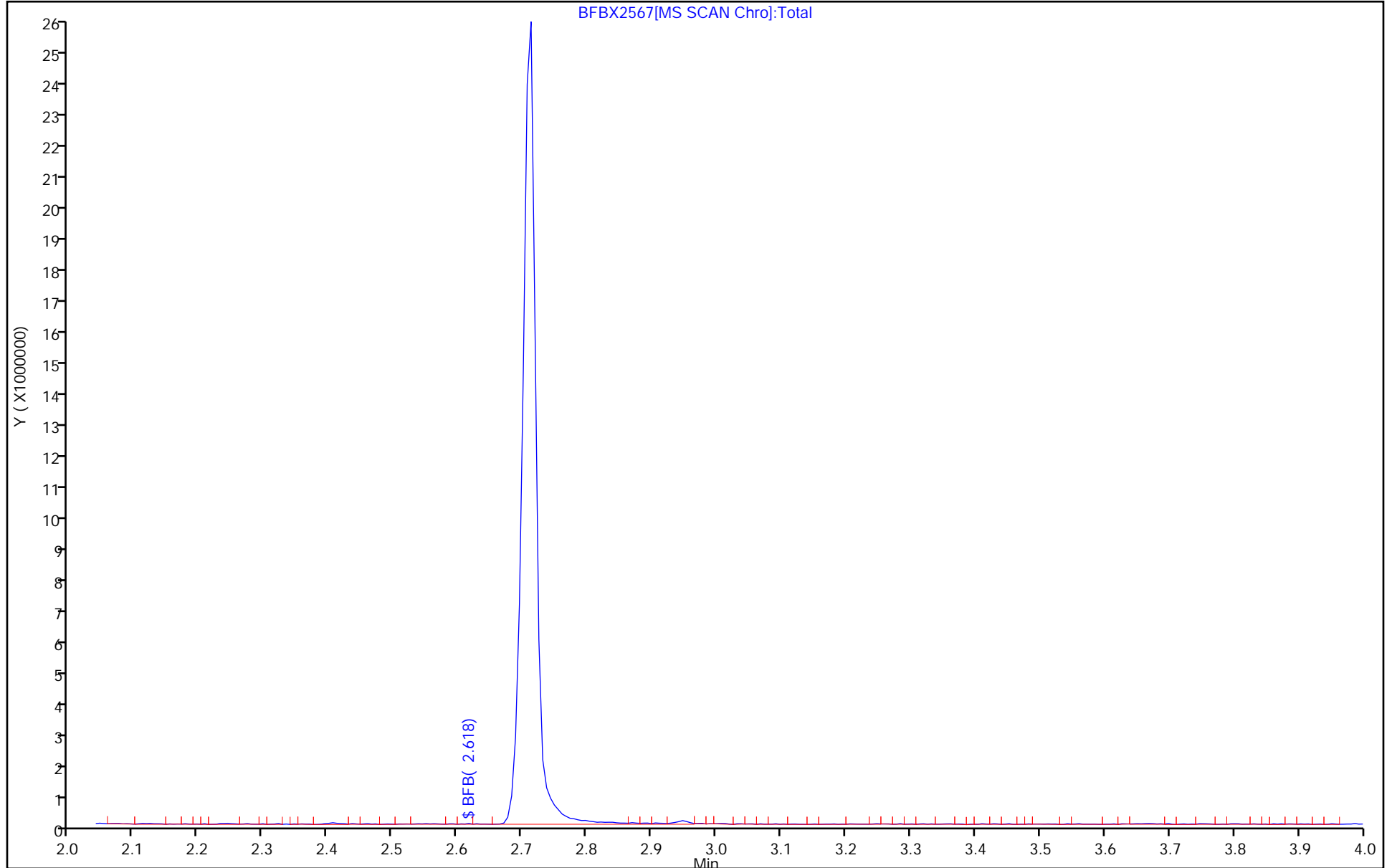
Dil. Factor: 1.0000

ALS Bottle#: 1

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\BFBX2651.D
 Lims ID: bfb
 Client ID:
 Sample Type: BFB
 Inject. Date: 31-Jul-2020 12:09:30 ALS Bottle#: 1 Worklist Smp#: 8
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Sample Info: BFB
 Misc. Info.: 240-0100568-008
 Operator ID: 402279 Instrument ID: A3UX2
 Method: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 03-Aug-2020 11:30:40 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1008

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
----------	-----	-----------	---------------	---------------	---	----------	--------------	----------------	-------

\$ 3 BFB	95	2.710	2.710	0.000	0	4866216	NR	NR	
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QC Flag Legend

Processing Flags

NR - Missing Quant Standard

Reagents:

vmbfb_00025

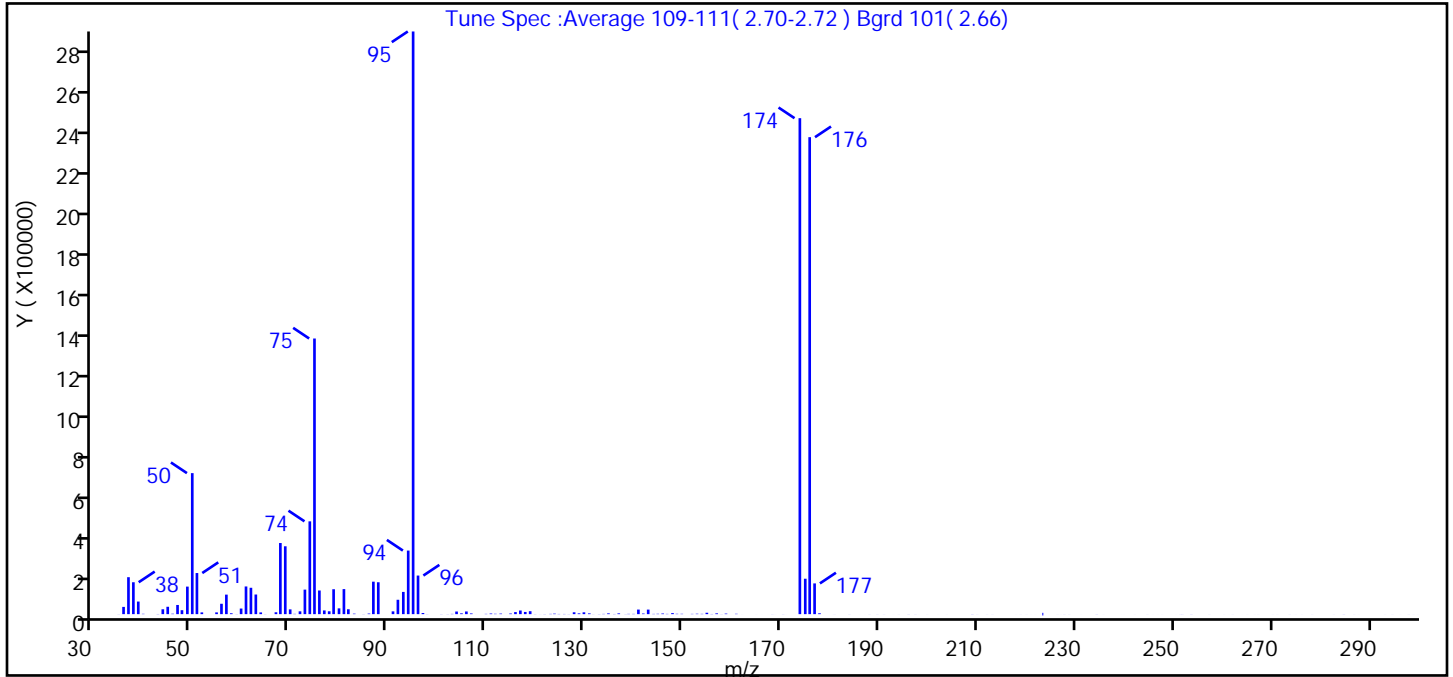
Amount Added: 1.00

Units: uL

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\BFBX2651.D
 Injection Date: 31-Jul-2020 12:09:30 Instrument ID: A3UX2
 Lims ID: bfb
 Client ID:
 Operator ID: 402279 ALS Bottle#: 1 Worklist Smp#: 8
 Injection Vol: 5.0 mL Dil. Factor: 1.0000
 Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
 Tune Method: BFB Method 8260

\$ 3 BFB



m/z	Ion Abundance Criteria	% Relative Abundance
95	Base peak, 100% relative abundance	100.0
50	15 to 40% of m/z 95	24.2
75	30 to 60% of m/z 95	47.3
96	5 to 9% of m/z 95	6.6
173	Less than 2% of m/z 174	0.0 (0.0)
174	50 to 120% of m/z 95	85.1
175	5 to 9% of m/z 174	6.1 (7.1)
176	Greater than 95% but less than 101% of m/z 174	81.9 (96.2)
177	5 to 9% of m/z 176	5.3 (6.4)

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\BFBX2651.D\8260SIM_X2.rslt\spectra.d
Injection Date: 31-Jul-2020 12:09:30
Spectrum: Tune Spec :Average 109-111(2.70-2.72) Bgrd 101(2.66)
Base Peak: 95.05
Minimum % Base Peak: 0
Number of Points: 202

m/z	Y	m/z	Y	m/z	Y	m/z	Y
35.00	383	93.00	108416	148.00	5003	226.00	152
36.00	35344	94.00	310080	149.00	1644	227.00	94
37.00	180224	95.00	2842112	150.00	1623	228.00	234
38.00	155584	96.00	188224	152.00	1261	229.00	178
39.00	61424	97.00	5487	153.00	2009	231.00	70
40.00	1588	98.00	420	154.00	1392	233.00	19
43.00	758	101.00	470	155.00	6787	234.00	392
44.00	23792	102.00	434	156.00	817	236.00	74
45.00	35968	103.00	1207	157.00	3790	236.00	54
46.00	2059	104.00	12789	158.00	323	239.00	51
47.00	44720	105.00	3958	159.00	2647	240.00	61
48.00	19288	106.00	13055	161.00	1653	242.00	108
49.00	134336	107.00	3434	162.00	86	245.00	68
50.00	687808	108.00	87	165.00	107	245.00	120
51.00	200512	110.00	1327	166.00	62	246.00	67
52.00	8555	111.00	3101	167.00	60	247.00	71
53.00	29	112.00	1739	168.00	286	248.00	87
55.00	8578	113.00	2706	169.00	93	250.00	51
56.00	50584	115.00	3043	170.00	348	250.00	63
57.00	95232	116.00	10052	171.00	68	251.00	203
58.00	4297	117.00	17704	174.00	2419200	252.00	272
59.00	413	118.00	10722	175.00	172736	254.00	247
60.00	27352	119.00	14313	176.00	2326528	254.00	135
61.00	135040	120.00	469	177.00	149952	257.00	157
62.00	128616	121.00	179	178.00	4112	260.00	113
63.00	95776	122.00	548	181.00	74	261.00	51
64.00	8410	123.00	1226	181.00	181	262.00	156
65.00	427	124.00	2435	184.00	263	264.00	51
67.00	9134	125.00	938	186.00	60	265.00	109
68.00	346944	126.00	901	187.00	62	267.00	78
69.00	331008	127.00	432	188.00	219	267.00	117
70.00	23232	128.00	9044	190.00	246	270.00	137
71.00	1330	129.00	3790	191.00	229	271.00	118

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\BFBX2651.D\8260SIM_X2.rslt\spectra.d

Injection Date: 31-Jul-2020 12:09:30

Spectrum: Tune Spec :Average 109-111(2.70-2.72) Bgrd 101(2.66)

Base Peak: 95.05

Minimum % Base Peak: 0

Number of Points: 202

m/z	Y	m/z	Y	m/z	Y	m/z	Y
72.00	13718	130.00	8880	193.00	68	274.00	183
73.00	119664	131.00	3674	194.00	160	274.00	57
74.00	452672	132.00	316	196.00	327	275.00	103
75.00	1344512	133.00	543	197.00	246	276.00	104
76.00	115376	134.00	1144	198.00	64	278.00	165
77.00	18072	135.00	3820	200.00	136	283.00	156
78.00	13991	136.00	795	202.00	69	284.00	50
79.00	121520	137.00	3763	204.00	113	285.00	373
80.00	28200	138.00	448	209.00	484	287.00	164
81.00	122168	139.00	1287	210.00	177	288.00	94
82.00	23856	140.00	1241	212.00	177	293.00	118
83.00	2395	141.00	22280	213.00	175	295.00	153
85.00	455	142.00	3025	218.00	83	296.00	71
86.00	2872	143.00	22144	219.00	152	298.00	170
87.00	158400	144.00	1205	220.00	151	299.00	134
88.00	155520	145.00	1717	221.00	69	300.00	88
91.00	13581	146.00	3095	222.00	63		
92.00	70120	147.00	1255	223.00	5		

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\BFBX2651.D

Injection Date: 31-Jul-2020 12:09:30

Instrument ID: A3UX2

Operator ID: 402279

Lims ID: bfb

Worklist Smp#: 8

Client ID:

Injection Vol: 5.0 mL

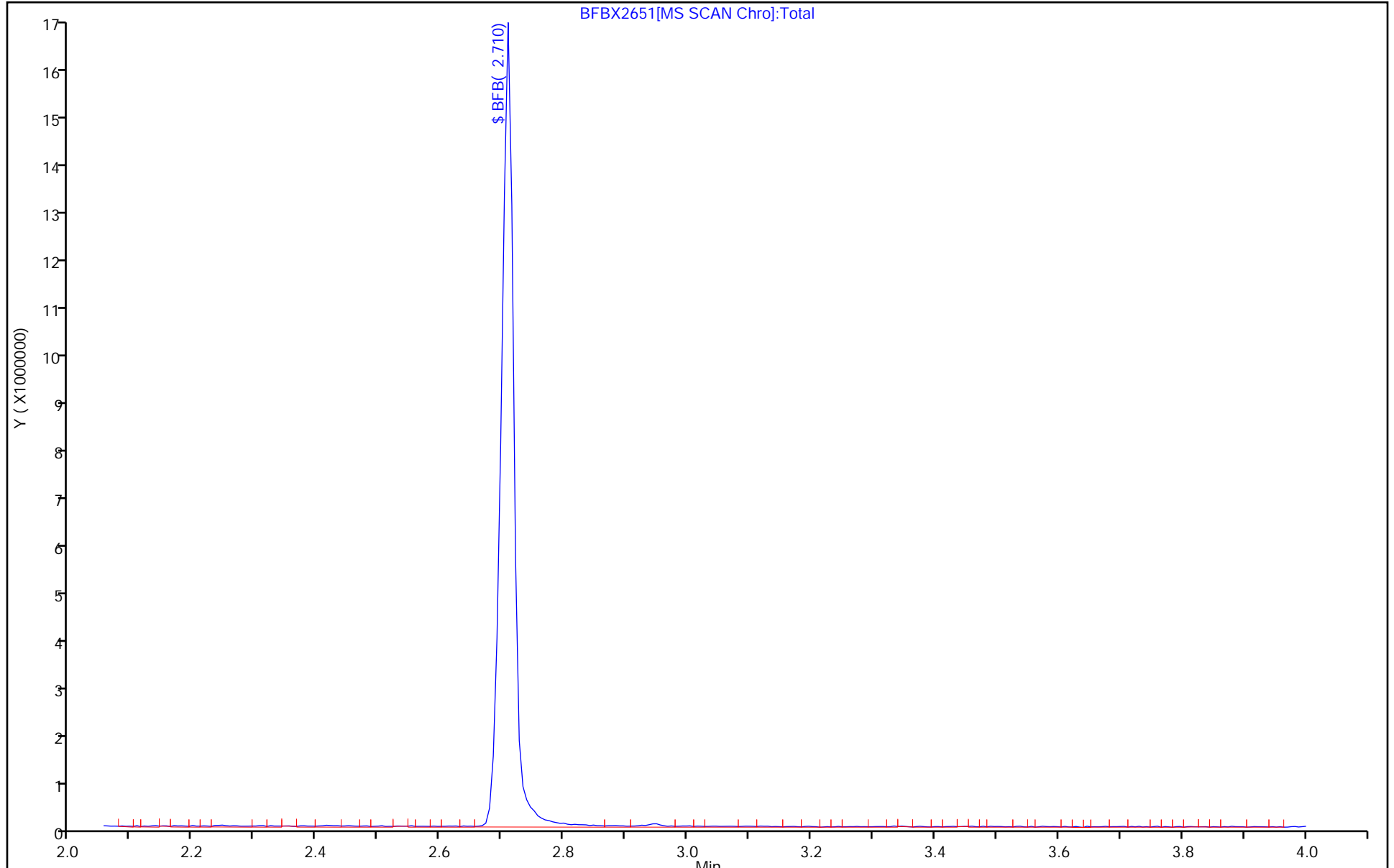
Dil. Factor: 1.0000

ALS Bottle#: 1

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 240-445137/5
 Matrix: Water Lab File ID: X21083.D
 Analysis Method: 8260B SIM Date Collected: _____
 Sample wt/vol: 15 (mL) Date Analyzed: 07/31/2020 13:43
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: ZB-624 ID: 0.53 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 445137 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	2.0	U	2.0	0.86

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	82		70-133

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21083.D
 Lims ID: MB
 Client ID:
 Sample Type: MB
 Inject. Date: 31-Jul-2020 13:43:30 ALS Bottle#: 4 Worklist Smp#: 5
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Sample Info: mb
 Misc. Info.: 240-0100568-005
 Operator ID: 402279 Instrument ID: A3UX2
 Method: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 03-Aug-2020 11:30:42 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1008

First Level Reviewer: macenczaks Date: 31-Jul-2020 14:06:13

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	3.954	3.941	0.013	100	2165282	10.0	8.23	
* 7 Fluorobenzene	96	4.510	4.497	0.013	100	7622076	10.0	10.0	
* 9 Dioxane-d8 (IS)	96	5.806	5.799	0.007	97	158669	200.0	200.0	

Reagents:

vm40ml_vials_00014 Amount Added: 0.00 Units: Run Reagent
 vm150is_00174 Amount Added: 1.00 Units: uL Run Reagent
 vmDist_H2o_00177 Amount Added: 0.00 Units: Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21083.D

Injection Date: 31-Jul-2020 13:43:30

Instrument ID: A3UX2

Operator ID: 402279

Lims ID: MB

Worklist Smp#: 5

Client ID:

Purge Vol: 15.000 mL

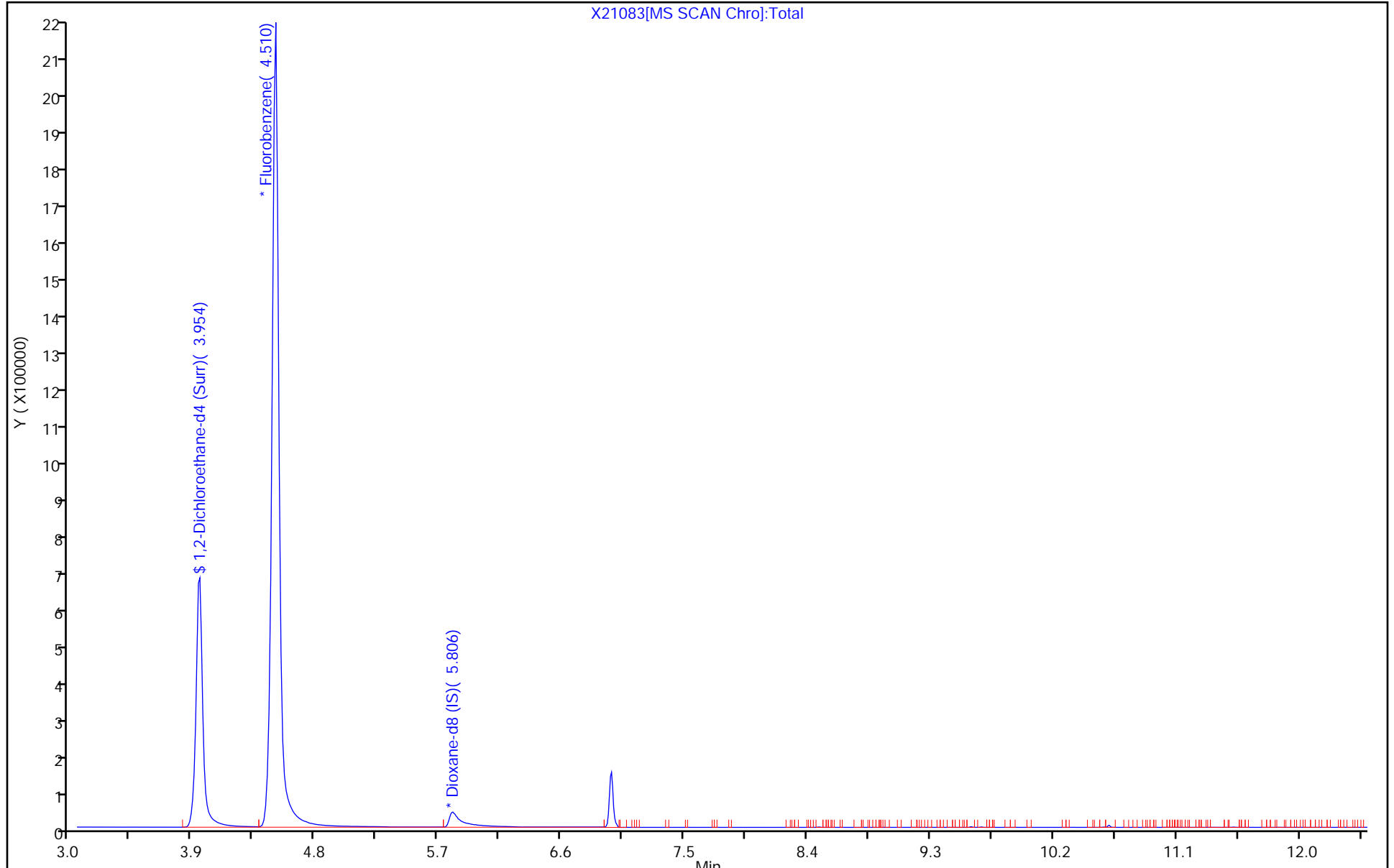
Dil. Factor: 1.0000

ALS Bottle#: 4

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21083.D
 Lims ID: MB
 Client ID:
 Sample Type: MB
 Inject. Date: 31-Jul-2020 13:43:30 ALS Bottle#: 4 Worklist Smp#: 5
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Sample Info: mb
 Misc. Info.: 240-0100568-005
 Operator ID: 402279 Instrument ID: A3UX2
 Method: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 03-Aug-2020 11:30:42 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1008

First Level Reviewer: macenczaks Date: 31-Jul-2020 14:06:13

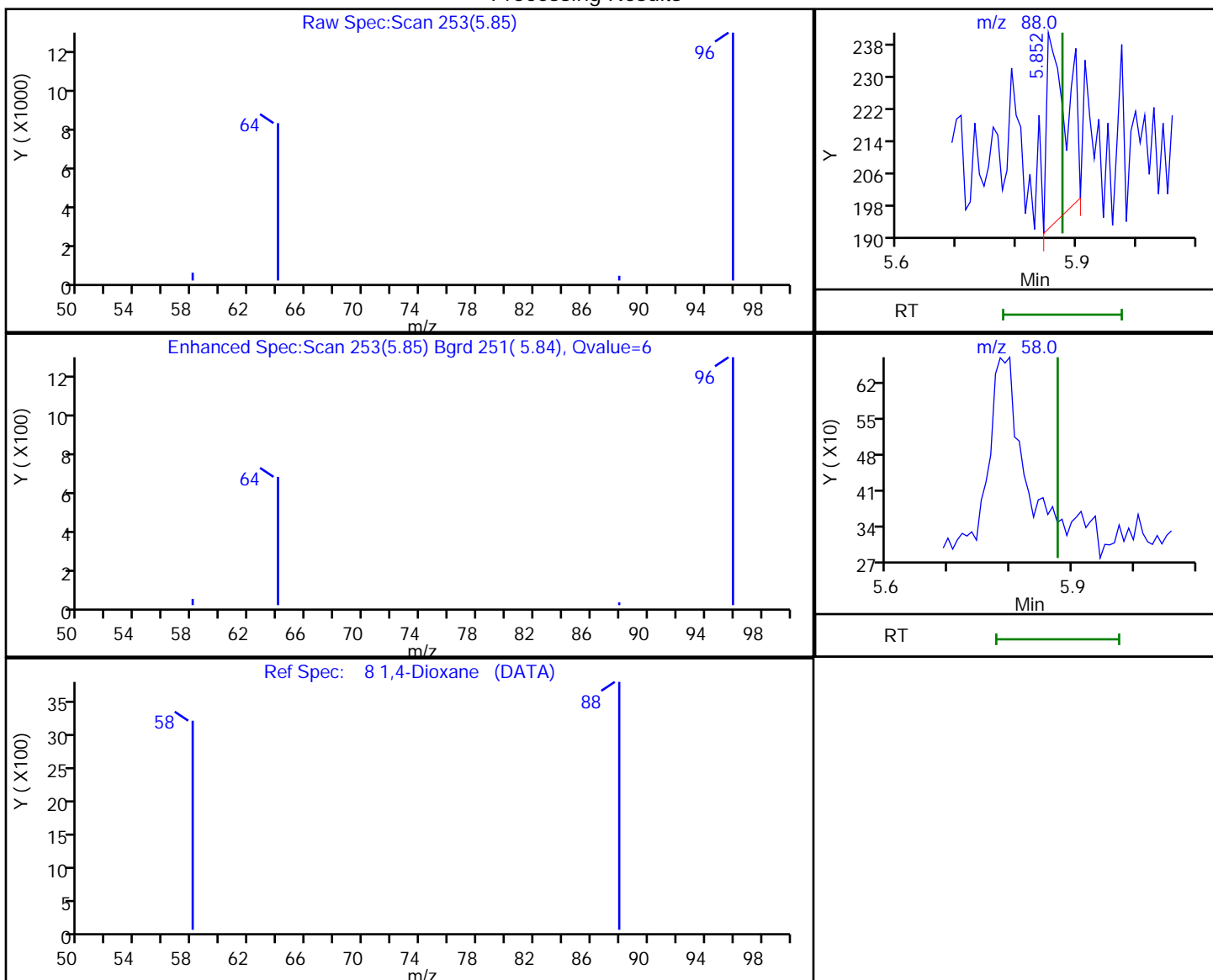
Compound	Amount Added	Amount Recovered	% Rec.
\$ 5 1,2-Dichloroethane-d4 (Surr)	10.0	8.23	82.31

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21083.D
 Injection Date: 31-Jul-2020 13:43:30 Instrument ID: A3UX2
 Lims ID: MB
 Client ID:
 Operator ID: 402279 ALS Bottle#: 4 Worklist Smp#: 5
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
 Column: DB-624 (0.18 mm) Detector: MS SCAN

8 1,4-Dioxane, CAS: 123-91-1

Processing Results



RT	Mass	Response	Amount
5.85	88.00	114	0.935247
5.88	58.00	0	

Reviewer: macenczaks, 31-Jul-2020 14:06:08

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LCS 240-445137/4
 Matrix: Water Lab File ID: X21082.D
 Analysis Method: 8260B SIM Date Collected: _____
 Sample wt/vol: 15 (mL) Date Analyzed: 07/31/2020 13:18
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: ZB-624 ID: 0.53 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 445137 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	12.0		2.0	0.86

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	82		70-133

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21082.D
 Lims ID: LCS
 Client ID:
 Sample Type: LCS
 Inject. Date: 31-Jul-2020 13:18:30 ALS Bottle#: 3 Worklist Smp#: 4
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Sample Info: lcs
 Misc. Info.: 240-0100568-004
 Operator ID: 402279 Instrument ID: A3UX2
 Method: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 03-Aug-2020 11:30:42 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1008

First Level Reviewer: macenczaks Date: 31-Jul-2020 13:39:18

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	3.952	3.941	0.011	100	2139939	10.0	8.20	
* 7 Fluorobenzene	96	4.510	4.497	0.013	100	7557837	10.0	10.0	
* 9 Dioxane-d8 (IS)	96	5.805	5.799	0.006	98	157765	200.0	200.0	M
8 1,4-Dioxane	88	5.882	5.876	0.006	81	10597	10.0	12.0	M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

vmdiox_spike_00231	Amount Added: 3.00	Units: uL	
vm40ml_vials_00014	Amount Added: 0.00	Units:	Run Reagent
vm150is_00174	Amount Added: 1.00	Units: uL	Run Reagent
vmDist_H2o_00177	Amount Added: 0.00	Units:	Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21082.D

Injection Date: 31-Jul-2020 13:18:30

Instrument ID: A3UX2

Operator ID: 402279

Lims ID: LCS

Worklist Smp#: 4

Client ID:

Purge Vol: 15.000 mL

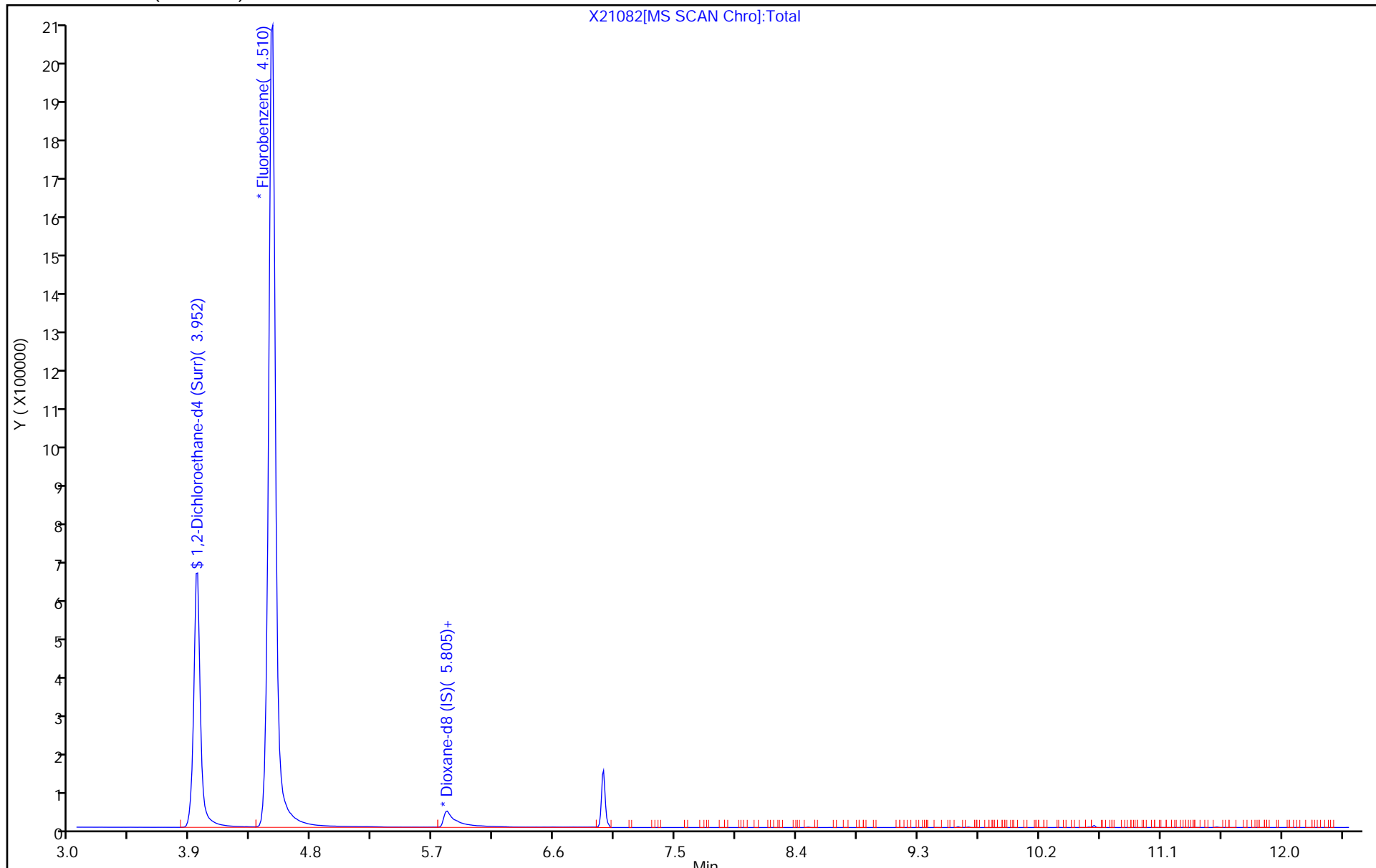
Dil. Factor: 1.0000

ALS Bottle#: 3

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21082.D
 Lims ID: LCS
 Client ID:
 Sample Type: LCS
 Inject. Date: 31-Jul-2020 13:18:30 ALS Bottle#: 3 Worklist Smp#: 4
 Purge Vol: 15.000 mL Dil. Factor: 1.0000
 Sample Info: lcs
 Misc. Info.: 240-0100568-004
 Operator ID: 402279 Instrument ID: A3UX2
 Method: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 03-Aug-2020 11:30:42 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1008

First Level Reviewer: macenczaks Date: 31-Jul-2020 13:39:18

Compound	Amount Added	Amount Recovered	% Rec.
\$ 5 1,2-Dichloroethane-d4 (Surr)	10.0	8.20	82.04

Eurofins TestAmerica, Canton

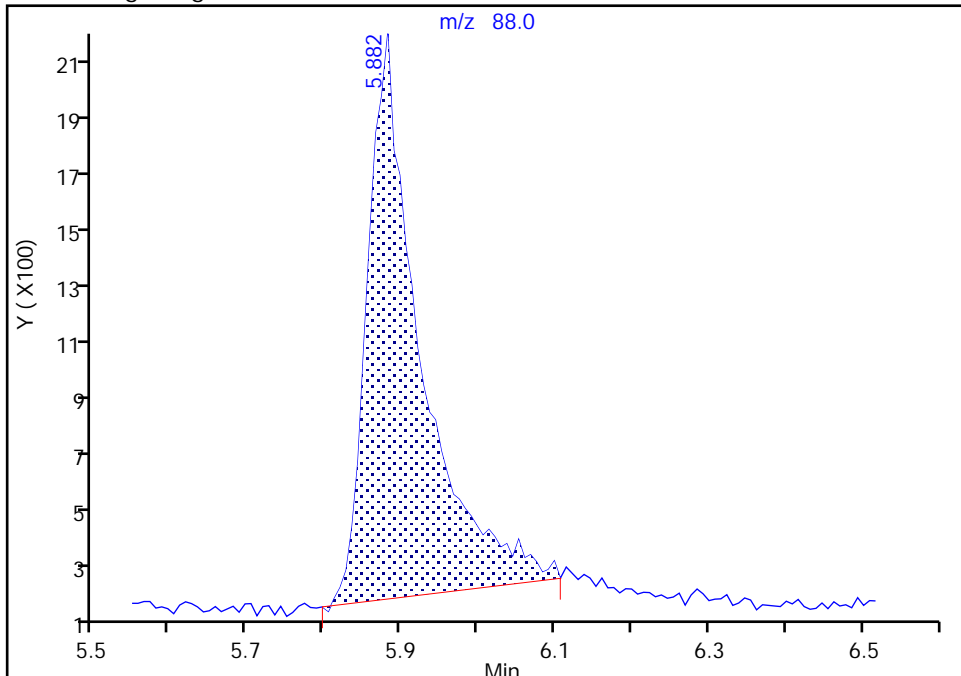
Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21082.D
Injection Date: 31-Jul-2020 13:18:30 Instrument ID: A3UX2
Lims ID: LCS
Client ID:
Operator ID: 402279 ALS Bottle#: 3 Worklist Smp#: 4
Purge Vol: 15.000 mL Dil. Factor: 1.0000
Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

8 1,4-Dioxane, CAS: 123-91-1

Signal: 1

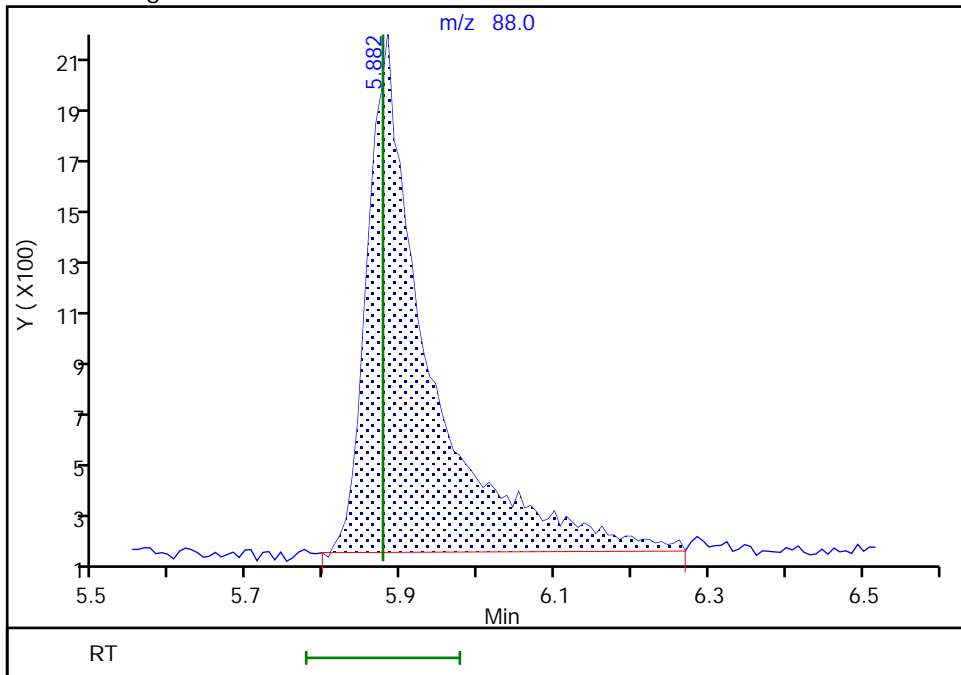
RT: 5.88
Area: 9149
Amount: 10.508217
Amount Units: ug/l

Processing Integration Results



RT: 5.88
Area: 10597
Amount: 12.042324
Amount Units: ug/l

Manual Integration Results



Reviewer: macenczaks, 31-Jul-2020 13:39:13
Audit Action: Manually Integrated

Audit Reason: Poor chromatography

Eurofins TestAmerica, Canton

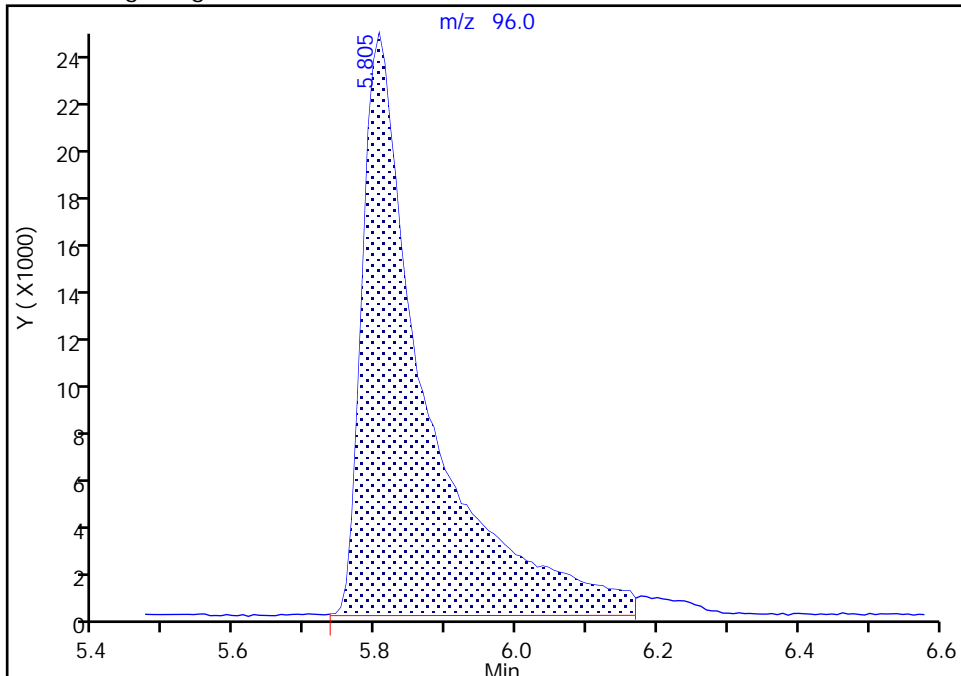
Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21082.D
Injection Date: 31-Jul-2020 13:18:30 Instrument ID: A3UX2
Lims ID: LCS
Client ID:
Operator ID: 402279 ALS Bottle#: 3 Worklist Smp#: 4
Purge Vol: 15.000 mL Dil. Factor: 1.0000
Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

* 9 Dioxane-d8 (IS), CAS: 17647-74-4

Signal: 1

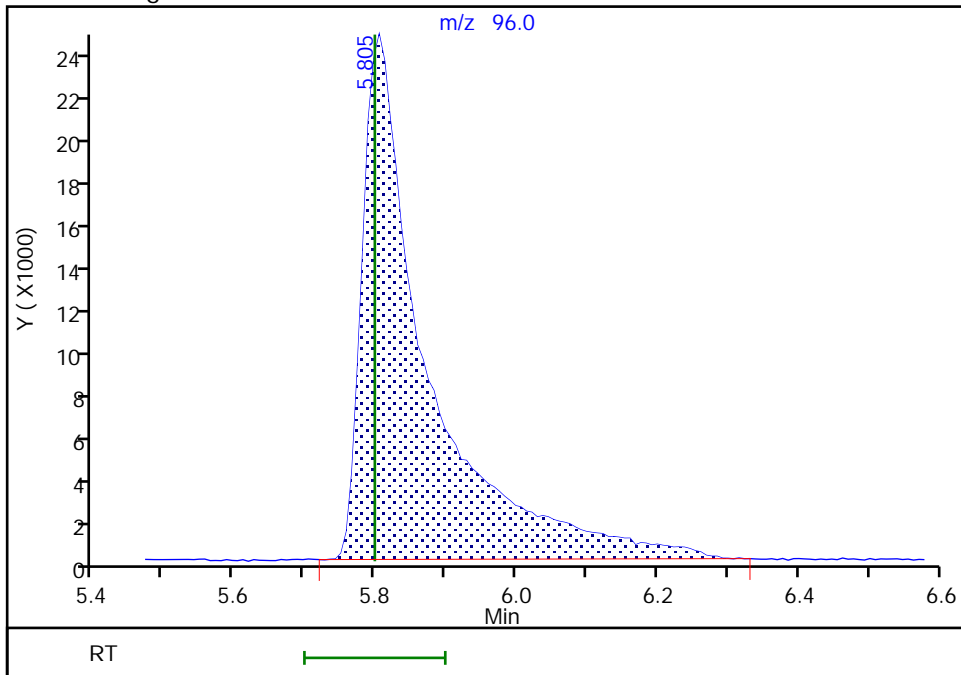
RT: 5.80
Area: 155956
Amount: 200.0000
Amount Units: ug/l

Processing Integration Results



RT: 5.80
Area: 157765
Amount: 200.0000
Amount Units: ug/l

Manual Integration Results



Reviewer: macenczaks, 31-Jul-2020 13:39:01
Audit Action: Manually Integrated

Audit Reason: Poor chromatography

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: 240-134235-C-2 MS
 Matrix: Water Lab File ID: X21092.D
 Analysis Method: 8260B SIM Date Collected: _____
 Sample wt/vol: 15 (mL) Date Analyzed: 07/31/2020 17:27
 Soil Aliquot Vol: _____ Dilution Factor: 2
 Soil Extract Vol.: _____ GC Column: ZB-624 ID: 0.53 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 445137 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	56.5		4.0	1.7

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	87		70-133

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21092.D
 Lims ID: 240-134235-C-2 MS
 Client ID: GP-33S
 Sample Type: MS
 Inject. Date: 31-Jul-2020 17:27:30 ALS Bottle#: 13 Worklist Smp#: 15
 Purge Vol: 15.000 mL Dil. Factor: 2.0000
 Sample Info: 240-134235-c-2 ms
 Misc. Info.: 240-0100568-015
 Operator ID: 402279 Instrument ID: A3UX2
 Method: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 03-Aug-2020 11:30:42 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1008

First Level Reviewer: macenczaks Date: 03-Aug-2020 10:38:27

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	3.944	3.941	0.003	100	2301441	10.0	8.70	
* 7 Fluorobenzene	96	4.497	4.497	0.000	100	7666165	10.0	10.0	
* 9 Dioxane-d8 (IS)	96	5.797	5.799	-0.002	99	170129	200.0	200.0	M
8 1,4-Dioxane	88	5.882	5.876	0.006	87	27946	10.0	28.3	M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

vmdiox_spike_00231	Amount Added: 3.00	Units: uL	
vm40ml_vials_00014	Amount Added: 0.00	Units:	Run Reagent
vm150is_00174	Amount Added: 1.00	Units: uL	Run Reagent
vmDist_H2o_00177	Amount Added: 0.00	Units:	Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21092.D

Injection Date: 31-Jul-2020 17:27:30

Instrument ID: A3UX2

Operator ID: 402279

Lims ID: 240-134235-C-2 MS

Worklist Smp#: 15

Client ID: GP-33S

Purge Vol: 15.000 mL

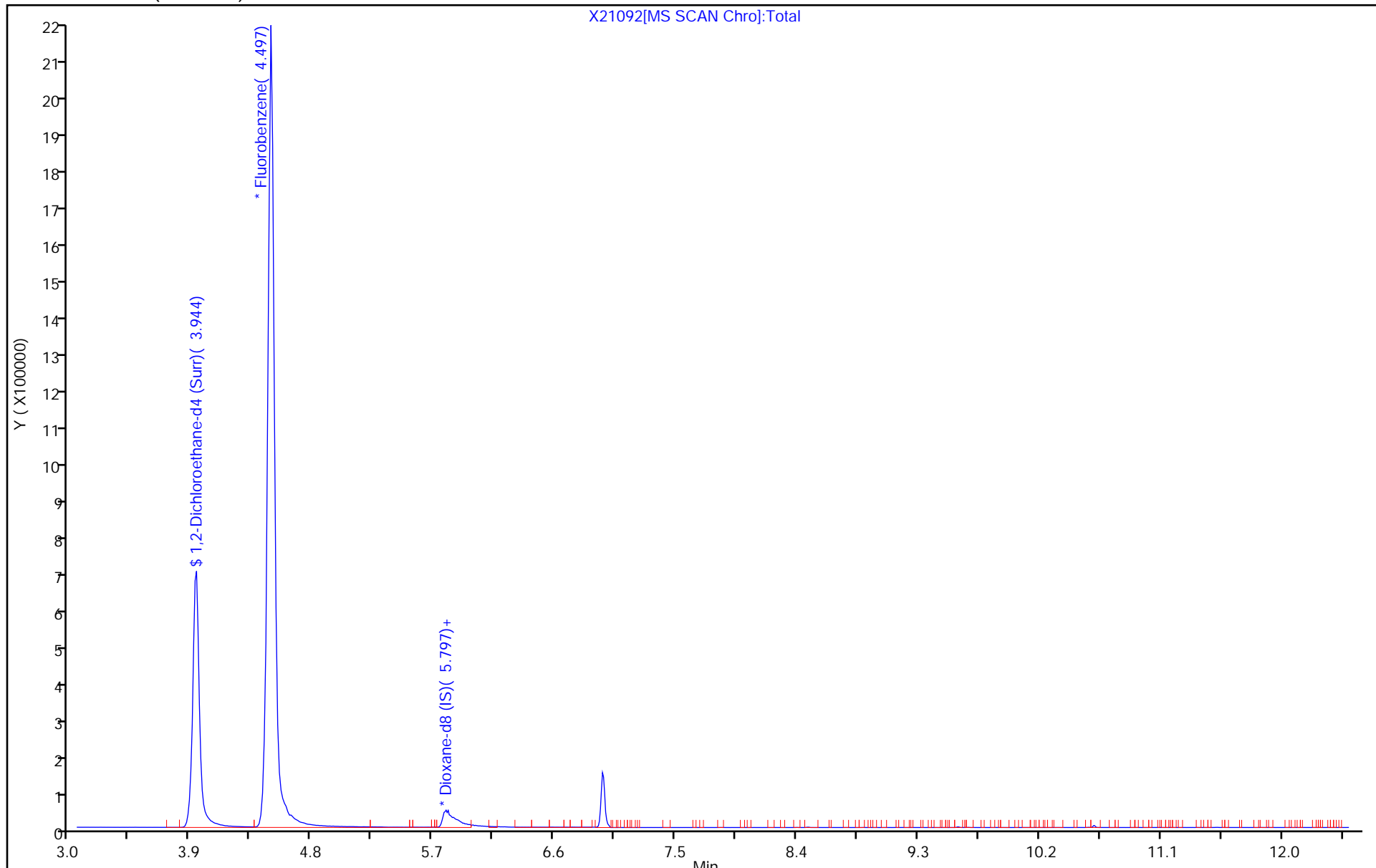
Dil. Factor: 2.0000

ALS Bottle#: 13

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



X21092[MS SCAN Chro]:Total

Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21092.D
 Lims ID: 240-134235-C-2 MS
 Client ID: GP-33S
 Sample Type: MS
 Inject. Date: 31-Jul-2020 17:27:30 ALS Bottle#: 13 Worklist Smp#: 15
 Purge Vol: 15.000 mL Dil. Factor: 2.0000
 Sample Info: 240-134235-c-2 ms
 Misc. Info.: 240-0100568-015
 Operator ID: 402279 Instrument ID: A3UX2
 Method: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 03-Aug-2020 11:30:42 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1008

First Level Reviewer: macenczaks Date: 03-Aug-2020 10:38:27

Compound	Amount Added	Amount Recovered	% Rec.
\$ 5 1,2-Dichloroethane-d4 (Surr)	10.0	8.70	86.98

Eurofins TestAmerica, Canton

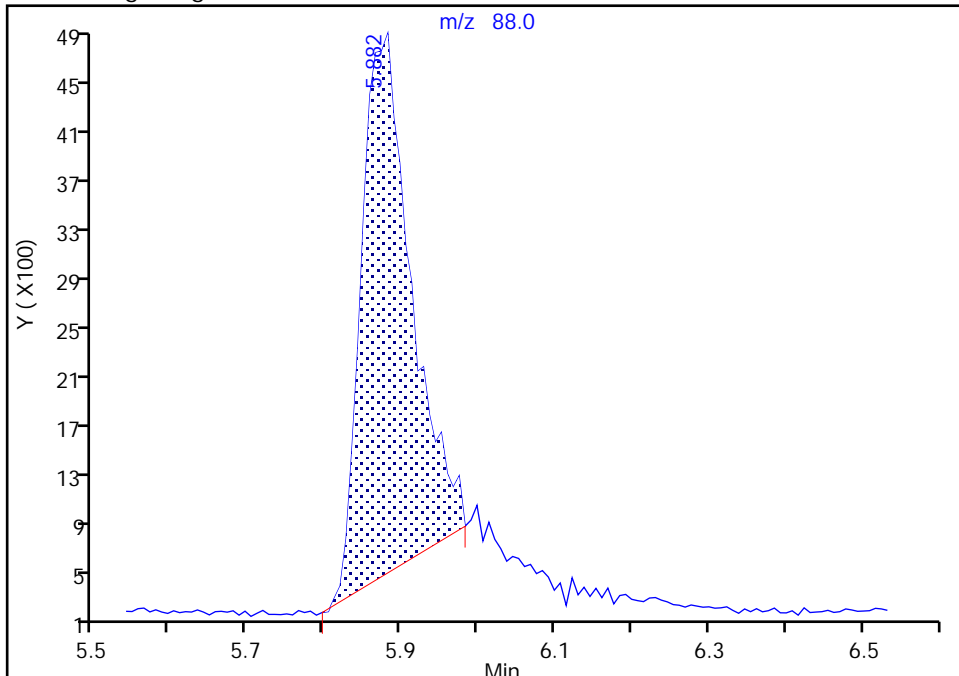
Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21092.D
Injection Date: 31-Jul-2020 17:27:30 Instrument ID: A3UX2
Lims ID: 240-134235-C-2 MS
Client ID: GP-33S
Operator ID: 402279 ALS Bottle#: 13 Worklist Smp#: 15
Purge Vol: 15.000 mL Dil. Factor: 2.0000
Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

8 1,4-Dioxane, CAS: 123-91-1

Signal: 1

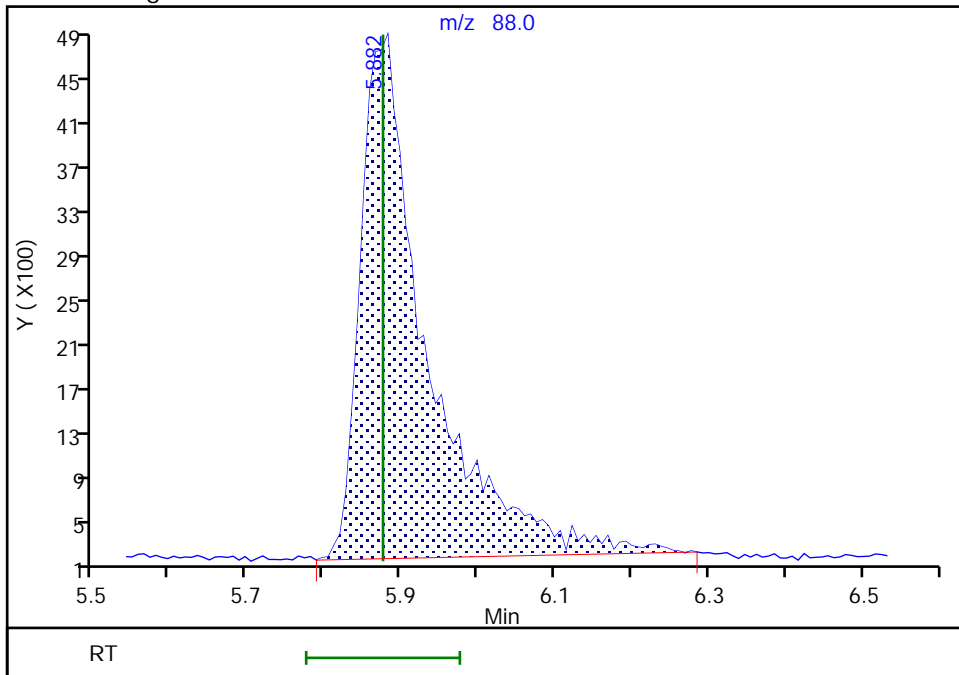
RT: 5.88
Area: 19679
Amount: 20.149197
Amount Units: ug/l

Processing Integration Results



RT: 5.88
Area: 27946
Amount: 28.271282
Amount Units: ug/l

Manual Integration Results



Reviewer: macenczaks, 03-Aug-2020 10:38:19
Audit Action: Manually Integrated

Audit Reason: Poor chromatography

Eurofins TestAmerica, Canton

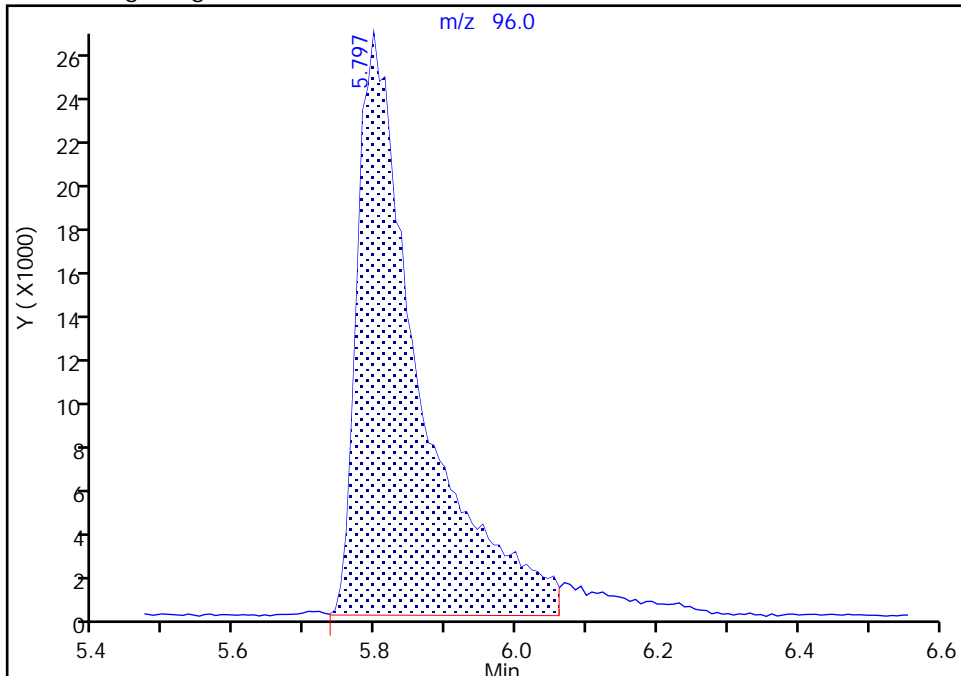
Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21092.D
Injection Date: 31-Jul-2020 17:27:30 Instrument ID: A3UX2
Lims ID: 240-134235-C-2 MS
Client ID: GP-33S
Operator ID: 402279 ALS Bottle#: 13 Worklist Smp#: 15
Purge Vol: 15.000 mL Dil. Factor: 2.0000
Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

* 9 Dioxane-d8 (IS), CAS: 17647-74-4

Signal: 1

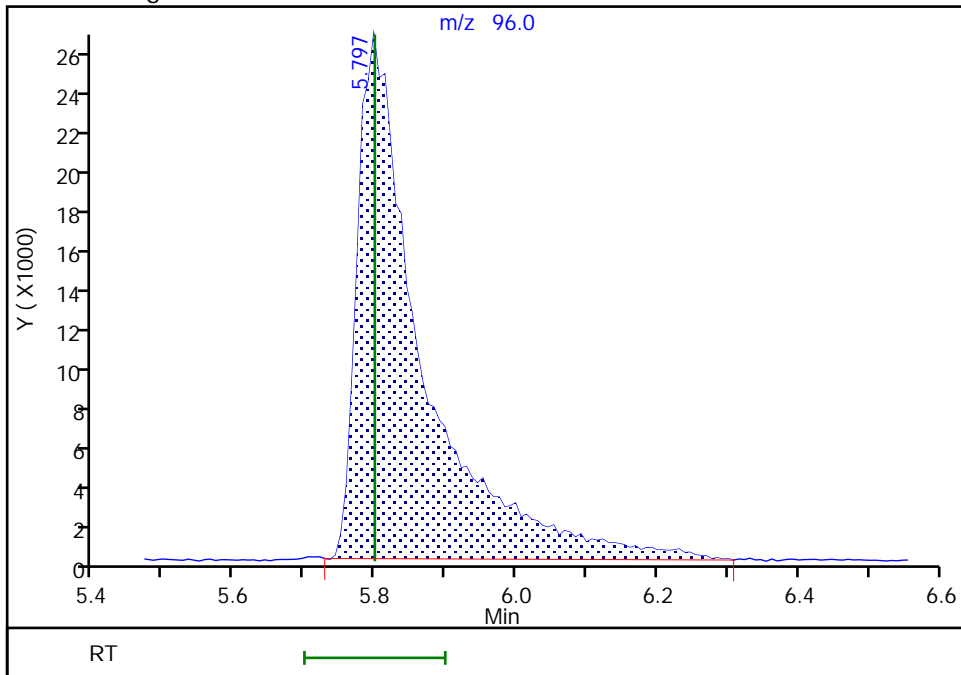
RT: 5.80
Area: 162465
Amount: 200.0000
Amount Units: ug/l

Processing Integration Results



RT: 5.80
Area: 170129
Amount: 200.0000
Amount Units: ug/l

Manual Integration Results



Reviewer: macenczaks, 03-Aug-2020 10:38:02
Audit Action: Manually Integrated

Audit Reason: Poor chromatography
Page 653 of 682

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: 240-134235-C-2 MSD
 Matrix: Water Lab File ID: X21093.D
 Analysis Method: 8260B SIM Date Collected: _____
 Sample wt/vol: 15 (mL) Date Analyzed: 07/31/2020 17:51
 Soil Aliquot Vol: _____ Dilution Factor: 2
 Soil Extract Vol.: _____ GC Column: ZB-624 ID: 0.53 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 445137 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	58.9		4.0	1.7

CAS NO.	SURROGATE	%REC	Q	LIMITS
17060-07-0	1,2-Dichloroethane-d4 (Surr)	85		70-133

Eurofins TestAmerica, Canton
Target Compound Quantitation Report

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21093.D
 Lims ID: 240-134235-C-2 MSD
 Client ID: GP-33S
 Sample Type: MSD
 Inject. Date: 31-Jul-2020 17:51:30 ALS Bottle#: 14 Worklist Smp#: 16
 Purge Vol: 15.000 mL Dil. Factor: 2.0000
 Sample Info: 240-134235-c-2 msd
 Misc. Info.: 240-0100568-016
 Operator ID: 402279 Instrument ID: A3UX2
 Method: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 03-Aug-2020 11:30:42 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1008

First Level Reviewer: macenczaks Date: 03-Aug-2020 10:39:06

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
\$ 5 1,2-Dichloroethane-d4 (Surr)	65	3.944	3.941	0.003	100	2082329	10.0	8.53	
* 7 Fluorobenzene	96	4.497	4.497	0.000	100	7072357	10.0	10.0	
* 9 Dioxane-d8 (IS)	96	5.798	5.799	-0.001	100	151926	200.0	200.0	M
8 1,4-Dioxane	88	5.875	5.876	-0.001	87	26015	10.0	29.4	M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

vmDiox_spike_00231	Amount Added: 3.00	Units: uL	
vm40ml_vials_00014	Amount Added: 0.00	Units:	Run Reagent
vm150is_00174	Amount Added: 1.00	Units: uL	Run Reagent
vmDist_H2o_00177	Amount Added: 0.00	Units:	Run Reagent

Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21093.D

Injection Date: 31-Jul-2020 17:51:30

Instrument ID: A3UX2

Operator ID: 402279

Lims ID: 240-134235-C-2 MSD

Worklist Smp#: 16

Client ID: GP-33S

Purge Vol: 15.000 mL

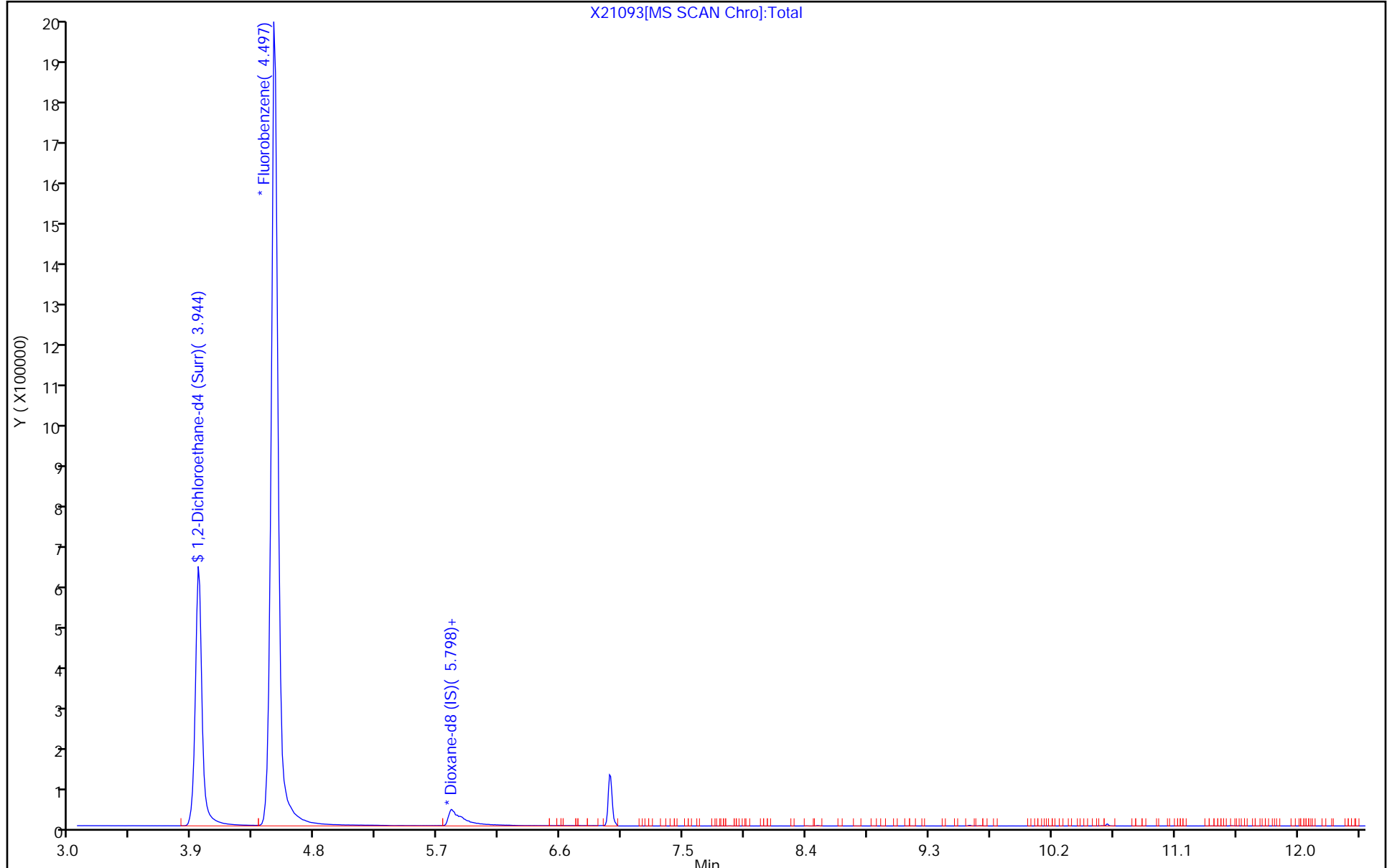
Dil. Factor: 2.0000

ALS Bottle#: 14

Method: 8260SIM_X2

Limit Group: MSV SIM ICAL

Column: DB-624 (0.18 mm)



Eurofins TestAmerica, Canton
Recovery Report

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21093.D
 Lims ID: 240-134235-C-2 MSD
 Client ID: GP-33S
 Sample Type: MSD
 Inject. Date: 31-Jul-2020 17:51:30 ALS Bottle#: 14 Worklist Smp#: 16
 Purge Vol: 15.000 mL Dil. Factor: 2.0000
 Sample Info: 240-134235-c-2 msd
 Misc. Info.: 240-0100568-016
 Operator ID: 402279 Instrument ID: A3UX2
 Method: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\8260SIM_X2.m
 Limit Group: MSV SIM ICAL
 Last Update: 03-Aug-2020 11:30:42 Calib Date: 25-Feb-2020 19:49:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Canton\ChromData\A3UX2\20200225-96076.b\X29307.D
 Column 1 : DB-624 (0.18 mm) Det: MS SCAN
 Process Host: CTX1008

First Level Reviewer: macenczaks Date: 03-Aug-2020 10:39:06

Compound	Amount Added	Amount Recovered	% Rec.
\$ 5 1,2-Dichloroethane-d4 (Surr)	10.0	8.53	85.31

Eurofins TestAmerica, Canton

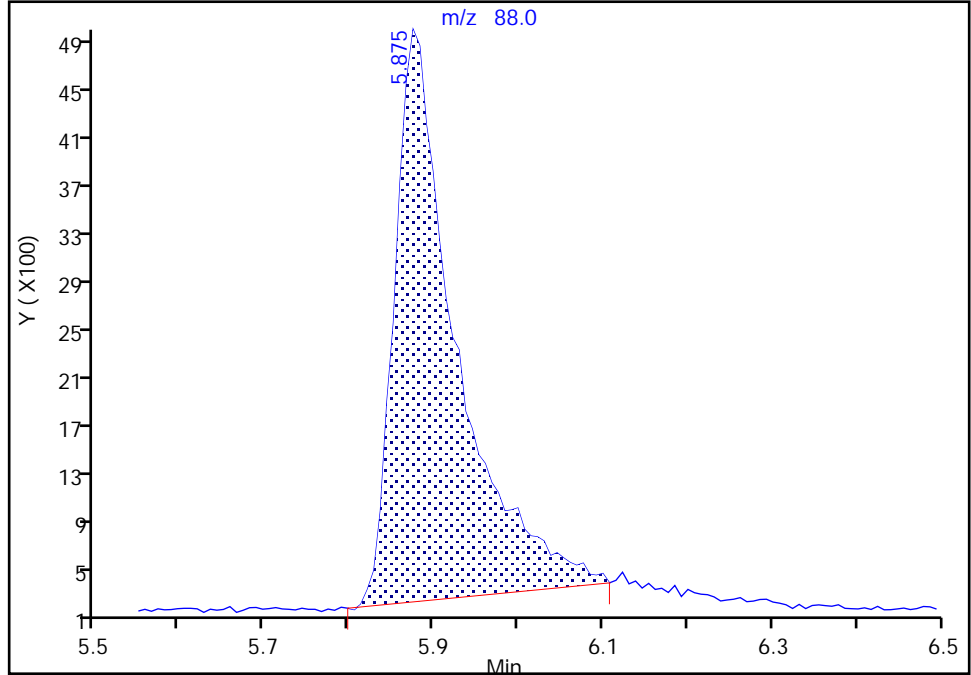
Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21093.D
Injection Date: 31-Jul-2020 17:51:30 Instrument ID: A3UX2
Lims ID: 240-134235-C-2 MSD
Client ID: GP-33S
Operator ID: 402279 ALS Bottle#: 14 Worklist Smp#: 16
Purge Vol: 15.000 mL Dil. Factor: 2.0000
Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

8 1,4-Dioxane, CAS: 123-91-1

Signal: 1

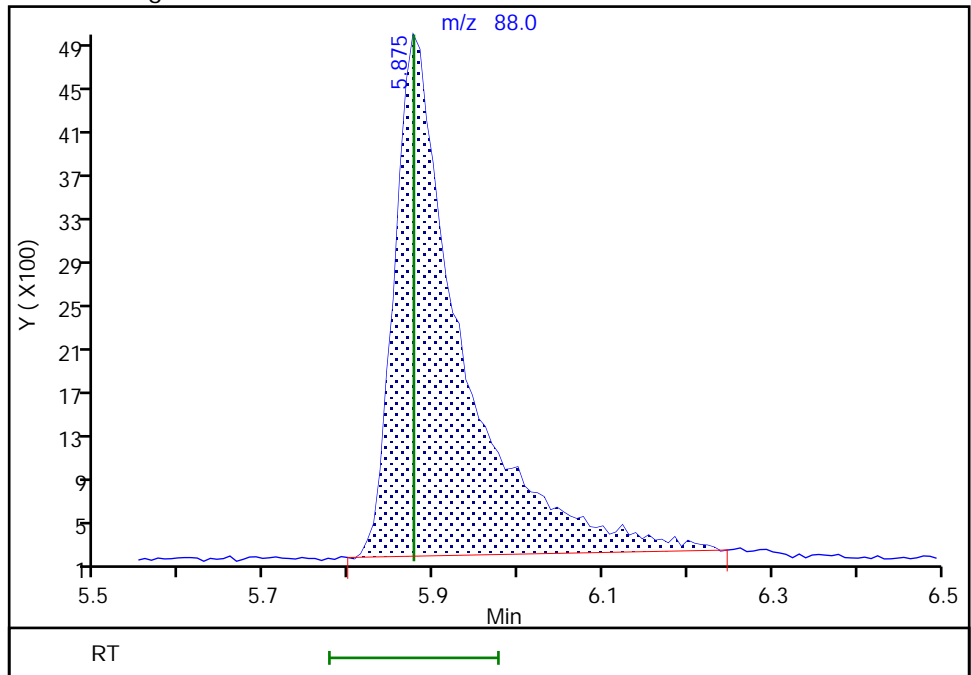
RT: 5.88
Area: 23695
Amount: 26.884047
Amount Units: ug/l

Processing Integration Results



RT: 5.88
Area: 26015
Amount: 29.436477
Amount Units: ug/l

Manual Integration Results



Reviewer: macenczaks, 03-Aug-2020 10:39:02
Audit Action: Manually Integrated

Audit Reason: Poor chromatography

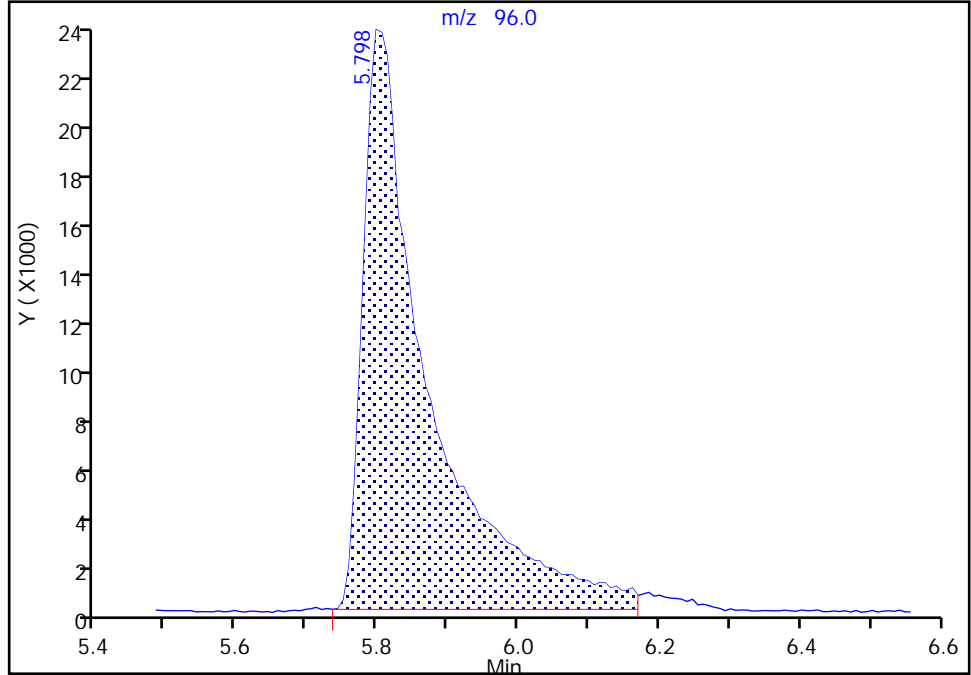
Eurofins TestAmerica, Canton

Data File: \\chromfs\Canton\ChromData\A3UX2\20200731-100568.b\X21093.D
Injection Date: 31-Jul-2020 17:51:30 Instrument ID: A3UX2
Lims ID: 240-134235-C-2 MSD
Client ID: GP-33S
Operator ID: 402279 ALS Bottle#: 14 Worklist Smp#: 16
Purge Vol: 15.000 mL Dil. Factor: 2.0000
Method: 8260SIM_X2 Limit Group: MSV SIM ICAL
Column: DB-624 (0.18 mm) Detector: MS SCAN

* 9 Dioxane-d8 (IS), CAS: 17647-74-4
Signal: 1

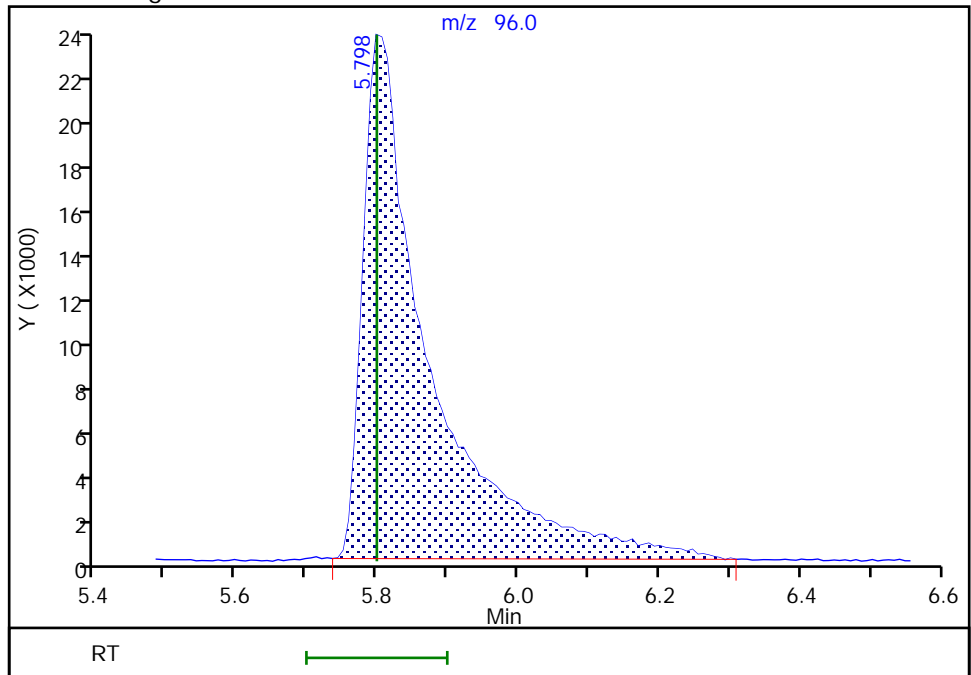
RT: 5.80
Area: 148741
Amount: 200.0000
Amount Units: ug/l

Processing Integration Results



RT: 5.80
Area: 151926
Amount: 200.0000
Amount Units: ug/l

Manual Integration Results



Reviewer: macenczaks, 03-Aug-2020 10:38:54
Audit Action: Manually Integrated

Audit Reason: Poor chromatography

GC/MS VOA ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Instrument ID: A3UX2 Start Date: 02/25/2020 16:03

Analysis Batch Number: 424238 End Date: 02/26/2020 03:59

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
BFB 240-424238/16		02/25/2020 16:03	1	BFBX2567.D	ZB-624 0.53 (mm)
IC 240-424238/3		02/25/2020 16:49	1	X29300.D	ZB-624 0.53 (mm)
IC 240-424238/4		02/25/2020 17:15	1	X29301.D	ZB-624 0.53 (mm)
IC 240-424238/5		02/25/2020 17:40	1	X29302.D	ZB-624 0.53 (mm)
ICIS 240-424238/6		02/25/2020 18:06	1	X29303.D	ZB-624 0.53 (mm)
IC 240-424238/7		02/25/2020 18:32	1	X29304.D	ZB-624 0.53 (mm)
IC 240-424238/8		02/25/2020 18:58	1	X29305.D	ZB-624 0.53 (mm)
IC 240-424238/9		02/25/2020 19:24	1	X29306.D	ZB-624 0.53 (mm)
ICV 240-424238/11		02/25/2020 20:15	1	X29308.D	ZB-624 0.53 (mm)
ZZZZZ		02/25/2020 20:41	1		ZB-624 0.53 (mm)
ZZZZZ		02/25/2020 21:07	1		ZB-624 0.53 (mm)
ZZZZZ		02/25/2020 21:32	1		ZB-624 0.53 (mm)
ZZZZZ		02/25/2020 21:58	1		ZB-624 0.53 (mm)
ZZZZZ		02/25/2020 22:24	10		ZB-624 0.53 (mm)
ZZZZZ		02/25/2020 22:50	10		ZB-624 0.53 (mm)
ZZZZZ		02/25/2020 23:15	3		ZB-624 0.53 (mm)
ZZZZZ		02/25/2020 23:41	5		ZB-624 0.53 (mm)
ZZZZZ		02/26/2020 00:07	5		ZB-624 0.53 (mm)
ZZZZZ		02/26/2020 00:33	30		ZB-624 0.53 (mm)
ZZZZZ		02/26/2020 00:59	3		ZB-624 0.53 (mm)
ZZZZZ		02/26/2020 01:24	1		ZB-624 0.53 (mm)
ZZZZZ		02/26/2020 01:51	1		ZB-624 0.53 (mm)
ZZZZZ		02/26/2020 02:16	1		ZB-624 0.53 (mm)
ZZZZZ		02/26/2020 02:42	1		ZB-624 0.53 (mm)
ZZZZZ		02/26/2020 03:08	1		ZB-624 0.53 (mm)
ZZZZZ		02/26/2020 03:34	1		ZB-624 0.53 (mm)
ZZZZZ		02/26/2020 03:59	1		ZB-624 0.53 (mm)

GC/MS VOA ANALYSIS RUN LOG

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Instrument ID: A3UX2 Start Date: 07/31/2020 12:09

Analysis Batch Number: 445137 End Date: 07/31/2020 20:20

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
BFB 240-445137/8		07/31/2020 12:09	1	BFBX2651.D	ZB-624 0.53 (mm)
CCVIS 240-445137/3		07/31/2020 12:53	1	X21081.D	ZB-624 0.53 (mm)
LCS 240-445137/4		07/31/2020 13:18	1	X21082.D	ZB-624 0.53 (mm)
MB 240-445137/5		07/31/2020 13:43	1	X21083.D	ZB-624 0.53 (mm)
ZZZZZ		07/31/2020 14:08	1		ZB-624 0.53 (mm)
ZZZZZ		07/31/2020 14:33	1		ZB-624 0.53 (mm)
240-134182-35		07/31/2020 14:58	1	X21086.D	ZB-624 0.53 (mm)
ZZZZZ		07/31/2020 15:23	1		ZB-624 0.53 (mm)
ZZZZZ		07/31/2020 16:13	2		ZB-624 0.53 (mm)
ZZZZZ		07/31/2020 17:02	2		ZB-624 0.53 (mm)
240-134235-C-2 MS		07/31/2020 17:27	2	X21092.D	ZB-624 0.53 (mm)
240-134235-C-2 MSD		07/31/2020 17:51	2	X21093.D	ZB-624 0.53 (mm)
ZZZZZ		07/31/2020 18:41	1		ZB-624 0.53 (mm)
240-134182-34		07/31/2020 19:06	1	X21096.D	ZB-624 0.53 (mm)
ZZZZZ		07/31/2020 19:30	1		ZB-624 0.53 (mm)
ZZZZZ		07/31/2020 20:20	1		ZB-624 0.53 (mm)

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Batch Number: 424238 Batch Start Date: 02/25/20 16:03 Batch Analyst: Macenczak, Steven

Batch Method: 8260B SIM Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	vm150is 00164	vm50ss 00391	vmbfb 00024	vmdios_spike 00213
IC 240-424238/3		8260B SIM		15 mL	15 mL	1 uL	30 uL		
IC 240-424238/4		8260B SIM		15 mL	15 mL	1 uL	15 uL		
IC 240-424238/5		8260B SIM		15 mL	15 mL	1 uL	7.5 uL		
ICIS 240-424238/6		8260B SIM		15 mL	15 mL	1 uL	3 uL		
IC 240-424238/7		8260B SIM		15 mL	15 mL	1 uL	1.5 uL		
IC 240-424238/8		8260B SIM		15 mL	15 mL	1 uL	0.75 uL		
IC 240-424238/9		8260B SIM		15 mL	15 mL	1 uL	0.3 uL		
ICV 240-424238/11		8260B SIM		15 mL	15 mL	1 uL	3 uL		3 uL
BFB 240-424238/16		8260B SIM		5 mL	5 mL			1 uL	

Lab Sample ID	Client Sample ID	Method Chain	Basis	vmdiosanew 00200					
IC 240-424238/3		8260B SIM		30 uL					
IC 240-424238/4		8260B SIM		15 uL					
IC 240-424238/5		8260B SIM		7.5 uL					
ICIS 240-424238/6		8260B SIM		3 uL					
IC 240-424238/7		8260B SIM		1.5 uL					
IC 240-424238/8		8260B SIM		0.75 uL					
IC 240-424238/9		8260B SIM		0.3 uL					
ICV 240-424238/11		8260B SIM							
BFB 240-424238/16		8260B SIM							

Batch Notes	
pH Indicator ID	HC998308

Basis	Basis Description

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Batch Number: 445137 Batch Start Date: 07/31/20 12:09 Batch Analyst: Macenczak, Steven

Batch Method: 8260B SIM Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Initial pH	vm150is 00174	vmbfb 00025	vmdiox_spike 00231
CCVIS 240-445137/3		8260B SIM		15 mL	15 mL		1 uL		
LCS 240-445137/4		8260B SIM		15 mL	15 mL		1 uL		3 uL
MB 240-445137/5		8260B SIM		15 mL	15 mL		1 uL		
BFB 240-445137/8		8260B SIM		5 mL	5 mL			1 uL	
240-134182-B-35	TRIP BLANK	8260B SIM	T	15 mL	15 mL	<2 SU	1 uL		
240-134235-C-2 MS	GP-33S	8260B SIM	T	15 mL	15 mL	<2 SU	1 uL		3 uL
240-134235-C-2 MSD	GP-33S	8260B SIM	T	15 mL	15 mL	<2 SU	1 uL		3 uL
240-134182-F-34	TMW-20-02 (7-12) 072820	8260B SIM	T	15 mL	15 mL	<2 SU	1 uL		

Lab Sample ID	Client Sample ID	Method Chain	Basis	vmdioxanew 00219					
CCVIS 240-445137/3		8260B SIM		3 uL					
LCS 240-445137/4		8260B SIM							
MB 240-445137/5		8260B SIM							
BFB 240-445137/8		8260B SIM							
240-134182-B-35	TRIP BLANK	8260B SIM	T						
240-134235-C-2 MS	GP-33S	8260B SIM	T						
240-134235-C-2 MSD	GP-33S	8260B SIM	T						
240-134182-F-34	TMW-20-02 (7-12) 072820	8260B SIM	T						

Batch Notes	
pH Indicator ID	HC911298

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY

COVER PAGE
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Canton

Job Number: 240-134182-1

SDG No.:

Project: Ford LTP

Client Sample ID	Lab Sample ID
SB-141 (0.5-1) 072820	240-134182-1
SB-141 (1-2) 072820	240-134182-2
SB-141 (2-3) 072820	240-134182-3
SB-141 (3-4) 072820	240-134182-4
SB-141 (4-5) 072820	240-134182-5
SB-141 (5-6) 072820	240-134182-6
SB-141 (6-7) 072820	240-134182-7
SB-141 (7-8) 072820	240-134182-8
TMW-20-02 (0.5-1) 072820	240-134182-9
TMW-20-02 (1-2) 072820	240-134182-10
TMW-20-02 (2-3) 072820	240-134182-11
TMW-20-02 (3-4) 072820	240-134182-12
TMW-20-02 (4-5) 072820	240-134182-13
TMW-20-02 (5-6) 072820	240-134182-14
TMW-20-02 (6-7) 072820	240-134182-15
TMW-20-02 (7-8) 072820	240-134182-16
SB-142 (0.5-1) 072820	240-134182-17
SB-142 (1-2) 072820	240-134182-18
SB-142 (2-3) 072820	240-134182-19
SB-142 (3-4) 072820	240-134182-20
SB-142 (4-5) 072820	240-134182-21
SB-142 (5-6) 072820	240-134182-22
SB-142 (6-7) 072820	240-134182-23
SB-142 (7-8) 072820	240-134182-24
SB-143 (0.5-1) 072820	240-134182-25
SB-143 (1-2) 072820	240-134182-26
SB-143 (2-3) 072820	240-134182-27
SB-143 (3-4) 072820	240-134182-28
SB-143 (4-5) 072820	240-134182-29
SB-143 (5-6) 072820	240-134182-30
SB-143 (6-7) 072820	240-134182-31
SB-143 (7-8) 072820	240-134182-32
DUP-03	240-134182-33

Comments:

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Canton

Job Number: 240-134182-1

SDG Number: _____

Matrix: Solid

Instrument ID: NOEQUIP

Method: Moisture

RL Date: 01/28/2010 09:24

Analyte	Wavelength/ Mass	RL (%)	
Percent Moisture		0.1	
Percent Solids		0.1	

9-IN
CALIBRATION BLANK DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Canton

Job Number: 240-134182-1

SDG Number: _____

Matrix: Solid

Instrument ID: NOEQUIP

Method: Moisture

XRL Date: 01/28/2010 09:24

Analyte	Wavelength/ Mass	XRL (mg/L)	
Percent Moisture		10	
Percent Solids		10	

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Instrument ID: NOEQUIP Analysis Method: Moisture

Start Date: 08/03/2020 09:58 End Date: 08/03/2020 14:29

Lab Sample Id	D/F	Type	Time	Analytes																							
				% Sol	Moist																						
ZZZZZZ			09:58																								
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13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Instrument ID: NOEQUIP Analysis Method: Moisture

Start Date: 08/03/2020 09:58 End Date: 08/03/2020 14:29

Lab Sample Id	D/F	Type	Time	Analytes																							
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240-134182-2		1 T	09:58	X	X																						
240-134182-3		1 T	09:58	X	X																						

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Canton

Job No.: 240-134182-1

SDG No.: _____

Instrument ID: NOEQUIP

Analysis Method: Moisture

Start Date: 08/03/2020 09:58

End Date: 08/03/2020 14:29

Lab Sample Id	D/F	T y p e	Time	Analytes																							
				% S o l	M o i s t																						
240-134182-4		1 T	09:58	X	X																						
240-134182-5		1 T	09:58	X	X																						
240-134182-6 DU		1 T	09:58	X	X																						
240-134182-6		1 T	09:58	X	X																						
240-134182-7		1 T	09:58	X	X																						
240-134182-8		1 T	09:58	X	X																						
240-134182-9		1 T	09:58	X	X																						
240-134182-10		1 T	09:58	X	X																						
240-134182-11		1 T	09:58	X	X																						
240-134182-12		1 T	09:58	X	X																						
240-134182-13		1 T	09:58	X	X																						
240-134182-14		1 T	09:58	X	X																						
240-134182-15 DU		1 T	09:58	X	X																						
240-134182-15		1 T	09:58	X	X																						
240-134182-16		1 T	09:58	X	X																						
240-134182-17		1 T	09:58	X	X																						
240-134182-18		1 T	09:58	X	X																						
240-134182-19		1 T	09:58	X	X																						
240-134182-20		1 T	09:58	X	X																						
240-134182-21		1 T	09:58	X	X																						
240-134182-21 DU		1 T	09:58	X	X																						
240-134182-22		1 T	09:58	X	X																						
240-134182-23 DU		1 T	10:40	X	X																						
240-134182-23		1 T	10:40	X	X																						
240-134182-24		1 T	10:40	X	X																						
240-134182-25		1 T	10:40	X	X																						
240-134182-25 DU		1 T	10:40	X	X																						
240-134182-26		1 T	10:40	X	X																						
240-134182-27		1 T	10:40	X	X																						
240-134182-28		1 T	10:40	X	X																						
240-134182-28 DU		1 T	10:40	X	X																						
240-134182-29		1 T	10:40	X	X																						
240-134182-30 DU		1 T	10:40	X	X																						
240-134182-30		1 T	10:40	X	X																						
240-134182-31		1 T	10:40	X	X																						
240-134182-32		1 T	10:40	X	X																						
240-134182-33		1 T	10:40	X	X																						
ZZZZZZ			10:40																								
ZZZZZZ			10:40																								

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Instrument ID: NOEQUIP Analysis Method: Moisture

Start Date: 08/03/2020 09:58 End Date: 08/03/2020 14:29

Lab Sample Id	D/F	Type	Time	Analytes																										
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13-IN
 ANALYSIS RUN LOG
 GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1
 SDG No.: _____
 Instrument ID: NOEQUIP Analysis Method: Moisture
 Start Date: 08/03/2020 09:58 End Date: 08/03/2020 14:29

Lab Sample Id	D/F	Type	Time	Analytes																			
				% S	M o i s t																		
ZZZZZZ			14:21																				
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13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Instrument ID: NOEQUIP Analysis Method: Moisture

Start Date: 08/03/2020 09:58 End Date: 08/03/2020 14:29

Lab Sample Id	D/F	Type	Time	Analytes																			
				% S	M o i s t																		
ZZZZZZ			14:29																				

Prep Types: _____
T = Total/NA

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Batch Number: 445353 Batch Start Date: 08/03/20 09:58 Batch Analyst: Loeb, Brendan W

Batch Method: Moisture Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	DishWeight	SampleMassWet	SampleMassDry			
240-134182-B-1	SB-141 (0.5-1) 072820	Moisture	T	4.2916 g	10.8748 g	10.6952 g			
240-134182-B-2	SB-141 (1-2) 072820	Moisture	T	4.2916 g	10.2335 g	10.0994 g			
240-134182-B-3	SB-141 (2-3) 072820	Moisture	T	4.2916 g	11.4723 g	11.2509 g			
240-134182-B-4	SB-141 (3-4) 072820	Moisture	T	4.2916 g	12.2259 g	12.0438 g			
240-134182-B-5	SB-141 (4-5) 072820	Moisture	T	4.2916 g	11.2021 g	11.0289 g			
240-134182-B-6 DU	SB-141 (5-6) 072820	Moisture	T	4.2916 g	8.3524 g	8.2439 g			
240-134182-B-6	SB-141 (5-6) 072820	Moisture	T	4.2916 g	7.0396 g	6.9704 g			
240-134182-B-7	SB-141 (6-7) 072820	Moisture	T	4.2916 g	12.5675 g	12.4124 g			
240-134182-B-8	SB-141 (7-8) 072820	Moisture	T	4.2916 g	11.0346 g	10.7102 g			
240-134182-B-9	TMW-20-02 (0.5-1) 072820	Moisture	T	4.2916 g	12.3806 g	12.0892 g			
240-134182-B-10	TMW-20-02 (1-2) 072820	Moisture	T	4.2916 g	12.7826 g	12.4569 g			
240-134182-B-11	TMW-20-02 (2-3) 072820	Moisture	T	4.2916 g	12.7672 g	12.1181 g			
240-134182-B-12	TMW-20-02 (3-4) 072820	Moisture	T	4.2916 g	11.4773 g	11.3024 g			
240-134182-B-13	TMW-20-02 (4-5) 072820	Moisture	T	4.2916 g	13.9844 g	13.7043 g			
240-134182-B-14	TMW-20-02 (5-6) 072820	Moisture	T	4.2916 g	14.9592 g	13.8724 g			
240-134182-B-15 DU	TMW-20-02 (6-7) 072820	Moisture	T	4.2916 g	7.5972 g	7.4575 g			
240-134182-B-15	TMW-20-02 (6-7) 072820	Moisture	T	4.2916 g	8.5911 g	8.4216 g			
240-134182-B-16	TMW-20-02 (7-8) 072820	Moisture	T	4.2916 g	13.4133 g	12.8856 g			
240-134182-B-17	SB-142 (0.5-1) 072820	Moisture	T	4.2916 g	11.2092 g	10.9668 g			
240-134182-B-18	SB-142 (1-2) 072820	Moisture	T	4.2916 g	13.8580 g	13.6460 g			
240-134182-B-19	SB-142 (2-3) 072820	Moisture	T	4.2916 g	14.9612 g	14.6541 g			

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Moisture

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Batch Number: 445353 Batch Start Date: 08/03/20 09:58 Batch Analyst: Loeb, Brendan W

Batch Method: Moisture Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	DishWeight	SampleMassWet	SampleMassDry			
240-134182-B-20	SB-142 (3-4) 072820	Moisture	T	4.2916 g	11.3996 g	11.2545 g			
240-134182-D-21	SB-142 (4-5) 072820	Moisture	T	4.2916 g	10.4639 g	10.1294 g			
240-134182-E-21 DU	SB-142 (4-5) 072820	Moisture	T	4.2916 g	14.4800 g	13.9088 g			
240-134182-B-22	SB-142 (5-6) 072820	Moisture	T	4.2916 g	11.2593 g	10.8807 g			
240-134182-B-23 DU	SB-142 (6-7) 072820	Moisture	T	4.2916 g	9.2509 g	9.0856 g			
240-134182-B-23	SB-142 (6-7) 072820	Moisture	T	4.2916 g	10.4346 g	10.2240 g			
240-134182-B-24	SB-142 (7-8) 072820	Moisture	T	4.2916 g	12.1278 g	11.7770 g			
240-134182-D-25	SB-143 (0.5-1) 072820	Moisture	T	4.2916 g	11.7128 g	11.5383 g			
240-134182-E-25 DU	SB-143 (0.5-1) 072820	Moisture	T	4.2916 g	13.1958 g	12.9738 g			
240-134182-B-26	SB-143 (1-2) 072820	Moisture	T	4.2916 g	12.4734 g	12.1812 g			
240-134182-B-27	SB-143 (2-3) 072820	Moisture	T	4.2916 g	11.0930 g	10.7656 g			
240-134182-D-28	SB-143 (3-4) 072820	Moisture	T	4.2916 g	11.3108 g	11.1252 g			
240-134182-E-28 DU	SB-143 (3-4) 072820	Moisture	T	4.2916 g	11.9533 g	11.7496 g			
240-134182-B-29	SB-143 (4-5) 072820	Moisture	T	4.2916 g	13.3166 g	13.0330 g			
240-134182-B-30 DU	SB-143 (5-6) 072820	Moisture	T	4.2916 g	8.0077 g	7.8901 g			
240-134182-B-30	SB-143 (5-6) 072820	Moisture	T	4.2916 g	8.2057 g	8.0934 g			
240-134182-B-31	SB-143 (6-7) 072820	Moisture	T	4.2916 g	10.5801 g	10.3382 g			
240-134182-B-32	SB-143 (7-8) 072820	Moisture	T	4.2916 g	10.3509 g	9.8676 g			
240-134182-B-33	DUP-03	Moisture	T	4.2916 g	11.4422 g	11.2112 g			

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Moisture

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Canton Job No.: 240-134182-1

SDG No.: _____

Batch Number: 445353 Batch Start Date: 08/03/20 09:58 Batch Analyst: Loeb, Brendan W

Batch Method: Moisture Batch End Date: _____

Batch Notes	
Balance ID	B047
Date samples were placed in the oven	08/03/2020
Oven Temp In	104.5 Degrees C
Time samples were place in the oven	14:30
Date samples were removed from oven	08/03/2020
Oven Temp Out	104.3 Degrees C
Time Samples were removed from oven	04:30
Oven ID	002
Thermometer ID	Tempguard Box C #6
Temperature - Start - Uncorrected	104.3 Degrees C

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Moisture

Shipping and Receiving Documents

MICHIGAN
190

Chain of Custody Record 376185

Environment Testin
TestAmerica

TAL-8210

Address:

Client Contact
 Company Name: ARCADIS
 Address: 28550 CABOT DRIVE #500
 City/State/Zip: NOVI MI / 48377
 Phone: _____
 Fax: _____
 Project Name: FORD CTP
 Site: LIVINGIA MI
 P O #: 30050315.303.01

Regulatory Program: DW NPDES RCRA Other:

Project Manager: KRIS HINESKY
 Tel/Email: 269-579-5402
 Analysis Turnaround Time
 CALENDAR DAYS WORKING DAYS
 TAT if different from Below: 10 DAYS
 2 weeks
 1 week
 2 days
 1 day
 STANAKO
 TAT

COC No: 1 of 3 COCs
 Sampler: _____
 For Lab Use Only:
 Walk-in Client: _____
 Lab Sampling: _____
 Job / SDG No.: _____

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Lab Contact:	Site Contact:	Date:	Carrier:
SB-141(05-1)-072820	7/28/20	0938	G	S	2	N	N	USEPA METHOD B200 #102 YH	IAN OROST	7/28/20	
SB-141(1-2)-072820	7/28/20	0945	G	S	2	N	N	USEPA METHOD B200 #102 YH			
SB-141(2-3)-072820	7/28/20	0948	G	S	2	N	N				
SB-141(3-4)-072820	7/28/20	0953	G	S	2	N	N				
SB-141(4-5)-072820	7/28/20	0956	G	S	2	N	N				
SB-141(5-6)-072820	7/28/20	1018	G	S	2	N	N				
SB-141(6-7)-072820	7/28/20	1027	G	S	2	N	N				
SB-141(7-8)-072820	7/28/20	1030	G	S	2	N	N				
TMW-20-02(05-1)-072820	7/28/20	1106	G	S	2	N	N				
TMW-20-02(1-2)-072820	7/28/20	1107	G	S	2	N	N				
TMW-20-02(2-3)-072820	7/28/20	1108	G	S	2	N	N				
TMW-20-02(3-4)-072820	7/28/20	1109	G	S	2	N	N				



Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other: MECH

Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Special Instructions/QC Requirements & Comments: ANALYZE FOR: PCE; TCE; 1,1-DCE; CIS-1,2-DCE; TRANS-1,2-DCE; VC; 1,1-DIAXANE. LEVEL IX REPORTING. SUBMIT ALL RESULTS THROUGH CADENA @ JIM.TOMALIA@CADENA.COM # 5203728.

Custody Seals Intact: Yes No
 Relinquished by: *Chath Mew*
 Relinquished by: *W D*
 Relinquished by: _____
 Company: ARCADIS
 Company: EURAFIN
 Company: EURAFIN
 Date/Time: 7/29/20 0815
 Date/Time: 7-30-20 9:00
 Date/Time: _____
 Company: _____
 Company: _____
 Company: _____
 Received by: _____
 Received by: _____
 Received in Laboratory by: _____
 Cooler Temp. (C): Obs'd: _____
 Corr'd: _____
 Therm ID No.: _____
 Disposal by Lab: Archive for: _____ Months
 Return to Client:

1.5/2.1

Address:

Regulatory Program: DW MPDES RCRA Other:

Client Contact
 Company Name: ARCADIS
 Address: 28550 CABOT DRIVE #500
 City/State/Zip: NOVI MI 48377
 Phone:
 Fax:
 Project Name: FORD LTP
 Site: LIVONIA MI
 PO #: 30050315.303.01

Project Manager: KRIS HUNESKY
 Tell/Email: 269-579-5402
 Analysis Turnaround Time
 CALENDAR DAYS WORKING DAYS
 TAT if different from Below: 10 DAYS
 2 weeks
 1 week
 2 days
 1 day

Site Contact: JAY OROST
 Date: 7/28/20
 Carrier:
 Lab Contact:
 Perform MS/MSD (Y/N)
 Filtered Sample (Y/N)

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:
TMW-20-02(4-5)-072820	7/28/20	1110	G	S	2	
TMW-20-02(5-6)-072820	7/28/20	1129	G	S	2	
TMW-20-02(6-7)-072820	7/28/20	1130	G	S	2	
TMW-20-02(7-8)-072820	7/28/20	1134	G	S	2	
SB-142(0.5-1)-072820	7/28/20	1240	G	S	2	
SB-142(1-2)-072820	7/28/20	1241	G	S	2	
SB-142(2-3)-072820	7/28/20	1242	G	S	2	
SB-142(3-4)-072820	7/28/20	1243	G	S	2	
SB-142(4-5)-072820	7/28/20	1244	G	S	6	
SB-142(5-6)-072820	7/28/20	1258	G	S	2	
SB-142(6-7)-072820	7/28/20	1301	G	S	2	
SB-142(7-8)-072820	7/28/20	1300	G	S	2	

Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other, M=CH

Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
 Non-Hazard Flammable Skin Irritant Poison B Unknown

Special Instructions/QC Requirements & Comments: ANALYZE FOR: PCE; TCE; 1,1-DCE; CIS-1,2-DCE; TRANS-1,2-DCE; UC; 1,4-dioxane
 LEVEL FU REPORTING. SUBMIT FU RESULTS THROUGH CADEMA @ JIM.TOMALIA@CADEMA.COM #F203728

Custody Seals Intact: Yes No
 Relinquished by: [Signature]
 Relinquished by: CURAFINS
 Relinquished by: [Signature]

Company: ARCADIS
 Company: CURAFINS
 Company: [Signature]

Received by: [Signature]
 Received by: [Signature]
 Received in Laboratory by: [Signature]

Company: ARCADIS
 Company: CURAFINS
 Company: [Signature]

Date/Time: 7/28/20 0817
 Date/Time: 7/28/20 0817
 Date/Time: 7/28/20 0817

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal by Lab Archive for: _____ Months

Regulatory Program: DW NPDES RCRA Other

Project Manager: KRIS HINESKY
Tel/Fax: 269-579-5402
Analysis Turnaround Time: CALENDAR DAYS WORKING DAYS

TAT if different from Block: 10 DAYS
 2 weeks
 1 week
 2 days
 1 day

Client Contact
 Company Name: ARCADIS
 Address: 28550 CABOT DRIVE #500
 City/State/Zip: NOVI, MI / 48377
 Phone:
 Fax:
 Project Name: FORD LTP
 Site: LUCOVIA MI
 P.O.#: 300503151303.01

Site Contact: JAN OROST
 Lab Contact: [Blank]
 Date: 7/28/2020
 Carrier: [Blank]

COC No: 3 of 3 COCs
 Sampler:
 For Lab Use Only:
 Walk-in Client:
 Lab Sampling:
 Job / SDG No.:

Sample Identification

Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes
7/28/20	1320	G	S	6	COLLECTED MS/MISO
7/28/20	1321	G	S	2	
7/28/20	1322	G	S	2	
7/28/20	1323	G	S	6	
7/28/20	1324	G	S	2	
7/28/20	1340	G	S	2	
7/28/20	1345	G	S	2	
7/28/20	1350	G	S	2	
7/28/20	---	G	S	2	
7/28/20	1505	G	GW	6	
7/28/20	---	G	GW	2	(2)-TRIP BLANKS 40ML HCL

Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other: MSD

Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard Flammable Skin Irritant Poison B Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return to Client Disposal by Lab Archive for _____ Months

Special Instructions/QC Requirements & Comments: ANALYZE FOR: PCE; TCE; 1,1-DCE; TRANS-1,2-DCE; VC; 1,4-DIOXANE.
 LEVEL IV REPORTING. SUBMIT ALL RESULTS THROUGH CADEMA AT JIM.TOMALIA@CADEMA.COM #E203728

Custody Seals Intact: Yes No

Relinquished by: [Signature]
 Date/Time: 7/29/20 0815

Relinquished by: [Signature]
 Date/Time: 7/29/20 0817

Relinquished by: [Signature]
 Date/Time: 7/29/20 0817

Received by: [Signature]
 Date/Time: 7/29/20 0815

Received by: [Signature]
 Date/Time: 7/29/20 0817

Received in Laboratory by: [Signature]

Company: ARCADIS
 Company: EUROFINJ
 Company: EUROFINJ

Company: EUROFINJ
 Company: EUROFINJ
 Company: EUROFINJ

Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility


Login # : 134187

Client Arcadis Site Name _____
 Cooler Received on 7-30-20 Opened on 7-30-20
 FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Cooler unpacked by: [Signature]

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # TH Foam Box Client Cooler Box Other _____
 Packing material used: Bubble Wrap Foam Plastic Bag None Other _____
 COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN# IR-10 (CF +0.7°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN #IR-11 (CF +0.9°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 3 Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
 If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC911298
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? Yes No NA  Larger than this.
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # NA Yes No
16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:
 VOAs
 Oil and Grease
 TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: _____

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

Eurofins TestAmerica Canton Sample Receipt Multiple Cooler Form

Cooler Description (Circle)	IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)
TA Client Box Other	IR-10 (IR-11)	1.5	2.4	(Wet Ice) Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 (IR-11)	1.3	2.2	(Wet Ice) Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None

See Temperature Excursion Form

BT-NC-099 Cooler Receipt Form Page 2 Multiple Coolers

6/20/2017
Mr. Troy Stevens
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #: MI001386.0001.00002
Workorder #: 1706322

Dear Mr. Troy Stevens

The following report includes the data for the above referenced project for sample(s) received on 6/16/2017 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,




Ausha Scott
Project Manager

WORK ORDER #: 1706322

Work Order Summary

CLIENT:	Mr. Troy Stevens Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-324-5050	P.O. #	MI001386.0001.00002
FAX:		PROJECT #	MI001386.0001.00002 Ford LTP
DATE RECEIVED:	06/16/2017	CONTACT:	Ausha Scott
DATE COMPLETED:	06/20/2017		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SVMP-29-3.5 (061417)	TO-15	3.9 "Hg	15.4 psi
02A	SVMP-29-7.5 (061417)	TO-15	2.4 "Hg	15.3 psi
03A	Lab Blank	TO-15	NA	NA
04A	CCV	TO-15	NA	NA
05A	LCS	TO-15	NA	NA
05AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 06/20/17

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.

Eurofins Air Toxics Inc. certifies that the test results contained in this report meet all requirements of the NELAC standards

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1706322

Two 1 Liter Summa Canister samples were received on June 16, 2017. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SVMP-29-3.5 (061417)

Lab ID#: 1706322-01A

No Detections Were Found.

Client Sample ID: SVMP-29-7.5 (061417)

Lab ID#: 1706322-02A

No Detections Were Found.



Air Toxics

Client Sample ID: SVMP-29-3.5 (061417)

Lab ID#: 1706322-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p061709	Date of Collection:	6/14/17 10:30:00 AM	
Dil. Factor:	2.35	Date of Analysis:	6/17/17 04:16 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
4-Bromofluorobenzene	108	70-130
1,2-Dichloroethane-d4	93	70-130



Air Toxics

Client Sample ID: SVMP-29-7.5 (061417)

Lab ID#: 1706322-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p061710	Date of Collection:	6/14/17 11:33:00 AM	
Dil. Factor:	2.22	Date of Analysis:	6/17/17 04:42 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.8	Not Detected
Trichloroethene	1.1	Not Detected	6.0	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
4-Bromofluorobenzene	109	70-130
1,2-Dichloroethane-d4	93	70-130

Client Sample ID: Lab Blank

Lab ID#: 1706322-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p061706	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	6/17/17 02:16 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
4-Bromofluorobenzene	108	70-130
1,2-Dichloroethane-d4	92	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1706322-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p061702	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/17/17 10:56 AM

Compound	%Recovery
Vinyl Chloride	105
Trichloroethene	105

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
4-Bromofluorobenzene	114	70-130
1,2-Dichloroethane-d4	96	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 1706322-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p061703	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	6/17/17 11:21 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	108	70-130
Trichloroethene	108	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
4-Bromofluorobenzene	114	70-130
1,2-Dichloroethane-d4	97	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1706322-05AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p061704	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	6/17/17 11:45 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	105	70-130
Trichloroethene	106	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
4-Bromofluorobenzene	114	70-130
1,2-Dichloroethane-d4	94	70-130

6/23/2017

Mr. Troy Stevens
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #: MI001386.0001.00002
Workorder #: 1706395

Dear Mr. Troy Stevens

The following report includes the data for the above referenced project for sample(s) received on 6/21/2017 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1706395

Work Order Summary

CLIENT:	Mr. Troy Stevens Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-324-5050	P.O. #	MI001386.0001.00002
FAX:		PROJECT #	MI001386.0001.00002 Ford LTP
DATE RECEIVED:	06/21/2017	CONTACT:	Ausha Scott
DATE COMPLETED:	06/23/2017		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SVMP-20-3(061917)	TO-15	2.2 "Hg	14.6 psi
02A	SVMP-21-2(061917)	TO-15	3.9 "Hg	15 psi
03A	SVMP-22-3(061917)	TO-15	4.7 "Hg	15.1 psi
04A	SVMP-23-3(061917)	TO-15	4.7 "Hg	15 psi
05A	SVMP-24-4(061917)	TO-15	3.7 "Hg	15.1 psi
06A	SVMP-25-3(061917)	TO-15	3.9 "Hg	15 psi
07A	SVMP-25-6(061917)	TO-15	4.3 "Hg	15.1 psi
08A	SVMP-26-4(061917)	TO-15	3.9 "Hg	15 psi
09A	SVMP-27-4.5(061917)	TO-15	3.7 "Hg	15.1 psi
10A	SVMP-28-3(061917)	TO-15	3.3 "Hg	15.2 psi
11A	Lab Blank	TO-15	NA	NA
12A	CCV	TO-15	NA	NA
13A	LCS	TO-15	NA	NA
13AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 06/23/17

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.

Eurofins Air Toxics Inc. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1706395

Ten 1 Liter Summa Canister samples were received on June 21, 2017. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

The Chain of Custody (COC) information for sample SVMP-23-3(061917) did not match the information on the canister with regard to canister identification. The client was notified of the discrepancy and the information on the canister was used to process and report the sample.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

**Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN**

Client Sample ID: SVMP-20-3(061917)

Lab ID#: 1706395-01A

No Detections Were Found.

Client Sample ID: SVMP-21-2(061917)

Lab ID#: 1706395-02A

No Detections Were Found.

Client Sample ID: SVMP-22-3(061917)

Lab ID#: 1706395-03A

No Detections Were Found.

Client Sample ID: SVMP-23-3(061917)

Lab ID#: 1706395-04A

No Detections Were Found.

Client Sample ID: SVMP-24-4(061917)

Lab ID#: 1706395-05A

No Detections Were Found.

Client Sample ID: SVMP-25-3(061917)

Lab ID#: 1706395-06A

No Detections Were Found.

Client Sample ID: SVMP-25-6(061917)

Lab ID#: 1706395-07A

No Detections Were Found.

Client Sample ID: SVMP-26-4(061917)

Lab ID#: 1706395-08A

No Detections Were Found.

Client Sample ID: SVMP-27-4.5(061917)

Lab ID#: 1706395-09A

Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SVMP-27-4.5(061917)

Lab ID#: 1706395-09A

No Detections Were Found.

Client Sample ID: SVMP-28-3(061917)

Lab ID#: 1706395-10A

No Detections Were Found.



Air Toxics

Client Sample ID: SVMP-20-3(061917)

Lab ID#: 1706395-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062210	Date of Collection:	6/19/17 10:48:00 AM	
Dil. Factor:	2.15	Date of Analysis:	6/22/17 04:13 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.7	Not Detected
Trichloroethene	1.1	Not Detected	5.8	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
4-Bromofluorobenzene	112	70-130
1,2-Dichloroethane-d4	93	70-130



Air Toxics

Client Sample ID: SVMP-21-2(061917)

Lab ID#: 1706395-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062211	Date of Collection:	6/19/17 11:49:00 AM	
Dil. Factor:	2.32	Date of Analysis:	6/22/17 04:41 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
Trichloroethene	1.2	Not Detected	6.2	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
4-Bromofluorobenzene	112	70-130
1,2-Dichloroethane-d4	95	70-130



Air Toxics

Client Sample ID: SVMP-22-3(061917)

Lab ID#: 1706395-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062212	Date of Collection:	6/19/17 1:55:00 PM	
Dil. Factor:	2.40	Date of Analysis:	6/22/17 05:10 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
4-Bromofluorobenzene	113	70-130
1,2-Dichloroethane-d4	92	70-130



Air Toxics

Client Sample ID: SVMP-23-3(061917)

Lab ID#: 1706395-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062213	Date of Collection:	6/19/17 3:18:00 PM	
Dil. Factor:	2.40	Date of Analysis:	6/22/17 05:38 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
4-Bromofluorobenzene	109	70-130
1,2-Dichloroethane-d4	94	70-130



Air Toxics

Client Sample ID: SVMP-24-4(061917)

Lab ID#: 1706395-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062214	Date of Collection:	6/19/17 4:25:00 PM	
Dil. Factor:	2.31	Date of Analysis:	6/22/17 06:05 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
Trichloroethene	1.2	Not Detected	6.2	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
4-Bromofluorobenzene	112	70-130
1,2-Dichloroethane-d4	98	70-130



Air Toxics

Client Sample ID: SVMP-25-3(061917)

Lab ID#: 1706395-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062215	Date of Collection:	6/19/17 10:36:00 AM	
Dil. Factor:	2.32	Date of Analysis:	6/22/17 06:32 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
Trichloroethene	1.2	Not Detected	6.2	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
4-Bromofluorobenzene	112	70-130
1,2-Dichloroethane-d4	95	70-130



Air Toxics

Client Sample ID: SVMP-25-6(061917)

Lab ID#: 1706395-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062216	Date of Collection:	6/19/17 11:27:00 AM	
Dil. Factor:	2.37	Date of Analysis:	6/22/17 06:58 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	94	70-130
4-Bromofluorobenzene	118	70-130
1,2-Dichloroethane-d4	94	70-130



Air Toxics

Client Sample ID: SVMP-26-4(061917)

Lab ID#: 1706395-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062218	Date of Collection:	6/19/17 1:49:00 PM	
Dil. Factor:	2.32	Date of Analysis:	6/22/17 09:36 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
Trichloroethene	1.2	Not Detected	6.2	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
4-Bromofluorobenzene	111	70-130
1,2-Dichloroethane-d4	97	70-130



Air Toxics

Client Sample ID: SVMP-27-4.5(061917)

Lab ID#: 1706395-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062219	Date of Collection:	6/19/17 3:10:00 PM	
Dil. Factor:	2.31	Date of Analysis:	6/22/17 10:03 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
Trichloroethene	1.2	Not Detected	6.2	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
4-Bromofluorobenzene	108	70-130
1,2-Dichloroethane-d4	94	70-130



Air Toxics

Client Sample ID: SVMP-28-3(061917)

Lab ID#: 1706395-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062220	Date of Collection:	6/19/17 4:16:00 PM	
Dil. Factor:	2.28	Date of Analysis:	6/22/17 10:29 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
Trichloroethene	1.1	Not Detected	6.1	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
4-Bromofluorobenzene	111	70-130
1,2-Dichloroethane-d4	94	70-130

Client Sample ID: Lab Blank

Lab ID#: 1706395-11A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062207	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	6/22/17 01:44 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
4-Bromofluorobenzene	111	70-130
1,2-Dichloroethane-d4	97	70-130

Client Sample ID: CCV

Lab ID#: 1706395-12A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062202	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/22/17 09:32 AM

Compound	%Recovery
Vinyl Chloride	95
Trichloroethene	99

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
4-Bromofluorobenzene	114	70-130
1,2-Dichloroethane-d4	98	70-130

Client Sample ID: LCS

Lab ID#: 1706395-13A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062203	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/22/17 09:57 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	98	70-130
Trichloroethene	100	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
4-Bromofluorobenzene	114	70-130
1,2-Dichloroethane-d4	96	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1706395-13AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p062204	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/22/17 10:22 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	97	70-130
Trichloroethene	100	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
4-Bromofluorobenzene	115	70-130
1,2-Dichloroethane-d4	99	70-130

10/5/2017

Mr. Gustan Taylor
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #: MI001386.0001.00002
Workorder #: 1709442

Dear Mr. Gustan Taylor

The following report includes the data for the above referenced project for sample(s) received on 9/22/2017 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1709442

Work Order Summary

CLIENT:	Mr. Gustan Taylor Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	248.994.2294	P.O. #	MI001386.0001_AT_WA08
FAX:		PROJECT #	MI001386.0001.00002 Ford LTP
DATE RECEIVED:	09/22/2017	CONTACT:	Ausha Scott
DATE COMPLETED:	10/04/2017		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SVMP-3-7(092117)	TO-15	4.5 "Hg	15 psi
02A	SVMP-3-3.5(092117)	TO-15	5.0 "Hg	15.4 psi
03A	SVMP-26-4(092117)	TO-15	5.5 "Hg	15 psi
04A	SVMP-28-3(092117)	TO-15	5.0 "Hg	15 psi
05A	SVMP-25-6(092117)	TO-15	3.0 "Hg	15 psi
06A	SVMP-25-3(092117)	TO-15	4.5 "Hg	15 psi
07A	SVMP-27-4.5(092117)	TO-15	3.0 "Hg	15 psi
08A	Lab Blank	TO-15	NA	NA
09A	CCV	TO-15	NA	NA
10A	LCS	TO-15	NA	NA
10AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 10/05/17

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1709442

Seven 1 Liter Summa Canister samples were received on September 22, 2017. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

The Chain of Custody (COC) information for sample SVMP-26-4(092117) did not match the information on the canister with regard to canister identification. The client was notified of the discrepancy and the information on the canister was used to process and report the sample.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

Summary of Detected Compounds EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SVMP-3-7(092117)

Lab ID#: 1709442-01A

No Detections Were Found.

Client Sample ID: SVMP-3-3.5(092117)

Lab ID#: 1709442-02A

No Detections Were Found.

Client Sample ID: SVMP-26-4(092117)

Lab ID#: 1709442-03A

No Detections Were Found.

Client Sample ID: SVMP-28-3(092117)

Lab ID#: 1709442-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	1.2	3.6	8.2	25

Client Sample ID: SVMP-25-6(092117)

Lab ID#: 1709442-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	1.1	1.8	7.6	12

Client Sample ID: SVMP-25-3(092117)

Lab ID#: 1709442-06A

No Detections Were Found.

Client Sample ID: SVMP-27-4.5(092117)

Lab ID#: 1709442-07A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	1.1	2.8	4.4	11
Trichloroethene	1.1	1.3	6.0	7.2



Air Toxics

Client Sample ID: SVMP-3-7(092117)

Lab ID#: 1709442-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17092510	Date of Collection:	9/21/17 9:42:00 AM
Dil. Factor:	2.38	Date of Analysis:	9/25/17 05:56 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.1	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	109	70-130
4-Bromofluorobenzene	90	70-130



Client Sample ID: SVMP-3-3.5(092117)

Lab ID#: 1709442-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17092511	Date of Collection:	9/21/17 10:33:00 AM
Dil. Factor:	2.46	Date of Analysis:	9/25/17 06:25 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Trichloroethene	1.2	Not Detected	6.6	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Tetrachloroethene	1.2	Not Detected	8.3	Not Detected
1,4-Dioxane	4.9	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	110	70-130
4-Bromofluorobenzene	91	70-130



Air Toxics

Client Sample ID: SVMP-26-4(092117)

Lab ID#: 1709442-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17092512	Date of Collection:	9/21/17 11:43:00 AM
Dil. Factor:	2.47	Date of Analysis:	9/25/17 06:53 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.2	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Trichloroethene	1.2	Not Detected	6.6	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Tetrachloroethene	1.2	Not Detected	8.4	Not Detected
1,4-Dioxane	4.9	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	108	70-130
4-Bromofluorobenzene	89	70-130



Air Toxics

Client Sample ID: SVMP-28-3(092117)

Lab ID#: 1709442-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17092513	Date of Collection:	9/21/17 12:29:00 PM
Dil. Factor:	2.42	Date of Analysis:	9/25/17 07:22 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.5	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrachloroethene	1.2	3.6	8.2	25
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	106	70-130
4-Bromofluorobenzene	92	70-130



Air Toxics

Client Sample ID: SVMP-25-6(092117)

Lab ID#: 1709442-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17092514	Date of Collection:	9/21/17 10:01:00 AM
Dil. Factor:	2.24	Date of Analysis:	9/25/17 07:50 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Trichloroethene	1.1	Not Detected	6.0	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrachloroethene	1.1	1.8	7.6	12
1,4-Dioxane	4.5	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	109	70-130
4-Bromofluorobenzene	93	70-130



Air Toxics

Client Sample ID: SVMP-25-3(092117)

Lab ID#: 1709442-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17092515	Date of Collection:	9/21/17 10:53:00 AM
Dil. Factor:	2.38	Date of Analysis:	9/25/17 08:19 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.1	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	108	70-130
4-Bromofluorobenzene	90	70-130



Air Toxics

Client Sample ID: SVMP-27-4.5(092117)

Lab ID#: 1709442-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17092516	Date of Collection:	9/21/17 12:26:00 PM
Dil. Factor:	2.24	Date of Analysis:	9/25/17 08:47 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
cis-1,2-Dichloroethene	1.1	2.8	4.4	11
Trichloroethene	1.1	1.3	6.0	7.2
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrachloroethene	1.1	Not Detected	7.6	Not Detected
1,4-Dioxane	4.5	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	108	70-130
4-Bromofluorobenzene	90	70-130



Client Sample ID: Lab Blank

Lab ID#: 1709442-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17092506	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/25/17 12:11 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	105	70-130
4-Bromofluorobenzene	85	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1709442-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17092502	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/25/17 09:58 AM

Compound	%Recovery
Vinyl Chloride	103
1,1-Dichloroethene	98
cis-1,2-Dichloroethene	104
Trichloroethene	102
trans-1,2-Dichloroethene	104
Tetrachloroethene	94
1,4-Dioxane	97

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	106	70-130
4-Bromofluorobenzene	96	70-130

Client Sample ID: LCS

Lab ID#: 1709442-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17092503	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/25/17 10:24 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	113	70-130
1,1-Dichloroethene	102	70-130
cis-1,2-Dichloroethene	123	70-130
Trichloroethene	109	70-130
trans-1,2-Dichloroethene	95	70-130
Tetrachloroethene	100	70-130
1,4-Dioxane	108	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	111	70-130
4-Bromofluorobenzene	97	70-130

Client Sample ID: LCSD

Lab ID#: 1709442-10AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17092504	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/25/17 10:51 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	112	70-130
1,1-Dichloroethene	100	70-130
cis-1,2-Dichloroethene	120	70-130
Trichloroethene	108	70-130
trans-1,2-Dichloroethene	94	70-130
Tetrachloroethene	100	70-130
1,4-Dioxane	106	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	111	70-130
4-Bromofluorobenzene	95	70-130

12/2/2017

Mr. Gustan Taylor
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: FORD LTP
Project #: MI001386.0001.00002
Workorder #: 1711414

Dear Mr. Gustan Taylor

The following report includes the data for the above referenced project for sample(s) received on 11/22/2017 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1711414

Work Order Summary

CLIENT:	Mr. Gustan Taylor Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	248.994.2294	P.O. #	MI001386.0001_AT_WA08
FAX:		PROJECT #	MI001386.0001.00002 FORD LTP
DATE RECEIVED:	11/22/2017	CONTACT:	Ausha Scott
DATE COMPLETED:	12/02/2017		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SVMP-25S-3(112117)	TO-15	3.5 "Hg	14.9 psi
02A	SVMP-25D-6(112117)	TO-15	4.7 "Hg	14.9 psi
03A	SVMP-14-2(112117)	TO-15	0.8 "Hg	15.1 psi
04A	SVMP-13-2(112117)	TO-15	3.7 "Hg	15 psi
05A	SVMP-12-3.5(112117)	TO-15	4.1 "Hg	15.3 psi
06A	SVMP-10-3(112117)	TO-15	2.6 "Hg	14.8 psi
07A	SVMP-26-4(112117)	TO-15	2.8 "Hg	15.2 psi
08A	SVMP-27-4.5(112117)	TO-15	2.4 "Hg	15 psi
09A	SVMP-28-3(112117)	TO-15	4.1 "Hg	15 psi
10A	SVMP-15-2(112017)	TO-15	2.8 "Hg	15.1 psi
11A	Lab Blank	TO-15	NA	NA
12A	CCV	TO-15	NA	NA
13A	LCS	TO-15	NA	NA
13AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 12/02/17

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.

Eurofins Air Toxics Inc. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

**LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1711414**

Nine 1 Liter Summa Canister samples were received on November 22, 2017. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

The Chain of Custody (COC) information for samples SVMP-25S-3(112117) and SVMP-25D-6(112117) did not match the entries on the sample tags with regard to sample identification. Therefore the information on the COC was used to process and report the samples.

The number of samples received did not match the information on the Chain of Custody (COC). Sample SVMP-15-2(112017) was added to the analytical request.

Sample identification for sample SVMP-28-3(112117) was not provided on the sample tag. Therefore the information on the Chain of Custody was used to process and report the sample.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

**Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN**

Client Sample ID: SVMP-25S-3(112117)

Lab ID#: 1711414-01A

No Detections Were Found.

Client Sample ID: SVMP-25D-6(112117)

Lab ID#: 1711414-02A

No Detections Were Found.

Client Sample ID: SVMP-14-2(112117)

Lab ID#: 1711414-03A

No Detections Were Found.

Client Sample ID: SVMP-13-2(112117)

Lab ID#: 1711414-04A

No Detections Were Found.

Client Sample ID: SVMP-12-3.5(112117)

Lab ID#: 1711414-05A

No Detections Were Found.

Client Sample ID: SVMP-10-3(112117)

Lab ID#: 1711414-06A

No Detections Were Found.

Client Sample ID: SVMP-26-4(112117)

Lab ID#: 1711414-07A

No Detections Were Found.

Client Sample ID: SVMP-27-4.5(112117)

Lab ID#: 1711414-08A

No Detections Were Found.

Client Sample ID: SVMP-28-3(112117)

Lab ID#: 1711414-09A

**Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN**

Client Sample ID: SVMP-28-3(112117)

Lab ID#: 1711414-09A

No Detections Were Found.

Client Sample ID: SVMP-15-2(112017)

Lab ID#: 1711414-10A

No Detections Were Found.



Air Toxics

Client Sample ID: SVMP-25S-3(112117)

Lab ID#: 1711414-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3112810	Date of Collection:	11/21/17 8:55:00 AM
Dil. Factor:	2.28	Date of Analysis:	11/28/17 03:42 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.5	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Trichloroethene	1.1	Not Detected	6.1	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Tetrachloroethene	1.1	Not Detected	7.7	Not Detected
1,4-Dioxane	4.6	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	90	70-130
1,2-Dichloroethane-d4	87	70-130
4-Bromofluorobenzene	101	70-130



Air Toxics

Client Sample ID: SVMP-25D-6(112117)

Lab ID#: 1711414-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3112811	Date of Collection:	11/21/17 9:50:00 AM
Dil. Factor:	2.39	Date of Analysis:	11/28/17 04:08 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.1	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	94	70-130
1,2-Dichloroethane-d4	91	70-130
4-Bromofluorobenzene	101	70-130



Air Toxics

Client Sample ID: SVMP-14-2(112117)

Lab ID#: 1711414-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3112812	Date of Collection:	11/21/17 9:02:00 AM
Dil. Factor:	2.08	Date of Analysis:	11/28/17 04:34 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.0	Not Detected	2.6	Not Detected
1,1-Dichloroethene	1.0	Not Detected	4.1	Not Detected
cis-1,2-Dichloroethene	1.0	Not Detected	4.1	Not Detected
Trichloroethene	1.0	Not Detected	5.6	Not Detected
trans-1,2-Dichloroethene	1.0	Not Detected	4.1	Not Detected
Tetrachloroethene	1.0	Not Detected	7.0	Not Detected
1,4-Dioxane	4.2	Not Detected	15	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	94	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	108	70-130



Air Toxics

Client Sample ID: SVMP-13-2(112117)

Lab ID#: 1711414-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3112813	Date of Collection:	11/21/17 10:30:00 A
Dil. Factor:	2.30	Date of Analysis:	11/28/17 05:00 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Trichloroethene	1.2	Not Detected	6.2	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrachloroethene	1.2	Not Detected	7.8	Not Detected
1,4-Dioxane	4.6	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	88	70-130
4-Bromofluorobenzene	99	70-130



Air Toxics

Client Sample ID: SVMP-12-3.5(112117)

Lab ID#: 1711414-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3112814	Date of Collection:	11/21/17 1:34:00 PM
Dil. Factor:	2.36	Date of Analysis:	11/28/17 05:27 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.0	Not Detected
1,4-Dioxane	4.7	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	85	70-130
4-Bromofluorobenzene	96	70-130



Air Toxics

Client Sample ID: SVMP-10-3(112117)

Lab ID#: 1711414-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3112815	Date of Collection:	11/21/17 11:45:00 A
Dil. Factor:	2.20	Date of Analysis:	11/28/17 05:53 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.8	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Trichloroethene	1.1	Not Detected	5.9	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrachloroethene	1.1	Not Detected	7.5	Not Detected
1,4-Dioxane	4.4	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	87	70-130
4-Bromofluorobenzene	100	70-130



Air Toxics

Client Sample ID: SVMP-26-4(112117)

Lab ID#: 1711414-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3112816	Date of Collection:	11/21/17 11:40:00 A
Dil. Factor:	2.24	Date of Analysis:	11/28/17 06:19 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Trichloroethene	1.1	Not Detected	6.0	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrachloroethene	1.1	Not Detected	7.6	Not Detected
1,4-Dioxane	4.5	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	85	70-130
4-Bromofluorobenzene	100	70-130



Air Toxics

Client Sample ID: SVMP-27-4.5(112117)

Lab ID#: 1711414-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3112817	Date of Collection:	11/21/17 1:00:00 PM
Dil. Factor:	2.20	Date of Analysis:	11/28/17 06:45 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.8	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Trichloroethene	1.1	Not Detected	5.9	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrachloroethene	1.1	Not Detected	7.5	Not Detected
1,4-Dioxane	4.4	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	85	70-130
4-Bromofluorobenzene	94	70-130



Air Toxics

Client Sample ID: SVMP-28-3(112117)

Lab ID#: 1711414-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3112818	Date of Collection:	11/21/17 2:55:00 PM
Dil. Factor:	2.34	Date of Analysis:	11/28/17 07:12 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrachloroethene	1.2	Not Detected	7.9	Not Detected
1,4-Dioxane	4.7	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	86	70-130
4-Bromofluorobenzene	95	70-130



Air Toxics

Client Sample ID: SVMP-15-2(112017)

Lab ID#: 1711414-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3112819	Date of Collection:	11/20/17 3:11:00 PM
Dil. Factor:	2.24	Date of Analysis:	11/28/17 09:37 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Trichloroethene	1.1	Not Detected	6.0	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrachloroethene	1.1	Not Detected	7.6	Not Detected
1,4-Dioxane	4.5	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	93	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	99	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1711414-11A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3112809	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	11/28/17 02:51 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	88	70-130
4-Bromofluorobenzene	103	70-130

Client Sample ID: CCV

Lab ID#: 1711414-12A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3112802	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/28/17 10:42 AM

Compound	%Recovery
Vinyl Chloride	80
1,1-Dichloroethene	79
cis-1,2-Dichloroethene	81
Trichloroethene	99
trans-1,2-Dichloroethene	97
Tetrachloroethene	102
1,4-Dioxane	96

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	110	70-130
1,2-Dichloroethane-d4	84	70-130
4-Bromofluorobenzene	99	70-130

Client Sample ID: LCS

Lab ID#: 1711414-13A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3112803	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/28/17 11:05 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	84	70-130
1,1-Dichloroethene	81	70-130
cis-1,2-Dichloroethene	91	70-130
Trichloroethene	99	70-130
trans-1,2-Dichloroethene	84	70-130
Tetrachloroethene	100	70-130
1,4-Dioxane	95	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	80	70-130
4-Bromofluorobenzene	104	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1711414-13AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3112804	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/28/17 11:28 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	83	70-130
1,1-Dichloroethene	82	70-130
cis-1,2-Dichloroethene	89	70-130
Trichloroethene	100	70-130
trans-1,2-Dichloroethene	86	70-130
Tetrachloroethene	103	70-130
1,4-Dioxane	96	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	82	70-130
4-Bromofluorobenzene	106	70-130

3/7/2018

Mr. Gustan Taylor
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: FORD LTP
Project #: MI001386.0001.00002
Workorder #: 1802456

Dear Mr. Gustan Taylor

The following report includes the data for the above referenced project for sample(s) received on 2/22/2018 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1802456

Work Order Summary

CLIENT: Mr. Gustan Taylor
 Arcadis U.S., Inc.
 28550 Cabot Dr.
 Suite 500
 Novi, MI 48377

BILL TO: Accounts Payable
 Arcadis U.S., Inc.
 630 Plaza Drive
 Suite 600
 Highlands Ranch, CO 80129

PHONE: 248.994.2294

P.O. # MI001386.0001_AT_WA08

FAX:

PROJECT # MI001386.0001.00002 FORD LTP

DATE RECEIVED: 02/22/2018

CONTACT: Ausha Scott

DATE COMPLETED: 03/07/2018

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SVMP-2S-4.5 (021918)	TO-15	1 "Hg	15 psi
02A	SVMP-2D-8.5 (021918)	TO-15	1 "Hg	15 psi
03A	SVMP-3S-3.5 (021918)	TO-15	2 "Hg	15 psi
04A	SVMP-3D-7.0 (021918)	TO-15	4 "Hg	15 psi
05A	SVMP-08-3.5 (022018)	TO-15	4 "Hg	15 psi
06A	SVMP-09-4.0 (022018)	TO-15	5 "Hg	15 psi
07A	SVMP-10-3.0 (022018)	TO-15	4.5 "Hg	15 psi
08A	SVMP-12-3.5 (022018)	TO-15	4.5 "Hg	15 psi
09A	SVMP-22-3.0 (022018)	TO-15	4.5 "Hg	15 psi
10A	SVMP-25S-3.0 (022118)	TO-15	3 "Hg	15 psi
11A	SVMP-25D-6.0 (022118)	TO-15	3 "Hg	15 psi
12A	SVMP-26-4.0 (022118)	TO-15	2.5 "Hg	15 psi
13A	SVMP-28-3.0 (022118)	TO-15	2 "Hg	15 psi
14A	SVMP-27-4.5 (022118)	TO-15	3 "Hg	15 psi
15A	Lab Blank	TO-15	NA	NA
15B	Lab Blank	TO-15	NA	NA
16A	CCV	TO-15	NA	NA
16B	CCV	TO-15	NA	NA
17A	LCS	TO-15	NA	NA
17AA	LCS	TO-15	NA	NA
17B	LCS	TO-15	NA	NA
17BB	LCS	TO-15	NA	NA

CERTIFIED BY: 

DATE: 03/07/18

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.

Eurofins Air Toxics Inc. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1802456

Fourteen 1 Liter Summa Canister samples were received on February 22, 2018. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There was a difference (greater than or equal to 5.0" Hg) between the measured canister receipt vacuum and that which was reported on the Chain of Custody (COC) for sample SVMP-2D-8.5 (021918). A leak test indicated that the valve was functioning properly.

Analytical Notes

Dilution was performed on samples SVMP-2S-4.5 (021918) and SVMP-2D-8.5 (021918) due to the presence of high level non-target species.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

Summary of Detected Compounds EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SVMP-2S-4.5 (021918)

Lab ID#: 1802456-01A

No Detections Were Found.

Client Sample ID: SVMP-2D-8.5 (021918)

Lab ID#: 1802456-02A

No Detections Were Found.

Client Sample ID: SVMP-3S-3.5 (021918)

Lab ID#: 1802456-03A

No Detections Were Found.

Client Sample ID: SVMP-3D-7.0 (021918)

Lab ID#: 1802456-04A

No Detections Were Found.

Client Sample ID: SVMP-08-3.5 (022018)

Lab ID#: 1802456-05A

No Detections Were Found.

Client Sample ID: SVMP-09-4.0 (022018)

Lab ID#: 1802456-06A

No Detections Were Found.

Client Sample ID: SVMP-10-3.0 (022018)

Lab ID#: 1802456-07A

No Detections Were Found.

Client Sample ID: SVMP-12-3.5 (022018)

Lab ID#: 1802456-08A

No Detections Were Found.

Client Sample ID: SVMP-22-3.0 (022018)

Lab ID#: 1802456-09A

**Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN**

Client Sample ID: SVMP-22-3.0 (022018)

Lab ID#: 1802456-09A

No Detections Were Found.

Client Sample ID: SVMP-25S-3.0 (022118)

Lab ID#: 1802456-10A

No Detections Were Found.

Client Sample ID: SVMP-25D-6.0 (022118)

Lab ID#: 1802456-11A

No Detections Were Found.

Client Sample ID: SVMP-26-4.0 (022118)

Lab ID#: 1802456-12A

No Detections Were Found.

Client Sample ID: SVMP-28-3.0 (022118)

Lab ID#: 1802456-13A

No Detections Were Found.

Client Sample ID: SVMP-27-4.5 (022118)

Lab ID#: 1802456-14A

No Detections Were Found.



Air Toxics

Client Sample ID: SVMP-2S-4.5 (021918)

Lab ID#: 1802456-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17022620	Date of Collection:	2/19/18 9:45:00 AM
Dil. Factor:	4.18	Date of Analysis:	2/26/18 10:20 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	2.1	Not Detected	5.3	Not Detected
1,1-Dichloroethene	2.1	Not Detected	8.3	Not Detected
cis-1,2-Dichloroethene	2.1	Not Detected	8.3	Not Detected
Trichloroethene	2.1	Not Detected	11	Not Detected
trans-1,2-Dichloroethene	2.1	Not Detected	8.3	Not Detected
Tetrachloroethene	2.1	Not Detected	14	Not Detected
1,4-Dioxane	8.4	Not Detected	30	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	96	70-130
4-Bromofluorobenzene	84	70-130



Air Toxics

Client Sample ID: SVMP-2D-8.5 (021918)

Lab ID#: 1802456-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17022614	Date of Collection:	2/19/18 11:00:00 AM
Dil. Factor:	4.18	Date of Analysis:	2/26/18 05:37 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	2.1	Not Detected	5.3	Not Detected
1,1-Dichloroethene	2.1	Not Detected	8.3	Not Detected
cis-1,2-Dichloroethene	2.1	Not Detected	8.3	Not Detected
Trichloroethene	2.1	Not Detected	11	Not Detected
trans-1,2-Dichloroethene	2.1	Not Detected	8.3	Not Detected
Tetrachloroethene	2.1	Not Detected	14	Not Detected
1,4-Dioxane	8.4	Not Detected	30	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	89	70-130



Air Toxics

Client Sample ID: SVMP-3S-3.5 (021918)

Lab ID#: 1802456-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17022621	Date of Collection:	2/19/18 12:14:00 PM
Dil. Factor:	2.16	Date of Analysis:	2/26/18 10:49 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.8	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.3	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.3	Not Detected
Trichloroethene	1.1	Not Detected	5.8	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.3	Not Detected
Tetrachloroethene	1.1	Not Detected	7.3	Not Detected
1,4-Dioxane	4.3	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	106	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	91	70-130



Air Toxics

Client Sample ID: SVMP-3D-7.0 (021918)

Lab ID#: 1802456-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17022622	Date of Collection:	2/19/18 2:47:00 PM
Dil. Factor:	2.33	Date of Analysis:	2/26/18 11:17 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrachloroethene	1.2	Not Detected	7.9	Not Detected
1,4-Dioxane	4.7	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	106	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	91	70-130



Air Toxics

Client Sample ID: SVMP-08-3.5 (022018)

Lab ID#: 1802456-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17022623	Date of Collection:	2/20/18 9:28:00 AM	
Dil. Factor:	2.33	Date of Analysis:	2/26/18 11:46 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrachloroethene	1.2	Not Detected	7.9	Not Detected
1,4-Dioxane	4.7	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	107	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	90	70-130



Air Toxics

Client Sample ID: SVMP-09-4.0 (022018)

Lab ID#: 1802456-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022521	Date of Collection:	2/20/18 10:34:00 AM
Dil. Factor:	2.42	Date of Analysis:	2/26/18 12:10 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.5	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrachloroethene	1.2	Not Detected	8.2	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	90	70-130
4-Bromofluorobenzene	89	70-130



Air Toxics

Client Sample ID: SVMP-10-3.0 (022018)

Lab ID#: 1802456-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022520	Date of Collection:	2/20/18 11:37:00 AM
Dil. Factor:	2.38	Date of Analysis:	2/25/18 11:44 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.1	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	90	70-130
4-Bromofluorobenzene	92	70-130



Air Toxics

Client Sample ID: SVMP-12-3.5 (022018)

Lab ID#: 1802456-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022519	Date of Collection:	2/20/18 1:04:00 PM
Dil. Factor:	2.38	Date of Analysis:	2/25/18 11:17 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.1	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	90	70-130
4-Bromofluorobenzene	92	70-130



Air Toxics

Client Sample ID: SVMP-22-3.0 (022018)

Lab ID#: 1802456-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022518	Date of Collection:	2/20/18 4:14:00 PM
Dil. Factor:	2.38	Date of Analysis:	2/25/18 10:51 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.1	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	87	70-130
4-Bromofluorobenzene	92	70-130



Air Toxics

Client Sample ID: SVMP-25S-3.0 (022118)

Lab ID#: 1802456-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022517	Date of Collection:	2/21/18 9:11:00 AM
Dil. Factor:	2.24	Date of Analysis:	2/25/18 10:25 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Trichloroethene	1.1	Not Detected	6.0	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrachloroethene	1.1	Not Detected	7.6	Not Detected
1,4-Dioxane	4.5	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	92	70-130



Air Toxics

Client Sample ID: SVMP-25D-6.0 (022118)

Lab ID#: 1802456-11A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022516	Date of Collection:	2/21/18 10:05:00 AM
Dil. Factor:	2.24	Date of Analysis:	2/25/18 09:58 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Trichloroethene	1.1	Not Detected	6.0	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrachloroethene	1.1	Not Detected	7.6	Not Detected
1,4-Dioxane	4.5	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	94	70-130



Air Toxics

Client Sample ID: SVMP-26-4.0 (022118)

Lab ID#: 1802456-12A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022514	Date of Collection:	2/21/18 11:11:00 AM
Dil. Factor:	2.20	Date of Analysis:	2/25/18 08:58 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.8	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Trichloroethene	1.1	Not Detected	5.9	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrachloroethene	1.1	Not Detected	7.5	Not Detected
1,4-Dioxane	4.4	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	87	70-130
4-Bromofluorobenzene	92	70-130



Air Toxics

Client Sample ID: SVMP-28-3.0 (022118)

Lab ID#: 1802456-13A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022512	Date of Collection:	2/21/18 12:41:00 PM
Dil. Factor:	2.16	Date of Analysis:	2/25/18 07:55 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.8	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.3	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.3	Not Detected
Trichloroethene	1.1	Not Detected	5.8	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.3	Not Detected
Tetrachloroethene	1.1	Not Detected	7.3	Not Detected
1,4-Dioxane	4.3	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	92	70-130



Air Toxics

Client Sample ID: SVMP-27-4.5 (022118)

Lab ID#: 1802456-14A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022511	Date of Collection:	2/21/18 1:53:00 PM
Dil. Factor:	2.24	Date of Analysis:	2/25/18 07:29 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Trichloroethene	1.1	Not Detected	6.0	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrachloroethene	1.1	Not Detected	7.6	Not Detected
1,4-Dioxane	4.5	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	94	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1802456-15A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022507	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	2/25/18 05:05 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	90	70-130
4-Bromofluorobenzene	96	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1802456-15B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17022607	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	2/26/18 01:06 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	92	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1802456-16A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022502	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/25/18 02:33 PM

Compound	%Recovery
Vinyl Chloride	129
1,1-Dichloroethene	103
cis-1,2-Dichloroethene	93
Trichloroethene	109
trans-1,2-Dichloroethene	100
Tetrachloroethene	105
1,4-Dioxane	98

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	94	70-130
4-Bromofluorobenzene	98	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1802456-16B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17022602	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/26/18 09:07 AM

Compound	%Recovery
Vinyl Chloride	117
1,1-Dichloroethene	97
cis-1,2-Dichloroethene	101
Trichloroethene	116
trans-1,2-Dichloroethene	100
Tetrachloroethene	106
1,4-Dioxane	114

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	120	70-130
1,2-Dichloroethane-d4	107	70-130
4-Bromofluorobenzene	101	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 1802456-17A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022503	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/25/18 02:57 PM

Compound	%Recovery	Method Limits
Vinyl Chloride	127	70-130
1,1-Dichloroethene	101	70-130
cis-1,2-Dichloroethene	98	70-130
Trichloroethene	105	70-130
trans-1,2-Dichloroethene	82	70-130
Tetrachloroethene	101	70-130
1,4-Dioxane	99	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	93	70-130
4-Bromofluorobenzene	98	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1802456-17AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p022504	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/25/18 03:22 PM

Compound	%Recovery	Method Limits
Vinyl Chloride	130	70-130
1,1-Dichloroethene	103	70-130
cis-1,2-Dichloroethene	101	70-130
Trichloroethene	106	70-130
trans-1,2-Dichloroethene	85	70-130
Tetrachloroethene	102	70-130
1,4-Dioxane	100	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	94	70-130
4-Bromofluorobenzene	99	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 1802456-17B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17022603	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/26/18 09:34 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	103	70-130
1,1-Dichloroethene	91	70-130
cis-1,2-Dichloroethene	103	70-130
Trichloroethene	112	70-130
trans-1,2-Dichloroethene	82	70-130
Tetrachloroethene	104	70-130
1,4-Dioxane	108	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	111	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	105	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1802456-17BB

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17022604	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/26/18 10:00 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	107	70-130
1,1-Dichloroethene	94	70-130
cis-1,2-Dichloroethene	107	70-130
Trichloroethene	111	70-130
trans-1,2-Dichloroethene	84	70-130
Tetrachloroethene	107	70-130
1,4-Dioxane	109	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	109	70-130
1,2-Dichloroethane-d4	102	70-130
4-Bromofluorobenzene	106	70-130

6/6/2018
Mr. Gustan Taylor
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: FORD LTP
Project #: MI001454.0004.00003
Workorder #: 1806042

Dear Mr. Gustan Taylor

The following report includes the data for the above referenced project for sample(s) received on 6/1/2018 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1806042

Work Order Summary

CLIENT:	Mr. Gustan Taylor Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	248.994.2294	P.O. #	MI001386.0001_AT_WA08
FAX:		PROJECT #	MI001454.0004.00003 FORD LTP
DATE RECEIVED:	06/01/2018	CONTACT:	Ausha Scott
DATE COMPLETED:	06/06/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SVMP-25D-6(052918)	TO-15	6.1 "Hg	15.6 psi
02A	SVMP-26-4(052918)	TO-15	5.7 "Hg	14.9 psi
03A	SVMP-25S-3(052918)	TO-15	5.5 "Hg	15.3 psi
04A	SVMP-27-4.5(052918)	TO-15	6.1 "Hg	14.5 psi
05A	SVMP-28-3(052918)	TO-15	7.1 "Hg	14.8 psi
06A	SVMP-12-3.5(052918)	TO-15	5.3 "Hg	14.7 psi
07A	SVMP-08-3.5(052918)	TO-15	6.3 "Hg	14.7 psi
08A	SVMP-09-4(053018)	TO-15	4.1 "Hg	14.2 psi
09A	SVMP-07-3.5(053018)	TO-15	5.5 "Hg	15.1 psi
10A	DUP-01(052918)	TO-15	5.9 "Hg	14.4 psi
11A	SVMP-06-4.5(053018)	TO-15	4.3 "Hg	15.3 psi
12A	SVMP-05-4.5(053018)	TO-15	4.7 "Hg	14.5 psi
13A	SVMP-04-3.5(053018)	TO-15	5.5 "Hg	14.3 psi
14A	SVMP-17-2(053018)	TO-15	5.3 "Hg	14.4 psi
15A	DUP-02(053018)	TO-15	5.5 "Hg	14.9 psi
16A	Lab Blank	TO-15	NA	NA
17A	CCV	TO-15	NA	NA
18A	LCS	TO-15	NA	NA
18AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 06/06/18

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1806042

Fifteen 1 Liter Summa Canister samples were received on June 01, 2018. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

The Chain of Custody (COC) information for sample SVMP-25S-3(052918) did not match the information on the canister with regard to canister identification. The client was notified of the discrepancy and the information on the canister was used to process and report the sample.

Sample collection date was not provided on the Chain of Custody (COC) for samples DUP-02(053018). The sampling date was taken from the tag.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

Summary of Detected Compounds EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SVMP-25D-6(052918)

Lab ID#: 1806042-01A

No Detections Were Found.

Client Sample ID: SVMP-26-4(052918)

Lab ID#: 1806042-02A

No Detections Were Found.

Client Sample ID: SVMP-25S-3(052918)

Lab ID#: 1806042-03A

No Detections Were Found.

Client Sample ID: SVMP-27-4.5(052918)

Lab ID#: 1806042-04A

No Detections Were Found.

Client Sample ID: SVMP-28-3(052918)

Lab ID#: 1806042-05A

No Detections Were Found.

Client Sample ID: SVMP-12-3.5(052918)

Lab ID#: 1806042-06A

No Detections Were Found.

Client Sample ID: SVMP-08-3.5(052918)

Lab ID#: 1806042-07A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	1.3	2.0	6.8	11

Client Sample ID: SVMP-09-4(053018)

Lab ID#: 1806042-08A

No Detections Were Found.

**Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN**

Client Sample ID: SVMP-07-3.5(053018)

Lab ID#: 1806042-09A

No Detections Were Found.

Client Sample ID: DUP-01(052918)

Lab ID#: 1806042-10A

No Detections Were Found.

Client Sample ID: SVMP-06-4.5(053018)

Lab ID#: 1806042-11A

No Detections Were Found.

Client Sample ID: SVMP-05-4.5(053018)

Lab ID#: 1806042-12A

No Detections Were Found.

Client Sample ID: SVMP-04-3.5(053018)

Lab ID#: 1806042-13A

No Detections Were Found.

Client Sample ID: SVMP-17-2(053018)

Lab ID#: 1806042-14A

No Detections Were Found.

Client Sample ID: DUP-02(053018)

Lab ID#: 1806042-15A

No Detections Were Found.



Air Toxics

Client Sample ID: SVMP-25D-6(052918)

Lab ID#: 1806042-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060512	Date of Collection:	5/29/18 11:13:00 AM
Dil. Factor:	2.59	Date of Analysis:	6/5/18 03:58 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.3	Not Detected	3.3	Not Detected
1,1-Dichloroethene	1.3	Not Detected	5.1	Not Detected
cis-1,2-Dichloroethene	1.3	Not Detected	5.1	Not Detected
Trichloroethene	1.3	Not Detected	7.0	Not Detected
trans-1,2-Dichloroethene	1.3	Not Detected	5.1	Not Detected
Tetrachloroethene	1.3	Not Detected	8.8	Not Detected
1,4-Dioxane	5.2	Not Detected	19	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	93	70-130
4-Bromofluorobenzene	116	70-130



Air Toxics

Client Sample ID: SVMP-26-4(052918)

Lab ID#: 1806042-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060513	Date of Collection:	5/29/18 1:15:00 PM
Dil. Factor:	2.48	Date of Analysis:	6/5/18 04:26 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.2	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Trichloroethene	1.2	Not Detected	6.7	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Tetrachloroethene	1.2	Not Detected	8.4	Not Detected
1,4-Dioxane	5.0	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	94	70-130
4-Bromofluorobenzene	113	70-130



Client Sample ID: SVMP-25S-3(052918)

Lab ID#: 1806042-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060514	Date of Collection:	5/29/18 11:50:00 AM
Dil. Factor:	2.50	Date of Analysis:	6/5/18 04:55 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.2	Not Detected
1,1-Dichloroethene	1.2	Not Detected	5.0	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	5.0	Not Detected
Trichloroethene	1.2	Not Detected	6.7	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	5.0	Not Detected
Tetrachloroethene	1.2	Not Detected	8.5	Not Detected
1,4-Dioxane	5.0	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	95	70-130
4-Bromofluorobenzene	114	70-130



Air Toxics

Client Sample ID: SVMP-27-4.5(052918)

Lab ID#: 1806042-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060517	Date of Collection:	5/29/18 2:11:00 PM
Dil. Factor:	2.49	Date of Analysis:	6/5/18 06:20 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.2	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Trichloroethene	1.2	Not Detected	6.7	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Tetrachloroethene	1.2	Not Detected	8.4	Not Detected
1,4-Dioxane	5.0	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	96	70-130
1,2-Dichloroethane-d4	93	70-130
4-Bromofluorobenzene	126	70-130



Air Toxics

Client Sample ID: SVMP-28-3(052918)

Lab ID#: 1806042-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060516	Date of Collection:	5/29/18 3:03:00 PM
Dil. Factor:	2.63	Date of Analysis:	6/5/18 05:51 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.3	Not Detected	3.4	Not Detected
1,1-Dichloroethene	1.3	Not Detected	5.2	Not Detected
cis-1,2-Dichloroethene	1.3	Not Detected	5.2	Not Detected
Trichloroethene	1.3	Not Detected	7.1	Not Detected
trans-1,2-Dichloroethene	1.3	Not Detected	5.2	Not Detected
Tetrachloroethene	1.3	Not Detected	8.9	Not Detected
1,4-Dioxane	5.3	Not Detected	19	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	111	70-130
1,2-Dichloroethane-d4	93	70-130
4-Bromofluorobenzene	112	70-130



Air Toxics

Client Sample ID: SVMP-12-3.5(052918)

Lab ID#: 1806042-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060515	Date of Collection:	5/29/18 3:55:00 PM
Dil. Factor:	2.43	Date of Analysis:	6/5/18 05:23 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.5	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrachloroethene	1.2	Not Detected	8.2	Not Detected
1,4-Dioxane	4.9	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	92	70-130
1,2-Dichloroethane-d4	91	70-130
4-Bromofluorobenzene	115	70-130



Air Toxics

Client Sample ID: SVMP-08-3.5(052918)

Lab ID#: 1806042-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060518	Date of Collection:	5/29/18 4:36:00 PM
Dil. Factor:	2.53	Date of Analysis:	6/5/18 08:53 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.3	Not Detected	3.2	Not Detected
1,1-Dichloroethene	1.3	Not Detected	5.0	Not Detected
cis-1,2-Dichloroethene	1.3	Not Detected	5.0	Not Detected
Trichloroethene	1.3	2.0	6.8	11
trans-1,2-Dichloroethene	1.3	Not Detected	5.0	Not Detected
Tetrachloroethene	1.3	Not Detected	8.6	Not Detected
1,4-Dioxane	5.1	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	94	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	115	70-130



Air Toxics

Client Sample ID: SVMP-09-4(053018)

Lab ID#: 1806042-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060521	Date of Collection:	5/30/18 6:43:00 AM
Dil. Factor:	2.28	Date of Analysis:	6/5/18 10:18 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.5	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Trichloroethene	1.1	Not Detected	6.1	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Tetrachloroethene	1.1	Not Detected	7.7	Not Detected
1,4-Dioxane	4.6	Not Detected	16	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	94	70-130
4-Bromofluorobenzene	114	70-130



Air Toxics

Client Sample ID: SVMP-07-3.5(053018)

Lab ID#: 1806042-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060522	Date of Collection:	5/30/18 8:03:00 AM
Dil. Factor:	2.48	Date of Analysis:	6/5/18 10:46 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.2	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Trichloroethene	1.2	Not Detected	6.7	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Tetrachloroethene	1.2	Not Detected	8.4	Not Detected
1,4-Dioxane	5.0	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	94	70-130
4-Bromofluorobenzene	113	70-130



Air Toxics

Client Sample ID: DUP-01(052918)

Lab ID#: 1806042-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060519	Date of Collection:	5/29/18
Dil. Factor:	2.46	Date of Analysis:	6/5/18 09:21 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Trichloroethene	1.2	Not Detected	6.6	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Tetrachloroethene	1.2	Not Detected	8.3	Not Detected
1,4-Dioxane	4.9	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	114	70-130



Air Toxics

Client Sample ID: SVMP-06-4.5(053018)

Lab ID#: 1806042-11A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060523	Date of Collection:	5/30/18 9:03:00 AM
Dil. Factor:	2.38	Date of Analysis:	6/5/18 11:14 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.1	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	93	70-130
4-Bromofluorobenzene	114	70-130



Air Toxics

Client Sample ID: SVMP-05-4.5(053018)

Lab ID#: 1806042-12A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060524	Date of Collection:	5/30/18 9:53:00 AM
Dil. Factor:	2.36	Date of Analysis:	6/5/18 11:42 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.0	Not Detected
1,4-Dioxane	4.7	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	93	70-130
4-Bromofluorobenzene	113	70-130



Client Sample ID: SVMP-04-3.5(053018)

Lab ID#: 1806042-13A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060520	Date of Collection: 5/30/18 11:38:00 AM
Dil. Factor:	2.42	Date of Analysis: 6/5/18 09:49 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.5	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrachloroethene	1.2	Not Detected	8.2	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	114	70-130



Air Toxics

Client Sample ID: SVMP-17-2(053018)

Lab ID#: 1806042-14A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060525	Date of Collection:	5/30/18 2:28:00 PM
Dil. Factor:	2.40	Date of Analysis:	6/6/18 12:11 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrachloroethene	1.2	Not Detected	8.1	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	117	70-130



Air Toxics

Client Sample ID: DUP-02(053018)

Lab ID#: 1806042-15A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060526	Date of Collection:	5/30/18
Dil. Factor:	2.46	Date of Analysis:	6/6/18 12:39 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Trichloroethene	1.2	Not Detected	6.6	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Tetrachloroethene	1.2	Not Detected	8.3	Not Detected
1,4-Dioxane	4.9	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	110	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1806042-16A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060511	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	6/5/18 02:43 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	91	70-130
4-Bromofluorobenzene	110	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1806042-17A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060508	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/5/18 01:21 PM

Compound	%Recovery
Vinyl Chloride	74
1,1-Dichloroethene	91
cis-1,2-Dichloroethene	98
Trichloroethene	97
trans-1,2-Dichloroethene	96
Tetrachloroethene	110
1,4-Dioxane	95

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	96	70-130
4-Bromofluorobenzene	113	70-130

Client Sample ID: LCS

Lab ID#: 1806042-18A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060509	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/5/18 01:48 PM

Compound	%Recovery	Method Limits
Vinyl Chloride	77	70-130
1,1-Dichloroethene	91	70-130
cis-1,2-Dichloroethene	88	70-130
Trichloroethene	102	70-130
trans-1,2-Dichloroethene	104	70-130
Tetrachloroethene	110	70-130
1,4-Dioxane	106	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	94	70-130
4-Bromofluorobenzene	113	70-130

Client Sample ID: LCSD

Lab ID#: 1806042-18AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17060510	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/5/18 02:15 PM

Compound	%Recovery	Method Limits
Vinyl Chloride	77	70-130
1,1-Dichloroethene	92	70-130
cis-1,2-Dichloroethene	86	70-130
Trichloroethene	98	70-130
trans-1,2-Dichloroethene	102	70-130
Tetrachloroethene	114	70-130
1,4-Dioxane	101	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	114	70-130

[REDACTED]

9/4/2018

Mr. Gustan Taylor
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: FORD LTP
Project #: MI001454.0004.00003
Workorder #: 1808628

Dear Mr. Gustan Taylor

The following report includes the data for the above referenced project for sample(s) received on 8/27/2018 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

[REDACTED]


Ausha Scott
Project Manager

WORK ORDER #: 1808628

Work Order Summary

CLIENT:	Mr. Gustan Taylor Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	248.994.2294	P.O. #	MI001454.0004.0001B
FAX:		PROJECT #	MI001454.0004.00003 FORD LTP
DATE RECEIVED:	08/27/2018	CONTACT:	Ausha Scott
DATE COMPLETED:	09/04/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SVMP-26-4(082318)	TO-15	3.9 "Hg	15.4 psi
02A	SVMP-27-4.5(082318)	TO-15	6.3 "Hg	14.4 psi
03A	SVMP-28-3.0(082318)	TO-15	4.7 "Hg	14.6 psi
04A	SVMP-12.3.5(082318)	TO-15	4.7 "Hg	14.7 psi
05A	DUP-02(082318)	TO-15	4.1 "Hg	14.9 psi
06A	Lab Blank	TO-15	NA	NA
06B	Lab Blank	TO-15	NA	NA
07A	CCV	TO-15	NA	NA
07B	CCV	TO-15	NA	NA
08A	LCS	TO-15	NA	NA
08AA	LCSD	TO-15	NA	NA
08B	LCS	TO-15	NA	NA
08BB	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 09/04/18

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1808628

Five 1 Liter Summa Canister samples were received on August 27, 2018. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

**Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN**

Client Sample ID: SVMP-26-4(082318)

Lab ID#: 1808628-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	1.2	3.4	4.6	14
Trichloroethene	1.2	4.4	6.3	24

Client Sample ID: SVMP-27-4.5(082318)

Lab ID#: 1808628-02A

No Detections Were Found.

Client Sample ID: SVMP-28-3.0(082318)

Lab ID#: 1808628-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	1.2	1.3	8.0	8.9

Client Sample ID: SVMP-12.3.5(082318)

Lab ID#: 1808628-04A

No Detections Were Found.

Client Sample ID: DUP-02(082318)

Lab ID#: 1808628-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	1.2	1.7	7.9	12

Client Sample ID: SVMP-26-4(082318)

Lab ID#: 1808628-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3083010	Date of Collection: 8/23/18 10:55:00 AM
Dil. Factor:	2.35	Date of Analysis: 8/30/18 08:28 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	3.4	4.6	14
Trichloroethene	1.2	4.4	6.3	24
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrachloroethene	1.2	Not Detected	8.0	Not Detected
1,4-Dioxane	4.7	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	102	70-130
4-Bromofluorobenzene	104	70-130



Air Toxics

Client Sample ID: SVMP-27-4.5(082318)

Lab ID#: 1808628-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3082924	Date of Collection:	8/23/18 11:49:00 AM
Dil. Factor:	2.50	Date of Analysis:	8/30/18 01:47 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.2	Not Detected
1,1-Dichloroethene	1.2	Not Detected	5.0	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	5.0	Not Detected
Trichloroethene	1.2	Not Detected	6.7	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	5.0	Not Detected
Tetrachloroethene	1.2	Not Detected	8.5	Not Detected
1,4-Dioxane	5.0	Not Detected	18	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	103	70-130

Client Sample ID: SVMP-28-3.0(082318)

Lab ID#: 1808628-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3082925	Date of Collection:	8/23/18 1:27:00 PM
Dil. Factor:	2.36	Date of Analysis:	8/30/18 02:14 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	1.3	8.0	8.9
1,4-Dioxane	4.7	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	103	70-130



Air Toxics

Client Sample ID: SVMP-12.3.5(082318)

Lab ID#: 1808628-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3082926	Date of Collection:	8/23/18 3:22:00 PM
Dil. Factor:	2.37	Date of Analysis:	8/30/18 02:40 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.0	Not Detected
1,4-Dioxane	4.7	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	104	70-130



Air Toxics

Client Sample ID: DUP-02(082318)

Lab ID#: 1808628-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3083011	Date of Collection: 8/23/18
Dil. Factor:	2.33	Date of Analysis: 8/30/18 08:54 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrachloroethene	1.2	1.7	7.9	12
1,4-Dioxane	4.7	Not Detected	17	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	102	70-130
4-Bromofluorobenzene	105	70-130

Client Sample ID: Lab Blank

Lab ID#: 1808628-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3082906	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/29/18 11:44 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	106	70-130
4-Bromofluorobenzene	97	70-130



Client Sample ID: Lab Blank

Lab ID#: 1808628-06B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3083008	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/30/18 05:43 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	95	70-130
4-Bromofluorobenzene	99	70-130

Client Sample ID: CCV

Lab ID#: 1808628-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3082902	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/29/18 09:50 AM

Compound	%Recovery
Vinyl Chloride	98
1,1-Dichloroethene	98
cis-1,2-Dichloroethene	103
Trichloroethene	104
trans-1,2-Dichloroethene	102
Tetrachloroethene	101
1,4-Dioxane	100

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	103	70-130
4-Bromofluorobenzene	103	70-130

Client Sample ID: CCV

Lab ID#: 1808628-07B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3083002	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/30/18 12:27 PM

Compound	%Recovery
Vinyl Chloride	102
1,1-Dichloroethene	100
cis-1,2-Dichloroethene	103
Trichloroethene	104
trans-1,2-Dichloroethene	103
Tetrachloroethene	99
1,4-Dioxane	103

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	101	70-130

Client Sample ID: LCS

Lab ID#: 1808628-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3082903	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/29/18 10:15 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	99	70-130
1,1-Dichloroethene	93	70-130
cis-1,2-Dichloroethene	90	70-130
Trichloroethene	101	70-130
trans-1,2-Dichloroethene	105	70-130
Tetrachloroethene	97	70-130
1,4-Dioxane	99	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	104	70-130
4-Bromofluorobenzene	102	70-130

Client Sample ID: LCSD

Lab ID#: 1808628-08AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3082904	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/29/18 10:40 AM

Compound	%Recovery	Method Limits
Vinyl Chloride	98	70-130
1,1-Dichloroethene	95	70-130
cis-1,2-Dichloroethene	87	70-130
Trichloroethene	104	70-130
trans-1,2-Dichloroethene	108	70-130
Tetrachloroethene	98	70-130
1,4-Dioxane	102	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	102	70-130

Client Sample ID: LCS

Lab ID#: 1808628-08B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3083003	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/30/18 12:52 PM

Compound	%Recovery	Method Limits
Vinyl Chloride	98	70-130
1,1-Dichloroethene	97	70-130
cis-1,2-Dichloroethene	92	70-130
Trichloroethene	105	70-130
trans-1,2-Dichloroethene	111	70-130
Tetrachloroethene	99	70-130
1,4-Dioxane	102	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	102	70-130
4-Bromofluorobenzene	102	70-130

Client Sample ID: LCSD

Lab ID#: 1808628-08BB

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3083004	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/30/18 01:17 PM

Compound	%Recovery	Method Limits
Vinyl Chloride	101	70-130
1,1-Dichloroethene	98	70-130
cis-1,2-Dichloroethene	94	70-130
Trichloroethene	101	70-130
trans-1,2-Dichloroethene	114	70-130
Tetrachloroethene	98	70-130
1,4-Dioxane	100	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	102	70-130

11/15/2018
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #: MI001454.0004.00003
Workorder #: 1811197

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 11/9/2018 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1811197

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0004.0001B
FAX:		PROJECT #	MI001454.0004.00003 Ford LTP
DATE RECEIVED:	11/09/2018	CONTACT:	Ausha Scott
DATE COMPLETED:	11/15/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SVMP-22-3(110518)	TO-15	4.7 "Hg	14.9 psi
02A	SVMP-23-3(110518)	TO-15	3.1 "Hg	15.2 psi
03A	SVMP-24-4(110518)	TO-15	3.9 "Hg	14.6 psi
04A	SVMP-07-3.5(110518)	TO-15	4.3 "Hg	15.5 psi
05A	SVMP-06-4.5(110518)	TO-15	3.1 "Hg	14.8 psi
06A	SVMP-05-4.5(110518)	TO-15	3.7 "Hg	14.9 psi
07A	SVMP-04-3.5(110518)	TO-15	6.1 "Hg	15.3 psi
08A	SVMP-08-3.5(110518)	TO-15	4.3 "Hg	14.8 psi
09A	SVMP-09-4(110518)	TO-15	2.8 "Hg	14.7 psi
10A	SVMP-10-3(110518)	TO-15	4.7 "Hg	14.8 psi
11A	SVMP-25D-6(110618)	TO-15	4.5 "Hg	15 psi
12A	SVMP-25S-3(110618)	TO-15	3.9 "Hg	14.9 psi
13A	SVMP-26-4(110618)	TO-15	5.9 "Hg	14.7 psi
14A	SVMP-27-4.5(110618)	TO-15	3.3 "Hg	14.8 psi
15A	SVMP-28-3(110618)	TO-15	4.5 "Hg	15 psi
16A	DUP-01(110618)	TO-15	2.8 "Hg	15.1 psi
17A	Lab Blank	TO-15	NA	NA
18A	CCV	TO-15	NA	NA
19A	LCS	TO-15	NA	NA
19AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 11/15/18

Certification numbers: AZ Licensure AZ0775, FL NELAP - E8 , LA NELAP - 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP CA009332018-10, VA NELAP - 9505, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005-011, Effective date: 10/18/2018, Expiration date: 10/17/2019.

Eurofins Air Toxics LLC. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1811197

Sixteen 1 Liter Summa Canister samples were received on November 09, 2018. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified (0.2 ppbv for compounds reported at 0.5 ppbv and 0.8 ppbv for compounds reported at 2.0 ppbv) may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-22-3(110518)	Date/Time Analyzed:	11/14/18 07:48 PM
Lab ID:	1811197-01A	Dilution Factor:	2.39
Date/Time Collected:	11/5/18 08:50 AM	Instrument/Filename:	msda.i / a111406
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.8	4.7	Not Detected
1,4-Dioxane	123-91-1	3.4	8.6	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.8	4.7	Not Detected
Tetrachloroethene	127-18-4	1.4	6.5	8.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.3	3.8	4.7	Not Detected
Trichloroethene	79-01-6	2.0	5.1	6.4	Not Detected
Vinyl Chloride	75-01-4	1.2	2.4	3.0	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-23-3(110518)	Date/Time Analyzed:	11/14/18 08:14 PM
Lab ID:	1811197-02A	Dilution Factor:	2.27
Date/Time Collected:	11/5/18 09:30 AM	Instrument/Filename:	msda.i / a111407
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.6	4.5	Not Detected
1,4-Dioxane	123-91-1	3.3	8.2	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.6	4.5	Not Detected
Tetrachloroethene	127-18-4	1.4	6.2	7.7	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.3	3.6	4.5	Not Detected
Trichloroethene	79-01-6	2.0	4.9	6.1	Not Detected
Vinyl Chloride	75-01-4	1.1	2.3	2.9	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP



Client ID:	SVMP-24-4(110518)	Date/Time Analyzed:	11/14/18 08:41 PM
Lab ID:	1811197-03A	Dilution Factor:	2.29
Date/Time Collected:	11/5/18 10:19 AM	Instrument/Filename:	msda.i / a111408
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.6	4.5	Not Detected
1,4-Dioxane	123-91-1	3.3	8.2	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.6	4.5	Not Detected
Tetrachloroethene	127-18-4	1.4	6.2	7.8	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.3	3.6	4.5	Not Detected
Trichloroethene	79-01-6	2.0	4.9	6.2	Not Detected
Vinyl Chloride	75-01-4	1.1	2.3	2.9	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-07-3.5(110518)	Date/Time Analyzed:	11/14/18 09:07 PM
Lab ID:	1811197-04A	Dilution Factor:	2.40
Date/Time Collected:	11/5/18 10:58 AM	Instrument/Filename:	msda.i / a111409
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.8	4.8	Not Detected
1,4-Dioxane	123-91-1	3.4	8.6	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.8	4.8	Not Detected
Tetrachloroethene	127-18-4	1.5	6.5	8.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.3	3.8	4.8	Not Detected
Trichloroethene	79-01-6	2.1	5.2	6.4	Not Detected
Vinyl Chloride	75-01-4	1.2	2.4	3.1	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-06-4.5(110518)	Date/Time Analyzed:	11/14/18 09:33 PM
Lab ID:	1811197-05A	Dilution Factor:	2.24
Date/Time Collected:	11/5/18 11:38 AM	Instrument/Filename:	msda.i / a111410
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.6	4.4	Not Detected
1,4-Dioxane	123-91-1	3.2	8.1	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.6	4.4	Not Detected
Tetrachloroethene	127-18-4	1.4	6.1	7.6	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.2	3.6	4.4	Not Detected
Trichloroethene	79-01-6	1.9	4.8	6.0	Not Detected
Vinyl Chloride	75-01-4	1.1	2.3	2.9	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-05-4.5(110518)	Date/Time Analyzed:	11/14/18 11:41 PM
Lab ID:	1811197-06A	Dilution Factor:	2.30
Date/Time Collected:	11/5/18 12:18 PM	Instrument/Filename:	msda.i / a111411
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.6	4.6	Not Detected
1,4-Dioxane	123-91-1	3.3	8.3	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.6	4.6	Not Detected
Tetrachloroethene	127-18-4	1.4	6.2	7.8	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.3	3.6	4.6	Not Detected
Trichloroethene	79-01-6	2.0	4.9	6.2	Not Detected
Vinyl Chloride	75-01-4	1.1	2.4	2.9	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-04-3.5(110518)	Date/Time Analyzed:	11/15/18 12:08 AM
Lab ID:	1811197-07A	Dilution Factor:	2.56
Date/Time Collected:	11/5/18 01:54 PM	Instrument/Filename:	msda.i / a111412
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.9	4.1	5.1	Not Detected
1,4-Dioxane	123-91-1	3.7	9.2	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.5	4.0	5.1	Not Detected
Tetrachloroethene	127-18-4	1.6	6.9	8.7	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.4	4.0	5.1	Not Detected
Trichloroethene	79-01-6	2.2	5.5	6.9	Not Detected
Vinyl Chloride	75-01-4	1.2	2.6	3.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-08-3.5(110518)	Date/Time Analyzed:	11/15/18 12:40 AM
Lab ID:	1811197-08A	Dilution Factor:	2.34
Date/Time Collected:	11/5/18 02:35 PM	Instrument/Filename:	msda.i / a111413
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.7	4.6	Not Detected
1,4-Dioxane	123-91-1	3.4	8.4	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.7	4.6	Not Detected
Tetrachloroethene	127-18-4	1.4	6.3	7.9	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.3	3.7	4.6	Not Detected
Trichloroethene	79-01-6	2.0	5.0	6.3	Not Detected
Vinyl Chloride	75-01-4	1.1	2.4	3.0	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-09-4(110518)	Date/Time Analyzed:	11/15/18 01:07 AM
Lab ID:	1811197-09A	Dilution Factor:	2.20
Date/Time Collected:	11/5/18 03:02 PM	Instrument/Filename:	msda.i / a111414
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.6	3.5	4.4	Not Detected
1,4-Dioxane	123-91-1	3.2	7.9	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.5	4.4	Not Detected
Tetrachloroethene	127-18-4	1.3	6.0	7.5	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.2	3.5	4.4	Not Detected
Trichloroethene	79-01-6	1.9	4.7	5.9	Not Detected
Vinyl Chloride	75-01-4	1.1	2.2	2.8	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-10-3(110518)	Date/Time Analyzed:	11/15/18 01:43 AM
Lab ID:	1811197-10A	Dilution Factor:	2.38
Date/Time Collected:	11/5/18 03:45 PM	Instrument/Filename:	msda.i / a111415
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.8	4.7	Not Detected
1,4-Dioxane	123-91-1	3.4	8.6	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.8	4.7	Not Detected
Tetrachloroethene	127-18-4	1.4	6.4	8.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.3	3.8	4.7	Not Detected
Trichloroethene	79-01-6	2.0	5.1	6.4	Not Detected
Vinyl Chloride	75-01-4	1.2	2.4	3.0	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-25D-6(110618)	Date/Time Analyzed:	11/15/18 02:36 AM
Lab ID:	1811197-11A	Dilution Factor:	2.38
Date/Time Collected:	11/6/18 08:50 AM	Instrument/Filename:	msda.i / a111417
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.8	4.7	Not Detected
1,4-Dioxane	123-91-1	3.4	8.6	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.8	4.7	Not Detected
Tetrachloroethene	127-18-4	1.4	6.4	8.1	2.5 J
trans-1,2-Dichloroethene	156-60-5	1.3	3.8	4.7	Not Detected
Trichloroethene	79-01-6	2.0	5.1	6.4	Not Detected
Vinyl Chloride	75-01-4	1.2	2.4	3.0	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-25S-3(110618)	Date/Time Analyzed:	11/15/18 03:03 AM
Lab ID:	1811197-12A	Dilution Factor:	2.31
Date/Time Collected:	11/6/18 08:57 AM	Instrument/Filename:	msda.i / a111418
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.7	4.6	Not Detected
1,4-Dioxane	123-91-1	3.3	8.3	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.7	4.6	Not Detected
Tetrachloroethene	127-18-4	1.4	6.3	7.8	1.6 J
trans-1,2-Dichloroethene	156-60-5	1.3	3.7	4.6	Not Detected
Trichloroethene	79-01-6	2.0	5.0	6.2	Not Detected
Vinyl Chloride	75-01-4	1.1	2.4	3.0	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-26-4(110618)	Date/Time Analyzed:	11/15/18 03:29 AM
Lab ID:	1811197-13A	Dilution Factor:	2.49
Date/Time Collected:	11/6/18 09:37 AM	Instrument/Filename:	msda.i / a111419
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.9	3.9	4.9	Not Detected
1,4-Dioxane	123-91-1	3.6	9.0	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.5	3.9	4.9	Not Detected
Tetrachloroethene	127-18-4	1.5	6.8	8.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.4	3.9	4.9	Not Detected
Trichloroethene	79-01-6	2.1	5.4	6.7	Not Detected
Vinyl Chloride	75-01-4	1.2	2.5	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	103

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-27-4.5(110618)	Date/Time Analyzed:	11/15/18 03:55 AM
Lab ID:	1811197-14A	Dilution Factor:	2.25
Date/Time Collected:	11/6/18 10:28 AM	Instrument/Filename:	msda.i / a111420
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.6	4.5	Not Detected
1,4-Dioxane	123-91-1	3.2	8.1	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.6	4.5	Not Detected
Tetrachloroethene	127-18-4	1.4	6.1	7.6	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.2	3.6	4.5	Not Detected
Trichloroethene	79-01-6	1.9	4.8	6.0	Not Detected
Vinyl Chloride	75-01-4	1.1	2.3	2.9	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	108
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-28-3(110618)	Date/Time Analyzed:	11/15/18 04:22 AM
Lab ID:	1811197-15A	Dilution Factor:	2.38
Date/Time Collected:	11/6/18 12:38 PM	Instrument/Filename:	msda.i / a111421
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	3.8	4.7	Not Detected
1,4-Dioxane	123-91-1	3.4	8.6	17	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.8	4.7	Not Detected
Tetrachloroethene	127-18-4	1.4	6.4	8.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.3	3.8	4.7	Not Detected
Trichloroethene	79-01-6	2.0	5.1	6.4	Not Detected
Vinyl Chloride	75-01-4	1.2	2.4	3.0	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	DUP-01(110618)	Date/Time Analyzed:	11/15/18 02:10 AM
Lab ID:	1811197-16A	Dilution Factor:	2.24
Date/Time Collected:	11/6/18 12:00 AM	Instrument/Filename:	msda.i / a111416
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.7	3.6	4.4	Not Detected
1,4-Dioxane	123-91-1	3.2	8.1	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.3	3.6	4.4	Not Detected
Tetrachloroethene	127-18-4	1.4	6.1	7.6	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.2	3.6	4.4	Not Detected
Trichloroethene	79-01-6	1.9	4.8	6.0	Not Detected
Vinyl Chloride	75-01-4	1.1	2.3	2.9	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	11/14/18 06:40 PM
Lab ID:	1811197-17A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a111405
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.75	1.6	2.0	Not Detected
1,4-Dioxane	123-91-1	1.4	3.6	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.59	1.6	2.0	Not Detected
Tetrachloroethene	127-18-4	0.61	2.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.56	1.6	2.0	Not Detected
Trichloroethene	79-01-6	0.86	2.1	2.7	Not Detected
Vinyl Chloride	75-01-4	0.48	1.0	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	11/14/18 05:09 PM
Lab ID:	1811197-18A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a111402
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	112
1,4-Dioxane	123-91-1	92
cis-1,2-Dichloroethene	156-59-2	110
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	110
Trichloroethene	79-01-6	97
Vinyl Chloride	75-01-4	113

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	105

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	11/14/18 05:36 PM
Lab ID:	1811197-19A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a111403
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	103
1,4-Dioxane	123-91-1	92
cis-1,2-Dichloroethene	156-59-2	98
Tetrachloroethene	127-18-4	100
trans-1,2-Dichloroethene	156-60-5	113
Trichloroethene	79-01-6	100
Vinyl Chloride	75-01-4	105

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	101

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	11/14/18 06:02 PM
Lab ID:	1811197-19AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a111404
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	102
1,4-Dioxane	123-91-1	91
cis-1,2-Dichloroethene	156-59-2	97
Tetrachloroethene	127-18-4	98
trans-1,2-Dichloroethene	156-60-5	114
Trichloroethene	79-01-6	100
Vinyl Chloride	75-01-4	107

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	100

* % Recovery is calculated using unrounded analytical results.

4/2/2019

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #: MI001454.0006
Workorder #: 1903632

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 3/26/2019 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1903632

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0004.0001B
FAX:		PROJECT #	MI001454.0006 Ford LTP
DATE RECEIVED:	03/26/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	04/02/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SVMP-05-4.5_032119	TO-15	5.5 "Hg	15.5 psi
02A	SVMP-27-4.5_032119	TO-15	5.5 "Hg	15.4 psi
03A	SVMP-28-3_032119	TO-15	5.3 "Hg	15.6 psi
04A	Lab Blank	TO-15	NA	NA
05A	CCV	TO-15	NA	NA
06A	LCS	TO-15	NA	NA
06AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 04/02/19

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.
 180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1903632

Three 1 Liter Summa Canister (100% Certified) samples were received on March 26, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified (0.2 ppbv for compounds reported at 0.5 ppbv and 0.8 ppbv for compounds reported at 2.0 ppbv) may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-05-4.5_032119	Date/Time Analyzed:	3/28/19 11:35 PM
Lab ID:	1903632-01A	Dilution Factor:	2.52
Date/Time Collected:	3/21/19 12:26 PM	Instrument/Filename:	msd3.i / 3032821
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	4.0	5.0	Not Detected
1,4-Dioxane	123-91-1	1.6	9.1	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.1	4.0	5.0	Not Detected
Tetrachloroethene	127-18-4	1.7	6.8	8.5	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.5	4.0	5.0	Not Detected
Trichloroethene	79-01-6	1.1	5.4	6.8	Not Detected
Vinyl Chloride	75-01-4	1.8	2.6	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	110
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-27-4.5_032119	Date/Time Analyzed:	3/29/19 12:01 AM
Lab ID:	1903632-02A	Dilution Factor:	2.51
Date/Time Collected:	3/21/19 04:34 PM	Instrument/Filename:	msd3.i / 3032822
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	4.0	5.0	Not Detected
1,4-Dioxane	123-91-1	1.6	9.0	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.1	4.0	5.0	Not Detected
Tetrachloroethene	127-18-4	1.7	6.8	8.5	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.5	4.0	5.0	Not Detected
Trichloroethene	79-01-6	1.1	5.4	6.7	Not Detected
Vinyl Chloride	75-01-4	1.8	2.6	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	109
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	SVMP-28-3_032119	Date/Time Analyzed:	3/29/19 12:27 AM
Lab ID:	1903632-03A	Dilution Factor:	2.50
Date/Time Collected:	3/21/19 05:19 PM	Instrument/Filename:	msd3.i / 3032823
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.8	4.0	5.0	Not Detected
1,4-Dioxane	123-91-1	1.6	9.0	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.1	4.0	5.0	Not Detected
Tetrachloroethene	127-18-4	1.7	6.8	8.5	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.5	4.0	5.0	Not Detected
Trichloroethene	79-01-6	1.1	5.4	6.7	Not Detected
Vinyl Chloride	75-01-4	1.8	2.6	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	110
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	3/28/19 01:31 PM
Lab ID:	1903632-04A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3032805c
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.71	1.6	2.0	Not Detected
1,4-Dioxane	123-91-1	0.65	3.6	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.44	1.6	2.0	Not Detected
Tetrachloroethene	127-18-4	0.68	2.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.59	1.6	2.0	Not Detected
Trichloroethene	79-01-6	0.43	2.1	2.7	Not Detected
Vinyl Chloride	75-01-4	0.72	1.0	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	96

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	CCV	Date/Time Analyzed:	3/28/19 10:32 AM
Lab ID:	1903632-05A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3032802
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	108
1,4-Dioxane	123-91-1	91
cis-1,2-Dichloroethene	156-59-2	103
Tetrachloroethene	127-18-4	107
trans-1,2-Dichloroethene	156-60-5	105
Trichloroethene	79-01-6	101
Vinyl Chloride	75-01-4	103

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCS	Date/Time Analyzed:	3/28/19 11:39 AM
Lab ID:	1903632-06A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3032803
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	104
1,4-Dioxane	123-91-1	90
cis-1,2-Dichloroethene	156-59-2	111
Tetrachloroethene	127-18-4	107
trans-1,2-Dichloroethene	156-60-5	89
Trichloroethene	79-01-6	102
Vinyl Chloride	75-01-4	99

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	101

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	3/28/19 01:04 PM
Lab ID:	1903632-06AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3032804
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	105
1,4-Dioxane	123-91-1	91
cis-1,2-Dichloroethene	156-59-2	111
Tetrachloroethene	127-18-4	109
trans-1,2-Dichloroethene	156-60-5	89
Trichloroethene	79-01-6	103
Vinyl Chloride	75-01-4	106

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	98

* % Recovery is calculated using unrounded analytical results.

7/3/2019

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP

Project #:

Workorder #: 1906589

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 6/27/2019 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1906589

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0004
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	06/27/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	07/03/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SVMP-28-3.0_062419	TO-15	6.5 "Hg	15 psi
02A	SVMP-25D-6.0_062419	TO-15	5.5 "Hg	15 psi
03A	SVMP-25S-3.0_062419	TO-15	6.5 "Hg	15 psi
04A	SVMP-17-2.0_062419	TO-15	6.5 "Hg	15 psi
05A	SVMP-04-3.5_062519	TO-15	5.5 "Hg	15 psi
06A	SVMP-01D-7.0_062519	TO-15	6.0 "Hg	15 psi
07A	SVMP-01S-3.5_062519	TO-15	5.5 "Hg	15 psi
08A	SVMP-02D-8.5_062519	TO-15	7.0 "Hg	15 psi
09A	DUP-01_062419	TO-15	5.5 "Hg	15 psi
10A	DUP-02_062519	TO-15	5.5 "Hg	15 psi
11A	Lab Blank	TO-15	NA	NA
12A	CCV	TO-15	NA	NA
13A	LCS	TO-15	NA	NA
13AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 07/03/19

Certification numbers: AZ Licensure AZ0775, FL NELAP - E8 , LA NELAP - 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP CA009332018-10, VA NELAP - 9505, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005-011, Effective date: 10/18/2018, Expiration date: 10/17/2019.

Eurofins Air Toxics LLC. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1906589

Ten 1 Liter Summa Canister (100% Certified) samples were received on June 27, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

All Quality Control Limit exceedances and affected sample results are noted by flags. Each flag is defined at the bottom of this Case Narrative and on each Sample Result Summary page.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-28-3.0_062419	Date/Time Analyzed:	7/1/19 06:48 PM
Lab ID:	1906589-01A	Dilution Factor:	2.58
Date/Time Collected:	6/24/19 10:45 AM	Instrument/Filename:	msda.i / a070110
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.1	5.1	Not Detected
1,4-Dioxane	123-91-1	2.7	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	4.1	5.1	Not Detected
Tetrachloroethene	127-18-4	1.0	7.0	8.8	1.3 J
trans-1,2-Dichloroethene	156-60-5	1.9	4.1	5.1	Not Detected
Trichloroethene	79-01-6	0.69	5.5	6.9	Not Detected
Vinyl Chloride	75-01-4	0.66	2.6	3.3	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-25D-6.0_062419	Date/Time Analyzed:	7/1/19 07:15 PM
Lab ID:	1906589-02A	Dilution Factor:	2.47
Date/Time Collected:	6/24/19 01:25 PM	Instrument/Filename:	msda.i / a070111
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	3.9	4.9	Not Detected
1,4-Dioxane	123-91-1	2.6	13	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.98	3.9	4.9	Not Detected
Tetrachloroethene	127-18-4	1.0	6.7	8.4	1.4 J
trans-1,2-Dichloroethene	156-60-5	1.9	3.9	4.9	Not Detected
Trichloroethene	79-01-6	0.66	5.3	6.6	Not Detected
Vinyl Chloride	75-01-4	0.63	2.5	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	SVMP-25S-3.0_062419	Date/Time Analyzed:	7/1/19 07:41 PM
Lab ID:	1906589-03A	Dilution Factor:	2.58
Date/Time Collected:	6/24/19 01:26 PM	Instrument/Filename:	msda.i / a070112
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.1	5.1	Not Detected
1,4-Dioxane	123-91-1	2.7	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	4.1	5.1	Not Detected
Tetrachloroethene	127-18-4	1.0	7.0	8.8	4.1 J
trans-1,2-Dichloroethene	156-60-5	1.9	4.1	5.1	Not Detected
Trichloroethene	79-01-6	0.69	5.5	6.9	1.3 J
Vinyl Chloride	75-01-4	0.66	2.6	3.3	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-17-2.0_062419	Date/Time Analyzed:	7/1/19 08:08 PM
Lab ID:	1906589-04A	Dilution Factor:	2.58
Date/Time Collected:	6/24/19 04:13 PM	Instrument/Filename:	msda.i / a070113
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.1	5.1	Not Detected
1,4-Dioxane	123-91-1	2.7	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	4.1	5.1	Not Detected
Tetrachloroethene	127-18-4	1.0	7.0	8.8	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.9	4.1	5.1	Not Detected
Trichloroethene	79-01-6	0.69	5.5	6.9	Not Detected
Vinyl Chloride	75-01-4	0.66	2.6	3.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-04-3.5_062519	Date/Time Analyzed:	7/1/19 08:35 PM
Lab ID:	1906589-05A	Dilution Factor:	2.47
Date/Time Collected:	6/25/19 10:14 AM	Instrument/Filename:	msda.i / a070114
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	3.9	4.9	Not Detected
1,4-Dioxane	123-91-1	2.6	13	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.98	3.9	4.9	Not Detected
Tetrachloroethene	127-18-4	1.0	6.7	8.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.9	3.9	4.9	Not Detected
Trichloroethene	79-01-6	0.66	5.3	6.6	Not Detected
Vinyl Chloride	75-01-4	0.63	2.5	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-01D-7.0_062519	Date/Time Analyzed:	7/1/19 09:01 PM
Lab ID:	1906589-06A	Dilution Factor:	2.52
Date/Time Collected:	6/25/19 11:31 AM	Instrument/Filename:	msda.i / a070115
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.0	5.0	Not Detected
1,4-Dioxane	123-91-1	2.6	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	4.0	5.0	Not Detected
Tetrachloroethene	127-18-4	1.0	6.8	8.5	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.9	4.0	5.0	Not Detected
Trichloroethene	79-01-6	0.68	5.4	6.8	Not Detected
Vinyl Chloride	75-01-4	0.64	2.6	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-01S-3.5_062519	Date/Time Analyzed:	7/1/19 09:28 PM
Lab ID:	1906589-07A	Dilution Factor:	2.47
Date/Time Collected:	6/25/19 11:32 AM	Instrument/Filename:	msda.i / a070116
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	3.9	4.9	Not Detected
1,4-Dioxane	123-91-1	2.6	13	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.98	3.9	4.9	Not Detected
Tetrachloroethene	127-18-4	1.0	6.7	8.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.9	3.9	4.9	Not Detected
Trichloroethene	79-01-6	0.66	5.3	6.6	Not Detected
Vinyl Chloride	75-01-4	0.63	2.5	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SVMP-02D-8.5_062519	Date/Time Analyzed:	7/1/19 09:54 PM
Lab ID:	1906589-08A	Dilution Factor:	2.64
Date/Time Collected:	6/25/19 12:34 PM	Instrument/Filename:	msda.i / a070117
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.6	4.2	5.2	Not Detected
1,4-Dioxane	123-91-1	2.8	14	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.0	4.2	5.2	Not Detected
Tetrachloroethene	127-18-4	1.1	7.2	9.0	Not Detected
trans-1,2-Dichloroethene	156-60-5	2.0	4.2	5.2	Not Detected
Trichloroethene	79-01-6	0.71	5.7	7.1	Not Detected
Vinyl Chloride	75-01-4	0.67	2.7	3.4	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	DUP-01_062419	Date/Time Analyzed:	7/1/19 11:14 PM
Lab ID:	1906589-09A	Dilution Factor:	2.47
Date/Time Collected:	6/24/19 12:00 AM	Instrument/Filename:	msda.i / a070118
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	3.9	4.9	Not Detected
1,4-Dioxane	123-91-1	2.6	13	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.98	3.9	4.9	7.4
Tetrachloroethene	127-18-4	1.0	6.7	8.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.9	3.9	4.9	Not Detected
Trichloroethene	79-01-6	0.66	5.3	6.6	Not Detected
Vinyl Chloride	75-01-4	0.63	2.5	3.2	0.70 J

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	DUP-02_062519	Date/Time Analyzed:	7/1/19 11:41 PM
Lab ID:	1906589-10A	Dilution Factor:	2.47
Date/Time Collected:	6/25/19 12:00 AM	Instrument/Filename:	msda.i / a070119
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	3.9	4.9	Not Detected
1,4-Dioxane	123-91-1	2.6	13	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.98	3.9	4.9	Not Detected
Tetrachloroethene	127-18-4	1.0	6.7	8.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.9	3.9	4.9	Not Detected
Trichloroethene	79-01-6	0.66	5.3	6.6	9.7
Vinyl Chloride	75-01-4	0.63	2.5	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	7/1/19 12:22 PM
Lab ID:	1906589-11A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a070106a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.59	1.6	2.0	Not Detected
1,4-Dioxane	123-91-1	1.0	5.4	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.40	1.6	2.0	Not Detected
Tetrachloroethene	127-18-4	0.41	2.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.75	1.6	2.0	Not Detected
Trichloroethene	79-01-6	0.27	2.1	2.7	Not Detected
Vinyl Chloride	75-01-4	0.26	1.0	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	CCV	Date/Time Analyzed:	7/1/19 08:58 AM
Lab ID:	1906589-12A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a070102
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	96
1,4-Dioxane	123-91-1	88
cis-1,2-Dichloroethene	156-59-2	91
Tetrachloroethene	127-18-4	99
trans-1,2-Dichloroethene	156-60-5	90
Trichloroethene	79-01-6	94
Vinyl Chloride	75-01-4	90

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCS	Date/Time Analyzed:	7/1/19 09:24 AM
Lab ID:	1906589-13A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a070103
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	95
1,4-Dioxane	123-91-1	69 Q
cis-1,2-Dichloroethene	156-59-2	95
Tetrachloroethene	127-18-4	100
trans-1,2-Dichloroethene	156-60-5	77
Trichloroethene	79-01-6	90
Vinyl Chloride	75-01-4	92

Q = Exceeds Quality Control limits.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	96

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	7/1/19 09:49 AM
Lab ID:	1906589-13AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msda.i / a070104
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	96
1,4-Dioxane	123-91-1	78
cis-1,2-Dichloroethene	156-59-2	97
Tetrachloroethene	127-18-4	99
trans-1,2-Dichloroethene	156-60-5	77
Trichloroethene	79-01-6	93
Vinyl Chloride	75-01-4	92

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	98

* % Recovery is calculated using unrounded analytical results.

[REDACTED]

11/5/2018

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1810644A

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 10/29/2018 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

[REDACTED]

Ausha Scott
Project Manager



Eurofins Air Toxics, Inc.

180 Bill Rayne Road, Suite B
Folsom, CA 95630


T 916-985-1000
F 916-985-1370
www.airtoxics.com

WORK ORDER #: 1810644A

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0003
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	10/29/2018	CONTACT:	Ausha Scott
DATE COMPLETED:	11/05/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	IAF-34934Standish-02_102318	Modified TO-15	6.5 "Hg	5 psi
02A	AA-34934Standish-01_102318	Modified TO-15	3.5 "Hg	5 psi
03A	IAG-34934Standish-01_102318	Modified TO-15	5.5 "Hg	5 psi
04A	IACS-34934Standish-03_102318	Modified TO-15	3.5 "Hg	5 psi
05A	Lab Blank	Modified TO-15	NA	NA
06A	CCV	Modified TO-15	NA	NA
07A	LCS	Modified TO-15	NA	NA
07AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 11/05/18

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 1810644A

Four 6 Liter Summa Canister (100% Certified) samples were received on October 29, 2018. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	$\leq 30\%$ RSD with 2 compounds allowed out to <math>< 40\%</math> RSD	$\leq 30\%$ RSD with 4 compounds allowed out to <math>< 40\%</math> RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

The Chain of Custody (COC) information for sample IACS-34934Standish-03_102318 did not match the entry on the sample tag with regard to sample identification. The information on the COC was used to process and report the sample.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

1,4-Dioxane exceeded initial calibration method acceptance criterion of $\leq 30\%$RSD at 33%.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV
N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

- a-File was requantified
- b-File was quantified by a second column and detector
- r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-34934Standish-02_102318	Date/Time Analyzed:	10/31/18 07:05 PM
Lab ID:	1810644A-01A	Dilution Factor:	1.71
Date/Time Collected:	10/24/18 02:31 PM	Instrument/Filename:	msdv.i / v103112
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.33	0.61	0.68	Not Detected
1,4-Dioxane	123-91-1	0.36	0.55	0.62	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.41	0.61	0.68	Not Detected
Tetrachloroethene	127-18-4	0.58	1.0	1.2	1.0 J
trans-1,2-Dichloroethene	156-60-5	0.57	0.61	0.68	Not Detected
Trichloroethene	79-01-6	0.42	0.83	0.92	Not Detected
Vinyl Chloride	75-01-4	0.33	0.39	0.44	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	99

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-34934Standish-01_102318	Date/Time Analyzed:	10/31/18 07:43 PM
Lab ID:	1810644A-02A	Dilution Factor:	1.52
Date/Time Collected:	10/24/18 02:35 PM	Instrument/Filename:	msdv.i / v103113
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.29	0.54	0.60	Not Detected
1,4-Dioxane	123-91-1	0.32	0.49	0.55	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.36	0.54	0.60	Not Detected
Tetrachloroethene	127-18-4	0.51	0.93	1.0	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.51	0.54	0.60	Not Detected
Trichloroethene	79-01-6	0.38	0.74	0.82	Not Detected
Vinyl Chloride	75-01-4	0.29	0.35	0.39	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	96

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: IAG-34934Standish-01_102318
Lab ID: 1810644A-03A
Date/Time Collected: 10/24/18 02:33 PM
Media: 6 Liter Summa Canister (100% Certified)

Date/Time Analyzed: 10/31/18 08:33 PM
Dilution Factor: 1.64
Instrument/Filename: msdv.i / v103114

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.32	0.58	0.65	Not Detected
1,4-Dioxane	123-91-1	0.34	0.53	0.59	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.39	0.58	0.65	Not Detected
Tetrachloroethene	127-18-4	0.56	1.0	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.55	0.58	0.65	Not Detected
Trichloroethene	79-01-6	0.40	0.79	0.88	Not Detected
Vinyl Chloride	75-01-4	0.32	0.38	0.42	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	91
Toluene-d8	2037-26-5	70-130	95

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IACS-34934Standish-03_102318	Date/Time Analyzed:	10/31/18 09:40 PM
Lab ID:	1810644A-04A	Dilution Factor:	1.52
Date/Time Collected:	10/24/18 02:36 PM	Instrument/Filename:	msdv.i / v103115
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.29	0.54	0.60	Not Detected
1,4-Dioxane	123-91-1	0.32	0.49	0.55	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.36	0.54	0.60	Not Detected
Tetrachloroethene	127-18-4	0.51	0.93	1.0	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.51	0.54	0.60	Not Detected
Trichloroethene	79-01-6	0.38	0.74	0.82	Not Detected
Vinyl Chloride	75-01-4	0.29	0.35	0.39	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	95

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	10/31/18 01:24 PM
Lab ID:	1810644A-05A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdv.i / v103106c
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.19	0.36	0.40	Not Detected
1,4-Dioxane	123-91-1	0.21	0.32	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.24	0.36	0.40	Not Detected
Tetrachloroethene	127-18-4	0.34	0.61	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.34	0.36	0.40	Not Detected
Trichloroethene	79-01-6	0.25	0.48	0.54	Not Detected
Vinyl Chloride	75-01-4	0.19	0.23	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	94

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	10/31/18 09:25 AM
Lab ID:	1810644A-06A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdv.i / v103102
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	92
1,4-Dioxane	123-91-1	121
cis-1,2-Dichloroethene	156-59-2	97
Tetrachloroethene	127-18-4	98
trans-1,2-Dichloroethene	156-60-5	90
Trichloroethene	79-01-6	97
Vinyl Chloride	75-01-4	91

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	89
Toluene-d8	2037-26-5	70-130	97

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	10/31/18 10:10 AM
Lab ID:	1810644A-07A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdv.i / v103103
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	88
1,4-Dioxane	123-91-1	120
cis-1,2-Dichloroethene	156-59-2	87
Tetrachloroethene	127-18-4	94
trans-1,2-Dichloroethene	156-60-5	101
Trichloroethene	79-01-6	98
Vinyl Chloride	75-01-4	92

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	97

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	10/31/18 11:05 AM
Lab ID:	1810644A-07AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdv.i / v103104
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	87
1,4-Dioxane	123-91-1	123
cis-1,2-Dichloroethene	156-59-2	85
Tetrachloroethene	127-18-4	95
trans-1,2-Dichloroethene	156-60-5	96
Trichloroethene	79-01-6	97
Vinyl Chloride	75-01-4	90

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	97

* % Recovery is calculated using unrounded analytical results.

11/5/2018
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1810644B

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 10/29/2018 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1810644B

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0003
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	10/29/2018	CONTACT:	Ausha Scott
DATE COMPLETED:	11/05/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
05A	SSMP-34934Standish-01_102418	TO-15	3.1 "Hg	14.9 psi
06A	Lab Blank	TO-15	NA	NA
07A	CCV	TO-15	NA	NA
08A	LCS	TO-15	NA	NA
08AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 11/05/18

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.
 180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1810644B

One 1 Liter Summa Canister sample was received on October 29, 2018. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified (0.2 ppbv for compounds reported at 0.5 ppbv and 0.8 ppbv for compounds reported at 2.0 ppbv) may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-34934Standish-01_102418	Date/Time Analyzed:	11/1/18 10:46 PM
Lab ID:	1810644B-05A	Dilution Factor:	2.24
Date/Time Collected:	10/24/18 03:05 PM	Instrument/Filename:	msd17.i / 17110114
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.0	3.6	4.4	Not Detected
1,4-Dioxane	123-91-1	3.6	12	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.71	3.6	4.4	Not Detected
Tetrachloroethene	127-18-4	1.1	6.1	7.6	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.3	3.6	4.4	Not Detected
Trichloroethene	79-01-6	2.3	4.8	6.0	Not Detected
Vinyl Chloride	75-01-4	0.69	2.3	2.9	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	107

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	11/1/18 03:20 PM
Lab ID:	1810644B-06A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17110105a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.87	1.6	2.0	Not Detected
1,4-Dioxane	123-91-1	1.6	5.4	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.32	1.6	2.0	Not Detected
Tetrachloroethene	127-18-4	0.47	2.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.59	1.6	2.0	Not Detected
Trichloroethene	79-01-6	1.0	2.1	2.7	Not Detected
Vinyl Chloride	75-01-4	0.31	1.0	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	89
Toluene-d8	2037-26-5	70-130	106

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	CCV	Date/Time Analyzed:	11/1/18 01:26 PM
Lab ID:	1810644B-07A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17110102
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	91
1,4-Dioxane	123-91-1	103
cis-1,2-Dichloroethene	156-59-2	90
Tetrachloroethene	127-18-4	95
trans-1,2-Dichloroethene	156-60-5	91
Trichloroethene	79-01-6	103
Vinyl Chloride	75-01-4	98

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	108

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCS	Date/Time Analyzed:	11/1/18 02:05 PM
Lab ID:	1810644B-08A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17110103
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	86
1,4-Dioxane	123-91-1	108
cis-1,2-Dichloroethene	156-59-2	83
Tetrachloroethene	127-18-4	96
trans-1,2-Dichloroethene	156-60-5	99
Trichloroethene	79-01-6	103
Vinyl Chloride	75-01-4	98

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	106

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	11/1/18 02:32 PM
Lab ID:	1810644B-08AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17110104
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	91
1,4-Dioxane	123-91-1	110
cis-1,2-Dichloroethene	156-59-2	84
Tetrachloroethene	127-18-4	98
trans-1,2-Dichloroethene	156-60-5	101
Trichloroethene	79-01-6	106
Vinyl Chloride	75-01-4	101

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	108

* % Recovery is calculated using unrounded analytical results.

4/26/2019

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP

Project #:

Workorder #: 1904457

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 4/19/2019 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1904457

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0003
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	04/19/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	04/26/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SSMP-34934STANDISH-01_041219	TO-15	5.9 "Hg	16.1 psi
02A	Lab Blank	TO-15	NA	NA
03A	CCV	TO-15	NA	NA
04A	LCS	TO-15	NA	NA
04AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 04/26/19

Certification numbers: AZ Licensure AZ0775, FL NELAP - E8 , LA NELAP - 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP CA009332018-10, VA NELAP - 9505, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005-011, Effective date: 10/18/2018, Expiration date: 10/17/2019.

Eurofins Air Toxics LLC. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1904457

One 1 Liter Summa Canister (100% Certified) sample was received on April 19, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-34934STANDISH-01_041219	Date/Time Analyzed:	4/25/19 07:58 PM
Lab ID:	1904457-01A	Dilution Factor:	2.61
Date/Time Collected:	4/12/19 02:31 PM	Instrument/Filename:	msd17.i / 17042514
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.3	4.1	5.2	Not Detected
1,4-Dioxane	123-91-1	10	14	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	4.1	5.2	Not Detected
Tetrachloroethene	127-18-4	3.5	7.1	8.8	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.6	4.1	5.2	Not Detected
Trichloroethene	79-01-6	2.5	5.6	7.0	Not Detected
Vinyl Chloride	75-01-4	1.3	2.7	3.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	88
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	94

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	4/25/19 01:11 PM
Lab ID:	1904457-02A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17042505a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.87	1.6	2.0	Not Detected
1,4-Dioxane	123-91-1	3.8	5.4	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.56	1.6	2.0	Not Detected
Tetrachloroethene	127-18-4	1.4	2.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.59	1.6	2.0	Not Detected
Trichloroethene	79-01-6	0.97	2.1	2.7	Not Detected
Vinyl Chloride	75-01-4	0.51	1.0	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	96

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	CCV	Date/Time Analyzed:	4/25/19 11:13 AM
Lab ID:	1904457-03A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17042502
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	116
1,4-Dioxane	123-91-1	99
cis-1,2-Dichloroethene	156-59-2	93
Tetrachloroethene	127-18-4	105
trans-1,2-Dichloroethene	156-60-5	114
Trichloroethene	79-01-6	94
Vinyl Chloride	75-01-4	111

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	4/25/19 12:16 PM
Lab ID:	1904457-04A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17042503
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	118
1,4-Dioxane	123-91-1	104
cis-1,2-Dichloroethene	156-59-2	103
Tetrachloroethene	127-18-4	104
trans-1,2-Dichloroethene	156-60-5	98
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	113

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	98

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	4/25/19 12:43 PM
Lab ID:	1904457-04AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17042504
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	118
1,4-Dioxane	123-91-1	102
cis-1,2-Dichloroethene	156-59-2	104
Tetrachloroethene	127-18-4	106
trans-1,2-Dichloroethene	156-60-5	100
Trichloroethene	79-01-6	94
Vinyl Chloride	75-01-4	116

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	96

* % Recovery is calculated using unrounded analytical results.

4/24/2019

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP

Project #:

Workorder #: 1904460

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 4/19/2019 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1904460

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0003
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	04/19/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	04/24/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	AA-34934STANDISH-01_041119	Modified TO-15	5.1 "Hg	4.7 psi
01B	AA-34934STANDISH-01_041119	Modified TO-15	5.1 "Hg	4.7 psi
02A	IAF-34934STANDISH-02_041119	Modified TO-15	6.3 "Hg	5.1 psi
02B	IAF-34934STANDISH-02_041119	Modified TO-15	6.3 "Hg	5.1 psi
03A	IAG-34934STANDISH-01_041119	Modified TO-15	6.5 "Hg	4.7 psi
03B	IAG-34934STANDISH-01_041119	Modified TO-15	6.5 "Hg	4.7 psi
04A	Lab Blank	Modified TO-15	NA	NA
04B	Lab Blank	Modified TO-15	NA	NA
05A	CCV	Modified TO-15	NA	NA
05B	CCV	Modified TO-15	NA	NA
06A	LCS	Modified TO-15	NA	NA
06AA	LCSD	Modified TO-15	NA	NA
06B	LCS	Modified TO-15	NA	NA
06BB	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 04/24/19

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

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 180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 1904460

Three 6 Liter Summa Canister (100% Cert Ambient) samples were received on April 19, 2019. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	$\leq 30\%$ RSD with 2 compounds allowed out to <math>< 40\%</math> RSD	$\leq 30\%$ RSD with 4 compounds allowed out to <math>< 40\%</math> RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

The results for each sample in this report were acquired from two separate data files originating from the same analytical run. The two data files have the same base file name and are differentiated with a "sim" extension on the SIM data file.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

- B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).
- J - Estimated value.
- E - Exceeds instrument calibration range.
- S - Saturated peak.
- Q - Exceeds quality control limits.
- U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.
- UJ- Non-detected compound associated with low bias in the CCV
- N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-34934STANDISH-01_041119	Date/Time Analyzed:	4/22/19 03:27 PM
Lab ID:	1904460-01A	Dilution Factor:	1.59
Date/Time Collected:	4/12/19 02:08 PM	Instrument/Filename:	msd20.i / 20042212
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.15	0.57	0.63	Not Detected
1,4-Dioxane	123-91-1	0.46	0.52	0.57	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.57	0.63	Not Detected
Tetrachloroethene	127-18-4	0.67	0.97	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.35	0.57	0.63	Not Detected
Vinyl Chloride	75-01-4	0.13	0.36	0.41	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	97

MODIFIED EPA METHOD TO-15 GC/MS SIM
Ford LTP

Client ID:	AA-34934STANDISH-01_041119	Date/Time Analyzed:	4/22/19 03:27 PM
Lab ID:	1904460-01B	Dilution Factor:	1.59
Date/Time Collected:	4/12/19 02:08 PM	Instrument/Filename:	msd20.i / 20042212sim
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	79-01-6	0.017	0.051	0.17	0.040 J

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	99

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: IAF-34934STANDISH-02_041119
Lab ID: 1904460-02A
Date/Time Collected: 4/12/19 02:11 PM
Media: 6 Liter Summa Canister (100% Cert Ambier)

Date/Time Analyzed: 4/22/19 04:06 PM
Dilution Factor: 1.71
Instrument/Filename: msd20.i / 20042213

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.16	0.61	0.68	Not Detected
1,4-Dioxane	123-91-1	0.50	0.55	0.62	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.36	0.61	0.68	Not Detected
Tetrachloroethene	127-18-4	0.72	1.0	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.38	0.61	0.68	Not Detected
Vinyl Chloride	75-01-4	0.14	0.39	0.44	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	97

MODIFIED EPA METHOD TO-15 GC/MS SIM
Ford LTP

Client ID:	IAF-34934STANDISH-02_041119	Date/Time Analyzed:	4/22/19 04:06 PM
Lab ID:	1904460-02B	Dilution Factor:	1.71
Date/Time Collected:	4/12/19 02:11 PM	Instrument/Filename:	msd20.i / 20042213sim
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	79-01-6	0.018	0.055	0.18	0.14 J

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAG-34934STANDISH-01_041119	Date/Time Analyzed:	4/22/19 04:45 PM
Lab ID:	1904460-03A	Dilution Factor:	1.69
Date/Time Collected:	4/12/19 02:09 PM	Instrument/Filename:	msd20.i / 20042214
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.16	0.60	0.67	Not Detected
1,4-Dioxane	123-91-1	0.49	0.55	0.61	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.36	0.60	0.67	Not Detected
Tetrachloroethene	127-18-4	0.71	1.0	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.38	0.60	0.67	Not Detected
Vinyl Chloride	75-01-4	0.14	0.39	0.43	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	95

MODIFIED EPA METHOD TO-15 GC/MS SIM
Ford LTP

Client ID:	IAG-34934STANDISH-01_041119	Date/Time Analyzed:	4/22/19 04:45 PM
Lab ID:	1904460-03B	Dilution Factor:	1.69
Date/Time Collected:	4/12/19 02:09 PM	Instrument/Filename:	msd20.i / 20042214sim
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	79-01-6	0.018	0.054	0.18	0.046 J

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	98

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	4/22/19 10:27 AM
Lab ID:	1904460-04A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20042206d
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.095	0.36	0.40	Not Detected
1,4-Dioxane	123-91-1	0.29	0.32	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.21	0.36	0.40	Not Detected
Tetrachloroethene	127-18-4	0.42	0.61	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.22	0.36	0.40	Not Detected
Vinyl Chloride	75-01-4	0.082	0.23	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	94

MODIFIED EPA METHOD TO-15 GC/MS SIM
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	4/22/19 10:27 AM
Lab ID:	1904460-04B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20042206sima
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	79-01-6	0.010	0.032	0.11	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	98

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	4/22/19 07:25 AM
Lab ID:	1904460-05A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20042202
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	95
1,4-Dioxane	123-91-1	114
cis-1,2-Dichloroethene	156-59-2	103
Tetrachloroethene	127-18-4	107
trans-1,2-Dichloroethene	156-60-5	102
Vinyl Chloride	75-01-4	82

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS SIM
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	4/22/19 07:25 AM
Lab ID:	1904460-05B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20042202sim
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
Trichloroethene	79-01-6	101

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	104

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	4/22/19 08:18 AM
Lab ID:	1904460-06A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20042203
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	93
1,4-Dioxane	123-91-1	117
cis-1,2-Dichloroethene	156-59-2	114
Tetrachloroethene	127-18-4	116
trans-1,2-Dichloroethene	156-60-5	90
Vinyl Chloride	75-01-4	82

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	99

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	4/22/19 08:56 AM
Lab ID:	1904460-06AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20042204
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	102
1,4-Dioxane	123-91-1	112
cis-1,2-Dichloroethene	156-59-2	114
Tetrachloroethene	127-18-4	113
trans-1,2-Dichloroethene	156-60-5	89
Vinyl Chloride	75-01-4	92

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	97

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS SIM
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	4/22/19 08:18 AM
Lab ID:	1904460-06B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20042203sim
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
Trichloroethene	79-01-6	128

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	88
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	103

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS SIM
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	4/22/19 08:56 AM
Lab ID:	1904460-06BB	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20042204sim
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
Trichloroethene	79-01-6	128

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	89
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	99

* % Recovery is calculated using unrounded analytical results.

7/11/2019
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP Off-Site Sampling
Project #:
Workorder #: 1907119

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 7/3/2019 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1907119

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0003.00002
FAX:		PROJECT #	Ford LTP Off-Site Sampling
DATE RECEIVED:	07/03/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	07/11/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SSMP-34934STANDISH-01_062819	TO-15	5.3 "Hg	15.5 psi
02A	Lab Blank	TO-15	NA	NA
03A	CCV	TO-15	NA	NA
04A	LCS	TO-15	NA	NA
04AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 07/10/19

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1907119

One 1 Liter Summa Canister (100% Certified) sample was received on July 03, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	SSMP-34934STANDISH-01_062819	Date/Time Analyzed:	7/9/19 11:58 PM
Lab ID:	1907119-01A	Dilution Factor:	2.50
Date/Time Collected:	6/28/19 04:50 PM	Instrument/Filename:	msdj.i / j070920
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.0	5.0	Not Detected
1,4-Dioxane	123-91-1	3.9	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.2	4.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.3	6.8	8.5	64
trans-1,2-Dichloroethene	156-60-5	2.8	4.0	5.0	Not Detected
Trichloroethene	79-01-6	2.5	5.4	6.7	Not Detected
Vinyl Chloride	75-01-4	2.3	2.6	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	90
Toluene-d8	2037-26-5	70-130	96

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP Off-Site Sampling

Client ID:	Lab Blank	Date/Time Analyzed:	7/9/19 07:18 PM
Lab ID:	1907119-02A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j070911a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.59	1.6	2.0	Not Detected
1,4-Dioxane	123-91-1	1.6	5.4	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.90	1.6	2.0	Not Detected
Tetrachloroethene	127-18-4	0.91	2.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.1	1.6	2.0	Not Detected
Trichloroethene	79-01-6	1.0	2.1	2.7	Not Detected
Vinyl Chloride	75-01-4	0.91	1.0	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	89
Toluene-d8	2037-26-5	70-130	96

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling



Client ID: CCV
Lab ID: 1907119-03A
Date/Time Collected: NA - Not Applicable
Media: NA - Not Applicable

Date/Time Analyzed: 7/9/19 04:08 PM
Dilution Factor: 1.00
Instrument/Filename: msdj.i / j070907

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	88
1,4-Dioxane	123-91-1	89
cis-1,2-Dichloroethene	156-59-2	88
Tetrachloroethene	127-18-4	95
trans-1,2-Dichloroethene	156-60-5	87
Trichloroethene	79-01-6	90
Vinyl Chloride	75-01-4	85

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	LCS	Date/Time Analyzed:	7/9/19 04:35 PM
Lab ID:	1907119-04A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j070908
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	92
1,4-Dioxane	123-91-1	91
cis-1,2-Dichloroethene	156-59-2	100
Tetrachloroethene	127-18-4	101
trans-1,2-Dichloroethene	156-60-5	79
Trichloroethene	79-01-6	93
Vinyl Chloride	75-01-4	93

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	100

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	LCSD	Date/Time Analyzed:	7/9/19 05:03 PM
Lab ID:	1907119-04AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j070909
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	89
1,4-Dioxane	123-91-1	89
cis-1,2-Dichloroethene	156-59-2	96
Tetrachloroethene	127-18-4	101
trans-1,2-Dichloroethene	156-60-5	75
Trichloroethene	79-01-6	93
Vinyl Chloride	75-01-4	89

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	87
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	99

* % Recovery is calculated using unrounded analytical results.

7/11/2019
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP Off-Site Sampling
Project #:
Workorder #: 1907124

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 7/3/2019 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1907124

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0004.00002
FAX:		PROJECT #	Ford LTP Off-Site Sampling
DATE RECEIVED:	07/03/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	07/11/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	AA-34934STANDISH-01_062719	Modified TO-15	7.0 "Hg	5 psi
02A	IAG-34934STANDISH-01_062719	Modified TO-15	9.5 "Hg	5 psi
03A	IAF-34934STANDISH-02_062719	Modified TO-15	5.0 "Hg	5 psi
04A	DUP-34934STANDISH-01_062719	Modified TO-15	6.0 "Hg	5 psi
05A	Lab Blank	Modified TO-15	NA	NA
06A	CCV	Modified TO-15	NA	NA
07A	LCS	Modified TO-15	NA	NA
07AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 07/11/19

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 1907124

Four 6 Liter Summa Canister (100% Cert Ambient) samples were received on July 03, 2019. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	AA-34934STANDISH-01_062719	Date/Time Analyzed:	7/8/19 05:06 PM
Lab ID:	1907124-01A	Dilution Factor:	1.75
Date/Time Collected:	6/28/19 04:40 PM	Instrument/Filename:	msd20.i / 20070812
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.17	0.62	0.69	Not Detected
1,4-Dioxane	123-91-1	0.51	0.57	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.37	0.62	0.69	Not Detected
Tetrachloroethene	127-18-4	0.74	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.39	0.62	0.69	Not Detected
Trichloroethene	79-01-6	0.46	0.85	0.94	Not Detected
Vinyl Chloride	75-01-4	0.14	0.40	0.45	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	110
4-Bromofluorobenzene	460-00-4	70-130	108
Toluene-d8	2037-26-5	70-130	96

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	IAG-34934STANDISH-01_062719	Date/Time Analyzed:	7/8/19 05:46 PM
Lab ID:	1907124-02A	Dilution Factor:	1.96
Date/Time Collected:	6/28/19 04:58 PM	Instrument/Filename:	msd20.i / 20070813
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.19	0.70	0.78	Not Detected
1,4-Dioxane	123-91-1	0.57	0.64	0.71	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.42	0.70	0.78	Not Detected
Tetrachloroethene	127-18-4	0.83	1.2	1.3	120
trans-1,2-Dichloroethene	156-60-5	0.44	0.70	0.78	Not Detected
Trichloroethene	79-01-6	0.52	0.95	1.0	Not Detected
Vinyl Chloride	75-01-4	0.16	0.45	0.50	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	97

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling



Client ID:	IAF-34934STANDISH-02_062719	Date/Time Analyzed:	7/8/19 07:07 PM
Lab ID:	1907124-03A	Dilution Factor:	1.61
Date/Time Collected:	6/28/19 04:00 PM	Instrument/Filename:	msd20.i / 20070815
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.15	0.57	0.64	Not Detected
1,4-Dioxane	123-91-1	0.47	0.52	0.58	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.57	0.64	Not Detected
Tetrachloroethene	127-18-4	0.68	0.98	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.57	0.64	Not Detected
Trichloroethene	79-01-6	0.42	0.78	0.86	Not Detected
Vinyl Chloride	75-01-4	0.13	0.37	0.41	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	107
4-Bromofluorobenzene	460-00-4	70-130	108
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	DUP-34934STANDISH-01_062719	Date/Time Analyzed:	7/8/19 07:46 PM
Lab ID:	1907124-04A	Dilution Factor:	1.68
Date/Time Collected:	6/28/19 12:00 AM	Instrument/Filename:	msd20.i / 20070816
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.16	0.60	0.67	Not Detected
1,4-Dioxane	123-91-1	0.49	0.54	0.60	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.36	0.60	0.67	Not Detected
Tetrachloroethene	127-18-4	0.71	1.0	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.37	0.60	0.67	Not Detected
Trichloroethene	79-01-6	0.44	0.81	0.90	Not Detected
Vinyl Chloride	75-01-4	0.14	0.39	0.43	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	96

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	Lab Blank	Date/Time Analyzed:	7/8/19 10:28 AM
Lab ID:	1907124-05A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20070806a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.095	0.36	0.40	Not Detected
1,4-Dioxane	123-91-1	0.29	0.32	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.21	0.36	0.40	Not Detected
Tetrachloroethene	127-18-4	0.42	0.61	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.22	0.36	0.40	Not Detected
Trichloroethene	79-01-6	0.26	0.48	0.54	Not Detected
Vinyl Chloride	75-01-4	0.082	0.23	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	116
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	99

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	CCV	Date/Time Analyzed:	7/8/19 06:52 AM
Lab ID:	1907124-06A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20070802
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	99
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	98
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	99
Trichloroethene	79-01-6	102
Vinyl Chloride	75-01-4	105

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	99

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	LCS	Date/Time Analyzed:	7/8/19 08:07 AM
Lab ID:	1907124-07A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20070803
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	104
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	112
Tetrachloroethene	127-18-4	109
trans-1,2-Dichloroethene	156-60-5	88
Trichloroethene	79-01-6	100
Vinyl Chloride	75-01-4	108

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	98

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	LCSD	Date/Time Analyzed:	7/8/19 08:47 AM
Lab ID:	1907124-07AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20070804
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	105
1,4-Dioxane	123-91-1	99
cis-1,2-Dichloroethene	156-59-2	113
Tetrachloroethene	127-18-4	110
trans-1,2-Dichloroethene	156-60-5	88
Trichloroethene	79-01-6	101
Vinyl Chloride	75-01-4	106

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	98

* % Recovery is calculated using unrounded analytical results.

11/4/2019
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1910676

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 10/29/2019 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1910676

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30016344.0002B
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	10/29/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	11/04/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	AA-34934STANDISH-01_102519	Modified TO-15	6.1 "Hg	4.8 psi
02A	IAF-34934STANDISH-02_102519	Modified TO-15	7.8 "Hg	4.8 psi
03A	IAG-34934STANDISH-01_102519	Modified TO-15	5.9 "Hg	4.8 psi
04A	Lab Blank	Modified TO-15	NA	NA
05A	CCV	Modified TO-15	NA	NA
06A	LCS	Modified TO-15	NA	NA
06AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 11/04/19

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP – CA009332019-11, VA NELAP - 460197, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005-011, Effective date: 10/18/2019, Expiration date: 10/17/2020.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 1910676

Three 6 Liter Summa Canister (100% Cert Ambient) samples were received on October 29, 2019. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-34934STANDISH-01_102519	Date/Time Analyzed:	10/30/19 04:24 PM
Lab ID:	1910676-01A	Dilution Factor:	1.67
Date/Time Collected:	10/25/19 08:35 AM	Instrument/Filename:	msd22.i / 22103012
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.20	0.26	0.66	Not Detected
1,4-Dioxane	123-91-1	0.11	0.24	0.60	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.068	0.26	0.66	Not Detected
Tetrachloroethene	127-18-4	0.26	0.45	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.11	0.26	0.66	0.16 J
Trichloroethene	79-01-6	0.092	0.36	0.90	Not Detected
Vinyl Chloride	75-01-4	0.059	0.17	0.43	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	98

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-34934STANDISH-02_102519	Date/Time Analyzed:	10/30/19 05:03 PM
Lab ID:	1910676-02A	Dilution Factor:	1.79
Date/Time Collected:	10/25/19 09:00 AM	Instrument/Filename:	msd22.i / 22103013
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.22	0.28	0.71	Not Detected
1,4-Dioxane	123-91-1	0.12	0.26	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.073	0.28	0.71	Not Detected
Tetrachloroethene	127-18-4	0.28	0.48	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.12	0.28	0.71	0.14 J
Trichloroethene	79-01-6	0.099	0.38	0.96	Not Detected
Vinyl Chloride	75-01-4	0.064	0.18	0.46	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	97

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	IAG-34934STANDISH-01_102519	Date/Time Analyzed:	10/30/19 05:43 PM
Lab ID:	1910676-03A	Dilution Factor:	1.65
Date/Time Collected:	10/25/19 08:28 AM	Instrument/Filename:	msd22.i / 22103014
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.20	0.26	0.65	Not Detected
1,4-Dioxane	123-91-1	0.11	0.24	0.59	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.067	0.26	0.65	Not Detected
Tetrachloroethene	127-18-4	0.26	0.45	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.11	0.26	0.65	0.12 J
Trichloroethene	79-01-6	0.091	0.35	0.89	100
Vinyl Chloride	75-01-4	0.059	0.17	0.42	Not Detected

J = Estimated value.
 D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	98

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	10/30/19 12:21 PM
Lab ID:	1910676-04A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd22.i / 22103007a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.12	0.16	0.40	Not Detected
1,4-Dioxane	123-91-1	0.068	0.14	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.041	0.16	0.40	Not Detected
Tetrachloroethene	127-18-4	0.15	0.27	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.066	0.16	0.40	Not Detected
Trichloroethene	79-01-6	0.055	0.21	0.54	Not Detected
Vinyl Chloride	75-01-4	0.036	0.10	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	97

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	10/30/19 09:24 AM
Lab ID:	1910676-05A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd22.i / 22103003
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	80
1,4-Dioxane	123-91-1	105
cis-1,2-Dichloroethene	156-59-2	85
Tetrachloroethene	127-18-4	107
trans-1,2-Dichloroethene	156-60-5	93
Trichloroethene	79-01-6	109
Vinyl Chloride	75-01-4	86

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	88
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	116

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	10/30/19 10:19 AM
Lab ID:	1910676-06A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd22.i / 22103004
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	79
1,4-Dioxane	123-91-1	107
cis-1,2-Dichloroethene	156-59-2	76
Tetrachloroethene	127-18-4	105
trans-1,2-Dichloroethene	156-60-5	99
Trichloroethene	79-01-6	107
Vinyl Chloride	75-01-4	87

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	84
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	114

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	10/30/19 11:01 AM
Lab ID:	1910676-06AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd22.i / 22103005
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	82
1,4-Dioxane	123-91-1	107
cis-1,2-Dichloroethene	156-59-2	79
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	100
Trichloroethene	79-01-6	104
Vinyl Chloride	75-01-4	89

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	87
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	110

* % Recovery is calculated using unrounded analytical results.

11/4/2019
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1910680

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 10/29/2019 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1910680

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30016344.0002B
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	10/29/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	11/04/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SSMP-34934STANDISH-01_102519	TO-15	5.1 "Hg	15.6 psi
02A	Lab Blank	TO-15	NA	NA
03A	CCV	TO-15	NA	NA
04A	LCS	TO-15	NA	NA
04AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 
 Technical Director

DATE: 11/04/19

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP – CA009332019-11, VA NELAP - 460197, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005-011, Effective date: 10/18/2019, Expiration date: 10/17/2020.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1910680

One 1 Liter Summa Canister (100% Certified) sample was received on October 29, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-34934STANDISH-01_102519	Date/Time Analyzed:	10/31/19 12:22 AM
Lab ID:	1910680-01A	Dilution Factor:	2.48
Date/Time Collected:	10/25/19 08:28 AM	Instrument/Filename:	msd3.i / 3103026
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.1	2.4	4.9	Not Detected
1,4-Dioxane	123-91-1	0.93	5.6	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.77	2.4	4.9	Not Detected
Tetrachloroethene	127-18-4	1.2	4.2	8.4	3.1 J
trans-1,2-Dichloroethene	156-60-5	1.0	2.4	4.9	Not Detected
Trichloroethene	79-01-6	0.85	3.3	6.7	2.7 J
Vinyl Chloride	75-01-4	0.53	1.6	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	10/30/19 11:55 AM
Lab ID:	1910680-02A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3103005a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.46	0.99	2.0	Not Detected
1,4-Dioxane	123-91-1	0.38	2.2	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.31	0.99	2.0	Not Detected
Tetrachloroethene	127-18-4	0.50	1.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.42	0.99	2.0	Not Detected
Trichloroethene	79-01-6	0.34	1.3	2.7	Not Detected
Vinyl Chloride	75-01-4	0.21	0.64	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	87
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: CCV
Lab ID: 1910680-03A
Date/Time Collected: NA - Not Applicable
Media: NA - Not Applicable

Date/Time Analyzed: 10/30/19 10:12 AM
Dilution Factor: 1.00
Instrument/Filename: msd3.i / 3103002

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	97
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	102
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	100
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	88

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	88
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCS	Date/Time Analyzed:	10/30/19 10:37 AM
Lab ID:	1910680-04A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3103003
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	95
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	111
Tetrachloroethene	127-18-4	98
trans-1,2-Dichloroethene	156-60-5	87
Trichloroethene	79-01-6	91
Vinyl Chloride	75-01-4	87

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	86
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	99

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	10/30/19 11:02 AM
Lab ID:	1910680-04AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3103004
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	93
1,4-Dioxane	123-91-1	97
cis-1,2-Dichloroethene	156-59-2	105
Tetrachloroethene	127-18-4	97
trans-1,2-Dichloroethene	156-60-5	85
Trichloroethene	79-01-6	92
Vinyl Chloride	75-01-4	86

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	85
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	102

* % Recovery is calculated using unrounded analytical results.

2/19/2020

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 2002329

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 2/13/2020 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 2002329

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30016344.0002B
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	02/13/2020	CONTACT:	Ausha Scott
DATE COMPLETED:	02/19/2020		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	IAG-34934STANDISH-01_020720	Modified TO-15	3.5 "Hg	5.0 psi
02A(cancelled)	DUP-34934STANDISH-01_020720	Modified TO-15		
03A	IAF-34934STANDISH-02_020720	Modified TO-15	7.5 "Hg	5.0 psi
04A(cancelled)	DUP-34934STANDISH-02_020720	Modified TO-15		
05A	AA-34934STANDISH-01_020720	Modified TO-15	5.0 "Hg	5.0 psi
06A(cancelled)	DUP-34934STANDISH-03_020720	Modified TO-15		
07A	Lab Blank	Modified TO-15	NA	NA
08A	CCV	Modified TO-15	NA	NA
09A	LCS	Modified TO-15	NA	NA
09AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 02/19/20

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP – CA009332019-11, VA NELAP - 460197, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005-011, Effective date: 10/18/2019, Expiration date: 10/17/2020.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 2002329

Six 6 Liter Summa Canister (100% Cert Ambient) samples were received on February 13, 2020. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the EATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	$\leq 30\%$ RSD with 2 compounds allowed out to <math>< 40\%</math> RSD	$\leq 30\%$ RSD with 4 compounds allowed out to <math>< 40\%</math> RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

Samples DUP-34934STANDISH-01_020720, DUP-34934STANDISH-02_020720 and DUP-34934STANDISH-03_020720 were cancelled on 02/11/2020 per client's request.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAG-34934STANDISH-01_020720	Date/Time Analyzed:	2/17/20 04:53 PM
Lab ID:	2002329-01A	Dilution Factor:	1.52
Date/Time Collected:	2/7/20 04:02 PM	Instrument/Filename:	msd21.i / 21021710
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.22	0.56	0.60	Not Detected
1,4-Dioxane	123-91-1	0.091	0.51	0.55	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.22	0.56	0.60	Not Detected
Tetrachloroethene	127-18-4	0.55	0.96	1.0	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.31	0.56	0.60	Not Detected
Trichloroethene	79-01-6	0.18	0.76	0.82	0.94
Vinyl Chloride	75-01-4	0.16	0.36	0.39	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	85
Toluene-d8	2037-26-5	70-130	96

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-34934STANDISH-02_020720	Date/Time Analyzed:	2/17/20 05:27 PM
Lab ID:	2002329-03A	Dilution Factor:	1.79
Date/Time Collected:	2/7/20 03:57 PM	Instrument/Filename:	msd21.i / 21021711
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.26	0.66	0.71	Not Detected
1,4-Dioxane	123-91-1	0.11	0.60	0.64	0.69
cis-1,2-Dichloroethene	156-59-2	0.26	0.66	0.71	Not Detected
Tetrachloroethene	127-18-4	0.65	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.37	0.66	0.71	Not Detected
Trichloroethene	79-01-6	0.22	0.89	0.96	Not Detected
Vinyl Chloride	75-01-4	0.18	0.42	0.46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	83
Toluene-d8	2037-26-5	70-130	94

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP



Client ID: AA-34934STANDISH-01_020720
Lab ID: 2002329-05A
Date/Time Collected: 2/7/20 04:00 PM
Media: 6 Liter Summa Canister (100% Cert Ambier)

Date/Time Analyzed: 2/17/20 06:04 PM
Dilution Factor: 1.61
Instrument/Filename: msd21.i / 21021712

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.23	0.59	0.64	Not Detected
1,4-Dioxane	123-91-1	0.096	0.54	0.58	0.18 J
cis-1,2-Dichloroethene	156-59-2	0.23	0.59	0.64	Not Detected
Tetrachloroethene	127-18-4	0.58	1.0	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.33	0.59	0.64	Not Detected
Trichloroethene	79-01-6	0.20	0.80	0.86	0.64 J
Vinyl Chloride	75-01-4	0.16	0.38	0.41	Not Detected

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	108
4-Bromofluorobenzene	460-00-4	70-130	82
Toluene-d8	2037-26-5	70-130	96

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	2/17/20 12:05 PM
Lab ID:	2002329-07A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21021706a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.14	0.37	0.40	Not Detected
1,4-Dioxane	123-91-1	0.060	0.34	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.14	0.37	0.40	Not Detected
Tetrachloroethene	127-18-4	0.36	0.63	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.20	0.37	0.40	Not Detected
Trichloroethene	79-01-6	0.12	0.50	0.54	Not Detected
Vinyl Chloride	75-01-4	0.10	0.24	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	108
4-Bromofluorobenzene	460-00-4	70-130	77
Toluene-d8	2037-26-5	70-130	91

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	2/17/20 08:55 AM
Lab ID:	2002329-08A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21021702
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	92
1,4-Dioxane	123-91-1	99
cis-1,2-Dichloroethene	156-59-2	92
Tetrachloroethene	127-18-4	92
trans-1,2-Dichloroethene	156-60-5	92
Trichloroethene	79-01-6	94
Vinyl Chloride	75-01-4	87

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	2/17/20 09:39 AM
Lab ID:	2002329-09A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21021703
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	85
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	80
Tetrachloroethene	127-18-4	78
trans-1,2-Dichloroethene	156-60-5	92
Trichloroethene	79-01-6	89
Vinyl Chloride	75-01-4	85

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	91
Toluene-d8	2037-26-5	70-130	103

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	2/17/20 10:24 AM
Lab ID:	2002329-09AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21021704
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	86
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	81
Tetrachloroethene	127-18-4	88
trans-1,2-Dichloroethene	156-60-5	94
Trichloroethene	79-01-6	89
Vinyl Chloride	75-01-4	86

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	87
Toluene-d8	2037-26-5	70-130	102

* % Recovery is calculated using unrounded analytical results.

2/19/2020

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 2002331

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 2/13/2020 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 2002331

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30016344.0002B
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	02/13/2020	CONTACT:	Ausha Scott
DATE COMPLETED:	02/19/2020		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SSMP-34934STANDISH-01_020720	TO-15	4.9 "Hg	15.8 psi
02A	Lab Blank	TO-15	NA	NA
03A	CCV	TO-15	NA	NA
04A	LCS	TO-15	NA	NA
04AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 02/19/20

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP – CA009332019-11, VA NELAP - 460197, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005-011, Effective date: 10/18/2019, Expiration date: 10/17/2020.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 2002331

One 1 Liter Summa Canister (100% Certified) sample was received on February 13, 2020. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-34934STANDISH-01_020720	Date/Time Analyzed:	2/17/20 04:05 PM
Lab ID:	2002331-01A	Dilution Factor:	2.48
Date/Time Collected:	2/7/20 04:15 PM	Instrument/Filename:	msd17.i / 17021706
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.2	3.9	4.9	Not Detected
1,4-Dioxane	123-91-1	9.5	13	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.9	4.9	Not Detected
Tetrachloroethene	127-18-4	3.4	6.7	8.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.5	3.9	4.9	Not Detected
Trichloroethene	79-01-6	2.4	5.3	6.7	Not Detected
Vinyl Chloride	75-01-4	1.3	2.5	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	120
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	95

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	2/17/20 12:17 PM
Lab ID:	2002331-02A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17021705a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.87	1.6	2.0	Not Detected
1,4-Dioxane	123-91-1	3.8	5.4	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.56	1.6	2.0	Not Detected
Tetrachloroethene	127-18-4	1.4	2.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.59	1.6	2.0	Not Detected
Trichloroethene	79-01-6	0.97	2.1	2.7	Not Detected
Vinyl Chloride	75-01-4	0.51	1.0	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	120
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	96

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP



Client ID:	CCV	Date/Time Analyzed:	2/17/20 10:56 AM
Lab ID:	2002331-03A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17021702
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	103
1,4-Dioxane	123-91-1	85
cis-1,2-Dichloroethene	156-59-2	101
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	96
Trichloroethene	79-01-6	100
Vinyl Chloride	75-01-4	85

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	127
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCS	Date/Time Analyzed:	2/17/20 11:22 AM
Lab ID:	2002331-04A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17021703
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	104
1,4-Dioxane	123-91-1	88
cis-1,2-Dichloroethene	156-59-2	89
Tetrachloroethene	127-18-4	101
trans-1,2-Dichloroethene	156-60-5	108
Trichloroethene	79-01-6	101
Vinyl Chloride	75-01-4	86

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	127
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	98

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	2/17/20 11:49 AM
Lab ID:	2002331-04AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17021704
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	105
1,4-Dioxane	123-91-1	86
cis-1,2-Dichloroethene	156-59-2	88
Tetrachloroethene	127-18-4	100
trans-1,2-Dichloroethene	156-60-5	102
Trichloroethene	79-01-6	103
Vinyl Chloride	75-01-4	84

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	122
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	96

* % Recovery is calculated using unrounded analytical results.

Martin, Michele

From: Hinskey, Kristoffer
Sent: Thursday, November 14, 2019 3:10 PM
To: Brandon Alger (AlgerB@michigan.gov); Vens, Beth (DEQ); Rafalski, Alexandra (DHHS); Cooch, Aaron (DHHS-Contractor); Merritt, Lawrence (L.H.); Walton, Todd (T.M.); Pinter, Chuck (C.H.); Quinnan, Joseph
Subject: Livonia Transmission Plant - 24 Hr Notification 34934 Standish
Attachments: 34934 Standish Street Data Package.pdf

Brandon –

This email serves as the notification for an exceedance as it relates to the offsite vapor intrusion assessment conducted under the approval letter provided by EGLE for the VI RespAP.

Analytical results from the residential property at 34934 Standish indicated that TCE was detected in indoor air collected from the garage above the screening level presented by EGLE in the Consent Decree. TCE was detected in the garage (sample IAG-34934STANDISH-01_102519) of the home at a concentration of 100 ug/m³ which exceeded the residential screening level of 2.0 ug/m³. TCE was not detected in the ambient air sample collected from this property on the same day as the indoor air sample.

Sub-slab soil vapor was also collected from the garage. TCE was also detected in the sub-slab soil vapor sample but at a lower concentration of 2.7 J ug/m³ (J = estimated result). The residential screening level for TCE in soil gas is 67 ug/m³. These sample results indicate a background source of TCE is likely present in the garage.

No exceedances of the TCE screening level were noted in the first round of sampling completed in October 2018. . Additionally, TCE was not detected in indoor air or sub-slab soil vapor collected from the garage. The property was again sampled in April 2019. TCE was detected in the ambient air sample, indoor air sample inside the home, and in the indoor air sample in the garage, all at concentrations below the residential screening level (0.040 J ug/m³, 0.14 J ug/m³, and 0.046 J ug/m³, respectively). During the third round of sampling completed in June 2019, TCE was not detected in ambient air, indoor air, or sub-slab soil vapor collected from inside the home or in the garage.

The homeowner provided chemicals for the chemical inventory in the garage. However, Arcadis was not provided access to the house and was provided limited access to the garage. A number of potential sources of VOCs were noted during the product inventory including aerosol cleaners, solvents, and household products but no products containing trichloroethene were noted.

The property owner was provided the data package (attached), that contains the analytical results.

Thank you

Kris Hinskey | Certified Project Manager | kristoffer.hinskey@arcadis.com
Arcadis | Arcadis of Michigan, LLC
28550 Cabot Drive Suite 500 Novi MI | 48377 | USA
T. +1 269 579 5402

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Martin, Michele

From: Hinskey, Kristoffer
Sent: Friday, September 6, 2019 7:55 PM
To: Brandon Alger (AlgerB@michigan.gov)
Cc: 'Vens, Beth (DEQ)'; 'Rafalski, Alexandra (DHHS)'; 'Cooch, Aaron (DHHS-Contractor)'; 'Merritt, Lawrence (L.H.)'; Walton, Todd (T.M.); Pinter, Chuck (C.H.); Quinnan, Joseph
Subject: Livonia Transmission Plant - Notification 34934 Standish
Attachments: 34934 Standish Data Package.pdf

Brandon –

We are writing to notify EGLE of an exceedance of screening levels for indoor air for an assessment conducted under the approval letter provided by the EGLE for the VI RespAP.

Analytical results from the residential property at 34934 Standish indicated that PCE was detected in indoor air collected from the garage above the screening level presented by MDEQ in the Consent Decree. PCE was detected in the garage (sample IAG-34934STANDISH-01_062719) of the home at a concentration of 120 ug/m³ which exceeded the residential screening level of 41 ug/m³. For PCE the screening level and the time-sensitive screening level are the same at 41 ug/m³. PCE was not detected in the other indoor air samples collected from the property including the first floor, a duplicate, and an ambient air sample.

Sub-slab soil vapor was also collected from the garage. PCE was also detected in the sub-slab soil vapor sample but at a lower concentration of 64 ug/m³. These sample results indicate a background source of PCE is likely present in the garage.

This property was originally sampled in October 2018 and no exceedances of the PCE screening level were noted in the first round of sampling. PCE was not detected in indoor air or sub-slab soil vapor collected from the garage. The property was again sampled in April 2019. PCE was not detected in any sample including indoor air and sub-slab soil vapor.

A detailed chemical inventory was completed in this home and garage. A number of potential sources of VOCs were noted during the product inventory including aerosol cleaners, solvents, and household products. A specific source of PCE was located in the garage. An aerosol canister of "CRC Lectra-Motive Electric Parts Cleaner" was noted in the garage as shown in the photo below. As shown in the attached safety data sheet CRC Lectra-Motive is 90-100% PCE. This product was removed prior to sampling, but it is unclear when it may have been used prior to sampling.

The property owner was provided the data package (attached), that contains the analytical results.

Thank you



Response	If on skin: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. IF exposed or concerned: Get medical advice/attention. Collect spillage.
Storage	Store locked up. Protect from sunlight. Store in a well-ventilated place. Exposure to high temperature may cause can to burst.
Disposal	Dispose of contents/container in accordance with local/regional/national regulations.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	When exposed to extreme heat or hot surfaces, vapors may decompose to harmful or fatal corrosive gases such as hydrogen chloride and possibly phosgene.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
tetrachloroethylene	perchloroethylene	127-18-4	90 - 100
carbon dioxide		124-38-9	1 - 5

Specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
-------------------	---

Kris Hinskey | Certified Project Manager | kristoffer.hinskey@arcadis.com
Arcadis | Arcadis of Michigan, LLC
28550 Cabot Drive Suite 500 Novi MI | 48377 | USA
T. +1 269 579 5402

Connect with us! www.arcadis.com | [LinkedIn](#) | [Twitter](#) | [Facebook](#)



Be green, leave it on the screen.

TRANSMITTAL LETTER



To:
Anthony Kiseda
Shawn Collins
Brandon Alger (MDEQ)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:

March 7, 2019

Subject:

Arcadis Project No.:

Shallow Groundwater
Assessment Data Package

We are sending you hard copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Delivery Date	Drawing No.	Rev.	Description	Action*
1	3/8/19			Figure	
1	3/8/19			Analytical Results	
1	3/8/19			Field Notes	

Action*

- A Approved CR Correct and Resubmit Resubmit _____ Copies
 AN Approved As Noted F File Return _____ Copies
 AS As Requested FA For Approval Review and Comment
 Other: _____

Mailing Method



- U.S. Postal Service 1st Class Courier/Hand Delivery FedEx Priority Overnight FedEx 2-Day Delivery
 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
 Other: email

Thank you for cooperating with the groundwater sampling at your property on March 1, 2019. Attached is your data package.

CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: A. PAULSON TR: M. WACKSMAN PROJECT NUMBER: MI001454.0003.000001 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
Z:\GIS\Projects\ENV\NovBrighton_MilFordLivonia\GIS\docs\2019-03\MW_Locations\34934StandisMW-183S.mxd PLOTTED: 3/5/2019 10:06:05 AM BY: msmiller



LEGEND:

-  MONITORING WELL LOCATION
-  APPROXIMATE PROPERTY BOUNDARIES



FORD MOTOR COMPANY LIVONIA TRANSMISSION PLANT LIVONIA, MICHIGAN	
MONITORING WELL LOCATION MW-183S	
 ARCADIS	Design & Consultancy for natural and built assets
FIGURE 1	

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

TestAmerica Job ID: 240-108813-1

Client Project/Site: Ford LTP Livonia MI - E203631

For:

ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
3/5/2019 3:20:25 PM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

LINKS

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results through
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Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108813-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108813-1

Job ID: 240-108813-1

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Livonia MI - E203631

Report Number: 240-108813-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The sample was received on 3/2/2019 9:45 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.4° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Sample MW-183S-030119 (240-108813-1) was analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The sample was analyzed on 03/04/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-183S-030119 (240-108813-1) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 03/04/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108813-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108813-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-108813-1	MW-183S-030119	Water	03/01/19 09:50	03/02/19 09:45

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108813-1

Client Sample ID: MW-183S-030119

Lab Sample ID: 240-108813-1

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108813-1

Client Sample ID: MW-183S-030119

Lab Sample ID: 240-108813-1

Date Collected: 03/01/19 09:50

Matrix: Water

Date Received: 03/02/19 09:45

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			03/04/19 18:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	80		63 - 125					03/04/19 18:24	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/04/19 16:12	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			03/04/19 16:12	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			03/04/19 16:12	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/04/19 16:12	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			03/04/19 16:12	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			03/04/19 16:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		70 - 121					03/04/19 16:12	1
4-Bromofluorobenzene (Surr)	69		59 - 120					03/04/19 16:12	1
Toluene-d8 (Surr)	74		70 - 123					03/04/19 16:12	1
Dibromofluoromethane (Surr)	97		75 - 128					03/04/19 16:12	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108813-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-121)	BFB (59-120)	TOL (70-123)	DBFM (75-128)
240-108804-H-1 MSD	Matrix Spike Duplicate	83	75	74	90
240-108804-K-1 MS	Matrix Spike	87	77	74	92
240-108813-1	MW-183S-030119	97	69	74	97
LCS 240-370116/4	Lab Control Sample	85	76	77	92
MB 240-370116/6	Method Blank	90	67	72	92

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (63-125)
240-108804-B-1 MS	Matrix Spike	83
240-108804-B-1 MSD	Matrix Spike Duplicate	84
240-108813-1	MW-183S-030119	80
LCS 240-370124/4	Lab Control Sample	86
MB 240-370124/5	Method Blank	86

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108813-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-370116/6

Matrix: Water

Analysis Batch: 370116

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/04/19 11:28	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			03/04/19 11:28	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			03/04/19 11:28	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/04/19 11:28	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			03/04/19 11:28	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			03/04/19 11:28	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		70 - 121		03/04/19 11:28	1
4-Bromofluorobenzene (Surr)	67		59 - 120		03/04/19 11:28	1
Toluene-d8 (Surr)	72		70 - 123		03/04/19 11:28	1
Dibromofluoromethane (Surr)	92		75 - 128		03/04/19 11:28	1

Lab Sample ID: LCS 240-370116/4

Matrix: Water

Analysis Batch: 370116

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	9.73		ug/L		97	65 - 139
cis-1,2-Dichloroethene	10.0	11.6		ug/L		116	76 - 128
Tetrachloroethene	10.0	10.8		ug/L		108	74 - 130
trans-1,2-Dichloroethene	10.0	12.2		ug/L		122	78 - 133
Trichloroethene	10.0	11.6		ug/L		116	76 - 125
Vinyl chloride	10.0	8.87		ug/L		89	58 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	85		70 - 121
4-Bromofluorobenzene (Surr)	76		59 - 120
Toluene-d8 (Surr)	77		70 - 123
Dibromofluoromethane (Surr)	92		75 - 128

Lab Sample ID: 240-108804-H-1 MSD

Matrix: Water

Analysis Batch: 370116

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	10.0	9.37		ug/L		94	53 - 140	1	35
cis-1,2-Dichloroethene	1.0	U	10.0	11.2		ug/L		112	64 - 130	1	21
Tetrachloroethene	1.0	U	10.0	9.83		ug/L		98	51 - 136	2	23
trans-1,2-Dichloroethene	1.0	U	10.0	11.5		ug/L		115	68 - 133	2	24
Trichloroethene	0.14	J	10.0	11.2		ug/L		110	55 - 131	1	23
Vinyl chloride	1.0	U	10.0	9.89		ug/L		99	43 - 154	10	29

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	83		70 - 121
4-Bromofluorobenzene (Surr)	75		59 - 120
Toluene-d8 (Surr)	74		70 - 123

TestAmerica Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108813-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-108804-H-1 MSD
Matrix: Water
Analysis Batch: 370116

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
Dibromofluoromethane (Surr)	90		75 - 128

Lab Sample ID: 240-108804-K-1 MS
Matrix: Water
Analysis Batch: 370116

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.
	Result	Qualifier		Result	Qualifier				
1,1-Dichloroethene	1.0	U	10.0	9.28		ug/L		93	53 - 140
cis-1,2-Dichloroethene	1.0	U	10.0	11.3		ug/L		113	64 - 130
Tetrachloroethene	1.0	U	10.0	9.64		ug/L		96	51 - 136
trans-1,2-Dichloroethene	1.0	U	10.0	11.3		ug/L		113	68 - 133
Trichloroethene	0.14	J	10.0	11.0		ug/L		109	55 - 131
Vinyl chloride	1.0	U	10.0	8.92		ug/L		89	43 - 154

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	87		70 - 121
4-Bromofluorobenzene (Surr)	77		59 - 120
Toluene-d8 (Surr)	74		70 - 123
Dibromofluoromethane (Surr)	92		75 - 128

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-370124/5
Matrix: Water
Analysis Batch: 370124

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			03/04/19 13:45	1

	MB	MB				
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		63 - 125		03/04/19 13:45	1

Lab Sample ID: LCS 240-370124/4
Matrix: Water
Analysis Batch: 370124

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.
		Result	Qualifier				
1,4-Dioxane	10.0	12.1		ug/L		121	59 - 131

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	86		63 - 125

TestAmerica Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108813-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-108804-B-1 MS
Matrix: Water
Analysis Batch: 370124

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	10.0	11.6		ug/L		116	52 - 129
MS MS									
Surrogate	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	83		63 - 125						

Lab Sample ID: 240-108804-B-1 MSD
Matrix: Water
Analysis Batch: 370124

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	2.0	U	10.0	11.3		ug/L		113	52 - 129	3	13
MSD MSD											
Surrogate	%Recovery	Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	84		63 - 125								

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108813-1

GC/MS VOA

Analysis Batch: 370116

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-108813-1	MW-183S-030119	Total/NA	Water	8260B	
MB 240-370116/6	Method Blank	Total/NA	Water	8260B	
LCS 240-370116/4	Lab Control Sample	Total/NA	Water	8260B	
240-108804-H-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
240-108804-K-1 MS	Matrix Spike	Total/NA	Water	8260B	

Analysis Batch: 370124

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-108813-1	MW-183S-030119	Total/NA	Water	8260B SIM	
MB 240-370124/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-370124/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-108804-B-1 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-108804-B-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108813-1

Client Sample ID: MW-183S-030119

Lab Sample ID: 240-108813-1

Date Collected: 03/01/19 09:50

Matrix: Water

Date Received: 03/02/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	370116	03/04/19 16:12	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	370124	03/04/19 18:24	SAM	TAL CAN

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108813-1

Laboratory: TestAmerica Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-19 *
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19
Illinois	NELAP	5	200004	07-31-19
Kansas	NELAP	7	E-10336	04-30-19 *
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19
New York	NELAP	2	10975	03-31-19 *
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

<p>Client Information Client Contact: Angela DeGrandis Company: ARCADIS U.S., Inc. Address: 28550 Cabot Drive Suite 500 City: Novi State, Zip: MI, 48377 Phone: MI001454.0003.00002 Email: angela.degrandis@arcadis-us.com Project Name: Ford LTP Livonia MI - E203631 Site</p>		<p>Lab PM: DelMonico, Michael E-Mail: michael.delmonico@testamericainc.com</p>		<p>Carrier Tracking No(s): COC No: 240-58422-24977.6 Page: Page 3 of 3 Job #:</p>										
<p>Due Date Requested: TAT Requested (days): 1 day / 24-HR</p>		<p>Analysis Requested</p>												
<p>Sample Identification</p>		<p>Sample ID: MW-183-030119</p>	<p>Sample Date: 3/1/19</p>	<p>Sample Time: 0950</p>	<p>Sample Type (C=Comp, G=grab): G</p>	<p>Matrix (Water, Solid, Other): Water</p>	<p>Preservation Code: N 3 3</p>	<p>Field Filtered Sample (Yes or No): X</p>	<p>Perform MS/MSD (Yes or No): X</p>	<p>8260B - VOCs (Short List): A</p>	<p>8260B - SIM - 1,4-Dioxane: A</p>	<p>Barcode: 240-108813 Chain of Custody</p>	<p>Total Number of containers: 6</p>	<p>Special Instructions/Note: G * SUBMIT ALL RESULTS THROUGH CADENA (SIM, TOMALIA @ CADENA.COM)</p>
<p>Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological</p>		<p>Empty Kit Relinquished by: Relinquished by: [Signature] Relinquished by: [Signature] Relinquished by: [Signature]</p>		<p>Deliverable Requested: I, II, III, IV <input checked="" type="checkbox"/> Other (specify): LEVEL IV REPORTING</p>		<p>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months</p>		<p>Special Instructions/QC Requirements:</p>		<p>Received by: [Signature] Date: 3/1/19 1200 Received by: [Signature] Date: 3-1-19 1521 Received by: [Signature] Date: 3/2/19 945</p>		<p>Company: ARCADIS Company</p>		
<p>Custody Seals Intact <input type="checkbox"/> <input checked="" type="checkbox"/> No</p>		<p>Custody Seal No: _____</p>		<p>Method of Shipment: _____</p>		<p>Temperature(s) °C and Other Remarks: _____</p>		<p>Ver: 01/16/2019</p>						



TestAmerica Canton Sample Receipt Form/Narrative

Login #: 108813

Canton Facility

Client: Accadis Site Name: Cooler unpacked by: [Signature]
Cooler Received on: 3/2/19 Opened on: 3/2/19
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler #: TA Foam Box Client Cooler Box Other
Packing material used: Bubble Wrap Foam Plastic Bag None Other
COOLANT: Wet Ice Blue Ice Dry Ice Water None

- 1. Cooler temperature upon receipt
IR GUN# IR-8 (CF -0.2 °C) Observed Cooler Temp. 0.6 °C Corrected Cooler Temp. 0.4 °C
IR GUN #36 (CF +0.7 °C) Observed Cooler Temp. °C Corrected Cooler Temp. °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1
-Were the seals on the outside of the cooler(s) signed & dated?
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?
-Were tamper/custody seals intact and uncompromised?
3. Shippers' packing slip attached to the cooler(s)?
4. Did custody papers accompany the sample(s)?
5. Were the custody papers relinquished & signed in the appropriate place?
6. Was/were the person(s) who collected the samples clearly identified on the COC?
7. Did all bottles arrive in good condition (Unbroken)?
8. Could all bottle labels be reconciled with the COC?
9. Were correct bottle(s) used for the test(s) indicated?
10. Sufficient quantity received to perform indicated analyses?
11. Are these work share samples?
12. Were all preserved sample(s) at the correct pH upon receipt?
13. Were VOAs on the COC?
14. Were air bubbles >6 mm in any VOA vials? Larger than this.
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #
16. Was a LL Hg or Me Hg trip blank present?

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other
Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: [Signature]

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____
VOA Sample Preservation - Date/Time VOAs Frozen: _____



March 05, 2019

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: MI001454.0002/3/4.00002/2B/3B
Client project scope reference: Sample COC only was used to define project analytical requirements.
Laboratory: TestAmerica - North Canton
Laboratory submittal: 108813-1
Sample date: 2019-03-01
Report received by CADENA: 2019-03-05
Initial Data Verification completed by CADENA: 2019-03-05

There were no significant QC anomalies or exceptions to report.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

1 Water sample was analyzed for GCMS VOC parameter(s).

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

SAMPLING AND ANALYSIS SUMMARY

CADENA Project ID: E203631

Laboratory: TestAmerica-North Canton

Laboratory Submittal: 108813-1

Lab Sample ID	Sample ID	Collection Date (mm/yy/dd)	Collection Time (hh:mm:ss)	Volatile Organics by GCMS	8260B with Single Ion Monitoring	Comment
2401088131	MW-183S-030119	3/1/2019	9:50:00	X	X	

Analytical Results Summary

Reportable Results Only

CADENA Project ID: E203631

Laboratory: TestAmerica - North Canton

Laboratory Submittal: 108813-1

Sample Name: MW-183S-030119

Lab Sample ID: 2401088131

Sample Date: 3/1/2019

Analyte	Cas No.	Result	Report		Valid	
			Limit	Units		Qualifier
GC/MS VOC						
<u>OSW-8260B</u>						
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	
Trichloroethene	79-01-6	ND	1.0	ug/l	---	
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	
<u>OSW-8260BBSim</u>						
1,4-Dioxane	123-91-1	ND	2.0	ug/l	---	

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG #240-108813-1

CADENA Verification Report: 2019-03-05

Analyses Performed By:

TestAmerica
Canton, Ohio

Report #31983R

Review Level: Tier II/Plus

Project: MI001454.0003.00002



DATA REVIEW

SUMMARY

This data quality assessment/verification summarizes the confirmation of detected compounds (if applicable), review of the verification/Tier II validation review performed by CADENA Inc. and review of level II laboratory data package completeness for Sample Delivery Group (SDG) # 240-108813-1 for samples collected in association with the Ford – Livonia, Michigan site. Only detected compound confirmations and omitted deviations from the CADENA verification/Tier II report are documented in this report. The Tier II/Plus validation is performed in the instance when a sample location has a detection at a concentration of 5 ppb or less. The detection and the concentration are reviewed and verified based on the instrument calibration and laboratory raw data. Only analytical data associated with constituents of concern were reviewed for this verification. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						VOC	VOC (SIM)	MISC
240-108813-1	MW-183S-030119	240-108813-1	Water	3/1/2019		X	X	

Notes:

VOC = volatile organic compound

SIM = selective ion monitoring

MISC = miscellaneous

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260B and 8260B SIM. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

1.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (15%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

1.2 Continuing Calibration

All target compounds associated with the continuing calibration verification (CCV) standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

Calibration criteria are only reviewed when detections were present in samples. No compounds were detected in the samples within this SDG; therefore, calibration criteria was not evaluated.

2. Compound Identification

Compounds are identified on the GC/MS by using the analyte's relative retention time, ion spectra, and concentration.

No compounds were detected in the samples within this SDG.

3. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in the CADENA Inc. review and this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: 8260B/8260B-SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II+ Validation					
Compound identification and quantitation					
A. Reconstructed ion chromatograms	X				X
B. Quantitation Reports	X				X
C. RT of sample compounds within the established RT windows	X				X

Notes:

RT retention time

VERIFICATION/VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: March 6, 2019

PEER REVIEW: Dennis Capria

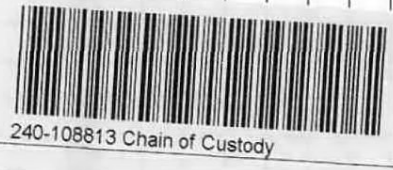
DATE: March 6, 2019



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



Client Information Client Contact: Angela DeGrandis Company: ARCADIS U.S., Inc. Address: 28550 Cabot Drive Suite 500 City: Novi State, Zip: MI, 48377 Phone: MI001454.0003.00002 Email: angela.degrandis@arcadis-us.com Project Name: Ford LTP Livonia MI - E203631 Site:		Lab PM: DelMonico, Michael E-Mail: michael.delmonico@testamericainc.com Carrier Tracking No(s): COC No: 240-58422-24977.6 Page: Page 3 of 3 Job #: 1/1	
Due Date Requested: TAT Requested (days): 1 day / 24-HR PO #: MI001454.0003.00002 WO #: Cadena #: E203631 Project #: 24015353 SSOW#:		Analysis Requested Total Number of containers: 6 Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Arsenic H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
Sample Identification MW-183-030119 Sample Date: 3/1/19 Sample Time: 0950 Sample Type (C=comp, G=grab): G Matrix (W=water, S=solid, O=soil, BT=Tissue, A=Air): Water		Field Filtered Sample (Yes or No): <input checked="" type="checkbox"/> A Perform MS/MSD (Yes or No): <input checked="" type="checkbox"/> A 8260B - VOCs (Short List) 8260B - SIM - 1,4-Dioxane Special Instructions/Note: G * SUBMIT ALL RESULTS THROUGH CADENA (SIM, TOMALIA@CADENA.COM)	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV <input checked="" type="checkbox"/> Other (specify): LEVEL IV REPORTING			
Empty Kit Relinquished by: Relinquished by: [Signature] Relinquished by: [Signature] Relinquished by: [Signature] Custody Seals Intact: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Custody Seal No.:			
Received by: [Signature] Date/Time: 3/1/19 1200 Company: ARCADIS		Received by: [Signature] Date/Time: 3-1-19 1521 Company: ARCADIS	
Received by: [Signature] Date/Time: 3/2/19 945 Company: ARCADIS		Cooker (Temperature(s) °C and Other Remarks):	
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/QC Requirements:			



Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-108813-1

Client Sample ID: MW-183S-030119

Lab Sample ID: 240-108813-1

Date Collected: 03/01/19 09:50

Matrix: Water

Date Received: 03/02/19 09:45

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			03/04/19 18:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	80		63 - 125					03/04/19 18:24	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

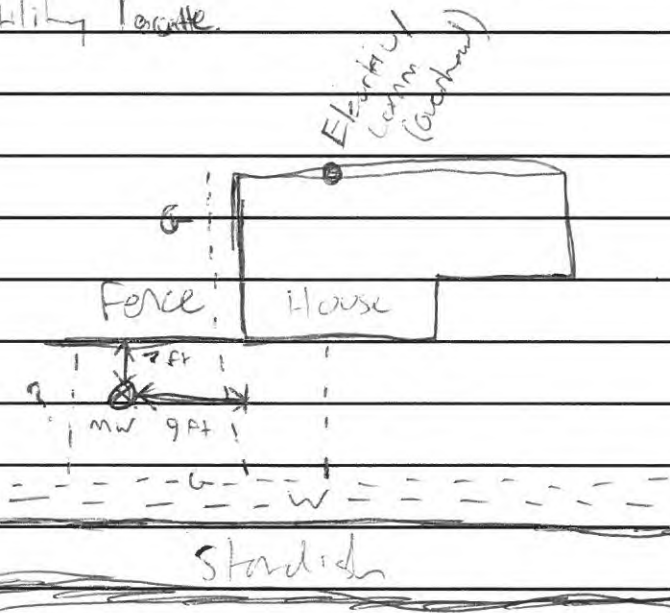
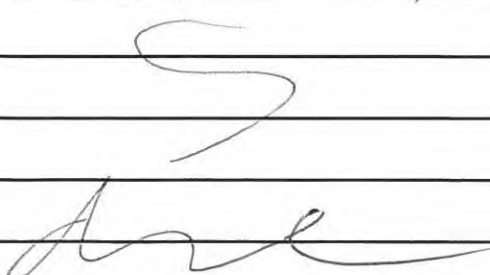
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/04/19 16:12	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			03/04/19 16:12	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			03/04/19 16:12	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/04/19 16:12	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			03/04/19 16:12	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			03/04/19 16:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		70 - 121					03/04/19 16:12	1
4-Bromofluorobenzene (Surr)	69		59 - 120					03/04/19 16:12	1
Toluene-d8 (Surr)	74		70 - 123					03/04/19 16:12	1
Dibromofluoromethane (Surr)	97		75 - 128					03/04/19 16:12	1

Daily Log

Project No.: MI001454.0003.00002 Page 1 of 1

Site Location: A 34934 Standish

Prepared By: Ian Drost

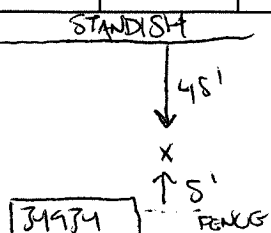
Date	Time	Description of Activities
2/19/19	—	PURPOSE: Utility Locate
	—	ON-SITE: Ian Drost, Evan Soto (GPRS)
	—	WEATHER: Sunny, 20's
	1130	<p>Arrived at 34934 Standish. Met with the owner and she assisted in locating location. Beginning utility locate.</p> 
↓	1145	Could not access backyard. Utility locate complete.
		

DAILY LOG

Project No.: M1601454.C003.C002
 Site Location: 34934 STANDISH UNONIA, MI
 Prepared By: S. JOHNSON

Page 1 of 1

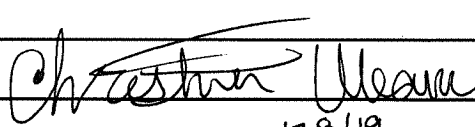
Date	Time	Description of Activities
2-21-19	—	PURPOSE: MW-1835 INSTALL, RESIDENTIAL
	—	WEATHER: 39°, SUNNY
	—	PERSONNEL: CHRIS A. AND ADRIAN — CASCADE
	—	EQUIPMENT: GEOTECH PID AND WLM; GEOPROBE B22DT
	1255	ARCADIS ON SITE
	1300	PREPARE DRILLING AREA
	1315	HAND AUGER TO 5' BGS
	1345	DRILL TO 15' BGS
	1400	HSA TO 14' BGS
	1404	SET WELL SCREEN FOR WLM
	1415	DTW FROM WLM: 9.8' BGS, INTERVAL FROM IAN: 8-13' BGS**
	1455	SET CONCRETE PAD
	1505	RECON AUGERS
	1525	ARCADIS OFFSITE
	—	** NOTE! WELL CONSTRUCTION (SAND 1' ABOVE SCREEN INTERVAL) APPROVED BY IAN



[Handwritten signature]

Daily Log

Project No.: MI001454.0003.00002 Page 1 of 1
 Site Location: 34934 Standish, Residential, MW-1835
 Prepared By: Christina Weaver

Date	Time	Description of Activities
2/28/19	1100	Purpose: MW Development, Residential, MW-1835
	—	Arcadis: C. Weaver
	—	Equipment: WLM (878), Turbidity meter (6135)
	—	Fibestec: N. Wiseman, J. Turnage
	—	Weather: 30°F, Partly Cloudy, 5.5 mph wind
	1120	Arrive onsite, Spoke with resident. They addressed their concerns about scheduling.
	—	I apologized and told her I would pass her concerns on, and we will schedule any activities in the future.
	1146	Surged ^{(CW) 2/28/19} Begin pumping pump = 1 gal / 108 sec
	1206	Surged
	1228	Surged
	1228	Surged
	1245	Finished pumping, DTW = 9.2' bgs, NTU = 41.8
	1258	Decon, offsite
		 Christina Weaver 2/28/19

Daily Log

Project No.: MI001454.0003.00002 Page 1 of 1
 Site Location: Ford LTP - Livonia, MI - 34934 STANDISH ST
 Prepared By: K. Koboski

Date	Time	Description of Activities
3/1/19	0830	ONSITE, PREP PAPERWORK, SETUP.
	0850	PUMP ON
	0950	SAMPLE MW-183-020119
	0955	PUMP OFF, PACK UP, FINISH PAPERWORK
↓	1010	OFFSITE

Utilities and Structures Checklist



THIS FORM MUST BE COMPLETED IN ENTIRETY PRIOR TO BEGINNING ANY INTRUSIVE WORK

Project: Ford LTP (34934 Slendish)
 Project Number: MI001454.0003.00002
 Form Completion Date: 02/19/2019 Form Expiration Date: 3/12/2019
 (15 business days post form completion date)

Pre-Field Work

Required: One Call or "811" notified 48-72 hours in advance of work? #: A90390141
 Ticket Expiration Date _____ (Review State Requirements)

Utility companies notified during the One Call process See attached ticket
 Electric _____ Water _____ Communication _____
 Gas _____ Storm/Sewer _____

List any other utilities requiring notification: None

Private Locator Contacted Yes No

Plan private utility clearance subcontractor assignments, areas, required clearance equipment, depth of clearance needed, types of utilities. When possible re-clear 811 markings to confirm utility locations.

Client provided utility maps or "as built" drawings showing utilities? Yes No

Field Work - This must be completed on site, by staff who have a minimum of one year of field experience in identifying utilities. Review Check list with PM or designee prior to beginning intrusive work.

List Soil Boring / Well IDs or Excavation Locations applicable to this clearance checklist:
Monitoring Well Installation

3 Reliable Lines of Evidence Required Prior to Starting any Subsurface Intrusive Work

- One Call/"811" (Reliable as a line of evidence when working in public right of way or easement)
 Utility Markings Present: Paint Pin flags/stakes Other None
- Client Provided Maps/Drawings **OR** Maps/Drawings requested but not provided
- Client Clearance Name(s)/Affiliation(s) _____
- Interview(s): Name(s)/Affiliation(s) _____

Did person(s) interviewed indicate depths of any utilities in the subsurface?
 Yes, depths provided: _____ Did not know or refused to answer
 Additional Comments: _____

- Site Inspection (Complete Page 2 & Photo Document Marked Utilities & Utility Structures)
- Public Records / Maps / Asbuilts
- Private Locator: (Name and Company) GPRS
- Ground Penetrating Radar (GPR)

- Radiofrequency (RFLoc)
- Electromagnetic (EM)
- Metal Detector

- Tips for Successful Utility Location:**
1. Don't forget to look up
 2. Be on site with Private Utility Locators
 3. Ask Private Locators to "confirm" other's markings
 4. Select alternate/backup locations during clearance process
 5. Mark out all known utilities. Leave nothing to question
 6. No hammering - no pickaxes - no digging bars - no shortcutting
 7. No excessive turning or downward force of hand augers/shovels
 8. Utilities may run in or directly under asphalt/concrete

- Soft Dig Methods**
- Termination Depth 5.0 ft. bgs
 - Potholing / Vacuum Extraction
 - Air-Knife Hydro-Knife
 - Probing
 - Hand Auguring

Other: _____
 Marine Locator: (Name and Company) _____



Utilities and Structures Checklist



During the site inspection look for the following: ("YES" requires additional investigation and the utility must be marked properly prior to beginning subsurface intrusive work):

Site Inspection

Utility Color Codes

Present

- | | | | |
|---|--------------------|---|--|
| a) Natural gas line present (evidence of a gas meter)? | Yellow | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| i) Feeder Lines to buildings or homes? | | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| b) Evidence of electric lines: | Red | | |
| i) Conduits to ground from electric meter or along wall? | | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| iii) Conduits from power poles running into ground? | | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| ii) Light poles, electric devices with no overhead lines? | | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| iii) Overhead electric lines present? (See Section I) | | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| c) Evidence of sewer drains: | Green | | |
| i) Restrooms or kitchen on site? | | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| ii) Sewer cleanouts present? | | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| iii) Combined sewer /storm lines or multiple sewer lines? | | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| d) Evidence of water lines: | Blue | | |
| i) Water meter on site or multiple water lines? | | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| ii) Fire hydrants in vicinity of work? | | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| iii) Irrigation systems? (Sprinkler heads, valve boxes, controls in building) | | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| e) Evidence of storm drains: | Green | | |
| i) Open curbside or slotted grate storm drains | | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| ii) Gutter down spouts going into ground | | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| f) Evidence of telecommunication lines: | Orange | | |
| i) Fiber optic warning signs in areas? | | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| iv) Aboveground cable boxes or housings or wires in work area? | | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| g) Underground storage tanks: | | | |
| i) Tank pit present, tank vent present? | | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| ii) Product lines running to dispensers/buildings? | | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| h) Do utilities enter or exit existing structures/buildings? | | | |
| If Yes, confirm the utility markings outside of structure/building match up. | | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| i) Proposed excavation marked in white? | White | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| j) Unclassed utilities / anomalies marked in pink? | Pink | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| k) Overhead Utilities/Communication Lines - Look Up: | | | |
| i) Overhead electrical conduit, pipe chases, cable trays, product lines? | | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| ii) Overhead fire sprinkler system? | | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| l) Overhead Power lines in or near the work area: | | | |
| i) < 50 kV within 10 ft. of work area? | | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| ii) >50 - 200 kV within 15 ft. of work area? | | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| iii) >200-350 kV within 20 ft. of work area? | | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| iv) >350-500 kV within 25 ft. of work area? | | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| v) >500-750 kV within 35 ft. or work area? | | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| vi) >750-1000 kV within 45 ft. of work area? | | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| m) Other: | | | |
| i) Evidence of linear asphalt or concrete repair? | | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| ii) Evidence of linear ground subsidence or change in vegetation? | | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| iii) Unmarked manholes or valve covers in work area? | | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| iv) Warning signs ("Call Before you Dig", etc.) on or adjacent to site? | | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| v) Utility color markings not illustrated in this checklist? | i.e. Purple | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| n) Has the Utilities & Structures Checklist been reviewed by the PM or Designee | | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |

PM or Designee Name: YAS HINSKEY

Name and Signature of person completing the checklist:

Ian Drost

Date: 02/19/2019

Do not perform **mechanized** intrusive work within 30 inches of a utility marking without receiving pre-approval by Corporate H&S .

RESIDENCE: 34934 STANDISH

ARCADIS
Soil Boring Log

Boring No.: MW-1835

Sheet: 1 of 1

Project Name: Ford LTP Date Started: 2-21-19 Logger: S. JOHNSON
 Project Number: MI001454.0003.00002 Date Completed: 2-21-19 Editor:
 Project Location: Livonia, MI 34934 STANDISH Weather Conditions: 39°, SUNNY

Depth (feet)	Sample ID & Time	Recovery (in.)	PID (ppm)	USCS Class.	Description
1	60" HA	60"	0.0		(0-0.3') TOPSOIL
2			0.7		(0.3-1') SAND, VF, SA-SR; SOME SILT; W SORTED; DRY; LOOSE; D BROWN (10 YR 3/3)
3			1.2		(1-4') SAND, F, SA-SR; W SORTED; DRY; LOOSE; YELLOWISH BROWN (10 YR 5/6)
4			1.2		(4-7.5') SAND, VF, SA-SR; AND SILT; W SORTED; DRY; LOOSE; YELLOWISH BROWN (10 YR 5/6)
5	60" ↓ HSA	36" ↓	0.8		NOTE: OXIDATION FROM 6.7-7.5' BGS
6			0.2		NOTE: NO RECOVERY FROM 5-6.7' BGS
7			0.2		(7.5-8.5') SAND, F-M, SA-SR; W SORTED; DRY; LOOSE; GRAY; (10 YR 5/1)
8			0.2		(8.5-12') SILT; SOME SAND; VF, SA-SR; NP; RD; SOFT; MOIST; GRAY (10 YR 5/1)
9			0.3		(12-12.5') SILT; AND SAND; VF-F, SA-SR; NP; RD; M STIFF; MOIST; GRAY (10 YR 5/1)
10			0.3		(12.5-12.7') CLAY; LITTLE SILT; HP; ND; SOFT; MOIST; GRAY (10 YR 5/1)
11	60" HSA	60"	0.2		(12.7-13.6') SAND, F-M, SA-SR; W SORTED; M DENSE; MOIST; GRAY (10 YR 5/1)
12			0.3		(13.6-14.6') SAND, F-C, SA-SR; SOME GRANULES, SA-SR; TRACE M PEBBLES, SA-SR; P SORTED; MOIST; LOOSE; GRAY (10 YR 5/1)
13			0.2		(14.6-15') SAND, VF-F, SA-SR; W SORTED; MOIST; M DENSE; GRAY (10 YR 5/1)
14			0.2		
15			0.3		
16					
17					
18					EOB @ 15' BGS
19					
20					

Drilling Co.: Cascade
 Driller: CHRIS A. AND ADRIAN
 Drilling Method: Hand Auger, Hollow Stem Auger
 Drilling Fluid: NA
 Remarks: WELL SCREEN! 8-13' BGS

Sampling Method: 5' Macro Core
 Sampling Interval: Continuous
 Water Level Start: 10.5' BGS
 Water Level Finish: NA
 Converted to Well: Yes No
 Surface Elev: NA
 North Coord: NA
 East Coord: NA

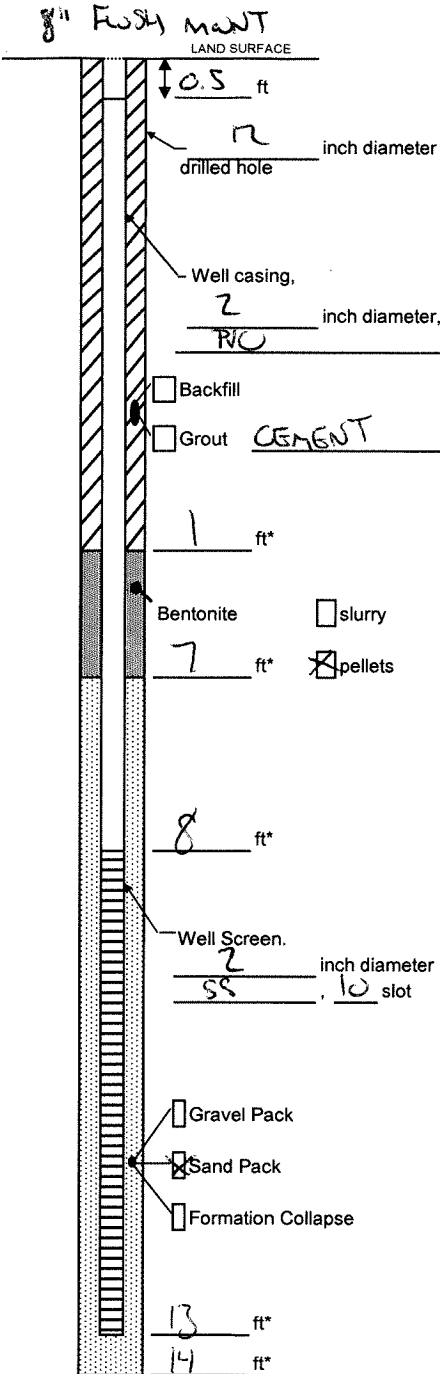
ARCADIS

RESIDENTIAL: 34934 STAUDISM

Well Construction Log

(Unconsolidated)

SCREEN INTEGRAL BASED ON DTW @ TIME OF INSTALL



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project Ford Well MW-1835
 Town/City Livonia
 County Wayne State MI
 Permit No. NA
 Land-Surface Elevation and Datum:
 _____ feet Surveyed Estimated
 Installation Date(s) 2/20/19
 Drilling Method Hollow Stem Auger
 Drilling Contractor ~~Fibertec~~ CASCADE
 Drilling Fluid —

Development Technique(s) and Date(s)
Submersible pump, PVC
Surge
2/28/19
 Fluid Loss During Drilling none gallons
 Water Removed During Development ~40 gallons
 Static Depth to Water 8.5 feet below M.P.
 Pumping Depth to Water 9.2 feet below M.P.
 Pumping Duration 59 ^{hours} minutes
 Yield 0.75 gpm Date 2/28/19
 Specific Capacity 1.071 gpm/ft
 Pump = 1 gal / 80 seconds
 Well Purpose Monitoring

Time	NTU	DTW
1151	284	9.2
1156	109	9.2
1201	89.1	9.2
1206	—	— Surged
1216	715	9.3
1221	159	9.2
1226	58.5	9.2
1228	—	— Surged
1233	71100	9.1
1238	142	9.2
1243	41.8	9.2

Remarks Surged at: Beginning, 1206

Began Pump: 1146
Ended Pump: 1245

Prepared by S. Johnson / C. Weaver

Christina Mear 2/28/19

ARCADIS

Water Sampling Log

Project Ford LTP Project No. 11001454.0003.0000 Page 1 of 1
 Site Location Livonia, MI - 34934 STANDISH ST Date 3/1/19
 Site/Well No. MW- 1883 Replicate No. -- Code No. --
 Weather 25°F PARTLY CLOUDY Sampling Time: Begin 0950 End 0955

Evacuation Data

Measuring Point TOC
 MP Elevation (ft) NA
 Land Surface Elevation (ft) NA
 Sounded Well Depth (ft bmp) 14.69
 Depth to Water (ft bmp) 8.69
 Water-Level Elevation (ft) NA
 Water Column in Well (ft) 6.00
 Casing Diameter/Type 2" pvc
 Gallons in Well 0.96 gal
 Gallons Pumped/Bailed Prior to Sampling 2.38 gal
 Sample Pump Intake Setting (ft bmp) 10 ft
 Purge Time begin 0850 end 0950
 Pumping Rate (ml/min) 150
 Evacuation Method NA

Field Parameters

Temperature (°C) 8.4
 SpC (mS/cm) 0.455
 CND (mS/cm) 0.318
 Dissolved Oxygen (%) 56.1
 Dissolved Oxygen (mg/L) 6.60
 pH (s.u.) 7.59
 ORP (mV) 66.9
 Turbidity (NTU) 14.0
 Color CLEAR
 Odor NONE
 Appearance NORMAL
 Sampling Method Low Flow
 Remarks —

Constituents Sampled	Container Description	Number	Preservative
1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, PCE, TCE, and Vinyl Chloride (via USEPA Method 8260B)	40 mL VOA	3	HCL

1,4-dioxane via USEPA Method 8260B-SIM	40 mL VOA	3	HCL
--	-----------	---	-----

Sampling Personnel Kira Koboski



Well Casing Volumes

Gal./Ft.	0.5" = 0.01	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1" = 0.04	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	Below measuring point	mL	Milliliter	NTU	Nephelometric turbidity units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	Feet	msl	Mean sea level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not recorded	VOC	Volatile organic compounds

ARCADIS
YSI/LOW FLOW SAMPLING LOG

WELL : MW- 1835

PROJ # : MI001454.0003.00002

DATE : 3/1/19

LOC : Livonia, MI - 34934 STANDISH ST

Time	Temp Degree C	SpC mS/cm	CND mS/cm	DO%	DO mg/L	pH	ORP mV	Flow Rate mL/min	Turbidity NTU	DTW
0850	PUMP	ON								
0855	8.3	0.475	0.323	68.5	8.09	7.43	93.4	~175	181	8.72
10 0900	8.4	0.480	0.328	69.7	8.13	7.46	86.2	"	126	8.72
0905	8.4	0.487	0.332	64.7	7.69	7.47	82.0	~150	90.4	8.72
20 0910	8.3	0.487	0.332	64.5	7.61	7.48	79.0	"	75.4	8.72
0915	8.4	0.489	0.333	62.9	7.35	7.50	76.1	"	54.1	8.72
30 0920	8.4	0.488	0.334	62.9	7.38	7.61	74.8	"	47.2	8.72
0925	8.3	0.477	0.326	60.4	7.06	7.65	72.1	"	37.0	8.72
40 0930	8.3	0.474	0.323	60.4	7.05	7.56	70.7	"	28.6	8.72
0935	8.4	0.469	0.320	57.7	6.76	7.68	69.0	"	22.5	8.72
50 0940	8.3	0.461	0.314	58.4	6.94	7.69	67.5	"	18.0	8.72
0945	8.4	0.455	0.318	58.1	6.60	7.59	66.9	"	14.0	8.72
60 0950	SAMPLE									
	✓	✓	✓	✓	✓	✓	✓			
XX										
Total Depth of Well:	14.69									
Depth To Water Before Purging:	8.69		@ 10 ft							
Depth To Water After Purging:	8.72									

TRANSMITTAL LETTER



To:
Anthony Kiseda
Shawn Collins
Brandon Alger (EGLE)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:
July 11, 2019

Subject:

Arcadis Project No.:

Shallow Groundwater
Assessment Data Package

We are sending you hard copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Delivery Date	Drawing No.	Rev.	Description	Action*
1	7/12/19			Figure	
1	7/12/19			Analytical Results	
1	7/12/19			Field Notes	

Action*

- A Approved CR Correct and Resubmit Resubmit _____ Copies
 AN Approved As Noted F File Return _____ Copies
 AS As Requested FA For Approval Review and Comment
 Other: _____

Mailing Method



- U.S. Postal Service 1st Class Courier/Hand Delivery FedEx Priority Overnight FedEx 2-Day Delivery
 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
 Other: email

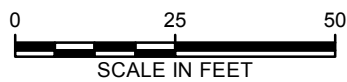
Thank you for cooperating with the groundwater sampling at your property on May 13, 2019. Attached is your data package.

CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: A. PAULSON TR: M. WACKSMAN PROJECT NUMBER: MI001454.0003.000001 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
Z:\GIS\Projects\ENV\NovBrighton_Mil\FordLivonia\GIS\docs\2019-03\MW_Locations\34934StandisMW-183S.mxd PLOTTED: 3/5/2019 10:06:05 AM BY: msmiller



LEGEND:

-  APPROXIMATE MONITORING WELL LOCATION
-  PROPERTY BOUNDARIES



FORD MOTOR COMPANY
LIVONIA TRANSMISSION PLANT
LIVONIA, MICHIGAN

MONITORING WELL LOCATION MW-183S



FIGURE
1

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-112910-1
Client Project/Site: Ford LTP Livonia MI - E203631

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
5/31/2019 12:14:03 PM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-112910-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.
X	Surrogate is outside control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-112910-1

Job ID: 240-112910-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Livonia MI - E203631

Report Number: 240-112910-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The sample was received on 5/18/2019 10:15 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.0° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Sample MW-183S_051319 (240-112910-1) was analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The sample was analyzed on 05/23/2019.

4-Bromofluorobenzene (Surr) failed the surrogate recovery criteria high for 240-112528-D-2 MS and 240-112528-C-2 MSD. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-183S_051319 (240-112910-1) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 05/21/2019.

1,4-Dioxane was detected in method blank MB 240-382312/5 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-112910-1

Job ID: 240-112910-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-112910-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-112910-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-112910-1	MW-183S_051319	Water	05/13/19 17:01	05/20/19 10:15	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-112910-1

Client Sample ID: MW-183S_051319

Lab Sample ID: 240-112910-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.0	J B	2.0	0.86	ug/L	1		8260B SIM	Total/NA

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-112910-1

Client Sample ID: MW-183S_051319

Lab Sample ID: 240-112910-1

Date Collected: 05/13/19 17:01

Matrix: Water

Date Received: 05/20/19 10:15

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.0	J B	2.0	0.86	ug/L	-		05/21/19 18:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		63 - 125		05/21/19 18:18	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		05/23/19 13:30	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L	-		05/23/19 13:30	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L	-		05/23/19 13:30	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		05/23/19 13:30	1
Trichloroethene	1.0	U	1.0	0.10	ug/L	-		05/23/19 13:30	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L	-		05/23/19 13:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		70 - 121		05/23/19 13:30	1
4-Bromofluorobenzene (Surr)	106		59 - 120		05/23/19 13:30	1
Toluene-d8 (Surr)	107		70 - 123		05/23/19 13:30	1
Dibromofluoromethane (Surr)	103		75 - 128		05/23/19 13:30	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-112910-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-121)	BFB (59-120)	TOL (70-123)	DBFM (75-128)
240-112528-C-2 MSD	Matrix Spike Duplicate	91	123 X	117	101
240-112528-D-2 MS	Matrix Spike	92	126 X	115	99
240-112910-1	MW-183S_051319	97	106	107	103
LCS 240-382711/4	Lab Control Sample	88	110	109	96
MB 240-382711/6	Method Blank	99	113	113	106

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (63-125)
240-112905-C-1 MS	Matrix Spike	91
240-112905-C-1 MSD	Matrix Spike Duplicate	87
240-112910-1	MW-183S_051319	87
LCS 240-382312/4	Lab Control Sample	84
MB 240-382312/5	Method Blank	84

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-112910-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-382711/6
Matrix: Water
Analysis Batch: 382711

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			05/23/19 08:16	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			05/23/19 08:16	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			05/23/19 08:16	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			05/23/19 08:16	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			05/23/19 08:16	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			05/23/19 08:16	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		70 - 121		05/23/19 08:16	1
4-Bromofluorobenzene (Surr)	113		59 - 120		05/23/19 08:16	1
Toluene-d8 (Surr)	113		70 - 123		05/23/19 08:16	1
Dibromofluoromethane (Surr)	106		75 - 128		05/23/19 08:16	1

Lab Sample ID: LCS 240-382711/4
Matrix: Water
Analysis Batch: 382711

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	10.6		ug/L		106	65 - 139
cis-1,2-Dichloroethene	10.0	10.7		ug/L		107	76 - 128
Tetrachloroethene	10.0	9.20		ug/L		92	74 - 130
trans-1,2-Dichloroethene	10.0	10.6		ug/L		106	78 - 133
Trichloroethene	10.0	8.97		ug/L		90	76 - 125
Vinyl chloride	10.0	11.1		ug/L		111	58 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	88		70 - 121
4-Bromofluorobenzene (Surr)	110		59 - 120
Toluene-d8 (Surr)	109		70 - 123
Dibromofluoromethane (Surr)	96		75 - 128

Lab Sample ID: 240-112528-C-2 MSD
Matrix: Water
Analysis Batch: 382711

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	10.0	10.8		ug/L		108	53 - 140	14	35
cis-1,2-Dichloroethene	1.0	U	10.0	10.0		ug/L		100	64 - 130	1	21
Tetrachloroethene	1.0	U	10.0	9.19		ug/L		92	51 - 136	8	23
trans-1,2-Dichloroethene	1.0	U	10.0	9.90		ug/L		99	68 - 133	2	24
Trichloroethene	1.0	U	10.0	8.89		ug/L		89	55 - 131	3	23
Vinyl chloride	3.2		10.0	14.8		ug/L		117	43 - 154	18	29

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	91		70 - 121
4-Bromofluorobenzene (Surr)	123	X	59 - 120
Toluene-d8 (Surr)	117		70 - 123

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-112910-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-112528-C-2 MSD
Matrix: Water
Analysis Batch: 382711

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Dibromofluoromethane (Surr)	101		75 - 128

Lab Sample ID: 240-112528-D-2 MS
Matrix: Water
Analysis Batch: 382711

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U	10.0	9.43		ug/L		94	53 - 140
cis-1,2-Dichloroethene	1.0	U	10.0	10.1		ug/L		101	64 - 130
Tetrachloroethene	1.0	U	10.0	8.52		ug/L		85	51 - 136
trans-1,2-Dichloroethene	1.0	U	10.0	9.70		ug/L		97	68 - 133
Trichloroethene	1.0	U	10.0	8.60		ug/L		86	55 - 131
Vinyl chloride	3.2		10.0	12.4		ug/L		92	43 - 154

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	92		70 - 121
4-Bromofluorobenzene (Surr)	126	X	59 - 120
Toluene-d8 (Surr)	115		70 - 123
Dibromofluoromethane (Surr)	99		75 - 128

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-382312/5
Matrix: Water
Analysis Batch: 382312

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.51	J	2.0	0.86	ug/L			05/21/19 12:01	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		63 - 125		05/21/19 12:01	1

Lab Sample ID: LCS 240-382312/4
Matrix: Water
Analysis Batch: 382312

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	12.7		ug/L		127	59 - 131

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	84		63 - 125

Lab Sample ID: 240-112905-C-1 MS
Matrix: Water
Analysis Batch: 382312

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	1.1	J B	10.0	12.2		ug/L		111	52 - 129

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-112910-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>MS</i> <i>%Recovery</i>	<i>MS</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	91		63 - 125

Lab Sample ID: 240-112905-C-1 MSD
 Matrix: Water
 Analysis Batch: 382312

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Total/NA

<i>Analyte</i>	<i>Sample</i> <i>Result</i>	<i>Sample</i> <i>Qualifier</i>	<i>Spike</i> <i>Added</i>	<i>MSD</i> <i>Result</i>	<i>MSD</i> <i>Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec.</i> <i>Limits</i>	<i>RPD</i>	<i>RPD</i> <i>Limit</i>
1,4-Dioxane	1.1	J B	10.0	12.3		ug/L		112	52 - 129	1	13

<i>Surrogate</i>	<i>MSD</i> <i>%Recovery</i>	<i>MSD</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	87		63 - 125

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QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-112910-1

GC/MS VOA

Analysis Batch: 382312

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-112910-1	MW-183S_051319	Total/NA	Water	8260B SIM	
MB 240-382312/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-382312/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-112905-C-1 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-112905-C-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 382711

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-112910-1	MW-183S_051319	Total/NA	Water	8260B	
MB 240-382711/6	Method Blank	Total/NA	Water	8260B	
LCS 240-382711/4	Lab Control Sample	Total/NA	Water	8260B	
240-112528-C-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
240-112528-D-2 MS	Matrix Spike	Total/NA	Water	8260B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-112910-1

Client Sample ID: MW-183S_051319

Lab Sample ID: 240-112910-1

Date Collected: 05/13/19 17:01

Matrix: Water

Date Received: 05/20/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	382711	05/23/19 13:30	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	382312	05/21/19 18:18	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-112910-1


Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19 *
Illinois	NELAP	5	200004	07-31-19 *
Iowa	State Program	7	421	06-01-21
Kansas	NELAP	7	E-10336	04-30-20
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19 *
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19 *
New York	NELAP	2	10975	03-31-20
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Canton

Client Information		Lab PM:		Carrier Tracking No(s):		COC No:						
Client Contact: Caitlin O'Neill		DeiMonico, Michael				240-60548-25803.8						
Company: ARCADIS U.S. Inc		E-Mail: michael.deimonico@testamericainc.com				Page: 8 of 13						
Address: 28550 Cabot Drive Suite 500						Job #:						
City: Novi												
State/Zip: MI, 48377												
Phone:												
Email: Caitlin.O'Neill@arcadis.com												
Project Name: Ford LTP Livonia MI - E203631												
Site: FERD LTP												
Due Date Requested:												
TAT Requested (days): 10												
PO #: MI004348-8662-8882												
WO #: Cadema #: E203631												
Project #: 24015353												
SSOW#: _____												
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Solid, On-water, B/C-Tissue, Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B, 8260B SIM	8260B - VOCs (Short List)	Analysis Requested	Carrier Tracking No(s)	Lab PM:	COC No:
MW-1835-051319	5-13-19	1701 G	G	Water	X	X	X	X			DeiMonico, Michael	240-60548-25803.8
				Water								
				Water								
				Water								
				Water								
				Water								
				Water								
				Water								
				Water								
				Water								
				Water								
				Water								
				Water								
										Total Number of containers: 6		
										Special Instructions/Note:		
										Preservation Codes:		
										A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:		
										M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecathylate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)		
										Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		
										<input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		
										Special Instructions/QC Requirements:		
										Method of Shipment:		
										Received by: _____ Date/Time: 5/13/19 1830 Company: Arcadis		
										Received by: _____ Date/Time: 5-17-19 1224 Company: EFA		
										Received by: _____ Date/Time: 5-18-19 1015 Company: EFA		
										Cooler Temperature(s) °C and Other Remarks:		


Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological
 Deliverable Requested: I, II, III (X) Other (specify)

Empty Kit Relinquished by: _____ Date: _____
 Relinquished by: _____ Date/Time: 5/13/19 1830 Company: Arcadis
 Relinquished by: _____ Date/Time: 5/17/19 1200 Company: Arcadis
 Relinquished by: _____ Date/Time: 5-17-19 1530 Company: EFA
 Custody Seals Intact: _____ Seal No.: _____
 A Yes Δ No

TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility


Login # : 112910

Client Arcadis Site Name _____
 Cooler Received on 5-18-19 Opened on 5-18-19
 FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Cooler unpacked by:


Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # TA Foam Box Client Cooler Box Other _____
 Packing material used: Bubble Wrap Foam Plastic Bag None Other _____
 COOLANT: Wet Ice Blue Ice Dry Ice Water None


1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN# IR-8 (CF -0.2 °C) Observed Cooler Temp. 1.2 °C Corrected Cooler Temp. 1.0 °C
 IR GUN #36 (CF +0.7°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
 4. Did custody papers accompany the sample(s)? Yes No
 5. Were the custody papers relinquished & signed in the appropriate place? Yes No
 6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
 7. Did all bottles arrive in good condition (Unbroken)? Yes No
 8. Could all bottle labels be reconciled with the COC? Yes No
 9. Were correct bottle(s) used for the test(s) indicated? Yes No
 10. Sufficient quantity received to perform indicated analyses? Yes No
 11. Are these work share samples?
 If yes, Questions 12-16 have been checked at the originating laboratory.
 12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC984738
 13. Were VOAs on the COC? Yes No
 14. Were air bubbles >6 mm in any VOA vials? Yes No NA  Larger than this.
 15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____
 16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:
 VOAs
 Oil and Grease
 TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:


18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

DATA VERIFICATION REPORT



May 31, 2019

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: MI001454.0002/3/4.00002/2B/3B
Event Specific Scope of Work References: Sample COC
Laboratory: TestAmerica - North Canton
Laboratory submittal: 112910-1
Sample date: 2019-05-13
Report received by CADENA: 2019-05-31
Initial Data Verification completed by CADENA: 2019-05-31
Number of Samples: 1
Sample Matrices: Water
Test Categories: GCMS VOC

Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

The following minor QC exceptions or missing information were noted:

MBK - GCMS VOC SIM QC batch 382312 method blank had a detection below the RL for the following analyte: 1,4-DIOXANE. The following client sample results should be considered to be non-detect at the RL and qualified with UB flags: -001.

GCMS VOC non-client MS and MSD SURROGATE recoveries were outliers biased high for at least 1 surrogate. Associated client sample results were non-detect so qualification was not required based on these high bias QC outliers.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

SAMPLING AND ANALYSIS SUMMARY

CADENA Project ID: E203631

Laboratory: TestAmerica-North Canton

Laboratory Submittal: 112910-1

Lab Sample ID	Sample ID	Collection Date (mm/yy/dd)	Collection Time (hh:mm:ss)	Volatile Organics by GCMS	8260B with Single Ion Monitoring	Comment
2401129101	MW-183S_051319	5/13/2019	5:01:00	X	X	

Qualified Results Summary

CADENA Project ID: E203631

Laboratory: TestAmerica - North Canton

Laboratory Submittal: 112910-1

Sample Name: MW-183S_051319

Lab Sample ID: 2401129101

Sample Date: 5/13/2019

Analyte	Cas No.	Result	Report Limit	Units	Valid Qualifier
GC/MS VOC					
<u>OSW-8260BBSim</u>					
1,4-Dioxane	123-91-1	1.0	2.0	ug/l	UB

Analytical Results Summary

Reportable Results Only

CADENA Project ID: E203631

Laboratory: TestAmerica - North Canton

Laboratory Submittal: 112910-1

Sample Name: MW-183S_051319

Lab Sample ID: 2401129101

Sample Date: 5/13/2019

Analyte	Cas No.	Result	Report		Valid	
			Limit	Units		Qualifier
GC/MS VOC						
<u>OSW-8260B</u>						
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	
Trichloroethene	79-01-6	ND	1.0	ug/l	---	
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	
<u>OSW-8260BBSim</u>						
1,4-Dioxane	123-91-1	1.0	2.0	ug/l	UB	

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG #240-112910-1

CADENA Verification Report: 2019-05-31

Analyses Performed By:

TestAmerica
Canton, Ohio

Report #33142R

Review Level: Tier III

Project: MI001454.0004.00002



DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-112910-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						VOC (Full Scan)	VOC (SIM)	MISC
240-112910-1	MW-183S_051319	240-112910-1	Water	5/13/2019		X	X	

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260B and 8260B SIM. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260B/8260B-SIM	Water	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

CADENA Inc. qualified 1,4-dioxane as “UB” at the detected concentration in sample MW-183S_051319, indicating method blank contamination contributed to the detection. However, since the 1,4-dioxane detection was below the reporting limit, the final result should be considered non-detect at the reporting limit, not the detected concentration.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (20%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

DATA REVIEW

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

5. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

6. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: 8260B/8260B-SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times/Preservation		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

- %RSD Relative standard deviation
- %R Percent recovery
- RPD Relative percent difference
- %D Percent difference

VALIDATION PERFORMED BY: Lisa Horton

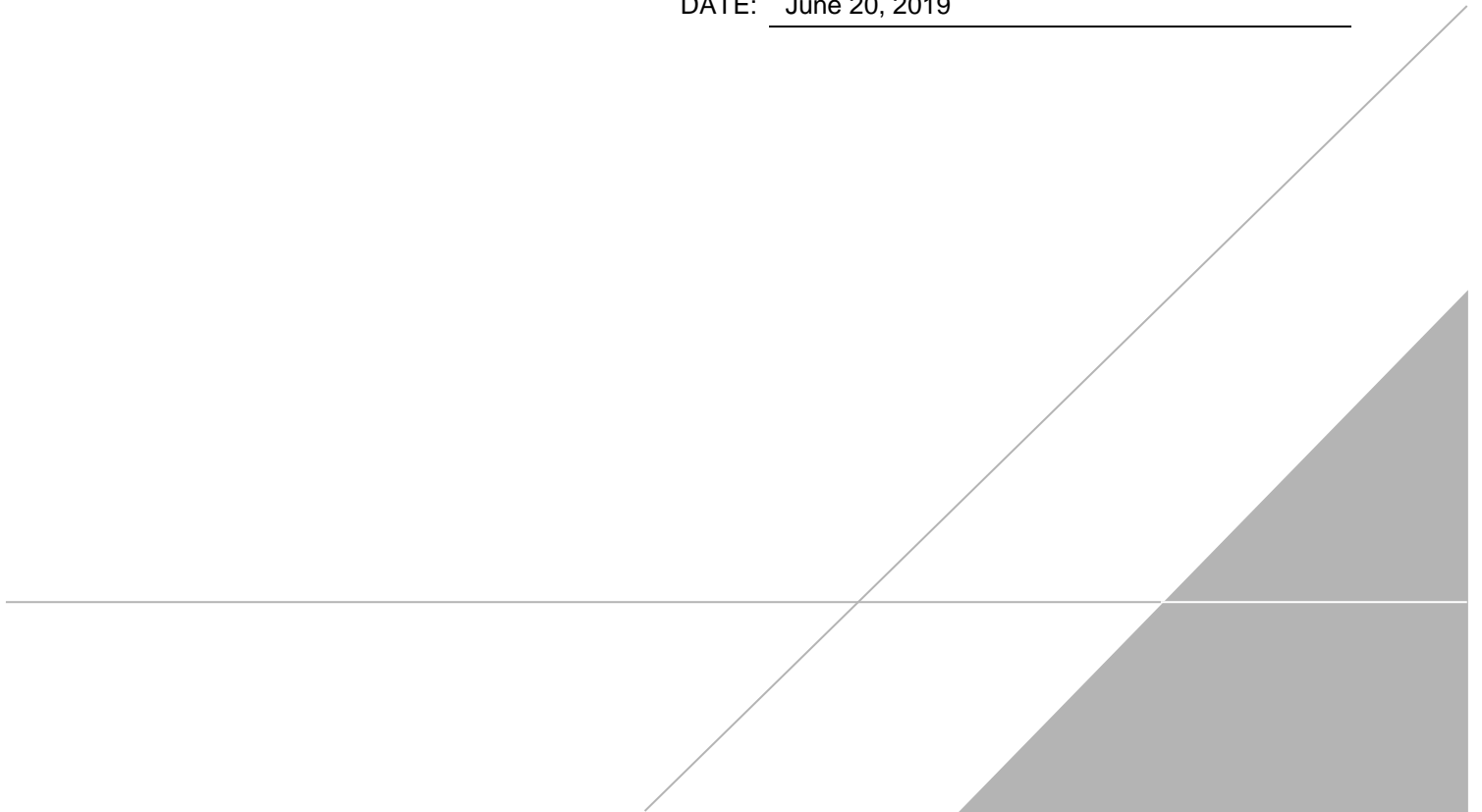
SIGNATURE:

Lisa Horton

DATE: June 14, 2019

PEER REVIEW: Dennis Capria

DATE: June 20, 2019



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



MICHIGAN Chain of Custody Record

190

Client Information

Client Contact: Caitlin O'Neill
 Company: ARCADIS U.S. Inc.
 Address: 28550 Cabot Drive Suite 500
 City: Novi
 State, Zip: MI, 48377
 Phone:

Email: Caitlin.O'Neill@arcadis.com
 Project Name: Ford LTP Livonia MI - E203631
 Site: **Ford LTP**

Sampler: S. Johnson
 Lab PM: DeMonico, Michael
 E-Mail: michael.deimonico@testamericainc.com

Due Date Requested:
 TAT Requested (days): 10

PO #: M1004349-0602-06002
 WO #: Cadena #: E203631
 Project #: 24015353
 SSOV#:

Carrier Tracking No(s):
 COC No: 240-60548-25803.8
 Page: Page 8 of 13
 Job #:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Solid, D=swell, BT=issue, A=air)	Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		8260B - VOCs (short list)	8260B - VOCs SIM	Total Number of containers	Special Instructions/Note:
					Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)				
MW-1835-051319	5-13-19	1701	G	Water	X	X	X	X				

Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological
 Deliverable Requested: I, II, III, IV, Other (specify)

Empty Kit Relinquished by: _____ Date: _____

Relinquished by: *Caitlin O'Neill* Date/Time: 5/13/19 1830 Company: Arcadis
 Relinquished by: *Caitlin O'Neill* Date/Time: 5/17/19 1200 Company: Arcadis
 Relinquished by: *Zylo* Date/Time: 5-17-19 1530 Company: GTA

Custody Seals Intact: Yes No Custody Seal No. _____

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months
 Special Instructions/QC Requirements:

Received by: *Next Cold Storage* Date/Time: 5/13/19 1830 Company: Arcadis
Received by: *Zylo* Date/Time: 5-17-19 1224 Company: GTA
Received by: *Zylo* Date/Time: 5-16-19 1015 Company: GTA
 Cooler Temperature(s) °C and Other Remarks:

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-112910-1

Client Sample ID: MW-183S_051319

Lab Sample ID: 240-112910-1

Date Collected: 05/13/19 17:01

Matrix: Water

Date Received: 05/20/19 10:15

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	1.0 JB UB	2.0	0.86	ug/L			05/21/19 18:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		63 - 125					05/21/19 18:18	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			05/23/19 13:30	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			05/23/19 13:30	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			05/23/19 13:30	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			05/23/19 13:30	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			05/23/19 13:30	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			05/23/19 13:30	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		70 - 121					05/23/19 13:30	1
4-Bromofluorobenzene (Surr)	106		59 - 120					05/23/19 13:30	1
Toluene-d8 (Surr)	107		70 - 123					05/23/19 13:30	1
Dibromofluoromethane (Surr)	103		75 - 128					05/23/19 13:30	1



Daily Log

Project No.: MI001454.0006.00003 Page 1 of 1

Site Location: Ford LTP 34934 Beacon

Prepared By: Shantel Johnson

Date	Time	Description of Activities
5/13/2019	16:00	Arrive onsite
5/13/2019	16:07	Record static depth to water
5/13/2019	16:19	Begin purging well
5/13/2019	17:01	Collect sample MW-183S_051319
5/13/2019	17:04	End purge and turn off pump, begin decon of equipment
5/13/2019	17:20	Offsite
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LOW-FLOW GROUNDWATER SAMPLING FORM

Page 1 of 1

Project No. MI001454.0006.00003 Well ID _____ Date 5/13/2019
 Project Name/Location Ford LTP Weather 53.96 degrees F and Cloudy
 Measuring Pt. Description Top of Casing Screen Setting (ft-bmp) 8.0-13.0 Casing Diameter (in.) 2 Well Material PVC
 Static Water Level (ft-bmp) 7.48 Total Depth (ft-bmp) 12.66 Water Column (ft.) 5.18 Gallons in Well 0.84
 Pump Intake (ft-bmp) 9 Purge Method Low-Flow Sample Method Low-Flow
 Well Volumes Purged 2.238
 Sample Time: Label 17:01 Volume Purged 1.88 gallons Replicate/Code No. -- Sampled by Shantel Johnson
 Purge Start 16:19
 Purge End 17:04

Time	Minutes Elapsed	Flow Rate (mL/min) [100-300 mL/min]	Depth to Water (ft) [± 0.3]	Gallons Purged	pH [± 0.1]	Cond. (mS/cm) [± 3%]	Turbidity (NTU) [± 10%]	DO (mg/L) [± 10%]	Temp. (°C)/(°F) [± 3%]	Redox (mV) [± 10mV]	Appearance	
											Color	Odor
16:23	0	200	7.53	0	7.21	0.279	10.3	7.21	9.4	-85.8	Clear	NA
16:28	5	200	7.51	0.26	7.24	0.288	11.5	6.89	9.3	-88.7	Clear	NA
16:33	5	200	7.53	0.52	7.25	0.299	19.5	6.99	9.3	-72.4	Clear	NA
16:38	5	200	7.53	0.78	7.21	0.307	16.7	6.95	9.3	-91.9	Clear	NA
16:43	5	200	7.53	1.04	7.14	0.338	10.2	6.56	9.3	-89.6	Clear	NA
16:48	5	200	7.53	1.3	7.19	0.351	9.06	6.39	9.3	-87.3	Clear	NA
16:53	5	200	7.53	1.56	7.25	0.37	4.86	6	9.3	-85.3	Clear	NA
16:56	3	200	7.53	1.72	7.27	0.372	3.41	5.9	9.3	-83.4	Clear	NA
16:59	3	200	7.53	1.88	7.28	0.373	2.18	5.75	9.3	-80.5	Clear	NA
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* Turbidity < 50 NTU and ±10% or within 1 NTU of a previous reading when <10 NTU

Constituents Sampled	Container	Number	Preservative
1,4-dioxane	40 mL Glass	3	HCL
1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, PCE, TCE, VC	40 mL Glass	3	HCL

Comments _____

Well Casing Volumes	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
Gallons/foot	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Well Information

Well Location: 34934 Beacon Well Locked at Arrival: no
 Condition of Well: Good Well Locked at Departure: yes
 Well Completion: Flush mount Lock Functioning: n/a

TRANSMITTAL LETTER



To:
Anthony Kiseda
Shawn Collins
Brandon Alger (EGLE)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:

October 17, 2019

Subject:

Arcadis Project No.:

Shallow Groundwater
Assessment Data Package

We are sending you hard copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Delivery Date	Drawing No.	Rev.	Description	Action*
1	10/18/19			Figure	
1	10/18/19			Analytical Results	
1	10/18/19			Field Notes and Drawings	

Action*

- A Approved CR Correct and Resubmit Resubmit _____ Copies
 AN Approved As Noted F File Return _____ Copies
 AS As Requested FA For Approval Review and Comment
 Other: _____

Mailing Method



- U.S. Postal Service 1st Class Courier/Hand Delivery FedEx Priority Overnight FedEx 2-Day Delivery
 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
 Other: email

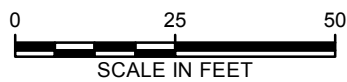
Thank you for cooperating with the groundwater sampling at your property on September 17, 2019.
Attached is your data package.

CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: A. PAULSON TR: M. WACKSMAN PROJECT NUMBER: MI001454.0003.000001 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
Z:\GIS\Projects\ENV\NovBrighton_MilFordLivonia\GIS\docs\2019-03\MW_Locations\34934StandisMW-183S.mxd PLOTTED: 3/5/2019 10:06:05 AM BY: msmiller



LEGEND:

-  MONITORING WELL LOCATION
-  PROPERTY BOUNDARIES



FORD MOTOR COMPANY
LIVONIA TRANSMISSION PLANT
LIVONIA, MICHIGAN

MONITORING WELL LOCATION MW-183S



FIGURE
1

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-119121-1
Client Project/Site: Ford LTP Livonia MI - E203631

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
10/2/2019 2:57:32 PM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

LINKS

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results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119121-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119121-1

Job ID: 240-119121-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Livonia MI - E203631

Report Number: 240-119121-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control sample was within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, sample was diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The sample was received on 9/19/2019 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 2.5° C, 3.5° C and 3.6° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples MW-183S_091719 (240-119121-1) and TRIP BLANK (240-119121-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The sample was analyzed on 09/26/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-183S_091719 (240-119121-1) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 09/24/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119121-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119121-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-119121-1	MW-183S_091719	Water	09/17/19 11:21	09/19/19 09:30	
240-119121-2	TRIP BLANK	Water	09/17/19 00:00	09/19/19 09:30	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119121-1

Client Sample ID: MW-183S_091719

Lab Sample ID: 240-119121-1

No Detections.

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-119121-2

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119121-1

Client Sample ID: MW-183S_091719

Lab Sample ID: 240-119121-1

Date Collected: 09/17/19 11:21

Matrix: Water

Date Received: 09/19/19 09:30

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L	-		09/24/19 21:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		63 - 125		09/24/19 21:15	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		09/26/19 19:06	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L	-		09/26/19 19:06	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L	-		09/26/19 19:06	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		09/26/19 19:06	1
Trichloroethene	1.0	U	1.0	0.10	ug/L	-		09/26/19 19:06	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L	-		09/26/19 19:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		70 - 121		09/26/19 19:06	1
4-Bromofluorobenzene (Surr)	78		59 - 120		09/26/19 19:06	1
Toluene-d8 (Surr)	93		70 - 123		09/26/19 19:06	1
Dibromofluoromethane (Surr)	113		75 - 128		09/26/19 19:06	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119121-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-119121-2

Date Collected: 09/17/19 00:00

Matrix: Water

Date Received: 09/19/19 09:30

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			09/26/19 19:30	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			09/26/19 19:30	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			09/26/19 19:30	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			09/26/19 19:30	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			09/26/19 19:30	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			09/26/19 19:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		70 - 121		09/26/19 19:30	1
4-Bromofluorobenzene (Surr)	77		59 - 120		09/26/19 19:30	1
Toluene-d8 (Surr)	91		70 - 123		09/26/19 19:30	1
Dibromofluoromethane (Surr)	109		75 - 128		09/26/19 19:30	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119121-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA	BFB	TOL	DBFM
		(70-121)	(59-120)	(70-123)	(75-128)
240-119121-1	MW-183S_091719	96	78	93	113
240-119121-2	TRIP BLANK	95	77	91	109
240-119125-C-1 MS	Matrix Spike	81	94	97	98
240-119125-G-1 MSD	Matrix Spike Duplicate	80	94	99	102
LCS 240-402637/4	Lab Control Sample	83	102	102	103
MB 240-402637/7	Method Blank	88	78	93	108

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA
		(63-125)
240-119121-1	MW-183S_091719	110
240-119125-H-1 MS	Matrix Spike	109
240-119125-H-1 MSD	Matrix Spike Duplicate	111
LCS 240-402169/4	Lab Control Sample	107
MB 240-402169/5	Method Blank	108

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119121-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-402637/7
Matrix: Water
Analysis Batch: 402637

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			09/26/19 15:08	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			09/26/19 15:08	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			09/26/19 15:08	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			09/26/19 15:08	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			09/26/19 15:08	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			09/26/19 15:08	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		70 - 121		09/26/19 15:08	1
4-Bromofluorobenzene (Surr)	78		59 - 120		09/26/19 15:08	1
Toluene-d8 (Surr)	93		70 - 123		09/26/19 15:08	1
Dibromofluoromethane (Surr)	108		75 - 128		09/26/19 15:08	1

Lab Sample ID: LCS 240-402637/4
Matrix: Water
Analysis Batch: 402637

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	10.3		ug/L		103	65 - 139
cis-1,2-Dichloroethene	10.0	10.1		ug/L		101	76 - 128
Tetrachloroethene	10.0	10.7		ug/L		107	74 - 130
trans-1,2-Dichloroethene	10.0	10.8		ug/L		108	78 - 133
Trichloroethene	10.0	11.0		ug/L		110	76 - 125
Vinyl chloride	10.0	5.91		ug/L		59	58 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	83		70 - 121
4-Bromofluorobenzene (Surr)	102		59 - 120
Toluene-d8 (Surr)	102		70 - 123
Dibromofluoromethane (Surr)	103		75 - 128

Lab Sample ID: 240-119125-C-1 MS
Matrix: Water
Analysis Batch: 402637

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U	10.0	9.52		ug/L		95	53 - 140
cis-1,2-Dichloroethene	1.0	U	10.0	9.75		ug/L		98	64 - 130
Tetrachloroethene	1.0	U	10.0	9.24		ug/L		92	51 - 136
trans-1,2-Dichloroethene	1.0	U	10.0	10.4		ug/L		104	68 - 133
Trichloroethene	1.0	U	10.0	10.2		ug/L		102	55 - 131
Vinyl chloride	1.0	U	10.0	5.54		ug/L		55	43 - 154

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	81		70 - 121
4-Bromofluorobenzene (Surr)	94		59 - 120
Toluene-d8 (Surr)	97		70 - 123

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119121-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-119125-C-1 MS
Matrix: Water
Analysis Batch: 402637

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	98		75 - 128

Lab Sample ID: 240-119125-G-1 MSD
Matrix: Water
Analysis Batch: 402637

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	10.0	10.0		ug/L		100	53 - 140	5	35
cis-1,2-Dichloroethene	1.0	U	10.0	10.3		ug/L		103	64 - 130	5	21
Tetrachloroethene	1.0	U	10.0	10.2		ug/L		102	51 - 136	10	23
trans-1,2-Dichloroethene	1.0	U	10.0	11.0		ug/L		110	68 - 133	5	24
Trichloroethene	1.0	U	10.0	10.3		ug/L		103	55 - 131	1	23
Vinyl chloride	1.0	U	10.0	5.50		ug/L		55	43 - 154	1	29

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	80		70 - 121
4-Bromofluorobenzene (Surr)	94		59 - 120
Toluene-d8 (Surr)	99		70 - 123
Dibromofluoromethane (Surr)	102		75 - 128

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-402169/5
Matrix: Water
Analysis Batch: 402169

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			09/24/19 12:10	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		63 - 125		09/24/19 12:10	1

Lab Sample ID: LCS 240-402169/4
Matrix: Water
Analysis Batch: 402169

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	10.0		ug/L		100	59 - 131

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	107		63 - 125

Lab Sample ID: 240-119125-H-1 MS
Matrix: Water
Analysis Batch: 402169

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	10.0	11.5		ug/L		115	52 - 129

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119121-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>MS</i> <i>%Recovery</i>	<i>MS</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	109		63 - 125

Lab Sample ID: 240-119125-H-1 MSD
Matrix: Water
Analysis Batch: 402169

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

<i>Analyte</i>	<i>Sample</i> <i>Result</i>	<i>Sample</i> <i>Qualifier</i>	<i>Spike</i> <i>Added</i>	<i>MSD</i> <i>Result</i>	<i>MSD</i> <i>Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec.</i> <i>Limits</i>	<i>RPD</i>	<i>RPD</i> <i>Limit</i>
1,4-Dioxane	2.0	U	10.0	11.1		ug/L		111	52 - 129	3	13

<i>Surrogate</i>	<i>MSD</i> <i>%Recovery</i>	<i>MSD</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	111		63 - 125

- 1
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- 12
- 13
- 14

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119121-1

GC/MS VOA

Analysis Batch: 402169

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119121-1	MW-183S_091719	Total/NA	Water	8260B SIM	
MB 240-402169/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-402169/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-119125-H-1 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-119125-H-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 402637

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119121-1	MW-183S_091719	Total/NA	Water	8260B	
240-119121-2	TRIP BLANK	Total/NA	Water	8260B	
MB 240-402637/7	Method Blank	Total/NA	Water	8260B	
LCS 240-402637/4	Lab Control Sample	Total/NA	Water	8260B	
240-119125-C-1 MS	Matrix Spike	Total/NA	Water	8260B	
240-119125-G-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119121-1

Client Sample ID: MW-183S_091719

Lab Sample ID: 240-119121-1

Date Collected: 09/17/19 11:21

Matrix: Water

Date Received: 09/19/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	402637	09/26/19 19:06	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	402169	09/24/19 21:15	SAM	TAL CAN

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-119121-2

Date Collected: 09/17/19 00:00

Matrix: Water

Date Received: 09/19/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	402637	09/26/19 19:30	LRW	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119121-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-20
California	State Program	2927	02-23-20
Connecticut	State	PH-0590	12-31-19
Connecticut	State Program	PH-0590	12-31-19
Florida	NELAP	E87225	06-30-20
Florida	NELAP	E87225	06-30-20
Georgia	State	4062	02-23-20
Georgia	State Program	N/A	02-23-20
Illinois	NELAP	200004	07-31-20
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-20
Iowa	State Program	421	06-01-21
Kansas	NELAP	E-10336	04-30-20
Kansas	NELAP	E-10336	04-30-20
Kentucky (UST)	State	112225	02-23-20
Kentucky (UST)	State Program	58	02-23-20
Kentucky (WW)	State	KY98016	12-31-19
Kentucky (WW)	State Program	98016	12-31-19
Minnesota	NELAP	039-999-348	12-31-19 *
Minnesota	NELAP	OH00048	12-31-19
Minnesota (Petrofund)	State Program	3506	07-31-21
New Jersey	NELAP	OH001	06-30-20
New Jersey	NELAP	OH001	06-30-20
New York	NELAP	10975	03-31-20
New York	NELAP	10975	03-31-20
Ohio VAP	State	CL0024	06-05-21
Ohio VAP	State Program	CL0024	06-05-21
Oregon	NELAP	4062	02-23-20
Oregon	NELAP	4062	02-23-20
Pennsylvania	NELAP	68-00340	08-31-20
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-19-11	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	Federal	P330-16-00404	12-28-19
USDA	US Federal Programs	P330-16-00404	12-28-19
Virginia	NELAP	460175	09-14-20
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-20
Washington	State Program	C971	01-12-20 *
West Virginia DEP	State	210	12-31-19
West Virginia DEP	State Program	210	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Chain of Custody Record

TestAmerica Laboratory location: Brighton --- 10448 Chikson Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Client Contact Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240 Project Name: Ford LTP Project Number: M1001454.0004.0002B PO # M1001454.0004.0002B		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other	
Client Project Manager: Kris Himskey Telephone: 248-994-2240 Email: kristoffer.himskey@arcadis.com		Site Contact: Rachel Bielak Telephone: 248-946-6331	
Method of Shipment/Carrier: Shipping/Tracking No:		Analysis Turnaround Time TAT if different from below <input type="checkbox"/> 3 weeks <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day	
Sample Date 9-17-19 9-17-19		Sample Time 1021 ---	
Sample Identification MW-1835-091719 Trip Blank		Matrix Air <input type="checkbox"/> Aqueous <input type="checkbox"/> Sediment <input type="checkbox"/> Solid <input type="checkbox"/> Other:	
Containers & Preservatives H2SO4 <input type="checkbox"/> HNO3 <input type="checkbox"/> HCl <input type="checkbox"/> NaOH <input type="checkbox"/> ZnOH <input type="checkbox"/> Uppers <input type="checkbox"/> Other:		Filtered Sample (Y / N) YG- <input checked="" type="checkbox"/> YG- <input checked="" type="checkbox"/>	
Composite C / Grab C		Analyses 1,1-DCE 8260B <input checked="" type="checkbox"/> Cis-1,2-DCE 8260B <input checked="" type="checkbox"/> Trans-1,2-DCE 8260B <input checked="" type="checkbox"/> PCE 8260B <input checked="" type="checkbox"/> TCE 8260B <input checked="" type="checkbox"/> Vinyl Chloride 8260B <input checked="" type="checkbox"/> 1,4-Dioxane 8260B SIM <input checked="" type="checkbox"/>	
Sample Specific Notes / Special Instructions:		For lab use only Walk-in client Lab sampling Job/SDG No:	



Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal By Lab Archive For _____ Months

Special Instructions/QC Requirements & Comments:
 Submit all results through Cadena at jim.tormalia@cadena.com. Cadena #E203631
 Level IV Reporting requested.

Relinquished by: <i>John</i>	Company: Arcadis	Date/Time: 8-17-19 1635	Received by: <i>Nancy</i>	Company: Arcadis	Date/Time: 8-17-19 1635
Relinquished by: <i>KACHELBIELAK</i>	Company: ARCADIS	Date/Time: 9/18/19 1030	Received by: <i>Molly</i>	Company: ETAL-MI	Date/Time: 9/18/19 1035
Relinquished by: <i>Molly</i>	Company: ETAL-MI	Date/Time: 9/18/19 1420	Received in Laboratory by: <i>Molly</i>	Company: <i>ETAL-MI</i>	Date/Time: 9/19/19 930

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Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 119121

Client Accadis Site Name _____
 Cooler Received on 9/19/17 Opened on 9/19/19

Cooler unpacked by:
DsO

FedEx: 1st Grd UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # TAC Foam Box _____ Client Cooler Box _____ Other _____
 Packing material used: Bubble Wrap Foam Plastic Bag None Other _____
 COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN #IR-11 (CF +0.9°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity Leach Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
 If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC991818
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? Larger than this. Yes No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # N/A Yes No
16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:
Martin

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____
 VOA Sample Preservation - Date/Time VOAs Frozen: _____

Eurofins TestAmerica Canton Sample Receipt Multiple Cooler Form

Cooler Description (Circle)				IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)		
TA	Client	Box	Other	IR-10 IR-11	1.8	2.5	Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11	2.9	3.6	Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11	2.8	3.5	Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	
TA	Client	Box	Other	IR-10 IR-11			Wet Ice	Blue Ice	Dry Ice
							Water	None	

See Temperature Excursion Form

DATA VERIFICATION REPORT



October 02, 2019

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: MI001454.0003 30016344 - VI sampling
Event Specific Scope of Work References: Sample COC
Laboratory: TestAmerica - North Canton
Laboratory submittal: 119121-1
Sample date: 2019-09-17
Report received by CADENA: 2019-10-02
Initial Data Verification completed by CADENA: 2019-10-02
Number of Samples:2
Sample Matrices:Water
Test Categories:GCMS VOC

Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

There were no significant QC anomalies or exceptions to report.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

SAMPLING AND ANALYSIS SUMMARY

CADENA Project ID: E203631

Laboratory: TestAmerica-North Canton

Laboratory Submittal: 119121-1

Lab Sample ID	Sample ID	Collection Date (mm/yy/dd)	Collection Time (hh:mm:ss)	Volatile Organics by GCMS	8260B with Single Ion Monitoring	Comment
2401191211	MW-183S_091719	9/17/2019	11:21:00	X	X	
2401191212	TRIP BLANK	9/17/2019	12:00:00	X		

Analytical Results Summary

Reportable Results Only

CADENA Project ID: E203631

Laboratory: TestAmerica - North Canton

Laboratory Submittal: 119121-1

Sample Name: MW-183S_091719 TRIP BLANK
Lab Sample ID: 2401191211 2401191212
Sample Date: 9/17/2019 9/17/2019

Analyte	Cas No.	Report		Units	Valid		Report		Valid	
		Result	Limit		Qualifier	Result	Limit	Units	Qualifier	
GC/MS VOC										
<u>OSW-8260B</u>										
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
<u>OSW-8260BBSim</u>										
1,4-Dioxane	123-91-1	ND	2.0	ug/l	---					

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG #240-119121-1

CADENA Verification Report: 2019-10-02

Analyses Performed By:

TestAmerica
Canton, Ohio

Report #34303R

Review Level: Tier III

Project: 30016346.00002



DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-119121-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						VOC (Full Scan)	VOC (SIM)	MISC
240-119121-1	MW-183S_091719	240-119121-1	Water	9/17/2019		X	X	
	TRIP BLANK	240-119121-2	Water	9/17/2019		X		

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260B and 8260B SIM. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260B/8260B-SIM	Water	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl

All samples were analyzed within the specified holding time criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (20%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

DATA REVIEW

No compounds were detected in the samples within this SDG.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: 8260B/8260B-SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times/Preservation		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: October 9, 2019

PEER REVIEW: Joseph C. Houser

DATE: October 11, 2019



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



**NO CORRECTIONS/QUALIFIERS ADDED
TO SAMPLE ANALYSIS DATA SHEETS**




Chain of Custody Record

MICHIGAN
190

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratory location: Brighton --- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Client Contact Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240 Project Name: Ford LTP Project Number: M1001454.0004.0002B PO # M1001454.0004.0002B		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other	
Client Project Manager: Kris Hinskey Telephone: 248-994-2240 Email: kristoffer.hinskey@arcadis.com		Site Contact: Rachel Bielak Telephone: 248-946-6331	
Method of Shipment/Carrier: Shipping/Tracking No:		Analysis Turnaround Time TAT if different from below <input type="checkbox"/> 3 weeks <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day	
Matrix Air <input type="checkbox"/> Aqueous <input type="checkbox"/> Sediment <input type="checkbox"/> Solid <input type="checkbox"/> Other:		Containers & Preservatives H2SO4 <input type="checkbox"/> HNO3 <input type="checkbox"/> HCl <input type="checkbox"/> NaOH <input type="checkbox"/> ZnAc <input type="checkbox"/> NaOH <input type="checkbox"/> Uprts <input type="checkbox"/> Other:	
Sample Date	Sample Time	Filtered Sample (Y/N)	Composite C/Grab
MW-1835-091719	1021	X	X
Trip Blank	---	X	X
 240-119121 Chain of Custody			
Analyses 1,1-DCE 8260B Cis-1,2-DCE 8260B Trans-1,2-DCE 8260B PCE 8260B TCE 8260B Vinyl Chloride 8260B 1,4-Dioxane 8260B SIM			
Walk-in client <input type="checkbox"/> Lab sampling <input type="checkbox"/> Job/SDG No:			
of COCs For lab use only			
Sample Specific Notes / Special Instructions:			

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal By Lab Archive For _____ Months

Possible Hazard Identification
 Non-hazard flammable in Irritant Poison B Unknown

Special Instructions/QC Requirements & Comments:
 Submit all results through Cadena at jim.tomalia@cadena.com. Cadena #E203631
 Level IV Reporting requested.

Relinquished by: <i>Jim Tomalia</i>	Company: Arcadis	Date/Time: 8-17-19 1635	Received by: <i>Nancy Cad Storage</i>	Company: Arcadis	Date/Time: 8-17-19 1635
Relinquished by: <i>RACHEL BIELAK Paul Bielak</i>	Company: ARCADIS	Date/Time: 9/18/19 1030	Received by: <i>Molly Massow</i>	Company: ETAL-MI	Date/Time: 9/18/19 1030
Relinquished by: <i>Molly Massow</i>	Company: ETAL-MI	Date/Time: 9/18/19 1420	Received in Laboratory by: <i>Molly Massow</i>	Company: ETAL-MI	Date/Time: 9/19/19 930

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Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119121-1

Client Sample ID: MW-183S_091719

Lab Sample ID: 240-119121-1

Date Collected: 09/17/19 11:21

Matrix: Water

Date Received: 09/19/19 09:30

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L	-		09/24/19 21:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		63 - 125		09/24/19 21:15	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		09/26/19 19:06	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L	-		09/26/19 19:06	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L	-		09/26/19 19:06	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		09/26/19 19:06	1
Trichloroethene	1.0	U	1.0	0.10	ug/L	-		09/26/19 19:06	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L	-		09/26/19 19:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		70 - 121		09/26/19 19:06	1
4-Bromofluorobenzene (Surr)	78		59 - 120		09/26/19 19:06	1
Toluene-d8 (Surr)	93		70 - 123		09/26/19 19:06	1
Dibromofluoromethane (Surr)	113		75 - 128		09/26/19 19:06	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119121-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-119121-2

Date Collected: 09/17/19 00:00

Matrix: Water

Date Received: 09/19/19 09:30

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			09/26/19 19:30	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			09/26/19 19:30	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			09/26/19 19:30	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			09/26/19 19:30	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			09/26/19 19:30	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			09/26/19 19:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		70 - 121		09/26/19 19:30	1
4-Bromofluorobenzene (Surr)	77		59 - 120		09/26/19 19:30	1
Toluene-d8 (Surr)	91		70 - 123		09/26/19 19:30	1
Dibromofluoromethane (Surr)	109		75 - 128		09/26/19 19:30	1

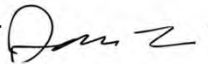


SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Project No.: 30016346.00002 Page 1 of 2

Site Location: Ford LTP West side of yard by fence

Prepared By: Jonathon Lust

Date	Time	Description of Activities
9/17/2019	10:20	Arrive onsite
9/17/2019	10:35	Record static depth to water
9/17/2019	10:30	Begin purging well
9/17/2019	11:21	Collect sample MW-183S_091719
9/17/2019	11:21	End purge and turn off pump, begin decon of equipment
9/17/2019	11:45	Offsite
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SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Project No.: 30016346.00002 Page 2 of 2

Site Location: Ford LTP West side of yard by fence

Prepared By: Jonathon Lust Date: 9/17/2019

Photos taken onsite:

Image 1:



Image 2:

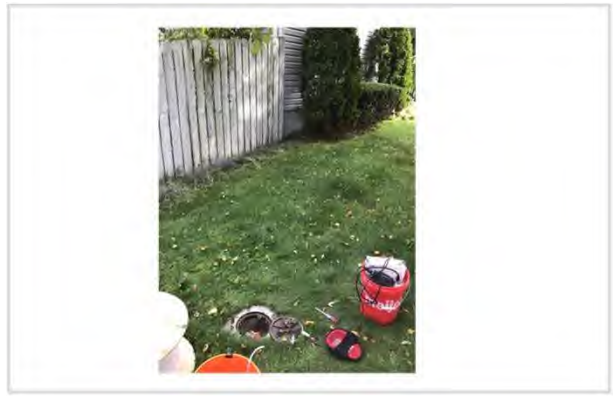


Image 3:

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Image 4:

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LEFT BLANK**

Field staff signature:



SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Page 1 of 1

Project No. 30016346.00002 Well ID Ford LTP MW-183S Date 9/17/19
 Project Name/Location Ford LTP Weather 68.00 degrees F, Haze
 Measuring Pt. Description Top of Casing Screen Setting (ft-bmp) 8.0-13.0 Casing Diameter (in.) 2 Well Material PVC
 Static Water Level (ft-bmp) 9.55 Total Depth (ft-bmp) 12.70 Water Column (ft.) 3.15 Gallons in Well 0.51
11.10 Pump Intake (ft-bmp) 11.10 Purge Method Low-Flow Sample Method Low-Flow
4.71 Well Volumes Purged
 Sample Time: Label 11:21 Volume Purged 2.4 gallons Replicate/Code No. -- Sampled by Jonathon Lust
 Purge Start 10:30
 Purge End 11:21

Time	Minutes Elapsed between Readings	Flow Rate (mL/min) [100-300 mL/min]	Depth to Water (ft) [± 0.3]	Total Gallons Purged	pH [± 0.1]	Cond. (mS/cm) [± 3%]	Turbidity (NTU) [± 10%]*	DO (mg/L) [± 10%]	Temp. (C)/(F) [± 3%]	Redox (mV) [± 10mV]	Appearance	
											Color	Odor
10:35	0	200	9.75	0.00	7.72	0.466	788.00	5.7	14.6	127.4	Turbid	None
10:40	5	200	9.58	0.26	7.27	0.472	496.00	6.06	14.5	124.4	Turbid	None
10:45	5	200	9.6	0.52	7.25	0.478	199.00	5.85	14.6	119.3	Turbid	None
10:50	5	200	9.6	0.78	7.39	0.476	112.00	5.35	14.5	113.3	Turbid	None
10:55	5	200	9.6	1.04	7.45	0.474	92.70	5.08	14.4	108.4	Turbid	None
11:00	5	200	9.6	1.3	7.48	0.466	51.70	4.89	14.4	102.9	Clear	None
11:05	5	200	9.6	1.56	7.52	0.466	26.10	4.51	14.4	99.8	Clear	None
11:10	5	200	9.6	1.82	7.55	0.469	9.03	4.42	14.5	97.6	Clear	None
11:15	5	200	9.6	2.08	7.55	0.466	4.05	4.96	14.5	94.1	Clear	None
11:18	3	200	9.6	2.24	7.55	0.466	3.48	4.56	14.5	93.0	Clear	None
11:21	3	200	9.6	2.4	7.56	0.465	3.04	4.69	14.5	91.7	Clear	None
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* Turbidity < 50 NTU and ±10% or within 1 NTU of a previous reading when <10 NTU

Constituents Sampled 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, PCE, TCE, VC Container 40 mL Glass Number 3 Preservative HCL
1,4-dioxane 40 mL Glass 3 HCL

Comments _____

Well Casing Volumes
 Gallons/Foot 1" = 0.04 1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 6" = 1.47
1.25" = 0.06 2" = 0.16 3" = 0.37 4" = 0.65

Well Information
 Well Location: West side of yard by fence Well Locked at Arrival: yes
 Condition of Well: Good Well Locked at Departure: yes
 Well Completion: Flush mount Lock Functioning: yes

TRANSMITTAL LETTER



To:
Anthony Kiseda
Shawn Collins
Brandon Alger (EGLE)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:
January 10, 2020

Subject:

Arcadis Project No.:

Shallow Groundwater
Assessment Data Package

We are sending you hard copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Delivery Date	Drawing No.	Rev.	Description	Action*
1	1/14/2020			Figure	
1	1/14/2020			Analytical Results	
1	1/14/2020			Field Notes and Drawings	

Action*

- A Approved CR Correct and Resubmit Resubmit _____ Copies
 AN Approved As Noted F File Return _____ Copies
 AS As Requested FA For Approval Review and Comment
 Other: _____

Mailing Method



- U.S. Postal Service 1st Class Courier/Hand Delivery FedEx Priority Overnight FedEx 2-Day Delivery
 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
 Other: email

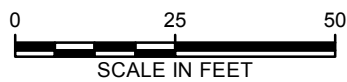
Thank you for cooperating with the groundwater sampling at your property on November 21, 2019.
Attached is your data package.

CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: A. PAULSON TR: M. WACKSMAN PROJECT NUMBER: MI001454.0003.000001 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
Z:\GIS\Projects\ENV\NovBrighton_Mil\FordLivonia\GIS\docs\2019-03\MW_Locations\34934StandisMW-183S.mxd PLOTTED: 3/5/2019 10:06:05 AM BY: msmiller



LEGEND:

-  MONITORING WELL LOCATION
-  PROPERTY BOUNDARIES



FORD MOTOR COMPANY
LIVONIA TRANSMISSION PLANT
LIVONIA, MICHIGAN

MONITORING WELL LOCATION MW-183S



FIGURE
1

ANALYTICAL REPORT

Eurofins TestAmerica, Edison
777 New Durham Road
Edison, NJ 08817
Tel: (732)549-3900

Laboratory Job ID: 460-197400-1
Client Project/Site: Ford LTP Off-Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
12/8/2019 2:11:25 PM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197400-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197400-1

Job ID: 460-197400-1

Laboratory: Eurofins TestAmerica, Edison

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Off-Site

Report Number: 460-197400-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Edison attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 11/23/2019 1:50 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.3° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (460-197400-1) and MW-183S_112119 (460-197400-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260C. The samples were analyzed on 12/03/2019 and 12/04/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS)

Sample MW-183S_112119 (460-197400-2) was analyzed for Volatile organic compounds (GC/MS) in accordance with SW-846 Method 8260C SIM. The sample was analyzed on 12/02/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197400-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 460-197400-1

No Detections.

Client Sample ID: MW-183S_112119

Lab Sample ID: 460-197400-2

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Edison

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197400-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 460-197400-1

Date Collected: 11/21/19 00:00

Matrix: Water

Date Received: 11/23/19 13:50

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.26	ug/L	-		12/03/19 23:06	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L	-		12/03/19 23:06	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L	-		12/03/19 23:06	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L	-		12/03/19 23:06	1
Trichloroethene	1.0	U	1.0	0.31	ug/L	-		12/03/19 23:06	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L	-		12/03/19 23:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		74 - 132		12/03/19 23:06	1
Toluene-d8 (Surr)	99		80 - 120		12/03/19 23:06	1
Dibromofluoromethane (Surr)	97		72 - 131		12/03/19 23:06	1
4-Bromofluorobenzene	81		77 - 124		12/03/19 23:06	1

Client Sample ID: MW-183S_112119

Lab Sample ID: 460-197400-2

Date Collected: 11/21/19 14:15

Matrix: Water

Date Received: 11/23/19 13:50

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.33	ug/L	-		12/02/19 23:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	97		72 - 133		12/02/19 23:41	1

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.26	ug/L	-		12/04/19 02:53	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L	-		12/04/19 02:53	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L	-		12/04/19 02:53	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L	-		12/04/19 02:53	1
Trichloroethene	1.0	U	1.0	0.31	ug/L	-		12/04/19 02:53	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L	-		12/04/19 02:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		74 - 132		12/04/19 02:53	1
Toluene-d8 (Surr)	99		80 - 120		12/04/19 02:53	1
Dibromofluoromethane (Surr)	95		72 - 131		12/04/19 02:53	1
4-Bromofluorobenzene	83		77 - 124		12/04/19 02:53	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197400-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (74-132)	TOL (80-120)	DBFM (72-131)	BFB (77-124)
460-197400-1	TRIP BLANK	97	99	97	81
460-197400-2	MW-183S_112119	96	99	95	83
460-197492-A-2 MS	Matrix Spike	113	115	113	96
460-197492-A-2 MSD	Matrix Spike Duplicate	101	102	99	86
LCS 460-659793/4	Lab Control Sample	97	100	98	84
MB 460-659793/9	Method Blank	97	99	95	81

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

BFB = 4-Bromofluorobenzene

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (72-133)
460-197400-2	MW-183S_112119	97
460-197492-A-2 MS	Matrix Spike	94
460-197492-A-2 MSD	Matrix Spike Duplicate	99
LCS 460-659570/4	Lab Control Sample	91
MB 460-659570/8	Method Blank	98

Surrogate Legend

BFB = 4-Bromofluorobenzene

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197400-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 460-659793/9
Matrix: Water
Analysis Batch: 659793

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.26	ug/L			12/03/19 22:19	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L			12/03/19 22:19	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L			12/03/19 22:19	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L			12/03/19 22:19	1
Trichloroethene	1.0	U	1.0	0.31	ug/L			12/03/19 22:19	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L			12/03/19 22:19	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		74 - 132		12/03/19 22:19	1
Toluene-d8 (Surr)	99		80 - 120		12/03/19 22:19	1
Dibromofluoromethane (Surr)	95		72 - 131		12/03/19 22:19	1
4-Bromofluorobenzene	81		77 - 124		12/03/19 22:19	1

Lab Sample ID: LCS 460-659793/4
Matrix: Water
Analysis Batch: 659793

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	20.0	22.1		ug/L		111	74 - 123
cis-1,2-Dichloroethene	20.0	19.9		ug/L		100	80 - 120
Tetrachloroethene	20.0	19.3		ug/L		96	78 - 122
trans-1,2-Dichloroethene	20.0	21.0		ug/L		105	79 - 120
Trichloroethene	20.0	19.5		ug/L		98	77 - 120
Vinyl chloride	20.0	23.5		ug/L		118	62 - 138

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	97		74 - 132
Toluene-d8 (Surr)	100		80 - 120
Dibromofluoromethane (Surr)	98		72 - 131
4-Bromofluorobenzene	84		77 - 124

Lab Sample ID: 460-197492-A-2 MS
Matrix: Water
Analysis Batch: 659793

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U F1	20.0	27.8	F1	ug/L		139	74 - 123
cis-1,2-Dichloroethene	1.0	U	20.0	23.3		ug/L		116	80 - 120
Tetrachloroethene	1.0	U	20.0	22.1		ug/L		111	78 - 122
trans-1,2-Dichloroethene	1.0	U F1	20.0	24.9	F1	ug/L		124	79 - 120
Trichloroethene	1.0	U	20.0	22.1		ug/L		110	77 - 120
Vinyl chloride	1.0	U	20.0	27.5		ug/L		138	62 - 138

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	113		74 - 132
Toluene-d8 (Surr)	115		80 - 120
Dibromofluoromethane (Surr)	113		72 - 131

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197400-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 460-197492-A-2 MS
Matrix: Water
Analysis Batch: 659793

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene	96		77 - 124

Lab Sample ID: 460-197492-A-2 MSD
Matrix: Water
Analysis Batch: 659793

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U F1	20.0	22.8		ug/L		114	74 - 123	20	30
cis-1,2-Dichloroethene	1.0	U	20.0	20.2		ug/L		101	80 - 120	14	30
Tetrachloroethene	1.0	U	20.0	19.6		ug/L		98	78 - 122	12	30
trans-1,2-Dichloroethene	1.0	U F1	20.0	20.9		ug/L		104	79 - 120	17	30
Trichloroethene	1.0	U	20.0	19.4		ug/L		97	77 - 120	13	30
Vinyl chloride	1.0	U	20.0	23.9		ug/L		119	62 - 138	14	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	101		74 - 132
Toluene-d8 (Surr)	102		80 - 120
Dibromofluoromethane (Surr)	99		72 - 131
4-Bromofluorobenzene	86		77 - 124

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 460-659570/8
Matrix: Water
Analysis Batch: 659570

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.33	ug/L			12/02/19 23:16	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	98		72 - 133		12/02/19 23:16	1

Lab Sample ID: LCS 460-659570/4
Matrix: Water
Analysis Batch: 659570

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	5.00	5.13		ug/L		103	66 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene	91		72 - 133

Lab Sample ID: 460-197492-A-2 MS
Matrix: Water
Analysis Batch: 659570

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	5.00	3.93		ug/L		79	66 - 135

Eurofins TestAmerica, Edison

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off-Site

Job ID: 460-197400-1

Method: 8260C SIM - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>MS</i> <i>%Recovery</i>	<i>MS</i> <i>Qualifier</i>	<i>Limits</i>
4-Bromofluorobenzene	94		72 - 133

Lab Sample ID: 460-197492-A-2 MSD
Matrix: Water
Analysis Batch: 659570

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

<i>Analyte</i>	<i>Sample</i> <i>Result</i>	<i>Sample</i> <i>Qualifier</i>	<i>Spike</i> <i>Added</i>	<i>MSD</i> <i>Result</i>	<i>MSD</i> <i>Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec.</i> <i>Limits</i>	<i>RPD</i>	<i>RPD</i> <i>Limit</i>
1,4-Dioxane	2.0	U	5.00	4.44		ug/L		89	66 - 135	12	30

<i>Surrogate</i>	<i>MSD</i> <i>%Recovery</i>	<i>MSD</i> <i>Qualifier</i>	<i>Limits</i>
4-Bromofluorobenzene	99		72 - 133



QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197400-1

GC/MS VOA

Analysis Batch: 659570

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-197400-2	MW-183S_112119	Total/NA	Water	8260C SIM	
MB 460-659570/8	Method Blank	Total/NA	Water	8260C SIM	
LCS 460-659570/4	Lab Control Sample	Total/NA	Water	8260C SIM	
460-197492-A-2 MS	Matrix Spike	Total/NA	Water	8260C SIM	
460-197492-A-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260C SIM	

Analysis Batch: 659793

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-197400-1	TRIP BLANK	Total/NA	Water	8260C	
460-197400-2	MW-183S_112119	Total/NA	Water	8260C	
MB 460-659793/9	Method Blank	Total/NA	Water	8260C	
LCS 460-659793/4	Lab Control Sample	Total/NA	Water	8260C	
460-197492-A-2 MS	Matrix Spike	Total/NA	Water	8260C	
460-197492-A-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260C	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197400-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 460-197400-1

Date Collected: 11/21/19 00:00

Matrix: Water

Date Received: 11/23/19 13:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	659793	12/03/19 23:06	AVM	TAL EDI

Client Sample ID: MW-183S_112119

Lab Sample ID: 460-197400-2

Date Collected: 11/21/19 14:15

Matrix: Water

Date Received: 11/23/19 13:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	659793	12/04/19 02:53	AVM	TAL EDI
Total/NA	Analysis	8260C SIM		1	659570	12/02/19 23:41	KLB	TAL EDI

Laboratory References:

TAL EDI = Eurofins TestAmerica, Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197400-1

Laboratory: Eurofins TestAmerica, Edison

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Connecticut	State	PH-0200	09-30-20
DE Haz. Subst. Cleanup Act (HSCA)	State	<cert No.>	12-31-21
Georgia	State	12028 (NJ)	06-30-20
Massachusetts	State	M-NJ312	06-30-20
Massachusetts	State Program	M-NJ312	06-30-20
New Jersey	NELAP	12028	06-30-20
New York	NELAP	11452	04-01-20
Pennsylvania	NELAP	68-00522	02-28-20
Rhode Island	State	LAO00132	12-30-19
USDA	US Federal Programs	P330-18-00135	05-03-21

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-20
Connecticut	State	PH-0590	12-31-19
Florida	NELAP	E87225	06-30-20
Georgia	State	4062	02-23-20
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-20
Kansas	NELAP	E-10336	04-30-20
Kentucky (UST)	State	112225	02-23-20
Kentucky (WW)	State	KY98016	12-31-19
Minnesota	NELAP	OH00048	12-31-19
Minnesota (Petrofund)	State Program	3506	07-31-21
New Jersey	NELAP	OH001	06-30-20
New York	NELAP	10975	03-31-20
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-23-20
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-16-00404	12-28-19
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-20
West Virginia DEP	State	210	12-31-19

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197400-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL EDI
8260C SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL EDI
5030C	Purge and Trap	SW846	TAL EDI

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL EDI = Eurofins TestAmerica, Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197400-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
460-197400-1	TRIP BLANK	Water	11/21/19 00:00	11/23/19 13:50	
460-197400-2	MW-183S_112119	Water	11/21/19 14:15	11/23/19 13:50	

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Chain of Custody Record

TestAmerica

TestAmerica Laboratory location: Brighton — 10448 Chatham Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Company Name: Arceadis Address: 18550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240		Regulatory Program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other		Client Project Manager: Kris Hinesky Telephone: 248-994-2240		Site Contact: Rachel Bielak Telephone: 248-946-6331		Lab Contact: Mike DeMonte Telephone: 330-497-9396		COC No: 197400 of 1 COCs For lab use only		
Project Name: Ford LTP Off-Site Project Number: 30016346.0002B PO # 30016346.0002B		Sample Name: S. JHNSON		Analysis Turnaround Time TAT if different from below: 10 day <input type="checkbox"/> 3 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 weeks <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day <input type="checkbox"/>		Containers & Preservatives H2SO4 <input type="checkbox"/> HNO3 <input type="checkbox"/> HCl <input type="checkbox"/> NaOH <input type="checkbox"/> ZnAc/NaOH <input type="checkbox"/> Unpres <input type="checkbox"/> Other:		Filtered Sample (Y/N) Composite=C / Grab=G		Analyses 1,1-DCE 8260B <input type="checkbox"/> cis-1,2-DCE 8260B <input type="checkbox"/> Trans-1,2-DCE 8260B <input type="checkbox"/> PCE 8260B <input type="checkbox"/> TCE 8260B <input type="checkbox"/> Vinyl Chloride 8260B <input type="checkbox"/> 1,4-Dioxane 8260B SIM <input type="checkbox"/>		Walk-in clean <input type="checkbox"/> Lab sampling <input type="checkbox"/> Job/SDG No.
Shipping/Tracking No:		Method of Shipment/Carrier:		Matrix Air <input type="checkbox"/> Aqueous <input type="checkbox"/> Sediment <input type="checkbox"/> Solid <input type="checkbox"/> Other:		Sample Specific Notes / Special Instructions:		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months				
Sample Identification TRIP BLANK MW-1835-112119		Sample Date: 11/21/19 Sample Time: 1415	Air <input type="checkbox"/> Aqueous <input checked="" type="checkbox"/> Sediment <input type="checkbox"/> Solid <input type="checkbox"/> Other:	H2SO4 <input type="checkbox"/> HNO3 <input type="checkbox"/> HCl <input type="checkbox"/> NaOH <input type="checkbox"/> ZnAc/NaOH <input type="checkbox"/> Unpres <input type="checkbox"/> Other:	Filtered Sample (Y/N) Composite=C / Grab=G	1,1-DCE 8260B <input type="checkbox"/> cis-1,2-DCE 8260B <input type="checkbox"/> Trans-1,2-DCE 8260B <input type="checkbox"/> PCE 8260B <input type="checkbox"/> TCE 8260B <input type="checkbox"/> Vinyl Chloride 8260B <input type="checkbox"/> 1,4-Dioxane 8260B SIM <input type="checkbox"/>	Walk-in clean <input type="checkbox"/> Lab sampling <input type="checkbox"/> Job/SDG No.	Sample Specific Notes / Special Instructions: 1 CONTAINER 6 CONTAINERS				



Possible Hazard Identification: Tamable Non-Tamable
 Special Instructions/QC Requirements & Comments:
 Submit all results through Cadena at jim.korneliat@cadenalab.com. Cadena #E203631
 Level IV Reporting requested.

Requisitioned by: **S. JHNSON** Company: **ARCEADIS** Date/Time: **11/21/19 1600** Received by: **M. DEWIDER** Company: **ARCEADIS** Date/Time: **11/21/19 1600**
 Requisitioned by: **S. JHNSON** Company: **ARCEADIS** Date/Time: **11/21/19 1830** Received by: **NEW LEAD STORAGE** Company: **ARCEADIS** Date/Time: **11/21/19 1830**
 Requisitioned by: **RACHEL BIELAK** Company: **ARCEADIS** Date/Time: **11/22/19 1015** Received by: **Branch** Company: **TA** Date/Time: **11/22/19 1015**

TA
 IR115.0° CS=1055399
 Branch
 ETA
 11/23 1350

Eurofins TestAmerica Edison
Receipt Temperature and pH Log

Job Number: 197400

Page ___ of ___

Number of Coolers: 1 IR Gun # 1

Cooler Temperatures

	RAW	CORRECTED	RAW	CORRECTED	RAW	CORRECTED	RAW	CORRECTED
Cooler #1:	5.0 °C	5.3 °C	Cooler #4:	°C	°C	Cooler #7:	°C	°C
Cooler #2:	°C	°C	Cooler #5:	°C	°C	Cooler #8:	°C	°C
Cooler #3:	°C	°C	Cooler #6:	°C	°C	Cooler #9:	°C	°C

TALS Sample Number	Ammonia	COD	Nitrate Nitrite	Metals *	Hardness	Pest	EPH or OAM	Phenols	Sulfide	TKN	TOC	Total Cyanide	Total Phos	Other	Other
	(pH<2)	(pH<2)	(pH<2)	(pH<2)	(pH<2)	(pH 5-9)	(pH<2)	(pH<2)	(pH>9)	(pH<2)	(pH<2)	(pH>12)	(pH<2)		

If pH adjustments are required record the information below:

Sample No(s). adjusted: _____
 Preservative Name/Conc.: _____
 Volume of Preservative used (ml): _____

Lot # of Preservative(s): _____
 Expiration Date: _____
 The appropriate Project Manager and Department Manager should be notified about the samples which were pH adjusted.
 Samples for Metal analysis which are out of compliance must be acidified at least 24 hours prior to analysis.

EDS-WI-038, Rev 4.1
 10/22/2019
 Initials: WBR
 Date: 11/23

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 460-197400-1

Login Number: 197400

List Number: 1

Creator: Jara, Kelly D

List Source: Eurofins TestAmerica, Edison

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	CS #1055399
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



DATA VERIFICATION REPORT



December 08, 2019

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: 30016346.0002B
Event Specific Scope of Work References: Sample COC
Laboratory: TestAmerica - Edison
Laboratory submittal: 197400-1
Sample date: 2019-11-21
Report received by CADENA: 2019-12-08
Initial Data Verification completed by CADENA: 2019-12-08
Number of Samples:2
Sample Matrices:Water
Test Categories:GCMS VOC

Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

The following minor QC exceptions or missing information were noted:

GCMS VOC QC batch MS/MSD recovery outliers were not determined using a client sample so qualification was not required based on these sample-specific QC outliers.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

SAMPLING AND ANALYSIS SUMMARY

CADENA Project ID: E203631

Laboratory: TestAmerica-Edison

Laboratory Submittal: 197400-1

Lab Sample ID	Sample ID	Collection Date (mm/yy/dd)	Collection Time (hh:mm:ss)	GCMS VOC Volatiles	GCMS VOC SIM	Comment
4601974001	TRIP BLANK	11/21/2019	12:00:00	X		
4601974002	MW-183S_112119	11/21/2019	2:15:00	X	X	

Analytical Results Summary

Reportable Results Only

CADENA Project ID: E203631

Laboratory: TestAmerica - Edison

Laboratory Submittal: 197400-1

Sample Name: TRIP BLANK MW-183S_112119
Lab Sample ID: 4601974001 4601974002
Sample Date: 11/21/2019 11/21/2019

Analyte	Cas No.	Report		Units	Valid Qualifier	Report		Units	Valid Qualifier	
		Result	Limit			Result	Limit			
GC/MS VOC										
<u>OSW-8260C</u>										
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
GC/MS SVOC										
<u>OSW-8260CSIM</u>										
1,4-Dioxane	123-91-1					ND	2.0	ug/l	---	

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG # 460-197400-1

CADENA Verification Report: 2019-12-08

Analyses Performed By:

TestAmerica

Edison, New Jersey

Report #35180R

Review Level: Tier III

Project: 30016346.00002



DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 460-197400-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III) includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						VOC (Full Scan)	VOC (SIM)	MISC
460-197400-1	TRIP BLANK	460-197400-1	Water	11/21/2019		X		
	MW-183S_112119	460-197400-2	Water	11/21/2019		X	X	

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260B and 8260B SIM. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260B/8260B-SIM	Water	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl

All samples were analyzed within the specified holding time criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (20%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

DATA REVIEW

No compounds were detected in the samples within this SDG.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: 8260B/8260B-SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times/Preservation		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: December 18, 2019

PEER REVIEW: Dennis Capria

DATE: January 2, 2020



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



**NO CORRECTIONS/QUALIFIERS ADDED
TO SAMPLE ANALYSIS DATA SHEETS**



Chain of Custody Record

TestAmerica

TestAmerica Laboratory location: Brighton — 10448 Chatham Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Company Name: Arceadis Address: 18550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240		Regulatory Program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other		Client Project Manager: Kris Hinesky Telephone: 248-994-2240 Email: kristofer.hinesky@arceadis.com		Site Contact: Rachel Bielak Telephone: 248-946-6331		Lab Contact: Mike DeMonte Telephone: 330-497-9396		TestAmerica Laboratories, Inc. COC No: 197400 of 1 COCs For lab use only			
Project Name: Ford LTP Off-Site Project Number: 30016346-0002B PO # 30016346-0002B		Sample Name: S. JHNSON Method of Shipment/Carrier: Shipping/Tracking No:		Analysis Turnaround Time TAT if different from below: 10 day <input type="checkbox"/> 3 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 weeks <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day <input type="checkbox"/>		Containers & Preservatives H2SO4 <input type="checkbox"/> HNO3 <input type="checkbox"/> HCl <input type="checkbox"/> NaOH <input type="checkbox"/> ZnAc/NaOH <input type="checkbox"/> Unpres <input type="checkbox"/> Other:		Filtered Sample (Y/N) Composite=C / Grab=G		Analyses 1,1-DCE 8260B <input type="checkbox"/> cis-1,2-DCE 8260B <input type="checkbox"/> Trans-1,2-DCE 8260B <input type="checkbox"/> PCE 8260B <input type="checkbox"/> TCE 8260B <input type="checkbox"/> Vinyl Chloride 8260B <input type="checkbox"/> 1,4-Dioxane 8260B SIM <input type="checkbox"/>		Walk-in clean <input type="checkbox"/> Lab sampling <input type="checkbox"/> Job/SDG No:	
Sample Identification TRIP BLANK MW-1835-112119		Sample Date: 11/21/19 Sample Time: 1415		MATRIX Air <input type="checkbox"/> Aqueous <input type="checkbox"/> Sediment <input type="checkbox"/> Solid <input type="checkbox"/> Other:		H2SO4 <input type="checkbox"/> HNO3 <input type="checkbox"/> HCl <input type="checkbox"/> NaOH <input type="checkbox"/> ZnAc/NaOH <input type="checkbox"/> Unpres <input type="checkbox"/> Other:		Filtered Sample (Y/N) Composite=C / Grab=G		Sample Specific Notes / Special Instructions: 1 CONTAINER 6 CONTAINERS			
Possible Hazard Identification: <input type="checkbox"/> Flammable <input type="checkbox"/> Corrosive <input type="checkbox"/> Irritant <input type="checkbox"/> Unknown <input type="checkbox"/> Poison B <input type="checkbox"/>													
Special Instructions/QC Requirements & Comments: Submit all results through Cadena at jim.korneliat@cadenalab.com. Cadena #E203631 Level IV Reporting requested.													
Relinquished by: [Signature]		Company: ARCEADIS Date/Time: 11/21/19 1600		Received by: M. DEWIDER Date/Time: 11/21/19 1830		Company: ARCEADIS Date/Time: 11/21/19 1600		Relinquished by: [Signature]		Company: ARCEADIS Date/Time: 11/21/19 1830			
Relinquished by: RACHEL BIELAK		Company: ARCEADIS Date/Time: 11/22/19 1015		Received by: [Signature]		Company: ARCEADIS Date/Time: 11/22/19 1015		Relinquished by: [Signature]		Company: ARCEADIS Date/Time: 11/22/19 1015			



TestAmerica Laboratories, Inc.

TA

11/21/19

Branch 8

ETA

11/23 1350

IR 115.0° CS=1055399

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 460-197400-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 460-197400-1

Date Collected: 11/21/19 00:00

Matrix: Water

Date Received: 11/23/19 13:50

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.26	ug/L	-		12/03/19 23:06	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L	-		12/03/19 23:06	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L	-		12/03/19 23:06	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L	-		12/03/19 23:06	1
Trichloroethene	1.0	U	1.0	0.31	ug/L	-		12/03/19 23:06	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L	-		12/03/19 23:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		74 - 132		12/03/19 23:06	1
Toluene-d8 (Surr)	99		80 - 120		12/03/19 23:06	1
Dibromofluoromethane (Surr)	97		72 - 131		12/03/19 23:06	1
4-Bromofluorobenzene	81		77 - 124		12/03/19 23:06	1

Client Sample ID: MW-183S_112119

Lab Sample ID: 460-197400-2

Date Collected: 11/21/19 14:15

Matrix: Water

Date Received: 11/23/19 13:50

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.33	ug/L	-		12/02/19 23:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	97		72 - 133		12/02/19 23:41	1

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.26	ug/L	-		12/04/19 02:53	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L	-		12/04/19 02:53	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L	-		12/04/19 02:53	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L	-		12/04/19 02:53	1
Trichloroethene	1.0	U	1.0	0.31	ug/L	-		12/04/19 02:53	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L	-		12/04/19 02:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		74 - 132		12/04/19 02:53	1
Toluene-d8 (Surr)	99		80 - 120		12/04/19 02:53	1
Dibromofluoromethane (Surr)	95		72 - 131		12/04/19 02:53	1
4-Bromofluorobenzene	83		77 - 124		12/04/19 02:53	1




SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Project No.: 30016346.00002 Page 1 of 1

Site Location: Ford LTP 34934 Standish

Prepared By: Shantel Johnson

Date	Time	Description of Activities
11/21/2019	13:10	Arrive onsite
11/21/2019	13:21	Record static depth to water
11/21/2019	13:26	Begin purging well
11/21/2019	14:15	Collect sample MW-183S_112119
11/21/2019	14:20	End purge and turn off pump, begin decon. of equipment
11/21/2019	14:26	Offsite
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--	--	Field staff signature:
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SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Page 1 of 1

Project No. 30016346.00002 Well ID Ford LTP MW-183S Date 11-21-19
 Project Name/Location Weather 39.92 degrees F, Haze
 Measuring Pt. Description Top of Casing Screen Setting (ft-bmp) 8-13 Casing Diameter (in.) 2 Well Material PVC
 Static Water Level (ft-bmp) 9.45 Total Depth (ft-bmp) 12.68 Water Column (ft.) 3.23 Gallons in Well 0.52
Pump Intake (ft-bmp) 10.95 Purge Method Low-Flow Sample Method Low-Flow
Well Volumes Purged 3.35
 Sample Time: Label 14:15 Volume Purged 1.74 gallons Replicate/Code No. -- Sampled by Shantel Johnson
 Purge Start 13:26
 Purge End 14:20

Time	Minutes Elapsed between Readings	Flow Rate (mL/min) [100-300 mL/min]	Depth to Water (ft) [±0.3]	Total Gallons Purged	pH [±0.1]	Cond. (mS/cm) [±3%]	Turbidity (NTU) [±10%*]	DO (mg/L) [±10%]	Temp. (C)/(F) [±3%]	Redox (mV) [±10mV]	Appearance	
											Color	Odor
13:28	0	150	9.49	0.00	7.27	0.53	235.00	3.34	12.7	513.4	Brown	No Odor
13:33	5	150	9.49	0.20	7.76	0.52	123.00	2.90	13.2	339.4	Clear	No Odor
13:38	5	158	9.43	0.40	7.79	0.51	86.70	2.82	13.0	331.2	Clear	No Odor
13:43	5	150	9.50	0.61	7.82	0.50	60.30	2.72	12.7	307.3	Clear	No Odor
13:48	5	158	9.50	0.81	7.83	0.49	40.00	2.90	12.4	294.2	Clear	No Odor
13:53	5	150	9.50	1.02	7.86	0.48	25.70	2.58	13.1	286.4	Clear	No Odor
13:58	5	150	9.50	1.22	7.86	0.47	28.40	2.56	13.2	276.1	Clear	No Odor
14:03	5	150	9.50	1.42	7.88	0.47	19.20	2.68	13.2	273.8	Clear	No Odor
14:08	5	150	9.50	1.62	7.90	0.46	17.60	2.55	13.3	269.3	Clear	No Odor
14:11	3	150	9.51	1.74	7.90	0.47	18.20	2.54	13.3	267.9	Clear	No Odor
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* Turbidity < 50 NTU and ±10% or within 1 NTU of a previous reading when <10 NTU

Constituents Sampled 1,4-dioxane Container 40 mL Glass Number 3 Preservative HCL
1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, PCE, TCE, VC 40 mL Glass 3 HCL

Comments None

Well Casing Volumes
 Gallons/Foot 1" = 0.04 1.25" = 0.06 1.5" = 0.09 2" = 0.16 2.5" = 0.26 3" = 0.37 3.5" = 0.50 4" = 0.65 6" = 1.47

Well Information
 Well Location: 34934 Standish Well Locked at Arrival: yes
 Condition of Well: Good Well Locked at Departure: yes
 Well Completion: Flush mount Lock Functioning: yes

TRANSMITTAL LETTER



To:
Anthony Kiseda
Shawn Collins
Brandon Alger (EGLE)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:

March 18, 2020

Subject:

Arcadis Project No.:

Shallow Groundwater
Assessment Data Package

We are sending you hard copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
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Copies	Delivery Date	Drawing No.	Rev.	Description	Action*
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1	3/19/2020			Analytical Results	
1	3/19/2020			Field Notes and Drawings	

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
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 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
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Thank you for cooperating with the groundwater sampling at your property on February 12, 2020. Attached is your data package.

CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: A. PAULSON TR: M. WACKSMAN PROJECT NUMBER: MI001454.0003.000001 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
Z:\GIS\Projects\ENV\NovBrighton_MilFordLivonia\GIS\docs\2019-03\MW_Locations\34934StandisMW-183S.mxd PLOTTED: 3/5/2019 10:06:05 AM BY: msmiller



LEGEND:

-  MONITORING WELL LOCATION
-  PROPERTY BOUNDARIES



FORD MOTOR COMPANY
LIVONIA TRANSMISSION PLANT
LIVONIA, MICHIGAN

MONITORING WELL LOCATION MW-183S



FIGURE
1

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-126333-1
Client Project/Site: Ford LTP Off Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
2/28/2020 10:31:37 AM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

LINKS

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results through
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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
U	Indicates the analyte was analyzed for but not detected.
X	Surrogate is outside control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

Job ID: 240-126333-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Off Site

Report Number: 240-126333-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 2/14/2020 8:50 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 3.6° C, 4.4° C and 4.6° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-126333-1) and MW-183S_021220 (240-126333-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 02/19/2020 and 02/20/2020.

1,1-Dichloroethene and Tetrachloroethene failed the recovery criteria high for LCS 240-423576/4. Refer to the QC report for details.

The laboratory control sample (LCS) for 423576 recovered outside control limits for the following analytes: 1,1-Dichloroethene, Tetrachloroethene. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported: MW-183S_021220 (240-126333-2).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-183S_021220 (240-126333-2) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 02/24/2020.

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

Job ID: 240-126333-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-126333-1	TRIP BLANK	Water	02/12/20 00:00	02/14/20 08:50	
240-126333-2	MW-183S_021220	Water	02/12/20 11:40	02/14/20 08:50	

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- 2
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- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-126333-1

No Detections.

Client Sample ID: MW-183S_021220

Lab Sample ID: 240-126333-2

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-126333-1

Date Collected: 02/12/20 00:00

Matrix: Water

Date Received: 02/14/20 08:50

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/19/20 16:34	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/19/20 16:34	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/19/20 16:34	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/19/20 16:34	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/19/20 16:34	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/19/20 16:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		75 - 130		02/19/20 16:34	1
4-Bromofluorobenzene (Surr)	63		47 - 134		02/19/20 16:34	1
Toluene-d8 (Surr)	82		69 - 122		02/19/20 16:34	1
Dibromofluoromethane (Surr)	84		78 - 129		02/19/20 16:34	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

Client Sample ID: MW-183S_021220

Lab Sample ID: 240-126333-2

Date Collected: 02/12/20 11:40

Matrix: Water

Date Received: 02/14/20 08:50

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			02/24/20 18:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		70 - 133		02/24/20 18:57	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U *	1.0	0.19	ug/L			02/20/20 12:43	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/20/20 12:43	1
Tetrachloroethene	1.0	U *	1.0	0.15	ug/L			02/20/20 12:43	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/20/20 12:43	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/20/20 12:43	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/20/20 12:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	77		75 - 130		02/20/20 12:43	1
4-Bromofluorobenzene (Surr)	65		47 - 134		02/20/20 12:43	1
Toluene-d8 (Surr)	84		69 - 122		02/20/20 12:43	1
Dibromofluoromethane (Surr)	80		78 - 129		02/20/20 12:43	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-126333-1	TRIP BLANK	84	63	82	84
240-126333-2	MW-183S_021220	77	65	84	80
240-126339-E-4 MSD	Matrix Spike Duplicate	72 X	76	83	77 X
240-126339-F-4 MS	Matrix Spike	72 X	76	83	81
240-126395-B-2 MS	Matrix Spike	81	82	94	87
240-126395-B-2 MSD	Matrix Spike Duplicate	76	77	90	83
LCS 240-423393/4	Lab Control Sample	75	80	87	79
LCS 240-423576/4	Lab Control Sample	90	92	108	101
MB 240-423393/7	Method Blank	81	67	80	80
MB 240-423576/7	Method Blank	77	61	79	79

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA
		(70-133)
240-126333-2	MW-183S_021220	103
240-126349-G-5 MS	Matrix Spike	103
240-126349-G-5 MSD	Matrix Spike Duplicate	105
LCS 240-423939/4	Lab Control Sample	101
MB 240-423939/5	Method Blank	102

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-423393/7
Matrix: Water
Analysis Batch: 423393

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/19/20 13:17	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/19/20 13:17	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/19/20 13:17	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/19/20 13:17	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/19/20 13:17	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/19/20 13:17	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	81		75 - 130		02/19/20 13:17	1
4-Bromofluorobenzene (Surr)	67		47 - 134		02/19/20 13:17	1
Toluene-d8 (Surr)	80		69 - 122		02/19/20 13:17	1
Dibromofluoromethane (Surr)	80		78 - 129		02/19/20 13:17	1

Lab Sample ID: LCS 240-423393/4
Matrix: Water
Analysis Batch: 423393

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	9.59		ug/L		96	73 - 129
cis-1,2-Dichloroethene	10.0	9.33		ug/L		93	75 - 124
Tetrachloroethene	10.0	11.3		ug/L		113	70 - 125
trans-1,2-Dichloroethene	10.0	9.21		ug/L		92	74 - 130
Trichloroethene	10.0	9.51		ug/L		95	71 - 121
Vinyl chloride	10.0	6.48		ug/L		65	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	75		75 - 130
4-Bromofluorobenzene (Surr)	80		47 - 134
Toluene-d8 (Surr)	87		69 - 122
Dibromofluoromethane (Surr)	79		78 - 129

Lab Sample ID: 240-126339-E-4 MSD
Matrix: Water
Analysis Batch: 423393

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	10.0	8.45		ug/L		85	64 - 132	7	35
cis-1,2-Dichloroethene	1.0	U	10.0	8.70		ug/L		87	68 - 121	1	35
Tetrachloroethene	1.0	U	10.0	9.65		ug/L		97	52 - 129	1	35
trans-1,2-Dichloroethene	1.0	U	10.0	8.48		ug/L		85	69 - 126	1	35
Trichloroethene	1.0	U	10.0	8.39		ug/L		84	56 - 124	2	35
Vinyl chloride	0.32	J	10.0	6.51		ug/L		62	49 - 136	12	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	72	X	75 - 130
4-Bromofluorobenzene (Surr)	76		47 - 134
Toluene-d8 (Surr)	83		69 - 122

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-126339-E-4 MSD
Matrix: Water
Analysis Batch: 423393

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	77	X	78 - 129

Lab Sample ID: 240-126339-F-4 MS
Matrix: Water
Analysis Batch: 423393

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec. Limits
	Result	Qualifier	Added	Result	Qualifier				
1,1-Dichloroethene	1.0	U	10.0	9.09		ug/L		91	64 - 132
cis-1,2-Dichloroethene	1.0	U	10.0	8.76		ug/L		88	68 - 121
Tetrachloroethene	1.0	U	10.0	9.57		ug/L		96	52 - 129
trans-1,2-Dichloroethene	1.0	U	10.0	8.57		ug/L		86	69 - 126
Trichloroethene	1.0	U	10.0	8.19		ug/L		82	56 - 124
Vinyl chloride	0.32	J	10.0	7.34		ug/L		70	49 - 136

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	72	X	75 - 130
4-Bromofluorobenzene (Surr)	76		47 - 134
Toluene-d8 (Surr)	83		69 - 122
Dibromofluoromethane (Surr)	81		78 - 129

Lab Sample ID: MB 240-423576/7
Matrix: Water
Analysis Batch: 423576

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/20/20 12:21	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/20/20 12:21	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/20/20 12:21	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/20/20 12:21	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/20/20 12:21	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/20/20 12:21	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	77		75 - 130		02/20/20 12:21	1
4-Bromofluorobenzene (Surr)	61		47 - 134		02/20/20 12:21	1
Toluene-d8 (Surr)	79		69 - 122		02/20/20 12:21	1
Dibromofluoromethane (Surr)	79		78 - 129		02/20/20 12:21	1

Lab Sample ID: LCS 240-423576/4
Matrix: Water
Analysis Batch: 423576

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
1,1-Dichloroethene	10.0	13.0	*	ug/L		130	73 - 129
cis-1,2-Dichloroethene	10.0	11.8		ug/L		118	75 - 124
Tetrachloroethene	10.0	13.7	*	ug/L		137	70 - 125
trans-1,2-Dichloroethene	10.0	12.1		ug/L		121	74 - 130
Trichloroethene	10.0	11.5		ug/L		115	71 - 121

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-423576/4
Matrix: Water
Analysis Batch: 423576

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Vinyl chloride	10.0	8.74		ug/L		87	61 - 134
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	90		75 - 130				
4-Bromofluorobenzene (Surr)	92		47 - 134				
Toluene-d8 (Surr)	108		69 - 122				
Dibromofluoromethane (Surr)	101		78 - 129				

Lab Sample ID: 240-126395-B-2 MS
Matrix: Water
Analysis Batch: 423576

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1000	U *	10000	8450		ug/L		84	64 - 132
cis-1,2-Dichloroethene	18000		10000	26400		ug/L		85	68 - 121
Tetrachloroethene	1000	U *	10000	9350		ug/L		93	52 - 129
trans-1,2-Dichloroethene	1000	U	10000	9240		ug/L		92	69 - 126
Trichloroethene	1000	U	10000	8740		ug/L		87	56 - 124
Vinyl chloride	7000		10000	13500		ug/L		65	49 - 136
Surrogate	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	81		75 - 130						
4-Bromofluorobenzene (Surr)	82		47 - 134						
Toluene-d8 (Surr)	94		69 - 122						
Dibromofluoromethane (Surr)	87		78 - 129						

Lab Sample ID: 240-126395-B-2 MSD
Matrix: Water
Analysis Batch: 423576

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1000	U *	10000	8640		ug/L		86	64 - 132	2	35
cis-1,2-Dichloroethene	18000		10000	25900		ug/L		80	68 - 121	2	35
Tetrachloroethene	1000	U *	10000	9370		ug/L		94	52 - 129	0	35
trans-1,2-Dichloroethene	1000	U	10000	8480		ug/L		85	69 - 126	9	35
Trichloroethene	1000	U	10000	8130		ug/L		81	56 - 124	7	35
Vinyl chloride	7000		10000	13400		ug/L		64	49 - 136	1	35
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	76		75 - 130								
4-Bromofluorobenzene (Surr)	77		47 - 134								
Toluene-d8 (Surr)	90		69 - 122								
Dibromofluoromethane (Surr)	83		78 - 129								

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-423939/5
Matrix: Water
Analysis Batch: 423939

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			02/24/20 11:11	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		70 - 133					02/24/20 11:11	1

Lab Sample ID: LCS 240-423939/4
Matrix: Water
Analysis Batch: 423939

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	9.41		ug/L		94	80 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	101		70 - 133				

Lab Sample ID: 240-126349-G-5 MS
Matrix: Water
Analysis Batch: 423939

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	10.0	9.98		ug/L		100	46 - 170
Surrogate	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	103		70 - 133						

Lab Sample ID: 240-126349-G-5 MSD
Matrix: Water
Analysis Batch: 423939

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	2.0	U	10.0	10.2		ug/L		102	46 - 170	2	26
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	105		70 - 133								

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

GC/MS VOA

Analysis Batch: 423393

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-126333-1	TRIP BLANK	Total/NA	Water	8260B	
MB 240-423393/7	Method Blank	Total/NA	Water	8260B	
LCS 240-423393/4	Lab Control Sample	Total/NA	Water	8260B	
240-126339-E-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
240-126339-F-4 MS	Matrix Spike	Total/NA	Water	8260B	

Analysis Batch: 423576

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-126333-2	MW-183S_021220	Total/NA	Water	8260B	
MB 240-423576/7	Method Blank	Total/NA	Water	8260B	
LCS 240-423576/4	Lab Control Sample	Total/NA	Water	8260B	
240-126395-B-2 MS	Matrix Spike	Total/NA	Water	8260B	
240-126395-B-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Analysis Batch: 423939

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-126333-2	MW-183S_021220	Total/NA	Water	8260B SIM	
MB 240-423939/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-423939/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-126349-G-5 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-126349-G-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-126333-1

Date Collected: 02/12/20 00:00

Matrix: Water

Date Received: 02/14/20 08:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	423393	02/19/20 16:34	LEE	TAL CAN

Client Sample ID: MW-183S_021220

Lab Sample ID: 240-126333-2

Date Collected: 02/12/20 11:40

Matrix: Water

Date Received: 02/14/20 08:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	423576	02/20/20 12:43	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	423939	02/24/20 18:57	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-20 *
Connecticut	State	PH-0590	12-31-19 *
Florida	NELAP	E87225	06-30-20
Georgia	State	4062	02-23-20 *
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-20
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-20
New York	NELAP	10975	03-31-20
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-23-20 *
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-16-00404	12-28-19 *
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.



MICHIGAN 190

Chain of Custody Record

TestAmerica Laboratory location: Brighton — 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810.229-2763



Client Contact Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240 Project Name: Ford LTP Off-Site Project Number: 30042006.0402.02 PO # 30042006.0402.02		Regulatory program: DW NPDES RCRA Other	
Client Project Manager: Kris Hineskey Telephone: 248-994-2240 Email: kris@offic.hineskey@arcadis.com		Site Contact: Julia McClafferty Telephone: 734-644-5131	
Lab Contact: Mike DeMonico Telephone: 330-497-9396		TestAmerica Laboratories, Inc. COC No: _____ of _____ For lab use only	
Sampler Name: S. JOHNSON Method of Shipment/Carrier: Shipping/Tracking No:		Analysis Turnaround Time TAT if differs from below: 10 day 3 weeks 1 week 2 weeks 2 days 1 day	
Sample Date --- 2/12/20 1140		Containers & Preservatives H2SO4 HCl NaOH ZnSO4 Upret Other: --- --- --- --- --- ---	
Sample Identification TRIP BLANK MW-183S-021220		Filtered Sample (Y/N) NG NG	
Matrix Air Aqueous Sediment Solid Other: --- --- --- --- ---		Analyses 1,1-DCE 8260B 1,4-DCE 8260B Trans-1,2-DCE 8260B PCE 8260B TCE 8260B Vinyl Chloride 8260B 1,4-Dioxane 8260B SIM	
Sample Specific Notes / Special Instructions: TRIP BLANK 3 LBS SIPS, 800 FSX		Sample Disposal: (A fee may be assessed if samples are retained longer than 1 month) Return to Client Disposal By Lab Archive For _____ Months	



Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown		Special Instructions/QC Requirements & Comments: Submit all results through Cadena at: tomalia@cadenaco.com, Cadena #E203631 Level IV Reporting requested	
Relinquished by: [Signature]		Received by: ARCADIS TRAILER	
Relinquished by: [Signature]		Received by: ARCADIS	
Relinquished by: [Signature]		Received in Laboratory by: NOV COD STORAGE	
Date/Time: 2/12/20 1500 Date/Time: 2/12/20 1650 Date/Time: 2/12/20 1730		Company: ARCADIS Company: ARCADIS Company: ARCADIS	
Date/Time: 2/13/20 15:45 Date/Time: 2/13/20 1640		Company: ETAL-MI Company: ETAC	



Canton Facility

Client Arcadis Site Name
Cooler Received on 2-14-20 Opened on 2-14-20
FedEx: 1st Grd/Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Cooler unpacked by: [Signature]

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # [Signature] Foam Box Client Cooler Box Other
Packing material used: Bubble Wrap Foam Plastic Bag None Other
COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt [X] See Multiple Cooler Form

IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. 8 °C Corrected Cooler Temp. °C
IR GUN #IR-11 (CF +0.9°C) Observed Cooler Temp. °C Corrected Cooler Temp. °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 3 Yes No

-Were the seals on the outside of the cooler(s) signed & dated? Yes No NA

-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No

-Were tamper/custody seals intact and uncompromised? Yes No NA

3. Shippers' packing slip attached to the cooler(s)? Yes No

4. Did custody papers accompany the sample(s)? Yes No

5. Were the custody papers relinquished & signed in the appropriate place? Yes No

6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No

7. Did all bottles arrive in good condition (Unbroken)? Yes No

8. Could all bottle labels be reconciled with the COC? Yes No

9. Were correct bottle(s) used for the test(s) indicated? Yes No

10. Sufficient quantity received to perform indicated analyses? Yes No

11. Are these work share samples? Yes No

If yes, Questions 12-16 have been checked at the originating laboratory.

12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC995364

13. Were VOAs on the COC? Yes No

14. Were air bubbles >6 mm in any VOA vials? Larger than this. Yes No NA

15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # NA Yes No

16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving: VOAs Oil and Grease TOC

Contacted PM Date by via Verbal Voice Mail Other

Concerning

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: AG

18. SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired.

Sample(s) were received in a broken container.

Sample(s) were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory.

Time preserved: Preservative(s) added/Lot number(s):

VOA Sample Preservation - Date/Time VOAs Frozen:

Login #: 176333

Eurofins TestAmerica Canton Sample Receipt Multiple Cooler Form

Cooler Description (Circle)				IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)		
TA	Client	Box	Other	IR-10 IR-11	2.9	3.6	Wet Ice	Blue Ice	Dry Ice
TA	Client	Box	Other	IR-10 IR-11	3.7	4.4	Water	None	
TA	Client	Box	Other	IR-10 IR-11	3.9	4.6	Wet Ice	Blue Ice	Dry Ice
				IR-10 IR-11			Water	None	
				IR-10 IR-11			Water	None	
				IR-10 IR-11			Water	None	
				IR-10 IR-11			Water	None	
				IR-10 IR-11			Water	None	
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				IR-10 IR-11			Water	None	
				IR-10 IR-11			Water	None	
				IR-10 IR-11			Water	None	
				IR-10 IR-11			Water	None	
				IR-10 IR-11			Water	None	

See Temperature Excursion Form

WTAC-089 Cooler Receipt Form Page 2 Multiple Coolers

DATA VERIFICATION REPORT



February 28, 2020

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: 30042006.0402.02 off site
Event Specific Scope of Work References: Sample COC
Laboratory: TestAmerica - North Canton
Laboratory submittal: 126333-1
Sample date: 2020-02-12
Report received by CADENA: 2020-02-28
Initial Data Verification completed by CADENA: 2020-02-28
Number of Samples:2
Sample Matrices:Water
Test Categories:GCMS VOC

Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

The following minor QC exceptions or missing information were noted:

GCMS VOC QC batch 423576 LCS recoveries were outliers biased high for the following analytes: 1,1-DICHLOROETHENE and TETRACHLOROETHENE. Associated client sample results were non-detect so qualification was not required based on these high bias QC outliers.

GCMS VOC QC batch MS/MSD surrogate recovery outliers were not determined using a client sample so qualification was not required based on these sample-specific QC outliers.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

SAMPLING AND ANALYSIS SUMMARY

CADENA Project ID: E203631

Laboratory: TestAmerica-North Canton

Laboratory Submittal: 126333-1

Lab Sample ID	Sample ID	Collection Date (mm/yy/dd)	Collection Time (hh:mm:ss)	Volatile Organics by GCMS	8260B with Single Ion Monitoring	Comment
2401263331	TRIP BLANK	2/12/2020	12:00:00	X		
2401263332	MW-183S_021220	2/12/2020	11:40:00	X	X	

Analytical Results Summary

Reportable Results Only

CADENA Project ID: E203631

Laboratory: TestAmerica - North Canton

Laboratory Submittal: 126333-1

Sample Name: TRIP BLANK MW-183S_021220
Lab Sample ID: 2401263331 2401263332
Sample Date: 2/12/2020 2/12/2020

Analyte	Cas No.	Report		Units	Valid		Report		Valid	
		Result	Limit		Qualifier	Result	Limit	Units	Qualifier	
GC/MS VOC										
<u>OSW-8260B</u>										
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
<u>OSW-8260BBSim</u>										
1,4-Dioxane	123-91-1					ND	2.0	ug/l	---	

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG # 240-126333-1

CADENA Verification Report: 2020-02-28

Analyses Performed By:
TestAmerica
Edison, New Jersey

Report #36109R
Review Level: Tier III
Project: 30042006.0402.02



DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-126333-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III) includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						VOC (Full Scan)	VOC (SIM)	MISC
240-126333-1	TRIP BLANK	240-126333-1	Water	2/12/2020		X		
	MW-183S_021220	240-126333-2	Water	2/12/2020		X	X	

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260B and 8260B SIM. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260B/8260B-SIM	Water	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl

All samples were analyzed within the specified holding time criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (20%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

A field duplicate was not performed on a sample within this SDG.

6. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

No compounds were detected in the samples within this SDG.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: 8260B/8260B-SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times/Preservation		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Field Duplicate RPD		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: March 10, 2020

PEER REVIEW: Joseph C. Houser

DATE: March 12, 2020



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



**NO CORRECTIONS/QUALIFIERS ADDED
TO SAMPLE ANALYSIS DATA SHEETS**



MICHIGAN 190

Chain of Custody Record

TestAmerica
TESTAMERICA LABORATORIES, INC. 10000 WOODLAND AVENUE, SUITE 1000, BRIGHTON, MI 48116

TestAmerica Laboratory location: Brighton -- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810229-2763

Client Contact Company Name: Arcadis Address: 28550 Calbot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240 Project Name: Ford LTP Off-Site Project Number: 30642006.0402.02 PO # 30042006.0402.02		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other	
Client Project Manager: Kris Hinesky Telephone: 248-994-2240 Email: kristoffer.hinesky@arcadis.com		Site Contact: Julia McClafferty Telephone: 734-644-5131	
Lab Contact: Mike DeMonicco Telephone: 330-497-9396		Analyses Walk-in client Lab sampling Job/SDG No: Sample Specific Notes / Special Instructions:	
Analysis Turnaround Time TAT if different from below: <input type="checkbox"/> 3 weeks <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Containers & Preservatives Other:	
Matrix Aqueous Sediment Solid Other:		Filtered Sample (Y/N) Composite/C/Grab/C	
Sample Date Sample Time		Analyses 1,1-DCE 8260B cis-1,2-DCE 8260B Trans-1,2-DCE 8260B PCE 8260B TCE 8260B Vinyl Chloride 8260B 1,4-Dioxane 8260B SIM	
Sample Identification TRIP BLANK MW-1835-02120		NG XX X X X X NG XX X X X X 1 TRIP BLANK 3 TRIP BLANK	



Possible Hazard Identification
 Non-Hazard Irritant Poison B Unknown
 Special Instructions/QC Requirements & Comments:
 Submit all results through Cadapa at: tomalia@cadenaco.com. Cadena #E203631
 Level IV Reporting requested

Relinquished by:	Company: ARCADIS	Date/Time: 2/17/20 1500	Received by:	Company: ARCADIS	Date/Time: 2/17/20 1500
Relinquished by:	Company: ARCADIS	Date/Time: 2/12/20 1650	Received by:	Company: ARCADIS	Date/Time: 2/12/20 1650
Relinquished by:	Company: ARCADIS	Date/Time: 2/12/20 1730	Received in Laboratory by:	Company: ARCADIS	Date/Time: 2/12/20 1730
Relinquished by:	Company: ARCADIS	Date/Time: 2/13/20 15:45	Received in Laboratory by:	Company: ETAL-MI	Date/Time: 2/13/20 15:45
Relinquished by:	Company: ETAL-MI	Date/Time: 2/13/20 1640	Received in Laboratory by:	Company: ETAC	Date/Time: 2/14/20 850

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Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-126333-1

Date Collected: 02/12/20 00:00

Matrix: Water

Date Received: 02/14/20 08:50

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/19/20 16:34	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/19/20 16:34	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/19/20 16:34	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/19/20 16:34	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/19/20 16:34	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/19/20 16:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		75 - 130		02/19/20 16:34	1
4-Bromofluorobenzene (Surr)	63		47 - 134		02/19/20 16:34	1
Toluene-d8 (Surr)	82		69 - 122		02/19/20 16:34	1
Dibromofluoromethane (Surr)	84		78 - 129		02/19/20 16:34	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off Site

Job ID: 240-126333-1

Client Sample ID: MW-183S_021220

Lab Sample ID: 240-126333-2

Date Collected: 02/12/20 11:40

Matrix: Water

Date Received: 02/14/20 08:50

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L	-		02/24/20 18:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		70 - 133		02/24/20 18:57	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		02/20/20 12:43	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L	-		02/20/20 12:43	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L	-		02/20/20 12:43	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		02/20/20 12:43	1
Trichloroethene	1.0	U	1.0	0.10	ug/L	-		02/20/20 12:43	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L	-		02/20/20 12:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	77		75 - 130		02/20/20 12:43	1
4-Bromofluorobenzene (Surr)	65		47 - 134		02/20/20 12:43	1
Toluene-d8 (Surr)	84		69 - 122		02/20/20 12:43	1
Dibromofluoromethane (Surr)	80		78 - 129		02/20/20 12:43	1


SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Project No.: 30042006.0402.02

Page 1 of 1

Site Location: Ford LTP 34934 Standish

Prepared By: Shantel Johnson

Date	Time	Description of Activities
2/12/2020	10:26	Arrive onsite
2/12/2020	10:32	Record static depth to water
2/12/2020	10:39	Begin purging well
2/12/2020	11:40	Collect sample MW-183S_021220
2/12/2020	11:44	End purge and turn off pump, begin decon. of equipment
2/12/2020	12:00	Offsite
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SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Page 1 of 1

Project No. 30042006.0402.02 Well ID MW-183S Date 2-12-20
 Project Name/Location Ford LTP Weather 26.96 degrees F, Fog/Mist
 Measuring Pt. Description Top of Casing Screen Setting (ft-bmp) 8-13 Casing Diameter (in.) 2 Well Material PVC
 Static Water Level (ft-bmp) 8.40 Total Depth (ft-bmp) 12.68 Water Column (ft.) 4.28 Gallons in Well 0.70
 Pump Intake (ft-bmp) 9.90 Purge Method Low-Flow Sample Method Low-Flow
 Well Volumes Purged 2.04
 Sample Time: Label 11:40 Volume Purged 1.43 gallons Replicate/Code No. -- Sampled by Shantel Johnson
 Purge Start 10:39
 Purge End 11:44

Time	Minutes Elapsed between Readings	Flow Rate (mL/min) [100-300 mL/min]	Depth to Water (ft) [± 0.3]	Total Gallons Purged	pH [± 0.1]	Cond. (mS/cm) [± 3%]	Turbidity (NTU) [± 10%*]	DO (mg/L) [± 10%]	Temp. (C)/(F) [± 3%]	Redox (mV) [± 10mV]	Appearance	
											Color	Odor
10:40	0	100	8.43	0.00	7.34	0.44	54.50	7.53	8.3	57.4	Small Brown Particulates	No Odor
10:45	5	100	8.43	0.13	7.35	0.45	53.10	7.31	8.4	55.7	Small Brown Particulates	No Odor
10:50	5	100	8.43	0.26	7.37	0.45	25.60	6.45	8.9	47.3	Clear	No Odor
10:55	5	100	8.43	0.39	7.39	0.46	29.20	6.10	9.0	45.8	Clear	No Odor
11:00	5	100	8.43	0.52	7.41	0.46	29.60	6.01	9.0	44.3	Clear	No Odor
11:05	5	100	8.43	0.65	7.43	0.46	30.60	5.88	8.9	42.6	Clear	No Odor
11:10	5	100	8.43	0.78	7.44	0.47	23.80	5.40	8.8	44.2	Clear	No Odor
11:15	5	100	8.43	0.91	7.45	0.48	18.40	5.29	8.9	45.8	Clear	No Odor
11:20	5	100	8.43	1.04	7.46	0.49	16.20	5.09	8.8	45.6	Clear	No Odor
11:25	5	100	8.43	1.17	7.47	0.49	12.70	5.02	8.7	45.0	Clear	No Odor
11:30	5	100	8.43	1.30	7.48	0.48	13.20	4.93	8.6	44.5	Clear	No Odor
11:35	5	100	8.43	1.43	7.47	0.48	13.80	4.90	8.5	42.5	Clear	No Odor
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* Turbidity < 50 NTU and ±10% or within 1 NTU of a previous reading when <10 NTU

Constituents Sampled	Container	Number	Preservative
1,4-dioxane	40 mL Glass	3	HCL
1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, PCE, TCE, VC	40 mL Glass	3	HCL

Comments None

Well Casing Volumes	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
Gallons/Foot	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Well Information

Well Location: 34934 Standish between fence and tree Well Locked at Arrival: yes

Condition of Well: Fair Well Locked at Departure: yes

Well Completion: Flush mount Lock Functioning: yes

TRANSMITTAL LETTER

To:
Anthony Kiseda
Shawn Collins
Brandon Alger (EGLE)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:
September 25, 2020

Subject:

Shallow Groundwater
Assessment Data Package

Arcadis Project No.:

We are sending you copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Delivery Date	Drawing No.	Rev.	Description	Action*
1	9/25/2020			Figure	
1	9/25/2020			Analytical Results	
1	9/25/2020			Field Notes and Drawings	

Action*

- A Approved CR Correct and Resubmit Resubmit _____ Copies
 AN Approved As Noted F File Return _____ Copies
 AS As Requested FA For Approval Review and Comment
 Other: _____

Mailing Method



- U.S. Postal Service 1st Class Courier/Hand Delivery FedEx Priority Overnight FedEx 2-Day Delivery
 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
 Other: email

Thank you for cooperating with the groundwater sampling at your property on August 6, 2020. Attached is your data package.

CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: A. PAULSON TR: M. WACKSMAN PROJECT NUMBER: MI001454.0003.000001 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
Z:\GIS\Projects\ENV\NovBrighton_MilFordLivonia\GIS\docs\2019-03\MW_Locations\34934StandisMW-183S.mxd PLOTTED: 3/5/2019 10:06:05 AM BY: msmiller



LEGEND:

-  MONITORING WELL LOCATION
-  PROPERTY BOUNDARIES



FORD MOTOR COMPANY
LIVONIA TRANSMISSION PLANT
LIVONIA, MICHIGAN

MONITORING WELL LOCATION MW-183S



FIGURE
1

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-134684-1
Client Project/Site: Ford LTP Off-Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
8/21/2020 10:50:28 AM

Michael DelMonico, Project Manager I
(330)497-9396
Michael.DelMonico@Eurofinset.com

LINKS

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results through
TotalAccess

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www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134684-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
X	Surrogate recovery exceeds control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134684-1

Job ID: 240-134684-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Off-Site

Report Number: 240-134684-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 8/8/2020 10:00 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 4.3° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-134684-1) and MW-183S_080620 (240-134684-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 08/18/2020.

Dibromofluoromethane (Surr) failed the surrogate recovery criteria high for MB 240-447614/6. Refer to the QC report for details.

The continuing calibration verification (CCV) associated with batch 447614 recovered above the upper control limit for Vinyl Chloride. The samples associated with this CCV were non-detect for the affected analyte; therefore, the data have been reported. The associated samples are impacted: TRIP BLANK (240-134684-1) and MW-183S_080620 (240-134684-2).

Surrogate recovery for the method blank(s) was outside the upper control limit: (MB 240-447614/6). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

No MS/MSD in batch 447614 due to MSD exceeding 12 hour tune time window: TRIP BLANK (240-134684-1) and MW-183S_080620 (240-134684-2).

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134684-1

Job ID: 240-134684-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-183S_080620 (240-134684-2) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 08/14/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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- 10
- 11
- 12
- 13
- 14

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134684-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134684-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-134684-1	TRIP BLANK	Water	08/06/20 00:00	08/08/20 10:00	
240-134684-2	MW-183S_080620	Water	08/06/20 12:25	08/08/20 10:00	

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- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134684-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134684-1

No Detections.

Client Sample ID: MW-183S_080620

Lab Sample ID: 240-134684-2

No Detections.

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- 11
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- 13
- 14

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off-Site

Job ID: 240-134684-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134684-1

Date Collected: 08/06/20 00:00

Matrix: Water

Date Received: 08/08/20 10:00

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/18/20 16:24	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/18/20 16:24	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/18/20 16:24	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/18/20 16:24	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/18/20 16:24	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/18/20 16:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		75 - 130		08/18/20 16:24	1
4-Bromofluorobenzene (Surr)	101		47 - 134		08/18/20 16:24	1
Toluene-d8 (Surr)	107		69 - 122		08/18/20 16:24	1
Dibromofluoromethane (Surr)	123		78 - 129		08/18/20 16:24	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134684-1

Client Sample ID: MW-183S_080620

Lab Sample ID: 240-134684-2

Date Collected: 08/06/20 12:25

Matrix: Water

Date Received: 08/08/20 10:00

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/14/20 19:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		70 - 133		08/14/20 19:57	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/18/20 16:47	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/18/20 16:47	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/18/20 16:47	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/18/20 16:47	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/18/20 16:47	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/18/20 16:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		75 - 130		08/18/20 16:47	1
4-Bromofluorobenzene (Surr)	89		47 - 134		08/18/20 16:47	1
Toluene-d8 (Surr)	90		69 - 122		08/18/20 16:47	1
Dibromofluoromethane (Surr)	104		78 - 129		08/18/20 16:47	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134684-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-134684-1	TRIP BLANK	102	101	107	123
240-134684-2	MW-183S_080620	88	89	90	104
LCS 240-447614/4	Lab Control Sample	94	97	98	118
MB 240-447614/6	Method Blank	115	115	121	135 X

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-133)
240-134654-A-2 MS	Matrix Spike	88
240-134654-A-2 MSD	Matrix Spike Duplicate	83
240-134684-2	MW-183S_080620	91
LCS 240-447208/4	Lab Control Sample	87
MB 240-447208/5	Method Blank	88

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134684-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-447614/6
Matrix: Water
Analysis Batch: 447614

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/18/20 12:39	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/18/20 12:39	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/18/20 12:39	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/18/20 12:39	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/18/20 12:39	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/18/20 12:39	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	115		75 - 130		08/18/20 12:39	1
4-Bromofluorobenzene (Surr)	115		47 - 134		08/18/20 12:39	1
Toluene-d8 (Surr)	121		69 - 122		08/18/20 12:39	1
Dibromofluoromethane (Surr)	135	X	78 - 129		08/18/20 12:39	1

Lab Sample ID: LCS 240-447614/4
Matrix: Water
Analysis Batch: 447614

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	11.4		ug/L		114	73 - 129
cis-1,2-Dichloroethene	10.0	11.5		ug/L		115	75 - 124
Tetrachloroethene	10.0	10.9		ug/L		109	70 - 125
trans-1,2-Dichloroethene	10.0	11.6		ug/L		116	74 - 130
Trichloroethene	10.0	10.5		ug/L		105	71 - 121
Vinyl chloride	10.0	12.2		ug/L		122	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	94		75 - 130
4-Bromofluorobenzene (Surr)	97		47 - 134
Toluene-d8 (Surr)	98		69 - 122
Dibromofluoromethane (Surr)	118		78 - 129

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-447208/5
Matrix: Water
Analysis Batch: 447208

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/14/20 12:26	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		70 - 133		08/14/20 12:26	1

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134684-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-447208/4
Matrix: Water
Analysis Batch: 447208

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	10.6		ug/L	-	106	80 - 135
LCS LCS							
Surrogate	%Recovery	Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	87		70 - 133				

Lab Sample ID: 240-134654-A-2 MS
Matrix: Water
Analysis Batch: 447208

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	10.0	10.3		ug/L	-	103	46 - 170
MS MS									
Surrogate	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	88		70 - 133						

Lab Sample ID: 240-134654-A-2 MSD
Matrix: Water
Analysis Batch: 447208

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	2.0	U	10.0	10.1		ug/L	-	101	46 - 170	3	26
MSD MSD											
Surrogate	%Recovery	Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	83		70 - 133								

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134684-1

GC/MS VOA

Analysis Batch: 447208

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134684-2	MW-183S_080620	Total/NA	Water	8260B SIM	
MB 240-447208/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-447208/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-134654-A-2 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-134654-A-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 447614

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134684-1	TRIP BLANK	Total/NA	Water	8260B	
240-134684-2	MW-183S_080620	Total/NA	Water	8260B	
MB 240-447614/6	Method Blank	Total/NA	Water	8260B	
LCS 240-447614/4	Lab Control Sample	Total/NA	Water	8260B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134684-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134684-1

Date Collected: 08/06/20 00:00

Matrix: Water

Date Received: 08/08/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	447614	08/18/20 16:24	LEE	TAL CAN

Client Sample ID: MW-183S_080620

Lab Sample ID: 240-134684-2

Date Collected: 08/06/20 12:25

Matrix: Water

Date Received: 08/08/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	447614	08/18/20 16:47	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	447208	08/14/20 19:57	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off-Site

Job ID: 240-134684-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-20 *
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.



Chain of Custody Record

TestAmerica Laboratory Location: Brighton --- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Regulatory program: DW NPDES RCRA Other

Client Project Manager: Kris Hinskey
 Telephone: 248-994-2240
 Email: kristoffer_hinskey@arcadis.com

Site Contact: Julia McClafferty
 Telephone: 734-644-5131

Lab Contact: Mike DeMonico
 Telephone: 330-497-9396

Company Name: Arcadis
 Address: 28550 Cabot Drive, Suite 500
 City/State/Zip: Novi, MI, 48377
 Phone: 248-994-2240

Project Name: Ford LTP OH-Site
 Project Number: 30050315.402.04
 PO # 30050315.402.04

Sampler Name: *Ernest W. Hinskey*
 Method of Shipment/Carrier: *10 day*

Shipping/Tracking No:

Sample Identification	Sample Date	Sample Time	Matrix										Filtered Sample (Y/N)	Composite=C/Grab=G	Analyses										Sample Specific Notes / Special Instructions		
			Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl	NaOH	ZnAc			NaOH	Capres	Other:	1,1-DCE 8260B	Chl-1,2-DCE 8260B	Trans-1,2-DCE 8260B	PCE 8260B	TCE 8260B	Vinyl Chloride 8260B	1,4-Dioxane 8260B SIM			
TRIP BLANK	8/6/20	-	X					X																			1 Trip blank #3 vials for 8260B 3 vials for 8260B SIM
MW-1635-080620	8/6/20	1225	X					X																			



Possible Hazard Identification
 Non-Hazard Irritant Poison B Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal By Lab Archive For _____ Months

Special Instructions/QC Requirements & Comments:
 Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203631
 Level IV Reporting requested.

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
<i>Justin Green</i>	Arcadis	8/6/20 1600	Arcadis cold storage	Arcadis	8/6/20 1600
<i>Cheryl Brannick</i>	ARCADIS	8/7/20 / 0915		ETA	8/7/20 0915
<i>[Signature]</i>	ETA	8/7/20 0916	<i>[Signature]</i>	ETA	8-8-20 1000

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Eurofins TestAmerica Canton Sample Receipt Form/Narrative


Login # : 174684

Canton Facility

Client Arcadis Site Name _____ Cooler unpacked by: Adam Ramsey
 Cooler Received on 8-8-20 Opened on 8-8-20
 FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ **Storage Location** _____

TestAmerica Cooler # 574 Foam Box Client Cooler Box Other _____
 Packing material used: Bubble Wrap Foam Plastic Bag None Other _____
 COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN# IR-10 (CF +0.7°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN #IR-11 (CF +0.9°C) Observed Cooler Temp. 3.4 °C Corrected Cooler Temp. 4.3 °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
 If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC911298
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? Yes No NA  Larger than this.
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 0417701E Yes No
16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: _____

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

DATA VERIFICATION REPORT



August 21, 2020

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: 30050315.0402.04 off site
Event Specific Scope of Work References: Sample COC
Laboratory: TestAmerica - North Canton
Laboratory submittal: 134684-1
Sample date: 2020-08-06
Report received by CADENA: 2020-08-21
Initial Data Verification completed by CADENA: 2020-08-21
Number of Samples: 1 Water and 1 trip blank
Sample Matrices: Water
Test Categories: GCMS VOC

Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

The following minor QC exceptions or missing information were noted:

GCMS VOC surrogate recoveries were outside of laboratory control limits biased HIGH for at least 1 surrogate. All associated results were non-detect so qualification was not required based on these high bias QC outliers:
QC batch 447614 method blank.

GCMS VOC CCV STANDARD response outliers as noted in the laboratory submittal case narrative were not used to qualify client sample results as part of this level 2 data package verification review.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Analytical Results Summary

CADENA Project ID: E203631

Laboratory: TestAmerica - North Canton

Laboratory Submittal: 134684-1

Sample Name: TRIP BLANK MW-183S_080620
 Lab Sample ID: 2401346841 2401346842
 Sample Date: 8/6/2020 8/6/2020

Analyte	Cas No.	Report		Units	Valid Qualifier	Report		Units	Valid Qualifier
		Result	Limit			Result	Limit		
GC/MS VOC									
<u>OSW-8260B</u>									
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---
<u>OSW-8260BBSim</u>									
1,4-Dioxane	123-91-1					ND	2.0	ug/l	---

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG # 240-134684-1

CADENA Verification Report: 2020-08-21

Analyses Performed By:

TestAmerica

Edison, New Jersey

Report #38046R

Review Level: Tier III

Project: 30050315.402.02

DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-134684-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III) includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						VOC (Full Scan)	VOC (SIM)	MISC
240-134684-1	TRIP BLANK	240-134684-1	Water	8/6/2020		X		
	MW-183S_080620	240-134684-2	Water	8/6/2020		X	X	

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260B and 8260B SIM. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260B/8260B-SIM	Water	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl

All samples were analyzed within the specified holding time criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (20%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

A field duplicate was not performed on a sample within this SDG.

6. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

No compounds were detected in the samples within this SDG.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: 8260B/8260B-SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times/Preservation		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Field Duplicate RPD		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

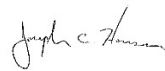
%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:



DATE: August 27, 2020

PEER REVIEW: Andrew Korycinski

DATE: August 27, 2020



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



**NO CORRECTIONS/QUALIFIERS ADDED
TO SAMPLE ANALYSIS DATA SHEETS**



Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Off-Site

Job ID: 240-134684-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134684-1

Date Collected: 08/06/20 00:00

Matrix: Water

Date Received: 08/08/20 10:00

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/18/20 16:24	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/18/20 16:24	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/18/20 16:24	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/18/20 16:24	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/18/20 16:24	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/18/20 16:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		75 - 130		08/18/20 16:24	1
4-Bromofluorobenzene (Surr)	101		47 - 134		08/18/20 16:24	1
Toluene-d8 (Surr)	107		69 - 122		08/18/20 16:24	1
Dibromofluoromethane (Surr)	123		78 - 129		08/18/20 16:24	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Off-Site

Job ID: 240-134684-1

Client Sample ID: MW-183S_080620

Lab Sample ID: 240-134684-2

Date Collected: 08/06/20 12:25

Matrix: Water

Date Received: 08/08/20 10:00

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/14/20 19:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		70 - 133		08/14/20 19:57	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/18/20 16:47	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/18/20 16:47	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/18/20 16:47	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/18/20 16:47	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/18/20 16:47	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/18/20 16:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		75 - 130		08/18/20 16:47	1
4-Bromofluorobenzene (Surr)	89		47 - 134		08/18/20 16:47	1
Toluene-d8 (Surr)	90		69 - 122		08/18/20 16:47	1
Dibromofluoromethane (Surr)	104		78 - 129		08/18/20 16:47	1

Chain of Custody Record

TestAmerica Laboratory location: Brighton --- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Regulatory program: DW NPDES RCRA Other

Client Project Manager: Kris Hinskey
 Telephone: 248-994-2240
 Email: kristoffer.hinskey@arcadis.com

Site Contact: Julia McClafferty
 Telephone: 734-644-5131

Lab Contact: Mike DeMonico
 Telephone: 330-497-9396

Company Name: Arcadis
 Address: 28550 Cabot Drive, Suite 500
 City/State/Zip: Novi, MI, 48377

Project Name: Ford LTP Off-Site
 Project Number: 30050315.402.04
 PO # 30050315.402.04

Sampler Name: *Ernest W. Hinskey*
 Method of Shipment/Carrier: *10 day*
 Shipping/Tracking No:

Analysis Turnaround Time
 TAT (if different from below): 3 weeks 2 weeks 1 week 2 days 1 day

Filtered Sample (Y/N)
 Composite=C / Grab=G

Sample Identification	Sample Date	Sample Time	Matrix										Other:	Sample Specific Notes / Special Instructions:			
			Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH			Upters		
TRIP BLANK	8/6/20	-															
MW-1635-080620	8/6/20	1225	X	X													1 Trip blank 2 vials for 8260B 3 vials for 8260B SIM



Possible Hazard Identification
 Non-Hazard Irritant Poison B Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal By Lab Archive For _____ Months

Special Instructions/QC Requirements & Comments:
 Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203631
 Level IV Reporting requested.

Relinquished by: <i>Justin Green</i>	Company: Arcadis	Date/Time: 8/6/20 1600	Received by: Arcadis cold storage	Company: Arcadis	Date/Time: 8/6/20 1600
Relinquished by: <i>Cheryl Brannick</i>	Company: ARCADIS	Date/Time: 8/7/20/0915	Received by: <i>[Signature]</i>	Company: ETA	Date/Time: 8/7/20 0915
Relinquished by: <i>[Signature]</i>	Company: ETA	Date/Time: 8/7/20 0916	Received in laboratory by: <i>[Signature]</i>	Company: <i>[Signature]</i>	Date/Time: 8-8-20 1000

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SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Project No.: 30050315.402.01 Page 1 of 1
 Site Location: Ford LTP 34934 Standish; SW of house in front yard
 Prepared By: Emma Witherspoon

Date	Time	Description of Activities
8/6/2020	11:25	Arrive onsite
8/6/2020	11:35	Record static depth to water
8/6/2020	11:40	Begin purging well
8/6/2020	12:25	Collect sample
8/6/2020	12:27	End purge and turn off pump, begin decon of equipment
8/6/2020	12:40	Offsite
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--	--	Field staff signature: _____
--	--	_____ <i>Emma Witherspoon</i>
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SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Page 1 of 1

Project No. 30050315.402.01 Well ID MW-183S Date 8-6-20
 Project Name/Location Ford LTP Weather 74 degrees F, Partly Cloudy
 Measuring Pt. Description Top of Casing Screen Setting (ft-bmp) 8-13 Casing Diameter (in.) 2 Well Material PVC
 Static Water Level (ft-bmp) 9.00 Total Depth (ft-bmp) 13.00 Water Column (ft.) 4.00 Gallons in Well 0.65
 Pump Intake (ft-bmp) 10.50 Purge Method Low-Flow Sample Method Grab
 Well Volumes Purged 2.46

Sample Time: Label 12:25 Volume Purged 1.6 gallons Replicate/Code No. -- Sampled by Emma Witherspoon
 Purge Start 11:40
 Purge End 12:27

Time	Minutes Elapsed between Readings	Flow Rate (mL/min) [100-300 mL/min]	Depth to Water (ft) [± 0.3]	Total Gallons Purged	pH [± 0.1]	Cond. (mS/cm) [± 3%]	Turbidity (NTU) [± 10%*]	DO (mg/L) [± 10%]	Temp. (°C) [± 3%]	Redox (mV) [± 10mV]	Appearance	
											Color	Odor
11:40	0	150	9.01	0.00	7.82	0.28	14.00	9.50	14.3	75.7	Clear, Small Orange Particulates	No Odor
11:45	5	150	9.01	0.20	7.35	0.28	15.40	7.90	13.9	105.6	Small Orange Particulates	No Odor
11:50	5	150	9.01	0.40	7.29	0.29	15.40	7.69	13.8	115.3	Clear, Small Orange Particulates	No Odor
11:55	5	150	9.01	0.60	7.36	0.31	13.60	6.88	13.9	115.6	Clear	No Odor
12:00	5	150	9.01	0.80	7.33	0.33	9.95	6.94	13.7	118.8	Clear	No Odor
12:05	5	150	9.01	1.00	7.36	0.34	6.71	6.33	13.6	117.8	Clear	No Odor
12:10	5	150	9.01	1.20	7.36	0.34	3.37	5.74	13.6	117.6	Clear	No Odor
12:15	5	150	9.01	1.40	7.39	0.34	2.01	5.58	13.6	116.8	Clear	No Odor
12:20	5	150	9.01	1.60	7.38	0.34	1.52	5.75	13.6	118.2	Clear	No Odor
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* Turbidity < 50 NTU and ±10% or within 1 NTU of a previous reading when <10 NTU

Constituents Sampled	Container	Number	Preservative
1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, PCE, TCE, VC	40 mL Glass	3	HCL
1,4-dioxane	40 mL Glass	3	HCL

Comments None

Well Casing Volumes	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
Gallons/Foot	1" = 0.04	2" = 0.16	4" = 0.65	

Well Information

Well Location: 34934 Standish; SW of house in front yard Well Locked at Arrival: yes

Condition of Well: Good Well Locked at Departure: yes

Well Completion: Flush mount Lock Functioning: yes

TRANSMITTAL LETTER



To:
Anthony Kiseda
Shawn Collins
Brandon Alger (EGLE)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:

January 16, 2021

Subject:

Arcadis Project No.:

Shallow Groundwater
Assessment Data Package

We are sending you copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Delivery Date	Drawing No.	Rev.	Description	Action*
1	1/16/2021			Figure	
1	1/16/2021			Analytical Results	
1	1/16/2021			Field Notes and Drawings	

Action*

- A Approved CR Correct and Resubmit Resubmit _____ Copies
 AN Approved As Noted F File Return _____ Copies
 AS As Requested FA For Approval Review and Comment
 Other: _____

Mailing Method



- U.S. Postal Service 1st Class Courier/Hand Delivery FedEx Priority Overnight FedEx 2-Day Delivery
 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
 Other: email

Thank you for cooperating with the groundwater sampling at your property on November 9, 2020.
Attached is your data package.

CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: A. PAULSON TR: M. WACKSMAN PROJECT NUMBER: MI001454.0003.000001 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
Z:\GIS\Projects\ENV\NovBrighton_MilFordLivonia\GIS\docs\2019-03\MW_Locations\34934StandisMW-183S.mxd PLOTTED: 3/5/2019 10:06:05 AM BY: msmiller



LEGEND:

-  MONITORING WELL LOCATION
-  PROPERTY BOUNDARIES



FORD MOTOR COMPANY
LIVONIA TRANSMISSION PLANT
LIVONIA, MICHIGAN

MONITORING WELL LOCATION MW-183S



FIGURE
1

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-139964-1
Client Project/Site: Ford LTP - Off Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
11/25/2020 8:46:21 AM

Michael DelMonico, Project Manager I
(330)497-9396
Michael.DelMonico@Eurofinset.com

LINKS

Review your project
results through
TotalAccess

Have a Question?

 **Ask
The
Expert**

Visit us at:

www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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QC Association Summary	14
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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139964-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139964-1

Job ID: 240-139964-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP - Off Site

Report Number: 240-139964-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 11/11/2020 9:15 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.8° C and 2.9° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-139964-1) and MW-183S_110920 (240-139964-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/20/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-183S_110920 (240-139964-2) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 11/17/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139964-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139964-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-139964-1	TRIP BLANK	Water	11/09/20 00:00	11/11/20 09:15	
240-139964-2	MW-183S_110920	Water	11/09/20 14:30	11/11/20 09:15	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139964-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-139964-1

No Detections.

Client Sample ID: MW-183S_110920

Lab Sample ID: 240-139964-2

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP - Off Site

Job ID: 240-139964-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-139964-1

Date Collected: 11/09/20 00:00

Matrix: Water

Date Received: 11/11/20 09:15

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/20/20 16:05	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/20/20 16:05	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/20/20 16:05	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/20/20 16:05	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/20/20 16:05	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/20/20 16:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		75 - 130		11/20/20 16:05	1
4-Bromofluorobenzene (Surr)	71		47 - 134		11/20/20 16:05	1
Toluene-d8 (Surr)	87		69 - 122		11/20/20 16:05	1
Dibromofluoromethane (Surr)	96		78 - 129		11/20/20 16:05	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP - Off Site

Job ID: 240-139964-1

Client Sample ID: MW-183S_110920

Lab Sample ID: 240-139964-2

Date Collected: 11/09/20 14:30

Matrix: Water

Date Received: 11/11/20 09:15

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/17/20 21:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	125		70 - 133		11/17/20 21:23	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/20/20 16:29	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/20/20 16:29	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/20/20 16:29	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/20/20 16:29	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/20/20 16:29	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/20/20 16:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		75 - 130		11/20/20 16:29	1
4-Bromofluorobenzene (Surr)	72		47 - 134		11/20/20 16:29	1
Toluene-d8 (Surr)	87		69 - 122		11/20/20 16:29	1
Dibromofluoromethane (Surr)	94		78 - 129		11/20/20 16:29	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139964-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA	BFB	TOL	DBFM
		(75-130)	(47-134)	(69-122)	(78-129)
240-139964-1	TRIP BLANK	87	71	87	96
240-139964-2	MW-183S_110920	87	72	87	94
240-140049-E-3 MS	Matrix Spike	78	91	93	86
240-140049-F-3 MSD	Matrix Spike Duplicate	79	87	92	86
LCS 240-462077/4	Lab Control Sample	82	91	101	93
MB 240-462077/7	Method Blank	84	72	86	90

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA
		(70-133)
240-139957-C-2 MS	Matrix Spike	122
240-139957-C-2 MSD	Matrix Spike Duplicate	121
240-139964-2	MW-183S_110920	125
LCS 240-461393/3	Lab Control Sample	109
MB 240-461393/5	Method Blank	116

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139964-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-462077/7
Matrix: Water
Analysis Batch: 462077

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/20/20 15:41	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/20/20 15:41	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/20/20 15:41	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/20/20 15:41	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/20/20 15:41	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/20/20 15:41	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		75 - 130		11/20/20 15:41	1
4-Bromofluorobenzene (Surr)	72		47 - 134		11/20/20 15:41	1
Toluene-d8 (Surr)	86		69 - 122		11/20/20 15:41	1
Dibromofluoromethane (Surr)	90		78 - 129		11/20/20 15:41	1

Lab Sample ID: LCS 240-462077/4
Matrix: Water
Analysis Batch: 462077

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	9.98		ug/L		100	73 - 129
cis-1,2-Dichloroethene	10.0	9.47		ug/L		95	75 - 124
Tetrachloroethene	10.0	10.1		ug/L		101	70 - 125
trans-1,2-Dichloroethene	10.0	10.1		ug/L		101	74 - 130
Trichloroethene	10.0	8.96		ug/L		90	71 - 121
Vinyl chloride	10.0	8.02		ug/L		80	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	82		75 - 130
4-Bromofluorobenzene (Surr)	91		47 - 134
Toluene-d8 (Surr)	101		69 - 122
Dibromofluoromethane (Surr)	93		78 - 129

Lab Sample ID: 240-140049-E-3 MS
Matrix: Water
Analysis Batch: 462077

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U	10.0	9.89		ug/L		99	64 - 132
cis-1,2-Dichloroethene	1.0	U	10.0	9.59		ug/L		96	68 - 121
Tetrachloroethene	1.0	U	10.0	10.7		ug/L		107	52 - 129
trans-1,2-Dichloroethene	1.0	U	10.0	10.4		ug/L		104	69 - 126
Trichloroethene	1.0	U	10.0	8.96		ug/L		90	56 - 124
Vinyl chloride	1.0	U	10.0	7.37		ug/L		74	49 - 136

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	78		75 - 130
4-Bromofluorobenzene (Surr)	91		47 - 134
Toluene-d8 (Surr)	93		69 - 122

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139964-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-140049-E-3 MS
Matrix: Water
Analysis Batch: 462077

Client Sample ID: Matrix Spike
Prep Type: Total/NA

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
Dibromofluoromethane (Surr)	86		78 - 129

Lab Sample ID: 240-140049-F-3 MSD
Matrix: Water
Analysis Batch: 462077

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	10.0	9.69		ug/L		97	64 - 132	2	35
cis-1,2-Dichloroethene	1.0	U	10.0	9.50		ug/L		95	68 - 121	1	35
Tetrachloroethene	1.0	U	10.0	9.79		ug/L		98	52 - 129	8	35
trans-1,2-Dichloroethene	1.0	U	10.0	10.2		ug/L		102	69 - 126	2	35
Trichloroethene	1.0	U	10.0	8.96		ug/L		90	56 - 124	0	35
Vinyl chloride	1.0	U	10.0	7.43		ug/L		74	49 - 136	1	35

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	79		75 - 130
4-Bromofluorobenzene (Surr)	87		47 - 134
Toluene-d8 (Surr)	92		69 - 122
Dibromofluoromethane (Surr)	86		78 - 129

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-461393/5
Matrix: Water
Analysis Batch: 461393

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/17/20 13:36	1

	MB	MB							
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
1,2-Dichloroethane-d4 (Surr)	116		70 - 133		11/17/20 13:36	1			

Lab Sample ID: LCS 240-461393/3
Matrix: Water
Analysis Batch: 461393

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	11.0		ug/L		110	80 - 135

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	109		70 - 133

Lab Sample ID: 240-139957-C-2 MS
Matrix: Water
Analysis Batch: 461393

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	10.0	12.0		ug/L		120	46 - 170

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP - Off Site

Job ID: 240-139964-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	122		70 - 133

Lab Sample ID: 240-139957-C-2 MSD
 Matrix: Water
 Analysis Batch: 461393

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Total/NA

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
1,4-Dioxane	2.0	U	10.0	12.0		ug/L		120	46 - 170	0	26

<i>Surrogate</i>	<i>%Recovery</i>	<i>MSD MSD Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	121		70 - 133

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139964-1

GC/MS VOA

Analysis Batch: 461393

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-139964-2	MW-183S_110920	Total/NA	Water	8260B SIM	
MB 240-461393/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-461393/3	Lab Control Sample	Total/NA	Water	8260B SIM	
240-139957-C-2 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-139957-C-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 462077

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-139964-1	TRIP BLANK	Total/NA	Water	8260B	
240-139964-2	MW-183S_110920	Total/NA	Water	8260B	
MB 240-462077/7	Method Blank	Total/NA	Water	8260B	
LCS 240-462077/4	Lab Control Sample	Total/NA	Water	8260B	
240-140049-E-3 MS	Matrix Spike	Total/NA	Water	8260B	
240-140049-F-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139964-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-139964-1

Date Collected: 11/09/20 00:00

Matrix: Water

Date Received: 11/11/20 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	462077	11/20/20 16:05	LRW	TAL CAN

Client Sample ID: MW-183S_110920

Lab Sample ID: 240-139964-2

Date Collected: 11/09/20 14:30

Matrix: Water

Date Received: 11/11/20 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	462077	11/20/20 16:29	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	461393	11/17/20 21:23	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139964-1


Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-21
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-21
Texas	NELAP	T104704517-18-10	08-31-21
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-21
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

Chain of Custody Record

TestAmerica Laboratory location: Brighton — 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Client Contact		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other		TestAmerica Laboratories, Inc.																									
Company Name: Arcadis		Client Project Manager: Kris Hinskey		Site Contact: Julia McClafferty																									
Address: 28550 Cabot Drive, Suite 500		Telephone: 248-994-2240		Telephone: 734-644-5131																									
City/State/Zip: Novi, MI, 48377		Email: kristoffer.hinskey@arcadis.com		Telephone: 330-497-9396																									
Phone: 248-994-2240		Sampler Name: <i>Ellen Redner</i>		Analysis Turnaround Time TAT if different from below <input type="checkbox"/> 3 weeks <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day																									
Project Name: Ford LTP Off-Site		Method of Shipment/Carrier:																											
Project Number: 30050315.402.04		Shipping/Tracking No:																											
PO # 30050315.402.04		Matrix		Analyses																									
Sample Identification		Containers & Preservatives		Filtered Sample (Y/N)																									
Sample Date	Sample Time	Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl	NaOH	ZnAc	NaOH	Unpres	Other:	Composite=C / Grab=G	1,1-DCE 8260B	cis-1,2-DCE 8260B	Trans-1,2-DCE 8260B	PCE 8260B	TCE 8260B	Vinyl Chloride 8260B	1,4-Dioxane 8260B SIM	COC No: of COCs For lab use only Walk-in client Lab sampling Job/SDG No: Sample Specific Notes / Special Instructions:						
TRIP BLANK	—	—	1													NG	X	X	X	X	X	X	X	1 Trip Blank					
MW-1835_110920	11/9/20	1430	6													NG	X	X	X	X	X	X	X	3 VOA's for 8260B 3 VOA's for 8260B SIM					
 240-139964 Chain of Custody <i>Ellen Redner</i> 11/9/2020																													
Possible Hazard Identification												Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)																	
<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown												<input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months																	
Special Instructions/QC Requirements & Comments:																													
Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203631 Level IV Reporting requested.																													
Relinquished by: <i>Ellen Redner</i>		Company: Arcadis		Date/Time: 11/9/2020 1800		Received by: NOVI, cold storage		Company: Arcadis		Date/Time: 11/9/2020 1800		Relinquished by: <i>Julia McClafferty</i>		Company: Arcadis		Date/Time: 11/10/20 1440		Received by: <i>Paul Coen</i>		Company: ETA		Date/Time: 11/10/20 1440		Relinquished by: <i>Paul Coen</i>		Company: ETA		Date/Time: 11-11-20 915	

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Eurofins TestAmerica Canton Sample Receipt Form/Narrative

Login # : 1399164

Canton Facility

Client Arcadis Site Name _____ Cooler unpacked by: [Signature]
 Cooler Received on 11-11-20 Opened on 11-12-20
 FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # TA Foam Box _____ Client Cooler Box _____ Other _____
 Packing material used: Bubble Wrap Foam Plastic Bag None Other _____
 COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN# IR-11 (CF +0.9 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN #IR-12 (CF +0.5 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 2 Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)? Yes No
10. Were correct bottle(s) used for the test(s) indicated? Yes No
11. Sufficient quantity received to perform indicated analyses? Yes No
12. Are these work share samples and all listed on the COC? Yes No
 If yes, Questions 13-17 have been checked at the originating laboratory.
13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC907861
14. Were VOAs on the COC? Yes No
15. Were air bubbles >6 mm in any VOA vials? ● ← Larger than this. Yes No NA MSJ
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # NA Yes No
17. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:
 VOAs
 Oil and Grease
 TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____
 Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page Samples processed by: _____

19. SAMPLE CONDITION
 Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION
 Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____
 VOA Sample Preservation - Date/Time VOAs Frozen: _____

DATA VERIFICATION REPORT



November 25, 2020

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: 30050315.0301.01 off site
Event Specific Scope of Work References: Sample COC
Laboratory: TestAmerica - North Canton
Laboratory submittal: 139964-1
Sample date: 2020-11-09
Report received by CADENA: 2020-11-25
Initial Data Verification completed by CADENA: 2020-11-25
Number of Samples:2
Sample Matrices:Water
Test Categories:GCMS VOC

Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

There were no significant QC anomalies or exceptions to report.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Analytical Results Summary

Reportable Results Only

CADENA Project ID: E203631

Laboratory: TestAmerica - North Canton

Laboratory Submittal: 139964-1

Sample Name: TRIP BLANK MW-183S_110920
Lab Sample ID: 2401399641 2401399642
Sample Date: 11/9/2020 11/9/2020

Analyte	Cas No.	Report		Units	Valid		Report		Valid	
		Result	Limit		Qualifier	Result	Limit	Units	Qualifier	
GC/MS VOC										
<u>OSW-8260B</u>										
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
<u>OSW-8260BBSim</u>										
1,4-Dioxane	123-91-1					ND	2.0	ug/l	---	

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan


Volatile Organic Compounds (VOC) Analysis

SDG # 240-139964-1

CADENA Verification Report: 2020-11-25

Analyses Performed By:
TestAmerica
North Canton, Ohio

Report #39370R
Review Level: Tier III
Project: 30050315.402.02



DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-139964-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III) includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis	
					VOC (Full Scan)	VOC (SIM)
TRIP BLANK	240-139964-1	Water	11/09/20		X	
MW-183S_110920	240-139964-2	Water	11/09/20		X	X

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260B and 8260B SIM. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260B/8260B-SIM	Water	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl

All samples were analyzed within the specified holding time criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (20%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent

DATA REVIEW

sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

A field duplicate sample was not collected for samples from this SDG.

6. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

No compounds were detected in the samples within this SDG.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: 8260B/8260B-SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times/Preservation		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Field Duplicate RPD	X				X
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

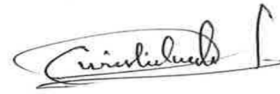
RPD Relative percent difference

%D Percent difference

DATA REVIEW

VALIDATION PERFORMED BY: Hrishikesh Upadhyaya

SIGNATURE:



DATE: December 04, 2020

PEER REVIEW: Andrew Korycinski

DATE: December 07, 2020

NO CORRECTIONS/QUALIFIERS ADDED TO SAMPLE ANALYSIS DATA SHEETS



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



Chain of Custody Record

TestAmerica Laboratory location: Brighton --- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Client Contact			Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other																							
Company Name: Arcadis			Client Project Manager: Kris Hinskey					Site Contact: Julia McClafferty					Lab Contact: Mike DelMonico					TestAmerica Laboratories, Inc.								
Address: 28550 Cabot Drive, Suite 500			Telephone: 248-994-2240					Telephone: 734-644-5131					Telephone: 330-497-9396					COC No:								
City/State/Zip: Novi, MI, 48377			Email: kristoffer.hinskey@arcadis.com					Analysis Turnaround Time					Analyses					of COCs								
Phone: 248-994-2240			Sampler Name: Ellen Redner					TAT if different from below: 10 day <input checked="" type="checkbox"/> 3 weeks <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day					Filtered Sample (Y/N) Composite-C / Grab-G 1,1-DCE 8260B cis-1,2-DCE 8260B Trans-1,2-DCE 8260B PCE 8260B TCE 8260B Vinyl Chloride 8260B 1,4-Dioxane 8260B SIM					For lab use only								
Project Name: Ford LTP Off-Site			Method of Shipment/Carrier:					Walk-in client										Lab sampling								
Project Number: 30050315.402.04			Shipping/Tracking No:					Job/SDG No:					Sample Specific Notes / Special Instructions:													
PO # 30050315.402.04																										
Sample Identification			Sample Date		Sample Time		Matrix					Containers & Preservatives														
							Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl	NaOH	ZnAc						NaOH	Unpres	Other:		
TRIP BLANK			---		---		1					1					NG X X X X X X X					1 Trip Blank				
MW-1835_110920			11/9/20		1430		6					6					NG X X X X X X X					3 VOAs for 8260B 3 VOAs for 8260B SIM				
<i>Julia McClafferty</i>																	11/9/2020									



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Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal By Lab Archive For _____ Months

Special Instructions/QC Requirements & Comments:
 Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203631
 Level IV Reporting requested.

Relinquished by: <i>Ellen Redner</i>	Company: Arcadis	Date/Time: 11/9/2020 1800	Received by: <i>Novi Cold Storage</i>	Company: Arcadis	Date/Time: 11/9/2020 1800
Relinquished by: <i>Julia McClafferty</i>	Company: Arcadis	Date/Time: 11/10/20 1440	Received by: <i>Paul Cain</i>	Company: ETA	Date/Time: 11/10/20 1440
Relinquished by: <i>Paul Cain</i>	Company: ETA	Date/Time: 11/10/20 1700	Received in Laboratory by: <i>[Signature]</i>	Company: ETAC	Date/Time: 11-11-20 915

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP - Off Site

Job ID: 240-139964-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-139964-1

Date Collected: 11/09/20 00:00

Matrix: Water

Date Received: 11/11/20 09:15

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/20/20 16:05	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/20/20 16:05	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/20/20 16:05	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/20/20 16:05	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/20/20 16:05	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/20/20 16:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		75 - 130		11/20/20 16:05	1
4-Bromofluorobenzene (Surr)	71		47 - 134		11/20/20 16:05	1
Toluene-d8 (Surr)	87		69 - 122		11/20/20 16:05	1
Dibromofluoromethane (Surr)	96		78 - 129		11/20/20 16:05	1

Client Sample ID: MW-183S_110920

Lab Sample ID: 240-139964-2

Date Collected: 11/09/20 14:30

Matrix: Water

Date Received: 11/11/20 09:15

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/17/20 21:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	125		70 - 133		11/17/20 21:23	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/20/20 16:29	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/20/20 16:29	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/20/20 16:29	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/20/20 16:29	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/20/20 16:29	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/20/20 16:29	1


Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		75 - 130		11/20/20 16:29	1
4-Bromofluorobenzene (Surr)	72		47 - 134		11/20/20 16:29	1
Toluene-d8 (Surr)	87		69 - 122		11/20/20 16:29	1
Dibromofluoromethane (Surr)	94		78 - 129		11/20/20 16:29	1

SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Project No.: 30050315.402.01 Page 1 of 1

Site Location: Ford LTP 34934 Standish; Front yard

Prepared By: Ellen Redner

Date	Time	Description of Activities
11/9/2020	13:25	Arrive onsite
11/9/2020	13:48	Record static depth to water
11/9/2020	13:50	Begin purging well
11/9/2020	14:30	Collect sample
11/9/2020	14:35	End purge and turn off pump, begin decon of equipment
11/9/2020	14:45	Offsite
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--	--	Field staff signature:
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SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Page 1 of 1

Project No. 30050315.402.01 Well ID MW-183S Date 11-9-20
 Project Name/Location Ford LTP Weather 71 degrees F, Partly Cloudy
 Measuring Pt. Description Top of Casing Screen Setting (ft-bmp) 8-13 Casing Diameter (in.) 2 Well Material PVC
 Static Water Level (ft-bmp) 9.85 Total Depth (ft-bmp) 12.68 Water Column (ft.) 2.83 Gallons in Well 0.46
11.35 Pump Intake (ft-bmp) 3.74 Purge Method Low-Flow Sample Method Grab
3.74 Well Volumes Purged

Sample Time: Label 14:30 Volume Purged 1.72 gallons Replicate/Code No. -- Sampled by Ellen Redner
 Purge Start 13:50
 Purge End 14:35

Time	Minutes Elapsed between Readings	Flow Rate (mL/min) [100-300 mL/min]	Depth to Water (ft) [±0.3]	Total Gallons Purged	pH [±0.1]	Cond. (mS/cm) [±3%]	Turbidity (NTU) [±10%*]	DO (mg/L) [±10%]	Temp. (°C) [±3%]	Redox (mV) [±10mV]	Appearance	
											Color	Odor
13:50	0	200	9.89	0.00	8.13	0.53	86.90	5.04	15.7	-51.8	Cloudy, Small Brown Particulates	No Odor
13:55	5	200	9.89	0.26	7.87	0.50	75.40	4.74	15.5	-44.6	Clear, Small Brown Particulates	No Odor
14:00	5	150	9.89	0.52	7.53	0.45	60.00	4.48	15.6	-53.7	Clear, Small Brown Particulates	No Odor
14:05	5	150	9.89	0.72	7.57	0.44	39.40	4.62	15.6	-53.9	Clear, Small Brown Particulates	No Odor
14:10	5	150	9.89	0.92	7.61	0.43	25.00	3.72	15.6	-55.2	Clear, Small Orange Particulates	No Odor
14:15	5	150	9.89	1.12	7.61	0.43	11.90	3.77	15.5	-46.9	Clear, Small Orange Particulates	No Odor
14:20	5	150	9.89	1.32	7.63	0.43	4.98	3.60	15.6	-41.0	Clear	No Odor
14:25	5	150	9.89	1.52	7.65	0.42	4.04	3.74	15.3	-42.4	Clear	No Odor
14:30	5	200	9.89	1.72	7.66	0.42	3.48	3.42	15.2	-40.0	Clear	No Odor
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*Turbidity < 50 NTU and ±10% or within 1 NTU of a previous reading when <10 NTU

Constituents Sampled 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, PCE, TCE, VC Container 40 mL Glass Number 3 Preservative HCL
1,4-dioxane 40 mL Glass 3 HCL

Comments None

Well Casing Volumes
 Gallons/Foot 1" = 0.04 1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 6" = 1.47
 1.25" = 0.06 2" = 0.16 3" = 0.37 4" = 0.65

Well Information
 Well Location: 34934 Standish; Front yard Well Locked at Arrival: yes
 Condition of Well: Good Well Locked at Departure: yes
 Well Completion: Flush mount Lock Functioning: yes

TRANSMITTAL LETTER



To:
Anthony Kiseda
Shawn Collins
Brandon Alger (EGLE)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:
November 2, 2020

Subject:
Groundwater Assessment Data
Package

Arcadis Project No.:

We are sending you copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Delivery Date	Drawing No.	Rev.	Description	Action*
1	11/2/2020			Figure	
1	11/2/2020			Analytical Results	
1	11/2/2020			Field Notes and Drawings	

Action*

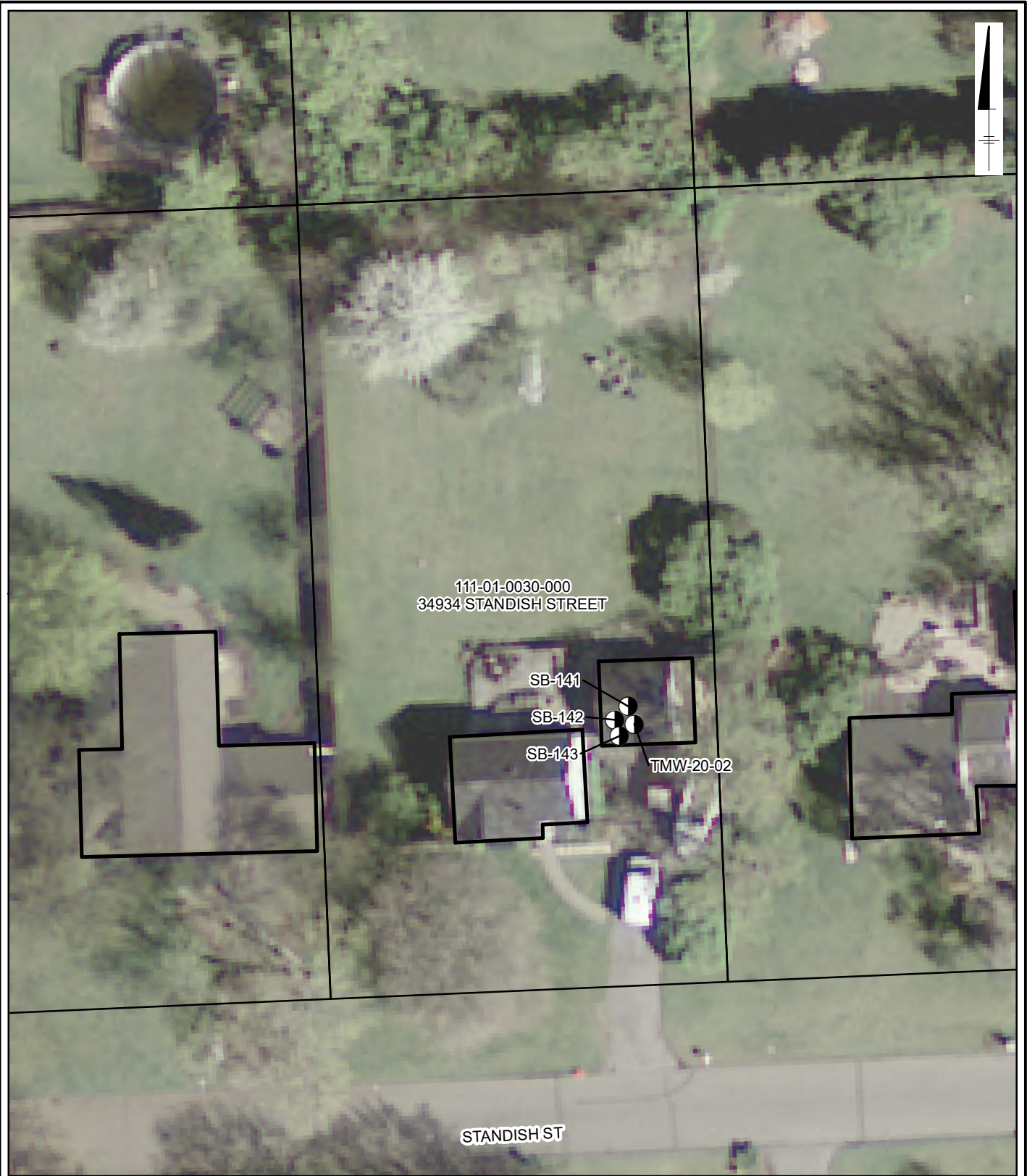
- A Approved CR Correct and Resubmit Resubmit _____ Copies
 AN Approved As Noted F File Return _____ Copies
 AS As Requested FA For Approval Review and Comment
 Other: _____

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
- U.S. Postal Service 1st Class Courier/Hand Delivery FedEx Priority Overnight FedEx 2-Day Delivery
 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
 Other: email

Thank you for cooperating with the site walk and soil/groundwater sampling in the garage on your property on July 15th, 27th, and 28th, 2020. Attached is your data package.

CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: T. STEVENS TR: P. CURRY PROJECT NUMBER: M001373.0001.00003 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
 T:_ENV\Novi\Brighton_MIFordLivonia\GIS\docs\GEC\MW Locations\34934_Standish_PCE_Figure.mxd PLOTTED: 10/28/2020 12:01:57 PM BY: mai00749



LEGEND:

-  BORING LOCATIONS
-  BUILDING
-  PROPERTY BOUNDARIES

NOTES:

TMW = Temporary monitoring well
 SB = Soil boring



FORD MOTOR COMPANY
 LIVONIA TRANSMISSION PLANT
 LIVONIA, MICHIGAN

**34934 STANDISH
 DRILLING EVENT - JULY 28, 2020**



**FIGURE
 1**

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-134182-1
Client Project/Site: Ford LTP

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
8/13/2020 2:36:17 PM

Michael DelMonico, Project Manager I
(330)497-9396
Michael.DelMonico@Eurofinset.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Job ID: 240-134182-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP

Report Number: 240-134182-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 7/30/2020 9:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.2° C and 2.4° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TMW-20-02 (7-12)_072820 (240-134182-34) and TRIP BLANK (240-134182-35) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 08/04/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS

Samples SB-141 (0.5-1)_072820 (240-134182-1), SB-141 (1-2)_072820 (240-134182-2), SB-141 (2-3)_072820 (240-134182-3), SB-141 (3-4)_072820 (240-134182-4), SB-141 (4-5)_072820 (240-134182-5), SB-141 (5-6)_072820 (240-134182-6), SB-141 (6-7)_072820 (240-134182-7), SB-141 (7-8)_072820 (240-134182-8), TMW-20-02 (0.5-1)_072820 (240-134182-9), TMW-20-02 (1-2)_072820 (240-134182-10), TMW-20-02 (2-3)_072820 (240-134182-11), TMW-20-02 (3-4)_072820 (240-134182-12), TMW-20-02 (4-5)_072820 (240-134182-13), TMW-20-02 (5-6)_072820 (240-134182-14), TMW-20-02 (6-7)_072820 (240-134182-15), TMW-20-02 (7-8)_072820 (240-134182-16), SB-142 (0.5-1)_072820 (240-134182-17), SB-142 (1-2)_072820 (240-134182-18), SB-142 (2-3)_072820 (240-134182-19), SB-142 (3-4)_072820 (240-134182-20), SB-142 (4-5)_072820 (240-134182-21), SB-142 (5-6)_072820 (240-134182-22), SB-142 (6-7)_072820 (240-134182-23), SB-142 (7-8)_072820 (240-134182-24), SB-143 (0.5-1)_072820 (240-134182-25), SB-143 (1-2)_072820 (240-134182-26), SB-143 (2-3)_072820 (240-134182-27), SB-143 (3-4)_072820

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Job ID: 240-134182-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

(240-134182-28), SB-143 (4-5)_072820 (240-134182-29), SB-143 (5-6)_072820 (240-134182-30), SB-143 (6-7)_072820 (240-134182-31), SB-143 (7-8)_072820 (240-134182-32) and DUP-03 (240-134182-33) were analyzed for volatile organic compounds in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 07/31/2020, 08/01/2020, 08/04/2020 and 08/05/2020.

1,4-Dioxane failed the recovery criteria high for the MS of sample SB-142 (4-5)_072820MS (240-134182-21) in batch 240-445183.
1,4-Dioxane failed the recovery criteria high for the MS of sample SB-143 (3-4)_072820MS (240-134182-28) in batch 240-445595. Refer to the QC report for details.

Insufficient sample volume was available to perform a matrix spike duplicate (MSD) associated with preparation batch 240-445021 and 240-445021 and analytical batch 240-445183.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Samples TMW-20-02 (7-12)_072820 (240-134182-34) and TRIP BLANK (240-134182-35) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 07/31/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples SB-141 (0.5-1)_072820 (240-134182-1), SB-141 (1-2)_072820 (240-134182-2), SB-141 (2-3)_072820 (240-134182-3), SB-141 (3-4)_072820 (240-134182-4), SB-141 (4-5)_072820 (240-134182-5), SB-141 (5-6)_072820 (240-134182-6), SB-141 (6-7)_072820 (240-134182-7), SB-141 (7-8)_072820 (240-134182-8), TMW-20-02 (0.5-1)_072820 (240-134182-9), TMW-20-02 (1-2)_072820 (240-134182-10), TMW-20-02 (2-3)_072820 (240-134182-11), TMW-20-02 (3-4)_072820 (240-134182-12), TMW-20-02 (4-5)_072820 (240-134182-13), TMW-20-02 (5-6)_072820 (240-134182-14), TMW-20-02 (6-7)_072820 (240-134182-15), TMW-20-02 (7-8)_072820 (240-134182-16), SB-142 (0.5-1)_072820 (240-134182-17), SB-142 (1-2)_072820 (240-134182-18), SB-142 (2-3)_072820 (240-134182-19), SB-142 (3-4)_072820 (240-134182-20), SB-142 (4-5)_072820 (240-134182-21), SB-142 (5-6)_072820 (240-134182-22), SB-142 (6-7)_072820 (240-134182-23), SB-142 (7-8)_072820 (240-134182-24), SB-143 (0.5-1)_072820 (240-134182-25), SB-143 (1-2)_072820 (240-134182-26), SB-143 (2-3)_072820 (240-134182-27), SB-143 (3-4)_072820 (240-134182-28), SB-143 (4-5)_072820 (240-134182-29), SB-143 (5-6)_072820 (240-134182-30), SB-143 (6-7)_072820 (240-134182-31), SB-143 (7-8)_072820 (240-134182-32) and DUP-03 (240-134182-33) were analyzed for percent solids in accordance with ASTM Method D2216-80. The samples were analyzed on 08/03/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B MI	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
Moisture	Percent Moisture	EPA	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-134182-1	SB-141 (0.5-1)_072820	Solid	07/28/20 09:38	07/30/20 09:40	
240-134182-2	SB-141 (1-2)_072820	Solid	07/28/20 09:45	07/30/20 09:40	
240-134182-3	SB-141 (2-3)_072820	Solid	07/28/20 09:48	07/30/20 09:40	
240-134182-4	SB-141 (3-4)_072820	Solid	07/28/20 09:53	07/30/20 09:40	
240-134182-5	SB-141 (4-5)_072820	Solid	07/28/20 09:56	07/30/20 09:40	
240-134182-6	SB-141 (5-6)_072820	Solid	07/28/20 10:18	07/30/20 09:40	
240-134182-7	SB-141 (6-7)_072820	Solid	07/28/20 10:27	07/30/20 09:40	
240-134182-8	SB-141 (7-8)_072820	Solid	07/28/20 10:30	07/30/20 09:40	
240-134182-9	TMW-20-02 (0.5-1)_072820	Solid	07/28/20 11:06	07/30/20 09:40	
240-134182-10	TMW-20-02 (1-2)_072820	Solid	07/28/20 11:07	07/30/20 09:40	
240-134182-11	TMW-20-02 (2-3)_072820	Solid	07/28/20 11:08	07/30/20 09:40	
240-134182-12	TMW-20-02 (3-4)_072820	Solid	07/28/20 11:09	07/30/20 09:40	
240-134182-13	TMW-20-02 (4-5)_072820	Solid	07/28/20 11:10	07/30/20 09:40	
240-134182-14	TMW-20-02 (5-6)_072820	Solid	07/28/20 11:29	07/30/20 09:40	
240-134182-15	TMW-20-02 (6-7)_072820	Solid	07/28/20 11:30	07/30/20 09:40	
240-134182-16	TMW-20-02 (7-8)_072820	Solid	07/28/20 11:34	07/30/20 09:40	
240-134182-17	SB-142 (0.5-1)_072820	Solid	07/28/20 12:40	07/30/20 09:40	
240-134182-18	SB-142 (1-2)_072820	Solid	07/28/20 12:41	07/30/20 09:40	
240-134182-19	SB-142 (2-3)_072820	Solid	07/28/20 12:42	07/30/20 09:40	
240-134182-20	SB-142 (3-4)_072820	Solid	07/28/20 12:43	07/30/20 09:40	
240-134182-21	SB-142 (4-5)_072820	Solid	07/28/20 12:44	07/30/20 09:40	
240-134182-22	SB-142 (5-6)_072820	Solid	07/28/20 12:58	07/30/20 09:40	
240-134182-23	SB-142 (6-7)_072820	Solid	07/28/20 13:01	07/30/20 09:40	
240-134182-24	SB-142 (7-8)_072820	Solid	07/28/20 13:00	07/30/20 09:40	
240-134182-25	SB-143 (0.5-1)_072820	Solid	07/28/20 13:20	07/30/20 09:40	
240-134182-26	SB-143 (1-2)_072820	Solid	07/28/20 13:21	07/30/20 09:40	
240-134182-27	SB-143 (2-3)_072820	Solid	07/28/20 13:22	07/30/20 09:40	
240-134182-28	SB-143 (3-4)_072820	Solid	07/28/20 13:23	07/30/20 09:40	
240-134182-29	SB-143 (4-5)_072820	Solid	07/28/20 13:24	07/30/20 09:40	
240-134182-30	SB-143 (5-6)_072820	Solid	07/28/20 13:40	07/30/20 09:40	
240-134182-31	SB-143 (6-7)_072820	Solid	07/28/20 13:45	07/30/20 09:40	
240-134182-32	SB-143 (7-8)_072820	Solid	07/28/20 13:50	07/30/20 09:40	
240-134182-33	DUP-03	Solid	07/28/20 00:00	07/30/20 09:40	
240-134182-34	TMW-20-02 (7-12)_072820	Water	07/28/20 15:05	07/30/20 09:40	
240-134182-35	TRIP BLANK	Water	07/28/20 00:00	07/30/20 09:40	

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (0.5-1)_072820	Lab Sample ID: 240-134182-1
<input type="checkbox"/> No Detections.	
Client Sample ID: SB-141 (1-2)_072820	Lab Sample ID: 240-134182-2
<input type="checkbox"/> No Detections.	
Client Sample ID: SB-141 (2-3)_072820	Lab Sample ID: 240-134182-3
<input type="checkbox"/> No Detections.	
Client Sample ID: SB-141 (3-4)_072820	Lab Sample ID: 240-134182-4
<input type="checkbox"/> No Detections.	
Client Sample ID: SB-141 (4-5)_072820	Lab Sample ID: 240-134182-5
<input type="checkbox"/> No Detections.	
Client Sample ID: SB-141 (5-6)_072820	Lab Sample ID: 240-134182-6
<input type="checkbox"/> No Detections.	
Client Sample ID: SB-141 (6-7)_072820	Lab Sample ID: 240-134182-7
<input type="checkbox"/> No Detections.	
Client Sample ID: SB-141 (7-8)_072820	Lab Sample ID: 240-134182-8
<input type="checkbox"/> No Detections.	
Client Sample ID: TMW-20-02 (0.5-1)_072820	Lab Sample ID: 240-134182-9
<input type="checkbox"/> No Detections.	
Client Sample ID: TMW-20-02 (1-2)_072820	Lab Sample ID: 240-134182-10
<input type="checkbox"/> No Detections.	
Client Sample ID: TMW-20-02 (2-3)_072820	Lab Sample ID: 240-134182-11
<input type="checkbox"/> No Detections.	
Client Sample ID: TMW-20-02 (3-4)_072820	Lab Sample ID: 240-134182-12
<input type="checkbox"/> No Detections.	
Client Sample ID: TMW-20-02 (4-5)_072820	Lab Sample ID: 240-134182-13
<input type="checkbox"/> No Detections.	
Client Sample ID: TMW-20-02 (5-6)_072820	Lab Sample ID: 240-134182-14
<input type="checkbox"/> No Detections.	
Client Sample ID: TMW-20-02 (6-7)_072820	Lab Sample ID: 240-134182-15
<input type="checkbox"/> No Detections.	
Client Sample ID: TMW-20-02 (7-8)_072820	Lab Sample ID: 240-134182-16
<input type="checkbox"/> No Detections.	

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (0.5-1)_072820

Lab Sample ID: 240-134182-17

No Detections.

Client Sample ID: SB-142 (1-2)_072820

Lab Sample ID: 240-134182-18

No Detections.

Client Sample ID: SB-142 (2-3)_072820

Lab Sample ID: 240-134182-19

No Detections.

Client Sample ID: SB-142 (3-4)_072820

Lab Sample ID: 240-134182-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	14	J	39	8.9	ug/Kg	1	☼	8260B MI	Total/NA
Tetrachloroethene	19	J	39	18	ug/Kg	1	☼	8260B MI	Total/NA
trans-1,2-Dichloroethene	24	J	39	9.9	ug/Kg	1	☼	8260B MI	Total/NA
Trichloroethene	13	J	39	11	ug/Kg	1	☼	8260B MI	Total/NA
Vinyl chloride	12	J	32	12	ug/Kg	1	☼	8260B MI	Total/NA

Client Sample ID: SB-142 (4-5)_072820

Lab Sample ID: 240-134182-21

No Detections.

Client Sample ID: SB-142 (5-6)_072820

Lab Sample ID: 240-134182-22

No Detections.

Client Sample ID: SB-142 (6-7)_072820

Lab Sample ID: 240-134182-23

No Detections.

Client Sample ID: SB-142 (7-8)_072820

Lab Sample ID: 240-134182-24

No Detections.

Client Sample ID: SB-143 (0.5-1)_072820

Lab Sample ID: 240-134182-25

No Detections.

Client Sample ID: SB-143 (1-2)_072820

Lab Sample ID: 240-134182-26

No Detections.

Client Sample ID: SB-143 (2-3)_072820

Lab Sample ID: 240-134182-27

No Detections.

Client Sample ID: SB-143 (3-4)_072820

Lab Sample ID: 240-134182-28

No Detections.

Client Sample ID: SB-143 (4-5)_072820

Lab Sample ID: 240-134182-29

No Detections.

Client Sample ID: SB-143 (5-6)_072820

Lab Sample ID: 240-134182-30

No Detections.

Client Sample ID: SB-143 (6-7)_072820

Lab Sample ID: 240-134182-31

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (7-8)_072820

Lab Sample ID: 240-134182-32

No Detections.

Client Sample ID: DUP-03

Lab Sample ID: 240-134182-33

No Detections.

Client Sample ID: TMW-20-02 (7-12)_072820

Lab Sample ID: 240-134182-34

No Detections.

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134182-35

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (0.5-1)_072820

Lab Sample ID: 240-134182-1

Date Collected: 07/28/20 09:38

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.3

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	47	U	47	19	ug/Kg	☼	07/30/20 20:24	07/31/20 18:27	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	07/30/20 20:24	07/31/20 18:27	1
cis-1,2-Dichloroethene	47	U	47	11	ug/Kg	☼	07/30/20 20:24	07/31/20 18:27	1
Tetrachloroethene	47	U	47	21	ug/Kg	☼	07/30/20 20:24	07/31/20 18:27	1
trans-1,2-Dichloroethene	47	U	47	12	ug/Kg	☼	07/30/20 20:24	07/31/20 18:27	1
Trichloroethene	47	U	47	13	ug/Kg	☼	07/30/20 20:24	07/31/20 18:27	1
Vinyl chloride	38	U	38	14	ug/Kg	☼	07/30/20 20:24	07/31/20 18:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		47 - 136	07/30/20 20:24	07/31/20 18:27	1
4-Bromofluorobenzene (Surr)	118		51 - 124	07/30/20 20:24	07/31/20 18:27	1
Dibromofluoromethane (Surr)	92		49 - 122	07/30/20 20:24	07/31/20 18:27	1
Toluene-d8 (Surr)	110		55 - 123	07/30/20 20:24	07/31/20 18:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.3		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.7		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (1-2)_072820

Lab Sample ID: 240-134182-2

Date Collected: 07/28/20 09:45

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.7

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	42	U	42	17	ug/Kg	☼	07/30/20 20:24	07/31/20 18:50	1
1,4-Dioxane	13000	U	13000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 18:50	1
cis-1,2-Dichloroethene	42	U	42	9.5	ug/Kg	☼	07/30/20 20:24	07/31/20 18:50	1
Tetrachloroethene	42	U	42	19	ug/Kg	☼	07/30/20 20:24	07/31/20 18:50	1
trans-1,2-Dichloroethene	42	U	42	11	ug/Kg	☼	07/30/20 20:24	07/31/20 18:50	1
Trichloroethene	42	U	42	12	ug/Kg	☼	07/30/20 20:24	07/31/20 18:50	1
Vinyl chloride	34	U	34	13	ug/Kg	☼	07/30/20 20:24	07/31/20 18:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		47 - 136	07/30/20 20:24	07/31/20 18:50	1
4-Bromofluorobenzene (Surr)	106		51 - 124	07/30/20 20:24	07/31/20 18:50	1
Dibromofluoromethane (Surr)	88		49 - 122	07/30/20 20:24	07/31/20 18:50	1
Toluene-d8 (Surr)	105		55 - 123	07/30/20 20:24	07/31/20 18:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.7		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.3		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (2-3)_072820

Lab Sample ID: 240-134182-3

Date Collected: 07/28/20 09:48

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.9

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	45	U	45	18	ug/Kg	☼	07/30/20 20:24	07/31/20 19:12	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 19:12	1
cis-1,2-Dichloroethene	45	U	45	10	ug/Kg	☼	07/30/20 20:24	07/31/20 19:12	1
Tetrachloroethene	45	U	45	20	ug/Kg	☼	07/30/20 20:24	07/31/20 19:12	1
trans-1,2-Dichloroethene	45	U	45	11	ug/Kg	☼	07/30/20 20:24	07/31/20 19:12	1
Trichloroethene	45	U	45	12	ug/Kg	☼	07/30/20 20:24	07/31/20 19:12	1
Vinyl chloride	36	U	36	13	ug/Kg	☼	07/30/20 20:24	07/31/20 19:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		47 - 136	07/30/20 20:24	07/31/20 19:12	1
4-Bromofluorobenzene (Surr)	106		51 - 124	07/30/20 20:24	07/31/20 19:12	1
Dibromofluoromethane (Surr)	86		49 - 122	07/30/20 20:24	07/31/20 19:12	1
Toluene-d8 (Surr)	106		55 - 123	07/30/20 20:24	07/31/20 19:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.9		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	3.1		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (3-4)_072820

Lab Sample ID: 240-134182-4

Date Collected: 07/28/20 09:53

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.7

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	43	U	43	17	ug/Kg	☼	07/30/20 20:24	07/31/20 19:35	1
1,4-Dioxane	13000	U	13000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 19:35	1
cis-1,2-Dichloroethene	43	U	43	9.7	ug/Kg	☼	07/30/20 20:24	07/31/20 19:35	1
Tetrachloroethene	43	U	43	19	ug/Kg	☼	07/30/20 20:24	07/31/20 19:35	1
trans-1,2-Dichloroethene	43	U	43	11	ug/Kg	☼	07/30/20 20:24	07/31/20 19:35	1
Trichloroethene	43	U	43	12	ug/Kg	☼	07/30/20 20:24	07/31/20 19:35	1
Vinyl chloride	35	U	35	13	ug/Kg	☼	07/30/20 20:24	07/31/20 19:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		47 - 136	07/30/20 20:24	07/31/20 19:35	1
4-Bromofluorobenzene (Surr)	105		51 - 124	07/30/20 20:24	07/31/20 19:35	1
Dibromofluoromethane (Surr)	85		49 - 122	07/30/20 20:24	07/31/20 19:35	1
Toluene-d8 (Surr)	102		55 - 123	07/30/20 20:24	07/31/20 19:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.7		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.3		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (4-5)_072820

Lab Sample ID: 240-134182-5

Date Collected: 07/28/20 09:56

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.5

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	44	U	44	18	ug/Kg	☼	07/30/20 20:24	07/31/20 19:57	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 19:57	1
cis-1,2-Dichloroethene	44	U	44	9.9	ug/Kg	☼	07/30/20 20:24	07/31/20 19:57	1
Tetrachloroethene	44	U	44	20	ug/Kg	☼	07/30/20 20:24	07/31/20 19:57	1
trans-1,2-Dichloroethene	44	U	44	11	ug/Kg	☼	07/30/20 20:24	07/31/20 19:57	1
Trichloroethene	44	U	44	12	ug/Kg	☼	07/30/20 20:24	07/31/20 19:57	1
Vinyl chloride	35	U	35	13	ug/Kg	☼	07/30/20 20:24	07/31/20 19:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		47 - 136	07/30/20 20:24	07/31/20 19:57	1
4-Bromofluorobenzene (Surr)	109		51 - 124	07/30/20 20:24	07/31/20 19:57	1
Dibromofluoromethane (Surr)	86		49 - 122	07/30/20 20:24	07/31/20 19:57	1
Toluene-d8 (Surr)	103		55 - 123	07/30/20 20:24	07/31/20 19:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.5		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.5		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (5-6)_072820

Lab Sample ID: 240-134182-6

Date Collected: 07/28/20 10:18

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.5

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	45	U	45	18	ug/Kg	☼	07/30/20 20:24	07/31/20 20:20	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 20:20	1
cis-1,2-Dichloroethene	45	U	45	10	ug/Kg	☼	07/30/20 20:24	07/31/20 20:20	1
Tetrachloroethene	45	U	45	20	ug/Kg	☼	07/30/20 20:24	07/31/20 20:20	1
trans-1,2-Dichloroethene	45	U	45	11	ug/Kg	☼	07/30/20 20:24	07/31/20 20:20	1
Trichloroethene	45	U	45	12	ug/Kg	☼	07/30/20 20:24	07/31/20 20:20	1
Vinyl chloride	36	U	36	13	ug/Kg	☼	07/30/20 20:24	07/31/20 20:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		47 - 136	07/30/20 20:24	07/31/20 20:20	1
4-Bromofluorobenzene (Surr)	111		51 - 124	07/30/20 20:24	07/31/20 20:20	1
Dibromofluoromethane (Surr)	92		49 - 122	07/30/20 20:24	07/31/20 20:20	1
Toluene-d8 (Surr)	110		55 - 123	07/30/20 20:24	07/31/20 20:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.5		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.5		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (6-7)_072820

Lab Sample ID: 240-134182-7

Date Collected: 07/28/20 10:27

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 98.1

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	43	U	43	17	ug/Kg	☼	07/30/20 20:24	07/31/20 20:42	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 20:42	1
cis-1,2-Dichloroethene	43	U	43	9.8	ug/Kg	☼	07/30/20 20:24	07/31/20 20:42	1
Tetrachloroethene	43	U	43	20	ug/Kg	☼	07/30/20 20:24	07/31/20 20:42	1
trans-1,2-Dichloroethene	43	U	43	11	ug/Kg	☼	07/30/20 20:24	07/31/20 20:42	1
Trichloroethene	43	U	43	12	ug/Kg	☼	07/30/20 20:24	07/31/20 20:42	1
Vinyl chloride	35	U	35	13	ug/Kg	☼	07/30/20 20:24	07/31/20 20:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		47 - 136	07/30/20 20:24	07/31/20 20:42	1
4-Bromofluorobenzene (Surr)	109		51 - 124	07/30/20 20:24	07/31/20 20:42	1
Dibromofluoromethane (Surr)	88		49 - 122	07/30/20 20:24	07/31/20 20:42	1
Toluene-d8 (Surr)	107		55 - 123	07/30/20 20:24	07/31/20 20:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	98.1		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	1.9		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (7-8)_072820

Lab Sample ID: 240-134182-8

Date Collected: 07/28/20 10:30

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 95.2

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	48	U	48	19	ug/Kg	☼	07/30/20 20:24	07/31/20 21:05	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	07/30/20 20:24	07/31/20 21:05	1
cis-1,2-Dichloroethene	48	U	48	11	ug/Kg	☼	07/30/20 20:24	07/31/20 21:05	1
Tetrachloroethene	48	U	48	21	ug/Kg	☼	07/30/20 20:24	07/31/20 21:05	1
trans-1,2-Dichloroethene	48	U	48	12	ug/Kg	☼	07/30/20 20:24	07/31/20 21:05	1
Trichloroethene	48	U	48	13	ug/Kg	☼	07/30/20 20:24	07/31/20 21:05	1
Vinyl chloride	38	U	38	14	ug/Kg	☼	07/30/20 20:24	07/31/20 21:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		47 - 136	07/30/20 20:24	07/31/20 21:05	1
4-Bromofluorobenzene (Surr)	105		51 - 124	07/30/20 20:24	07/31/20 21:05	1
Dibromofluoromethane (Surr)	86		49 - 122	07/30/20 20:24	07/31/20 21:05	1
Toluene-d8 (Surr)	103		55 - 123	07/30/20 20:24	07/31/20 21:05	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	95.2		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	4.8		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (0.5-1)_072820

Lab Sample ID: 240-134182-9

Date Collected: 07/28/20 11:06

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.4

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	45	U	45	18	ug/Kg	☼	07/30/20 20:24	07/31/20 21:27	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 21:27	1
cis-1,2-Dichloroethene	45	U	45	10	ug/Kg	☼	07/30/20 20:24	07/31/20 21:27	1
Tetrachloroethene	45	U	45	20	ug/Kg	☼	07/30/20 20:24	07/31/20 21:27	1
trans-1,2-Dichloroethene	45	U	45	11	ug/Kg	☼	07/30/20 20:24	07/31/20 21:27	1
Trichloroethene	45	U	45	12	ug/Kg	☼	07/30/20 20:24	07/31/20 21:27	1
Vinyl chloride	36	U	36	14	ug/Kg	☼	07/30/20 20:24	07/31/20 21:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		47 - 136	07/30/20 20:24	07/31/20 21:27	1
4-Bromofluorobenzene (Surr)	109		51 - 124	07/30/20 20:24	07/31/20 21:27	1
Dibromofluoromethane (Surr)	87		49 - 122	07/30/20 20:24	07/31/20 21:27	1
Toluene-d8 (Surr)	108		55 - 123	07/30/20 20:24	07/31/20 21:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.4		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	3.6		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (1-2)_072820

Lab Sample ID: 240-134182-10

Date Collected: 07/28/20 11:07

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.2

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	45	U	45	18	ug/Kg	☼	07/30/20 20:24	07/31/20 21:50	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 21:50	1
cis-1,2-Dichloroethene	45	U	45	10	ug/Kg	☼	07/30/20 20:24	07/31/20 21:50	1
Tetrachloroethene	45	U	45	20	ug/Kg	☼	07/30/20 20:24	07/31/20 21:50	1
trans-1,2-Dichloroethene	45	U	45	11	ug/Kg	☼	07/30/20 20:24	07/31/20 21:50	1
Trichloroethene	45	U	45	12	ug/Kg	☼	07/30/20 20:24	07/31/20 21:50	1
Vinyl chloride	36	U	36	13	ug/Kg	☼	07/30/20 20:24	07/31/20 21:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		47 - 136	07/30/20 20:24	07/31/20 21:50	1
4-Bromofluorobenzene (Surr)	107		51 - 124	07/30/20 20:24	07/31/20 21:50	1
Dibromofluoromethane (Surr)	84		49 - 122	07/30/20 20:24	07/31/20 21:50	1
Toluene-d8 (Surr)	103		55 - 123	07/30/20 20:24	07/31/20 21:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.2		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	3.8		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (2-3)_072820

Lab Sample ID: 240-134182-11

Date Collected: 07/28/20 11:08

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 92.3

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	48	U	48	19	ug/Kg	☼	07/30/20 20:24	07/31/20 22:13	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	07/30/20 20:24	07/31/20 22:13	1
cis-1,2-Dichloroethene	48	U	48	11	ug/Kg	☼	07/30/20 20:24	07/31/20 22:13	1
Tetrachloroethene	48	U	48	21	ug/Kg	☼	07/30/20 20:24	07/31/20 22:13	1
trans-1,2-Dichloroethene	48	U	48	12	ug/Kg	☼	07/30/20 20:24	07/31/20 22:13	1
Trichloroethene	48	U	48	13	ug/Kg	☼	07/30/20 20:24	07/31/20 22:13	1
Vinyl chloride	38	U	38	14	ug/Kg	☼	07/30/20 20:24	07/31/20 22:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		47 - 136	07/30/20 20:24	07/31/20 22:13	1
4-Bromofluorobenzene (Surr)	114		51 - 124	07/30/20 20:24	07/31/20 22:13	1
Dibromofluoromethane (Surr)	93		49 - 122	07/30/20 20:24	07/31/20 22:13	1
Toluene-d8 (Surr)	111		55 - 123	07/30/20 20:24	07/31/20 22:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	92.3		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	7.7		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (3-4)_072820

Lab Sample ID: 240-134182-12

Date Collected: 07/28/20 11:09

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.6

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	42	U	42	17	ug/Kg	☼	07/30/20 20:24	07/31/20 22:35	1
1,4-Dioxane	13000	U	13000	1100	ug/Kg	☼	07/30/20 20:24	07/31/20 22:35	1
cis-1,2-Dichloroethene	42	U	42	9.5	ug/Kg	☼	07/30/20 20:24	07/31/20 22:35	1
Tetrachloroethene	42	U	42	19	ug/Kg	☼	07/30/20 20:24	07/31/20 22:35	1
trans-1,2-Dichloroethene	42	U	42	11	ug/Kg	☼	07/30/20 20:24	07/31/20 22:35	1
Trichloroethene	42	U	42	12	ug/Kg	☼	07/30/20 20:24	07/31/20 22:35	1
Vinyl chloride	34	U	34	13	ug/Kg	☼	07/30/20 20:24	07/31/20 22:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		47 - 136	07/30/20 20:24	07/31/20 22:35	1
4-Bromofluorobenzene (Surr)	99		51 - 124	07/30/20 20:24	07/31/20 22:35	1
Dibromofluoromethane (Surr)	83		49 - 122	07/30/20 20:24	07/31/20 22:35	1
Toluene-d8 (Surr)	99		55 - 123	07/30/20 20:24	07/31/20 22:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.6		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.4		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (4-5)_072820

Lab Sample ID: 240-134182-13

Date Collected: 07/28/20 11:10

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.1

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	45	U	45	18	ug/Kg	☼	07/30/20 20:24	07/31/20 22:57	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 22:57	1
cis-1,2-Dichloroethene	45	U	45	10	ug/Kg	☼	07/30/20 20:24	07/31/20 22:57	1
Tetrachloroethene	45	U	45	20	ug/Kg	☼	07/30/20 20:24	07/31/20 22:57	1
trans-1,2-Dichloroethene	45	U	45	11	ug/Kg	☼	07/30/20 20:24	07/31/20 22:57	1
Trichloroethene	45	U	45	12	ug/Kg	☼	07/30/20 20:24	07/31/20 22:57	1
Vinyl chloride	36	U	36	13	ug/Kg	☼	07/30/20 20:24	07/31/20 22:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		47 - 136	07/30/20 20:24	07/31/20 22:57	1
4-Bromofluorobenzene (Surr)	110		51 - 124	07/30/20 20:24	07/31/20 22:57	1
Dibromofluoromethane (Surr)	85		49 - 122	07/30/20 20:24	07/31/20 22:57	1
Toluene-d8 (Surr)	108		55 - 123	07/30/20 20:24	07/31/20 22:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.1		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.9		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (5-6)_072820

Lab Sample ID: 240-134182-14

Date Collected: 07/28/20 11:29

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 89.8

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	49	U	49	20	ug/Kg	☼	07/30/20 20:24	07/31/20 23:20	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	07/30/20 20:24	07/31/20 23:20	1
cis-1,2-Dichloroethene	49	U	49	11	ug/Kg	☼	07/30/20 20:24	07/31/20 23:20	1
Tetrachloroethene	49	U	49	22	ug/Kg	☼	07/30/20 20:24	07/31/20 23:20	1
trans-1,2-Dichloroethene	49	U	49	12	ug/Kg	☼	07/30/20 20:24	07/31/20 23:20	1
Trichloroethene	49	U	49	14	ug/Kg	☼	07/30/20 20:24	07/31/20 23:20	1
Vinyl chloride	39	U	39	15	ug/Kg	☼	07/30/20 20:24	07/31/20 23:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		47 - 136	07/30/20 20:24	07/31/20 23:20	1
4-Bromofluorobenzene (Surr)	111		51 - 124	07/30/20 20:24	07/31/20 23:20	1
Dibromofluoromethane (Surr)	91		49 - 122	07/30/20 20:24	07/31/20 23:20	1
Toluene-d8 (Surr)	109		55 - 123	07/30/20 20:24	07/31/20 23:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	89.8		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	10.2		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (6-7)_072820

Lab Sample ID: 240-134182-15

Date Collected: 07/28/20 11:30

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.1

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	45	U	45	18	ug/Kg	☼	07/30/20 20:24	07/31/20 23:42	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 23:42	1
cis-1,2-Dichloroethene	45	U	45	10	ug/Kg	☼	07/30/20 20:24	07/31/20 23:42	1
Tetrachloroethene	45	U	45	20	ug/Kg	☼	07/30/20 20:24	07/31/20 23:42	1
trans-1,2-Dichloroethene	45	U	45	11	ug/Kg	☼	07/30/20 20:24	07/31/20 23:42	1
Trichloroethene	45	U	45	12	ug/Kg	☼	07/30/20 20:24	07/31/20 23:42	1
Vinyl chloride	36	U	36	14	ug/Kg	☼	07/30/20 20:24	07/31/20 23:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		47 - 136	07/30/20 20:24	07/31/20 23:42	1
4-Bromofluorobenzene (Surr)	103		51 - 124	07/30/20 20:24	07/31/20 23:42	1
Dibromofluoromethane (Surr)	84		49 - 122	07/30/20 20:24	07/31/20 23:42	1
Toluene-d8 (Surr)	101		55 - 123	07/30/20 20:24	07/31/20 23:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.1		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	3.9		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (7-8)_072820

Lab Sample ID: 240-134182-16

Date Collected: 07/28/20 11:34

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 94.2

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	46	U	46	18	ug/Kg	☼	07/30/20 20:24	08/01/20 00:05	1
1,4-Dioxane	14000	U	14000	1300	ug/Kg	☼	07/30/20 20:24	08/01/20 00:05	1
cis-1,2-Dichloroethene	46	U	46	10	ug/Kg	☼	07/30/20 20:24	08/01/20 00:05	1
Tetrachloroethene	46	U	46	21	ug/Kg	☼	07/30/20 20:24	08/01/20 00:05	1
trans-1,2-Dichloroethene	46	U	46	12	ug/Kg	☼	07/30/20 20:24	08/01/20 00:05	1
Trichloroethene	46	U	46	13	ug/Kg	☼	07/30/20 20:24	08/01/20 00:05	1
Vinyl chloride	37	U	37	14	ug/Kg	☼	07/30/20 20:24	08/01/20 00:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		47 - 136	07/30/20 20:24	08/01/20 00:05	1
4-Bromofluorobenzene (Surr)	108		51 - 124	07/30/20 20:24	08/01/20 00:05	1
Dibromofluoromethane (Surr)	88		49 - 122	07/30/20 20:24	08/01/20 00:05	1
Toluene-d8 (Surr)	106		55 - 123	07/30/20 20:24	08/01/20 00:05	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	94.2		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	5.8		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (0.5-1)_072820

Lab Sample ID: 240-134182-17

Date Collected: 07/28/20 12:40

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.5

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	44	U	44	18	ug/Kg	☼	07/30/20 20:24	08/01/20 00:27	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	08/01/20 00:27	1
cis-1,2-Dichloroethene	44	U	44	9.9	ug/Kg	☼	07/30/20 20:24	08/01/20 00:27	1
Tetrachloroethene	44	U	44	20	ug/Kg	☼	07/30/20 20:24	08/01/20 00:27	1
trans-1,2-Dichloroethene	44	U	44	11	ug/Kg	☼	07/30/20 20:24	08/01/20 00:27	1
Trichloroethene	44	U	44	12	ug/Kg	☼	07/30/20 20:24	08/01/20 00:27	1
Vinyl chloride	35	U	35	13	ug/Kg	☼	07/30/20 20:24	08/01/20 00:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		47 - 136	07/30/20 20:24	08/01/20 00:27	1
4-Bromofluorobenzene (Surr)	108		51 - 124	07/30/20 20:24	08/01/20 00:27	1
Dibromofluoromethane (Surr)	88		49 - 122	07/30/20 20:24	08/01/20 00:27	1
Toluene-d8 (Surr)	108		55 - 123	07/30/20 20:24	08/01/20 00:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.5		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	3.5		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (1-2)_072820

Lab Sample ID: 240-134182-18

Date Collected: 07/28/20 12:41

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.8

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	43	U	43	17	ug/Kg	☼	07/30/20 20:24	08/01/20 00:50	1
1,4-Dioxane	13000	U	13000	1200	ug/Kg	☼	07/30/20 20:24	08/01/20 00:50	1
cis-1,2-Dichloroethene	43	U	43	9.6	ug/Kg	☼	07/30/20 20:24	08/01/20 00:50	1
Tetrachloroethene	43	U	43	19	ug/Kg	☼	07/30/20 20:24	08/01/20 00:50	1
trans-1,2-Dichloroethene	43	U	43	11	ug/Kg	☼	07/30/20 20:24	08/01/20 00:50	1
Trichloroethene	43	U	43	12	ug/Kg	☼	07/30/20 20:24	08/01/20 00:50	1
Vinyl chloride	34	U	34	13	ug/Kg	☼	07/30/20 20:24	08/01/20 00:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		47 - 136	07/30/20 20:24	08/01/20 00:50	1
4-Bromofluorobenzene (Surr)	104		51 - 124	07/30/20 20:24	08/01/20 00:50	1
Dibromofluoromethane (Surr)	85		49 - 122	07/30/20 20:24	08/01/20 00:50	1
Toluene-d8 (Surr)	103		55 - 123	07/30/20 20:24	08/01/20 00:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.8		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.2		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (2-3)_072820

Lab Sample ID: 240-134182-19

Date Collected: 07/28/20 12:42

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.1

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	44	U	44	18	ug/Kg	☼	07/30/20 20:24	08/01/20 01:12	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	08/01/20 01:12	1
cis-1,2-Dichloroethene	44	U	44	9.9	ug/Kg	☼	07/30/20 20:24	08/01/20 01:12	1
Tetrachloroethene	44	U	44	20	ug/Kg	☼	07/30/20 20:24	08/01/20 01:12	1
trans-1,2-Dichloroethene	44	U	44	11	ug/Kg	☼	07/30/20 20:24	08/01/20 01:12	1
Trichloroethene	44	U	44	12	ug/Kg	☼	07/30/20 20:24	08/01/20 01:12	1
Vinyl chloride	35	U	35	13	ug/Kg	☼	07/30/20 20:24	08/01/20 01:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		47 - 136	07/30/20 20:24	08/01/20 01:12	1
4-Bromofluorobenzene (Surr)	106		51 - 124	07/30/20 20:24	08/01/20 01:12	1
Dibromofluoromethane (Surr)	82		49 - 122	07/30/20 20:24	08/01/20 01:12	1
Toluene-d8 (Surr)	102		55 - 123	07/30/20 20:24	08/01/20 01:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.1		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.9		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (3-4)_072820

Lab Sample ID: 240-134182-20

Date Collected: 07/28/20 12:43

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 98.0

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	39	U	39	16	ug/Kg	☼	08/03/20 17:08	08/04/20 19:12	1
1,4-Dioxane	12000	U	12000	1100	ug/Kg	☼	08/03/20 17:08	08/04/20 19:12	1
cis-1,2-Dichloroethene	14	J	39	8.9	ug/Kg	☼	08/03/20 17:08	08/04/20 19:12	1
Tetrachloroethene	19	J	39	18	ug/Kg	☼	08/03/20 17:08	08/04/20 19:12	1
trans-1,2-Dichloroethene	24	J	39	9.9	ug/Kg	☼	08/03/20 17:08	08/04/20 19:12	1
Trichloroethene	13	J	39	11	ug/Kg	☼	08/03/20 17:08	08/04/20 19:12	1
Vinyl chloride	12	J	32	12	ug/Kg	☼	08/03/20 17:08	08/04/20 19:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		47 - 136	08/03/20 17:08	08/04/20 19:12	1
4-Bromofluorobenzene (Surr)	114		51 - 124	08/03/20 17:08	08/04/20 19:12	1
Dibromofluoromethane (Surr)	89		49 - 122	08/03/20 17:08	08/04/20 19:12	1
Toluene-d8 (Surr)	108		55 - 123	08/03/20 17:08	08/04/20 19:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	98.0		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.0		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (4-5)_072820

Lab Sample ID: 240-134182-21

Date Collected: 07/28/20 12:44

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 94.6

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	44	U	44	18	ug/Kg	☼	07/30/20 20:24	08/01/20 01:35	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	08/01/20 01:35	1
cis-1,2-Dichloroethene	44	U	44	10	ug/Kg	☼	07/30/20 20:24	08/01/20 01:35	1
Tetrachloroethene	44	U	44	20	ug/Kg	☼	07/30/20 20:24	08/01/20 01:35	1
trans-1,2-Dichloroethene	44	U	44	11	ug/Kg	☼	07/30/20 20:24	08/01/20 01:35	1
Trichloroethene	44	U	44	12	ug/Kg	☼	07/30/20 20:24	08/01/20 01:35	1
Vinyl chloride	35	U	35	13	ug/Kg	☼	07/30/20 20:24	08/01/20 01:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		47 - 136	07/30/20 20:24	08/01/20 01:35	1
4-Bromofluorobenzene (Surr)	104		51 - 124	07/30/20 20:24	08/01/20 01:35	1
Dibromofluoromethane (Surr)	83		49 - 122	07/30/20 20:24	08/01/20 01:35	1
Toluene-d8 (Surr)	102		55 - 123	07/30/20 20:24	08/01/20 01:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	94.6		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	5.4		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (5-6)_072820

Lab Sample ID: 240-134182-22

Date Collected: 07/28/20 12:58

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 94.6

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	48	U	48	19	ug/Kg	☼	08/03/20 17:08	08/04/20 19:35	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	08/03/20 17:08	08/04/20 19:35	1
cis-1,2-Dichloroethene	48	U	48	11	ug/Kg	☼	08/03/20 17:08	08/04/20 19:35	1
Tetrachloroethene	48	U	48	22	ug/Kg	☼	08/03/20 17:08	08/04/20 19:35	1
trans-1,2-Dichloroethene	48	U	48	12	ug/Kg	☼	08/03/20 17:08	08/04/20 19:35	1
Trichloroethene	48	U	48	13	ug/Kg	☼	08/03/20 17:08	08/04/20 19:35	1
Vinyl chloride	39	U	39	15	ug/Kg	☼	08/03/20 17:08	08/04/20 19:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		47 - 136	08/03/20 17:08	08/04/20 19:35	1
4-Bromofluorobenzene (Surr)	106		51 - 124	08/03/20 17:08	08/04/20 19:35	1
Dibromofluoromethane (Surr)	88		49 - 122	08/03/20 17:08	08/04/20 19:35	1
Toluene-d8 (Surr)	106		55 - 123	08/03/20 17:08	08/04/20 19:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	94.6		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	5.4		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (6-7)_072820

Lab Sample ID: 240-134182-23

Date Collected: 07/28/20 13:01

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.6

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	43	U	43	17	ug/Kg	☼	08/03/20 17:08	08/04/20 19:57	1
1,4-Dioxane	13000	U	13000	1200	ug/Kg	☼	08/03/20 17:08	08/04/20 19:57	1
cis-1,2-Dichloroethene	43	U	43	9.6	ug/Kg	☼	08/03/20 17:08	08/04/20 19:57	1
Tetrachloroethene	43	U	43	19	ug/Kg	☼	08/03/20 17:08	08/04/20 19:57	1
trans-1,2-Dichloroethene	43	U	43	11	ug/Kg	☼	08/03/20 17:08	08/04/20 19:57	1
Trichloroethene	43	U	43	12	ug/Kg	☼	08/03/20 17:08	08/04/20 19:57	1
Vinyl chloride	34	U	34	13	ug/Kg	☼	08/03/20 17:08	08/04/20 19:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		47 - 136	08/03/20 17:08	08/04/20 19:57	1
4-Bromofluorobenzene (Surr)	113		51 - 124	08/03/20 17:08	08/04/20 19:57	1
Dibromofluoromethane (Surr)	90		49 - 122	08/03/20 17:08	08/04/20 19:57	1
Toluene-d8 (Surr)	109		55 - 123	08/03/20 17:08	08/04/20 19:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.6		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	3.4		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (7-8)_072820

Lab Sample ID: 240-134182-24

Date Collected: 07/28/20 13:00

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 95.5

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	46	U	46	18	ug/Kg	☼	08/03/20 17:08	08/04/20 20:20	1
1,4-Dioxane	14000	U	14000	1300	ug/Kg	☼	08/03/20 17:08	08/04/20 20:20	1
cis-1,2-Dichloroethene	46	U	46	10	ug/Kg	☼	08/03/20 17:08	08/04/20 20:20	1
Tetrachloroethene	46	U	46	21	ug/Kg	☼	08/03/20 17:08	08/04/20 20:20	1
trans-1,2-Dichloroethene	46	U	46	12	ug/Kg	☼	08/03/20 17:08	08/04/20 20:20	1
Trichloroethene	46	U	46	13	ug/Kg	☼	08/03/20 17:08	08/04/20 20:20	1
Vinyl chloride	37	U	37	14	ug/Kg	☼	08/03/20 17:08	08/04/20 20:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		47 - 136	08/03/20 17:08	08/04/20 20:20	1
4-Bromofluorobenzene (Surr)	110		51 - 124	08/03/20 17:08	08/04/20 20:20	1
Dibromofluoromethane (Surr)	88		49 - 122	08/03/20 17:08	08/04/20 20:20	1
Toluene-d8 (Surr)	108		55 - 123	08/03/20 17:08	08/04/20 20:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	95.5		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	4.5		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (0.5-1)_072820

Lab Sample ID: 240-134182-25

Date Collected: 07/28/20 13:20

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.6

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	44	U	44	18	ug/Kg	☼	08/03/20 17:08	08/04/20 20:42	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	08/03/20 17:08	08/04/20 20:42	1
cis-1,2-Dichloroethene	44	U	44	9.9	ug/Kg	☼	08/03/20 17:08	08/04/20 20:42	1
Tetrachloroethene	44	U	44	20	ug/Kg	☼	08/03/20 17:08	08/04/20 20:42	1
trans-1,2-Dichloroethene	44	U	44	11	ug/Kg	☼	08/03/20 17:08	08/04/20 20:42	1
Trichloroethene	44	U	44	12	ug/Kg	☼	08/03/20 17:08	08/04/20 20:42	1
Vinyl chloride	35	U	35	13	ug/Kg	☼	08/03/20 17:08	08/04/20 20:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		47 - 136	08/03/20 17:08	08/04/20 20:42	1
4-Bromofluorobenzene (Surr)	108		51 - 124	08/03/20 17:08	08/04/20 20:42	1
Dibromofluoromethane (Surr)	87		49 - 122	08/03/20 17:08	08/04/20 20:42	1
Toluene-d8 (Surr)	105		55 - 123	08/03/20 17:08	08/04/20 20:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.6		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	2.4		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (1-2)_072820

Lab Sample ID: 240-134182-26

Date Collected: 07/28/20 13:21

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.4

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	42	U	42	17	ug/Kg	☼	08/03/20 17:08	08/04/20 21:49	1
1,4-Dioxane	13000	U	13000	1200	ug/Kg	☼	08/03/20 17:08	08/04/20 21:49	1
cis-1,2-Dichloroethene	42	U	42	9.5	ug/Kg	☼	08/03/20 17:08	08/04/20 21:49	1
Tetrachloroethene	42	U	42	19	ug/Kg	☼	08/03/20 17:08	08/04/20 21:49	1
trans-1,2-Dichloroethene	42	U	42	11	ug/Kg	☼	08/03/20 17:08	08/04/20 21:49	1
Trichloroethene	42	U	42	12	ug/Kg	☼	08/03/20 17:08	08/04/20 21:49	1
Vinyl chloride	34	U	34	13	ug/Kg	☼	08/03/20 17:08	08/04/20 21:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		47 - 136	08/03/20 17:08	08/04/20 21:49	1
4-Bromofluorobenzene (Surr)	104		51 - 124	08/03/20 17:08	08/04/20 21:49	1
Dibromofluoromethane (Surr)	86		49 - 122	08/03/20 17:08	08/04/20 21:49	1
Toluene-d8 (Surr)	104		55 - 123	08/03/20 17:08	08/04/20 21:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.4		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	3.6		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (2-3)_072820

Lab Sample ID: 240-134182-27

Date Collected: 07/28/20 13:22

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 95.2

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	45	U	45	18	ug/Kg	☼	08/03/20 17:08	08/04/20 22:12	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	08/03/20 17:08	08/04/20 22:12	1
cis-1,2-Dichloroethene	45	U	45	10	ug/Kg	☼	08/03/20 17:08	08/04/20 22:12	1
Tetrachloroethene	45	U	45	20	ug/Kg	☼	08/03/20 17:08	08/04/20 22:12	1
trans-1,2-Dichloroethene	45	U	45	11	ug/Kg	☼	08/03/20 17:08	08/04/20 22:12	1
Trichloroethene	45	U	45	12	ug/Kg	☼	08/03/20 17:08	08/04/20 22:12	1
Vinyl chloride	36	U	36	14	ug/Kg	☼	08/03/20 17:08	08/04/20 22:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		47 - 136	08/03/20 17:08	08/04/20 22:12	1
4-Bromofluorobenzene (Surr)	105		51 - 124	08/03/20 17:08	08/04/20 22:12	1
Dibromofluoromethane (Surr)	86		49 - 122	08/03/20 17:08	08/04/20 22:12	1
Toluene-d8 (Surr)	104		55 - 123	08/03/20 17:08	08/04/20 22:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	95.2		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	4.8		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (3-4)_072820

Lab Sample ID: 240-134182-28

Date Collected: 07/28/20 13:23

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.4

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	43	U	43	17	ug/Kg	☼	08/03/20 17:08	08/04/20 22:35	1
1,4-Dioxane	13000	U F1	13000	1200	ug/Kg	☼	08/03/20 17:08	08/04/20 22:35	1
cis-1,2-Dichloroethene	43	U	43	9.6	ug/Kg	☼	08/03/20 17:08	08/04/20 22:35	1
Tetrachloroethene	43	U	43	19	ug/Kg	☼	08/03/20 17:08	08/04/20 22:35	1
trans-1,2-Dichloroethene	43	U	43	11	ug/Kg	☼	08/03/20 17:08	08/04/20 22:35	1
Trichloroethene	43	U	43	12	ug/Kg	☼	08/03/20 17:08	08/04/20 22:35	1
Vinyl chloride	34	U	34	13	ug/Kg	☼	08/03/20 17:08	08/04/20 22:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		47 - 136	08/03/20 17:08	08/04/20 22:35	1
4-Bromofluorobenzene (Surr)	104		51 - 124	08/03/20 17:08	08/04/20 22:35	1
Dibromofluoromethane (Surr)	85		49 - 122	08/03/20 17:08	08/04/20 22:35	1
Toluene-d8 (Surr)	103		55 - 123	08/03/20 17:08	08/04/20 22:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.4		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	2.6		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (4-5)_072820

Lab Sample ID: 240-134182-29

Date Collected: 07/28/20 13:24

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.9

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	43	U	43	17	ug/Kg	☼	08/03/20 17:08	08/04/20 23:43	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	08/03/20 17:08	08/04/20 23:43	1
cis-1,2-Dichloroethene	43	U	43	9.8	ug/Kg	☼	08/03/20 17:08	08/04/20 23:43	1
Tetrachloroethene	43	U	43	20	ug/Kg	☼	08/03/20 17:08	08/04/20 23:43	1
trans-1,2-Dichloroethene	43	U	43	11	ug/Kg	☼	08/03/20 17:08	08/04/20 23:43	1
Trichloroethene	43	U	43	12	ug/Kg	☼	08/03/20 17:08	08/04/20 23:43	1
Vinyl chloride	35	U	35	13	ug/Kg	☼	08/03/20 17:08	08/04/20 23:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		47 - 136	08/03/20 17:08	08/04/20 23:43	1
4-Bromofluorobenzene (Surr)	112		51 - 124	08/03/20 17:08	08/04/20 23:43	1
Dibromofluoromethane (Surr)	89		49 - 122	08/03/20 17:08	08/04/20 23:43	1
Toluene-d8 (Surr)	110		55 - 123	08/03/20 17:08	08/04/20 23:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.9		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	3.1		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (5-6)_072820

Lab Sample ID: 240-134182-30

Date Collected: 07/28/20 13:40

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.1

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	43	U	43	17	ug/Kg	☼	08/03/20 17:08	08/05/20 00:05	1
1,4-Dioxane	13000	U	13000	1200	ug/Kg	☼	08/03/20 17:08	08/05/20 00:05	1
cis-1,2-Dichloroethene	43	U	43	9.6	ug/Kg	☼	08/03/20 17:08	08/05/20 00:05	1
Tetrachloroethene	43	U	43	19	ug/Kg	☼	08/03/20 17:08	08/05/20 00:05	1
trans-1,2-Dichloroethene	43	U	43	11	ug/Kg	☼	08/03/20 17:08	08/05/20 00:05	1
Trichloroethene	43	U	43	12	ug/Kg	☼	08/03/20 17:08	08/05/20 00:05	1
Vinyl chloride	34	U	34	13	ug/Kg	☼	08/03/20 17:08	08/05/20 00:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		47 - 136	08/03/20 17:08	08/05/20 00:05	1
4-Bromofluorobenzene (Surr)	109		51 - 124	08/03/20 17:08	08/05/20 00:05	1
Dibromofluoromethane (Surr)	88		49 - 122	08/03/20 17:08	08/05/20 00:05	1
Toluene-d8 (Surr)	107		55 - 123	08/03/20 17:08	08/05/20 00:05	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.1		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	2.9		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (6-7)_072820

Lab Sample ID: 240-134182-31

Date Collected: 07/28/20 13:45

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.2

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	46	U	46	19	ug/Kg	☼	08/03/20 17:08	08/05/20 00:28	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	08/03/20 17:08	08/05/20 00:28	1
cis-1,2-Dichloroethene	46	U	46	10	ug/Kg	☼	08/03/20 17:08	08/05/20 00:28	1
Tetrachloroethene	46	U	46	21	ug/Kg	☼	08/03/20 17:08	08/05/20 00:28	1
trans-1,2-Dichloroethene	46	U	46	12	ug/Kg	☼	08/03/20 17:08	08/05/20 00:28	1
Trichloroethene	46	U	46	13	ug/Kg	☼	08/03/20 17:08	08/05/20 00:28	1
Vinyl chloride	37	U	37	14	ug/Kg	☼	08/03/20 17:08	08/05/20 00:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		47 - 136	08/03/20 17:08	08/05/20 00:28	1
4-Bromofluorobenzene (Surr)	104		51 - 124	08/03/20 17:08	08/05/20 00:28	1
Dibromofluoromethane (Surr)	82		49 - 122	08/03/20 17:08	08/05/20 00:28	1
Toluene-d8 (Surr)	101		55 - 123	08/03/20 17:08	08/05/20 00:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.2		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	3.8		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (7-8)_072820

Lab Sample ID: 240-134182-32

Date Collected: 07/28/20 13:50

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 92.0

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	55	U	55	22	ug/Kg	☼	08/03/20 17:08	08/05/20 00:50	1
1,4-Dioxane	17000	U	17000	1500	ug/Kg	☼	08/03/20 17:08	08/05/20 00:50	1
cis-1,2-Dichloroethene	55	U	55	12	ug/Kg	☼	08/03/20 17:08	08/05/20 00:50	1
Tetrachloroethene	55	U	55	25	ug/Kg	☼	08/03/20 17:08	08/05/20 00:50	1
trans-1,2-Dichloroethene	55	U	55	14	ug/Kg	☼	08/03/20 17:08	08/05/20 00:50	1
Trichloroethene	55	U	55	15	ug/Kg	☼	08/03/20 17:08	08/05/20 00:50	1
Vinyl chloride	44	U	44	17	ug/Kg	☼	08/03/20 17:08	08/05/20 00:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		47 - 136	08/03/20 17:08	08/05/20 00:50	1
4-Bromofluorobenzene (Surr)	111		51 - 124	08/03/20 17:08	08/05/20 00:50	1
Dibromofluoromethane (Surr)	89		49 - 122	08/03/20 17:08	08/05/20 00:50	1
Toluene-d8 (Surr)	110		55 - 123	08/03/20 17:08	08/05/20 00:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	92.0		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	8.0		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: DUP-03

Lab Sample ID: 240-134182-33

Date Collected: 07/28/20 00:00

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.8

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	47	U	47	19	ug/Kg	☼	08/03/20 17:08	08/05/20 01:13	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	08/03/20 17:08	08/05/20 01:13	1
cis-1,2-Dichloroethene	47	U	47	11	ug/Kg	☼	08/03/20 17:08	08/05/20 01:13	1
Tetrachloroethene	47	U	47	21	ug/Kg	☼	08/03/20 17:08	08/05/20 01:13	1
trans-1,2-Dichloroethene	47	U	47	12	ug/Kg	☼	08/03/20 17:08	08/05/20 01:13	1
Trichloroethene	47	U	47	13	ug/Kg	☼	08/03/20 17:08	08/05/20 01:13	1
Vinyl chloride	37	U	37	14	ug/Kg	☼	08/03/20 17:08	08/05/20 01:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		47 - 136	08/03/20 17:08	08/05/20 01:13	1
4-Bromofluorobenzene (Surr)	106		51 - 124	08/03/20 17:08	08/05/20 01:13	1
Dibromofluoromethane (Surr)	87		49 - 122	08/03/20 17:08	08/05/20 01:13	1
Toluene-d8 (Surr)	105		55 - 123	08/03/20 17:08	08/05/20 01:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.8		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	3.2		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (7-12)_072820

Lab Sample ID: 240-134182-34

Date Collected: 07/28/20 15:05

Matrix: Water

Date Received: 07/30/20 09:40

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			07/31/20 19:06	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		70 - 133					07/31/20 19:06	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/04/20 00:17	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/04/20 00:17	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/04/20 00:17	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/04/20 00:17	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/04/20 00:17	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/04/20 00:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	129		75 - 130					08/04/20 00:17	1
4-Bromofluorobenzene (Surr)	99		47 - 134					08/04/20 00:17	1
Toluene-d8 (Surr)	112		69 - 122					08/04/20 00:17	1
Dibromofluoromethane (Surr)	107		78 - 129					08/04/20 00:17	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134182-35

Date Collected: 07/28/20 00:00

Matrix: Water

Date Received: 07/30/20 09:40

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L	-		07/31/20 14:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		70 - 133					07/31/20 14:58	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L	-		08/04/20 00:42	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L	-		08/04/20 00:42	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L	-		08/04/20 00:42	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L	-		08/04/20 00:42	1
Trichloroethene	1.0	U	1.0	0.36	ug/L	-		08/04/20 00:42	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L	-		08/04/20 00:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	122		75 - 130					08/04/20 00:42	1
4-Bromofluorobenzene (Surr)	95		47 - 134					08/04/20 00:42	1
Toluene-d8 (Surr)	112		69 - 122					08/04/20 00:42	1
Dibromofluoromethane (Surr)	100		78 - 129					08/04/20 00:42	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-133764-G-4 MS	Matrix Spike	128	99	112	104
240-133764-H-4 MSD	Matrix Spike Duplicate	122	97	109	102
240-134182-34	TMW-20-02 (7-12)_072820	129	99	112	107
240-134182-35	TRIP BLANK	122	95	112	100
LCS 240-445379/4	Lab Control Sample	127	95	110	105
MB 240-445379/7	Method Blank	122	94	112	106

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (47-136)	BFB (51-124)	DBFM (49-122)	TOL (55-123)
240-134182-1	SB-141 (0.5-1)_072820	95	118	92	110
240-134182-2	SB-141 (1-2)_072820	91	106	88	105
240-134182-3	SB-141 (2-3)_072820	90	106	86	106
240-134182-4	SB-141 (3-4)_072820	88	105	85	102
240-134182-5	SB-141 (4-5)_072820	89	109	86	103
240-134182-6	SB-141 (5-6)_072820	96	111	92	110
240-134182-7	SB-141 (6-7)_072820	91	109	88	107
240-134182-8	SB-141 (7-8)_072820	89	105	86	103
240-134182-9	TMW-20-02 (0.5-1)_072820	92	109	87	108
240-134182-10	TMW-20-02 (1-2)_072820	89	107	84	103
240-134182-11	TMW-20-02 (2-3)_072820	99	114	93	111
240-134182-12	TMW-20-02 (3-4)_072820	87	99	83	99
240-134182-13	TMW-20-02 (4-5)_072820	92	110	85	108
240-134182-14	TMW-20-02 (5-6)_072820	97	111	91	109
240-134182-15	TMW-20-02 (6-7)_072820	90	103	84	101
240-134182-16	TMW-20-02 (7-8)_072820	95	108	88	106
240-134182-17	SB-142 (0.5-1)_072820	96	108	88	108
240-134182-18	SB-142 (1-2)_072820	90	104	85	103
240-134182-19	SB-142 (2-3)_072820	86	106	82	102
240-134182-20	SB-142 (3-4)_072820	94	114	89	108
240-134182-21	SB-142 (4-5)_072820	88	104	83	102
240-134182-21 MS	SB-142 (4-5)_072820	93	115	87	104
240-134182-22	SB-142 (5-6)_072820	95	106	88	106
240-134182-23	SB-142 (6-7)_072820	95	113	90	109
240-134182-24	SB-142 (7-8)_072820	93	110	88	108
240-134182-25	SB-143 (0.5-1)_072820	91	108	87	105
240-134182-25 MS	SB-143 (0.5-1)_072820	89	107	88	107
240-134182-25 MSD	SB-143 (0.5-1)_072820	96	109	92	107
240-134182-26	SB-143 (1-2)_072820	91	104	86	104
240-134182-27	SB-143 (2-3)_072820	93	105	86	104
240-134182-28	SB-143 (3-4)_072820	90	104	85	103

Eurofins TestAmerica, Canton

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Method: 8260B MI - Volatile Organic Compounds (GC/MS) (Continued)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (47-136)	BFB (51-124)	DBFM (49-122)	TOL (55-123)
240-134182-28 MS	SB-143 (3-4)_072820	88	102	84	100
240-134182-28 MSD	SB-143 (3-4)_072820	85	107	86	103
240-134182-29	SB-143 (4-5)_072820	94	112	89	110
240-134182-30	SB-143 (5-6)_072820	94	109	88	107
240-134182-31	SB-143 (6-7)_072820	88	104	82	101
240-134182-32	SB-143 (7-8)_072820	95	111	89	110
240-134182-33	DUP-03	93	106	87	105
LCS 240-445021/2-A	Lab Control Sample	84	99	82	97
LCS 240-445424/2-A	Lab Control Sample	84	98	80	97
MB 240-445021/1-A	Method Blank	81	96	79	95
MB 240-445424/1-A	Method Blank	82	93	76	93

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA
		(70-133)
240-134182-34	TMW-20-02 (7-12)_072820	85
240-134182-35	TRIP BLANK	85
240-134235-C-2 MS	Matrix Spike	87
240-134235-C-2 MSD	Matrix Spike Duplicate	85
LCS 240-445137/4	Lab Control Sample	82
MB 240-445137/5	Method Blank	82

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-445379/7
Matrix: Water
Analysis Batch: 445379

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/03/20 16:25	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/03/20 16:25	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/03/20 16:25	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/03/20 16:25	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/03/20 16:25	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/03/20 16:25	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	122		75 - 130		08/03/20 16:25	1
4-Bromofluorobenzene (Surr)	94		47 - 134		08/03/20 16:25	1
Toluene-d8 (Surr)	112		69 - 122		08/03/20 16:25	1
Dibromofluoromethane (Surr)	106		78 - 129		08/03/20 16:25	1

Lab Sample ID: LCS 240-445379/4
Matrix: Water
Analysis Batch: 445379

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	9.38		ug/L		94	73 - 129
cis-1,2-Dichloroethene	10.0	9.02		ug/L		90	75 - 124
Tetrachloroethene	10.0	10.9		ug/L		109	70 - 125
trans-1,2-Dichloroethene	10.0	9.26		ug/L		93	74 - 130
Trichloroethene	10.0	8.49		ug/L		85	71 - 121
Vinyl chloride	10.0	12.0		ug/L		120	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	127		75 - 130
4-Bromofluorobenzene (Surr)	95		47 - 134
Toluene-d8 (Surr)	110		69 - 122
Dibromofluoromethane (Surr)	105		78 - 129

Lab Sample ID: 240-133764-G-4 MS
Matrix: Water
Analysis Batch: 445379

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U	10.0	10.6		ug/L		106	64 - 132
cis-1,2-Dichloroethene	1.0	U	10.0	9.61		ug/L		96	68 - 121
Tetrachloroethene	1.0	U	10.0	12.0		ug/L		120	52 - 129
trans-1,2-Dichloroethene	1.0	U	10.0	9.98		ug/L		100	69 - 126
Trichloroethene	1.0	U	10.0	8.99		ug/L		90	56 - 124
Vinyl chloride	1.0	U	10.0	13.3		ug/L		133	49 - 136

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	128		75 - 130
4-Bromofluorobenzene (Surr)	99		47 - 134
Toluene-d8 (Surr)	112		69 - 122

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QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-133764-G-4 MS
Matrix: Water
Analysis Batch: 445379

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	104		78 - 129

Lab Sample ID: 240-133764-H-4 MSD
Matrix: Water
Analysis Batch: 445379

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	10.0	10.3		ug/L		103	64 - 132	3	35
cis-1,2-Dichloroethene	1.0	U	10.0	9.82		ug/L		98	68 - 121	2	35
Tetrachloroethene	1.0	U	10.0	11.9		ug/L		119	52 - 129	1	35
trans-1,2-Dichloroethene	1.0	U	10.0	10.3		ug/L		103	69 - 126	3	35
Trichloroethene	1.0	U	10.0	9.31		ug/L		93	56 - 124	4	35
Vinyl chloride	1.0	U	10.0	12.8		ug/L		128	49 - 136	4	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	122		75 - 130
4-Bromofluorobenzene (Surr)	97		47 - 134
Toluene-d8 (Surr)	109		69 - 122
Dibromofluoromethane (Surr)	102		78 - 129

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-445021/1-A
Matrix: Solid
Analysis Batch: 445183

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445021

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	40	U	40	16	ug/Kg		07/30/20 20:24	07/31/20 17:42	1
1,4-Dioxane	13000	U	13000	1100	ug/Kg		07/30/20 20:24	07/31/20 17:42	1
cis-1,2-Dichloroethene	40	U	40	9.0	ug/Kg		07/30/20 20:24	07/31/20 17:42	1
Tetrachloroethene	40	U	40	18	ug/Kg		07/30/20 20:24	07/31/20 17:42	1
trans-1,2-Dichloroethene	40	U	40	10	ug/Kg		07/30/20 20:24	07/31/20 17:42	1
Trichloroethene	40	U	40	11	ug/Kg		07/30/20 20:24	07/31/20 17:42	1
Vinyl chloride	32	U	32	12	ug/Kg		07/30/20 20:24	07/31/20 17:42	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	81		47 - 136	07/30/20 20:24	07/31/20 17:42	1
4-Bromofluorobenzene (Surr)	96		51 - 124	07/30/20 20:24	07/31/20 17:42	1
Dibromofluoromethane (Surr)	79		49 - 122	07/30/20 20:24	07/31/20 17:42	1
Toluene-d8 (Surr)	95		55 - 123	07/30/20 20:24	07/31/20 17:42	1

Lab Sample ID: LCS 240-445021/2-A
Matrix: Solid
Analysis Batch: 445183

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445021

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1000	1130		ug/Kg		113	48 - 140
1,4-Dioxane	20000	20900		ug/Kg		104	44 - 154

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Method: 8260B MI - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-445021/2-A
Matrix: Solid
Analysis Batch: 445183

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445021

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	1000	876		ug/Kg		88	76 - 120
Tetrachloroethene	1000	1070		ug/Kg		107	75 - 124
trans-1,2-Dichloroethene	1000	1120		ug/Kg		112	74 - 125
Trichloroethene	1000	1040		ug/Kg		104	75 - 123
Vinyl chloride	1000	968		ug/Kg		97	39 - 140

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	84		47 - 136
4-Bromofluorobenzene (Surr)	99		51 - 124
Dibromofluoromethane (Surr)	82		49 - 122
Toluene-d8 (Surr)	97		55 - 123

Lab Sample ID: 240-134182-21 MS
Matrix: Solid
Analysis Batch: 445183

Client Sample ID: SB-142 (4-5)_072820
Prep Type: Total/NA
Prep Batch: 445021

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	44	U	1040	979		ug/Kg	☼	94	20 - 150
1,4-Dioxane	14000	U	20800	42500	F1	ug/Kg	☼	204	48 - 149
cis-1,2-Dichloroethene	44	U	1040	1010		ug/Kg	☼	97	35 - 130
Tetrachloroethene	44	U	1040	1190		ug/Kg	☼	115	13 - 144
trans-1,2-Dichloroethene	44	U	1040	1300		ug/Kg	☼	125	31 - 138
Trichloroethene	44	U	1040	1220		ug/Kg	☼	117	10 - 162
Vinyl chloride	35	U	1040	1120		ug/Kg	☼	108	15 - 150

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	93		47 - 136
4-Bromofluorobenzene (Surr)	115		51 - 124
Dibromofluoromethane (Surr)	87		49 - 122
Toluene-d8 (Surr)	104		55 - 123

Lab Sample ID: MB 240-445424/1-A
Matrix: Solid
Analysis Batch: 445595

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445424

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	40	U	40	16	ug/Kg		08/03/20 17:08	08/04/20 18:24	1
1,4-Dioxane	13000	U	13000	1100	ug/Kg		08/03/20 17:08	08/04/20 18:24	1
cis-1,2-Dichloroethene	40	U	40	9.0	ug/Kg		08/03/20 17:08	08/04/20 18:24	1
Tetrachloroethene	40	U	40	18	ug/Kg		08/03/20 17:08	08/04/20 18:24	1
trans-1,2-Dichloroethene	40	U	40	10	ug/Kg		08/03/20 17:08	08/04/20 18:24	1
Trichloroethene	40	U	40	11	ug/Kg		08/03/20 17:08	08/04/20 18:24	1
Vinyl chloride	32	U	32	12	ug/Kg		08/03/20 17:08	08/04/20 18:24	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	82		47 - 136	08/03/20 17:08	08/04/20 18:24	1
4-Bromofluorobenzene (Surr)	93		51 - 124	08/03/20 17:08	08/04/20 18:24	1
Dibromofluoromethane (Surr)	76		49 - 122	08/03/20 17:08	08/04/20 18:24	1

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Method: 8260B MI - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-445424/1-A
Matrix: Solid
Analysis Batch: 445595

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445424

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	93		55 - 123	08/03/20 17:08	08/04/20 18:24	1

Lab Sample ID: LCS 240-445424/2-A
Matrix: Solid
Analysis Batch: 445595

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445424

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,4-Dioxane	20000	20300		ug/Kg		101	44 - 154
cis-1,2-Dichloroethene	1000	838		ug/Kg		84	76 - 120
Tetrachloroethene	1000	1020		ug/Kg		102	75 - 124
trans-1,2-Dichloroethene	1000	1060		ug/Kg		106	74 - 125
Trichloroethene	1000	995		ug/Kg		99	75 - 123
Vinyl chloride	1000	1050		ug/Kg		105	39 - 140

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	84		47 - 136
4-Bromofluorobenzene (Surr)	98		51 - 124
Dibromofluoromethane (Surr)	80		49 - 122
Toluene-d8 (Surr)	97		55 - 123

Lab Sample ID: 240-134182-25 MS
Matrix: Solid
Analysis Batch: 445595

Client Sample ID: SB-143 (0.5-1)_072820
Prep Type: Total/NA
Prep Batch: 445424

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
1,4-Dioxane	14000	U	20700	23200		ug/Kg	☼	112	48 - 149
cis-1,2-Dichloroethene	44	U	1030	994		ug/Kg	☼	96	35 - 130
Tetrachloroethene	44	U	1030	1230		ug/Kg	☼	119	13 - 144
trans-1,2-Dichloroethene	44	U	1030	1290		ug/Kg	☼	124	31 - 138
Trichloroethene	44	U	1030	1190		ug/Kg	☼	116	10 - 162
Vinyl chloride	35	U	1030	1250		ug/Kg	☼	121	15 - 150

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	89		47 - 136
4-Bromofluorobenzene (Surr)	107		51 - 124
Dibromofluoromethane (Surr)	88		49 - 122
Toluene-d8 (Surr)	107		55 - 123

Lab Sample ID: 240-134182-25 MSD
Matrix: Solid
Analysis Batch: 445595

Client Sample ID: SB-143 (0.5-1)_072820
Prep Type: Total/NA
Prep Batch: 445424

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	
										RPD	Limit
1,1-Dichloroethene	44	U	1060	1280		ug/Kg	☼	121	20 - 150	2	40
1,4-Dioxane	14000	U	21300	29800		ug/Kg	☼	140	48 - 149	25	40
cis-1,2-Dichloroethene	44	U	1060	1030		ug/Kg	☼	97	35 - 130	4	40

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Method: 8260B MI - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-134182-25 MSD

Client Sample ID: SB-143 (0.5-1)_072820

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 445595

Prep Batch: 445424

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier		Added	Result						
Tetrachloroethene	44	U	1060	1240		ug/Kg	☼	116	13 - 144	1	40
trans-1,2-Dichloroethene	44	U	1060	1320		ug/Kg	☼	124	31 - 138	2	40
Trichloroethene	44	U	1060	1220		ug/Kg	☼	114	10 - 162	2	40
Vinyl chloride	35	U	1060	1250		ug/Kg	☼	118	15 - 150	0	40

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	96		47 - 136
4-Bromofluorobenzene (Surr)	109		51 - 124
Dibromofluoromethane (Surr)	92		49 - 122
Toluene-d8 (Surr)	107		55 - 123

Lab Sample ID: 240-134182-28 MS

Client Sample ID: SB-143 (3-4)_072820

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 445595

Prep Batch: 445424

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier		Added	Result						
1,1-Dichloroethene	43	U	1040	1100		ug/Kg	☼	107	20 - 150		
1,4-Dioxane	13000	U F1	20700	31700	F1	ug/Kg	☼	153	48 - 149		
cis-1,2-Dichloroethene	43	U	1040	926		ug/Kg	☼	89	35 - 130		
Tetrachloroethene	43	U	1040	1120		ug/Kg	☼	108	13 - 144		
trans-1,2-Dichloroethene	43	U	1040	1200		ug/Kg	☼	115	31 - 138		
Trichloroethene	43	U	1040	1120		ug/Kg	☼	108	10 - 162		
Vinyl chloride	34	U	1040	1220		ug/Kg	☼	118	15 - 150		

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	88		47 - 136
4-Bromofluorobenzene (Surr)	102		51 - 124
Dibromofluoromethane (Surr)	84		49 - 122
Toluene-d8 (Surr)	100		55 - 123

Lab Sample ID: 240-134182-28 MSD

Client Sample ID: SB-143 (3-4)_072820

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 445595

Prep Batch: 445424

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier		Added	Result						
1,1-Dichloroethene	43	U	1060	1240		ug/Kg	☼	117	20 - 150	12	40
1,4-Dioxane	13000	U F1	21100	21600		ug/Kg	☼	102	48 - 149	38	40
cis-1,2-Dichloroethene	43	U	1060	994		ug/Kg	☼	94	35 - 130	7	40
Tetrachloroethene	43	U	1060	1210		ug/Kg	☼	114	13 - 144	8	40
trans-1,2-Dichloroethene	43	U	1060	1280		ug/Kg	☼	121	31 - 138	7	40
Trichloroethene	43	U	1060	1210		ug/Kg	☼	115	10 - 162	8	40
Vinyl chloride	34	U	1060	1230		ug/Kg	☼	117	15 - 150	1	40

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	85		47 - 136
4-Bromofluorobenzene (Surr)	107		51 - 124
Dibromofluoromethane (Surr)	86		49 - 122
Toluene-d8 (Surr)	103		55 - 123

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-445137/5
Matrix: Water
Analysis Batch: 445137

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			07/31/20 13:43	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	82		70 - 133					07/31/20 13:43	1

Lab Sample ID: LCS 240-445137/4
Matrix: Water
Analysis Batch: 445137

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	12.0		ug/L		120	80 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	82		70 - 133				

Lab Sample ID: 240-134235-C-2 MS
Matrix: Water
Analysis Batch: 445137

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	33		20.0	56.5		ug/L		116	46 - 170
Surrogate	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	87		70 - 133						

Lab Sample ID: 240-134235-C-2 MSD
Matrix: Water
Analysis Batch: 445137

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	33		20.0	58.9		ug/L		127	46 - 170	4	26
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	85		70 - 133								

Method: Moisture - Percent Moisture

Lab Sample ID: 240-134182-6 DU
Matrix: Solid
Analysis Batch: 445353

Client Sample ID: SB-141 (5-6)_072820
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	97.5		97.3		%		0.2	20
Percent Moisture	2.5		2.7		%		6	20

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QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Method: Moisture - Percent Moisture (Continued)

Lab Sample ID: 240-134182-15 DU

Matrix: Solid

Analysis Batch: 445353

Client Sample ID: TMW-20-02 (6-7)_072820

Prep Type: Total/NA

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD	Limit
	Result	Qualifier	Result	Qualifier					
Percent Solids	96.1		95.8		%		0.3		20
Percent Moisture	3.9		4.2		%		7		20

Lab Sample ID: 240-134182-21 DU

Matrix: Solid

Analysis Batch: 445353

Client Sample ID: SB-142 (4-5)_072820

Prep Type: Total/NA

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD	Limit
	Result	Qualifier	Result	Qualifier					
Percent Solids	94.6		94.4		%		0.2		20
Percent Moisture	5.4		5.6		%		3		20

Lab Sample ID: 240-134182-23 DU

Matrix: Solid

Analysis Batch: 445353

Client Sample ID: SB-142 (6-7)_072820

Prep Type: Total/NA

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD	Limit
	Result	Qualifier	Result	Qualifier					
Percent Solids	96.6		96.7		%		0.1		20
Percent Moisture	3.4		3.3		%		3		20

Lab Sample ID: 240-134182-25 DU

Matrix: Solid

Analysis Batch: 445353

Client Sample ID: SB-143 (0.5-1)_072820

Prep Type: Total/NA

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD	Limit
	Result	Qualifier	Result	Qualifier					
Percent Solids	97.6		97.5		%		0.1		20
Percent Moisture	2.4		2.5		%		6		20

Lab Sample ID: 240-134182-28 DU

Matrix: Solid

Analysis Batch: 445353

Client Sample ID: SB-143 (3-4)_072820

Prep Type: Total/NA

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD	Limit
	Result	Qualifier	Result	Qualifier					
Percent Solids	97.4		97.3		%		0		20
Percent Moisture	2.6		2.7		%		0.5		20

Lab Sample ID: 240-134182-30 DU

Matrix: Solid

Analysis Batch: 445353

Client Sample ID: SB-143 (5-6)_072820

Prep Type: Total/NA

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD	Limit
	Result	Qualifier	Result	Qualifier					
Percent Solids	97.1		96.8		%		0.3		20
Percent Moisture	2.9		3.2		%		10		20

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

GC/MS VOA

Prep Batch: 445021

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134182-1	SB-141 (0.5-1)_072820	Total/NA	Solid	5030B	
240-134182-2	SB-141 (1-2)_072820	Total/NA	Solid	5030B	
240-134182-3	SB-141 (2-3)_072820	Total/NA	Solid	5030B	
240-134182-4	SB-141 (3-4)_072820	Total/NA	Solid	5030B	
240-134182-5	SB-141 (4-5)_072820	Total/NA	Solid	5030B	
240-134182-6	SB-141 (5-6)_072820	Total/NA	Solid	5030B	
240-134182-7	SB-141 (6-7)_072820	Total/NA	Solid	5030B	
240-134182-8	SB-141 (7-8)_072820	Total/NA	Solid	5030B	
240-134182-9	TMW-20-02 (0.5-1)_072820	Total/NA	Solid	5030B	
240-134182-10	TMW-20-02 (1-2)_072820	Total/NA	Solid	5030B	
240-134182-11	TMW-20-02 (2-3)_072820	Total/NA	Solid	5030B	
240-134182-12	TMW-20-02 (3-4)_072820	Total/NA	Solid	5030B	
240-134182-13	TMW-20-02 (4-5)_072820	Total/NA	Solid	5030B	
240-134182-14	TMW-20-02 (5-6)_072820	Total/NA	Solid	5030B	
240-134182-15	TMW-20-02 (6-7)_072820	Total/NA	Solid	5030B	
240-134182-16	TMW-20-02 (7-8)_072820	Total/NA	Solid	5030B	
240-134182-17	SB-142 (0.5-1)_072820	Total/NA	Solid	5030B	
240-134182-18	SB-142 (1-2)_072820	Total/NA	Solid	5030B	
240-134182-19	SB-142 (2-3)_072820	Total/NA	Solid	5030B	
240-134182-21	SB-142 (4-5)_072820	Total/NA	Solid	5030B	
MB 240-445021/1-A	Method Blank	Total/NA	Solid	5030B	
LCS 240-445021/2-A	Lab Control Sample	Total/NA	Solid	5030B	
240-134182-21 MS	SB-142 (4-5)_072820	Total/NA	Solid	5030B	

Analysis Batch: 445137

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134182-34	TMW-20-02 (7-12)_072820	Total/NA	Water	8260B SIM	
240-134182-35	TRIP BLANK	Total/NA	Water	8260B SIM	
MB 240-445137/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-445137/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-134235-C-2 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-134235-C-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 445183

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134182-1	SB-141 (0.5-1)_072820	Total/NA	Solid	8260B MI	445021
240-134182-2	SB-141 (1-2)_072820	Total/NA	Solid	8260B MI	445021
240-134182-3	SB-141 (2-3)_072820	Total/NA	Solid	8260B MI	445021
240-134182-4	SB-141 (3-4)_072820	Total/NA	Solid	8260B MI	445021
240-134182-5	SB-141 (4-5)_072820	Total/NA	Solid	8260B MI	445021
240-134182-6	SB-141 (5-6)_072820	Total/NA	Solid	8260B MI	445021
240-134182-7	SB-141 (6-7)_072820	Total/NA	Solid	8260B MI	445021
240-134182-8	SB-141 (7-8)_072820	Total/NA	Solid	8260B MI	445021
240-134182-9	TMW-20-02 (0.5-1)_072820	Total/NA	Solid	8260B MI	445021
240-134182-10	TMW-20-02 (1-2)_072820	Total/NA	Solid	8260B MI	445021
240-134182-11	TMW-20-02 (2-3)_072820	Total/NA	Solid	8260B MI	445021
240-134182-12	TMW-20-02 (3-4)_072820	Total/NA	Solid	8260B MI	445021
240-134182-13	TMW-20-02 (4-5)_072820	Total/NA	Solid	8260B MI	445021
240-134182-14	TMW-20-02 (5-6)_072820	Total/NA	Solid	8260B MI	445021
240-134182-15	TMW-20-02 (6-7)_072820	Total/NA	Solid	8260B MI	445021
240-134182-16	TMW-20-02 (7-8)_072820	Total/NA	Solid	8260B MI	445021

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QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

GC/MS VOA (Continued)

Analysis Batch: 445183 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134182-17	SB-142 (0.5-1)_072820	Total/NA	Solid	8260B MI	445021
240-134182-18	SB-142 (1-2)_072820	Total/NA	Solid	8260B MI	445021
240-134182-19	SB-142 (2-3)_072820	Total/NA	Solid	8260B MI	445021
240-134182-21	SB-142 (4-5)_072820	Total/NA	Solid	8260B MI	445021
MB 240-445021/1-A	Method Blank	Total/NA	Solid	8260B MI	445021
LCS 240-445021/2-A	Lab Control Sample	Total/NA	Solid	8260B MI	445021
240-134182-21 MS	SB-142 (4-5)_072820	Total/NA	Solid	8260B MI	445021

Analysis Batch: 445379

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134182-34	TMW-20-02 (7-12)_072820	Total/NA	Water	8260B	
240-134182-35	TRIP BLANK	Total/NA	Water	8260B	
MB 240-445379/7	Method Blank	Total/NA	Water	8260B	
LCS 240-445379/4	Lab Control Sample	Total/NA	Water	8260B	
240-133764-G-4 MS	Matrix Spike	Total/NA	Water	8260B	
240-133764-H-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Prep Batch: 445424

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134182-20	SB-142 (3-4)_072820	Total/NA	Solid	5030B	
240-134182-22	SB-142 (5-6)_072820	Total/NA	Solid	5030B	
240-134182-23	SB-142 (6-7)_072820	Total/NA	Solid	5030B	
240-134182-24	SB-142 (7-8)_072820	Total/NA	Solid	5030B	
240-134182-25	SB-143 (0.5-1)_072820	Total/NA	Solid	5030B	
240-134182-26	SB-143 (1-2)_072820	Total/NA	Solid	5030B	
240-134182-27	SB-143 (2-3)_072820	Total/NA	Solid	5030B	
240-134182-28	SB-143 (3-4)_072820	Total/NA	Solid	5030B	
240-134182-29	SB-143 (4-5)_072820	Total/NA	Solid	5030B	
240-134182-30	SB-143 (5-6)_072820	Total/NA	Solid	5030B	
240-134182-31	SB-143 (6-7)_072820	Total/NA	Solid	5030B	
240-134182-32	SB-143 (7-8)_072820	Total/NA	Solid	5030B	
240-134182-33	DUP-03	Total/NA	Solid	5030B	
MB 240-445424/1-A	Method Blank	Total/NA	Solid	5030B	
LCS 240-445424/2-A	Lab Control Sample	Total/NA	Solid	5030B	
240-134182-25 MS	SB-143 (0.5-1)_072820	Total/NA	Solid	5030B	
240-134182-25 MSD	SB-143 (0.5-1)_072820	Total/NA	Solid	5030B	
240-134182-28 MS	SB-143 (3-4)_072820	Total/NA	Solid	5030B	
240-134182-28 MSD	SB-143 (3-4)_072820	Total/NA	Solid	5030B	

Analysis Batch: 445595

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134182-20	SB-142 (3-4)_072820	Total/NA	Solid	8260B MI	445424
240-134182-22	SB-142 (5-6)_072820	Total/NA	Solid	8260B MI	445424
240-134182-23	SB-142 (6-7)_072820	Total/NA	Solid	8260B MI	445424
240-134182-24	SB-142 (7-8)_072820	Total/NA	Solid	8260B MI	445424
240-134182-25	SB-143 (0.5-1)_072820	Total/NA	Solid	8260B MI	445424
240-134182-26	SB-143 (1-2)_072820	Total/NA	Solid	8260B MI	445424
240-134182-27	SB-143 (2-3)_072820	Total/NA	Solid	8260B MI	445424
240-134182-28	SB-143 (3-4)_072820	Total/NA	Solid	8260B MI	445424
240-134182-29	SB-143 (4-5)_072820	Total/NA	Solid	8260B MI	445424
240-134182-30	SB-143 (5-6)_072820	Total/NA	Solid	8260B MI	445424

Eurofins TestAmerica, Canton

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

GC/MS VOA (Continued)

Analysis Batch: 445595 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134182-31	SB-143 (6-7)_072820	Total/NA	Solid	8260B MI	445424
240-134182-32	SB-143 (7-8)_072820	Total/NA	Solid	8260B MI	445424
240-134182-33	DUP-03	Total/NA	Solid	8260B MI	445424
MB 240-445424/1-A	Method Blank	Total/NA	Solid	8260B MI	445424
LCS 240-445424/2-A	Lab Control Sample	Total/NA	Solid	8260B MI	445424
240-134182-25 MS	SB-143 (0.5-1)_072820	Total/NA	Solid	8260B MI	445424
240-134182-25 MSD	SB-143 (0.5-1)_072820	Total/NA	Solid	8260B MI	445424
240-134182-28 MS	SB-143 (3-4)_072820	Total/NA	Solid	8260B MI	445424
240-134182-28 MSD	SB-143 (3-4)_072820	Total/NA	Solid	8260B MI	445424

General Chemistry

Analysis Batch: 445353

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134182-1	SB-141 (0.5-1)_072820	Total/NA	Solid	Moisture	
240-134182-2	SB-141 (1-2)_072820	Total/NA	Solid	Moisture	
240-134182-3	SB-141 (2-3)_072820	Total/NA	Solid	Moisture	
240-134182-4	SB-141 (3-4)_072820	Total/NA	Solid	Moisture	
240-134182-5	SB-141 (4-5)_072820	Total/NA	Solid	Moisture	
240-134182-6	SB-141 (5-6)_072820	Total/NA	Solid	Moisture	
240-134182-7	SB-141 (6-7)_072820	Total/NA	Solid	Moisture	
240-134182-8	SB-141 (7-8)_072820	Total/NA	Solid	Moisture	
240-134182-9	TMW-20-02 (0.5-1)_072820	Total/NA	Solid	Moisture	
240-134182-10	TMW-20-02 (1-2)_072820	Total/NA	Solid	Moisture	
240-134182-11	TMW-20-02 (2-3)_072820	Total/NA	Solid	Moisture	
240-134182-12	TMW-20-02 (3-4)_072820	Total/NA	Solid	Moisture	
240-134182-13	TMW-20-02 (4-5)_072820	Total/NA	Solid	Moisture	
240-134182-14	TMW-20-02 (5-6)_072820	Total/NA	Solid	Moisture	
240-134182-15	TMW-20-02 (6-7)_072820	Total/NA	Solid	Moisture	
240-134182-16	TMW-20-02 (7-8)_072820	Total/NA	Solid	Moisture	
240-134182-17	SB-142 (0.5-1)_072820	Total/NA	Solid	Moisture	
240-134182-18	SB-142 (1-2)_072820	Total/NA	Solid	Moisture	
240-134182-19	SB-142 (2-3)_072820	Total/NA	Solid	Moisture	
240-134182-20	SB-142 (3-4)_072820	Total/NA	Solid	Moisture	
240-134182-21	SB-142 (4-5)_072820	Total/NA	Solid	Moisture	
240-134182-22	SB-142 (5-6)_072820	Total/NA	Solid	Moisture	
240-134182-23	SB-142 (6-7)_072820	Total/NA	Solid	Moisture	
240-134182-24	SB-142 (7-8)_072820	Total/NA	Solid	Moisture	
240-134182-25	SB-143 (0.5-1)_072820	Total/NA	Solid	Moisture	
240-134182-26	SB-143 (1-2)_072820	Total/NA	Solid	Moisture	
240-134182-27	SB-143 (2-3)_072820	Total/NA	Solid	Moisture	
240-134182-28	SB-143 (3-4)_072820	Total/NA	Solid	Moisture	
240-134182-29	SB-143 (4-5)_072820	Total/NA	Solid	Moisture	
240-134182-30	SB-143 (5-6)_072820	Total/NA	Solid	Moisture	
240-134182-31	SB-143 (6-7)_072820	Total/NA	Solid	Moisture	
240-134182-32	SB-143 (7-8)_072820	Total/NA	Solid	Moisture	
240-134182-33	DUP-03	Total/NA	Solid	Moisture	
240-134182-6 DU	SB-141 (5-6)_072820	Total/NA	Solid	Moisture	
240-134182-15 DU	TMW-20-02 (6-7)_072820	Total/NA	Solid	Moisture	
240-134182-21 DU	SB-142 (4-5)_072820	Total/NA	Solid	Moisture	
240-134182-23 DU	SB-142 (6-7)_072820	Total/NA	Solid	Moisture	

Eurofins TestAmerica, Canton

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

General Chemistry (Continued)

Analysis Batch: 445353 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134182-25 DU	SB-143 (0.5-1)_072820	Total/NA	Solid	Moisture	
240-134182-28 DU	SB-143 (3-4)_072820	Total/NA	Solid	Moisture	
240-134182-30 DU	SB-143 (5-6)_072820	Total/NA	Solid	Moisture	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (0.5-1)_072820

Lab Sample ID: 240-134182-1

Date Collected: 07/28/20 09:38

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: SB-141 (0.5-1)_072820

Lab Sample ID: 240-134182-1

Date Collected: 07/28/20 09:38

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 18:27	TJL1	TAL CAN

Client Sample ID: SB-141 (1-2)_072820

Lab Sample ID: 240-134182-2

Date Collected: 07/28/20 09:45

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: SB-141 (1-2)_072820

Lab Sample ID: 240-134182-2

Date Collected: 07/28/20 09:45

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 18:50	TJL1	TAL CAN

Client Sample ID: SB-141 (2-3)_072820

Lab Sample ID: 240-134182-3

Date Collected: 07/28/20 09:48

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: SB-141 (2-3)_072820

Lab Sample ID: 240-134182-3

Date Collected: 07/28/20 09:48

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 19:12	TJL1	TAL CAN

Client Sample ID: SB-141 (3-4)_072820

Lab Sample ID: 240-134182-4

Date Collected: 07/28/20 09:53

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Eurofins TestAmerica, Canton

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (3-4)_072820

Lab Sample ID: 240-134182-4

Date Collected: 07/28/20 09:53

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 19:35	TJL1	TAL CAN

Client Sample ID: SB-141 (4-5)_072820

Lab Sample ID: 240-134182-5

Date Collected: 07/28/20 09:56

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: SB-141 (4-5)_072820

Lab Sample ID: 240-134182-5

Date Collected: 07/28/20 09:56

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 19:57	TJL1	TAL CAN

Client Sample ID: SB-141 (5-6)_072820

Lab Sample ID: 240-134182-6

Date Collected: 07/28/20 10:18

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: SB-141 (5-6)_072820

Lab Sample ID: 240-134182-6

Date Collected: 07/28/20 10:18

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 20:20	TJL1	TAL CAN

Client Sample ID: SB-141 (6-7)_072820

Lab Sample ID: 240-134182-7

Date Collected: 07/28/20 10:27

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (6-7)_072820

Lab Sample ID: 240-134182-7

Date Collected: 07/28/20 10:27

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 98.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 20:42	TJL1	TAL CAN

Client Sample ID: SB-141 (7-8)_072820

Lab Sample ID: 240-134182-8

Date Collected: 07/28/20 10:30

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: SB-141 (7-8)_072820

Lab Sample ID: 240-134182-8

Date Collected: 07/28/20 10:30

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 95.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 21:05	TJL1	TAL CAN

Client Sample ID: TMW-20-02 (0.5-1)_072820

Lab Sample ID: 240-134182-9

Date Collected: 07/28/20 11:06

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: TMW-20-02 (0.5-1)_072820

Lab Sample ID: 240-134182-9

Date Collected: 07/28/20 11:06

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 21:27	TJL1	TAL CAN

Client Sample ID: TMW-20-02 (1-2)_072820

Lab Sample ID: 240-134182-10

Date Collected: 07/28/20 11:07

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (1-2)_072820

Lab Sample ID: 240-134182-10

Date Collected: 07/28/20 11:07

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 21:50	TJL1	TAL CAN

Client Sample ID: TMW-20-02 (2-3)_072820

Lab Sample ID: 240-134182-11

Date Collected: 07/28/20 11:08

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: TMW-20-02 (2-3)_072820

Lab Sample ID: 240-134182-11

Date Collected: 07/28/20 11:08

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 92.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 22:13	TJL1	TAL CAN

Client Sample ID: TMW-20-02 (3-4)_072820

Lab Sample ID: 240-134182-12

Date Collected: 07/28/20 11:09

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: TMW-20-02 (3-4)_072820

Lab Sample ID: 240-134182-12

Date Collected: 07/28/20 11:09

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 22:35	TJL1	TAL CAN

Client Sample ID: TMW-20-02 (4-5)_072820

Lab Sample ID: 240-134182-13

Date Collected: 07/28/20 11:10

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (4-5)_072820

Lab Sample ID: 240-134182-13

Date Collected: 07/28/20 11:10

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 22:57	TJL1	TAL CAN

Client Sample ID: TMW-20-02 (5-6)_072820

Lab Sample ID: 240-134182-14

Date Collected: 07/28/20 11:29

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: TMW-20-02 (5-6)_072820

Lab Sample ID: 240-134182-14

Date Collected: 07/28/20 11:29

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 89.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 23:20	TJL1	TAL CAN

Client Sample ID: TMW-20-02 (6-7)_072820

Lab Sample ID: 240-134182-15

Date Collected: 07/28/20 11:30

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: TMW-20-02 (6-7)_072820

Lab Sample ID: 240-134182-15

Date Collected: 07/28/20 11:30

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	07/31/20 23:42	TJL1	TAL CAN

Client Sample ID: TMW-20-02 (7-8)_072820

Lab Sample ID: 240-134182-16

Date Collected: 07/28/20 11:34

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (7-8)_072820

Lab Sample ID: 240-134182-16

Date Collected: 07/28/20 11:34

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 94.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	08/01/20 00:05	TJL1	TAL CAN

Client Sample ID: SB-142 (0.5-1)_072820

Lab Sample ID: 240-134182-17

Date Collected: 07/28/20 12:40

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: SB-142 (0.5-1)_072820

Lab Sample ID: 240-134182-17

Date Collected: 07/28/20 12:40

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	08/01/20 00:27	TJL1	TAL CAN

Client Sample ID: SB-142 (1-2)_072820

Lab Sample ID: 240-134182-18

Date Collected: 07/28/20 12:41

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: SB-142 (1-2)_072820

Lab Sample ID: 240-134182-18

Date Collected: 07/28/20 12:41

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	08/01/20 00:50	TJL1	TAL CAN

Client Sample ID: SB-142 (2-3)_072820

Lab Sample ID: 240-134182-19

Date Collected: 07/28/20 12:42

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (2-3)_072820

Lab Sample ID: 240-134182-19

Date Collected: 07/28/20 12:42

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	08/01/20 01:12	TJL1	TAL CAN

Client Sample ID: SB-142 (3-4)_072820

Lab Sample ID: 240-134182-20

Date Collected: 07/28/20 12:43

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: SB-142 (3-4)_072820

Lab Sample ID: 240-134182-20

Date Collected: 07/28/20 12:43

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 98.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/04/20 19:12	TJL1	TAL CAN

Client Sample ID: SB-142 (4-5)_072820

Lab Sample ID: 240-134182-21

Date Collected: 07/28/20 12:44

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Client Sample ID: SB-142 (4-5)_072820

Lab Sample ID: 240-134182-21

Date Collected: 07/28/20 12:44

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 94.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445021	07/30/20 20:24	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445183	08/01/20 01:35	TJL1	TAL CAN

Client Sample ID: SB-142 (5-6)_072820

Lab Sample ID: 240-134182-22

Date Collected: 07/28/20 12:58

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 09:58	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (5-6)_072820

Lab Sample ID: 240-134182-22

Date Collected: 07/28/20 12:58

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 94.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/04/20 19:35	TJL1	TAL CAN

Client Sample ID: SB-142 (6-7)_072820

Lab Sample ID: 240-134182-23

Date Collected: 07/28/20 13:01

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Client Sample ID: SB-142 (6-7)_072820

Lab Sample ID: 240-134182-23

Date Collected: 07/28/20 13:01

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/04/20 19:57	TJL1	TAL CAN

Client Sample ID: SB-142 (7-8)_072820

Lab Sample ID: 240-134182-24

Date Collected: 07/28/20 13:00

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Client Sample ID: SB-142 (7-8)_072820

Lab Sample ID: 240-134182-24

Date Collected: 07/28/20 13:00

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 95.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/04/20 20:20	TJL1	TAL CAN

Client Sample ID: SB-143 (0.5-1)_072820

Lab Sample ID: 240-134182-25

Date Collected: 07/28/20 13:20

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (0.5-1)_072820

Lab Sample ID: 240-134182-25

Date Collected: 07/28/20 13:20

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/04/20 20:42	TJL1	TAL CAN

Client Sample ID: SB-143 (1-2)_072820

Lab Sample ID: 240-134182-26

Date Collected: 07/28/20 13:21

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Client Sample ID: SB-143 (1-2)_072820

Lab Sample ID: 240-134182-26

Date Collected: 07/28/20 13:21

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/04/20 21:49	TJL1	TAL CAN

Client Sample ID: SB-143 (2-3)_072820

Lab Sample ID: 240-134182-27

Date Collected: 07/28/20 13:22

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Client Sample ID: SB-143 (2-3)_072820

Lab Sample ID: 240-134182-27

Date Collected: 07/28/20 13:22

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 95.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/04/20 22:12	TJL1	TAL CAN

Client Sample ID: SB-143 (3-4)_072820

Lab Sample ID: 240-134182-28

Date Collected: 07/28/20 13:23

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (3-4)_072820

Lab Sample ID: 240-134182-28

Date Collected: 07/28/20 13:23

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/04/20 22:35	TJL1	TAL CAN

Client Sample ID: SB-143 (4-5)_072820

Lab Sample ID: 240-134182-29

Date Collected: 07/28/20 13:24

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Client Sample ID: SB-143 (4-5)_072820

Lab Sample ID: 240-134182-29

Date Collected: 07/28/20 13:24

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/04/20 23:43	TJL1	TAL CAN

Client Sample ID: SB-143 (5-6)_072820

Lab Sample ID: 240-134182-30

Date Collected: 07/28/20 13:40

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Client Sample ID: SB-143 (5-6)_072820

Lab Sample ID: 240-134182-30

Date Collected: 07/28/20 13:40

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/05/20 00:05	TJL1	TAL CAN

Client Sample ID: SB-143 (6-7)_072820

Lab Sample ID: 240-134182-31

Date Collected: 07/28/20 13:45

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (6-7)_072820

Lab Sample ID: 240-134182-31

Date Collected: 07/28/20 13:45

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/05/20 00:28	TJL1	TAL CAN

Client Sample ID: SB-143 (7-8)_072820

Lab Sample ID: 240-134182-32

Date Collected: 07/28/20 13:50

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Client Sample ID: SB-143 (7-8)_072820

Lab Sample ID: 240-134182-32

Date Collected: 07/28/20 13:50

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 92.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/05/20 00:50	TJL1	TAL CAN

Client Sample ID: DUP-03

Lab Sample ID: 240-134182-33

Date Collected: 07/28/20 00:00

Matrix: Solid

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	445353	08/03/20 10:40	BWL	TAL CAN

Client Sample ID: DUP-03

Lab Sample ID: 240-134182-33

Date Collected: 07/28/20 00:00

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			445424	08/03/20 17:08	LAM	TAL CAN
Total/NA	Analysis	8260B MI		1	445595	08/05/20 01:13	TJL1	TAL CAN

Client Sample ID: TMW-20-02 (7-12)_072820

Lab Sample ID: 240-134182-34

Date Collected: 07/28/20 15:05

Matrix: Water

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	445379	08/04/20 00:17	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	445137	07/31/20 19:06	SAM	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134182-35

Date Collected: 07/28/20 00:00

Matrix: Water

Date Received: 07/30/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	445379	08/04/20 00:42	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	445137	07/31/20 14:58	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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- 2
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- 14

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-20 *
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.



MICHIGAN
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Chain of Custody Record 376185 eurofins

Environment Testin
TestAmerica

TAL-8210

Address:

Regulatory Program: DW NPDES RCRA Other:

Client Contact
Company Name: ARCADIS
Address: 28550 CABOT DRIVE # 500
City/State/Zip: NOVI MI 48377
Phone: _____
Fax: _____
Project Name: FORD CTP
Site: LIVONIA MI
PO #: 30050315303.01

Project Manager: KRIS HINESKY
Tel/Email: 269-579-5402
Analysis Turnaround Time
 CALENDAR DAYS WORKING DAYS
TAT if different from Below: 10 DAYS
 2 weeks
 1 week
 2 days
 1 day

Site Contact: IAW UROST
Date: 7/28/20
Carrier:
Lab Contact:
Perform MS / MSD (Y / N)
Filtered Sample (Y / N)

COC No:
1 of 3 COCs
Sampler:
For Lab Use Only:
Walk-in Client:
Lab Sampling:
Job / SDG No.:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:
SB-141(0.5-1)-072820	7/28/20	0938	G	S	2	(1)-40ml mech, (1)-402 JMS
SB-141(1-2)-072820	7/28/20	0945	G	S	2	" "
SB-141(2-3)-072820	7/28/20	0948	G	S	2	" "
SB-141(3-4)-072820	7/28/20	0953	G	S	2	" "
SB-141(4-5)-072820	7/28/20	0956	G	S	2	" "
SB-141(5-6)-072820	7/28/20	1018	G	S	2	" "
SB-141(6-7)-072820	7/28/20	1027	G	S	2	" "
SB-141(7-8)-072820	7/28/20	1030	G	S	2	" "
TMW-20-02(0.5-1)-072820	7/28/20	1106	G	S	2	" "
TMW-20-02(1-2)-072820	7/28/20	1107	G	S	2	" "
TMW-20-02(2-3)-072820	7/28/20	1108	G	S	2	" "
TMW-20-02(3-4)-072820	7/28/20	1109	G	S	2	" "



Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other: MECH

Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard Flammable Skin Irritant Poison B Unknown

Special Instructions/QC Requirements & Comments: ANALYZE FOR: PCE, TCE, 1,1-DCE, CIS-1,2-DCE, TRANS-1,2-DCE; VC, 1,1-DIOXANE. LEVEL III REPORTING. SUBMIT ALL RESULTS THROUGH CADENA @ JIM.TOMALIA@CADENA.COM # E-203728.

Custody Seals Intact: Yes No
Relinquished by: *Christy Mee*
Relinquished by: *W*
Relinquished by: _____
Custody Seal No.: ARCADIS
Company: ARCADIS
Date/Time: 7/29/20 0815
Company: EUROFINS
Date/Time: 7-30-20 940
Company: *EMC*
Date/Time: _____
Company: _____
Date/Time: _____

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return to Client Disposal by Lab Archive for _____ Months

Cooler Temp. (°C): Obs'd: _____ Term ID No.:

Received by: *W* Company: EUROFINS
Received by: *EMC* Company: *EMC*
Received in Laboratory by: _____



MICHIGAN
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Chain of Custody Record 384442 eurofins

Environment Testing
TestAmerica

TAL-8210

Regulatory Program: DW NPDES RCRA Other:

Project Manager: KRIS HIMESKY
Tel/Email: 269-579-5402
Site Contact: JAW OKOST
Date: 7/28/20
Carrier:
COC No: 2 of 3 COCs

Client Contact
Company Name: ARCAIS
Address: 28550 CABOT DRIVE #500
City/State/Zip: NOVI MI 48377
Phone:
Fax:
Project Name: FORO LTP
Site: LIVONIA MI
PO # 30050315.303.01

Sample Identification	Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Lab Contact:	Date:	Carrier:	Sampler:	COC No:	Sample Specific Notes:
TMMW-20-02(4-5)-072820	7/28/20	1110	G	S	2	N	N	USEPA METHOD 8260 CONTAMINANT	7/28/20			2	
TMMW-20-02(5-6)-072820	7/28/20	1129	G	S	2	N	N	USEPA METHOD 8260 CONTAMINANT	7/28/20			3	
TMMW-20-02(6-7)-072820	7/28/20	1130	G	S	2	N	N	USEPA METHOD 8260 CONTAMINANT	7/28/20			3	
TMMW-20-02(7-8)-072820	7/28/20	1134	G	S	2	N	N	USEPA METHOD 8260 CONTAMINANT	7/28/20			3	
SB-142(0.5-1)-072820	7/28/20	1240	G	S	2	N	N		7/28/20				
SB-142(1-2)-072820	7/28/20	1241	G	S	2	N	N		7/28/20				
SB-142(2-3)-072820	7/28/20	1242	G	S	2	N	N		7/28/20				
SB-142(3-4)-072820	7/28/20	1243	G	S	2	N	N		7/28/20				
SB-142(4-5)-072820	7/28/20	1244	G	S	6	N	N		7/28/20				COLLECTED MS/MSD.
SB-142(5-6)-072820	7/28/20	1258	G	S	2	N	N		7/28/20				
SB-142(6-7)-072820	7/28/20	1301	G	S	2	N	N		7/28/20				
SB-142(7-8)-072820	7/28/20	1300	G	S	2	N	N		7/28/20				

Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other, MECH
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
 Non-Hazard Flammable Skin Irritant Poison B Unknown

Special Instructions/QC Requirements & Comments: ANALYZE FOR: PCE; TCE; 1,1-DCE; 1,1-DCE; TRANS-1,2-DCE; VC; 1,1-DIOXANE
LEVEL IV REPORTING. SUBMIT ALL RESULTS THROUGH CADEMA@JIM.TOMALIA@CADEMA.COM # F203728

Cooler Temp. (°C): Obs'd: _____
Therm ID No.: _____
Received by: [Signature] Company: ARCAIS Date/Time: 7/28/20 0817
Received by: [Signature] Company: Eurofins Date/Time: 7/29/20 0815
Received in Laboratory by: [Signature] Company: Eurofins Date/Time: 7-30-20 0800



Regulatory Program: DW NPDES RCRA Other: _____

Company Name: ARCAOIS Address: 28550 CABOT DRIVE #500 City/State/Zip: NOVI, MI / 48377 Phone: _____ Fac: _____ Project Name: FORD LTP Site: LIVONIA, MI P.O.#: 30050315, 303.01		Client Contact Project Manager: KRIS HINESKY Tel/Fax: 269-579-5402 Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from below: <u>10 DAYS</u> <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day STANDARD TAT		Site Contact: JAU OROST Date: 7/28/2020 Carrier: _____ Lab Contact: _____ Performs MS/MSD (Y/N): _____ Filtered Sample (Y/N): _____		COC No.: 3 of 3 COCs Sampler: _____ For Lab Use Only: _____ Walk-In Client: _____ Lab Sampling: _____ Job / SDG No.: _____	
Sample Identification	Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	# of Cont.	Sample Specific Notes	
SB-143(0.5-1)-072820	7/28/20	1320	G	S	6	COLLECTED MS/MSD	
SB-143(1-2)-072820	7/28/20	1321	G	S	2		
SB-143(2-3)-072820	7/28/20	1322	G	S	2		
SB-143(3-4)-072820	7/28/20	1323	G	S	6		
SB-143(4-5)-072820	7/28/20	1324	G	S	2		
SB-143(5-6)-072820	7/28/20	1340	G	S	2		
SB-143(6-7)-072820	7/28/20	1345	G	S	2		
SB-143(7-8)-072820	7/28/20	1350	G	S	2		
DUP-03	7/28/20	---	G	S	2		
TRIP BLANK	7/28/20	1505	G	GW	6		
	7/28/20	---	G	GW	2	(2)-TRIP BLANKS 40ml HCL	

Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, R=Other, MB, DH

Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard Flammable Skin Irritant Poison B Unknown

Return to Client Disposal by Lab Archive for _____ Months

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Special Instructions/QC Requirements & Comments: ANALYZE FOR: PCE; TCE; 1,1-DCE; CIS-1,2-DCE; TRANS-1,2-DCE; VC; 1,4-DIOXANE. LEVEL IV REPORTING. SUBMIT ALL RESULTS THROUGH CADEMA AT JIM.TOMALIA@CADEMA.COM #6203728

Custody Seal No.: _____
 Relinquished by: *[Signature]* Date/Time: 7/29/20 06:15
 Relinquished by: *[Signature]* Date/Time: 7-30-20 7:00
 Relinquished by: _____ Date/Time: _____



Eurofins TestAmerica Canton Sample Receipt Form/Narrative

Login #: 134187

Canton Facility

Client Arcadis Site Name

Cooler unpacked by:

Cooler Received on 7-30-20 Opened on 7-30-20

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # Foam Box Client Cooler Box Other

Packing material used: Bubble Wrap Foam Plastic Bag None Other

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. °C Corrected Cooler Temp. °C
IR GUN #IR-11 (CF +0.9 °C) Observed Cooler Temp. °C Corrected Cooler Temp. °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 3 Yes No
-Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
-Were tamper/custody seals intact and uncompromised? Yes No NA

3. Shippers' packing slip attached to the cooler(s)? Yes No

4. Did custody papers accompany the sample(s)? Yes No

5. Were the custody papers relinquished & signed in the appropriate place? Yes No

6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No

7. Did all bottles arrive in good condition (Unbroken)? Yes No

8. Could all bottle labels be reconciled with the COC? Yes No

9. Were correct bottle(s) used for the test(s) indicated? Yes No

10. Sufficient quantity received to perform indicated analyses? Yes No

11. Are these work share samples? Yes No

If yes, Questions 12-16 have been checked at the originating laboratory.

12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC911298

13. Were VOAs on the COC? Yes No

14. Were air bubbles >6 mm in any VOA vials? Larger than this. Yes No NA

15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # NA Yes No

16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving: VOAs Oil and Grease TOC

Contacted PM Date by via Verbal Voice Mail Other

Concerning

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

18. SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired.

Sample(s) were received in a broken container.

Sample(s) were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory.

Time preserved: Preservative(s) added/Lot number(s):

VOA Sample Preservation - Date/Time VOAs Frozen:

DATA VERIFICATION REPORT



August 13, 2020

Kris Hinskey
Arcadis of Michigan
28550 Cabot Drive
Suite 500
Novi, MI US 48377

CADENA project ID: E203728

Project: Ford Livonia Transmission Plant - ON-SITE -Soil Gas, Ground water and Soil

Project number: 30050315.401.03 - onsite groundwater

Event Specific Scope of Work References: Sample COC

Laboratory: TestAmerica - North Canton

Laboratory submittal: 134182-1

Sample date: 2020-07-28

Report received by CADENA: 2020-08-13

Initial Data Verification completed by CADENA: 2020-08-13

Number of Samples:33

Sample Matrices:Soil

Test Categories:GCMS VOC

Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

The following minor QC exceptions or missing information were noted:

GCMS VOC samples -021 and -028 MS/MSD recoveries were outliers biased high for the following analyte: 1,4-DIOXANE. Associated client sample results were non-detect so qualification was not required based on these high bias QC outliers.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, MS/MSD Recovery, MS/MSD RPD, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG #240-134182-1

CADENA Verification Report: 2020-08-12

Analyses Performed By:

TestAmerica
Canton, Ohio

Report #38093R

Review Level: Tier III

Project: 30050315.303.02

DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-134182-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						VOC (Full Scan)	VOC (SIM)	MISC
240-134182-1	SB-141 (0.5-1)_072820	240-134182-1	Soil	7/28/2020		X		
	SB-141 (1-2)_072820	240-134182-2	Soil	7/28/2020		X		
	SB-141 (2-3)_072820	240-134182-3	Soil	7/28/2020		X		
	SB-141 (3-4)_072820	240-134182-4	Soil	7/28/2020		X		
	SB-141 (4-5)_072820	240-134182-5	Soil	7/28/2020		X		
	SB-141 (5-6)_072820	240-134182-6	Soil	7/28/2020		X		
	SB-141 (6-7)_072820	240-134182-7	Soil	7/28/2020		X		
	SB-141 (7-8)_072820	240-134182-8	Soil	7/28/2020		X		
	TMW-20-02 (0.5-1)_072820	240-134182-9	Soil	7/28/2020		X		
	TMW-20-02 (1-2)_072820	240-134182-10	Soil	7/28/2020		X		
	TMW-20-02 (2-3)_072820	240-134182-11	Soil	7/28/2020		X		
	TMW-20-02 (3-4)_072820	240-134182-12	Soil	7/28/2020		X		
	TMW-20-02 (4-5)_072820	240-134182-13	Soil	7/28/2020		X		
	TMW-20-02 (5-6)_072820	240-134182-14	Soil	7/28/2020		X		
	TMW-20-02 (6-7)_072820	240-134182-15	Soil	7/28/2020		X		

DATA REVIEW

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						VOC (Full Scan)	VOC (SIM)	MISC
	TMW-20-02 (7-8)_072820	240-134182-16	Soil	7/28/2020		X		
	SB-142 (0.5-1)_072820	240-134182-17	Soil	7/28/2020		X		
	SB-142 (1-2)_072820	240-134182-18	Soil	7/28/2020		X		
	SB-142 (2-3)_072820	240-134182-19	Soil	7/28/2020		X		
	SB-142 (3-4)_072820	240-134182-20	Soil	7/28/2020		X		
	SB-142 (4-5)_072820	240-134182-21	Soil	7/28/2020		X		
	SB-142 (5-6)_072820	240-134182-22	Soil	7/28/2020		X		
	SB-142 (6-7)_072820	240-134182-23	Soil	7/28/2020		X		
	SB-142 (7-8)_072820	240-134182-24	Soil	7/28/2020		X		
	SB-143 (0.5-1)_072820	240-134182-25	Soil	7/28/2020		X		
	SB-143 (1-2)_072820	240-134182-26	Soil	7/28/2020		X		
	SB-143 (2-3)_072820	240-134182-27	Soil	7/28/2020		X		
	SB-143 (3-4)_072820	240-134182-28	Soil	7/28/2020		X		
	SB-143 (4-5)_072820	240-134182-29	Soil	7/28/2020		X		
	SB-143 (5-6)_072820	240-134182-30	Soil	7/28/2020		X		
	SB-143 (6-7)_072820	240-134182-31	Soil	7/28/2020		X		
	SB-143 (7-8)_072820	240-134182-32	Soil	7/28/2020		X		
	DUP-03	240-134182-33	Soil	7/28/2020	TMW-20-02 (6-7)	X		
	TMW-20-02 (7-12)_072820	240-134182-B-34	Water	7/28/2020		X	X	
	TRIP BLANK	240-134182-35	Water	7/28/2020		X		

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260B and 8260B SIM. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260B/8260B SIM	Water	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl
	Soil	48 hours from collection to extraction and 14 days from extraction to analysis	Cool to <6 °C.

All samples were analyzed within the specified holding time criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (20%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
TMW-20-02 (6-7)/ DUP-03	All compounds	U	U	AC

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

6. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: 8260B/8260B-SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times/Preservation		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: August 31, 2020

PEER REVIEW: Joseph C. Houser

DATE: September 2, 2020



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



MICHIGAN
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Chain of Custody Record 376185 eurofins

Environment Testin
TestAmerica

TAL-8210

Address:

Regulatory Program: DW NPDES RCRA Other:

Client Contact
Company Name: ARCADIS
Address: 28550 CABOT DRIVE # 500
City/State/Zip: NOVI MI 48377
Phone: _____
Fax: _____
Project Name: FORD GP
Site: LIVONIA MI
PO #: 30050315.303.01

Project Manager: KRIS HINESKY
Tel/Email: 269-579-5402
Analysis Turnaround Time
 CALENDAR DAYS WORKING DAYS
TAT if different from Below: 10 DAYS
 2 weeks
 1 week
 2 days
 1 day

Site Contact: JAW OROST
Date: 7/28/20
Carrier: _____
COC No: 1 of 3 COCs
Sampler: _____
For Lab Use Only:
Walk-in Client: _____
Lab Sampling: _____
Job / SDG No.: _____

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Sample Specific Notes:
SB-141(0.5-1)-072820	7/28/20	0938	G	S	2	N	N	(1)-40ml meth, (1)-402 JMS
SB-141(1-2)-072820	7/28/20	0945	G	S	2	N	N	" "
SB-141(2-3)-072820	7/28/20	0948	G	S	2	N	N	" "
SB-141(3-4)-072820	7/28/20	0953	G	S	2	N	N	" "
SB-141(4-5)-072820	7/28/20	0956	G	S	2	N	N	" "
SB-141(5-6)-072820	7/28/20	1018	G	S	2	N	N	" "
SB-141(6-7)-072820	7/28/20	1027	G	S	2	N	N	" "
SB-141(7-8)-072820	7/28/20	1036	G	S	2	N	N	" "
TMW-20-02(0.5-1)-072820	7/28/20	1106	G	S	2	N	N	" "
TMW-20-02(1-2)-072820	7/28/20	1107	G	S	2	N	N	" "
TMW-20-02(2-3)-072820	7/28/20	1108	G	S	2	N	N	" "
TMW-20-02(3-4)-072820	7/28/20	1109	G	S	2	N	N	" "



Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other: MECH

Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard Flammable Skin Irritant Poison B Unknown

Special Instructions/QC Requirements & Comments: ANALYZE FOR: PCE; TCE; 1,1-DCE; CIS-1,2-DCE; TRANS-1,2-DCE; VC; 1,1-DIOXANE. LEVEL IX REPORTING. SUBMIT ALL RESULTS THROUGH CADENA @ JIMTOMALIA@CADENA.COM #E203728.

Custody Seal No.: _____
Custody Seals Intact: Yes No
Relinquished by: *Christy Mee*
Relinquished by: *[Signature]*
Relinquished by: *[Signature]*

Received by: *[Signature]*
Received by: *[Signature]*
Received in Laboratory by: *[Signature]*

Company: ARCADIS
Company: EUROFIN
Company: EUROFIN

Date/Time: 7/29/20 0815
Date/Time: 7-30-20 940
Date/Time: _____

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return to Client Disposal by Lab Archive for _____ Months



1.5/2.1

MICHIGAN
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TAL-8210

Address:

Regulatory Program: DW NPDES RCRA Other:

Client Contact
Company Name: ARCADIS
Address: 28550 CABOT DRIVE #500
City/State/Zip: NOVI MI 48377
Phone:
Fax:
Project Name: FORD GP
Site: LIVONIA MI
PO # 30050315.303.01

Project Manager: KRIS HIMESKY
Tel/Email: 269-579-5402
Analysis Turnaround Time
 CALENDAR DAYS WORKING DAYS
TAT if different from Below
 2 weeks 1 week 2 days 1 day
STANDARD TAT

Site Contact: JAY KRIST
Date: 7/28/20
Carrier:
Lab Contact:
Performs MS/MSD (Y/N)
Filtered Sample (Y/N)
Sample Type (C-Comp, G-Grab) Matrix # of Cont.
Sample Date Sample Time

Sample Identification	Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	# of Cont.	Sample Specific Notes:
TMW-20-02(4-5)-072820	7/28/20	1110	G	S	2	
TMW-20-02(5-6)-072820	7/28/20	1129	G	S	2	
TMW-20-02(6-7)-072820	7/28/20	1130	G	S	2	
TMW-20-02(7-8)-072820	7/28/20	1134	G	S	2	
SB-142(0.5-1)-072820	7/28/20	1240	G	S	2	
SB-142(1-2)-072820	7/28/20	1241	G	S	2	
SB-142(2-3)-072820	7/28/20	1242	G	S	2	
SB-142(3-4)-072820	7/28/20	1243	G	S	2	
SB-142(4-5)-072820	7/28/20	1244	G	S	6	COLLECTED MS/MSD.
SB-142(5-6)-072820	7/28/20	1258	G	S	2	
SB-142(6-7)-072820	7/28/20	1301	G	S	2	
SB-142(7-8)-072820	7/28/20	1300	G	S	2	

Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other: MECH
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
 Non-Hazard Flammable Skin Irritant Poison B Unknown

Special Instructions/QC Requirements & Comments: ANALYZE FOR: PCE; TCE; 1,1-DCE; 1,1-DCE; 1,2-DCE; 1,2-DCE; UC; 1,4-dioxane
LEVEL IV REPORTING. SUBMIT ALL RESULTS THROUGH CADEMIA@JIM.TOMALIA@CADEMIA.COM #F203728.

Cooler Temp. (°C): Obs'd: _____
Therm ID No.: _____
Received by: _____ Date/Time: 7/29/20 05:15
Company: Eurofins
Received by: _____ Date/Time: 7-30-20 9:00
Company: Eurofins
Received in Laboratory by: _____ Date/Time: _____
Company: _____



1.5/2.4

MICHIGAN
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Chain of Custody Record

313590

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (07/13)

Regulatory Program: DW NPDES RCRA Other:

Project Manager: KRIS HINESKY **Site Contact:** JAW OROST **Date:** 7/28/2020 **Carrier:**

Tel/Fax: 269-579-5402 **Lab Contact:** **COG No.:** 3 of 3 COGS

Analysis Turnaround Time
 CALENDAR DAYS WORKING DAYS
 TAT if different from below: 10 DAYS
 2 weeks 1 week 2 days 1 day
 STANDARD TAT

Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Identification		Sample Specific Notes:
					Sample Date	Sample Time	
7/28/20	1320	G	S	6	SB-143(0.5-1)	072820	COLLECTED MS/MSO
7/28/20	1321	G	S	2	SB-143(1-2)	072820	
7/28/20	1322	G	S	2	SB-143(2-3)	072820	
7/28/20	1323	G	S	6	SB-143(3-4)	072820	
7/28/20	1324	G	S	2	SB-143(4-5)	072820	
7/28/20	1340	G	S	2	SB-143(5-6)	072820	
7/28/20	1345	G	S	2	SB-143(6-7)	072820	
7/28/20	1350	G	S	2	SB-143(7-8)	072820	
7/28/20	---	G	S	2	DUP-03		
7/28/20	1505	G	GW	6	TMW-20-02(7-12)	072820	
7/28/20	---	G	GW	2	TRIP BLANK		(2) TRIP BLANKS 40 mL HCL

Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 8=Other: MB, PH

Possible Hazard Identification:
 Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
 Non-Hazard Flammable Skin Irritant Poison B Unknown

Special Instructions/QC Requirements & Comments: ANALYZE FOR: PCE; TCE; 1,1-DCE; CIS-1,2-DCE; TRANS-1,2-DCE; VC; 1,4-DIOXANE.
 LEVEL III REPORTING. SUBMIT ALL RESULTS THROUGH CADEMA AT SIM.TOMALIA@CADEMA.COM #5203728

Custody Seal No.: Yes No
 Relinquished by: [Signature] Date/Time: 7/29/20 06:15
 Relinquished by: [Signature] Date/Time: 7-30-20 7:00
 Relinquished by: [Signature] Date/Time: [Blank]

Received by: [Signature] Date/Time: 7/29/20 06:15
 Received by: [Signature] Date/Time: 7-30-20 7:00
 Received in Laboratory by: [Signature] Date/Time: [Blank]

Company: ARCADIS **Company:** EUROFINIS
Company: EUROFINIS **Company:** [Blank]

Disposal: Disposal by Lab Return to Client Archive for _____ Months

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)



Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (0.5-1)_072820

Lab Sample ID: 240-134182-1

Date Collected: 07/28/20 09:38

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.3

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	47	U	47	19	ug/Kg	☼	07/30/20 20:24	07/31/20 18:27	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	07/30/20 20:24	07/31/20 18:27	1
cis-1,2-Dichloroethene	47	U	47	11	ug/Kg	☼	07/30/20 20:24	07/31/20 18:27	1
Tetrachloroethene	47	U	47	21	ug/Kg	☼	07/30/20 20:24	07/31/20 18:27	1
trans-1,2-Dichloroethene	47	U	47	12	ug/Kg	☼	07/30/20 20:24	07/31/20 18:27	1
Trichloroethene	47	U	47	13	ug/Kg	☼	07/30/20 20:24	07/31/20 18:27	1
Vinyl chloride	38	U	38	14	ug/Kg	☼	07/30/20 20:24	07/31/20 18:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		47 - 136	07/30/20 20:24	07/31/20 18:27	1
4-Bromofluorobenzene (Surr)	118		51 - 124	07/30/20 20:24	07/31/20 18:27	1
Dibromofluoromethane (Surr)	92		49 - 122	07/30/20 20:24	07/31/20 18:27	1
Toluene-d8 (Surr)	110		55 - 123	07/30/20 20:24	07/31/20 18:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.3		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.7		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (1-2)_072820

Lab Sample ID: 240-134182-2

Date Collected: 07/28/20 09:45

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.7

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	42	U	42	17	ug/Kg	☼	07/30/20 20:24	07/31/20 18:50	1
1,4-Dioxane	13000	U	13000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 18:50	1
cis-1,2-Dichloroethene	42	U	42	9.5	ug/Kg	☼	07/30/20 20:24	07/31/20 18:50	1
Tetrachloroethene	42	U	42	19	ug/Kg	☼	07/30/20 20:24	07/31/20 18:50	1
trans-1,2-Dichloroethene	42	U	42	11	ug/Kg	☼	07/30/20 20:24	07/31/20 18:50	1
Trichloroethene	42	U	42	12	ug/Kg	☼	07/30/20 20:24	07/31/20 18:50	1
Vinyl chloride	34	U	34	13	ug/Kg	☼	07/30/20 20:24	07/31/20 18:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		47 - 136	07/30/20 20:24	07/31/20 18:50	1
4-Bromofluorobenzene (Surr)	106		51 - 124	07/30/20 20:24	07/31/20 18:50	1
Dibromofluoromethane (Surr)	88		49 - 122	07/30/20 20:24	07/31/20 18:50	1
Toluene-d8 (Surr)	105		55 - 123	07/30/20 20:24	07/31/20 18:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.7		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.3		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (2-3)_072820

Lab Sample ID: 240-134182-3

Date Collected: 07/28/20 09:48

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.9

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	45	U	45	18	ug/Kg	☼	07/30/20 20:24	07/31/20 19:12	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 19:12	1
cis-1,2-Dichloroethene	45	U	45	10	ug/Kg	☼	07/30/20 20:24	07/31/20 19:12	1
Tetrachloroethene	45	U	45	20	ug/Kg	☼	07/30/20 20:24	07/31/20 19:12	1
trans-1,2-Dichloroethene	45	U	45	11	ug/Kg	☼	07/30/20 20:24	07/31/20 19:12	1
Trichloroethene	45	U	45	12	ug/Kg	☼	07/30/20 20:24	07/31/20 19:12	1
Vinyl chloride	36	U	36	13	ug/Kg	☼	07/30/20 20:24	07/31/20 19:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		47 - 136	07/30/20 20:24	07/31/20 19:12	1
4-Bromofluorobenzene (Surr)	106		51 - 124	07/30/20 20:24	07/31/20 19:12	1
Dibromofluoromethane (Surr)	86		49 - 122	07/30/20 20:24	07/31/20 19:12	1
Toluene-d8 (Surr)	106		55 - 123	07/30/20 20:24	07/31/20 19:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.9		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	3.1		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (3-4)_072820

Lab Sample ID: 240-134182-4

Date Collected: 07/28/20 09:53

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.7

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	43	U	43	17	ug/Kg	☼	07/30/20 20:24	07/31/20 19:35	1
1,4-Dioxane	13000	U	13000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 19:35	1
cis-1,2-Dichloroethene	43	U	43	9.7	ug/Kg	☼	07/30/20 20:24	07/31/20 19:35	1
Tetrachloroethene	43	U	43	19	ug/Kg	☼	07/30/20 20:24	07/31/20 19:35	1
trans-1,2-Dichloroethene	43	U	43	11	ug/Kg	☼	07/30/20 20:24	07/31/20 19:35	1
Trichloroethene	43	U	43	12	ug/Kg	☼	07/30/20 20:24	07/31/20 19:35	1
Vinyl chloride	35	U	35	13	ug/Kg	☼	07/30/20 20:24	07/31/20 19:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		47 - 136	07/30/20 20:24	07/31/20 19:35	1
4-Bromofluorobenzene (Surr)	105		51 - 124	07/30/20 20:24	07/31/20 19:35	1
Dibromofluoromethane (Surr)	85		49 - 122	07/30/20 20:24	07/31/20 19:35	1
Toluene-d8 (Surr)	102		55 - 123	07/30/20 20:24	07/31/20 19:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.7		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.3		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (4-5)_072820

Lab Sample ID: 240-134182-5

Date Collected: 07/28/20 09:56

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.5

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	44	U	44	18	ug/Kg	☼	07/30/20 20:24	07/31/20 19:57	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 19:57	1
cis-1,2-Dichloroethene	44	U	44	9.9	ug/Kg	☼	07/30/20 20:24	07/31/20 19:57	1
Tetrachloroethene	44	U	44	20	ug/Kg	☼	07/30/20 20:24	07/31/20 19:57	1
trans-1,2-Dichloroethene	44	U	44	11	ug/Kg	☼	07/30/20 20:24	07/31/20 19:57	1
Trichloroethene	44	U	44	12	ug/Kg	☼	07/30/20 20:24	07/31/20 19:57	1
Vinyl chloride	35	U	35	13	ug/Kg	☼	07/30/20 20:24	07/31/20 19:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		47 - 136	07/30/20 20:24	07/31/20 19:57	1
4-Bromofluorobenzene (Surr)	109		51 - 124	07/30/20 20:24	07/31/20 19:57	1
Dibromofluoromethane (Surr)	86		49 - 122	07/30/20 20:24	07/31/20 19:57	1
Toluene-d8 (Surr)	103		55 - 123	07/30/20 20:24	07/31/20 19:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.5		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.5		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (5-6)_072820

Lab Sample ID: 240-134182-6

Date Collected: 07/28/20 10:18

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.5

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	45	U	45	18	ug/Kg	☼	07/30/20 20:24	07/31/20 20:20	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 20:20	1
cis-1,2-Dichloroethene	45	U	45	10	ug/Kg	☼	07/30/20 20:24	07/31/20 20:20	1
Tetrachloroethene	45	U	45	20	ug/Kg	☼	07/30/20 20:24	07/31/20 20:20	1
trans-1,2-Dichloroethene	45	U	45	11	ug/Kg	☼	07/30/20 20:24	07/31/20 20:20	1
Trichloroethene	45	U	45	12	ug/Kg	☼	07/30/20 20:24	07/31/20 20:20	1
Vinyl chloride	36	U	36	13	ug/Kg	☼	07/30/20 20:24	07/31/20 20:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		47 - 136	07/30/20 20:24	07/31/20 20:20	1
4-Bromofluorobenzene (Surr)	111		51 - 124	07/30/20 20:24	07/31/20 20:20	1
Dibromofluoromethane (Surr)	92		49 - 122	07/30/20 20:24	07/31/20 20:20	1
Toluene-d8 (Surr)	110		55 - 123	07/30/20 20:24	07/31/20 20:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.5		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.5		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (6-7)_072820

Lab Sample ID: 240-134182-7

Date Collected: 07/28/20 10:27

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 98.1

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	43	U	43	17	ug/Kg	☼	07/30/20 20:24	07/31/20 20:42	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 20:42	1
cis-1,2-Dichloroethene	43	U	43	9.8	ug/Kg	☼	07/30/20 20:24	07/31/20 20:42	1
Tetrachloroethene	43	U	43	20	ug/Kg	☼	07/30/20 20:24	07/31/20 20:42	1
trans-1,2-Dichloroethene	43	U	43	11	ug/Kg	☼	07/30/20 20:24	07/31/20 20:42	1
Trichloroethene	43	U	43	12	ug/Kg	☼	07/30/20 20:24	07/31/20 20:42	1
Vinyl chloride	35	U	35	13	ug/Kg	☼	07/30/20 20:24	07/31/20 20:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		47 - 136	07/30/20 20:24	07/31/20 20:42	1
4-Bromofluorobenzene (Surr)	109		51 - 124	07/30/20 20:24	07/31/20 20:42	1
Dibromofluoromethane (Surr)	88		49 - 122	07/30/20 20:24	07/31/20 20:42	1
Toluene-d8 (Surr)	107		55 - 123	07/30/20 20:24	07/31/20 20:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	98.1		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	1.9		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-141 (7-8)_072820

Lab Sample ID: 240-134182-8

Date Collected: 07/28/20 10:30

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 95.2

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	48	U	48	19	ug/Kg	☼	07/30/20 20:24	07/31/20 21:05	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	07/30/20 20:24	07/31/20 21:05	1
cis-1,2-Dichloroethene	48	U	48	11	ug/Kg	☼	07/30/20 20:24	07/31/20 21:05	1
Tetrachloroethene	48	U	48	21	ug/Kg	☼	07/30/20 20:24	07/31/20 21:05	1
trans-1,2-Dichloroethene	48	U	48	12	ug/Kg	☼	07/30/20 20:24	07/31/20 21:05	1
Trichloroethene	48	U	48	13	ug/Kg	☼	07/30/20 20:24	07/31/20 21:05	1
Vinyl chloride	38	U	38	14	ug/Kg	☼	07/30/20 20:24	07/31/20 21:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		47 - 136	07/30/20 20:24	07/31/20 21:05	1
4-Bromofluorobenzene (Surr)	105		51 - 124	07/30/20 20:24	07/31/20 21:05	1
Dibromofluoromethane (Surr)	86		49 - 122	07/30/20 20:24	07/31/20 21:05	1
Toluene-d8 (Surr)	103		55 - 123	07/30/20 20:24	07/31/20 21:05	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	95.2		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	4.8		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (0.5-1)_072820

Lab Sample ID: 240-134182-9

Date Collected: 07/28/20 11:06

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.4

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	45	U	45	18	ug/Kg	☼	07/30/20 20:24	07/31/20 21:27	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 21:27	1
cis-1,2-Dichloroethene	45	U	45	10	ug/Kg	☼	07/30/20 20:24	07/31/20 21:27	1
Tetrachloroethene	45	U	45	20	ug/Kg	☼	07/30/20 20:24	07/31/20 21:27	1
trans-1,2-Dichloroethene	45	U	45	11	ug/Kg	☼	07/30/20 20:24	07/31/20 21:27	1
Trichloroethene	45	U	45	12	ug/Kg	☼	07/30/20 20:24	07/31/20 21:27	1
Vinyl chloride	36	U	36	14	ug/Kg	☼	07/30/20 20:24	07/31/20 21:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		47 - 136	07/30/20 20:24	07/31/20 21:27	1
4-Bromofluorobenzene (Surr)	109		51 - 124	07/30/20 20:24	07/31/20 21:27	1
Dibromofluoromethane (Surr)	87		49 - 122	07/30/20 20:24	07/31/20 21:27	1
Toluene-d8 (Surr)	108		55 - 123	07/30/20 20:24	07/31/20 21:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.4		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	3.6		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (1-2)_072820

Lab Sample ID: 240-134182-10

Date Collected: 07/28/20 11:07

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.2

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	45	U	45	18	ug/Kg	☼	07/30/20 20:24	07/31/20 21:50	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 21:50	1
cis-1,2-Dichloroethene	45	U	45	10	ug/Kg	☼	07/30/20 20:24	07/31/20 21:50	1
Tetrachloroethene	45	U	45	20	ug/Kg	☼	07/30/20 20:24	07/31/20 21:50	1
trans-1,2-Dichloroethene	45	U	45	11	ug/Kg	☼	07/30/20 20:24	07/31/20 21:50	1
Trichloroethene	45	U	45	12	ug/Kg	☼	07/30/20 20:24	07/31/20 21:50	1
Vinyl chloride	36	U	36	13	ug/Kg	☼	07/30/20 20:24	07/31/20 21:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		47 - 136	07/30/20 20:24	07/31/20 21:50	1
4-Bromofluorobenzene (Surr)	107		51 - 124	07/30/20 20:24	07/31/20 21:50	1
Dibromofluoromethane (Surr)	84		49 - 122	07/30/20 20:24	07/31/20 21:50	1
Toluene-d8 (Surr)	103		55 - 123	07/30/20 20:24	07/31/20 21:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.2		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	3.8		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (2-3)_072820

Lab Sample ID: 240-134182-11

Date Collected: 07/28/20 11:08

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 92.3

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	48	U	48	19	ug/Kg	☼	07/30/20 20:24	07/31/20 22:13	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	07/30/20 20:24	07/31/20 22:13	1
cis-1,2-Dichloroethene	48	U	48	11	ug/Kg	☼	07/30/20 20:24	07/31/20 22:13	1
Tetrachloroethene	48	U	48	21	ug/Kg	☼	07/30/20 20:24	07/31/20 22:13	1
trans-1,2-Dichloroethene	48	U	48	12	ug/Kg	☼	07/30/20 20:24	07/31/20 22:13	1
Trichloroethene	48	U	48	13	ug/Kg	☼	07/30/20 20:24	07/31/20 22:13	1
Vinyl chloride	38	U	38	14	ug/Kg	☼	07/30/20 20:24	07/31/20 22:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		47 - 136	07/30/20 20:24	07/31/20 22:13	1
4-Bromofluorobenzene (Surr)	114		51 - 124	07/30/20 20:24	07/31/20 22:13	1
Dibromofluoromethane (Surr)	93		49 - 122	07/30/20 20:24	07/31/20 22:13	1
Toluene-d8 (Surr)	111		55 - 123	07/30/20 20:24	07/31/20 22:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	92.3		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	7.7		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (3-4)_072820

Lab Sample ID: 240-134182-12

Date Collected: 07/28/20 11:09

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.6

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	42	U	42	17	ug/Kg	☼	07/30/20 20:24	07/31/20 22:35	1
1,4-Dioxane	13000	U	13000	1100	ug/Kg	☼	07/30/20 20:24	07/31/20 22:35	1
cis-1,2-Dichloroethene	42	U	42	9.5	ug/Kg	☼	07/30/20 20:24	07/31/20 22:35	1
Tetrachloroethene	42	U	42	19	ug/Kg	☼	07/30/20 20:24	07/31/20 22:35	1
trans-1,2-Dichloroethene	42	U	42	11	ug/Kg	☼	07/30/20 20:24	07/31/20 22:35	1
Trichloroethene	42	U	42	12	ug/Kg	☼	07/30/20 20:24	07/31/20 22:35	1
Vinyl chloride	34	U	34	13	ug/Kg	☼	07/30/20 20:24	07/31/20 22:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		47 - 136	07/30/20 20:24	07/31/20 22:35	1
4-Bromofluorobenzene (Surr)	99		51 - 124	07/30/20 20:24	07/31/20 22:35	1
Dibromofluoromethane (Surr)	83		49 - 122	07/30/20 20:24	07/31/20 22:35	1
Toluene-d8 (Surr)	99		55 - 123	07/30/20 20:24	07/31/20 22:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.6		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.4		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (4-5)_072820

Lab Sample ID: 240-134182-13

Date Collected: 07/28/20 11:10

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.1

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	45	U	45	18	ug/Kg	☼	07/30/20 20:24	07/31/20 22:57	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 22:57	1
cis-1,2-Dichloroethene	45	U	45	10	ug/Kg	☼	07/30/20 20:24	07/31/20 22:57	1
Tetrachloroethene	45	U	45	20	ug/Kg	☼	07/30/20 20:24	07/31/20 22:57	1
trans-1,2-Dichloroethene	45	U	45	11	ug/Kg	☼	07/30/20 20:24	07/31/20 22:57	1
Trichloroethene	45	U	45	12	ug/Kg	☼	07/30/20 20:24	07/31/20 22:57	1
Vinyl chloride	36	U	36	13	ug/Kg	☼	07/30/20 20:24	07/31/20 22:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		47 - 136	07/30/20 20:24	07/31/20 22:57	1
4-Bromofluorobenzene (Surr)	110		51 - 124	07/30/20 20:24	07/31/20 22:57	1
Dibromofluoromethane (Surr)	85		49 - 122	07/30/20 20:24	07/31/20 22:57	1
Toluene-d8 (Surr)	108		55 - 123	07/30/20 20:24	07/31/20 22:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.1		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.9		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (5-6)_072820

Lab Sample ID: 240-134182-14

Date Collected: 07/28/20 11:29

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 89.8

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	49	U	49	20	ug/Kg	☼	07/30/20 20:24	07/31/20 23:20	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	07/30/20 20:24	07/31/20 23:20	1
cis-1,2-Dichloroethene	49	U	49	11	ug/Kg	☼	07/30/20 20:24	07/31/20 23:20	1
Tetrachloroethene	49	U	49	22	ug/Kg	☼	07/30/20 20:24	07/31/20 23:20	1
trans-1,2-Dichloroethene	49	U	49	12	ug/Kg	☼	07/30/20 20:24	07/31/20 23:20	1
Trichloroethene	49	U	49	14	ug/Kg	☼	07/30/20 20:24	07/31/20 23:20	1
Vinyl chloride	39	U	39	15	ug/Kg	☼	07/30/20 20:24	07/31/20 23:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		47 - 136	07/30/20 20:24	07/31/20 23:20	1
4-Bromofluorobenzene (Surr)	111		51 - 124	07/30/20 20:24	07/31/20 23:20	1
Dibromofluoromethane (Surr)	91		49 - 122	07/30/20 20:24	07/31/20 23:20	1
Toluene-d8 (Surr)	109		55 - 123	07/30/20 20:24	07/31/20 23:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	89.8		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	10.2		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (6-7)_072820

Lab Sample ID: 240-134182-15

Date Collected: 07/28/20 11:30

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.1

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	45	U	45	18	ug/Kg	☼	07/30/20 20:24	07/31/20 23:42	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	07/31/20 23:42	1
cis-1,2-Dichloroethene	45	U	45	10	ug/Kg	☼	07/30/20 20:24	07/31/20 23:42	1
Tetrachloroethene	45	U	45	20	ug/Kg	☼	07/30/20 20:24	07/31/20 23:42	1
trans-1,2-Dichloroethene	45	U	45	11	ug/Kg	☼	07/30/20 20:24	07/31/20 23:42	1
Trichloroethene	45	U	45	12	ug/Kg	☼	07/30/20 20:24	07/31/20 23:42	1
Vinyl chloride	36	U	36	14	ug/Kg	☼	07/30/20 20:24	07/31/20 23:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		47 - 136	07/30/20 20:24	07/31/20 23:42	1
4-Bromofluorobenzene (Surr)	103		51 - 124	07/30/20 20:24	07/31/20 23:42	1
Dibromofluoromethane (Surr)	84		49 - 122	07/30/20 20:24	07/31/20 23:42	1
Toluene-d8 (Surr)	101		55 - 123	07/30/20 20:24	07/31/20 23:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.1		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	3.9		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (7-8)_072820

Lab Sample ID: 240-134182-16

Date Collected: 07/28/20 11:34

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 94.2

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	46	U	46	18	ug/Kg	☼	07/30/20 20:24	08/01/20 00:05	1
1,4-Dioxane	14000	U	14000	1300	ug/Kg	☼	07/30/20 20:24	08/01/20 00:05	1
cis-1,2-Dichloroethene	46	U	46	10	ug/Kg	☼	07/30/20 20:24	08/01/20 00:05	1
Tetrachloroethene	46	U	46	21	ug/Kg	☼	07/30/20 20:24	08/01/20 00:05	1
trans-1,2-Dichloroethene	46	U	46	12	ug/Kg	☼	07/30/20 20:24	08/01/20 00:05	1
Trichloroethene	46	U	46	13	ug/Kg	☼	07/30/20 20:24	08/01/20 00:05	1
Vinyl chloride	37	U	37	14	ug/Kg	☼	07/30/20 20:24	08/01/20 00:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		47 - 136	07/30/20 20:24	08/01/20 00:05	1
4-Bromofluorobenzene (Surr)	108		51 - 124	07/30/20 20:24	08/01/20 00:05	1
Dibromofluoromethane (Surr)	88		49 - 122	07/30/20 20:24	08/01/20 00:05	1
Toluene-d8 (Surr)	106		55 - 123	07/30/20 20:24	08/01/20 00:05	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	94.2		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	5.8		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (0.5-1)_072820

Lab Sample ID: 240-134182-17

Date Collected: 07/28/20 12:40

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.5

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	44	U	44	18	ug/Kg	☼	07/30/20 20:24	08/01/20 00:27	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	08/01/20 00:27	1
cis-1,2-Dichloroethene	44	U	44	9.9	ug/Kg	☼	07/30/20 20:24	08/01/20 00:27	1
Tetrachloroethene	44	U	44	20	ug/Kg	☼	07/30/20 20:24	08/01/20 00:27	1
trans-1,2-Dichloroethene	44	U	44	11	ug/Kg	☼	07/30/20 20:24	08/01/20 00:27	1
Trichloroethene	44	U	44	12	ug/Kg	☼	07/30/20 20:24	08/01/20 00:27	1
Vinyl chloride	35	U	35	13	ug/Kg	☼	07/30/20 20:24	08/01/20 00:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		47 - 136	07/30/20 20:24	08/01/20 00:27	1
4-Bromofluorobenzene (Surr)	108		51 - 124	07/30/20 20:24	08/01/20 00:27	1
Dibromofluoromethane (Surr)	88		49 - 122	07/30/20 20:24	08/01/20 00:27	1
Toluene-d8 (Surr)	108		55 - 123	07/30/20 20:24	08/01/20 00:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.5		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	3.5		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (1-2)_072820

Lab Sample ID: 240-134182-18

Date Collected: 07/28/20 12:41

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.8

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	43	U	43	17	ug/Kg	☼	07/30/20 20:24	08/01/20 00:50	1
1,4-Dioxane	13000	U	13000	1200	ug/Kg	☼	07/30/20 20:24	08/01/20 00:50	1
cis-1,2-Dichloroethene	43	U	43	9.6	ug/Kg	☼	07/30/20 20:24	08/01/20 00:50	1
Tetrachloroethene	43	U	43	19	ug/Kg	☼	07/30/20 20:24	08/01/20 00:50	1
trans-1,2-Dichloroethene	43	U	43	11	ug/Kg	☼	07/30/20 20:24	08/01/20 00:50	1
Trichloroethene	43	U	43	12	ug/Kg	☼	07/30/20 20:24	08/01/20 00:50	1
Vinyl chloride	34	U	34	13	ug/Kg	☼	07/30/20 20:24	08/01/20 00:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		47 - 136	07/30/20 20:24	08/01/20 00:50	1
4-Bromofluorobenzene (Surr)	104		51 - 124	07/30/20 20:24	08/01/20 00:50	1
Dibromofluoromethane (Surr)	85		49 - 122	07/30/20 20:24	08/01/20 00:50	1
Toluene-d8 (Surr)	103		55 - 123	07/30/20 20:24	08/01/20 00:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.8		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.2		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (2-3)_072820

Lab Sample ID: 240-134182-19

Date Collected: 07/28/20 12:42

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.1

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	44	U	44	18	ug/Kg	☼	07/30/20 20:24	08/01/20 01:12	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	08/01/20 01:12	1
cis-1,2-Dichloroethene	44	U	44	9.9	ug/Kg	☼	07/30/20 20:24	08/01/20 01:12	1
Tetrachloroethene	44	U	44	20	ug/Kg	☼	07/30/20 20:24	08/01/20 01:12	1
trans-1,2-Dichloroethene	44	U	44	11	ug/Kg	☼	07/30/20 20:24	08/01/20 01:12	1
Trichloroethene	44	U	44	12	ug/Kg	☼	07/30/20 20:24	08/01/20 01:12	1
Vinyl chloride	35	U	35	13	ug/Kg	☼	07/30/20 20:24	08/01/20 01:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		47 - 136	07/30/20 20:24	08/01/20 01:12	1
4-Bromofluorobenzene (Surr)	106		51 - 124	07/30/20 20:24	08/01/20 01:12	1
Dibromofluoromethane (Surr)	82		49 - 122	07/30/20 20:24	08/01/20 01:12	1
Toluene-d8 (Surr)	102		55 - 123	07/30/20 20:24	08/01/20 01:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.1		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.9		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (3-4)_072820

Lab Sample ID: 240-134182-20

Date Collected: 07/28/20 12:43

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 98.0

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	39	U	39	16	ug/Kg	☼	08/03/20 17:08	08/04/20 19:12	1
1,4-Dioxane	12000	U	12000	1100	ug/Kg	☼	08/03/20 17:08	08/04/20 19:12	1
cis-1,2-Dichloroethene	14	J	39	8.9	ug/Kg	☼	08/03/20 17:08	08/04/20 19:12	1
Tetrachloroethene	19	J	39	18	ug/Kg	☼	08/03/20 17:08	08/04/20 19:12	1
trans-1,2-Dichloroethene	24	J	39	9.9	ug/Kg	☼	08/03/20 17:08	08/04/20 19:12	1
Trichloroethene	13	J	39	11	ug/Kg	☼	08/03/20 17:08	08/04/20 19:12	1
Vinyl chloride	12	J	32	12	ug/Kg	☼	08/03/20 17:08	08/04/20 19:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		47 - 136	08/03/20 17:08	08/04/20 19:12	1
4-Bromofluorobenzene (Surr)	114		51 - 124	08/03/20 17:08	08/04/20 19:12	1
Dibromofluoromethane (Surr)	89		49 - 122	08/03/20 17:08	08/04/20 19:12	1
Toluene-d8 (Surr)	108		55 - 123	08/03/20 17:08	08/04/20 19:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	98.0		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	2.0		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (4-5)_072820

Lab Sample ID: 240-134182-21

Date Collected: 07/28/20 12:44

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 94.6

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	44	U	44	18	ug/Kg	☼	07/30/20 20:24	08/01/20 01:35	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	07/30/20 20:24	08/01/20 01:35	1
cis-1,2-Dichloroethene	44	U	44	10	ug/Kg	☼	07/30/20 20:24	08/01/20 01:35	1
Tetrachloroethene	44	U	44	20	ug/Kg	☼	07/30/20 20:24	08/01/20 01:35	1
trans-1,2-Dichloroethene	44	U	44	11	ug/Kg	☼	07/30/20 20:24	08/01/20 01:35	1
Trichloroethene	44	U	44	12	ug/Kg	☼	07/30/20 20:24	08/01/20 01:35	1
Vinyl chloride	35	U	35	13	ug/Kg	☼	07/30/20 20:24	08/01/20 01:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		47 - 136	07/30/20 20:24	08/01/20 01:35	1
4-Bromofluorobenzene (Surr)	104		51 - 124	07/30/20 20:24	08/01/20 01:35	1
Dibromofluoromethane (Surr)	83		49 - 122	07/30/20 20:24	08/01/20 01:35	1
Toluene-d8 (Surr)	102		55 - 123	07/30/20 20:24	08/01/20 01:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	94.6		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	5.4		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (5-6)_072820

Lab Sample ID: 240-134182-22

Date Collected: 07/28/20 12:58

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 94.6

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	48	U	48	19	ug/Kg	☼	08/03/20 17:08	08/04/20 19:35	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	08/03/20 17:08	08/04/20 19:35	1
cis-1,2-Dichloroethene	48	U	48	11	ug/Kg	☼	08/03/20 17:08	08/04/20 19:35	1
Tetrachloroethene	48	U	48	22	ug/Kg	☼	08/03/20 17:08	08/04/20 19:35	1
trans-1,2-Dichloroethene	48	U	48	12	ug/Kg	☼	08/03/20 17:08	08/04/20 19:35	1
Trichloroethene	48	U	48	13	ug/Kg	☼	08/03/20 17:08	08/04/20 19:35	1
Vinyl chloride	39	U	39	15	ug/Kg	☼	08/03/20 17:08	08/04/20 19:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		47 - 136	08/03/20 17:08	08/04/20 19:35	1
4-Bromofluorobenzene (Surr)	106		51 - 124	08/03/20 17:08	08/04/20 19:35	1
Dibromofluoromethane (Surr)	88		49 - 122	08/03/20 17:08	08/04/20 19:35	1
Toluene-d8 (Surr)	106		55 - 123	08/03/20 17:08	08/04/20 19:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	94.6		0.1	0.1	%			08/03/20 09:58	1
Percent Moisture	5.4		0.1	0.1	%			08/03/20 09:58	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (6-7)_072820

Lab Sample ID: 240-134182-23

Date Collected: 07/28/20 13:01

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.6

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	43	U	43	17	ug/Kg	☼	08/03/20 17:08	08/04/20 19:57	1
1,4-Dioxane	13000	U	13000	1200	ug/Kg	☼	08/03/20 17:08	08/04/20 19:57	1
cis-1,2-Dichloroethene	43	U	43	9.6	ug/Kg	☼	08/03/20 17:08	08/04/20 19:57	1
Tetrachloroethene	43	U	43	19	ug/Kg	☼	08/03/20 17:08	08/04/20 19:57	1
trans-1,2-Dichloroethene	43	U	43	11	ug/Kg	☼	08/03/20 17:08	08/04/20 19:57	1
Trichloroethene	43	U	43	12	ug/Kg	☼	08/03/20 17:08	08/04/20 19:57	1
Vinyl chloride	34	U	34	13	ug/Kg	☼	08/03/20 17:08	08/04/20 19:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		47 - 136	08/03/20 17:08	08/04/20 19:57	1
4-Bromofluorobenzene (Surr)	113		51 - 124	08/03/20 17:08	08/04/20 19:57	1
Dibromofluoromethane (Surr)	90		49 - 122	08/03/20 17:08	08/04/20 19:57	1
Toluene-d8 (Surr)	109		55 - 123	08/03/20 17:08	08/04/20 19:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.6		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	3.4		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-142 (7-8)_072820

Lab Sample ID: 240-134182-24

Date Collected: 07/28/20 13:00

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 95.5

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	46	U	46	18	ug/Kg	☼	08/03/20 17:08	08/04/20 20:20	1
1,4-Dioxane	14000	U	14000	1300	ug/Kg	☼	08/03/20 17:08	08/04/20 20:20	1
cis-1,2-Dichloroethene	46	U	46	10	ug/Kg	☼	08/03/20 17:08	08/04/20 20:20	1
Tetrachloroethene	46	U	46	21	ug/Kg	☼	08/03/20 17:08	08/04/20 20:20	1
trans-1,2-Dichloroethene	46	U	46	12	ug/Kg	☼	08/03/20 17:08	08/04/20 20:20	1
Trichloroethene	46	U	46	13	ug/Kg	☼	08/03/20 17:08	08/04/20 20:20	1
Vinyl chloride	37	U	37	14	ug/Kg	☼	08/03/20 17:08	08/04/20 20:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		47 - 136	08/03/20 17:08	08/04/20 20:20	1
4-Bromofluorobenzene (Surr)	110		51 - 124	08/03/20 17:08	08/04/20 20:20	1
Dibromofluoromethane (Surr)	88		49 - 122	08/03/20 17:08	08/04/20 20:20	1
Toluene-d8 (Surr)	108		55 - 123	08/03/20 17:08	08/04/20 20:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	95.5		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	4.5		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (0.5-1)_072820

Lab Sample ID: 240-134182-25

Date Collected: 07/28/20 13:20

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.6

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	44	U	44	18	ug/Kg	☼	08/03/20 17:08	08/04/20 20:42	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	08/03/20 17:08	08/04/20 20:42	1
cis-1,2-Dichloroethene	44	U	44	9.9	ug/Kg	☼	08/03/20 17:08	08/04/20 20:42	1
Tetrachloroethene	44	U	44	20	ug/Kg	☼	08/03/20 17:08	08/04/20 20:42	1
trans-1,2-Dichloroethene	44	U	44	11	ug/Kg	☼	08/03/20 17:08	08/04/20 20:42	1
Trichloroethene	44	U	44	12	ug/Kg	☼	08/03/20 17:08	08/04/20 20:42	1
Vinyl chloride	35	U	35	13	ug/Kg	☼	08/03/20 17:08	08/04/20 20:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		47 - 136	08/03/20 17:08	08/04/20 20:42	1
4-Bromofluorobenzene (Surr)	108		51 - 124	08/03/20 17:08	08/04/20 20:42	1
Dibromofluoromethane (Surr)	87		49 - 122	08/03/20 17:08	08/04/20 20:42	1
Toluene-d8 (Surr)	105		55 - 123	08/03/20 17:08	08/04/20 20:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.6		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	2.4		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (1-2)_072820

Lab Sample ID: 240-134182-26

Date Collected: 07/28/20 13:21

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.4

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	42	U	42	17	ug/Kg	☼	08/03/20 17:08	08/04/20 21:49	1
1,4-Dioxane	13000	U	13000	1200	ug/Kg	☼	08/03/20 17:08	08/04/20 21:49	1
cis-1,2-Dichloroethene	42	U	42	9.5	ug/Kg	☼	08/03/20 17:08	08/04/20 21:49	1
Tetrachloroethene	42	U	42	19	ug/Kg	☼	08/03/20 17:08	08/04/20 21:49	1
trans-1,2-Dichloroethene	42	U	42	11	ug/Kg	☼	08/03/20 17:08	08/04/20 21:49	1
Trichloroethene	42	U	42	12	ug/Kg	☼	08/03/20 17:08	08/04/20 21:49	1
Vinyl chloride	34	U	34	13	ug/Kg	☼	08/03/20 17:08	08/04/20 21:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		47 - 136	08/03/20 17:08	08/04/20 21:49	1
4-Bromofluorobenzene (Surr)	104		51 - 124	08/03/20 17:08	08/04/20 21:49	1
Dibromofluoromethane (Surr)	86		49 - 122	08/03/20 17:08	08/04/20 21:49	1
Toluene-d8 (Surr)	104		55 - 123	08/03/20 17:08	08/04/20 21:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.4		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	3.6		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (2-3)_072820

Lab Sample ID: 240-134182-27

Date Collected: 07/28/20 13:22

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 95.2

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	45	U	45	18	ug/Kg	☼	08/03/20 17:08	08/04/20 22:12	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	08/03/20 17:08	08/04/20 22:12	1
cis-1,2-Dichloroethene	45	U	45	10	ug/Kg	☼	08/03/20 17:08	08/04/20 22:12	1
Tetrachloroethene	45	U	45	20	ug/Kg	☼	08/03/20 17:08	08/04/20 22:12	1
trans-1,2-Dichloroethene	45	U	45	11	ug/Kg	☼	08/03/20 17:08	08/04/20 22:12	1
Trichloroethene	45	U	45	12	ug/Kg	☼	08/03/20 17:08	08/04/20 22:12	1
Vinyl chloride	36	U	36	14	ug/Kg	☼	08/03/20 17:08	08/04/20 22:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		47 - 136	08/03/20 17:08	08/04/20 22:12	1
4-Bromofluorobenzene (Surr)	105		51 - 124	08/03/20 17:08	08/04/20 22:12	1
Dibromofluoromethane (Surr)	86		49 - 122	08/03/20 17:08	08/04/20 22:12	1
Toluene-d8 (Surr)	104		55 - 123	08/03/20 17:08	08/04/20 22:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	95.2		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	4.8		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (3-4)_072820

Lab Sample ID: 240-134182-28

Date Collected: 07/28/20 13:23

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.4

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	43	U	43	17	ug/Kg	☼	08/03/20 17:08	08/04/20 22:35	1
1,4-Dioxane	13000	U FL	13000	1200	ug/Kg	☼	08/03/20 17:08	08/04/20 22:35	1
cis-1,2-Dichloroethene	43	U	43	9.6	ug/Kg	☼	08/03/20 17:08	08/04/20 22:35	1
Tetrachloroethene	43	U	43	19	ug/Kg	☼	08/03/20 17:08	08/04/20 22:35	1
trans-1,2-Dichloroethene	43	U	43	11	ug/Kg	☼	08/03/20 17:08	08/04/20 22:35	1
Trichloroethene	43	U	43	12	ug/Kg	☼	08/03/20 17:08	08/04/20 22:35	1
Vinyl chloride	34	U	34	13	ug/Kg	☼	08/03/20 17:08	08/04/20 22:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		47 - 136	08/03/20 17:08	08/04/20 22:35	1
4-Bromofluorobenzene (Surr)	104		51 - 124	08/03/20 17:08	08/04/20 22:35	1
Dibromofluoromethane (Surr)	85		49 - 122	08/03/20 17:08	08/04/20 22:35	1
Toluene-d8 (Surr)	103		55 - 123	08/03/20 17:08	08/04/20 22:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.4		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	2.6		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (4-5)_072820

Lab Sample ID: 240-134182-29

Date Collected: 07/28/20 13:24

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.9

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	43	U	43	17	ug/Kg	☼	08/03/20 17:08	08/04/20 23:43	1
1,4-Dioxane	14000	U	14000	1200	ug/Kg	☼	08/03/20 17:08	08/04/20 23:43	1
cis-1,2-Dichloroethene	43	U	43	9.8	ug/Kg	☼	08/03/20 17:08	08/04/20 23:43	1
Tetrachloroethene	43	U	43	20	ug/Kg	☼	08/03/20 17:08	08/04/20 23:43	1
trans-1,2-Dichloroethene	43	U	43	11	ug/Kg	☼	08/03/20 17:08	08/04/20 23:43	1
Trichloroethene	43	U	43	12	ug/Kg	☼	08/03/20 17:08	08/04/20 23:43	1
Vinyl chloride	35	U	35	13	ug/Kg	☼	08/03/20 17:08	08/04/20 23:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		47 - 136	08/03/20 17:08	08/04/20 23:43	1
4-Bromofluorobenzene (Surr)	112		51 - 124	08/03/20 17:08	08/04/20 23:43	1
Dibromofluoromethane (Surr)	89		49 - 122	08/03/20 17:08	08/04/20 23:43	1
Toluene-d8 (Surr)	110		55 - 123	08/03/20 17:08	08/04/20 23:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.9		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	3.1		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (5-6)_072820

Lab Sample ID: 240-134182-30

Date Collected: 07/28/20 13:40

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 97.1

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	43	U	43	17	ug/Kg	☼	08/03/20 17:08	08/05/20 00:05	1
1,4-Dioxane	13000	U	13000	1200	ug/Kg	☼	08/03/20 17:08	08/05/20 00:05	1
cis-1,2-Dichloroethene	43	U	43	9.6	ug/Kg	☼	08/03/20 17:08	08/05/20 00:05	1
Tetrachloroethene	43	U	43	19	ug/Kg	☼	08/03/20 17:08	08/05/20 00:05	1
trans-1,2-Dichloroethene	43	U	43	11	ug/Kg	☼	08/03/20 17:08	08/05/20 00:05	1
Trichloroethene	43	U	43	12	ug/Kg	☼	08/03/20 17:08	08/05/20 00:05	1
Vinyl chloride	34	U	34	13	ug/Kg	☼	08/03/20 17:08	08/05/20 00:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		47 - 136	08/03/20 17:08	08/05/20 00:05	1
4-Bromofluorobenzene (Surr)	109		51 - 124	08/03/20 17:08	08/05/20 00:05	1
Dibromofluoromethane (Surr)	88		49 - 122	08/03/20 17:08	08/05/20 00:05	1
Toluene-d8 (Surr)	107		55 - 123	08/03/20 17:08	08/05/20 00:05	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97.1		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	2.9		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (6-7)_072820

Lab Sample ID: 240-134182-31

Date Collected: 07/28/20 13:45

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.2

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	46	U	46	19	ug/Kg	☼	08/03/20 17:08	08/05/20 00:28	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	08/03/20 17:08	08/05/20 00:28	1
cis-1,2-Dichloroethene	46	U	46	10	ug/Kg	☼	08/03/20 17:08	08/05/20 00:28	1
Tetrachloroethene	46	U	46	21	ug/Kg	☼	08/03/20 17:08	08/05/20 00:28	1
trans-1,2-Dichloroethene	46	U	46	12	ug/Kg	☼	08/03/20 17:08	08/05/20 00:28	1
Trichloroethene	46	U	46	13	ug/Kg	☼	08/03/20 17:08	08/05/20 00:28	1
Vinyl chloride	37	U	37	14	ug/Kg	☼	08/03/20 17:08	08/05/20 00:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		47 - 136	08/03/20 17:08	08/05/20 00:28	1
4-Bromofluorobenzene (Surr)	104		51 - 124	08/03/20 17:08	08/05/20 00:28	1
Dibromofluoromethane (Surr)	82		49 - 122	08/03/20 17:08	08/05/20 00:28	1
Toluene-d8 (Surr)	101		55 - 123	08/03/20 17:08	08/05/20 00:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.2		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	3.8		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: SB-143 (7-8)_072820

Lab Sample ID: 240-134182-32

Date Collected: 07/28/20 13:50

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 92.0

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	55	U	55	22	ug/Kg	☼	08/03/20 17:08	08/05/20 00:50	1
1,4-Dioxane	17000	U	17000	1500	ug/Kg	☼	08/03/20 17:08	08/05/20 00:50	1
cis-1,2-Dichloroethene	55	U	55	12	ug/Kg	☼	08/03/20 17:08	08/05/20 00:50	1
Tetrachloroethene	55	U	55	25	ug/Kg	☼	08/03/20 17:08	08/05/20 00:50	1
trans-1,2-Dichloroethene	55	U	55	14	ug/Kg	☼	08/03/20 17:08	08/05/20 00:50	1
Trichloroethene	55	U	55	15	ug/Kg	☼	08/03/20 17:08	08/05/20 00:50	1
Vinyl chloride	44	U	44	17	ug/Kg	☼	08/03/20 17:08	08/05/20 00:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		47 - 136	08/03/20 17:08	08/05/20 00:50	1
4-Bromofluorobenzene (Surr)	111		51 - 124	08/03/20 17:08	08/05/20 00:50	1
Dibromofluoromethane (Surr)	89		49 - 122	08/03/20 17:08	08/05/20 00:50	1
Toluene-d8 (Surr)	110		55 - 123	08/03/20 17:08	08/05/20 00:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	92.0		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	8.0		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: DUP-03

Lab Sample ID: 240-134182-33

Date Collected: 07/28/20 00:00

Matrix: Solid

Date Received: 07/30/20 09:40

Percent Solids: 96.8

Method: 8260B MI - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	47	U	47	19	ug/Kg	☼	08/03/20 17:08	08/05/20 01:13	1
1,4-Dioxane	15000	U	15000	1300	ug/Kg	☼	08/03/20 17:08	08/05/20 01:13	1
cis-1,2-Dichloroethene	47	U	47	11	ug/Kg	☼	08/03/20 17:08	08/05/20 01:13	1
Tetrachloroethene	47	U	47	21	ug/Kg	☼	08/03/20 17:08	08/05/20 01:13	1
trans-1,2-Dichloroethene	47	U	47	12	ug/Kg	☼	08/03/20 17:08	08/05/20 01:13	1
Trichloroethene	47	U	47	13	ug/Kg	☼	08/03/20 17:08	08/05/20 01:13	1
Vinyl chloride	37	U	37	14	ug/Kg	☼	08/03/20 17:08	08/05/20 01:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		47 - 136	08/03/20 17:08	08/05/20 01:13	1
4-Bromofluorobenzene (Surr)	106		51 - 124	08/03/20 17:08	08/05/20 01:13	1
Dibromofluoromethane (Surr)	87		49 - 122	08/03/20 17:08	08/05/20 01:13	1
Toluene-d8 (Surr)	105		55 - 123	08/03/20 17:08	08/05/20 01:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	96.8		0.1	0.1	%			08/03/20 10:40	1
Percent Moisture	3.2		0.1	0.1	%			08/03/20 10:40	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TMW-20-02 (7-12)_072820

Lab Sample ID: 240-134182-34

Date Collected: 07/28/20 15:05

Matrix: Water

Date Received: 07/30/20 09:40

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L	-		07/31/20 19:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		70 - 133		07/31/20 19:06	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L	-		08/04/20 00:17	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L	-		08/04/20 00:17	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L	-		08/04/20 00:17	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L	-		08/04/20 00:17	1
Trichloroethene	1.0	U	1.0	0.36	ug/L	-		08/04/20 00:17	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L	-		08/04/20 00:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	129		75 - 130		08/04/20 00:17	1
4-Bromofluorobenzene (Surr)	99		47 - 134		08/04/20 00:17	1
Toluene-d8 (Surr)	112		69 - 122		08/04/20 00:17	1
Dibromofluoromethane (Surr)	107		78 - 129		08/04/20 00:17	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP

Job ID: 240-134182-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134182-35

Date Collected: 07/28/20 00:00

Matrix: Water

Date Received: 07/30/20 09:40

Method: 8260B SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L	-		07/31/20 14:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		70 - 133		07/31/20 14:58	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L	-		08/04/20 00:42	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L	-		08/04/20 00:42	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L	-		08/04/20 00:42	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L	-		08/04/20 00:42	1
Trichloroethene	1.0	U	1.0	0.36	ug/L	-		08/04/20 00:42	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L	-		08/04/20 00:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	122		75 - 130		08/04/20 00:42	1
4-Bromofluorobenzene (Surr)	95		47 - 134		08/04/20 00:42	1
Toluene-d8 (Surr)	112		69 - 122		08/04/20 00:42	1
Dibromofluoromethane (Surr)	100		78 - 129		08/04/20 00:42	1

2020-07-15, Christina Weaver, Site walk

Created	2020-07-15 19:03:53 UTC by Christina Weaver
Updated	2020-07-15 20:05:17 UTC by Christina Weaver
Location	42.3727067328955, -83.3915890319156

Basic Information

Project Name	Ford LTP
Task	Site walk
Project Number	30050315
Location	Livonia, MI
Date	2020-07-15
Completed By	Christina Weaver
Additional Personnel	Theresa Olechiw
Are you connected to the internet (WiFi or data plan)?	Yes
Get weather data from the National Weather Service website for your current location?	N/A
Weather	84.92 degrees F and Mostly Cloudy
PPE	Level D
Are you using equipment?	No

Daily Log of Activities

15:05, Meet at trailer to discuss work at 34934 Standish. Site walk in garage to determine drilling event

Time	15:05
Description of Task	Meet at trailer to discuss work at 34934 Standish. Site walk in garage to determine drilling event

15:25, Arrive onsite Theresa contacts resident to let them know we are here

Time	15:25
Description of Task	Arrive onsite Theresa contacts resident to let them know we are here

15:35, Resident onsite, look over garage for accessibility. Theresa briefs resident on work.

Time	15:35
Description of Task	Resident onsite, look over garage for accessibility. Theresa briefs resident on work.

15:37, Take photographs and measurements of garage

Time	15:37
Description of Task	Take photographs and measurements of garage

15:45, Arcadis offsite

Time	15:45
Description of Task	Arcadis offsite

Waste Management

Are there any waste drums onsite?	No
Did you drum any waste today?	No
General waste comments	Work not related to drumming waste

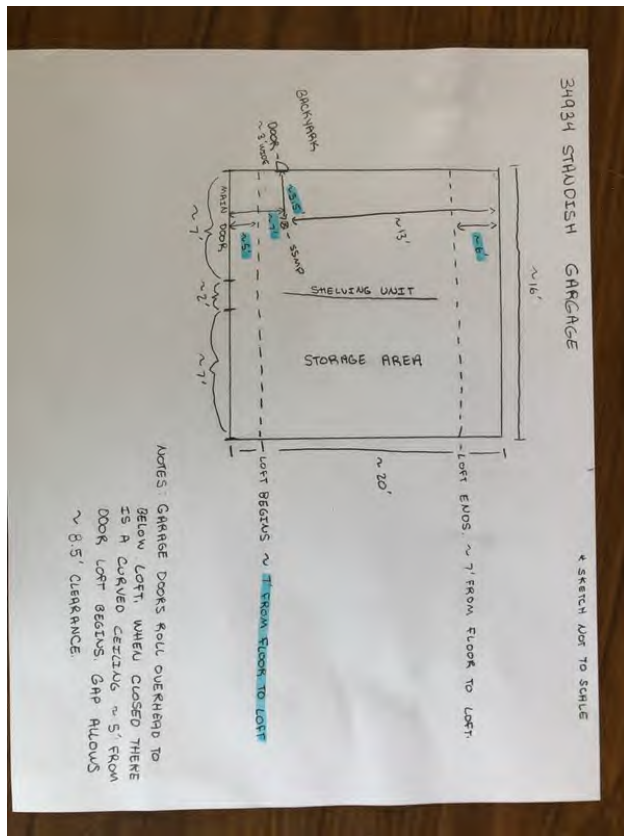
Photos

Other Photos









Signature

Signed 2020-07-15 19:05:18 UTC

2020-07-27, Christina Weaver, 34934 Standish; Utility locate, drilling, soil logging, ground water sampling

Created	2020-07-27 11:03:16 UTC by Christina Weaver
Updated	2020-07-27 13:25:50 UTC by Christina Weaver
Location	42.3729484666422, -83.3918497854718

Basic Information

Project Name	Ford LTP
Task	34934 Standish; Utility locate, drilling, soil logging, ground water sampling
Project Number	30050315.303.01
Location	Livonia, MI
Date	2020-07-27
Completed By	Christina Weaver
Are you connected to the internet (WiFi or data plan)?	Yes
Get weather data from the National Weather Service website for your current location?	N/A
Weather	78.08 degrees F and Mostly Cloudy
PPE	Level D
Are you using equipment?	Yes

Turbidity meter

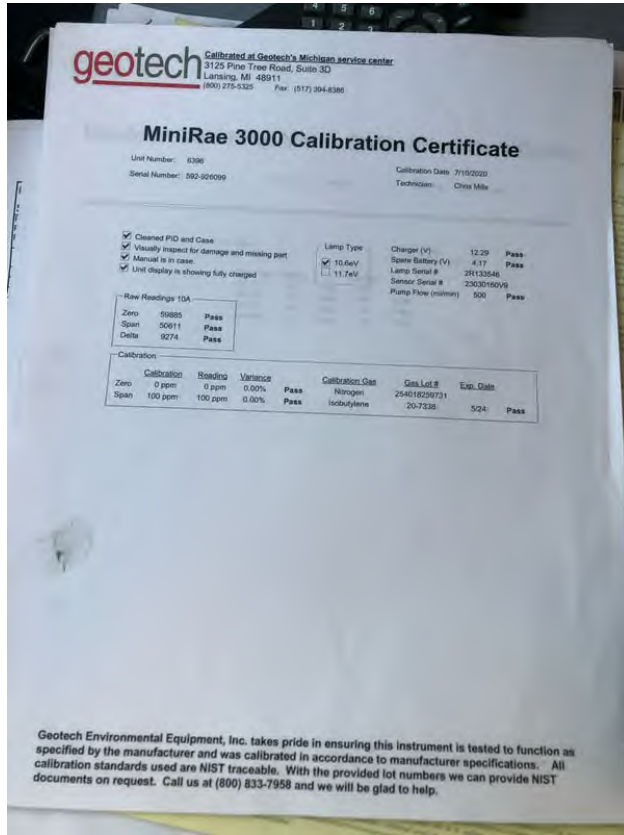
Supplier	Geotech
Type of Equipment (GEM, PID, etc)	Turbidity meter
Model	Portable
Pine/Geotech Number	6125
Calibrated?	Yes
Calibration standard information	Lt 243D exp: 09/21 791/800; Lt 243D exp: 09/21 99.4/100; Lt 241D exp: 07/21 19.6/20; Lt 247D exp: 01/22 0.02/0.02



PID

Supplier	Geotech
Type of Equipment (GEM, PID, etc)	PID
Model	MiniRae 3000
Pine/Geotech Number	6396
Calibrated?	Yes
Calibration standard information	10.5/10 ppm

Calibration Documents



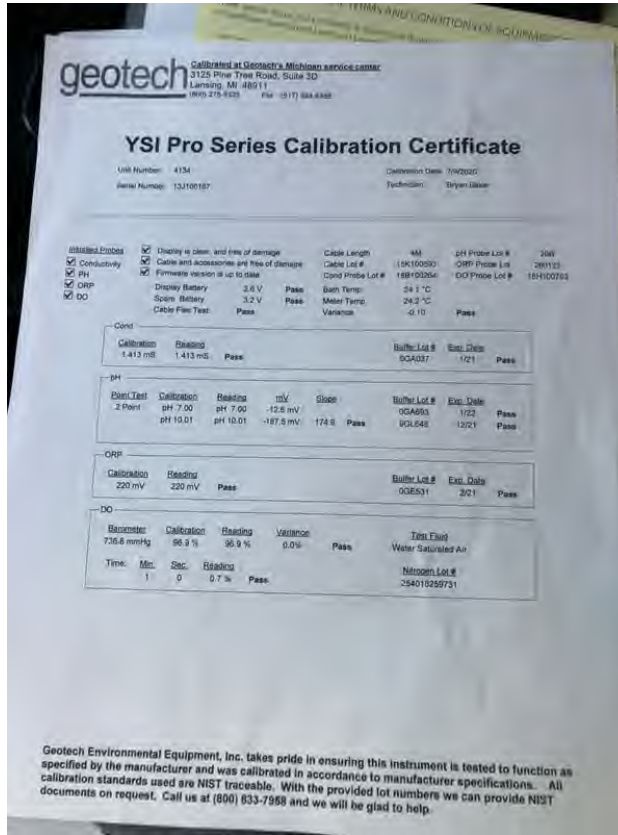
Scale

Supplier	Arcadis
Type of Equipment (GEM, PID, etc)	Scale
Model	Scout Pro
Pine/Geotech Number	NA
Calibrated?	Yes
Calibration standard information	199.80/200 g weight

YSI

Supplier	Geotech
Type of Equipment (GEM, PID, etc)	YSI
Model	Professional
Pine/Geotech Number	4134
Calibrated?	Yes
Calibration standard information	Lt 0GC151 exp: dec/20 215/220 mV; Lt 0GA1047 exp: Jan/21 1.44/1.413 ms/cm; Lt 9GL648 exp: dec/21 10.04/10.0 pH; Lt 0GB276 exp: feb/22 7.05/7.0 pH; Lt: 0GA887 exp: Jan/22 4.12/4.0 pH

Calibration Documents



WLM

Supplier	Geotech
Type of Equipment (GEM, PID, etc)	WLM
Model	100'
Pine/Geotech Number	1352
Calibrated?	No

Peri pump

Supplier	Geotech
Type of Equipment (GEM, PID, etc)	Peri pump
Model	Geopump
Pine/Geotech Number	6381
Calibrated?	No

Daily Log of Activities

06:35, Arcadis onsite, calibrate equipment.

Time	06:35
Description of Task	Arcadis onsite, calibrate equipment.

08:26, Arcadis and Fibertec onsite.

Time	08:26
Description of Task	Arcadis and Fibertec onsite.

08:46, Complete utility locate. Arcadis offsite.

Time	08:46
Description of Task	Complete utility locate. Arcadis offsite.

Waste Management

Are there any waste drums onsite?	No
Did you drum any waste today?	No

Signature

A handwritten signature in black ink, consisting of a large, stylized initial 'P' followed by a series of connected loops and a final flourish.

Signed 2020-07-27 11:03:26 UTC

Ford LTP, 30050315

Created	2020-07-27 12:29:00 UTC by Christina Weaver
Updated	2020-07-27 12:38:21 UTC by Christina Weaver
Location	42.369680383814, -83.3868704500466

THIS FORM MUST BE COMPLETED IN ENTIRETY PRIOR TO BEGINNING ANY INTRUSIVE WORK

General Data

Project Name	Ford LTP
Project Number	30050315
Date	2020-07-27
Time	08:29
Client Name	Ford Motor Company
Location	34934 Standish St Livonia, MI 48150
Weather	85 F, Cloudy

Christina Weaver, Arcadis

Name	Christina Weaver
Company	Arcadis

Utility Checklist

Utility Checklist Completion Date	2020-07-27
Utility Checklist Expiration Date	2020-08-11

All utility markings must be refreshed <15 days when work is ongoing. (15 business days post form completion date)

Pre-Field Work

One Call or "811" notified 48-72 hours in advance of work? Yes

List any other utilities requiring notification None

Private Locator Contacted Yes

Plan private utility clearance subcontractor assignments, areas, required clearance equipment, depth of clearance needed, types of utilities. When possible re-clear 811 markings to confirm utility locations.

Client provided utility maps or "as built" drawings showing utilities? No

Field Work

This must be completed on site, by staff who have a minimum of one year of field experience in identifying utilities. Review Check list with PM or designee prior to beginning intrusive work.

Mechanized intrusive work in utility Tolerance Zone (<30-in.) requires pre-approval by Corporate H&S

List Soil Boring/Well IDs or Excavation Locations applicable to this clearance checklist SB-?

3 Reliable Lines of Evidence Required Prior to Starting any Subsurface Intrusive Work

Mark Lines of Evidence One Call/"811", Site Inspection, Private Locator, Ground Penetrating Radar, Soft Dig Methods

One Call Utility Markings Present Paint, Pin flags/Stakes

Fill out the Site Inspection Section!

Private Locator Name and Company Nick Wiseman

Soft Dig Methods Hand Augering

Termination Depth (ft bgs)

5

Tips for Successful Utility Location (H&S Standard Section 5.6): 1. Don't forget to look up (mark above grade utilities if warranted) 2. Be on-site with Private Utility Locators 3. Ask Private Locators to ""confirm"" other's markings 4. Select alternate/backup locations during clearance process 5. Mark out all known utilities. Leave nothing to question 6. No hammering - no pickaxes - no digging bars - no shortcutting 7. No excessive turning or downward force of hand augers/shovels 8. Utilities may run in or directly under asphalt/concrete 9. Clearing, grubbing, and heavy equipment may damage shallow utilities. 10. Is Spotter needed for Heavy Equipment near above ground utilities?

During the site inspection look for the following: ("YES" requires additional investigation and the utility must be marked properly prior to beginning subsurface intrusive work)

Natural Gas Line present (yellow)

Natural gas line present (evidence of a gas meter)? Yes

Feeder Lines to buildings or homes? Yes

Evidence of Electric Lines (red)

Conduits to ground from electric meter or along wall? No

Conduits from power poles running into ground? No

Light poles, electric devices with no overhead lines? No

Overhead electric lines present? Marked? See overhead line section below. Yes

Evidence of Sewer Drain (green)

Restrooms or kitchen on site? Yes

Sewer cleanouts present? Yes

Combined sewer/storm lines or multiple sewer lines? No

Evidence of Water Lines (blue)

Water meter on site or multiple water lines? Yes

Fire hydrants in vicinity of work? No

Irrigation systems? No

Evidence of storm drains (green)

Open curbside or slotted grate storm drains Yes

Gutter down spouts going into ground No

Evidence of telecommunication lines (orange)

Fiber optic warning signs in areas? No

Aboveground cable boxes or housings or wires in work area? Marked? No

Underground storage tanks

Tank pit present, tank vent present? No

Product lines running to dispensers/buildings? No

Do utilities enter or exit existing structures/buildings? Yes

If Yes, confirm the utility markings outside of structure/building match up.

Proposed excavation marked in white? Yes

Unclassed utilities / anomalies marked in pink? No

Overhead Utilities/Communication Lines - Look Up and MARK

Overhead electrical conduit, pipe chases, cable trays, product lines? No

Overhead fire sprinkler system? No

Is Spotter needed for Heavy Equipment near above ground utilities? No

Overhead Power lines in or near the work area

< 50 kV within 10 ft. of work area? No

>50 - 200 kV within 15 ft. of work area? No

>200-350 kV within 20 ft. of work area? No

>350-500 kV within 25 ft. of work area? No

>500-750 kV within 35 ft. of work area? No

>750-1000 kV within 45 ft. of work area? No

Other

Evidence of linear asphalt or concrete repair? No

Evidence of linear ground subsidence or change in vegetation? No

Unmarked manholes or valve covers in work area? No

Warning signs (Call Before you Dig, Look Up, etc.) on or adjacent to site? No

Utility color markings not illustrated in this checklist? (purple) No

Operating heavy equipment on unpaved/unimproved ground; review equipment route for shallow utilities crossing it and modify if necessary. No

Utilities & Structures Checklist been reviewed by the PM or Designee Yes

If no, STOP WORK, call PM

Do not perform mechanized intrusive work within 30 inches of a utility marking without receiving pre-approval by Corporate H&S. ALL UTILITY STRIKES REQUIRE CORPORATE H&S NOTIFICATION (EMAIL OR CALL) WITH A CONFIRMED RESPONSE

Photo



Photo



Photo



2020-07-28, Christina Weaver, 34934 Standish; Garage drilling event, drilling, soil logging and sampling, groundwater sampling

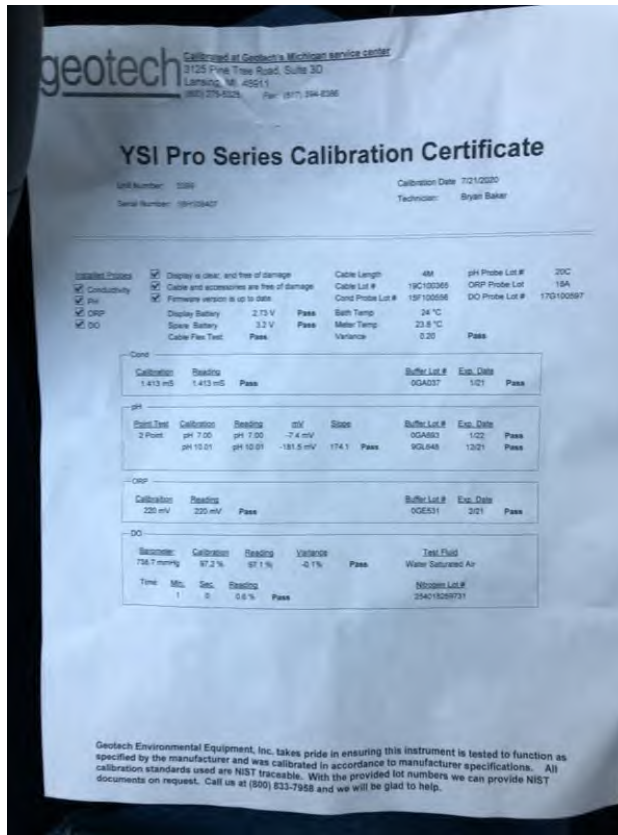
Created	2020-07-28 16:02:49 UTC by Christina Weaver
Updated	2020-07-29 16:05:46 UTC by Christina Weaver
Location	42.3694636487545, -83.3866960730921

Basic Information

Project Name	Ford LTP
Task	34934 Standish; Garage drilling event, drilling, soil logging and sampling, groundwater sampling
Project Number	30050315.303.01
Location	Livonia, MI
Date	2020-07-28
Completed By	Christina Weaver
Additional Personnel	Amber Brannick
Are you connected to the internet (WiFi or data plan)?	No
Get weather data from the National Weather Service website for your current location?	N/A
Weather	85 F, sunny
PPE	Level D
Are you using equipment?	Yes

YSI

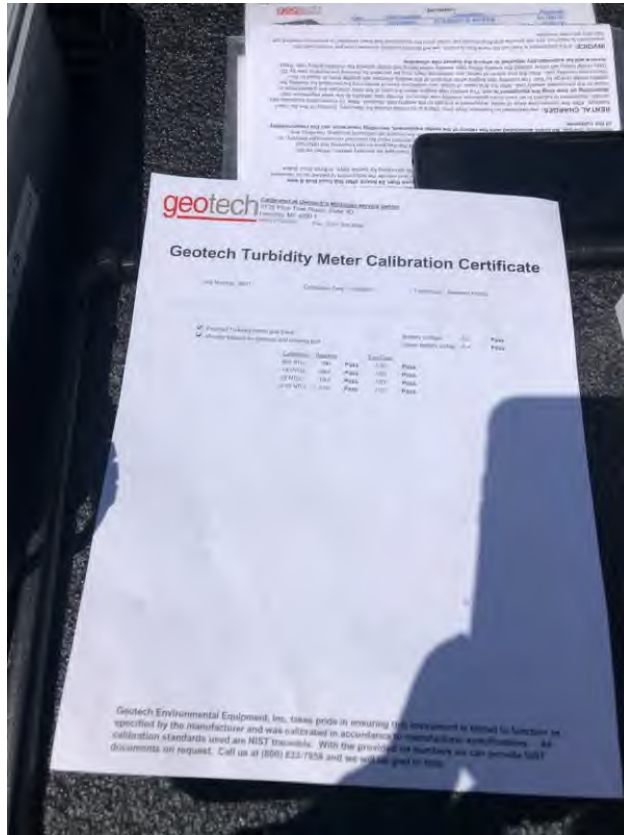
Supplier	Geotech
Type of Equipment (GEM, PID, etc)	YSI
Model	Professional
Pine/Geotech Number	3399
Calibrated?	Yes
Calibration standard information	Lt 0GC151 exp: dec/20 208/220 mV; Lt 0GA1047 exp: Jan/21 1.41/1.413 ms/cm; Lt 9GL648 exp: dec/21 10.08/10.0 pH; Lt 0GB276 exp: feb/22 7.04/7.0 pH; Lt: 0GA887 exp: Jan/22 4.09/4.0 pH



Turbidity meter

Supplier	Geotech
Type of Equipment (GEM, PID, etc)	Turbidity meter
Model	Portable
Pine/Geotech Number	6801
Calibrated?	Yes
Calibration standard information	Lt: 247D exp: 01/22 788/800; Lt 247D exp: 01/22 98.2/100; Lt 247 D Exp: 01/22 19.5/20; Lt: 247D Exp: 01/22 0.02/0.02

Calibration Documents



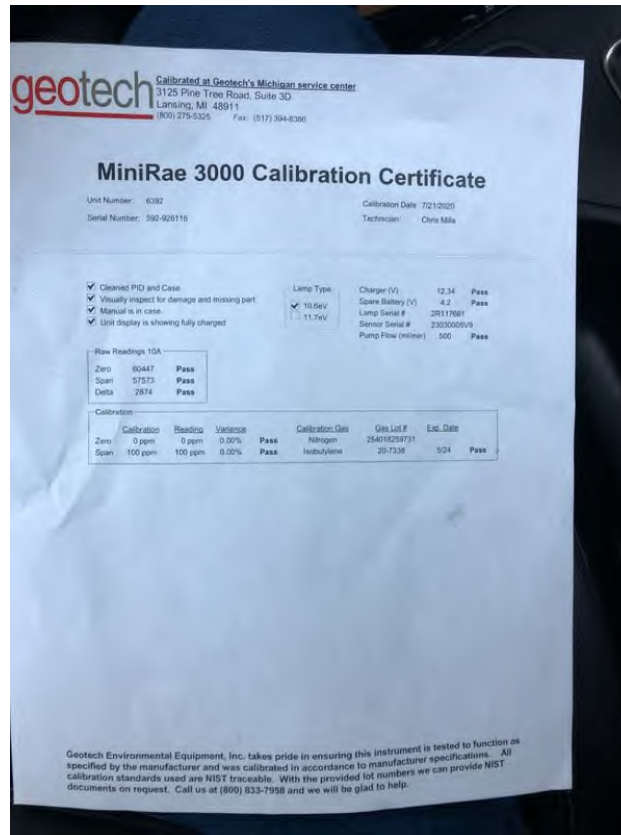
WLM

Supplier	Geotech
Type of Equipment (GEM, PID, etc)	WLM
Model	200'
Pine/Geotech Number	711
Calibrated?	No

PID

Supplier	Geotech
Type of Equipment (GEM, PID, etc)	PID
Model	MiniRae 3000
Pine/Geotech Number	6392
Calibrated?	Yes
Calibration standard information	10.8/10 ppm

Calibration Documents



Digital Scale

Supplier	Geotech
Type of Equipment (GEM, PID, etc)	Digital Scale
Model	Digital
Pine/Geotech Number	9404
Calibrated?	No

Peri pump

Supplier	Geotech
Type of Equipment (GEM, PID, etc)	Peri pump
Model	Geo pump
Pine/Geotech Number	6725
Calibrated?	No

Daily Log of Activities

08:30, Arcadis and Fibertec onsite, health and safety meeting, calibrate equipment.

Time	08:30
Description of Task	Arcadis and Fibertec onsite, health and safety meeting, calibrate equipment.

08:45, Arcadis and Fibertec onsite at 34834 Standish. Request from home owner that the move vehicles from driveway.

Time	08:45
------	-------

Description of Task Arcadis and Fibertec onsite at 34834 Standish. Request from home owner that the move vehicles from driveway.

09:00, Begin coring inside garage.

Time 09:00

Description of Task Begin coring inside garage.

09:38, Collect sample SB-141(0.5-1)_072820

Time 09:38

Description of Task Collect sample SB-141(0.5-1)_072820

09:45, Collect sample SB-141(1-2)_072820

Time 09:45

Description of Task Collect sample SB-141(1-2)_072820

09:48, Collect sample SB-141(2-3)_072820

Time 09:48

Description of Task Collect sample SB-141(2-3)_072820

09:53, Collect sample SB-141(3-4)_072820

Time 09:53

Description of Task Collect sample SB-141(3-4)_072820

09:56, Collect sample SB-141(4-5)_072820

Time 09:56

Description of Task Collect sample SB-141(4-5)_072820

10:18, Collect sample SB-141(5-6)_072820

Time 10:18

Description of Task Collect sample SB-141(5-6)_072820

10:27, Collect sample SB-141(6-7)_072820

Time 10:27

Description of Task Collect sample SB-141(6-7)_072820

10:30, Collect sample SB-141(7-8)_072820

Time 10:30

Description of Task Collect sample SB-141(7-8)_072820

11:06, Collect sample TMW-20-02(0.5-1)_072820

Time 11:06

Description of Task Collect sample TMW-20-02(0.5-1)_072820

11:07, Collect sample TMW-20-02(1-2)_072820

Time 11:07

Description of Task Collect sample TMW-20-02(1-2)_072820

11:08, Collect sample TMW-20-02(2-3)_072820

Time 11:08

Description of Task	Collect sample TMW-20-02(2-3)_072820
11:09, Collect sample TMW-20-02(3-4)_072820	
Time	11:09
Description of Task	Collect sample TMW-20-02(3-4)_072820
11:10, Collect sample TMW-20-02(4-5)_072820	
Time	11:10
Description of Task	Collect sample TMW-20-02(4-5)_072820
11:29, Collect sample TMW-20-02(5-6)_072820	
Time	11:29
Description of Task	Collect sample TMW-20-02(5-6)_072820
11:30, Collect sample TMW-20-02(6-7)_072820 + DUP-03	
Time	11:30
Description of Task	Collect sample TMW-20-02(6-7)_072820 + DUP-03
11:34, Collect sample TMW-20-02(7-8)_072820	
Time	11:34
Description of Task	Collect sample TMW-20-02(7-8)_072820
11:45, Fibertec takes lunch	
Time	11:45
Description of Task	Fibertec takes lunch
12:28, Fibertec returns from lunch	
Time	12:28
Description of Task	Fibertec returns from lunch
12:40, Collect sample SB-142(0.5-1)_072820	
Time	12:40
Description of Task	Collect sample SB-142(0.5-1)_072820
12:41, Collect sample SB-142(1-2)_072820	
Time	12:41
Description of Task	Collect sample SB-142(1-2)_072820
12:42, Collect sample SB-142(2-3)_072820	
Time	12:42
Description of Task	Collect sample SB-142(2-3)_072820
12:43, Collect sample SB-142(3-4)_072820	
Time	12:43
Description of Task	Collect sample SB-142(3-4)_072820
12:44, Collect sample SB-142(4-5)_072820 + MS/MSD	
Time	12:44
Description of Task	Collect sample SB-142(4-5)_072820 + MS/MSD

12:58, Collect sample SB-142(5-6)_072820

Time	12:58
Description of Task	Collect sample SB-142(5-6)_072820

13:00, Collect sample SB-142(7-8)_072820

Time	13:00
Description of Task	Collect sample SB-142(7-8)_072820

13:01, Collect sample SB-142(6-7)_072820

Time	13:01
Description of Task	Collect sample SB-142(6-7)_072820

13:20, Collect sample SB-143(0.5-1)_072820 + MS/MSD

Time	13:20
Description of Task	Collect sample SB-143(0.5-1)_072820 + MS/MSD

13:21, Collect sample SB-143(1-2)_072820

Time	13:21
Description of Task	Collect sample SB-143(1-2)_072820

13:22, Collect sample SB-143(2-3)_072820

Time	13:22
Description of Task	Collect sample SB-143(2-3)_072820

13:23, Collect sample SB-143(3-4)_072820 + MS/MSD

Time	13:23
Description of Task	Collect sample SB-143(3-4)_072820 + MS/MSD

13:24, Collect sample SB-134(4-5)_072820

Time	13:24
Description of Task	Collect sample SB-134(4-5)_072820

13:40, Collect sample SB-143(5-6)_072820

Time	13:40
Description of Task	Collect sample SB-143(5-6)_072820

13:45, Collect sample SB-143(6-7)_072820

Time	13:45
Description of Task	Collect sample SB-143(6-7)_072820

13:50, Collect sample SB-143(7-8)_072820

Time	13:50
Description of Task	Collect sample SB-143(7-8)_072820

14:00, Temporary well is not producing enough water to complete low flow development and sampling. Consult with I.Drost on how to proceed.

Time	14:00
------	-------

Description of Task	Temporary well is not producing enough water to complete low flow development and sampling. Consult with I.Drost on how to proceed.
---------------------	---

14:40, Attempted to replace screen and clear hole collapse. Temp well is still not producing water to complete pre sampling procedure. I.Drost confirms that we can collect grab sample without pre sample development and low flow sampling. We are unable to advance the screen past 12.0' due to hole collapse and limiting power by the car mounted geo probe.

Time	14:40
Description of Task	Attempted to replace screen and clear hole collapse. Temp well is still not producing water to complete pre sampling procedure. I.Drost confirms that we can collect grab sample without pre sample development and low flow sampling. We are unable to advance the screen past 12.0' due to hole collapse and limiting power by the car mounted geo probe.

15:05, Collect sample TMW-20-02(7-12)_072820

Time	15:05
Description of Task	Collect sample TMW-20-02(7-12)_072820

15:30, Concrete all locations.

Time	15:30
Description of Task	Concrete all locations.

16:10, Notify owner that we are complete with garage drilling and head offsite to stage waste.

Time	16:10
Description of Task	Notify owner that we are complete with garage drilling and head offsite to stage waste.

Waste Management

Are there any waste drums onsite?	No
Did you drum any waste today?	No
General waste comments	Added to on going drums. Total drums include 1 soil drum and 1 water drum.

Photos

Other Photos



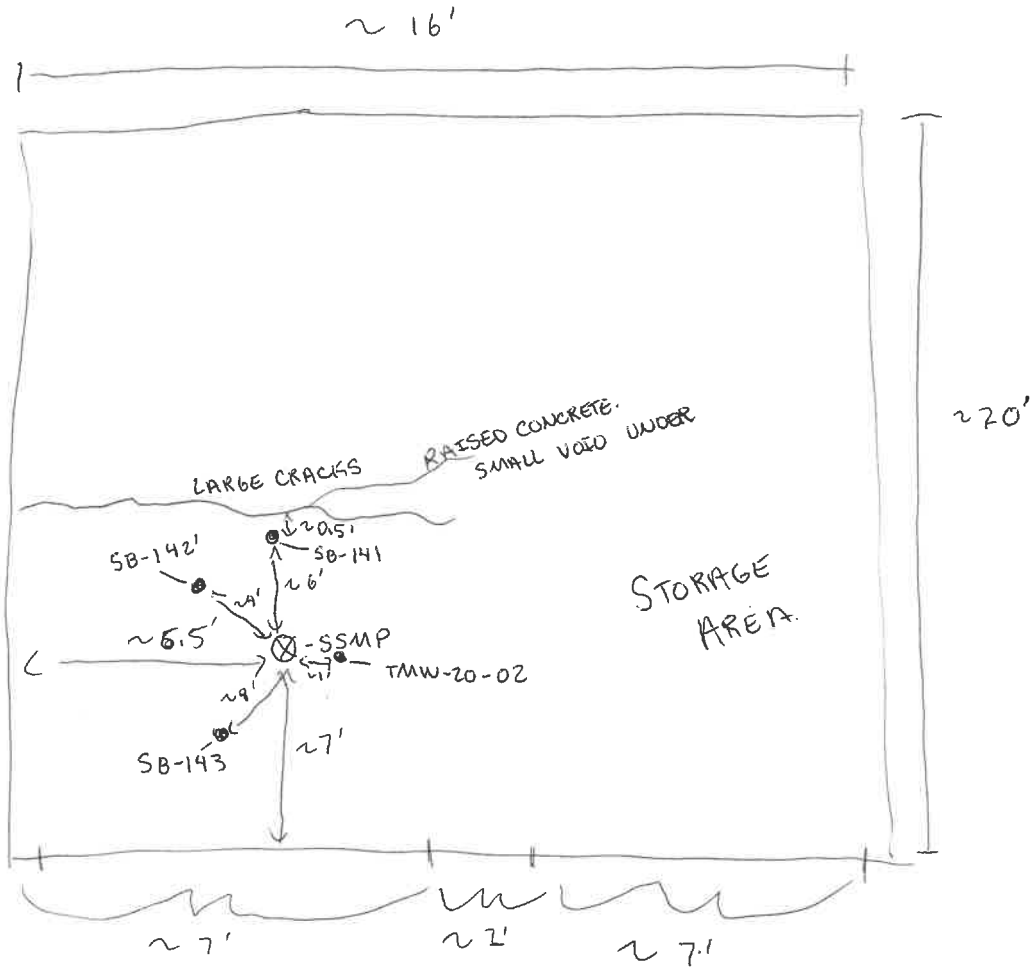
Signature

A handwritten signature in black ink, consisting of two lines of cursive script. The top line is more complex with several loops and a horizontal stroke, while the bottom line is simpler and more fluid.

Signed 2020-07-29 16:01:51 UTC

34934 STANOISH

SKETCH NOT TO SCALE



Project Name: Ford LTP
Project Number: 30050315.303.01
Project Location: Livonia, MI

Date Started: 07/28/2020 Logger: Christina Weaver
Date Completed: 07/28/2020 Editor:
Weather Conditions: 75°F, Sunny

Depth (feet)	Sample ID & Time	Recovery (in.)	PID (ppm)	Description
1	TMW-20-01(05-1) -072820 @ 1106	0-5' HA	0.0	(0.0 - 0.3') CONCRETE.
2	1-2 @ 1107		0.0	(0.3 - 7.5') SAND, U-F-F; TRACE PEBBLES, small, SA; WELL SORTED; DRY; YELLOWISH BROWN (10 YR 5/6).
3	2-3 @ 1108	60" RECOV.	0.0	(7.5 - 12.0') SAND, F-M, SR-SA; LITTLE SILT; WELL SORTED; MOIST TO WET; YELLOW (10 YR 7/6). TO GRAYISH BROWN (10 YR 5/2).
4	3-4 @ 1109		0.0	
5	4-5 @ 1110		0.0	
6	5-6 @ 1129	5-6' DP 12" REC.	0.0	NOTE: GRAIN SIZE INCREASES TO F-M AT 6.0' BGS.
7	6-7 @ 1130 + DWP	6-9' DP	0.0	
8	7-8 @ 1134	36" REC.	0.0	NOTE: BORING APPEARS WET AT 8.0' BGS.
9	TMW-20-02 (7-12)_072820		0.0	NOTE: SEAM OF CLAY, HIGH PLASTICITY, LOW DILATANCY ~ 1/2" THICK AT 8.8'
10	@ 1505	9-12' DP	0.0	
11		36" REC.	0.0	
12			0.0	EOB @ 12.0' BGS.
13				
14				
15				
16				
17				
18				
19				
20				

TEMP WELL REMOVED. BRCK FILLED WITH DEWULFITE. TOPPED WITH CONCRETE.

Christina Weaver
072820

Drilling Co.: Fibertec
Driller: SHANE RAYMO
Drilling Method: Hand Auger/ Direct Push
Drilling Fluid: None
Remarks: TEMP WELL SCREEN SET AT MAX DEPTH 12.0'. NOT ENOUGH WATER / RECOVERY TO CONDUCT LOW-FLOW TEST WITH VSC. GRAB SAMPLE TAKEN AT

Sampling Method: 3.0' Macrocore
Sampling Interval: Continuous
Water Level Start: BORING APPEARS WET AT 8.0'
Water Level Finish: NA
Converted to MW: Yes - TEMP, No
Surface Elev: NA
North Coord: NA
East Coord: NA

I, DROST'S APPROVAL. CAN NOT DRIVE SCREEN FURTHER THAN 12.0' WITH CART PROBE.
ENFM011-Soil Boringlog (Boring Log)

ARCADIS
Soil Boring Log

Boring No.: SB-131

Sheet: 1 of 1

Project Name: Ford LTP
Project Number: 30050315.303.01
Project Location: Livonia, MI

Date Started: 07/28/2020 Logger: Christina Weaver
Date Completed: 07/28/2020 Editor:
Weather Conditions: 75°F, SUNNY

Depth (feet)	Sample ID & Time	Recovery (in.)	PID (ppm)	Description
1	SB-141(0.5-1) 07/28/20 C0938	0-5' HA	0.0	(0.0-0.3') CONCRETE.
2	1-2@0945		0.0	(0.3-7.3') SAND, UF-F; TRACE PEBBLES, Small, SR; WELL SORTED; URY; YELLOWISH
3	2-3@0948	60" RECOV.	0.0	BROWN (10 YR 5/6).
4	3-4@0953		0.0	NOTE: GRAIN SIZE INCREASES TO F-M AT 6.0' BGS.
5	4-5@0956		0.0	(7.3-12.0') SAND, F-M, SR-SA; LITTLE TO TRACE SILT; WELL SORTED; MOIST TO WET; YELLOW (10 YR 7/6) TO GRAYISH
6	5-6@1010	5-6' OP 2" REC	0.0	BROWN (10 YR 5/2).
7	6-7@1027	6-9' DP	0.0	NOTE: INSULATION TYPE FUZ AT 7.5'. (FIBERS).
8	7-8@1030	36" REC	0.0	NOTE: BORING APPEARS WET AT 8.0' BGS.
9			0.0	NOTE: SEAM OF CLAY, HIGH PLASTICITY, LOW DILATAN ~ 1/2" THICK AT 8.5'
10		9-12' DP	0.0	
11		36" REC	0.0	
12			0.0	EOB @ 12.0' BGS.
13				
14				
15				
16				
17				
18				
19				
20				

BACKFILLED WITH BEAUTOATE.
TOPPED WITH CONCRETE.

Christina Weaver
072820

Drilling Co.: Fibertec
Driller: SHANE RAYMO
Drilling Method: Hand Auger/ Direct Push
Drilling Fluid: None
Remarks:

Sampling Method: 3.0' Macrocore
Sampling Interval: Continuous
Water Level Start: BORING APPEARS WET AT 9.0' BGS
Water Level Finish: NA
Converted to MW : Yes No
Surface Elev: NA
North Coord: NA
East Coord: NA

ARCADIS
Soil Boring Log

Boring No.: SE-142
Sheet: 1 of 1

Project Name: Ford LTP Date Started: 07/28/2020 Logger: Christina Weaver
Project Number: 30050315.303.01 Date Completed: 07/28/2020 Editor:
Project Location: Livonia, MI Weather Conditions: 80°F, SUNNY

Depth (feet)	Sample ID & Time	Recovery (in.)	PID (ppm)	Description
1	SB-142(0.5-1)-07272 @ 1240	0-5' HR	0.0	(0.0 - 0.3') CONCRETE.
2	1-2 @ 1241		0.0	(0.3 - 7.5') SAND, VF-F; TRACE PEBBLES, SMALL, SA; WELL SORTED; DRY; YELLOWISH BROWN (10YR 5/6)
3	2-3 @ 1242	60" RECOVER	0.0	(7.5 - 12.0') SAND, F-M, SR-SA; LITTLE SILT; WELL SORTED MOIST TO WET; YELLOW (10YR 7/6). TO GRAYISH BROWN (10YR 5/2).
4	3-4 @ 1243		0.0	
5	4-5 @ 1244		0.0	NOTE: GRAIN SIZE INCREASES TO F-M AT 6.0' BGS.
6	5-6 @ 1258	5-6' RECOVER	0.0	
7	6-7 @ 1301	6-9' DP	0.0	
8	7-8 @ 1300	3" REC.	0.0	NOTE: BORING APPEARS WET AT 8.0' BGS.
9			0.0	NOTE: SEAM OF CLAY, HIGH PLASTICITY, LOW DILATANCY ~ 1/2" THICK AT 8.5' BGS.
10				EOB @ 9.0' BGS.
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

BACKFILLED WITH GENTRAITE
TOPPED WITH CEMENT.

Christina Weaver
07/28/20

Drilling Co.: Fibertec Sampling Method: 3.0' Macrocore
Driller: SHANE RAYMO. Sampling Interval: Continuous
Drilling Method: Hand Auger/ Direct Push Water Level Start: BORING APPEARS WET AT 8.0'
Drilling Fluid: None Water Level Finish: NA
Remarks: Converted to MW : Yes No
Surface Elev: NA
North Coord: NA
East Coord: NA

ARCADIS
Soil Boring Log

Boring No.: SB-143

Sheet: 1 of 1

Project Name: Ford LTP
Project Number: 30050315.303.01
Project Location: Livonia, MI

Date Started: 07/28/2020 Logger: Christina Weaver
Date Completed: 07/28/2020 Editor:
Weather Conditions: 79°F, SUNNY

Depth (feet)	Sample ID & Time	Recovery (in.)	PID (ppm)	Description
1	50-143(0.5-1) 0728 @ 1320		0.0	(0.0 - 0.3') CONCRETE.
2	1-2@1321	0-5' HA	0.0	(0.3 - 7.3') SAND, UF-F; TRACE PEBBLES, SMALL, SA; WELL SORTED; DRY; YELLOWISH BROWN (10YR 5/6).
3	2-3@1322	60" RECOV.	0.0	(7.3 - 9.0') SAND, F-M, SR-SA; LITTLE SILT; WELL SORTED; MOIST TO WET; YELLOW (10YR 7/6) TO GRAYISH BROWN (10YR 5/2).
4	3-4@1323		0.0	
5	4-5@1324		0.0	NOTE: BORING APPEARS WET AT 8.0' BGS.
6	5-6@1340	5-6' DP 12" REC	0.0	NOTE: SEAM OF CLAY, HIGH PLASTICITY, LOW DELTANCY ~ 1/4" THICK AT 8.7' BGS.
7	6-7@1345	6-4' DP	0.0	
8	7-8@1350	28" REC	0.0	
9			0.0	EOB @ 9.0' BGS.
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

Brock Filled with GERMOLITE. TOPPED WITH CONCRETE

Christina Weaver
072820

Drilling Co.: Fibertec
Driller: SHANE RAYMOND
Drilling Method: Hand Auger/ Direct Push
Drilling Fluid: None
Remarks:

Sampling Method: 3.0' Macrocore
Sampling Interval: Continuous
Water Level Start: BORING APPEARS WET AT 8.0'
Water Level Finish: NA
Converted to MW : Yes No
Surface Elev: NA
North Coord: NA
East Coord: NA

ARCADIS

Development Log

Well Construction Log

(Unconsolidated)

Time

NTU

Temp Well Pre-packed Screen

Project Ford LTP - 30050315.201.02 Well ~~TW-20-CW~~ TMW-20-02

Town/City Livonia

County Wayne State MI

Permit No. --

Land-Surface Elevation and Datum: --

NA feet Surveyed

Estimated

Installation Date(s) 07/28/2020

Drilling Method Drive Rods. Direct Push Temp Well

Drilling Contractor Fibertec

Drilling Fluid NA

Development Technique(s) and Date(s)

UNABLE TO DEVELOP DUE TO LACK OF WATER. 07/1/2020 CW

Time

DTW

Fluid Loss During Drilling NA gallons

Water Removed During Development NA gallons

Static Depth to Water 11.0' feet below M.P.

Pumping Depth to Water NA feet below M.P.

Pumping Duration NA minutes

Yield NA gpm Date 7/1/2020 CW

Specific Capacity NA gpm/ft

Well Purpose Monitoring

Remarks

UNABLE TO DEVELOP WELL DUE TO LACK OF RECOVERY / LACK OF WATER

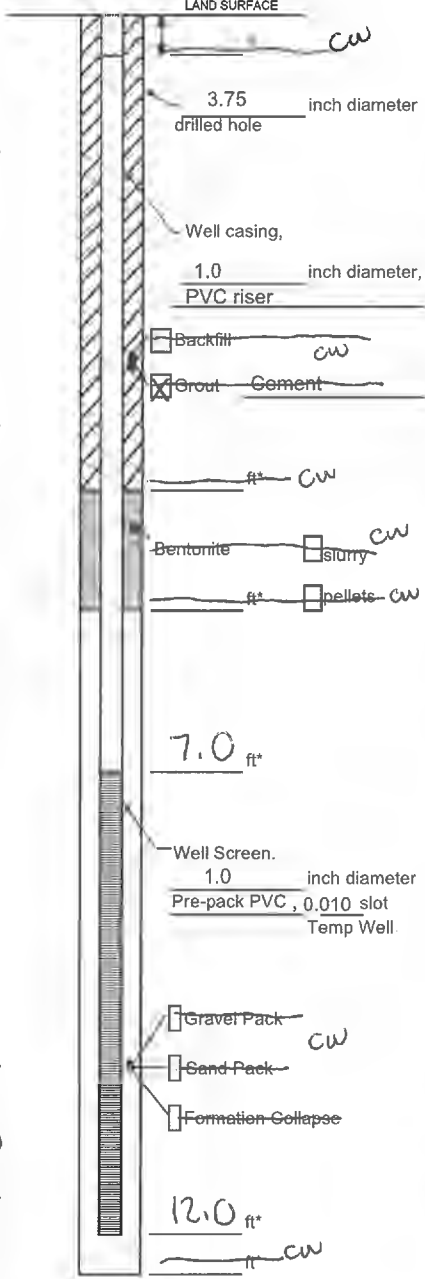
Be an Pump:

Stopped Pump:

Prepared by Christina Weaver

Christina Weaver 072820

LACK OF WATER LIMITED US TO A GRAB SAMPLE WITH OUT LOW FLOW / DEVELOPMENT. UNABLE TO ADVANCE SCREEN PAST 12.0' WITH CART PROBE. POOR RECOVERY.



Measuring Point is Top of Well Casing Unless Otherwise Noted.

* Depth Below Land Surface

TRANSMITTAL LETTER



To:
Anthony Kiseda
Shawn Collins
Brandon Alger (MDEQ)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:
November 14, 2018

Subject:

Arcadis Project No.:

Vapor Intrusion Assessment
Data Package

We are sending you hard copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Delivery Date	Drawing No.	Rev.	Description	Action*
1	11/16/18			Figure	
1	11/16/18			Analytical Results	
1	11/16/18			Field Notes and Drawings	

Action*

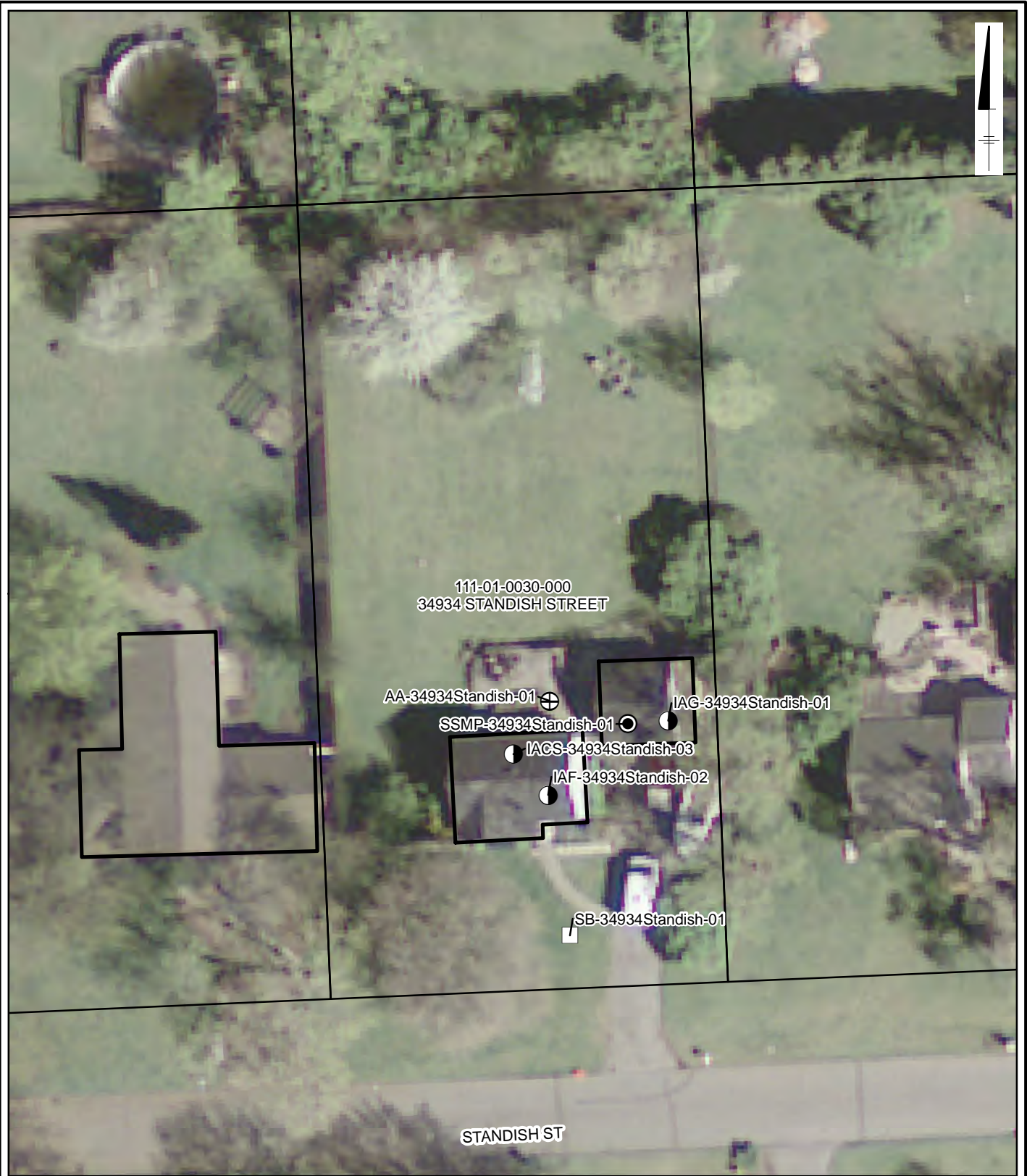
- A Approved CR Correct and Resubmit Resubmit _____ Copies
 AN Approved As Noted F File Return _____ Copies
 AS As Requested FA For Approval Review and Comment
 Other: _____

Mailing Method







- U.S. Postal Service 1st Class Courier/Hand Delivery FedEx Priority Overnight FedEx 2-Day Delivery
 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
 Other: email

Thank you for cooperating with the air sampling at your property on October 23 and 24, 2018. Attached is your data package.

CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: T. STEVENS TR: P. CURRY PROJECTNUMBER: M001373.0001.00003 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
 Z:\GISProjects\ENV\NoviBrighton_M\FordLivonia\GIS\Docs\2018-11\34934_Standish_20181109.mxd PLOTTED: 11/9/2018 11:42:31 AM BY: mgress



LEGEND:

-  INDOOR AIR LOCATION
-  AMBIENT AIR LOCATION
-  SOIL BORING LOCATION
-  SUB-SLAB MONITORING POINT LOCATION
-  BUILDING
-  PROPERTY BOUNDARIES



FORD MOTOR COMPANY
 LIVONIA TRANSMISSION PLANT
 LIVONIA, MICHIGAN

AIR SAMPLING LOCATIONS



FIGURE 1

11/5/2018
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1810644A

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 10/29/2018 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1810644A

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0003
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	10/29/2018	CONTACT:	Ausha Scott
DATE COMPLETED:	11/05/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	IAF-34934Standish-02_102318	Modified TO-15	6.5 "Hg	5 psi
02A	AA-34934Standish-01_102318	Modified TO-15	3.5 "Hg	5 psi
03A	IAG-34934Standish-01_102318	Modified TO-15	5.5 "Hg	5 psi
04A	IACS-34934Standish-03_102318	Modified TO-15	3.5 "Hg	5 psi
05A	Lab Blank	Modified TO-15	NA	NA
06A	CCV	Modified TO-15	NA	NA
07A	LCS	Modified TO-15	NA	NA
07AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY:



Technical Director

DATE: 11/05/18

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 1810644A

Four 6 Liter Summa Canister (100% Certified) samples were received on October 29, 2018. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	$\leq 30\%$ RSD with 2 compounds allowed out to $< 40\%$ RSD	$\leq 30\%$ RSD with 4 compounds allowed out to $< 40\%$ RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

The Chain of Custody (COC) information for sample IACS-34934Standish-03_102318 did not match the entry on the sample tag with regard to sample identification. The information on the COC was used to process and report the sample.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

1,4-Dioxane exceeded initial calibration method acceptance criterion of $\leq 30\%$ RSD at 33%.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV
N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-34934Standish-02_102318	Date/Time Analyzed:	10/31/18 07:05 PM
Lab ID:	1810644A-01A	Dilution Factor:	1.71
Date/Time Collected:	10/24/18 02:31 PM	Instrument/Filename:	msdv.i / v103112
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.33	0.61	0.68	Not Detected
1,4-Dioxane	123-91-1	0.36	0.55	0.62	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.41	0.61	0.68	Not Detected
Tetrachloroethene	127-18-4	0.58	1.0	1.2	1.0 J
trans-1,2-Dichloroethene	156-60-5	0.57	0.61	0.68	Not Detected
Trichloroethene	79-01-6	0.42	0.83	0.92	Not Detected
Vinyl Chloride	75-01-4	0.33	0.39	0.44	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	99

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-34934Standish-01_102318	Date/Time Analyzed:	10/31/18 07:43 PM
Lab ID:	1810644A-02A	Dilution Factor:	1.52
Date/Time Collected:	10/24/18 02:35 PM	Instrument/Filename:	msdv.i / v103113
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.29	0.54	0.60	Not Detected
1,4-Dioxane	123-91-1	0.32	0.49	0.55	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.36	0.54	0.60	Not Detected
Tetrachloroethene	127-18-4	0.51	0.93	1.0	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.51	0.54	0.60	Not Detected
Trichloroethene	79-01-6	0.38	0.74	0.82	Not Detected
Vinyl Chloride	75-01-4	0.29	0.35	0.39	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	96

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAG-34934Standish-01_102318	Date/Time Analyzed:	10/31/18 08:33 PM
Lab ID:	1810644A-03A	Dilution Factor:	1.64
Date/Time Collected:	10/24/18 02:33 PM	Instrument/Filename:	msdv.i / v103114
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.32	0.58	0.65	Not Detected
1,4-Dioxane	123-91-1	0.34	0.53	0.59	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.39	0.58	0.65	Not Detected
Tetrachloroethene	127-18-4	0.56	1.0	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.55	0.58	0.65	Not Detected
Trichloroethene	79-01-6	0.40	0.79	0.88	Not Detected
Vinyl Chloride	75-01-4	0.32	0.38	0.42	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	91
Toluene-d8	2037-26-5	70-130	95

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IACS-34934Standish-03_102318	Date/Time Analyzed:	10/31/18 09:40 PM
Lab ID:	1810644A-04A	Dilution Factor:	1.52
Date/Time Collected:	10/24/18 02:36 PM	Instrument/Filename:	msdv.i / v103115
Media:	6 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.29	0.54	0.60	Not Detected
1,4-Dioxane	123-91-1	0.32	0.49	0.55	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.36	0.54	0.60	Not Detected
Tetrachloroethene	127-18-4	0.51	0.93	1.0	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.51	0.54	0.60	Not Detected
Trichloroethene	79-01-6	0.38	0.74	0.82	Not Detected
Vinyl Chloride	75-01-4	0.29	0.35	0.39	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	95

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	10/31/18 01:24 PM
Lab ID:	1810644A-05A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdv.i / v103106c
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.19	0.36	0.40	Not Detected
1,4-Dioxane	123-91-1	0.21	0.32	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.24	0.36	0.40	Not Detected
Tetrachloroethene	127-18-4	0.34	0.61	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.34	0.36	0.40	Not Detected
Trichloroethene	79-01-6	0.25	0.48	0.54	Not Detected
Vinyl Chloride	75-01-4	0.19	0.23	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	94

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	10/31/18 09:25 AM
Lab ID:	1810644A-06A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdv.i / v103102
Media:	NA - Not Applicable		

Compound	CAS#		%Recovery
1,1-Dichloroethene	75-35-4		92
1,4-Dioxane	123-91-1		121
cis-1,2-Dichloroethene	156-59-2		97
Tetrachloroethene	127-18-4		98
trans-1,2-Dichloroethene	156-60-5		90
Trichloroethene	79-01-6		97
Vinyl Chloride	75-01-4		91

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	89
Toluene-d8	2037-26-5	70-130	97

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	10/31/18 10:10 AM
Lab ID:	1810644A-07A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdv.i / v103103
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	88
1,4-Dioxane	123-91-1	120
cis-1,2-Dichloroethene	156-59-2	87
Tetrachloroethene	127-18-4	94
trans-1,2-Dichloroethene	156-60-5	101
Trichloroethene	79-01-6	98
Vinyl Chloride	75-01-4	92

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	97

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	10/31/18 11:05 AM
Lab ID:	1810644A-07AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdv.i / v103104
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	87
1,4-Dioxane	123-91-1	123
cis-1,2-Dichloroethene	156-59-2	85
Tetrachloroethene	127-18-4	95
trans-1,2-Dichloroethene	156-60-5	96
Trichloroethene	79-01-6	97
Vinyl Chloride	75-01-4	90

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	97

* % Recovery is calculated using unrounded analytical results.



November 06, 2018

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: MI001454.0002/3/4.00002/2B/3B
Client project scope reference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics - Folsom
Laboratory submittal: 1810644A
Sample date: 2018-10-24
Report received by CADENA: 2018-11-05
Initial Data Verification completed by CADENA: 2018-11-06

4 Air samples were analyzed for TO-15 parameters.

There were no significant QC anomalies or exceptions to report.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

11/5/2018
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1810644B

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 10/29/2018 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1810644B

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0003
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	10/29/2018	CONTACT:	Ausha Scott
DATE COMPLETED:	11/05/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
05A	SSMP-34934Standish-01_102418	TO-15	3.1 "Hg	14.9 psi
06A	Lab Blank	TO-15	NA	NA
07A	CCV	TO-15	NA	NA
08A	LCS	TO-15	NA	NA
08AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 11/05/18

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.
 180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1810644B

One 1 Liter Summa Canister sample was received on October 29, 2018. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified (0.2 ppbv for compounds reported at 0.5 ppbv and 0.8 ppbv for compounds reported at 2.0 ppbv) may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	SSMP-34934Standish-01_102418	Date/Time Analyzed:	11/1/18 10:46 PM
Lab ID:	1810644B-05A	Dilution Factor:	2.24
Date/Time Collected:	10/24/18 03:05 PM	Instrument/Filename:	msd17.i / 17110114
Media:	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.0	3.6	4.4	Not Detected
1,4-Dioxane	123-91-1	3.6	12	16	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.71	3.6	4.4	Not Detected
Tetrachloroethene	127-18-4	1.1	6.1	7.6	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.3	3.6	4.4	Not Detected
Trichloroethene	79-01-6	2.3	4.8	6.0	Not Detected
Vinyl Chloride	75-01-4	0.69	2.3	2.9	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	107

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	11/1/18 03:20 PM
Lab ID:	1810644B-06A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17110105a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.87	1.6	2.0	Not Detected
1,4-Dioxane	123-91-1	1.6	5.4	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.32	1.6	2.0	Not Detected
Tetrachloroethene	127-18-4	0.47	2.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.59	1.6	2.0	Not Detected
Trichloroethene	79-01-6	1.0	2.1	2.7	Not Detected
Vinyl Chloride	75-01-4	0.31	1.0	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	89
Toluene-d8	2037-26-5	70-130	106

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	11/1/18 01:26 PM
Lab ID:	1810644B-07A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17110102
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	91
1,4-Dioxane	123-91-1	103
cis-1,2-Dichloroethene	156-59-2	90
Tetrachloroethene	127-18-4	95
trans-1,2-Dichloroethene	156-60-5	91
Trichloroethene	79-01-6	103
Vinyl Chloride	75-01-4	98

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	108

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	11/1/18 02:05 PM
Lab ID:	1810644B-08A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17110103
Media:	NA - Not Applicable		

Compound	CAS#		%Recovery
1,1-Dichloroethene	75-35-4		86
1,4-Dioxane	123-91-1		108
cis-1,2-Dichloroethene	156-59-2		83
Tetrachloroethene	127-18-4		96
trans-1,2-Dichloroethene	156-60-5		99
Trichloroethene	79-01-6		103
Vinyl Chloride	75-01-4		98

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	106

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	11/1/18 02:32 PM
Lab ID:	1810644B-08AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17110104
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	91
1,4-Dioxane	123-91-1	110
cis-1,2-Dichloroethene	156-59-2	84
Tetrachloroethene	127-18-4	98
trans-1,2-Dichloroethene	156-60-5	101
Trichloroethene	79-01-6	106
Vinyl Chloride	75-01-4	101

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	108

* % Recovery is calculated using unrounded analytical results.



November 06, 2018

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: MI001454.0002/3/4.00002/2B/3B
Client project scope reference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics - Folsom
Laboratory submittal: 1810644B
Sample date: 2018-10-24
Report received by CADENA: 2018-11-05
Initial Data Verification completed by CADENA: 2018-11-06

1 Air samples was analyzed for TO-15 parameters.

There were no significant QC anomalies or exceptions to report.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Camera - 0272

Pics - 674 - 684

Daily Log

Project No.: MI001454.0003 Page 1 of 1

Site Location: 34934 Standish

Prepared By: D. Craig

Date	Time	Description of Activities
10/22/18	1725	Arcadis - D. Craig, D. Richmond S. Turner, & Epple
	-	Weather: 54° Sunny (Visit 1)
	-	Visit 1 Res
	1735	Start Building Survey
	1740	Start utility locate
	1745	Start Soil Boring - Finish
	1815	Start chemical inventory
	1845	Drill SSMP-1 in garage
	1850	Arcadis off site

Camelot #1597
 P.C.S. 100-0001
 +0
 100-0001



Daily Log

Project No.: MI00145+L0003 Page 1 of 1
 Site Location: 34934 Standish
 Prepared By: Seth Turner

Date	Time	Description of Activities
10-23-18	—	Purpose: Visit 2, 24hr canister deployment
	—	Arcadis: Hayden Ladd, Seth Turner
	—	weather: Sunny 65°
	15:05	Arrive onsite, Homeowner wasn't home.
	15:25	Homeowner arrived on site.
	15:30	Began Air canister deployment
10-24-18	15:50	Arcadis off site
	—	Purpose: Visit 3, 24hr can removal and
10-24-18	—	SSMP sampling
	—	Arcadis S. Turner, E. Apple
	—	weather: Sunny, 50°F
	14:30	Arcadis on site
	14:32	Removal of canisters begins; Homeowner did
	1 —	not want us to move the chemicals back and
	—	the crawlspace was closed after removal of
	—	canister.
	14:53	SSMP sampling start
	15:05	SSMP sampling done
15:10	Arcadis off site	

Utilities and Structures Checklist



THIS FORM MUST BE COMPLETED IN ENTIRETY PRIOR TO BEGINNING ANY INTRUSIVE WORK

Project: Ford LTP 34934 Standish
 Project Number: MI 102454.1003
 Form Completion Date: 10/22/18 Form Expiration Date: 11/6/18
 (15 business days post form completion date)

Pre-Field Work

Required: One Call or "811" notified 48-72 hours in advance of work? # B082951062
 Ticket Expiration Date 21 days (Review State Requirements)
 Utility companies notified during the One Call process See attached ticket

List any other utilities requiring notification: None

Private Locator Contacted Yes No

Plan private utility clearance subcontractor assignments, areas, required clearance equipment, depth of clearance needed, types of utilities. When possible re-clear 811 markings to confirm utility locations.

Client provided utility maps or "as built" drawings showing utilities? Yes No

Field Work - This must be completed on site, by staff who have a minimum of one year of field experience in identifying utilities. Review Check list with PM or designee prior to beginning intrusive work.

List Soil Boring / Well IDs or Excavation Locations applicable to this clearance checklist:
SB-34934 Standish-01-102218

3 Reliable Lines of Evidence Required Prior to Starting any Subsurface Intrusive Work

- One Call/"811" (Reliable as a line of evidence when working in public right of way or easement)
 Utility Markings Present: Paint Pin flags/stakes Other None
 - Client Provided Maps/Drawings **OR** Maps/Drawings requested but not provided
 - Client Clearance Name(s)/Affiliation(s) _____
 - Interview(s): Name(s)/Affiliation(s) _____
- Did person(s) interviewed indicate depths of any utilities in the subsurface?
 Yes, depths provided: _____ Did not know or refused to answer
- Additional Comments: _____

- Site Inspection (**Complete Page 2 & Photo Document Marked Utilities & Utility Structures**)
- Public Records / Maps / Asbuilts
- Private Locator: (Name and Company) Steve Oberle / TPE
- Ground Penetrating Radar (GPR)
- Radiofrequency (RFLoc)
- Electromagnetic (EM)
- Metal Detector

Soft Dig Methods

- Termination Depth _____ ft. bgs
- Potholing / Vacuum Extraction
- Air-Knife Hydro-Knife
- Probing
- Hand Auguring

- Tips for Successful Utility Location:**
1. Don't forget to look up
 2. Be on site with Private Utility Locators
 3. Ask Private Locators to "confirm" other's markings
 4. Select alternate/backup locations during clearance process
 5. Mark out all known utilities. Leave nothing to question
 6. No hammering - no pickaxes - no digging bars - no shortcutting
 7. No excessive turning or downward force of hand augers/shovels
 8. Utilities may run in or directly under asphalt/concrete
- Other: _____
- Marine Locator: (Name and Company) _____



Utilities and Structures Checklist

During the site inspection look for the following: ("YES" requires additional investigation and the utility must be marked properly prior to beginning subsurface intrusive work):

Site Inspection	Utility Color Codes		Present
a) Natural gas line present (evidence of a gas meter)?	Yellow	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
i) Feeder Lines to buildings or homes?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
b) Evidence of electric lines:	Red	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
i) Conduits to ground from electric meter or along wall?		<input type="checkbox"/> Yes	<input type="checkbox"/> No
iii) Conduits from power poles running into ground?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
ii) Light poles, electric devices with no overhead lines?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iii) Overhead electric lines present? (See Section I)		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
c) Evidence of sewer drains:	Green	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
i) Restrooms or kitchen on site?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
ii) Sewer cleanouts present?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iii) Combined sewer /storm lines or multiple sewer lines?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
d) Evidence of water lines:	Blue	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
i) Water meter on site or multiple water lines?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
ii) Fire hydrants in vicinity of work?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
iii) Irrigation systems? (Sprinkler heads, valve boxes, controls in building)		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
e) Evidence of storm drains:	Green	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
i) Open curbside or slotted grate storm drains		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
ii) Gutter down spouts going into ground		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
f) Evidence of telecommunication lines:	Orange	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
i) Fiber optic warning signs in areas?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iv) Aboveground cable boxes or housings or wires in work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
g) Underground storage tanks:		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
i) Tank pit present, tank vent present?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
ii) Product lines running to dispensers/buildings?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
h) Do utilities enter or exit existing structures/buildings?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
If Yes, confirm the utility markings outside of structure/building match up.		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
i) Proposed excavation marked in white?	White	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
j) Unclassed utilities / anomalies marked in pink?	Pink	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
k) Overhead Utilities/Communication Lines - Look Up:			
i) Overhead electrical conduit, pipe chases, cable trays, product lines?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
ii) Overhead fire sprinkler system?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
l) Overhead Power lines in or near the work area:			
i) < 50 kV within 10 ft. of work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
ii) >50 - 200 kV within 15 ft. of work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iii) >200-350 kV within 20 ft. of work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iv) >350-500 kV within 25 ft. of work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
v) >500-750 kV within 35 ft. or work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
vi) >750-1000 kV within 45 ft. of work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
m) Other:			
i) Evidence of linear asphalt or concrete repair?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
ii) Evidence of linear ground subsidence or change in vegetation?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iii) Unmarked manholes or valve covers in work area?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
iv) Warning signs ("Call Before you Dig", etc.) on or adjacent to site?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
v) Utility color markings not illustrated in this checklist?	i.e. Purple	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
n) Has the Utilities & Structures Checklist been reviewed by the PM or Designee		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

PM or Designee Name: Kris Hinkley

Name and Signature of person completing the checklist: Donald Richmond / [Signature]

Date: 11/22/18

Do not perform **mechanized** intrusive work within 30 inches of a utility marking without receiving pre-approval by Corporate H&S.



Project Name: Ford LTP 34934 Standish Date Started: 10/22/18 Logger: Donald Edmund
 Project Number: ME 90 2454 0003 Date Completed: 10/22/18 Editor:
 Project Location: Livonia, MI Weather Conditions: 50°F / Sunny

Depth (feet)	Sample ID & Time	Recovery (in.)	PID (ppm)	USCS Class.	Description
1				3/1	STOP soil, non plastic, no l. lamination, dry, very soft @ 0.5mm - 1mm
2			4/3		
3			5/4		
4			7/6		
5			5/4	course sands, well sorted Cu = 1-3, D ₁₀ very low, no lamination, 0.5-1mm, number 1-4	
6			5/6		
7			5/2		
8			5/4		
9			5/6	course sand, well sorted Cu = 1-3, wet, no lamination, 0.25-0.5mm, M-value 1-4 water	
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Drilling Co.: Towhee Sampling Method: No Sample
 Driller: S. Ford Sampling Interval: Continuous
 Drilling Method: hand Auger Water Level Start: 9 FT
 Drilling Fluid: No fluid Water Level Finish: NA
 Remarks: Converted to Well: Yes No
 Surface Elev: NA
 North Coor: NA
 East Coor: NA



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM

Date: 10/22/18 Survey Performed by: David Craig

1. OCCUPANT:

Rent: _____ Own:

Resident Name: Anthony Kiseda

Address: 24934 Standish

Telephone: Home: 734-564-0486 Work: _____

How long have you lived at this location? 2 years

List current occupants/occupation below (attach additional pages if necessary):

Age (If under 18)	Sex (M/F)	Occupation
	M	Account Manager
	F	Parts Coordinator
	M	Student

2. OWNER OR LANDLORD: (If same as occupant, check here and go to Item No. 3).

Last Name: _____ First Name: _____

Address: _____

City and State: _____

County: _____

Home Phone: _____ Office Phone: _____



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

3. SENSITIVE POPULATION:

Daycare/Nursing Home/Hospital/School/Other (specify): N/A

4. BUILDING CHARACTERISTICS:

Residential/Multi-family Residential/Office/Strip Mall/Commercial/Industrial/School

Describe Building: Bungalow Year Constructed: 1929

Number of floors at or above grade: 15 - Bungalow

Number of floors below grade: _____ (full basement/crawl space/slab on grade)

Depth of structure below grade: 4 ft. Basement size: N/A ft²

If the property is residential, what type? (Circle all appropriate responses.)

- | | | | |
|-------------|----------|------------------------|-------------------|
| Ranch | 2-Family | 3-Family | Raised Ranch |
| Split Level | Colonial | Cape Cod | Contemporary |
| Mobile Home | Duplex | Apartment House | Townhouses/Condos |
| Modular | Log Home | Other: <u>Bungalow</u> | |

If multiple units, how many? _____

If the property is commercial:

Business type(s) N/A

Does it include residences (i.e., multi-use)? Yes No If yes, how many? N/A

5. OCCUPANCY:

Is basement/lowest level occupied? (Circle one)

- Full-time Occasionally Seldom Almost Never *no basement*



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Level	General Use (e.g., family room, bedroom, laundry, workshop, storage)
Basement	N/A
1 st Floor	Bedrooms, Kitchen, Laundry, Bathrooms, Living Room
2 nd Floor	Storage / Living Space
3 rd Floor	_____
4 th Floor	_____

(Use additional page(s) as necessary)

6. CONSTRUCTION CHARACTERISTICS: (Circle all that apply.)

a. Above Grade Construction: (Describe type: wood frame, concrete, stone, brick).

Wood Frame

b. Basement Type: Full Crawlspace Slab Other: _____

c. Basement Floor: Concrete Dirt Stone Other: _____

d. Finished Basement Floor: Uncovered Covered

If covered, what with? N/A

e. Foundation Walls: Poured Block Stone Other: _____

f. Foundation Walls: Unsealed Sealed Sealed with: _____

g. The Basement is: Wet Damp Dry

h. The Basement is: Finished Unfinished Partially Finished

i. Sump Present (Y/N) If yes, how many? _____

Where Discharged? N/A

Water in Sump? Yes No Not Applicable

N/A



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Identify all potential soil vapor entry points and estimated size (e.g., cracks, utility parts, drains).

Floor drain in mud room (near washer dryer)

Are the basement walls or floor sealed with waterproof paint or epoxy coatings? Yes No

Type of ground cover outside of building: Grass Concrete Asphalt Other Gravel

Is an existing subsurface depressurization (radon) system in place? Yes No

If yes, is it active, or passive? detector / No system

Is a sub-slab vapor/moisture barrier in place? Yes No

Type of barrier: _____

7. HEATING, VENTING, and AIR CONDITIONING

Type of heating system(s) used in this building: (Circle all that apply: Note the primary).

- | | | |
|--|---------------------------------------|---|
| <input checked="" type="radio"/> Hot Air Circulation | <input type="radio"/> Heat Pump | <input type="radio"/> Hot Water Baseboard |
| <input type="radio"/> Space Heaters | <input type="radio"/> Steam Radiation | <input type="radio"/> Radiant Floor |
| <input type="radio"/> Electric Baseboard | <input type="radio"/> Wood Stove | <input type="radio"/> Outdoor Wood Boiler |
| Other: _____ | | |

The primary type of fuel used is:

- | | | |
|--|--------------------------------|--------------------------------|
| <input checked="" type="radio"/> Natural Gas | <input type="radio"/> Fuel Oil | <input type="radio"/> Kerosene |
| <input type="radio"/> Electric | <input type="radio"/> Propane | <input type="radio"/> Solar |
| <input type="radio"/> Wood | <input type="radio"/> Coal | |

Domestic hot water tank fueled by: Electric

Location of Boiler/Furnace: Basement Outdoors Main Floor Other Crawl space



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Air Conditioning: Central Air Window Units Open Windows None

Are air distribution ducts present? Yes No

Is there a whole house fan? Yes No

Describe the air intake system (outside air supply, cold air return, ductwork, etc.) and its condition where visible. Indicate the locations on the floor plan diagram.

Outside Air / Cold Air Return

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

a) Is there an attached garage? Yes No
 If yes, does it have a separate heating unit? Yes No N/A

b) Are any petroleum-powered machines or vehicles stored in an attached garage (e.g., lawn mower, ATV, car) Yes No N/A

c) Has the building ever had a fire? Yes No

d) Is there a fuel burning or unvented gas space heater? Yes No

e) Is there a workshop or hobby/craft area? Yes No

If yes, where and what type? N/A

f) Is there smoking in the building? Yes No

If yes, how frequently? N/A



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

- g) Have cleaning products been used recently? Yes No
If yes, when and what type? _____
- h) Have cosmetic products been used recently? Yes No
If yes, when and what type? _____
- i) Has there been painting or staining in the last six months? Yes No
If yes, when and where? _____
- j) Is there new carpet, drapes, or other textiles? Yes No
If yes, when and where? _____
- k) Have air fresheners been used recently? Yes No
If yes, when and what type? _____
- l) Is there a kitchen exhaust fan? Yes No
If yes, where is it vented? Does vent outside
- m) Is there a clothes dryer? Yes No
If yes, is it vented outside? Yes No
- n) Has there been a pesticide application? Yes No
If yes, when and what type? N/A
- o) Are there odors in the building? Yes No
If yes, please describe: N/A



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

- p) Do any of the building occupants use solvents at work (e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetology)?

Yes

No

If yes, what types of solvents are used? N/A

If yes, are their clothes washed at work?

Yes

No

- q) Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response.)

No

Unknown

Yes, use dry-cleaning regularly (weekly)

Yes, use dry-cleaning infrequently (monthly or less)

Yes, work at a dry-cleaning service

- r) Is there a radon mitigation system for the building/structure?

Yes

No

If yes, what is date of installation? N/A

Active

Passive

- s) Additional mitigation system information (fan size, location, operating status, liner installed, etc.):

N/A

- t) Is there an irrigation well, or any other well, present at the property:

Yes

No

If yes, please describe placement, use, and history below.

N/A

Carmen CR72

Photos - 674-

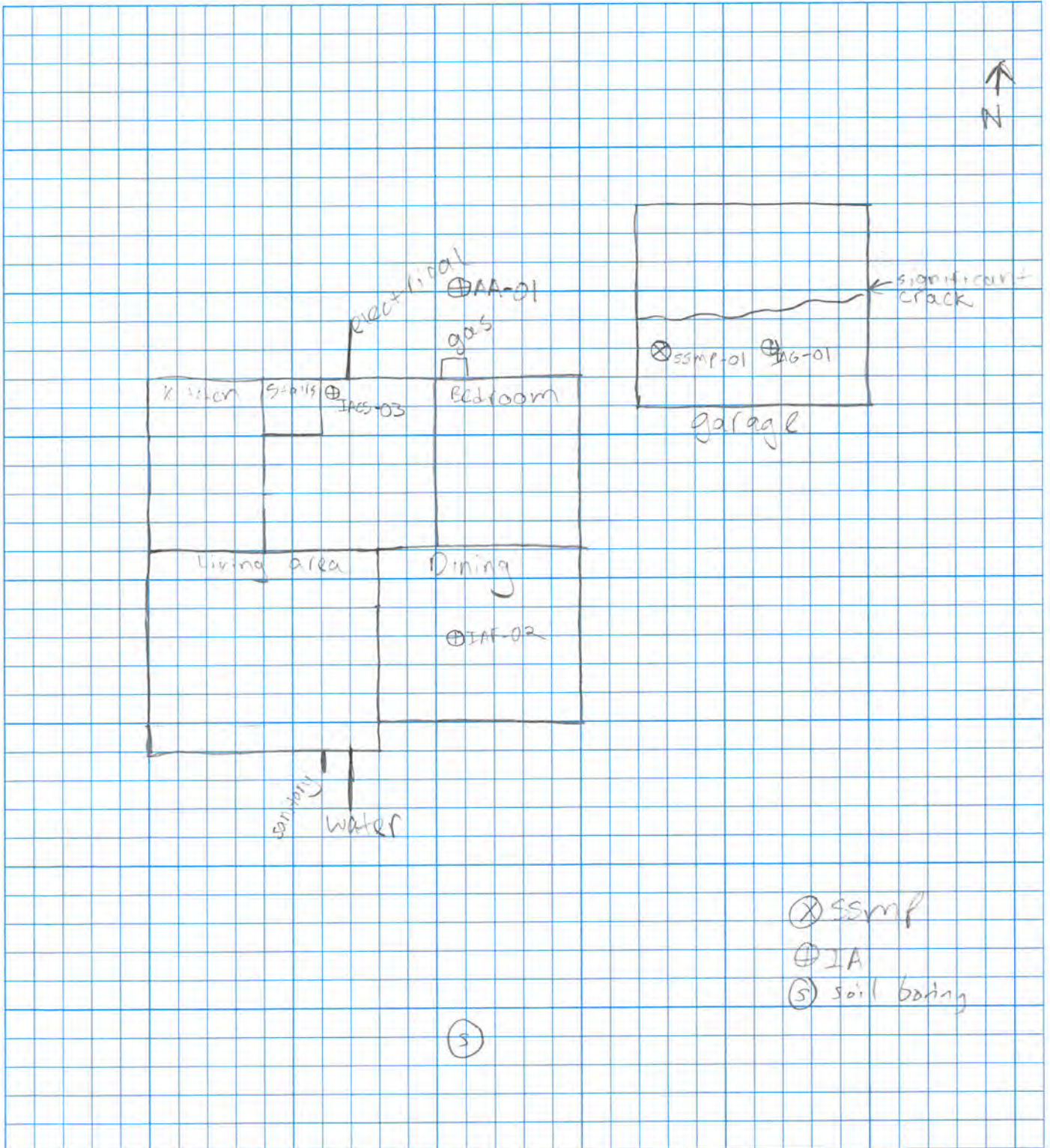
PRODUCT INVENTORY FORM:

Make and Model of field instrument used: ppb RAE 3000

List specific products found in the residence or area that have the potential to affect indoor air quality (e.g., gasoline or kerosene storage cans, glues, paints, cleaning solvents/products, polishes/waxes, new furniture/ carpet, nail polish/hairspray/cologne).

Potential Source	Location	Size and Condition	Chemical Ingredients	Field Instrument Reading (units)	Photo Y/N	
Gasoline Storage Cans and Equipment	Garage	5-gal	Empty	0.00 ppb	Y	- empty
Kerosene Storage Cans	Garage	Kerosene Heater	DECS	0.00 ppb	Y	- empty
Paints/Thinners/Strippers	Garage	Small Cans	Various DECS	0.00 ppb	Y	- removed
Cleaning Solvents	Garage	Small Cans	Brite Clean / Carb Clean	0.00 ppb	Y	- removed
Hobby Supplies - Glue, Paint, Etc.	N/A					
Oven Cleaner	N/A					
Carpet/Upholstery Cleaners	N/A					
Household Cleaners (non-solvent)	Bathroom					
Moth Balls	N/A					
Polishes/Waxes	Garage	Finisher	Turtle Wax / Armor All	0.00 ppb	Y	- removed
Insecticides	Garage	2- 1-gal	Ortho Home Defense	0.00 ppb	Y	- removed
Furniture/Floor Polish	N/A					
Hairspray	Bathroom	Various Aerosols	Various DECS	0.00 ppb	Y	- removed
Cologne/Perfume						
Air Fresheners	House	Candies	Not Lit	0.00 ppb	N	- not removed
Interior Fuel Tank	N/A					
Wood Stove/Fireplace	N/A					
New Furniture/Upholstery	N/A					
New Carpeting/Flooring	N/A					
Others (fill in below)						
Boat Motor	Garage	Small	Gas oil	0.00 ppb	Y	- not removed

Subject 34934 Standish		Sheet	
Project No. M1001454.003		Date	
Calculations By Seth Turner	Date 10-22-18	Checked By	Date



Real Time Exposure Monitoring Data Collection Form

Document all air monitoring conducted on the Site below. Keep this form with the project file.

Site Name: 34934 Standish Date: 10/22/18
 Instrument: ppbRA2 Model: 3000 Serial #: 594-911539

Calibration Method: (Material used settings, etc.)	Fresh air / isobutylene span cal
Calibration Results:	—
Calibrated By:	—

Activity Being Monitored	Compounds/Hazards Monitored	Time	Reading	Action Required? Y/N
SMP-1 Install	COCS	1845	0.0 ppb	N

Describe Any Actions Taken as a Result of this Air Monitoring and Why (does it match Table 5-1):

Office Name & Address (Reporting Information) 28550 Cabot Drive Suite 500 Novi, MI 48377			Project Name Ford		
Field Manager Adam Richmond			Project Number M1001454-0003		
Phone	Fax	Special Instructions	Address 34934 Standish		
Email Address for Result Reporting adam.richmond@arcadis.com		None	Sampler Name, Phone Number, Email		
Summa Canister Size (1L, 2.7 L (6L))		Lab Eurohm			

Sample ID	Sample Location Description	Indoor/Outdoor	PID in sampling area (ppm)	Date	Canister Number	Flow Controller Number	Sample Collection Start Time	Beginning Canister Pressure (in. Hg)	Sample Collection End Time	Ending Canister Pressure (in. Hg)	Heating, Ventilation, and Air Conditioning System Information				Notes
											HVAC Fan On?	Heat On?	Temperature Setting (°F) (start/end)	Flow Rate (cfm) (start/end)	
IA-EXAMPLE (12012017)	West side of station building behind cashier counter	Indoor	0.01	12/1/17	1234	56789	0800	-30	1600	-5	Yes	Yes	75/73	2.6/2.8	Moderate odors in vicinity of sampling canister
IAF-34934standish-02.10.2018	set on kitchen table	indoor	0	10/23/18	6L1541	100332	15:32	-29	1431	-6	yes	yes	68	NM	
AA-34934standish-01.10.2018	on back patio	outdoor	0	↓	6L0663	22866	15:36	-29	1435	-4.5	↓	↓	↓	↓	
IAG-34934standish-02.10.2018	center of garage on chair	indoor	0	↓	6L0087	22498	16:37	-29	1433	-6	↓	↓	↓	↓	
IACS-34934standish-03.10.2018	to the right inside crawl space	indoor	0	↓	6L0929	22207	16:39	-28	1436	-4	↓	↓	↓	↓	

Meteorological Data							General Notes or Observations
Date	Time	Temp. (°F)		% Humidity	Barometric Pressure (in.)	Air Speed (mph)	
		Indoor	Outdoor				
Example - 12/1/2017	0800	73	22	38	30.10	30.10	NM = not measured
10/23/18	1530	—	53	45	29.5	16	

Office Name & Address (Reporting Information) 28550 Cabot Drive Suite 500 Novi, MI 48377			Project Name: Ford		
Field Manager Adam Richmond			Project Number: MI001454.0003		
Phone (248) 994-2240	Fax	Special Instructions	Address: 39934 Standish		
Email Address for Result Reporting Kristoffer.Hinskey@arcadis.com			Sampler Name, Phone Number, Email Eric Effle		
Helium Detector Used		Helium Leak Test Method Bucket/Shroud	Summa Canister Size (1L, 2.7 L, 6L) 1L		Lab Eurofins

Sample ID	Sample Location Description	Date	Leak/Tracer Test							Canister No.	Flow Controller Number	Sample Collection Start Time	Starting Canister Pressure (in Hg)	Sample Collection End Time	Ending Canister Pressure (in Hg)	Notes
			Shut In Test Pass/Fail?	Pre-sample Purge Reading (ppm)	Shroud Helium Concentration (%)	Post-Sample Purge Reading (ppm)	Helium Test Pass/Fail?	Purge Volume (mL)	Purge Rate (mL/min)							
SSMP-EXAMPLE (12012017)	West side of station building behind cashier counter	12/1/17	Pass	0	60	15	Pass	120	120	2595	12345	0831	-30	0841	-5	Debris noted under steel cap and in annular space around vapor pin. Cleaned out prior to sampling.
SSMP-39934 Standish-01_10/24/18	Garage	10/24/18	Pass	3000	151,000	NS	Pass	150	150	112617	23466	14:53	-29.5	1505	-5	

Meteorological Data					General Notes or Observations	
Date	Time	Temp. (°F)		% Humidity	Barometric Pressure (in.)	
		Indoor	Outdoor			
Example - 12/1/2017	0800	73	22	38	30.10	Sample Probe Pressure : 0015 H ₂ O
10/24/18	1505	52	68	43	30.37	

Air Parameters (completed after sample collection)

Location ID	CO2%	O2 %
SSMP-EXAMPLE	1.6	12.5
SSMP-39934-01	1.0	21.1

Air Parameters (completed after sample collection)

Location ID	CO2%	O2 %
SSMP-EXAMPLE	1.6	12.5

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
 Phone (800) 985-5955; Fax (916) 351-8279

PID: _____
 Workorder #: _____
 For Laboratory Use Only

Click links below to view:
[Canister Sampling Guide](#)
[Health-Shielded Vial](#)

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Requester
				Date	Time	Date	Time			
	JAG-34934 Standard-02-102318	6L1641	100322	10/24/18	1537	10/24/18	1431	-09	-6	TO-15*
	AA-34934 Standard-01-102318	6L0665	22866		1534		1435	-29	-4.8	
	JAG-34934 Standard-01-102318	6L0087	22498		1537		1433	-29	-6	
	JAGS-34934 Standard-02-102318	6L0929	22207		1534		1436	-28	-4	
	5ml-34934 Standard-01-102318	1L2617	22466	10/24/18	1453	10/24/18	1505	-29.5	-5	
Relinquished by: (Signature/Affiliation) <i>[Signature]</i> Date: 10-25-18 Time: 0930 Received by: (Signature/Affiliation) _____ Date: _____ Time: _____										
Relinquished by: (Signature/Affiliation) _____ Date: _____ Time: _____ Received by: (Signature/Affiliation) _____ Date: _____ Time: _____										
Relinquished by: (Signature/Affiliation) _____ Date: _____ Time: _____ Received by: (Signature/Affiliation) _____ Date: _____ Time: _____										
Shipper Name: _____ Custody Seals Intact? Yes No None Lab Use Only										

Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadens at jim.fornalis@cadens.com, Cadens #E203831.

Level IV Reporting

Client: Ford PID: _____
 Project Name: Ford LTP
 Project Manager: Kris Hinskey P.O.# M100145A.0003
 Site Name: _____

Turnaround Time (Rush surcharges may apply)

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and orders.

TRANSMITTAL LETTER



To:
Anthony Kiseda
Shawn Collins
Brandon Alger (EGLE)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:
June 26, 2019

Subject:

Arcadis Project No.:

Vapor Intrusion Assessment
Data Package

We are sending you hard copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Delivery Date	Drawing No.	Rev.	Description	Action*
1	6/27/2019			Figure	
1	6/27/2019			Analytical Results	
1	6/27/2019			Field Notes and Drawings	

Action*

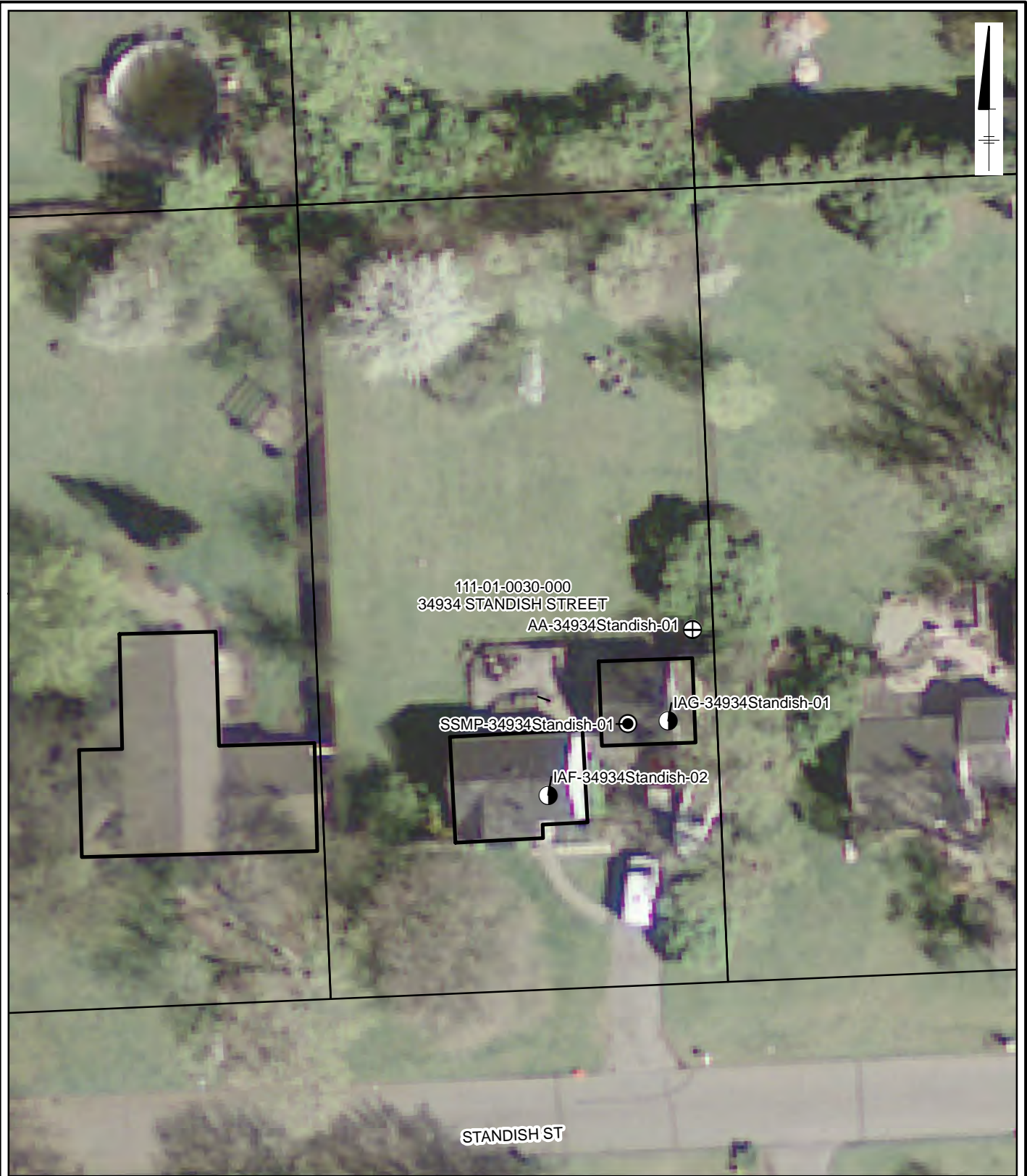
- A Approved CR Correct and Resubmit Resubmit _____ Copies
 AN Approved As Noted F File Return _____ Copies
 AS As Requested FA For Approval Review and Comment
 Other: _____

Mailing Method






- U.S. Postal Service 1st Class Courier/Hand Delivery FedEx Priority Overnight FedEx 2-Day Delivery
 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
 Other: email

Thank you for cooperating with the air sampling at your property on April 11 and 12, 2019. Attached is your data package.

CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: T. STEVENS TR: P. CURRY PROJECTNUMBER: M001373.0001.00003 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
 Z:\GISProjects\ENV\NoviBrighton_MIVordLivonia\GIS\docs\2018-11\34934_Standish_20181109.mxd PLOTTED: 11/9/2018 11:42:31 AM BY: mgress



LEGEND:

-  INDOOR AIR LOCATION
-  AMBIENT AIR LOCATION
-  SUB-SLAB MONITORING POINT LOCATION
-  BUILDING
-  PROPERTY BOUNDARIES



FORD MOTOR COMPANY
LIVONIA TRANSMISSION PLANT
LIVONIA, MICHIGAN

AIR SAMPLING LOCATIONS



FIGURE 1

[REDACTED]

4/26/2019

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1904457

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 4/19/2019 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

[REDACTED]

Ausha Scott
Project Manager

WORK ORDER #: 1904457

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0003
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	04/19/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	04/26/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SSMP-34934STANDISH-01_041219	TO-15	5.9 "Hg	16.1 psi
02A	Lab Blank	TO-15	NA	NA
03A	CCV	TO-15	NA	NA
04A	LCS	TO-15	NA	NA
04AA	LCSD	TO-15	NA	NA

CERTIFIED BY: _____



Technical Director

DATE: 04/26/19

Certification numbers: AZ Licensure AZ0775, FL NELAP - E8 , LA NELAP - 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP CA009332018-10, VA NELAP - 9505, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005-011, Effective date: 10/18/2018, Expiration date: 10/17/2019.

Eurofins Air Toxics LLC. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1904457

One 1 Liter Summa Canister (100% Certified) sample was received on April 19, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-34934STANDISH-01_041219	Date/Time Analyzed:	4/25/19 07:58 PM
Lab ID:	1904457-01A	Dilution Factor:	2.61
Date/Time Collected:	4/12/19 02:31 PM	Instrument/Filename:	msd17.i / 17042514
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.3	4.1	5.2	Not Detected
1,4-Dioxane	123-91-1	10	14	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	4.1	5.2	Not Detected
Tetrachloroethene	127-18-4	3.5	7.1	8.8	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.6	4.1	5.2	Not Detected
Trichloroethene	79-01-6	2.5	5.6	7.0	Not Detected
Vinyl Chloride	75-01-4	1.3	2.7	3.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	88
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	94

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	4/25/19 01:11 PM
Lab ID:	1904457-02A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17042505a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.87	1.6	2.0	Not Detected
1,4-Dioxane	123-91-1	3.8	5.4	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.56	1.6	2.0	Not Detected
Tetrachloroethene	127-18-4	1.4	2.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.59	1.6	2.0	Not Detected
Trichloroethene	79-01-6	0.97	2.1	2.7	Not Detected
Vinyl Chloride	75-01-4	0.51	1.0	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	96

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	CCV	Date/Time Analyzed:	4/25/19 11:13 AM
Lab ID:	1904457-03A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17042502
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	116
1,4-Dioxane	123-91-1	99
cis-1,2-Dichloroethene	156-59-2	93
Tetrachloroethene	127-18-4	105
trans-1,2-Dichloroethene	156-60-5	114
Trichloroethene	79-01-6	94
Vinyl Chloride	75-01-4	111

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	97

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCS	Date/Time Analyzed:	4/25/19 12:16 PM
Lab ID:	1904457-04A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17042503
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	118
1,4-Dioxane	123-91-1	104
cis-1,2-Dichloroethene	156-59-2	103
Tetrachloroethene	127-18-4	104
trans-1,2-Dichloroethene	156-60-5	98
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	113

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	98

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	4/25/19 12:43 PM
Lab ID:	1904457-04AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17042504
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	118
1,4-Dioxane	123-91-1	102
cis-1,2-Dichloroethene	156-59-2	104
Tetrachloroethene	127-18-4	106
trans-1,2-Dichloroethene	156-60-5	100
Trichloroethene	79-01-6	94
Vinyl Chloride	75-01-4	116

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	96

* % Recovery is calculated using unrounded analytical results.



April 26 2019

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: MI001454.0002/3/4.00002/2B/3B
Client project scope reference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics - Folsom
Laboratory submittal: 1904457
Sample date: 2019-04-12
Report received by CADENA: 2019-04-26
Initial Data Verification completed by CADENA: 2019-04-26

1 Air sample was analyzed for TO-15 parameters.

There were no significant QC anomalies or exceptions to report.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) TO-15 Analysis

SDG #1904457

CADENA Verification Report: 2019-04-26

Analyses Performed By:
Eurofins Air Toxics
Folsom, California

Report #33008R
Review Level: Tier III
Project: MI001454.0004.00002

DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 1904457 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
1904457	SSMP-34934STANDISH-01_041219	1904457-01A	Air	4/12/2019		X		

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15 (Full Scan). Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15	Air	30 days from collection to analysis (Canister)	Ambient Temperature	< -2" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 140% or less than 60% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. All identified compounds met the specified criteria.

6. Field Duplicate Sample Analysis

The field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 35% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are not greater than five times the RL, a control limit of one times the RL is applied to the difference between the duplicate sample results.

A field duplicate was not performed on a sample location within this SDG.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15 (Full Scan)	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-2"Hg)		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Field Duplicate Sample RPD					X
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:



DATE: June 7, 2019

PEER REVIEW: Dennis Capria

DATE: June 13, 2019



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-34934STANDISH-01_041219	Date/Time Analyzed:	4/25/19 07:58 PM
Lab ID:	1904457-01A	Dilution Factor:	2.61
Date/Time Collected:	4/12/19 02:31 PM	Instrument/Filename:	msd17.i / 17042514
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.3	4.1	5.2	Not Detected
1,4-Dioxane	123-91-1	10	14	19	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	4.1	5.2	Not Detected
Tetrachloroethene	127-18-4	3.5	7.1	8.8	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.6	4.1	5.2	Not Detected
Trichloroethene	79-01-6	2.5	5.6	7.0	Not Detected
Vinyl Chloride	75-01-4	1.3	2.7	3.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	88
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	94

Analysis Request / Canister Chain of Custody

For Laboratory Use Only

PID: _____ Workorder #: 1904457

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
 Phone (800) 985-5955; Fax (916) 351-8279

Click links below to view:

[Canister Sampling Guide](#)

[Helium Shroud Video](#)

Client: <u>Ford</u>	PID: <u>NA</u>	Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting	Turnaround Time (Rush surcharges may apply)		
Project Name: <u>Ford LTP</u>			5 Day Turnaround Time		
Project Manager: <u>Kris Hinskey</u>	P.O.# <u>MI001454.0003</u>		Canister Vacuum/Pressure	Requested Analyses	
Sampler: <u>J. Lusk; H. Ladd</u>			Lab Use Only		
Site Name: <u>34934 Standish</u>			Initial (in Hg)	Final (in Hg)	

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N ₂ / He	TO-15 (See Special Instructions/Notes)	Requested Analyses	
				Date	Time	Date	Time							
<u>01A</u>	<u>SSMP-34934STANDISH-01_041219</u>	<u>1L3134</u>	<u>24375</u>	<u>4-12-19</u>	<u>1419</u>	<u>4-12-19</u>	<u>1431</u>	<u>-29</u>	<u>-6</u>			<u>X</u>		

Relinquished by: (Signature/Affiliation) <u>[Signature]</u>	Date <u>4-17-19</u>	Time <u>1600</u>	Received by: (Signature/Affiliation) <u>[Signature]</u>	Date <u>4/19/19</u>	Time <u>0935</u>
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Lab Use Only

Shipper Name: [Signature] Custody Seals Intact? Yes No None

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

4/24/2019

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP

Project #:

Workorder #: 1904460

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 4/19/2019 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott

Project Manager

WORK ORDER #: 1904460

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0003
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	04/19/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	04/24/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	AA-34934STANDISH-01_041119	Modified TO-15	5.1 "Hg	4.7 psi
01B	AA-34934STANDISH-01_041119	Modified TO-15	5.1 "Hg	4.7 psi
02A	IAF-34934STANDISH-02_041119	Modified TO-15	6.3 "Hg	5.1 psi
02B	IAF-34934STANDISH-02_041119	Modified TO-15	6.3 "Hg	5.1 psi
03A	IAG-34934STANDISH-01_041119	Modified TO-15	6.5 "Hg	4.7 psi
03B	IAG-34934STANDISH-01_041119	Modified TO-15	6.5 "Hg	4.7 psi
04A	Lab Blank	Modified TO-15	NA	NA
04B	Lab Blank	Modified TO-15	NA	NA
05A	CCV	Modified TO-15	NA	NA
05B	CCV	Modified TO-15	NA	NA
06A	LCS	Modified TO-15	NA	NA
06AA	LCSD	Modified TO-15	NA	NA
06B	LCS	Modified TO-15	NA	NA
06BB	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 04/24/19

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.
 180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 1904460

Three 6 Liter Summa Canister (100% Cert Ambient) samples were received on April 19, 2019. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	$\leq 30\%$ RSD with 2 compounds allowed out to <math>< 40\%</math> RSD	$\leq 30\%$ RSD with 4 compounds allowed out to <math>< 40\%</math> RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

The results for each sample in this report were acquired from two separate data files originating from the same analytical run. The two data files have the same base file name and are differentiated with a "sim" extension on the SIM data file.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

- B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).
- J - Estimated value.
- E - Exceeds instrument calibration range.
- S - Saturated peak.
- Q - Exceeds quality control limits.
- U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.
- UJ- Non-detected compound associated with low bias in the CCV
- N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-34934STANDISH-01_041119	Date/Time Analyzed:	4/22/19 03:27 PM
Lab ID:	1904460-01A	Dilution Factor:	1.59
Date/Time Collected:	4/12/19 02:08 PM	Instrument/Filename:	msd20.i / 20042212
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.15	0.57	0.63	Not Detected
1,4-Dioxane	123-91-1	0.46	0.52	0.57	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.57	0.63	Not Detected
Tetrachloroethene	127-18-4	0.67	0.97	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.35	0.57	0.63	Not Detected
Vinyl Chloride	75-01-4	0.13	0.36	0.41	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	97

MODIFIED EPA METHOD TO-15 GC/MS SIM
Ford LTP

Client ID:	AA-34934STANDISH-01_041119	Date/Time Analyzed:	4/22/19 03:27 PM
Lab ID:	1904460-01B	Dilution Factor:	1.59
Date/Time Collected:	4/12/19 02:08 PM	Instrument/Filename:	msd20.i / 20042212sim
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	79-01-6	0.017	0.051	0.17	0.040 J

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	99

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-34934STANDISH-02_041119	Date/Time Analyzed:	4/22/19 04:06 PM
Lab ID:	1904460-02A	Dilution Factor:	1.71
Date/Time Collected:	4/12/19 02:11 PM	Instrument/Filename:	msd20.i / 20042213
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.16	0.61	0.68	Not Detected
1,4-Dioxane	123-91-1	0.50	0.55	0.62	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.36	0.61	0.68	Not Detected
Tetrachloroethene	127-18-4	0.72	1.0	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.38	0.61	0.68	Not Detected
Vinyl Chloride	75-01-4	0.14	0.39	0.44	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	97

MODIFIED EPA METHOD TO-15 GC/MS SIM
Ford LTP

Client ID:	IAF-34934STANDISH-02_041119	Date/Time Analyzed:	4/22/19 04:06 PM
Lab ID:	1904460-02B	Dilution Factor:	1.71
Date/Time Collected:	4/12/19 02:11 PM	Instrument/Filename:	msd20.i / 20042213sim
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	79-01-6	0.018	0.055	0.18	0.14 J

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAG-34934STANDISH-01_041119	Date/Time Analyzed:	4/22/19 04:45 PM
Lab ID:	1904460-03A	Dilution Factor:	1.69
Date/Time Collected:	4/12/19 02:09 PM	Instrument/Filename:	msd20.i / 20042214
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.16	0.60	0.67	Not Detected
1,4-Dioxane	123-91-1	0.49	0.55	0.61	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.36	0.60	0.67	Not Detected
Tetrachloroethene	127-18-4	0.71	1.0	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.38	0.60	0.67	Not Detected
Vinyl Chloride	75-01-4	0.14	0.39	0.43	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	95

MODIFIED EPA METHOD TO-15 GC/MS SIM
Ford LTP

Client ID:	IAG-34934STANDISH-01_041119	Date/Time Analyzed:	4/22/19 04:45 PM
Lab ID:	1904460-03B	Dilution Factor:	1.69
Date/Time Collected:	4/12/19 02:09 PM	Instrument/Filename:	msd20.i / 20042214sim
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	79-01-6	0.018	0.054	0.18	0.046 J

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	98

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	4/22/19 10:27 AM
Lab ID:	1904460-04A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20042206d
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.095	0.36	0.40	Not Detected
1,4-Dioxane	123-91-1	0.29	0.32	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.21	0.36	0.40	Not Detected
Tetrachloroethene	127-18-4	0.42	0.61	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.22	0.36	0.40	Not Detected
Vinyl Chloride	75-01-4	0.082	0.23	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	94

MODIFIED EPA METHOD TO-15 GC/MS SIM
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	4/22/19 10:27 AM
Lab ID:	1904460-04B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20042206sima
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	79-01-6	0.010	0.032	0.11	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	98

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	4/22/19 07:25 AM
Lab ID:	1904460-05A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20042202
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	95
1,4-Dioxane	123-91-1	114
cis-1,2-Dichloroethene	156-59-2	103
Tetrachloroethene	127-18-4	107
trans-1,2-Dichloroethene	156-60-5	102
Vinyl Chloride	75-01-4	82

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS SIM
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	4/22/19 07:25 AM
Lab ID:	1904460-05B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20042202sim
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
Trichloroethene	79-01-6	101

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	104

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	4/22/19 08:18 AM
Lab ID:	1904460-06A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20042203
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	93
1,4-Dioxane	123-91-1	117
cis-1,2-Dichloroethene	156-59-2	114
Tetrachloroethene	127-18-4	116
trans-1,2-Dichloroethene	156-60-5	90
Vinyl Chloride	75-01-4	82

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	99

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	4/22/19 08:56 AM
Lab ID:	1904460-06AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20042204
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	102
1,4-Dioxane	123-91-1	112
cis-1,2-Dichloroethene	156-59-2	114
Tetrachloroethene	127-18-4	113
trans-1,2-Dichloroethene	156-60-5	89
Vinyl Chloride	75-01-4	92

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	97

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS SIM
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	4/22/19 08:18 AM
Lab ID:	1904460-06B	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20042203sim
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
Trichloroethene	79-01-6	128

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	88
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	103

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS SIM
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	4/22/19 08:56 AM
Lab ID:	1904460-06BB	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20042204sim
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
Trichloroethene	79-01-6	128

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	89
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	99

* % Recovery is calculated using unrounded analytical results.



April 24, 2019

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: MI001454.0002/3/4.00002/2B/3B
Client project scope reference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics - Folsom
Laboratory submittal: 1904460
Sample date: 2019-04-12
Report received by CADENA: 2019-04-24
Initial Data Verification completed by CADENA: 2019-04-24

3 Air sample were analyzed for TO-15 parameters.

There were no significant QC anomalies or exceptions to report.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) TO-15 Analysis

SDG #1904460

CADENA Verification Report: 2019-04-24

Analyses Performed By:
Eurofins Air Toxics
Folsom, California

Report #33009R
Review Level: Tier III
Project: MI001454.0004.00002

DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 1904460 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
1904460	AA-34934STANDISH-01_041119	1904460-01B	Air	4/12/2019		X		
	IAF-34934STANDISH-02_041119	1904460-02B	Air	4/12/2019		X		
	IAG-34934STANDISH-01_041119	1904460-03B	Air	4/12/2019		X		

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15 (Full Scan) and TO-15-SIM. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15 and USEPA TO-15-SIM	Air	30 days from collection to analysis (Canister)	Ambient Temperature	< -2" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 140% or less than 60% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. All identified compounds met the specified criteria.

6. Field Duplicate Sample Analysis

The field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 35% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are not greater than five times the RL, a control limit of one times the RL is applied to the difference between the duplicate sample results.

A field duplicate was not performed on a sample location within this SDG.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15 (Full Scan) and TO-15 SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-2"Hg)		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Field Duplicate Sample RPD					X
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

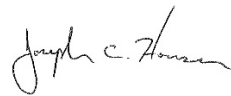
%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:



DATE: June 7, 2019

PEER REVIEW: Dennis Capria

DATE: June 13, 2019



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-34934STANDISH-01_041119	Date/Time Analyzed:	4/22/19 03:27 PM
Lab ID:	1904460-01A	Dilution Factor:	1.59
Date/Time Collected:	4/12/19 02:08 PM	Instrument/Filename:	msd20.i / 20042212
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.15	0.57	0.63	Not Detected
1,4-Dioxane	123-91-1	0.46	0.52	0.57	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.57	0.63	Not Detected
Tetrachloroethene	127-18-4	0.67	0.97	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.35	0.57	0.63	Not Detected
Vinyl Chloride	75-01-4	0.13	0.36	0.41	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	97

MODIFIED EPA METHOD TO-15 GC/MS SIM
Ford LTP

Client ID:	AA-34934STANDISH-01_041119	Date/Time Analyzed:	4/22/19 03:27 PM
Lab ID:	1904460-01B	Dilution Factor:	1.59
Date/Time Collected:	4/12/19 02:08 PM	Instrument/Filename:	msd20.i / 20042212sim
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	79-01-6	0.017	0.051	0.17	0.040 J

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	99

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-34934STANDISH-02_041119	Date/Time Analyzed:	4/22/19 04:06 PM
Lab ID:	1904460-02A	Dilution Factor:	1.71
Date/Time Collected:	4/12/19 02:11 PM	Instrument/Filename:	msd20.i / 20042213
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.16	0.61	0.68	Not Detected
1,4-Dioxane	123-91-1	0.50	0.55	0.62	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.36	0.61	0.68	Not Detected
Tetrachloroethene	127-18-4	0.72	1.0	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.38	0.61	0.68	Not Detected
Vinyl Chloride	75-01-4	0.14	0.39	0.44	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	97

MODIFIED EPA METHOD TO-15 GC/MS SIM
Ford LTP

Client ID:	IAF-34934STANDISH-02_041119	Date/Time Analyzed:	4/22/19 04:06 PM
Lab ID:	1904460-02B	Dilution Factor:	1.71
Date/Time Collected:	4/12/19 02:11 PM	Instrument/Filename:	msd20.i / 20042213sim
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	79-01-6	0.018	0.055	0.18	0.14 J

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAG-34934STANDISH-01_041119	Date/Time Analyzed:	4/22/19 04:45 PM
Lab ID:	1904460-03A	Dilution Factor:	1.69
Date/Time Collected:	4/12/19 02:09 PM	Instrument/Filename:	msd20.i / 20042214
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.16	0.60	0.67	Not Detected
1,4-Dioxane	123-91-1	0.49	0.55	0.61	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.36	0.60	0.67	Not Detected
Tetrachloroethene	127-18-4	0.71	1.0	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.38	0.60	0.67	Not Detected
Vinyl Chloride	75-01-4	0.14	0.39	0.43	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	95

MODIFIED EPA METHOD TO-15 GC/MS SIM
Ford LTP

Client ID:	IAG-34934STANDISH-01_041119	Date/Time Analyzed:	4/22/19 04:45 PM
Lab ID:	1904460-03B	Dilution Factor:	1.69
Date/Time Collected:	4/12/19 02:09 PM	Instrument/Filename:	msd20.i / 20042214sim
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	79-01-6	0.018	0.054	0.18	0.046 J

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	98

Analysis Request /Canister Chain of Custody

For Laboratory Use Only

1904460

PID: _____

Workorder #: _____

Click links below to view:

[Canister Sampling Guide](#)

[Helium Shroud Video](#)

180 Blue Ravine Rd. Suite B, Folsom, CA 95630

Phone (800) 985-5955; Fax (916) 351-8279

Client:	Ford	PID:	NA	Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting	Turnaround Time (Rush surcharges may apply)						
Project Name:	Ford LTP				5 Day Turnaround Time						
Project Manager:	Kris Hinskey	P.O.#	MI001454.0003		Canister Vacuum/Pressure		Requested Analyses				
Sampler:	J. Lust: H. Ladd				Lab Use Only	Receipt	Final (psig) Gas: N ₂ / He	TO-15 (See Special Instructions/Notes)	Do not analyze		
Site Name:	34934 Standish										

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N ₂ / He	TO-15 (See Special Instructions/Notes)	Do not analyze		
				Date	Time	Date	Time								
01A	AA-34934STANDISH-01_041119	6L2313	22690	4-11-19	1515	4-12-19	1408	-29	4.5			X			
02A	IAF-34934STANDISH-02_041119	6L0733	21373	4-11-19	1505	4-12-19	1411	-29	-6			X			
03A	IAG-34934STANDISH-01_041119	6L8068	24096	4-11-19	1510	4-12-19	1409	-29	-5.5			X			
	DUP-34934Standish-01-041119	6L2316	23879	4-11-19	—	4-12-19	—	-29	-1.5				X		
	DUP-34934Standish-02-041119	6L1562	20728	4-11-19	—	4-12-19	—	-29.5	-2.5				X		

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
<i>[Signature]</i>	4-17-19	1600	<i>[Signature]</i>	4/19/19	0935
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Lab Use Only

Shipper Name: *Fed Ex* Custody Seals Intact? Yes No None

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

Daily Log - Ford Off Site VI Investigation - VISIT 2 & 3

Project No.: MI001454.0003 Page 1 of 1
 Site Location: 34934 Standish Livonia, MI
 Prepared By: JLUST

Date	Time	Description of Activities
4/11/19		R2 Purpose: Visit 2 and 3 Can deploy and collect
		Arcadis: JLUST, H. Ladd, M. Olander
		Weather: 30's windy
		SUMMA Canisters used: 5 6L ^{24HR} cans, 1 1L ^{10MIN} can
	1500	Arcadis onsite
	1505	conduct canister deployment and spoke with resident about keeping windows closed
	1520	Arcadis offsite
4/12/19	1400	Arcadis onsite
	1405	check/collect IA/AA canisters, collect SSMP sample
	1440	Arcadis offsite
		<i>[Handwritten signature]</i>

Visit 2 & 3 Checklist

Background sources of VOCs have been removed/isolated? Yes No

Number of SSMP samples collected: 1

Number of indoor/ambient air samples collected: 5 (3 IA/AA, 2 DUP)

Occupancy hours (for commercial properties only):



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM

Date: 10/22/18 Survey Performed by: David Craig
4/10/19 J. L. U.S. 2

1. OCCUPANT:

Rent: Own:

Resident Name: Anthony Kiseda

Address: 24934 Standish

Telephone: Home: 734-564-0486 Work: _____

How long have you lived at this location? 12 years

List current occupants/occupation below (attach additional pages if necessary):

Age (if under 18)	Sex (M/F)	Occupation
	M	Account Manager
	F	Parts Coordinator
	M	Student

2. OWNER OR LANDLORD: (If same as occupant, check here and go to Item No. 3).

Last Name: _____ First Name: _____

Address: _____

City and State: _____

County: _____

Home Phone: _____ Office Phone: _____



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

3. SENSITIVE POPULATION:

Daycare/Nursing Home/Hospital/School/Other (specify): N/A

4. BUILDING CHARACTERISTICS:

Residential/Multi-family Residential/Office/Strip Mall/Commercial/Industrial/School

Describe Building: Bungalow Year Constructed: 1929

Number of floors at or above grade: 1.5 - Bungalow

Number of floors below grade: _____ (full basement/crawl space/slab on grade)

Depth of structure below grade: 4 ft. Basement size: N/A ft²

If the property is residential, what type? (Circle all appropriate responses.)

Ranch	2-Family	3-Family	Raised Ranch
Split Level	Colonial	Cape Cod	Contemporary
Mobile Home	Duplex	Apartment House	Townhouses/Condos
Modular	Log Home	Other: <u>Bungalow</u>	

If multiple units, how many? _____

If the property is commercial:

Business type(s) N/A

Does it include residences (i.e., multi-use)? Yes No If yes, how many? N/A

5. OCCUPANCY:

Is basement/lowest level occupied? (Circle one)

Full-time Occasionally Seldom Almost Never *no basement*



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Level	General Use (e.g., family room, bedroom, laundry, workshop, storage)
Basement	<u>N/A</u>
1 st Floor	<u>Bedrooms, Kitchen, Laundry, Bathrooms, Living Room</u>
2 nd Floor	<u>Storage / Living Space</u>
3 rd Floor	<u>_____</u>
4 th Floor	<u>_____</u>

(Use additional page(s) as necessary)

6. CONSTRUCTION CHARACTERISTICS: (Circle all that apply.)

a. Above Grade Construction: (Describe type: wood frame, concrete, stone, brick).

Wood Frame

b. Basement Type: Full Crawlspace Slab Other: _____

c. Basement Floor: Concrete Dirt Stone Other: _____

d. Finished Basement Floor: Uncovered Covered

If covered, what with? N/A

e. Foundation Walls: Poured Block Stone Other: _____

f. Foundation Walls: Unsealed Sealed Sealed with: _____

g. The Basement is: Wet Damp Dry

h. The Basement is: Finished Unfinished Partially Finished

i. Sump Present (Y/N) If yes, how many? _____

Where Discharged? N/A

Water in Sump? Yes No Not Applicable

N/A



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Identify all potential soil vapor entry points and estimated size (e.g., cracks, utility parts, drains).

Floor drain in mud room (near washer dryer)
Cracks in garage floor

Are the basement walls or floor sealed with waterproof paint or epoxy coatings? Yes No

Type of ground cover outside of building: Grass Concrete Asphalt Other Gravel

Is an existing subsurface depressurization (radon) system in place? Yes No

If yes, is it active, or passive? detector / No system

Is a sub-slab vapor/moisture barrier in place? Yes No

Type of barrier: _____

7. HEATING, VENTING, and AIR CONDITIONING

Type of heating system(s) used in this building: (Circle all that apply: Note the primary).

<input checked="" type="radio"/> Hot Air Circulation	<input type="radio"/> Heat Pump	<input type="radio"/> Hot Water Baseboard
<input type="radio"/> Space Heaters	<input type="radio"/> Steam Radiation	<input type="radio"/> Radiant Floor
<input type="radio"/> Electric Baseboard	<input type="radio"/> Wood Stove	<input type="radio"/> Outdoor Wood Boiler
Other: _____		<u>new furnace - Feb 2012</u>

The primary type of fuel used is:

<input checked="" type="radio"/> Natural Gas	<input type="radio"/> Fuel Oil	<input type="radio"/> Kerosene
<input type="radio"/> Electric	<input type="radio"/> Propane	<input type="radio"/> Solar
<input type="radio"/> Wood	<input type="radio"/> Coal	



Domestic hot water tank fueled by: Electric

Location of Boiler/Furnace: Basement Outdoors Main Floor Other Crawl space



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Air Conditioning: Central Air Window Units Open Windows None

Are air distribution ducts present? Yes No

Is there a whole house fan? Yes No

Describe the air intake system (outside air supply, cold air return, ductwork, etc.) and its condition where visible. Indicate the locations on the floor plan diagram.

Outside Air / Cold Air Return

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

- a) Is there an attached garage? Yes No
If yes, does it have a separate heating unit? Yes No N/A
- b) Are any petroleum-powered machines or vehicles stored in an attached garage (e.g., lawn mower, ATV, car)? Yes No N/A
- c) Has the building ever had a fire? Yes No
- d) Is there a fuel burning or unvented gas space heater? Yes No
- e) Is there a workshop or hobby/craft area? Yes No
If yes, where and what type? N/A
- f) Is there smoking in the building? Yes No
If yes, how frequently? N/A



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

- g) Have cleaning products been used recently? Yes No
If yes, when and what type? General Cleaning
- h) Have cosmetic products been used recently? Yes No
If yes, when and what type? Sometimes
- i) Has there been painting or staining in the last six months? Yes No
If yes, when and where? _____
- j) Is there new carpet, drapes, or other textiles? Yes No
If yes, when and where? _____
- k) Have air fresheners been used recently? Yes No
If yes, when and what type? _____
- l) Is there a kitchen exhaust fan? Yes No
If yes, where is it vented? Does vent outside
- m) Is there a clothes dryer? Yes No
If yes, is it vented outside? Yes No
- n) Has there been a pesticide application? Yes No
If yes, when and what type? N/A
- o) Are there odors in the building? Yes No
If yes, please describe: N/A



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

- p) Do any of the building occupants use solvents at work (e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetology)?

Yes No

If yes, what types of solvents are used? N/A

If yes, are their clothes washed at work?

Yes No

- q) Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response.)

No Unknown

Yes, use dry-cleaning regularly (weekly)

Yes, use dry-cleaning infrequently (monthly or less)

Yes, work at a dry-cleaning service

- r) Is there a radon mitigation system for the building/structure?

Yes No

If yes, what is date of installation? N/A

Active Passive

- s) Additional mitigation system information (fan size, location, operating status, liner installed, etc.):

N/A

- t) Is there an irrigation well, or any other well, present at the property:

Yes No

If yes, please describe placement, use, and history below.

N/A

Carson 672

Photos - 674-

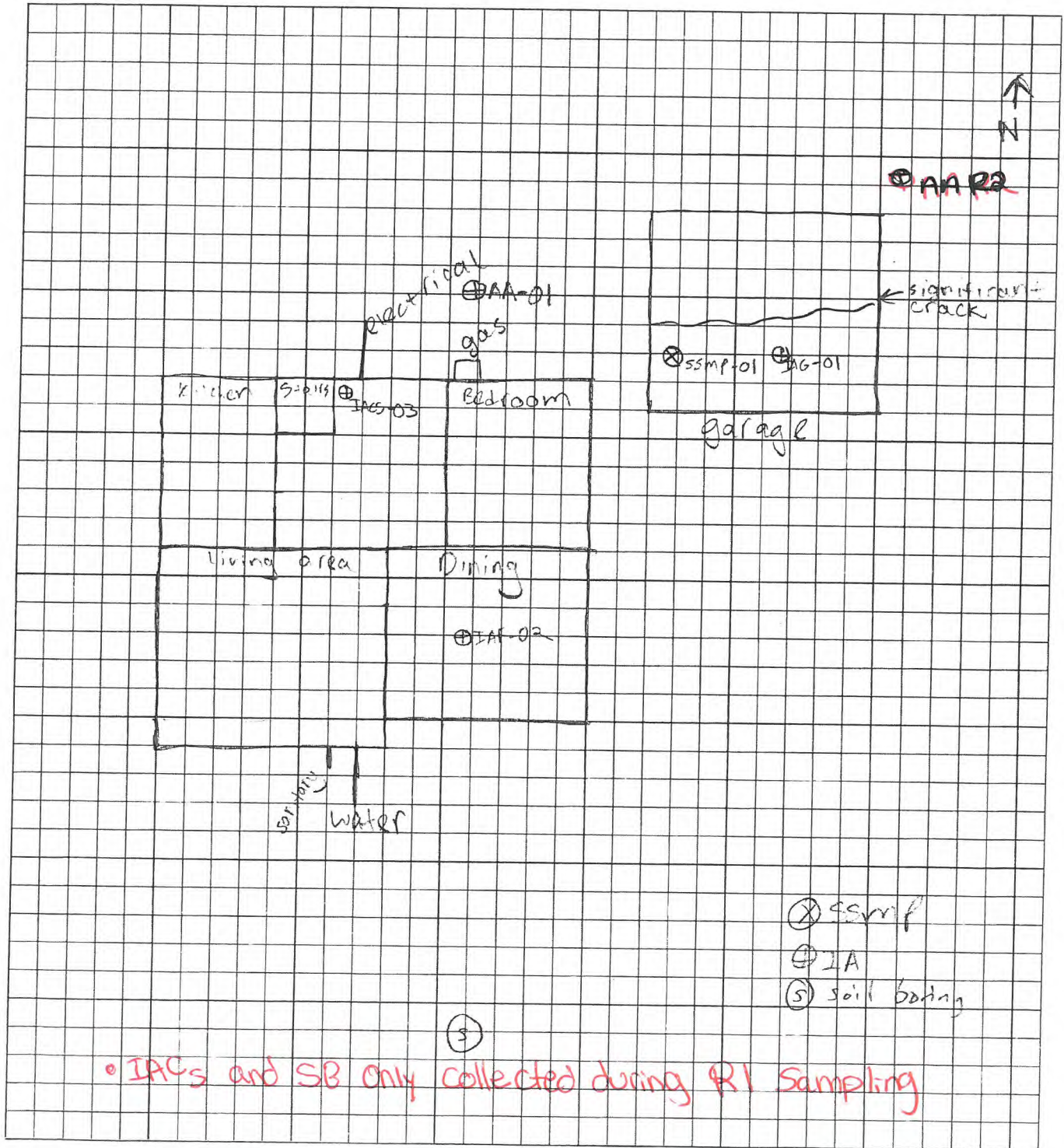
PRODUCT INVENTORY FORM:

Make and Model of field instrument used: ppb RAE 3000

List specific products found in the residence or area that have the potential to affect indoor air quality (e.g., gasoline or kerosene storage cans, glues, paints, cleaning solvents/products, polishes/waxes, new furniture/ carpet, nail polish/hairspray/cologne).

Potential Source	Location	Size and Condition	Chemical Ingredients	Field Instrument Reading (units)	Photo Y/N	
Gasoline Storage Cans and Equipment	Garage	5-gal	Empty	0.00 ppb	Y	- empty
Kerosene Storage Cans	Garage	Kerosene Heater	vac	0.00 ppb	Y	- empty
Paints/Thinners/Strippers	Garage	Small Cans	Various vac's	0.00 ppb	Y	- removed
Cleaning Solvents	Garage	Small Cans	Brite Clean / Cab Clean	0.00 ppb	Y	- removed
Hobby Supplies - Glue, Paint, Etc.	N/A					
Oven Cleaner	N/A					
Carpet/Upholstery Cleaners	N/A					
Household Cleaners (non-solvent)	Bathroom					
Moth Balls	N/A					
Polishes/Waxes	Garage	Bathroom	Turtle Wax / Armor All	0.00 ppb	Y	- removed
Insecticides	Garage	2-gal	Ortho Home Defense	0.00 ppb	Y	- removed
Furniture/Floor Polish	N/A					
Hairspray	Bathroom	Various Aerosols	Various vac's	0.00 ppb	Y	- removed
Cologne/Perfume						
Air Fresheners	House	Candles	Not lit	0.00 ppb	N	- not removed
Interior Fuel Tank	N/A					
Wood Stove/Fireplace	N/A					
New Furniture/Upholstery	N/A					
New Carpeting/Flooring	N/A					
Others (fill in below)						
Boat Motor	Garage	Small	Gear oil	0.00 ppb	Y	- not removed

Subject 34934 Standish			
Project No. M1001454.0003		Sheet	
Calculations By Seth Turner	Date 10-22-18	Checked By	Date



Office Name & Address (Reporting Information): Arcadis of Michigan, LLC 28550 Cabot Drive, Suite 500, Novi, MI 48377		Project Name: Ford LTP Off-site Sampling	
Field Manager: Adam Richmond		Project Number: MI001454.0003	
Phone Number: 248.994.2240	Special Instructions: 	Site Address: 34934 Standish	
Email Address for Result Reporting: Kristoffer.Hinskey@arcadis.com		Sampler Name: <u>A. Ladd, J. Lust</u>	
Summa Canister Size (1L, 2.7 L, 6L) 6 Liter		Lab: Eurofins	

Sample ID	Sample Location Description	Indoor/Outdoor	PID in Sampling Area (ppb)	Canister Number	Flow Controller Number	Sample Collection Start Date	Sample Collection Start Time	Beginning Canister Pressure (in. Hg)	Sample Collection End Date	Sample Collection End Time	Ending Canister Pressure (in. Hg)	HVAC System Information			Notes
												HVAC Fan On?	Heat On?	Temperature Setting (°F) (start/end)	
AA-34934STANDISH-01_041119	E side of yard	O	0	6L2313	22690	4/11/19	1515	-29	4/12/19	1408	-4.5	No	No	No	
IAF-34934STANDISH-02_041119	Seton kitchen table	I	0	6L0733	21373	4-11-19	1505	-22	4/12/19 1411	1411	-6	Y	Y	68/68	
IAG-34934STANDISH-01_041119	Center of garage on chair	O	0	6L0068	24096	4/11/19	1510	-29	4/12/19 1409	1409	-5.5	No	No	No	
DUP-34934Standish-01_041119	Garage	O	0	6L2316	23879	4/11/19	1510	-29	4/12/19 1409	1409	-1.5	No	No	No	do not analyze
DUP-34934Standish-02_041119	Ambient air	O	0	6L562	20728	4/11/19	1515	-29.5	4/12/19	1408	-2.5	No	No	No	do not analyze

Meteorological Data							Source of Weather Information	General Notes or Observations
Date	Time	Temp. (°F)		Relative Humidity (%)	Barometric Pressure (in. Hg)	Air Speed (mph)		
		Indoor	Outdoor					
4/11/19	1500	68	46	58	29.99	E 23	weather.com app	
4/12/19	1400	62	62	54	29.74	SW 22	weather.com app	
							weather.com app	
							weather.com app	

TRANSMITTAL LETTER



To:
Anthony Kiseda
Shawn Collins
Brandon Alger (EGLE)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:
August 9, 2019

Subject:

Arcadis Project No.:

Vapor Intrusion Assessment
Data Package

We are sending you hard copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Delivery Date	Drawing No.	Rev.	Description	Action*
1	8/13/2019			Figure	
1	8/13/2019			Analytical Results	
1	8/13/2019			Field Notes and Drawings	

Action*

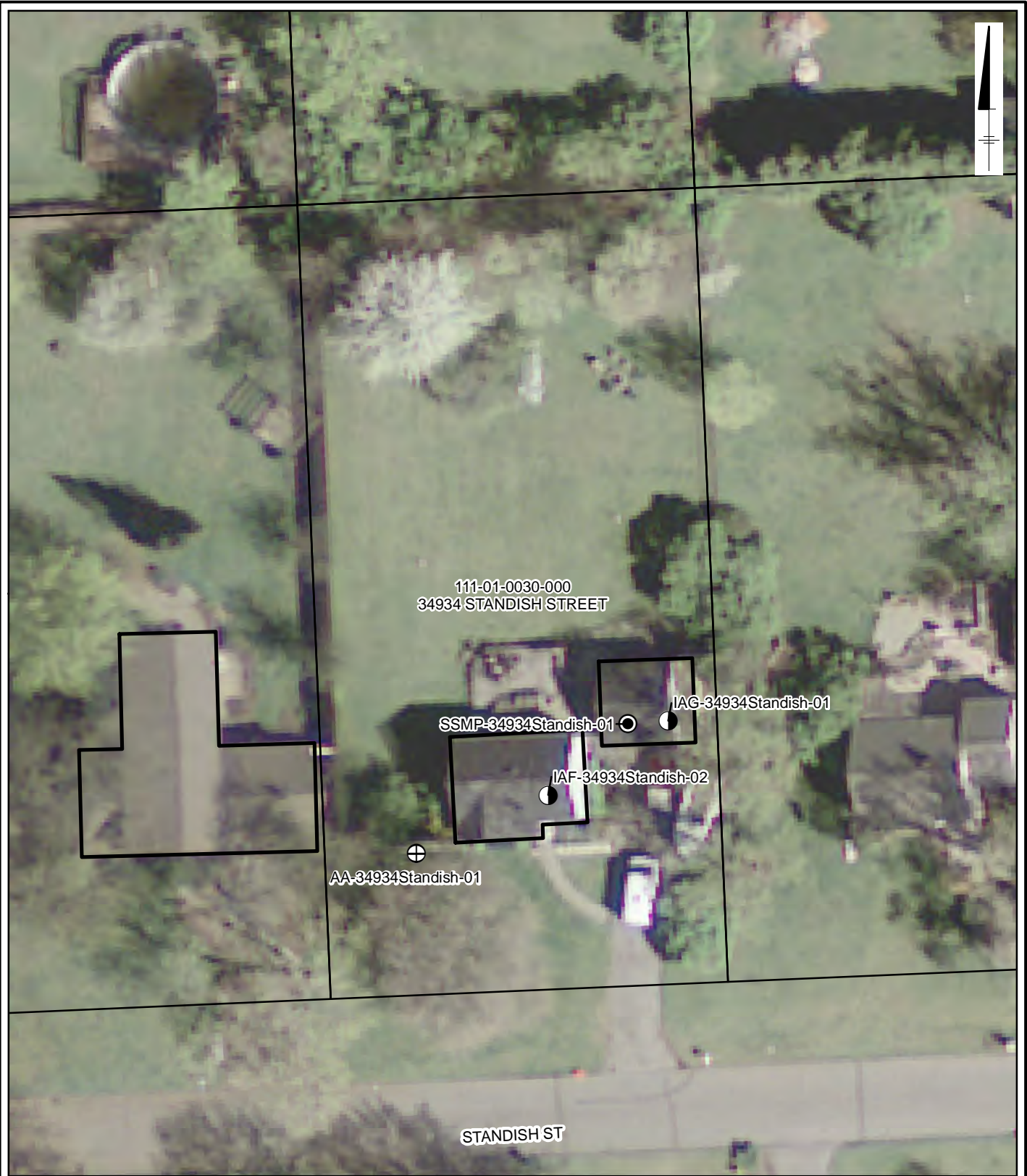
- A Approved CR Correct and Resubmit Resubmit _____ Copies
 AN Approved As Noted F File Return _____ Copies
 AS As Requested FA For Approval Review and Comment
 Other: _____

Mailing Method






- U.S. Postal Service 1st Class Courier/Hand Delivery FedEx Priority Overnight FedEx 2-Day Delivery
 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
 Other: email

Thank you for cooperating with the air sampling at your property on June 27 and 28, 2019. Attached is your data package.

CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: T. STEVENS TR: P. CURRY PROJECTNUMBER: M001373.0001.00003 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
 Z:\GISProjects\ENV\NoviBrighton_MIVordLivonia\GIS\docs\2018-11\34934_Standish_20181109.mxd PLOTTED: 11/9/2018 11:42:31 AM BY: mgrs



LEGEND:

-  INDOOR AIR LOCATION
-  AMBIENT AIR LOCATION
-  SUB-SLAB MONITORING POINT LOCATION
-  BUILDING
-  PROPERTY BOUNDARIES



FORD MOTOR COMPANY
 LIVONIA TRANSMISSION PLANT
 LIVONIA, MICHIGAN

AIR SAMPLING LOCATIONS



FIGURE
1

[REDACTED]

7/11/2019
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP Off-Site Sampling
Project #:
Workorder #: 1907119

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 7/3/2019 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

[REDACTED]


Ausha Scott
Project Manager

WORK ORDER #: 1907119

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0003.00002
FAX:		PROJECT #	Ford LTP Off-Site Sampling
DATE RECEIVED:	07/03/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	07/11/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SSMP-34934STANDISH-01_062819	TO-15	5.3 "Hg	15.5 psi
02A	Lab Blank	TO-15	NA	NA
03A	CCV	TO-15	NA	NA
04A	LCS	TO-15	NA	NA
04AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 07/10/19

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.
 180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1907119

One 1 Liter Summa Canister (100% Certified) sample was received on July 03, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	SSMP-34934STANDISH-01_062819	Date/Time Analyzed:	7/9/19 11:58 PM
Lab ID:	1907119-01A	Dilution Factor:	2.50
Date/Time Collected:	6/28/19 04:50 PM	Instrument/Filename:	msdj.i / j070920
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.0	5.0	Not Detected
1,4-Dioxane	123-91-1	3.9	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.2	4.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.3	6.8	8.5	64
trans-1,2-Dichloroethene	156-60-5	2.8	4.0	5.0	Not Detected
Trichloroethene	79-01-6	2.5	5.4	6.7	Not Detected
Vinyl Chloride	75-01-4	2.3	2.6	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	90
Toluene-d8	2037-26-5	70-130	96

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	Lab Blank	Date/Time Analyzed:	7/9/19 07:18 PM
Lab ID:	1907119-02A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j070911a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.59	1.6	2.0	Not Detected
1,4-Dioxane	123-91-1	1.6	5.4	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.90	1.6	2.0	Not Detected
Tetrachloroethene	127-18-4	0.91	2.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.1	1.6	2.0	Not Detected
Trichloroethene	79-01-6	1.0	2.1	2.7	Not Detected
Vinyl Chloride	75-01-4	0.91	1.0	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	89
Toluene-d8	2037-26-5	70-130	96

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	CCV	Date/Time Analyzed:	7/9/19 04:08 PM
Lab ID:	1907119-03A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j070907
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	88
1,4-Dioxane	123-91-1	89
cis-1,2-Dichloroethene	156-59-2	88
Tetrachloroethene	127-18-4	95
trans-1,2-Dichloroethene	156-60-5	87
Trichloroethene	79-01-6	90
Vinyl Chloride	75-01-4	85

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	98

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	LCS	Date/Time Analyzed:	7/9/19 04:35 PM
Lab ID:	1907119-04A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j070908
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	92
1,4-Dioxane	123-91-1	91
cis-1,2-Dichloroethene	156-59-2	100
Tetrachloroethene	127-18-4	101
trans-1,2-Dichloroethene	156-60-5	79
Trichloroethene	79-01-6	93
Vinyl Chloride	75-01-4	93

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	100

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	LCSD	Date/Time Analyzed:	7/9/19 05:03 PM
Lab ID:	1907119-04AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msdj.i / j070909
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	89
1,4-Dioxane	123-91-1	89
cis-1,2-Dichloroethene	156-59-2	96
Tetrachloroethene	127-18-4	101
trans-1,2-Dichloroethene	156-60-5	75
Trichloroethene	79-01-6	93
Vinyl Chloride	75-01-4	89

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	87
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	99

* % Recovery is calculated using unrounded analytical results.



July 11, 2019

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: MI001454.0002/3/4.00002/2B/3B
Client project scope reference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics - Folsom
Laboratory submittal: 1907119
Sample date: 2019-06-28
Report received by CADENA: 2019-07-11
Initial Data Verification completed by CADENA: 2019-07-11

1 Air sample was analyzed for TO-15 parameters.

There were no significant QC anomalies or exceptions to report.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) TO-15 Analysis

SDG #1907119

CADENA Verification Report: 2019-07-11

Analyses Performed By:
Eurofins Air Toxics
Folsom, California

Report #33712R
Review Level: Tier III
Project: MI001454.0004.00002 (30016346)

DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 1907119 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
1907119	SSMP-34934STANDISH-01_062819	1907119-01A	Air	6/28/2019		X		

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15 (Full Scan). Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15	Air	30 days from collection to analysis (Canister)	Ambient Temperature	< -2" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 140% or less than 60% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. All identified compounds met the specified criteria.

6. Field Duplicate Sample Analysis

The field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 35% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are not greater than five times the RL, a control limit of one times the RL is applied to the difference between the duplicate sample results.

A field duplicate was not performed on a sample location within this SDG.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15 (Full Scan)	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-2"Hg)		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Field Duplicate Sample RPD					X
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:



DATE: August 6, 2019

PEER REVIEW: Dennis Capria

DATE: August 7, 2019



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	SSMP-34934STANDISH-01_062819	Date/Time Analyzed:	7/9/19 11:58 PM
Lab ID:	1907119-01A	Dilution Factor:	2.50
Date/Time Collected:	6/28/19 04:50 PM	Instrument/Filename:	msdj.i / j070920
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.5	4.0	5.0	Not Detected
1,4-Dioxane	123-91-1	3.9	14	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	2.2	4.0	5.0	Not Detected
Tetrachloroethene	127-18-4	2.3	6.8	8.5	64
trans-1,2-Dichloroethene	156-60-5	2.8	4.0	5.0	Not Detected
Trichloroethene	79-01-6	2.5	5.4	6.7	Not Detected
Vinyl Chloride	75-01-4	2.3	2.6	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	90
Toluene-d8	2037-26-5	70-130	96

Analysis Request / Canister Chain of Custody

For Laboratory Use
1907119
 Workorder #:

PID: _____

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
 Phone (800) 985-5855; Fax (916) 351-8279
 Client: Arcadis

PID: _____

Project Name: Ford LTP Off-Site Sampling

Turnaround Time (Rush surcharges may apply)

Project Manager: Kris Hinskey
 Sampler: Shantel Johnson

P.O.# MI001454.0003.00002

Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting

5 Day Turnaround Time

Site Name: 34934 STANDISH

Canister Vacuum/Pressure

Requested Analyses

Lab ID	Sample Identification	Canister #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Canister Vacuum/Pressure		Lab Use Only		TO-15 (See Special Instructions/Instructions/)
				Date	Time	Date	Time	Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N2 / He	
OIA	SSMP-34934STANDISH-07_062819	1L2721	23377	06/28/2019	16:36	06/28/2019	16:50	-29.5	-5			x
Relinquished by: (Signature/Affiliation)				Date	Time	Relinquished by: (Signature/Affiliation)		Date	Time	Date	Time	Time
<i>[Signature]</i> ARCADIS				7/1/19	1600	<i>[Signature]</i> Received		7/1/19	1650	7/1/19	0950	
Relinquished by: (Signature/Affiliation)				Date	Time	Relinquished by: (Signature/Affiliation)		Date	Time	Date	Time	Time
Relinquished by: (Signature/Affiliation)				Date	Time	Relinquished by: (Signature/Affiliation)		Date	Time	Date	Time	Time

Shipper Name: _____ Custody Seats Intact? Yes No None

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

7/11/2019
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP Off-Site Sampling
Project #:
Workorder #: 1907124

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 7/3/2019 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1907124

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	MI001454.0004.00002
FAX:		PROJECT #	Ford LTP Off-Site Sampling
DATE RECEIVED:	07/03/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	07/11/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	AA-34934STANDISH-01_062719	Modified TO-15	7.0 "Hg	5 psi
02A	IAG-34934STANDISH-01_062719	Modified TO-15	9.5 "Hg	5 psi
03A	IAF-34934STANDISH-02_062719	Modified TO-15	5.0 "Hg	5 psi
04A	DUP-34934STANDISH-01_062719	Modified TO-15	6.0 "Hg	5 psi
05A	Lab Blank	Modified TO-15	NA	NA
06A	CCV	Modified TO-15	NA	NA
07A	LCS	Modified TO-15	NA	NA
07AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 07/11/19

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
 TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 1907124

Four 6 Liter Summa Canister (100% Cert Ambient) samples were received on July 03, 2019. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	AA-34934STANDISH-01_062719	Date/Time Analyzed:	7/8/19 05:06 PM
Lab ID:	1907124-01A	Dilution Factor:	1.75
Date/Time Collected:	6/28/19 04:40 PM	Instrument/Filename:	msd20.i / 20070812
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.17	0.62	0.69	Not Detected
1,4-Dioxane	123-91-1	0.51	0.57	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.37	0.62	0.69	Not Detected
Tetrachloroethene	127-18-4	0.74	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.39	0.62	0.69	Not Detected
Trichloroethene	79-01-6	0.46	0.85	0.94	Not Detected
Vinyl Chloride	75-01-4	0.14	0.40	0.45	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	110
4-Bromofluorobenzene	460-00-4	70-130	108
Toluene-d8	2037-26-5	70-130	96

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	IAG-34934STANDISH-01_062719	Date/Time Analyzed:	7/8/19 05:46 PM
Lab ID:	1907124-02A	Dilution Factor:	1.96
Date/Time Collected:	6/28/19 04:58 PM	Instrument/Filename:	msd20.i / 20070813
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.19	0.70	0.78	Not Detected
1,4-Dioxane	123-91-1	0.57	0.64	0.71	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.42	0.70	0.78	Not Detected
Tetrachloroethene	127-18-4	0.83	1.2	1.3	120
trans-1,2-Dichloroethene	156-60-5	0.44	0.70	0.78	Not Detected
Trichloroethene	79-01-6	0.52	0.95	1.0	Not Detected
Vinyl Chloride	75-01-4	0.16	0.45	0.50	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	97

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	IAF-34934STANDISH-02_062719	Date/Time Analyzed:	7/8/19 07:07 PM
Lab ID:	1907124-03A	Dilution Factor:	1.61
Date/Time Collected:	6/28/19 04:00 PM	Instrument/Filename:	msd20.i / 20070815
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.15	0.57	0.64	Not Detected
1,4-Dioxane	123-91-1	0.47	0.52	0.58	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.57	0.64	Not Detected
Tetrachloroethene	127-18-4	0.68	0.98	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.57	0.64	Not Detected
Trichloroethene	79-01-6	0.42	0.78	0.86	Not Detected
Vinyl Chloride	75-01-4	0.13	0.37	0.41	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	107
4-Bromofluorobenzene	460-00-4	70-130	108
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	DUP-34934STANDISH-01_062719	Date/Time Analyzed:	7/8/19 07:46 PM
Lab ID:	1907124-04A	Dilution Factor:	1.68
Date/Time Collected:	6/28/19 12:00 AM	Instrument/Filename:	msd20.i / 20070816
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.16	0.60	0.67	Not Detected
1,4-Dioxane	123-91-1	0.49	0.54	0.60	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.36	0.60	0.67	Not Detected
Tetrachloroethene	127-18-4	0.71	1.0	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.37	0.60	0.67	Not Detected
Trichloroethene	79-01-6	0.44	0.81	0.90	Not Detected
Vinyl Chloride	75-01-4	0.14	0.39	0.43	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	96

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	Lab Blank	Date/Time Analyzed:	7/8/19 10:28 AM
Lab ID:	1907124-05A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20070806a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.095	0.36	0.40	Not Detected
1,4-Dioxane	123-91-1	0.29	0.32	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.21	0.36	0.40	Not Detected
Tetrachloroethene	127-18-4	0.42	0.61	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.22	0.36	0.40	Not Detected
Trichloroethene	79-01-6	0.26	0.48	0.54	Not Detected
Vinyl Chloride	75-01-4	0.082	0.23	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	116
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	99

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	CCV	Date/Time Analyzed:	7/8/19 06:52 AM
Lab ID:	1907124-06A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20070802
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	99
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	98
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	99
Trichloroethene	79-01-6	102
Vinyl Chloride	75-01-4	105

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	99

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	LCS	Date/Time Analyzed:	7/8/19 08:07 AM
Lab ID:	1907124-07A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20070803
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	104
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	112
Tetrachloroethene	127-18-4	109
trans-1,2-Dichloroethene	156-60-5	88
Trichloroethene	79-01-6	100
Vinyl Chloride	75-01-4	108

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	98

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	LCSD	Date/Time Analyzed:	7/8/19 08:47 AM
Lab ID:	1907124-07AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd20.i / 20070804
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	105
1,4-Dioxane	123-91-1	99
cis-1,2-Dichloroethene	156-59-2	113
Tetrachloroethene	127-18-4	110
trans-1,2-Dichloroethene	156-60-5	88
Trichloroethene	79-01-6	101
Vinyl Chloride	75-01-4	106

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	98

* % Recovery is calculated using unrounded analytical results.



July 11, 2019

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: MI001454.0002/3/4.00002/2B/3B
Client project scope reference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics - Folsom
Laboratory submittal: 1907124
Sample date: 2019-06-28
Report received by CADENA: 2019-07-11
Initial Data Verification completed by CADENA: 2019-07-11

4 Air samples were analyzed for TO-15 parameters.

There were no significant QC anomalies or exceptions to report.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) TO-15 Analysis

SDG #1907124

CADENA Verification Report: 2019-07-11

Analyses Performed By:
Eurofins Air Toxics
Folsom, California

Report #33713R
Review Level: Tier III
Project: MI001454.0004.00002 (30016346)

DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 1907124 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
1907124	AA-34934STANDISH-01_062719	1907124-01A	Air	6/28/2019		X		
	IAG-34934STANDISH-01_062719	1907124-02A	Air	6/28/2019		X		
	IAF-34934STANDISH-02_062719	1907124-03A	Air	6/28/2019		X		
	DUP-34934STANDISH-01_062719	1907124-04A	Air	6/28/2019	IAF-34934STANDISH-02_062719	X		

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15 (Full Scan). Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15	Air	30 days from collection to analysis (Canister)	Ambient Temperature	< -2" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 140% or less than 60% of the area counts of the associated continuing calibration standard.

DATA REVIEW

All internal standard responses were within control limits.

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

6. Field Duplicate Sample Analysis

The field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 35% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are not greater than five times the RL, a control limit of one times the RL is applied to the difference between the duplicate sample results.

Results (in $\mu\text{g}/\text{m}^3$) for the field duplicate samples are summarized in the following table.

Sample ID / Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
IAF-34934STANDISH-02_062719/ DUP-34934STANDISH-01_062719	All compounds	U	U	AC

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15 (Full Scan)	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-2"Hg)		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Field Duplicate Sample RPD		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:



DATE: August 6, 2019

PEER REVIEW: Dennis Capria

DATE: August 7, 2019



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	AA-34934STANDISH-01_062719	Date/Time Analyzed:	7/8/19 05:06 PM
Lab ID:	1907124-01A	Dilution Factor:	1.75
Date/Time Collected:	6/28/19 04:40 PM	Instrument/Filename:	msd20.i / 20070812
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.17	0.62	0.69	Not Detected
1,4-Dioxane	123-91-1	0.51	0.57	0.63	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.37	0.62	0.69	Not Detected
Tetrachloroethene	127-18-4	0.74	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.39	0.62	0.69	Not Detected
Trichloroethene	79-01-6	0.46	0.85	0.94	Not Detected
Vinyl Chloride	75-01-4	0.14	0.40	0.45	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	110
4-Bromofluorobenzene	460-00-4	70-130	108
Toluene-d8	2037-26-5	70-130	96

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	IAG-34934STANDISH-01_062719	Date/Time Analyzed:	7/8/19 05:46 PM
Lab ID:	1907124-02A	Dilution Factor:	1.96
Date/Time Collected:	6/28/19 04:58 PM	Instrument/Filename:	msd20.i / 20070813
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.19	0.70	0.78	Not Detected
1,4-Dioxane	123-91-1	0.57	0.64	0.71	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.42	0.70	0.78	Not Detected
Tetrachloroethene	127-18-4	0.83	1.2	1.3	120
trans-1,2-Dichloroethene	156-60-5	0.44	0.70	0.78	Not Detected
Trichloroethene	79-01-6	0.52	0.95	1.0	Not Detected
Vinyl Chloride	75-01-4	0.16	0.45	0.50	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	97

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	IAF-34934STANDISH-02_062719	Date/Time Analyzed:	7/8/19 07:07 PM
Lab ID:	1907124-03A	Dilution Factor:	1.61
Date/Time Collected:	6/28/19 04:00 PM	Instrument/Filename:	msd20.i / 20070815
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.15	0.57	0.64	Not Detected
1,4-Dioxane	123-91-1	0.47	0.52	0.58	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.34	0.57	0.64	Not Detected
Tetrachloroethene	127-18-4	0.68	0.98	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.36	0.57	0.64	Not Detected
Trichloroethene	79-01-6	0.42	0.78	0.86	Not Detected
Vinyl Chloride	75-01-4	0.13	0.37	0.41	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	107
4-Bromofluorobenzene	460-00-4	70-130	108
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP Off-Site Sampling

Client ID:	DUP-34934STANDISH-01_062719	Date/Time Analyzed:	7/8/19 07:46 PM
Lab ID:	1907124-04A	Dilution Factor:	1.68
Date/Time Collected:	6/28/19 12:00 AM	Instrument/Filename:	msd20.i / 20070816
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.16	0.60	0.67	Not Detected
1,4-Dioxane	123-91-1	0.49	0.54	0.60	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.36	0.60	0.67	Not Detected
Tetrachloroethene	127-18-4	0.71	1.0	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.37	0.60	0.67	Not Detected
Trichloroethene	79-01-6	0.44	0.81	0.90	Not Detected
Vinyl Chloride	75-01-4	0.14	0.39	0.43	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	96

Analysis Request /Canister Chain of Custody

For Laboratory Use Only

PID: _____

Workerorder#: **1907124**

Page 1 of 1


180 Blue Ravine Rd. Suite B, Folsom, CA 95630
Phone (800) 985-5955; Fax (916) 351-8279

Client:	Arcadis	PID:		Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting				Turnaround Time (Rush surcharges may apply)					
Project Name:	Ford LTP Off-Site Sampling	P.O.#	MI001454.0003.00002					5 Day Turnaround Time					
Project Manager:	Kris Hinskey							Canister Vacuum/Pressure					
Sampler:	Hayden Ladd							Requested Analyses					
Site Name:	34934 STANDISH			Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Lab Use Only		TO-15 (See Special Instructions/Notes)	
Lab ID	Sample Identification	Canister #	Flow Controller #	Date	Time	Date	Time			Receipt	Final (psig) Gas: N2 / He		
01A	AA-34934STANDISH-01_062719	6L0432	22863	06/27/2019	17:08	06/28/2019	16:40	-29	-6			X	
02A	IAG-34934STANDISH-01_062719	6L1779	23856	06/27/2019	17:09	06/28/2019	16:58	-29	-8.5			X	
03A	IAF-34934STANDISH-02_062719	6L0120	1910	06/27/2019	17:05	06/28/2019	16:00	-29	-5.5			X	
04A	DUP-34934STANDISH-01_062719	6L0501	20754	06/27/2019		06/28/2019		-29	-5.5			X	
Relinquished by: (Signature/Affiliation) <i>Sh Sh ARCADIS</i>				Date	Time	Received by: (Signature/Affiliation) <i>[Signature]</i>				Date	Time		
Relinquished by: (Signature/Affiliation)				Date	Time	Received by: (Signature/Affiliation)				Date	Time		
Relinquished by: (Signature/Affiliation)				Date	Time	Received by: (Signature/Affiliation)				Date	Time		
Lab Use Only													
Shipper Name:	<i>fedex</i>	Custody Seals Intact?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> None								
Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922													

Daily Log - Ford Off Site VI Investigation - VISIT 2 & 3

Project No.: MI001454.0003 Page 1 of 1
 Site Location: 34934 STANDISH Livonia, MI
 Prepared By: S. JOHNSON

Date	Time	Description of Activities
6/27/19	-	Purpose: R3 VISIT + 2 + 3
	-	Arcadis: S. JOHNSON, J
	-	Weather: 89°, SUNNY
	-	Equipment: CAMERA, PID (calibrated)
	1700	ARCADIS ON SITE
	1705	DEPLOY CANISTERS
	-	REQUESTED OWNER KEEP DOORS/WINDOWS SHUT DURING SAMPLING
	1715	ARCADIS OFF SITE
6/28/19	1600	ARCADIS ON SITE, REMOVED CANISTERS
	1636	(CONDUCTED) SWAMP SAMPLING
	1705	ARCADIS OFF SITE



Visit 2 & 3 Checklist

Background sources of VOCs have been removed/isolated? Yes No NA

Number of SSMP samples collected: 1

Number of indoor/ambient air samples collected: 3 + SWP

Occupancy hours (for commercial properties only): -

Daily Log - Ford Off Site VI Investigation - VISIT 1

Project No.: MI001454.0003 Page 1 of 1

Site Location: 34934 Standish Livonia, MI

Prepared By: D. Craig

Date	Time	Description of Activities
6/24/19	—	Purpose: R3 Visit 1 - Bldg Survey, Chemical Inventory
	—	Arcadis: D. Craig, M. Olender, X. Chan
	—	Weather: 80° F, Cloudy
	—	Equipment: PID (calibrated)
	1500	Arcadis on-site
	1530	Arcadis tried numerous times to see if residents were home but no answer.
	1540	called homeowner, rescheduled for 1700.
	1540	Arcadis off site
	1700	Arcadis back on-site
	1705	Conducted Bldg Survey
	—	- Homeowner stated no changes to interior of house, didn't want us inside, all chemicals were same as R2.
	1715	Conducted Chemical Inventory
	—	- Background sources of VOCs remove from garage to drive
	1725	Arcadis off-site

Visit 1 Checklist

Background sources of VOCs have been removed/isolated? Yes No NA

Location of background sources of VOCs that have been removed/isolated: Tote outside of garage.

Sump pit is present? Yes No NA



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM

R3 - 6/24/19

David Craig

Date: 10/22/18

Survey Performed by: David Craig

4/10/19

52052

1. OCCUPANT:

Rent: _____

Own:

Resident Name:

Anthony Kiseda

Address:

34934 Standish

Telephone:

Home: 734-564-0486 Work: _____

How long have you lived at this location? 12 years

List current occupants/occupation below (attach additional pages if necessary):

Age (if under 18)	Sex (M/F)	Occupation
	M	Account Manager
	F	Pets Coordinator
	M	Student

2. OWNER OR LANDLORD: (If same as occupant, check here and go to Item No. 3).

Last Name: _____ First Name: _____

Address: _____

City and State: _____

County: _____

Home Phone: _____ Office Phone: _____

R3 * Homeowner stated absolutely no changes in house since R2.



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

3. SENSITIVE POPULATION:

Daycare/Nursing Home/Hospital/School/Other (specify): N/A

4. BUILDING CHARACTERISTICS:

Residential/Multi-family Residential/Office/Strip Mall/Commercial/Industrial/School

Describe Building: Bungalow Year Constructed: 1929

Number of floors at or above grade: 15 - Bungalow

Number of floors below grade: _____ (full basement/crawl space/slab on grade)

Depth of structure below grade: 4 ft. Basement size: N/A ft²

If the property is residential, what type? (Circle all appropriate responses.)

Ranch	2-Family	3-Family	Raised Ranch
Split Level	Colonial	Cape Cod	Contemporary
Mobile Home	Duplex	Apartment House	Townhouses/Condos
Modular	Log Home	Other: <u>Bungalow</u>	

If multiple units, how many? _____

If the property is commercial:

Business type(s) N/A

Does it include residences (i.e., multi-use)? Yes No If yes, how many? N/A

5. OCCUPANCY:

Is basement/lowest level occupied? (Circle one)

Full-time Occasionally Seldom Almost Never

no basement



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Level	General Use (e.g., family room, bedroom, laundry, workshop, storage)
Basement	<u>N/A</u>
1 st Floor	<u>Bedrooms, Kitchen, Laundry, Bathrooms, Births Rm.</u>
2 nd Floor	<u>Storage / Living Space</u>
3 rd Floor	<u>_____</u>
4 th Floor	<u>_____</u>

(Use additional page(s) as necessary)

6. CONSTRUCTION CHARACTERISTICS: (Circle all that apply.)

a. Above Grade Construction: (Describe type: wood frame, concrete, stone, brick).

Wood Frame

b. Basement Type: Full Crawlspace Slab Other: _____

c. Basement Floor: Concrete Dirt Stone Other: _____

d. Finished Basement Floor: Uncovered Covered

If covered, what with? N/A

e. Foundation Walls: Poured Block Stone Other: _____

f. Foundation Walls: Unsealed Sealed Sealed with: _____

g. The Basement is: Crawl Space Wet Damp Dry

h. The Basement is: Crawl Space Finished Unfinished Partially Finished

i. Sump Present (Y/N) N If yes, how many? _____

Where Discharged? N/A

Water in Sump? Yes No Not Applicable

N/A



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Identify all potential soil vapor entry points and estimated size (e.g., cracks, utility parts, drains).

Floor drain in mud room (near washer dryer)
Cracks in garage floor

Are the basement walls or floor sealed with waterproof paint or epoxy coatings? Yes No

Type of ground cover outside of building: Grass Concrete Asphalt Other Gravel

Is an existing subsurface depressurization (radon) system in place? Yes No

If yes, is it active, or passive? Detector / No system

Is a sub-slab vapor/moisture barrier in place? Yes No

Type of barrier: _____

7. HEATING, VENTING, and AIR CONDITIONING

Type of heating system(s) used in this building: (Circle all that apply: Note the primary).

<input checked="" type="radio"/> Hot Air Circulation	<input type="radio"/> Heat Pump	<input type="radio"/> Hot Water Baseboard
<input type="radio"/> Space Heaters	<input type="radio"/> Steam Radiation	<input type="radio"/> Radiant Floor
<input type="radio"/> Electric Baseboard	<input type="radio"/> Wood Stove	<input type="radio"/> Outdoor Wood Boiler
Other: _____		<u>new furnace - Feb 2013</u>

The primary type of fuel used is:

<input checked="" type="radio"/> Natural Gas	<input type="radio"/> Fuel Oil	<input type="radio"/> Kerosene
<input type="radio"/> Electric	<input type="radio"/> Propane	<input type="radio"/> Solar
<input type="radio"/> Wood	<input type="radio"/> Coal	

Domestic hot water tank fueled by: Electric

Location of Boiler/Furnace: Basement Outdoors Main Floor Other Crawl Space



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Air Conditioning: Central Air Window Units Open Windows None

Are air distribution ducts present? Yes No

Is there a whole house fan? Yes No

Describe the air intake system (outside air supply, cold air return, ductwork, etc.) and its condition where visible. Indicate the locations on the floor plan diagram.

Outside Air / Cold Air Return

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

a) Is there an attached garage? Yes No
 If yes, does it have a separate heating unit? Yes No N/A

b) Are any petroleum-powered machines or vehicles stored in an attached garage (e.g., lawn mower, ATV, car) Yes No N/A

c) Has the building ever had a fire? Yes No

d) Is there a fuel burning or unvented gas space heater? Yes No

e) Is there a workshop or hobby/craft area? Yes No

If yes, where and what type? N/A

f) Is there smoking in the building? Yes No

If yes, how frequently? N/A



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

- g) Have cleaning products been used recently? Yes No
If yes, when and what type? General Cleaning
- h) Have cosmetic products been used recently? Yes No
If yes, when and what type? Scrubbers
- i) Has there been painting or staining in the last six months? Yes No
If yes, when and where? _____
- j) Is there new carpet, drapes, or other textiles? Yes No
If yes, when and where? _____
- k) Have air fresheners been used recently? Yes No
If yes, when and what type? _____
- l) Is there a kitchen exhaust fan? Yes No
If yes, where is it vented? Does vent outside
- m) Is there a clothes dryer? Yes No
If yes, is it vented outside? Yes No
- n) Has there been a pesticide application? Yes No
If yes, when and what type? N/A
- o) Are there odors in the building? Yes No
If yes, please describe: N/A



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

p) Do any of the building occupants use solvents at work (e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetology)?

Yes No

If yes, what types of solvents are used? N/A

If yes, are their clothes washed at work?

Yes No

q) Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response.)

No Unknown

Yes, use dry-cleaning regularly (weekly)

Yes, use dry-cleaning infrequently (monthly or less)

Yes, work at a dry-cleaning service

r) Is there a radon mitigation system for the building/structure?

Yes No

If yes, what is date of installation? N/A

Active Passive

s) Additional mitigation system information (fan size, location, operating status, liner installed, etc.):

N/A

t) Is there an irrigation well, or any other well, present at the property:

Yes No

If yes, please describe placement, use, and history below.

N/A

Carson 4272

Photos - 674-

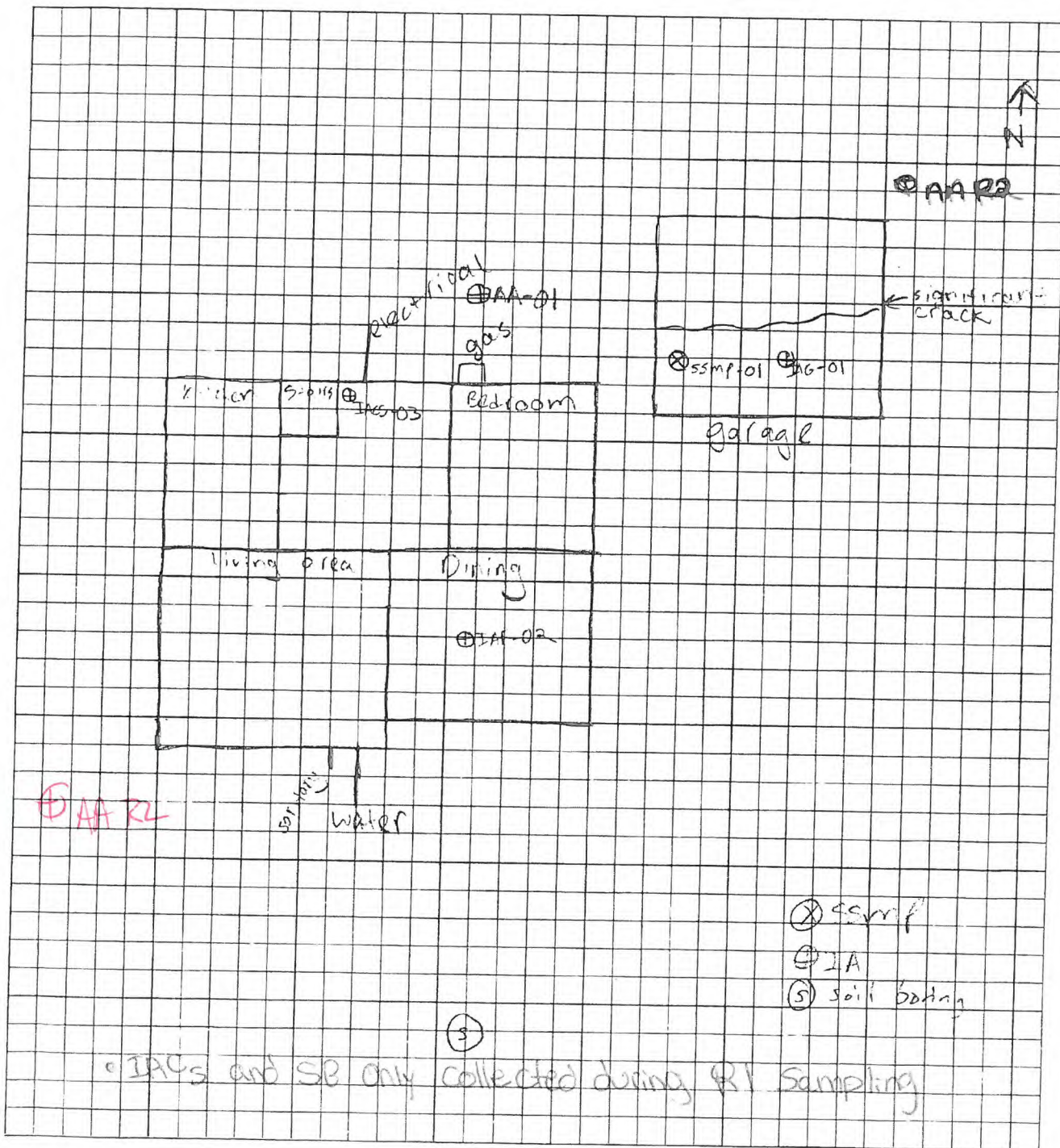
PRODUCT INVENTORY FORM:

Make and Model of field instrument used: ppb RAE 3000

List specific products found in the residence or area that have the potential to affect indoor air quality (e.g., gasoline or kerosene storage cans, glues, paints, cleaning solvents/products, polishes/waxes, new furniture/ carpet, nail polish/hairspray/cologne).

Potential Source	Location	Size and Condition	Chemical Ingredients	Field Instrument Reading (units)	Photo Y/N	
Gasoline Storage Cans and Equipment	Garage	5 gal	Empty	0.00 ppb	Y	- empty
Kerosene Storage Cans	Garage	Kerosene Heater	WCS	0.00 ppb	Y	- empty
Paints/Thinners/Strippers	Garage	Small Cans	Various WCS	0.00 ppb	Y	- removed
Cleaning Solvents	Garage	Small Cans	Brake Clean / Cab Clean	0.00 ppb	Y	- removed
Hobby Supplies - Glue, Paint, Etc.	N/A					
Oven Cleaner	N/A					
Carpet/Upholstery Cleaners	N/A					
Household Cleaners (non-solvent)	Bathroom					
Moth Balls	N/A					
Polishes/Waxes	Garage	Brushing	Turtle Wax Armor All	0.00 ppb	Y	- removed
Insecticides	Garage	2-1 gal cans	Ortho Home Defense	0.00 ppb	Y	- removed
Furniture/Floor Polish	N/A					
Hairspray	Bathroom	Various Aerosols	Various WCS	0.00 ppb	Y	- removed
Cologne/Perfume						
Air Fresheners	House	Candles	Not lit	0.00 ppb	N	- not removed
Interior Fuel Tank	N/A					
Wood Stove/Fireplace	N/A					
New Furniture/Upholstery	N/A					
New Carpeting/Flooring	N/A					
Others (fill in below)						
Boat Motor	Garage	Small	Gas oil	0.00 ppb	Y	- not removed
Mesa Fogger	Garage			0.00	Y	- removed
Lectra - Clean	Garage			0.00	Y	- removed
Brake Fluid	Garage			0.00	Y	- removed

Subject: 24934 Standish			
Project No. M2001454.0003		Sheet	
Calculations By: Seth Turner	Date: 10-22-18	Checked By:	Date:





Indoor/Ambient Air Collection Log Sheet

Office Name & Address (Reporting Information): Arcadis of Michigan, LLC, 28550 Cabot Drive, Suite 500, Novi, MI 48377						Project Name: Ford LTP Off-Site Sampling										
Field Manager: Adam Richmond						Project Number: MI001454.0003.00002										
Phone: 248-994-2240		Fax:		Special Instructions: Report ONLY: 1,1-DCE, cis-1,2- DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC.				Site Address: 34934 STANDISH								
Email Address for Result Reporting:				Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting.				Sampler Name: Hayden Ladd		Sampler Email Address: Hayden.Ladd@arcadis.com						
Summa Canister Size (1L, 2.7 L, 6L): 6 L						Lab: Eurofins										
Sample ID	Sample Location Description	Indoor/Outdoor	PID in sampling area (ppb)	Canister Number	Flow Controller Number	Sample Collection Start Date	Sample Collection Start Time	Beginning Canister Pressure (in. Hg)	Sample Collection End Date	Sample Collection End Time	Ending Canister Pressure (in. Hg)	HVAC System Information				Notes
												HVAC Fan On?	Heat On?	Start Temperature Setting (°F)	End Temperature Setting (°F)	
AA-34934STANDISH-01_062719	Southwest side of house	Outdoor	0	6L0432	22863	06/27/2019	17:08	-29	06/28/2019	16:40	-6	No	No	72	72	
IAG-34934STANDISH-01_062719	Center of garage	Indoor	0	6L1779	23856	06/27/2019	17:09	-29	06/28/2019	16:58	-8.5	No	No	72	72	
IAF-34934STANDISH-02_062719	Dining room table	Indoor	0	6L0120	1910	06/27/2019	17:05	-29	06/28/2019	16:00	-5.5	No	No	72	72	
DUP-34934STANDISH-01_062719	Dining room table	Indoor	0	6L0501	20754	06/27/2019	17:05	-29	06/28/2019	16:48	-5.5	No	No	72	72	
Meteorological Data							General Notes or Observations									
Date	Time	Temp. (°F)		Relative Humidity (%)	Barometric Pressure (in. Hg)	Air Speed (mph)	Source of Weather Information									
		Indoor	Outdoor													
06/27/2019	17:12	72	92	33	30.13	WSW 6	weather.com app									
06/28/2019	16:41	72	91	41	30.07	SSW 7	weather.com app									

Soil Vapor Collection Log Sheet

Page 1 of 1

Office Name & Address (Reporting Information): Arcadis of Michigan, LLC, 28550 Cabot Drive, Suite 500, Novi, MI 48377					Project Name: Ford LTP Off-Site Sampling												
Field Manager: Adam Richmond					Project Number: MI001454.0003.00002												
Phone Number: 248-994-2240					Site Address: 34934 STANDISH												
Email Address for Result Reporting: Kristoffer.Hinskey@arcadis.com					Special Instructions: Report ONLY: 1,1-DCE, cis-1,2- DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting		Sampler Name: Shantel Johnson		Sampler Email Address: Shantel.Johnson@arcadis.com								
Helium Detector Model Used: Dielectric MGD-2002					Helium Leak Test Method: Bucket Shroud					Summa Canister Size (1L, 2.7 L, 6L): 1 L		Lab: Eurofins					
Sample ID	Sample Location Description	Date	Pre-Sampling Shut-In / Leak-Down Test	Helium Tracer Test - Performed During Sample Point Purge			Purge Volume (mL)	Purge Rate (mL/min)	Canister Number	Flow Controller Number	Sample Collection Start Time	Starting Canister Pressure	Sample Collection End Time	Ending Canister Pressure	Post-Sampling CO2 Reading from GEM (%)	Post-Sampling O2 Reading from GEM (%)	Micromanometer Reading
				Shroud Helium Concentration During Purge	Helium Reading in Purged Vapor	Helium Test Pass/Fail (Purge contains <5% of shroud to pass)?											
SSMP-34934STANDISH-01_062819	Garage	06/28/2019	Pass	57.4	0	Pass	100	100	1L2721	23377	16:36	-29.5	16:50	-5	1.1	19.5	-0.00005

Meteorological Data							Source of Weather Information	Purge Volume Calculations: For sub-slab soil vapor samples the sample train tubing length is ~54 inches and the interior tubing radius is 0.085". Three volumes of the sample train is 60 milliliters using the equation for volume of a cylinder (volume = pi * radius ² * height) where Volume = 60 ml, radius = 0.85" and height = 54". To have sufficient volume to conduct helium leak testing 100 milliliters should be purged from each sample point. For exterior soil vapor sampling 60 milliliters should be used for the above ground sample train. Each additional foot of sub-grade tubing account for approximately 13 ml. To have sufficient volume to conduct helium leak testing at least 100 milliliters should be purged from each sample point.
Date	Time	Temp. (°F)		Relative Humidity (%)	Barometric Pressure (in. Hg)			
		Indoor	Outdoor					
06/28/2019	16:37	72	91	41	30.07	weather.com app		

TRANSMITTAL LETTER



To:
Anthony Kiseda
Shawn Collins
Brandon Alger (EGLE)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:
November 13, 2019

Subject:
Vapor Intrusion Assessment
Data Package

Arcadis Project No.:

We are sending you hard copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Delivery Date	Drawing No.	Rev.	Description	Action*
1	11/14/2019			Figure	
1	11/14/2019			Analytical Results	
1	11/14/2019			Field Notes and Drawings	

Action*

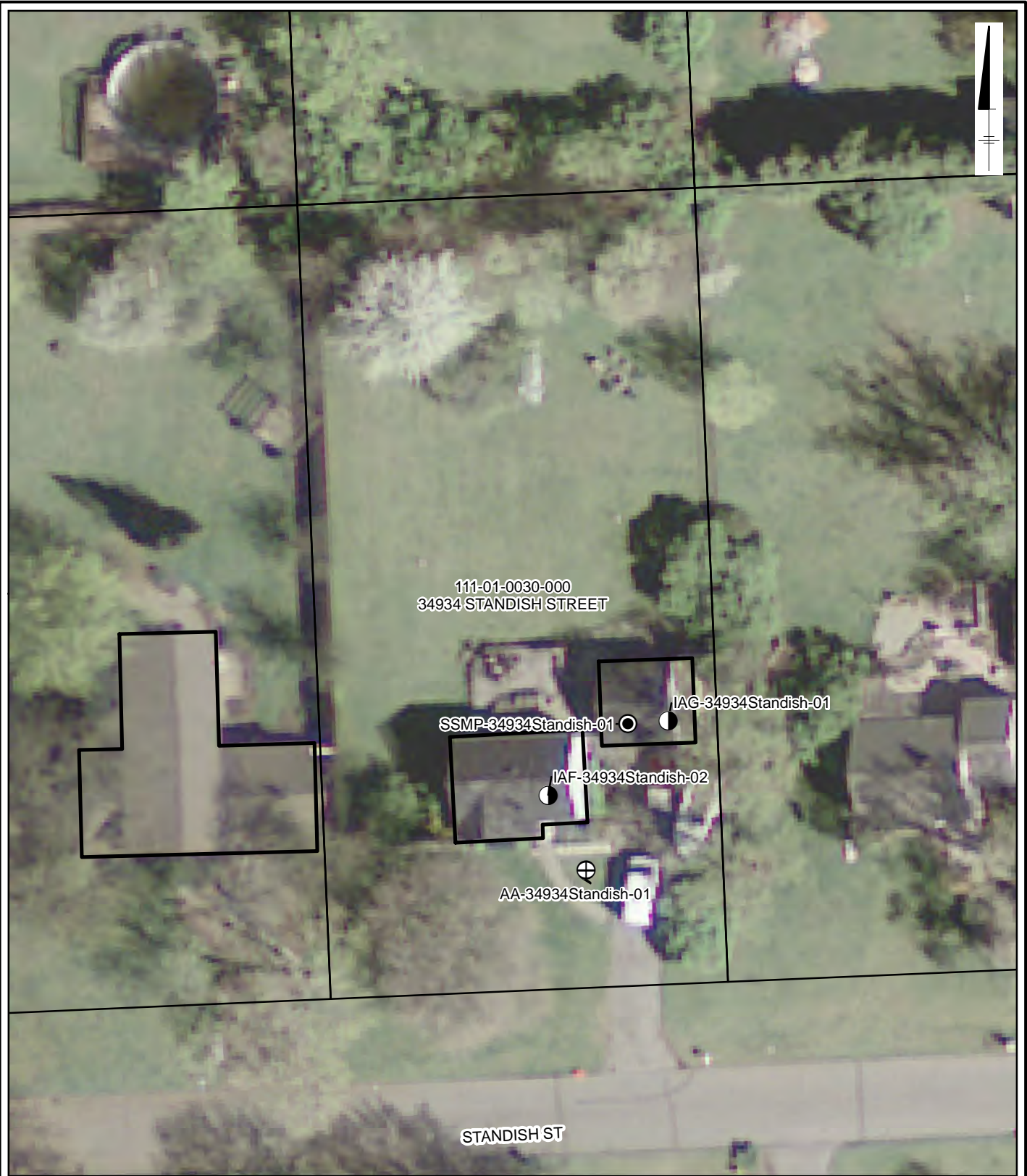
- A Approved CR Correct and Resubmit Resubmit _____ Copies
 AN Approved As Noted F File Return _____ Copies
 AS As Requested FA For Approval Review and Comment
 Other: _____

Mailing Method






- U.S. Postal Service 1st Class Courier/Hand Delivery FedEx Priority Overnight FedEx 2-Day Delivery
 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
 Other: email

Thank you for cooperating with the air sampling at your property on October 24 and 25, 2019. Attached is your data package.

CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: T. STEVENS TR: P. CURRY PROJECTNUMBER: M001373.0001.00003 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
 Z:\GISProjects\ENV\NoviBrighton_MIVordLivonia\GIS\Docs\2018-11\34934_Standish_20181109.mxd PLOTTED: 11/9/2018 11:42:31 AM BY: mgress



LEGEND:

-  INDOOR AIR LOCATION
-  AMBIENT AIR LOCATION
-  SUB-SLAB MONITORING POINT LOCATION
-  BUILDING
-  PROPERTY BOUNDARIES




FORD MOTOR COMPANY
 LIVONIA TRANSMISSION PLANT
 LIVONIA, MICHIGAN

AIR SAMPLING LOCATIONS



FIGURE
1



11/4/2019

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1910676

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 10/29/2019 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,




Ausha Scott
Project Manager

WORK ORDER #: 1910676

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30016344.0002B
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	10/29/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	11/04/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	AA-34934STANDISH-01_102519	Modified TO-15	6.1 "Hg	4.8 psi
02A	IAF-34934STANDISH-02_102519	Modified TO-15	7.8 "Hg	4.8 psi
03A	IAG-34934STANDISH-01_102519	Modified TO-15	5.9 "Hg	4.8 psi
04A	Lab Blank	Modified TO-15	NA	NA
05A	CCV	Modified TO-15	NA	NA
06A	LCS	Modified TO-15	NA	NA
06AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 11/04/19

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP – CA009332019-11, VA NELAP - 460197, WA NELAP - C935
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
 Accreditation number: CA300005-011, Effective date: 10/18/2019, Expiration date: 10/17/2020.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
 (916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 1910676

Three 6 Liter Summa Canister (100% Cert Ambient) samples were received on October 29, 2019. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-34934STANDISH-01_102519	Date/Time Analyzed:	10/30/19 04:24 PM
Lab ID:	1910676-01A	Dilution Factor:	1.67
Date/Time Collected:	10/25/19 08:35 AM	Instrument/Filename:	msd22.i / 22103012
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.20	0.26	0.66	Not Detected
1,4-Dioxane	123-91-1	0.11	0.24	0.60	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.068	0.26	0.66	Not Detected
Tetrachloroethene	127-18-4	0.26	0.45	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.11	0.26	0.66	0.16 J
Trichloroethene	79-01-6	0.092	0.36	0.90	Not Detected
Vinyl Chloride	75-01-4	0.059	0.17	0.43	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	98

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-34934STANDISH-02_102519	Date/Time Analyzed:	10/30/19 05:03 PM
Lab ID:	1910676-02A	Dilution Factor:	1.79
Date/Time Collected:	10/25/19 09:00 AM	Instrument/Filename:	msd22.i / 22103013
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.22	0.28	0.71	Not Detected
1,4-Dioxane	123-91-1	0.12	0.26	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.073	0.28	0.71	Not Detected
Tetrachloroethene	127-18-4	0.28	0.48	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.12	0.28	0.71	0.14 J
Trichloroethene	79-01-6	0.099	0.38	0.96	Not Detected
Vinyl Chloride	75-01-4	0.064	0.18	0.46	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	97

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAG-34934STANDISH-01_102519	Date/Time Analyzed:	10/30/19 05:43 PM
Lab ID:	1910676-03A	Dilution Factor:	1.65
Date/Time Collected:	10/25/19 08:28 AM	Instrument/Filename:	msd22.i / 22103014
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.20	0.26	0.65	Not Detected
1,4-Dioxane	123-91-1	0.11	0.24	0.59	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.067	0.26	0.65	Not Detected
Tetrachloroethene	127-18-4	0.26	0.45	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.11	0.26	0.65	0.12 J
Trichloroethene	79-01-6	0.091	0.35	0.89	100
Vinyl Chloride	75-01-4	0.059	0.17	0.42	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	98

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP



Client ID:	Lab Blank	Date/Time Analyzed:	10/30/19 12:21 PM
Lab ID:	1910676-04A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd22.i / 22103007a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.12	0.16	0.40	Not Detected
1,4-Dioxane	123-91-1	0.068	0.14	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.041	0.16	0.40	Not Detected
Tetrachloroethene	127-18-4	0.15	0.27	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.066	0.16	0.40	Not Detected
Trichloroethene	79-01-6	0.055	0.21	0.54	Not Detected
Vinyl Chloride	75-01-4	0.036	0.10	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	97

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	10/30/19 09:24 AM
Lab ID:	1910676-05A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd22.i / 22103003
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	80
1,4-Dioxane	123-91-1	105
cis-1,2-Dichloroethene	156-59-2	85
Tetrachloroethene	127-18-4	107
trans-1,2-Dichloroethene	156-60-5	93
Trichloroethene	79-01-6	109
Vinyl Chloride	75-01-4	86

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	88
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	116

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCS	Date/Time Analyzed:	10/30/19 10:19 AM
Lab ID:	1910676-06A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd22.i / 22103004
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	79
1,4-Dioxane	123-91-1	107
cis-1,2-Dichloroethene	156-59-2	76
Tetrachloroethene	127-18-4	105
trans-1,2-Dichloroethene	156-60-5	99
Trichloroethene	79-01-6	107
Vinyl Chloride	75-01-4	87

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	84
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	114

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	10/30/19 11:01 AM
Lab ID:	1910676-06AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd22.i / 22103005
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	82
1,4-Dioxane	123-91-1	107
cis-1,2-Dichloroethene	156-59-2	79
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	100
Trichloroethene	79-01-6	104
Vinyl Chloride	75-01-4	89

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	87
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	110

* % Recovery is calculated using unrounded analytical results.



November 05, 2019

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: 30016344.0002B
Client project scope reference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics - Folsom
Laboratory submittal: 1910676
Sample date: 2019-11-25
Report received by CADENA: 2019-11-04
Initial Data Verification completed: 2019-11-05
3 Air samples were analyzed for TO-15 parameters.

No data qualifications or sample integrity issues were observed.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) TO-15 Analysis

SDG #1910676

CADENA Verification Report: 2019-11-05

Analyses Performed By:
Eurofins Air Toxics
Folsom, California

Report #34745R
Review Level: Tier III
Project: 30016344.00007

DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 1910676 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
1910676	AA-34934STANDISH-01_102519	1910676-01A	Air	10/25/2019		X		
	IAF-34934STANDISH-02_102519	1910676-02A	Air	10/25/2019		X		
	IAG-34934STANDISH-01_102519	1910676-03A	Air	10/25/2019		X		

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15 (Full Scan). Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15	Air	30 days from collection to analysis (Canister)	Ambient Temperature	< -2" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 140% or less than 60% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. All identified compounds met the specified criteria.

6. Field Duplicate Sample Analysis

The field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 35% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are not greater than five times the RL, a control limit of one times the RL is applied to the difference between the duplicate sample results.

A field duplicate was not performed on a sample location within this SDG.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15 (Full Scan)	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-2"Hg)		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Field Duplicate Sample RPD					X
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

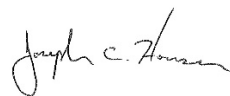
%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:



DATE: November 12, 2019

PEER REVIEW: Andrew Korycinski

DATE: November 13, 2019



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



**NO CORRECTIONS/QUALIFIERS ADDED
TO SAMPLE ANALYSIS DATA SHEETS**



MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-34934STANDISH-01_102519	Date/Time Analyzed:	10/30/19 04:24 PM
Lab ID:	1910676-01A	Dilution Factor:	1.67
Date/Time Collected:	10/25/19 08:35 AM	Instrument/Filename:	msd22.i / 22103012
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.20	0.26	0.66	Not Detected
1,4-Dioxane	123-91-1	0.11	0.24	0.60	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.068	0.26	0.66	Not Detected
Tetrachloroethene	127-18-4	0.26	0.45	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.11	0.26	0.66	0.16 J
Trichloroethene	79-01-6	0.092	0.36	0.90	Not Detected
Vinyl Chloride	75-01-4	0.059	0.17	0.43	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	98

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-34934STANDISH-02_102519	Date/Time Analyzed:	10/30/19 05:03 PM
Lab ID:	1910676-02A	Dilution Factor:	1.79
Date/Time Collected:	10/25/19 09:00 AM	Instrument/Filename:	msd22.i / 22103013
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.22	0.28	0.71	Not Detected
1,4-Dioxane	123-91-1	0.12	0.26	0.64	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.073	0.28	0.71	Not Detected
Tetrachloroethene	127-18-4	0.28	0.48	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.12	0.28	0.71	0.14 J
Trichloroethene	79-01-6	0.099	0.38	0.96	Not Detected
Vinyl Chloride	75-01-4	0.064	0.18	0.46	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	97
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	97

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAG-34934STANDISH-01_102519	Date/Time Analyzed:	10/30/19 05:43 PM
Lab ID:	1910676-03A	Dilution Factor:	1.65
Date/Time Collected:	10/25/19 08:28 AM	Instrument/Filename:	msd22.i / 22103014
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.20	0.26	0.65	Not Detected
1,4-Dioxane	123-91-1	0.11	0.24	0.59	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.067	0.26	0.65	Not Detected
Tetrachloroethene	127-18-4	0.26	0.45	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.11	0.26	0.65	0.12 J
Trichloroethene	79-01-6	0.091	0.35	0.89	100
Vinyl Chloride	75-01-4	0.059	0.17	0.42	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	98

11/4/2019
Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 1910680

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 10/29/2019 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 1910680

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30016344.0002B
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	10/29/2019	CONTACT:	Ausha Scott
DATE COMPLETED:	11/04/2019		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SSMP-34934STANDISH-01_102519	TO-15	5.1 "Hg	15.6 psi
02A	Lab Blank	TO-15	NA	NA
03A	CCV	TO-15	NA	NA
04A	LCS	TO-15	NA	NA
04AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 11/04/19

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP – CA009332019-11, VA NELAP - 460197, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005-011, Effective date: 10/18/2019, Expiration date: 10/17/2020.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1910680

One 1 Liter Summa Canister (100% Certified) sample was received on October 29, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-34934STANDISH-01_102519	Date/Time Analyzed:	10/31/19 12:22 AM
Lab ID:	1910680-01A	Dilution Factor:	2.48
Date/Time Collected:	10/25/19 08:28 AM	Instrument/Filename:	msd3.i / 3103026
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.1	2.4	4.9	Not Detected
1,4-Dioxane	123-91-1	0.93	5.6	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.77	2.4	4.9	Not Detected
Tetrachloroethene	127-18-4	1.2	4.2	8.4	3.1 J
trans-1,2-Dichloroethene	156-60-5	1.0	2.4	4.9	Not Detected
Trichloroethene	79-01-6	0.85	3.3	6.7	2.7 J
Vinyl Chloride	75-01-4	0.53	1.6	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	10/30/19 11:55 AM
Lab ID:	1910680-02A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3103005a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.46	0.99	2.0	Not Detected
1,4-Dioxane	123-91-1	0.38	2.2	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.31	0.99	2.0	Not Detected
Tetrachloroethene	127-18-4	0.50	1.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.42	0.99	2.0	Not Detected
Trichloroethene	79-01-6	0.34	1.3	2.7	Not Detected
Vinyl Chloride	75-01-4	0.21	0.64	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	87
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	CCV	Date/Time Analyzed:	10/30/19 10:12 AM
Lab ID:	1910680-03A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3103002
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	97
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	102
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	100
Trichloroethene	79-01-6	96
Vinyl Chloride	75-01-4	88

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	88
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID: LCS
Lab ID: 1910680-04A
Date/Time Collected: NA - Not Applicable
Media: NA - Not Applicable

Date/Time Analyzed: 10/30/19 10:37 AM
Dilution Factor: 1.00
Instrument/Filename: msd3.i / 3103003

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	95
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	111
Tetrachloroethene	127-18-4	98
trans-1,2-Dichloroethene	156-60-5	87
Trichloroethene	79-01-6	91
Vinyl Chloride	75-01-4	87

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	86
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	99

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	10/30/19 11:02 AM
Lab ID:	1910680-04AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd3.i / 3103004
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	93
1,4-Dioxane	123-91-1	97
cis-1,2-Dichloroethene	156-59-2	105
Tetrachloroethene	127-18-4	97
trans-1,2-Dichloroethene	156-60-5	85
Trichloroethene	79-01-6	92
Vinyl Chloride	75-01-4	86

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	85
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	102

* % Recovery is calculated using unrounded analytical results.



November 04, 2019

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: 30016344.0002B
Client project scope reference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics - Folsom
Laboratory submittal: 1910680
Sample date: 2019-11-25
Report received by CADENA: 2019-11-04
Initial Data Verification completed: 2019-11-04
1 Air sample was analyzed for TO-15 parameters.

No data qualifications or sample integrity issues were observed.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) TO-15 Analysis

SDG #1910680

CADENA Verification Report: 2019-11-04

Analyses Performed By:
Eurofins Air Toxics
Folsom, California

Report #34746R
Review Level: Tier III
Project: 30016344.00007

DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 1910680 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
1910680	SSMP-34934STANDISH-01_102519	1910680-01A	Air	10/25/2019		X		

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15 (Full Scan). Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15	Air	30 days from collection to analysis (Canister)	Ambient Temperature	< -2" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 140% or less than 60% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. All identified compounds met the specified criteria.

6. Field Duplicate Sample Analysis

The field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 35% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are not greater than five times the RL, a control limit of one times the RL is applied to the difference between the duplicate sample results.

A field duplicate was not performed on a sample location within this SDG.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15 (Full Scan)	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-2"Hg)		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Field Duplicate Sample RPD					X
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

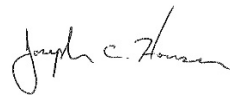
%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:



DATE: November 12, 2019

PEER REVIEW: Andrew Korycinski

DATE: November 13, 2019



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



**NO CORRECTIONS/QUALIFIERS ADDED
TO SAMPLE ANALYSIS DATA SHEETS**



EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-34934STANDISH-01_102519	Date/Time Analyzed:	10/31/19 12:22 AM
Lab ID:	1910680-01A	Dilution Factor:	2.48
Date/Time Collected:	10/25/19 08:28 AM	Instrument/Filename:	msd3.i / 3103026
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	1.1	2.4	4.9	Not Detected
1,4-Dioxane	123-91-1	0.93	5.6	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.77	2.4	4.9	Not Detected
Tetrachloroethene	127-18-4	1.2	4.2	8.4	3.1 J
trans-1,2-Dichloroethene	156-60-5	1.0	2.4	4.9	Not Detected
Trichloroethene	79-01-6	0.85	3.3	6.7	2.7 J
Vinyl Chloride	75-01-4	0.53	1.6	3.2	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	100

Daily Log - Ford Off Site VI Investigation - VISIT 1

Project No.: MI001454.0003.00002 / 30016344


Site Location: 34934 STANDISH

Personnel Onsite: Shantel Johnson, Xenia Chan

Date	Time	Description of Activities
10/23/2019		Purpose: R4 visit 1
		Weather: 42.98 degrees F and Clear
		Equipment: PID 6153
	9:00	Arcadis on site
	9:05	Conduct EGLE survey
	9:14	Conduct chemical inventory. Owner stated we did not need to go inside his house to check. Didn't allow us inside.
	9:18	Arcadis off site
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Visit 1 Checklist

Keeping windows & doors shut during IA/AA sampling was discussed? yes Field Staff Signature: _____

Have background sources of VOCs been removed/isolated? yes 

Is a sump pit present in the building? no

Location of removed/isolated background VOCs: Tote outside of garage

Daily Log - Ford Off Site VI Investigation - VISIT 2

Project No.: MI001454.0003.00002 / 30016344

Site Location: 34934 STANDISH

Personnel Onsite: Shantel Johnson, Xenia Chan

Date	Time	Description of Activities
10/24/2019		Purpose: Round 4 visit 2
		Weather: 48.92 degrees F and Mostly Cloudy
		Equipment: PID 6153
	9:00	Arcadis on site
	9:04	Deploy canisters
	9:15	Arcadis off site
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Visit 2 Checklist


Windows and doors are shut (for IA samples only)? yes

Have background sources of VOCs been removed/isolated? yes

Number of SSMP samples collected: 0

Number of indoor/ambient air samples collected: 3

Occupancy hours (for commercial properties only): --

Field Staff Signature:


Daily Log - Ford Off Site VI Investigation - VISIT 3

Project No.: MI001454.0003.00002 / 30016344

Site Location: 34934 STANDISH

Personnel Onsite: Shantel Johnson, Xenia Chan

Date	Time	Description of Activities
10/25/2019		Purpose: R4 Visit 3
		Weather: 46.04 degrees F and Cloudy
		Equipment: GEM 2739
	8:00	Arcadis on site
	8:20	Conduct SSMP sampling
	8:28	Remove air canisters
	9:00	Arcadis off site
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Visit 3 Checklist


Windows and doors are shut (for IA samples only)? yes

Have background sources of VOCs been removed/isolated? yes

Number of SSMP samples collected: 1

Number of indoor/ambient air samples collected: 3

Occupancy hours (for commercial properties only): --

Field Staff Signature:




Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM

R3 - 6/24/19

David Craig

Date: 10/23/18

Survey Performed by: David Craig

4/10/19

3200

1. OCCUPANT:

Rent:

Own:

R4 10/23/19 X.Chan, S. Johnson

Resident Name:

Anthony Kiseda

Address:

34934 Standish

Telephone:

Home: 734-564-0486 Work: _____

How long have you lived at this location? 12 years

List current occupants/occupation below (attach additional pages if necessary):

Age (If under 18)	Sex (M/F)	Occupation
	M	Account Manager
	F	Parts Coordinator
	M	Student

2. OWNER OR LANDLORD: (If same as occupant, check here and go to Item No. 3).

Last Name: _____ First Name: _____

Address: _____

City and State: _____

County: _____

Home Phone: _____ Office Phone: _____

R3 * Homeowner stated absolutely no changes in house since R2.
 R4 * NO changes since last visit



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

3. SENSITIVE POPULATION:

Daycare/Nursing Home/Hospital/School/Other (specify): N/A

4. BUILDING CHARACTERISTICS:

Residential/Multi-family Residential/Office/Strip Mall/Commercial/Industrial/School

Describe Building: Bungalow Year Constructed: 1929

Number of floors at or above grade: 15 - Bungalow

Number of floors below grade: _____ (full basement/crawl space/slab on grade)

Depth of structure below grade: 4 ft. Basement size: N/A ft²

If the property is residential, what type? (Circle all appropriate responses.)

Ranch	2-Family	3-Family	Raised Ranch
Split Level	Colonial	Cape Cod	Contemporary
Mobile Home	Duplex	Apartment House	Townhouses/Condos
Modular	Log Home	Other: <u>Bungalow</u>	

If multiple units, how many? _____

If the property is commercial:

Business type(s) N/A

Does it include residences (i.e., multi-use)? Yes No If yes, how many? N/A

5. OCCUPANCY:

Is basement/lowest level occupied? (Circle one)

Full-time Occasionally Seldom Almost Never *no basement*



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Level **General Use**
 (e.g., family room, bedroom, laundry, workshop, storage)

Basement N/A

1st Floor Bedrooms, Kitchen, Laundry, Bathrooms, Living Room

2nd Floor Storage / Living Space

3rd Floor _____

4th Floor _____

(Use additional page(s) as necessary)

6. CONSTRUCTION CHARACTERISTICS: (Circle all that apply.)

a. Above Grade Construction: (Describe type: wood frame, concrete, stone, brick).

Wood Frame

b. Basement Type: Full Crawlspace Slab Other: _____

c. Basement Floor: Concrete Dirt Stone Other: _____

d. Finished Basement Floor: Uncovered Covered

If covered, what with? N/A

e. Foundation Walls: Poured Block Stone Other: _____

f. Foundation Walls: Unsealed Sealed Sealed with: _____

g. The Basement is: Wet Damp Dry

h. The Basement is: Finished Unfinished Partially Finished

i. Sump Present (Y/N) N If yes, how many? _____

Where Discharged? N/A

Water in Sump? Yes No Not Applicable

N/A



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Identify all potential soil vapor entry points and estimated size (e.g., cracks, utility parts, drains).

Floor drain in mud room (near washer dryer)
Cracks in garage floor

Are the basement walls or floor sealed with waterproof paint or epoxy coatings? Yes No

Type of ground cover outside of building: Grass Concrete Asphalt Other Gravel

Is an existing subsurface depressurization (radon) system in place? Yes No

If yes, is it active, or passive? Detector / No system

Is a sub-slab vapor/moisture barrier in place? Yes No

Type of barrier: _____

7. HEATING, VENTING, and AIR CONDITIONING

Type of heating system(s) used in this building: (Circle all that apply: Note the primary).

<input checked="" type="radio"/> Hot Air Circulation	<input type="radio"/> Heat Pump	<input type="radio"/> Hot Water Baseboard
<input type="radio"/> Space Heaters	<input type="radio"/> Steam Radiation	<input type="radio"/> Radiant Floor
<input type="radio"/> Electric Baseboard	<input type="radio"/> Wood Stove	<input type="radio"/> Outdoor Wood Boiler
Other: _____		<u>None - Solar - Full Sun</u>

The primary type of fuel used is:

<input checked="" type="radio"/> Natural Gas	<input type="radio"/> Fuel Oil	<input type="radio"/> Kerosene
<input type="radio"/> Electric	<input type="radio"/> Propane	<input type="radio"/> Solar
<input type="radio"/> Wood	<input type="radio"/> Coal	

Domestic hot water tank fueled by: Electric

Location of Boiler/Furnace: Basement Outdoors Main Floor Other Coal space



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Air Conditioning: Central Air Window Units Open Windows None

Are air distribution ducts present? Yes No

Is there a whole house fan? Yes No

Describe the air intake system (outside air supply, cold air return, ductwork, etc.) and its condition where visible. Indicate the locations on the floor plan diagram.

Outside Air / Cold Air Return

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

a) Is there an attached garage? Yes No
If yes, does it have a separate heating unit? Yes No N/A

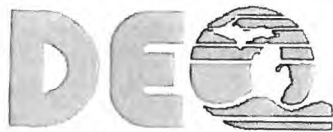
b) Are any petroleum-powered machines or vehicles stored in an attached garage (e.g., lawn mower, ATV, car) Yes No N/A

c) Has the building ever had a fire? Yes No

d) Is there a fuel burning or unvented gas space heater? Yes No

e) Is there a workshop or hobby/craft area? Yes No
If yes, where and what type? N/A

f) Is there smoking in the building? Yes No
If yes, how frequently? N/A



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

- g) Have cleaning products been used recently? Yes No
If yes, when and what type? None
- h) Have cosmetic products been used recently? Yes No
If yes, when and what type? None
- i) Has there been painting or staining in the last six months? Yes No
If yes, when and where? None
- j) Is there new carpet, drapes, or other textiles? Yes No
If yes, when and where? None
- k) Have air fresheners been used recently? Yes No
If yes, when and what type? None
- l) Is there a kitchen exhaust fan? Yes No
If yes, where is it vented? Does vent outside
- m) Is there a clothes dryer? Yes No
If yes, is it vented outside? Yes No
- n) Has there been a pesticide application? Yes No
If yes, when and what type? N/A
- o) Are there odors in the building? Yes No
If yes, please describe: N/A



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

- p) Do any of the building occupants use solvents at work (e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetology)?

Yes No

If yes, what types of solvents are used? N/A

If yes, are their clothes washed at work?

Yes No

- q) Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response.)

No Unknown

Yes, use dry-cleaning regularly (weekly)

Yes, use dry-cleaning infrequently (monthly or less)

Yes, work at a dry-cleaning service

- r) Is there a radon mitigation system for the building/structure?

Yes No

If yes, what is date of installation? N/A

Active Passive

- s) Additional mitigation system information (fan size, location, operating status, liner installed, etc.):

N/A

- t) Is there an irrigation well, or any other well, present at the property:

Yes No

If yes, please describe placement, use, and history below.

N/A

Garage R4

* Chemicals in tote 96ppb PID

CRC Electric Parts cleaner-
VD-40
Armor All Protectant
Liquid Wrench Silicone Spray
Moto Zone Brake Cleaner

Marvel Air Tool Oil
Great Stuff Gaps and Cracks
~~Armor All~~ Armor All Natural Finish Detailer

* Garage 90ppb PID

Carmin 1772

Photos - 674-

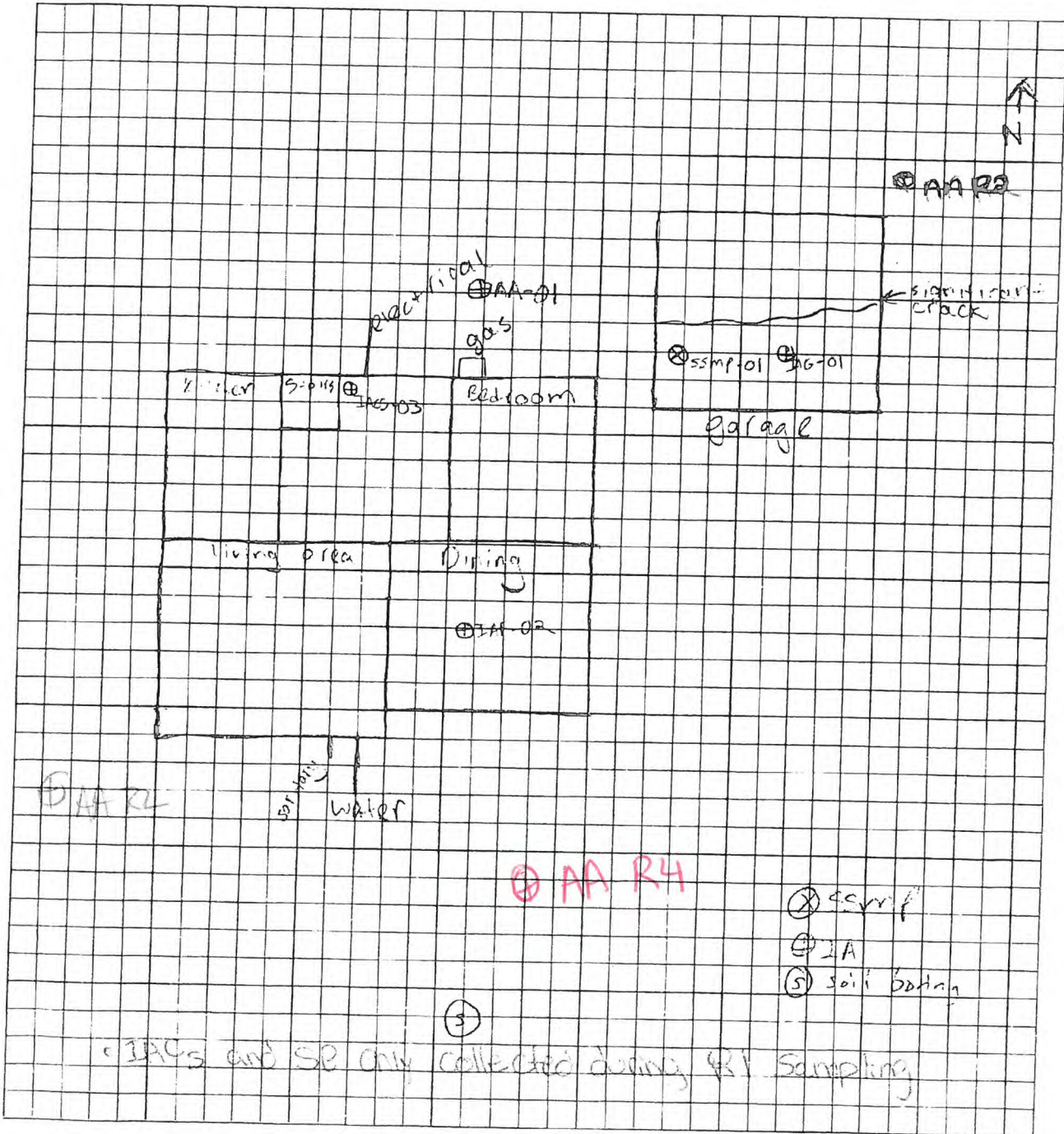
PRODUCT INVENTORY FORM:

Make and Model of field instrument used: ppb RAE 3000

List specific products found in the residence or area that have the potential to affect indoor air quality (e.g., gasoline or kerosene storage cans, glues, paints, cleaning solvents/products, polishes/waxes, new furniture/ carpet, nail polish/hairspray/cologne).

Potential Source	Location	Size and Condition	Chemical Ingredients	Field Instrument Reading (units)	Photo Y/N	
Gasoline Storage Cans and Equipment	Garage	5 gal	Empty	0.00 ppb	Y	- empty
Kerosene Storage Cans	Garage	5 gal in the back	Empty	0.00 ppb	Y	- empty
Paints/Thinners/Strippers	Garage	Small cans	Various	0.00 ppb	Y	- removed
Cleaning Solvents	Garage	Small cans	Brake Clean, Cab Clean	0.00 ppb	Y	- removed
Hobby Supplies - Glue, Paint, Etc.	N/A					
Oven Cleaner	N/A					
Carpet/Upholstery Cleaners	N/A					
Household Cleaners (non-solvent)	Bathroom					
Moth Balls	N/A					
Polishes/Waxes	Garage	2-1/2 gal	Turtle Wax, Armor All	0.00 ppb	Y	- removed
Insecticides	Garage	2-1/2 gal	Ortho Home Defense	0.00 ppb	Y	- removed
Furniture/Floor Polish	N/A					
Hairspray	Bathroom	Small Aerosols	Various	0.00 ppb	Y	- removed
Cologne/Perfume						
Air Fresheners	House	Candles	Not lit	0.00 ppb	N	- not removed
Interior Fuel Tank	N/A					
Wood Stove/Fireplace	N/A					
New Furniture/Upholstery	N/A					
New Carpeting/Flooring	N/A					
Others (fill in below)						
Boat Motor	Garage	Small	Gasoline	0.00 ppb	Y	- not removed
Mega Fogger	Garage			0.00	Y	- removed
Wax - Clean	Garage			0.00	Y	- removed
Boat Fuel	Garage			0.00	Y	- removed

Subject: 34934 Standish			
Project No.: M1001454.0003		Sheet	
Calculations By: SM Turner	Date: 10-22-18	Checked By:	Date:



Office Name & Address (Reporting Information): Arcadis of Michigan, LLC 28550 Cabot Drive, Suite 500, Novi, MI 48377		Project Name: Ford LTP Off-site Sampling	
Field Manager: Adam Richmond		Project Number: MI001454.0003 / 30016344	
Phone Number: 248.994.2240	Special Instructions:	Site Address: 34934 STANDISH	
Email Address for Result Reporting: Kristoffer.Hinskey@arcadis.com	Report ONLY: 1,1-DCE, cis-1,2- DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting.	Sampler Name: Xenia Chan, Shantel Johnson	
Summa Canister Size (1L, 2.7 L, 6L) 6 Liter	Lab: Eurofins		

Sample ID	Sample Location Description	Indoor/ Outdoor	PID in Sampling Area (ppb)	Canister Number	Flow Controller Number	Sample Collection Start Date	Sample Collection Start Time	Beginning Canister Pressure (in. Hg)	Sample Collection End Date	Sample Collection End Time	Ending Canister Pressure (in. Hg)	HVAC System Information						Notes
												HVAC Fan On Start?	HVAC Fan On End?	Heat On Start?	Heat On End?	Temperature Setting (°F) Start	Temperature Setting (°F) End	
AA-34934STANDISH-01_102519	SE of house	Outdoor	0	6L2345	20529	10/24/2019	9:08	-29	10/25/2019	8:35	-7	--	--	--	--	--	--	--
IAF-34934STANDISH-02_102519	Dining room table	Indoor	111	6L1705	22646	10/24/2019	9:07	-29	10/25/2019	9:00	-8	No	No	No	No	68	68	--
IAG-34934STANDISH-01_102519	Garage	Indoor	90	6L0520	24099	10/24/2019	9:04	-29	10/25/2019	8:28	-7	No	No	No	No	68	68	--
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Meteorological Data							General Notes or Observations
Date	Time	Temp. (°F)		Relative Humidity (%)	Barometric Pressure (in. Hg)	Air Speed (mph)	
		Indoor	Outdoor				
10/24/2019	8:45	68	50	65	30.13	SE 65	weather.com app
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Office Name & Address (Reporting Information): Arcadis of Michigan, LLC 28550 Cabot Drive, Suite 500, Novi, MI 48377				Project Name: Ford LTP Off-site Sampling													
				Project Number: MI001454.0003 / 30016344													
Field Manager: Adam Richmond				Site Address: 34934 STANDISH													
Phone Number: 248.994.2240		Special Instructions: Report ONLY: 1,1-DCE, cis-1,2- DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadenacom.com. Cadena #E203631. Level IV Reporting.		Sampler Name: Shantel Johnson													
Email Address for Result Reporting: Kristoffer.Hinskey@arcadis.com				Summa Canister Size (1L, 2.7 L, 6L): 1 Liter					Lab: Eurofins								
Helium Detector Model Used: Dielectric MGD-2002		Helium Leak Test Method: Bucket Shroud															

Sample ID	Sample Location Description	Date	Pre-Sampling Shut-In / Leak-Down Test Pass/Fail?	Helium Tracer Test - Performed During Sample Point Purge			Purge Volume (mL)	Purge Rate (mL/min)	Canister Number	Flow Controller Number	Sample Collection Start Time	Starting Canister Pressure (in. Hg)	Sample Collection End Time	Ending Canister Pressure (in. Hg)	Post-Sampling CO ₂ Reading from GEM (%)	Post-Sampling O ₂ Reading from GEM (%)	Micromanometer Reading (in. WC)
				Shroud Helium Concentration During Purge (% Helium)	Helium Reading in Purged Vapor (% Helium)	Helium Test Pass/Fail (Purge contains <5% of shroud to pass)?											
SSMP-34934STANDISH-01_102519	Garage	10/25/2019	Pass	40.9	0	Pass	100	100	1L2598	23667	8:17	-29.5	8:28	-5.5	0.9	19.9	0.00002
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Meteorological Data							
Date	Time	Temp. (°F)		Relative Humidity (%)	Barometric Pressure (in. Hg)	Source of Weather Information	Purge Volume Calculations: The purge volume for each sample has been pre-calculated using the information below. For sub-slab soil vapor samples the sample train tubing length is ~54 inches and the interior tubing radius is 0.085". Three volumes of the sample train is 60 milliliters using the equation for volume of a cylinder (volume = pi * radius ² * height) where Volume = 60 ml, radius = 0.85" and height = 54". To have sufficient volume to conduct helium leak testing 100 milliliters should be purged from each sample point. For exterior soil vapor sampling 60 milliliters should be used for the above ground sample train. Each additional foot of sub-grade tubing account for approximately 13 ml. To have sufficient volume to conduct helium leak testing at least 100 milliliters should be purged from each sample point.
		Indoor	Outdoor				
10/25/2019	8:13	69	46	78	30.32	weather.com app	
--	--	--	--	--	--	weather.com app	
--	--	--	--	--	--	weather.com app	General Notes or Observations
--	--	--	--	--	--	weather.com app	
--	--	--	--	--	--	weather.com app	
--	--	--	--	--	--	weather.com app	

TRANSMITTAL LETTER



To:
Anthony Kiseda
Shawn Collins
Brandon Alger (EGLE)
Todd Walton (Ford)
Chuck Pinter (Ford)
Rob Boley (Schiff Hardin LLP)

From:
Kris Hinskey

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

Copies:

Date:
April 16, 2020

Subject:

Arcadis Project No.:

Vapor Intrusion Assessment
Data Package

We are sending you copies:

Attached **Under Separate Cover Via _____ the Following Items:**

- Shop Drawings Plans Specifications Change Order
 Prints Samples Copy of Letter Reports
 Other:

Copies	Electronic Delivery Date	Drawing No.	Rev.	Description	Action*
1	4/16/2020			Figure	
1	4/16/2020			Analytical Results	
1	4/16/2020			Field Notes and Drawings	

Action*

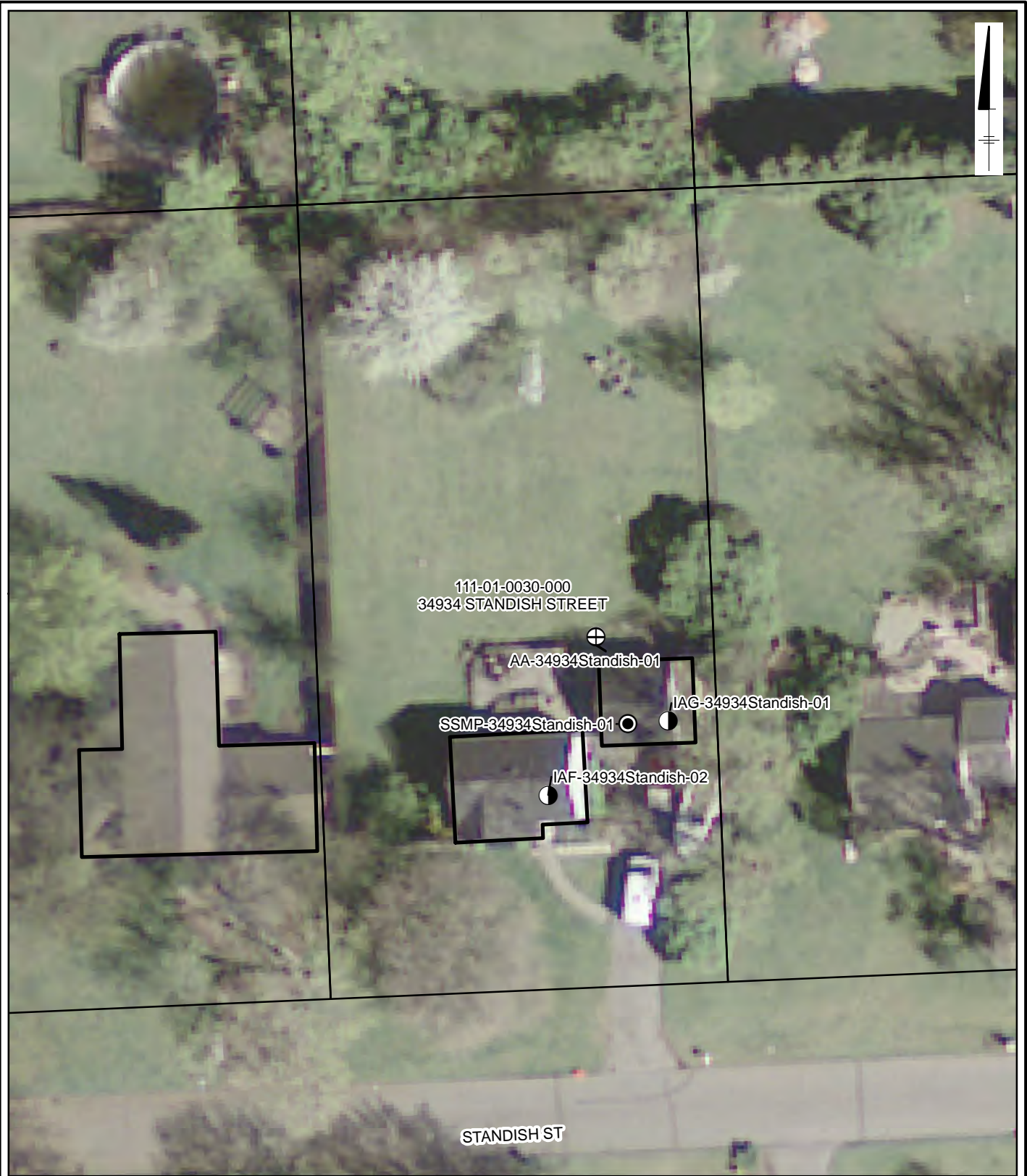
- A Approved CR Correct and Resubmit Resubmit _____ Copies
 AN Approved As Noted F File Return _____ Copies
 AS As Requested FA For Approval Review and Comment
 Other: _____

Mailing Method






- U.S. Postal Service 1st Class Courier/Hand Delivery FedEx Priority Overnight FedEx 2-Day Delivery
 Certified/Registered Mail United Parcel Service (UPS) FedEx Standard Overnight FedEx Economy
 Other: email

Thank you for cooperating with the air sampling at your property on February 6 and 7, 2020. Attached is your data package. Samples DUP-34934STANDISH-01, DUP-34934STANDISH-02, and DUP-34934STANDISH-03 were collected due to cold weather conditions, however, were not analyzed.

CITY: NOVI DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY TM: T. STEVENS TR: P. CURRY PROJECTNUMBER: M001373.0001.00003 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
 Z:\GISProjects\ENV\NoviBrighton_MIV\FordLivonia\GIS\docs\2018-11\34934_Standish_20181109.mxd PLOTTED: 11/9/2018 11:42:31 AM BY: mgress



LEGEND:

-  INDOOR AIR LOCATION
-  AMBIENT AIR LOCATION
-  SUB-SLAB MONITORING POINT LOCATION
-  BUILDING
-  PROPERTY BOUNDARIES




FORD MOTOR COMPANY
 LIVONIA TRANSMISSION PLANT
 LIVONIA, MICHIGAN

AIR SAMPLING LOCATIONS



FIGURE 1



2/19/2020

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP

Project #:

Workorder #: 2002329

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 2/13/2020 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 2002329

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30016344.0002B
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	02/13/2020	CONTACT:	Ausha Scott
DATE COMPLETED:	02/19/2020		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	IAG-34934STANDISH-01_020720	Modified TO-15	3.5 "Hg	5.0 psi
02A(cancelled)	DUP-34934STANDISH-01_020720	Modified TO-15		
03A	IAF-34934STANDISH-02_020720	Modified TO-15	7.5 "Hg	5.0 psi
04A(cancelled)	DUP-34934STANDISH-02_020720	Modified TO-15		
05A	AA-34934STANDISH-01_020720	Modified TO-15	5.0 "Hg	5.0 psi
06A(cancelled)	DUP-34934STANDISH-03_020720	Modified TO-15		
07A	Lab Blank	Modified TO-15	NA	NA
08A	CCV	Modified TO-15	NA	NA
09A	LCS	Modified TO-15	NA	NA
09AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: _____



Technical Director

DATE: 02/19/20

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP – CA009332019-11, VA NELAP - 460197, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005-011, Effective date: 10/18/2019, Expiration date: 10/17/2020.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
Modified TO-15
Arcadis U.S., Inc.
Workorder# 2002329

Six 6 Liter Summa Canister (100% Cert Ambient) samples were received on February 13, 2020. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the EATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Initial Calibration	$\leq 30\%$ RSD with 2 compounds allowed out to <math>< 40\%</math> RSD	$\leq 30\%$ RSD with 4 compounds allowed out to <math>< 40\%</math> RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

Samples DUP-34934STANDISH-01_020720, DUP-34934STANDISH-02_020720 and DUP-34934STANDISH-03_020720 were cancelled on 02/11/2020 per client's request.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAG-34934STANDISH-01_020720	Date/Time Analyzed:	2/17/20 04:53 PM
Lab ID:	2002329-01A	Dilution Factor:	1.52
Date/Time Collected:	2/7/20 04:02 PM	Instrument/Filename:	msd21.i / 21021710
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.22	0.56	0.60	Not Detected
1,4-Dioxane	123-91-1	0.091	0.51	0.55	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.22	0.56	0.60	Not Detected
Tetrachloroethene	127-18-4	0.55	0.96	1.0	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.31	0.56	0.60	Not Detected
Trichloroethene	79-01-6	0.18	0.76	0.82	0.94
Vinyl Chloride	75-01-4	0.16	0.36	0.39	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	85
Toluene-d8	2037-26-5	70-130	96

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-34934STANDISH-02_020720	Date/Time Analyzed:	2/17/20 05:27 PM
Lab ID:	2002329-03A	Dilution Factor:	1.79
Date/Time Collected:	2/7/20 03:57 PM	Instrument/Filename:	msd21.i / 21021711
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.26	0.66	0.71	Not Detected
1,4-Dioxane	123-91-1	0.11	0.60	0.64	0.69
cis-1,2-Dichloroethene	156-59-2	0.26	0.66	0.71	Not Detected
Tetrachloroethene	127-18-4	0.65	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.37	0.66	0.71	Not Detected
Trichloroethene	79-01-6	0.22	0.89	0.96	Not Detected
Vinyl Chloride	75-01-4	0.18	0.42	0.46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	83
Toluene-d8	2037-26-5	70-130	94

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-34934STANDISH-01_020720	Date/Time Analyzed:	2/17/20 06:04 PM
Lab ID:	2002329-05A	Dilution Factor:	1.61
Date/Time Collected:	2/7/20 04:00 PM	Instrument/Filename:	msd21.i / 21021712
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.23	0.59	0.64	Not Detected
1,4-Dioxane	123-91-1	0.096	0.54	0.58	0.18 J
cis-1,2-Dichloroethene	156-59-2	0.23	0.59	0.64	Not Detected
Tetrachloroethene	127-18-4	0.58	1.0	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.33	0.59	0.64	Not Detected
Trichloroethene	79-01-6	0.20	0.80	0.86	0.64 J
Vinyl Chloride	75-01-4	0.16	0.38	0.41	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	108
4-Bromofluorobenzene	460-00-4	70-130	82
Toluene-d8	2037-26-5	70-130	96

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	2/17/20 12:05 PM
Lab ID:	2002329-07A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21021706a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.14	0.37	0.40	Not Detected
1,4-Dioxane	123-91-1	0.060	0.34	0.36	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.14	0.37	0.40	Not Detected
Tetrachloroethene	127-18-4	0.36	0.63	0.68	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.20	0.37	0.40	Not Detected
Trichloroethene	79-01-6	0.12	0.50	0.54	Not Detected
Vinyl Chloride	75-01-4	0.10	0.24	0.26	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	108
4-Bromofluorobenzene	460-00-4	70-130	77
Toluene-d8	2037-26-5	70-130	91

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	CCV	Date/Time Analyzed:	2/17/20 08:55 AM
Lab ID:	2002329-08A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21021702
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	92
1,4-Dioxane	123-91-1	99
cis-1,2-Dichloroethene	156-59-2	92
Tetrachloroethene	127-18-4	92
trans-1,2-Dichloroethene	156-60-5	92
Trichloroethene	79-01-6	94
Vinyl Chloride	75-01-4	87

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	103

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP



Client ID:	LCS	Date/Time Analyzed:	2/17/20 09:39 AM
Lab ID:	2002329-09A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21021703
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	85
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	80
Tetrachloroethene	127-18-4	78
trans-1,2-Dichloroethene	156-60-5	92
Trichloroethene	79-01-6	89
Vinyl Chloride	75-01-4	85

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	91
Toluene-d8	2037-26-5	70-130	103

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	2/17/20 10:24 AM
Lab ID:	2002329-09AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd21.i / 21021704
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	86
1,4-Dioxane	123-91-1	98
cis-1,2-Dichloroethene	156-59-2	81
Tetrachloroethene	127-18-4	88
trans-1,2-Dichloroethene	156-60-5	94
Trichloroethene	79-01-6	89
Vinyl Chloride	75-01-4	86

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	87
Toluene-d8	2037-26-5	70-130	102

* % Recovery is calculated using unrounded analytical results.



February 20, 2020

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: 30042006.0302.02 RESIDENTIAL
Client project scopereference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics -Folsom
Laboratory submittal: 2002329
Sample date:2020-02-07
Report received byCADENA: 2020-02-19
Initial DataVerification completed: 2020-02-20
3 Air samples were analyzed for TO-15 parameters.

No data qualifications or sample integrity issues were observed.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) TO-15 Analysis

SDG #2002329

CADENA Verification Report: 2020-02-20

Analyses Performed By:
Eurofins Air Toxics
Folsom, California

Report #36271R
Review Level: Tier III
Project: 30042006.0302.03

DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 2002329 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
2002329	IAG-34934STANDISH-01_020720	2002329-01A	Air	2/7/2020		X		
	IAF-34934STANDISH-02_020720	2002329-03A	Air	2/7/2020		X		
	AA-34934STANDISH-01_020720	2002329-05A	Air	2/7/2020		X		

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15 (Full Scan). Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15	Air	30 days from collection to analysis (Canister)	Ambient Temperature	< -2" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 140% or less than 60% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. All identified compounds met the specified criteria.

6. Field Duplicate Sample Analysis

The field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 35% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are not greater than five times the RL, a control limit of three times the RL is applied to the difference between the duplicate sample results.

A field duplicate was not performed on a sample location within this SDG.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15 (Full Scan)	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-2"Hg)		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Field Duplicate Sample RPD					X
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

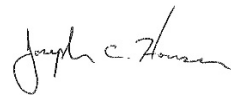
%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:



DATE: March 30, 2020

PEER REVIEW: Dennis Capria

DATE: March 30, 2020



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



**NO CORRECTIONS/QUALIFIERS ADDED
TO SAMPLE ANALYSIS DATA SHEETS**



MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAG-34934STANDISH-01_020720	Date/Time Analyzed:	2/17/20 04:53 PM
Lab ID:	2002329-01A	Dilution Factor:	1.52
Date/Time Collected:	2/7/20 04:02 PM	Instrument/Filename:	msd21.i / 21021710
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.22	0.56	0.60	Not Detected
1,4-Dioxane	123-91-1	0.091	0.51	0.55	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.22	0.56	0.60	Not Detected
Tetrachloroethene	127-18-4	0.55	0.96	1.0	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.31	0.56	0.60	Not Detected
Trichloroethene	79-01-6	0.18	0.76	0.82	0.94
Vinyl Chloride	75-01-4	0.16	0.36	0.39	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	85
Toluene-d8	2037-26-5	70-130	96

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	IAF-34934STANDISH-02_020720	Date/Time Analyzed:	2/17/20 05:27 PM
Lab ID:	2002329-03A	Dilution Factor:	1.79
Date/Time Collected:	2/7/20 03:57 PM	Instrument/Filename:	msd21.i / 21021711
Media:	6 Liter Summa Canister (100% Cert Ambier)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.26	0.66	0.71	Not Detected
1,4-Dioxane	123-91-1	0.11	0.60	0.64	0.69
cis-1,2-Dichloroethene	156-59-2	0.26	0.66	0.71	Not Detected
Tetrachloroethene	127-18-4	0.65	1.1	1.2	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.37	0.66	0.71	Not Detected
Trichloroethene	79-01-6	0.22	0.89	0.96	Not Detected
Vinyl Chloride	75-01-4	0.18	0.42	0.46	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	83
Toluene-d8	2037-26-5	70-130	94

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN
Ford LTP

Client ID:	AA-34934STANDISH-01_020720	Date/Time Analyzed:	2/17/20 06:04 PM
Lab ID:	2002329-05A	Dilution Factor:	1.61
Date/Time Collected:	2/7/20 04:00 PM	Instrument/Filename:	msd21.i / 21021712
Media:	6 Liter Summa Canister (100% Cert Ambier		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.23	0.59	0.64	Not Detected
1,4-Dioxane	123-91-1	0.096	0.54	0.58	0.18 J
cis-1,2-Dichloroethene	156-59-2	0.23	0.59	0.64	Not Detected
Tetrachloroethene	127-18-4	0.58	1.0	1.1	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.33	0.59	0.64	Not Detected
Trichloroethene	79-01-6	0.20	0.80	0.86	0.64 J
Vinyl Chloride	75-01-4	0.16	0.38	0.41	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	108
4-Bromofluorobenzene	460-00-4	70-130	82
Toluene-d8	2037-26-5	70-130	96

Analysis Request / Canister Chain of Custody

For Laboratory Use Only

PID: _____ Workorder # **2002329**

Click links below to view:

[Canister Sampling Guide](#)

[Helium Shroud Video](#)

180 Blue Ravine Rd. Suite B, Folsom, CA 95630

Phone (800) 985-5955; Fax (916) 351-8279

Client:	Ford	PID:	NA	Special Instructions/Notes: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting	Turnaround Time (Rush surcharges may apply)					
Project Name:	Ford LTP				5 Day Turnaround Time					
Project Manager:	Kris Hinskey	P.O.#	30016344.0002B		Canister Vacuum/Pressure		Requested Analyses			
Sampler:	Seth Turner, Xenia Chan				Initial (in Hg)	Final (in Hg)	Lab Use Only		TO-15 (See Special Instructions/Notes)	Do Not Analyze
Site Name:	34934 STANDISH						Receipt	Final (psig) Gas: N ₂ / He		

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N ₂ / He	TO-15 (See Special Instructions/Notes)	Do Not Analyze
				Date	Time	Date	Time						
01A	IAG-34934STANDISH-01_020720	6L2241	22131	2/6/2020	16:58	2/7/2020	16:02	-29.5	-5			X	
02A	DUP-34934STANDISH-01_020720	6L0577	22061	2/6/2020	--	2/7/2020	--	-30.31	-9			*AO X	
03A	IAF-34934STANDISH-02_020720	6L1506	24938	2/6/2020	17:01	2/7/2020	15:57	-29.7	-7			X	
04A	DUP-34934STANDISH-02_020720	6L2658	22693	2/6/2020	--	2/7/2020	--	-29.6	-8			*AO X	
05A	AA-34934STANDISH-01_020720	6L2418	24927	2/6/2020	17:08	2/7/2020	16:00	-29.6	-6			X	
06A	DUP-34934STANDISH-03_020720	6L1980	24940	2/6/2020	--	2/7/2020	--	-29.6	-6.5			*AO X	
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Relinquished by: (Signature/Affiliation)	<i>[Signature]</i> Arcades	Date	2/11/2020	Time	1600	Received by: (Signature/Affiliation)	<i>[Signature]</i> CAA	Date	2/13/20	Time	1009
Relinquished by: (Signature/Affiliation)		Date		Time		Received by: (Signature/Affiliation)		Date		Time	
Relinquished by: (Signature/Affiliation)		Date		Time		Received by: (Signature/Affiliation)		Date		Time	

Lab Use Only		
Shipper Name: <i>[Signature]</i>	Custody Seals Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> None

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

2/19/2020

Mr. Jim Tomalia
Arcadis U.S., Inc.
28550 Cabot Dr.
Suite 500
Novi MI 48377

Project Name: Ford LTP
Project #:
Workorder #: 2002331

Dear Mr. Jim Tomalia

The following report includes the data for the above referenced project for sample(s) received on 2/13/2020 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott
Project Manager

WORK ORDER #: 2002331

Work Order Summary

CLIENT:	Mr. Jim Tomalia Arcadis U.S., Inc. 28550 Cabot Dr. Suite 500 Novi, MI 48377	BILL TO:	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	517-819-0356	P.O. #	30016344.0002B
FAX:		PROJECT #	Ford LTP
DATE RECEIVED:	02/13/2020	CONTACT:	Ausha Scott
DATE COMPLETED:	02/19/2020		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SSMP-34934STANDISH-01_020720	TO-15	4.9 "Hg	15.8 psi
02A	Lab Blank	TO-15	NA	NA
03A	CCV	TO-15	NA	NA
04A	LCS	TO-15	NA	NA
04AA	LCSD	TO-15	NA	NA

CERTIFIED BY: 

 Technical Director

DATE: 02/19/20

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP – CA009332019-11, VA NELAP - 460197, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005-011, Effective date: 10/18/2019, Expiration date: 10/17/2020.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, LLC.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 2002331

One 1 Liter Summa Canister (100% Certified) sample was received on February 13, 2020. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-34934STANDISH-01_020720	Date/Time Analyzed:	2/17/20 04:05 PM
Lab ID:	2002331-01A	Dilution Factor:	2.48
Date/Time Collected:	2/7/20 04:15 PM	Instrument/Filename:	msd17.i / 17021706
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.2	3.9	4.9	Not Detected
1,4-Dioxane	123-91-1	9.5	13	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.9	4.9	Not Detected
Tetrachloroethene	127-18-4	3.4	6.7	8.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.5	3.9	4.9	Not Detected
Trichloroethene	79-01-6	2.4	5.3	6.7	Not Detected
Vinyl Chloride	75-01-4	1.3	2.5	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	120
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	95

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	Lab Blank	Date/Time Analyzed:	2/17/20 12:17 PM
Lab ID:	2002331-02A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17021705a
Media:	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	0.87	1.6	2.0	Not Detected
1,4-Dioxane	123-91-1	3.8	5.4	7.2	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.56	1.6	2.0	Not Detected
Tetrachloroethene	127-18-4	1.4	2.7	3.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.59	1.6	2.0	Not Detected
Trichloroethene	79-01-6	0.97	2.1	2.7	Not Detected
Vinyl Chloride	75-01-4	0.51	1.0	1.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	120
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	96

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	CCV	Date/Time Analyzed:	2/17/20 10:56 AM
Lab ID:	2002331-03A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17021702
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	103
1,4-Dioxane	123-91-1	85
cis-1,2-Dichloroethene	156-59-2	101
Tetrachloroethene	127-18-4	102
trans-1,2-Dichloroethene	156-60-5	96
Trichloroethene	79-01-6	100
Vinyl Chloride	75-01-4	85

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	127
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCS	Date/Time Analyzed:	2/17/20 11:22 AM
Lab ID:	2002331-04A	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17021703
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	104
1,4-Dioxane	123-91-1	88
cis-1,2-Dichloroethene	156-59-2	89
Tetrachloroethene	127-18-4	101
trans-1,2-Dichloroethene	156-60-5	108
Trichloroethene	79-01-6	101
Vinyl Chloride	75-01-4	86

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	127
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	98

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	LCSD	Date/Time Analyzed:	2/17/20 11:49 AM
Lab ID:	2002331-04AA	Dilution Factor:	1.00
Date/Time Collected:	NA - Not Applicable	Instrument/Filename:	msd17.i / 17021704
Media:	NA - Not Applicable		

Compound	CAS#	%Recovery
1,1-Dichloroethene	75-35-4	105
1,4-Dioxane	123-91-1	86
cis-1,2-Dichloroethene	156-59-2	88
Tetrachloroethene	127-18-4	100
trans-1,2-Dichloroethene	156-60-5	102
Trichloroethene	79-01-6	103
Vinyl Chloride	75-01-4	84

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	122
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	96

* % Recovery is calculated using unrounded analytical results.



February 20, 2020

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: 30042006.0302.02 RESIDENTIAL
Client project scopereference: Sample COC only was used to define project analytical requirements.
Laboratory: Eurofins Air Toxics -Folsom
Laboratory submittal: 2002331
Sample date:2020-02-07
Report received byCADENA: 2020-02-19
Initial DataVerification completed: 2020-02-20
1 Air sample was analyzed for TO-15 parameters.

No data qualifications or sample integrity issues were observed.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) TO-15 Analysis

SDG #2002331

CADENA Verification Report: 2020-02-20

Analyses Performed By:
Eurofins Air Toxics
Folsom, California

Report #36272R
Review Level: Tier III
Project: 30042006.0302.03



DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 2002331 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						TO-15 (Full Scan)	TO-15 (SIM)	MISC
2002331	SSMP-34934STANDISH-01_020720	2002331-01A	Air	2/7/2020		X		

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15 (Full Scan). Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15	Air	30 days from collection to analysis (Canister)	Ambient Temperature	< -2" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 140% or less than 60% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

DATA REVIEW

5. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. All identified compounds met the specified criteria.

6. Field Duplicate Sample Analysis

The field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 35% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are not greater than five times the RL, a control limit of three times the RL is applied to the difference between the duplicate sample results.

A field duplicate was not performed on a sample location within this SDG.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15 (Full Scan)	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Canister return pressure (<-2"Hg)		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Field Duplicate Sample RPD					X
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

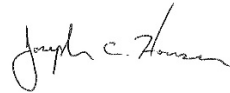
%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:



DATE: March 30, 2020

PEER REVIEW: Dennis Capria

DATE: March 30, 2020



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



**NO CORRECTIONS/QUALIFIERS ADDED
TO SAMPLE ANALYSIS DATA SHEETS**



EPA METHOD TO-15 GC/MS FULL SCAN
 Ford LTP

Client ID:	SSMP-34934STANDISH-01_020720	Date/Time Analyzed:	2/17/20 04:05 PM
Lab ID:	2002331-01A	Dilution Factor:	2.48
Date/Time Collected:	2/7/20 04:15 PM	Instrument/Filename:	msd17.i / 17021706
Media:	1 Liter Summa Canister (100% Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	75-35-4	2.2	3.9	4.9	Not Detected
1,4-Dioxane	123-91-1	9.5	13	18	Not Detected
cis-1,2-Dichloroethene	156-59-2	1.4	3.9	4.9	Not Detected
Tetrachloroethene	127-18-4	3.4	6.7	8.4	Not Detected
trans-1,2-Dichloroethene	156-60-5	1.5	3.9	4.9	Not Detected
Trichloroethene	79-01-6	2.4	5.3	6.7	Not Detected
Vinyl Chloride	75-01-4	1.3	2.5	3.2	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	120
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	95

Daily Log - Ford Off Site VI Investigation - VISIT 3

Project No.: 30042006.0302.02

Site Location: 34934 STANDISH

Personnel Onsite: Seth Turner, xenia Chan

Date	Time	Description of Activities
2/7/2020		Purpose: R5V3, canister collection, ssmp sampling
		Weather: 28 F, sunny
		Equipment: GEM, Helium Detector, Micromanometer
	16:00	Arcadis on site
	16:04	Conduct canister collection and ssmp sampling.
	16:28	Arcadis off site
	--	--
	--	--
	--	--
	--	--
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	--	--
	--	--
	--	--
	--	--
	--	--

Visit 3 Checklist

Windows and doors are shut (for IA samples only)? yes

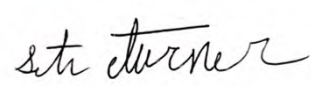
Have background sources of VOCs been removed/isolated? yes

Number of SSMP samples collected: 1

Number of indoor/ambient air samples collected: 6

Occupancy hours (for commercial properties only): --

Field Staff Signature:



INDOOR AIR BUILDING SURVEY AND SAMPLING FORM

R3 - 6/24/19
Date: 11/22/18 Survey Performed by: David Craig

1. OCCUPANT:

Rent: _____ Own: R4 0/23/19 X. Chun, S. Johnson

Resident Name: Anthony Kiseida

Address: 34934 Standish

Telephone: Home: 734-564-0486 Work: _____

How long have you lived at this location? 27 years

*R4ST resample 2/5/2020
- NO changes since
R5 - R4ST visit.
x Seth Turner*

List current occupants/occupation below (attach additional pages if necessary):

Age (if under 18)	Sex (M/F)	Occupation
	M	Account Manager
	F	Parts Coordinator
	M	Student

2. OWNER OR LANDLORD: (If same as occupant, check here and go to Item No. 3).

Last Name: _____ First Name: _____
Address: _____
City and State: _____
County: _____
Home Phone: _____ Office Phone: _____

R3 * Homeowner stated absolutely no changes in house since R2.
R4 * NO changes since last visit

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

3. SENSITIVE POPULATION:

Daycare/Nursing Home/Hospital/School/Other (specify): N/A

4. BUILDING CHARACTERISTICS:

Residential / Multi-family Residential / Office / Strip Mall / Commercial / Industrial / School

Describe Building: Bungalow Year Constructed: 1929

Number of floors at or above grade: 1.5 - Bungalow

Number of floors below grade: _____ (full basement / crawl space / slab on grade)

Depth of structure below grade: 4 ft. Basement size: N/A ft²

If the property is residential, what type? (Circle all appropriate responses.)

Ranch	2-Family	3-Family	Raised Ranch
Split Level	Colonial	Cape Cod	Contemporary
Mobile Home	Duplex	Apartment House	Townhouses/Condos
Modular	Log Home	Other: <u>Bungalow</u>	

If multiple units, how many? _____

If the property is commercial:

Business type(s) N/A

Does it include residences (i.e., multi-use)? Yes No If yes, how many? N/A

5. OCCUPANCY:

Is basement/lowest level occupied? (Circle one)

Full-time Occasionally Seldom Almost Never no basement



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Level	General Use (e.g., family room, bedroom, laundry, workshop, storage)
Basement	<u>N/A</u>
1 st Floor	<u>Bedrooms, Kitchen, Laundry, Bathrooms, Living Room</u>
2 nd Floor	<u>Storage / Living Space</u>
3 rd Floor	<u>_____</u>
4 th Floor	<u>_____</u>

(Use additional page(s) as necessary)

6. CONSTRUCTION CHARACTERISTICS: (Circle all that apply.)

a. Above Grade Construction: (Describe type: wood frame, concrete, stone, brick).

Wood Frame

b. Basement Type: Full Crawlspace Slab Other: _____

c. Basement Floor: Concrete Dirt Stone Other: _____

d. Finished Basement Floor: Uncovered Covered

If covered, what with? N/A

e. Foundation Walls: Poured Block Stone Other: _____

f. Foundation Walls: Unsealed Sealed Sealed with: _____

g. The Basement is: Wet Damp Dry

h. The Basement is: Finished Unfinished Partially Finished

i. Sump Present (Y/N) (N) If yes, how many? _____

Where Discharged? N/A

Water in Sump? Yes No Not Applicable

N/A



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Identify all potential soil vapor entry points and estimated size (e.g., cracks, utility parts, drains).

Floor drain in mud room 1/2" x 1/2" hole
 cracks in concrete floor

Are the basement walls or floor sealed with waterproof paint or epoxy coatings? Yes No

Type of ground cover outside of building: Grass Concrete Asphalt Other soil

Is an existing subsurface depressurization (radon) system in place? Yes No

If yes, is it active, or passive? Detector / No system

Is a sub-slab vapor/moisture barrier in place? Yes No

Type of barrier: _____

7. HEATING, VENTING, and AIR CONDITIONING

Type of heating system(s) used in this building: (Circle all that apply: Note the primary).

- | | | |
|---|--|--|
| <input checked="" type="checkbox"/> Hot Air Circulation | <input type="checkbox"/> Heat Pump | <input type="checkbox"/> Hot Water Baseboard |
| <input type="checkbox"/> Space Heaters | <input type="checkbox"/> Steam Radiation | <input type="checkbox"/> Radiant Floor |
| <input type="checkbox"/> Electric Baseboard | <input type="checkbox"/> Wood Stove | <input type="checkbox"/> Outdoor Wood Boiler |
| Other: _____ | | |

The primary type of fuel used is:

- | | | |
|--|--------------------------------|--------------------------------|
| <input checked="" type="radio"/> Natural Gas | <input type="radio"/> Fuel Oil | <input type="radio"/> Kerosene |
| <input type="radio"/> Electric | <input type="radio"/> Propane | <input type="radio"/> Solar |
| <input type="radio"/> Wood | <input type="radio"/> Coal | |

Domestic hot water tank fueled by: Electric

Location of Boiler/Furnace: Basement Outdoors Main Floor Other Crawl Space



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

Air Conditioning: Central Air Window Units Open Windows None

Are air distribution ducts present? Yes No

Is there a whole house fan? Yes No

Describe the air intake system (outside air supply, cold air return, ductwork, etc.) and its condition where visible. Indicate the locations on the floor plan diagram.

Outside air / cold air return

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

a) Is there an attached garage? Yes No
If yes, does it have a separate heating unit? Yes No N/A

b) Are any petroleum-powered machines or vehicles stored in an attached garage (e.g., lawn mower, ATV, car) Yes No N/A

c) Has the building ever had a fire? Yes No

d) Is there a fuel burning or unvented gas space heater? Yes No

e) Is there a workshop or hobby/craft area? Yes No

If yes, where and what type? N/A

f) Is there smoking in the building? Yes No

If yes, how frequently? N/A



Indoor Air Sampling Procedure Via USEPA Method TO-15

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

- g) Have cleaning products been used recently? Yes No
If yes, when and what type? _____
- h) Have cosmetic products been used recently? Yes No
If yes, when and what type? _____
- i) Has there been painting or staining in the last six months? Yes No
If yes, when and where? _____
- j) Is there new carpet, drapes, or other textiles? Yes No
If yes, when and where? _____
- k) Have air fresheners been used recently? Yes No
If yes, when and what type? _____
- l) Is there a kitchen exhaust fan? Yes No
If yes, where is it vented? Does vent outside
- m) Is there a clothes dryer? Yes No
If yes, is it vented outside? Yes No
- n) Has there been a pesticide application? Yes No
If yes, when and what type? N/A
- o) Are there odors in the building? Yes No
If yes, please describe: N/A

INDOOR AIR BUILDING SURVEY AND SAMPLING FORM (continued)

p) Do any of the building occupants use solvents at work (e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetology)?

Yes No

If yes, what types of solvents are used? N/A

If yes, are their clothes washed at work?

Yes No

q) Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response.)

- No Unknown
 Yes, use dry-cleaning regularly (weekly)
 Yes, use dry-cleaning infrequently (monthly or less)
 Yes, work at a dry-cleaning service

r) Is there a radon mitigation system for the building/structure?

Yes No

If yes, what is date of installation? N/A

Active Passive

s) Additional mitigation system information (fan size, location, operating status, liner installed, etc.):

N/A

t) Is there an irrigation well, or any other well, present at the property:

Yes No

If yes, please describe placement, use, and history below.

N/A

lectric parts clean
 or All Protectant

Marvel Air 01
 Stuff (gases and (stick)
 Agno All Natural Finish

96 1 110

* G r 7 e

Carman 4272

PID

PRODUCT INVENTORY FORM:

Photos - 674-

Make and Model of field instrument used: Apb RAE 3000

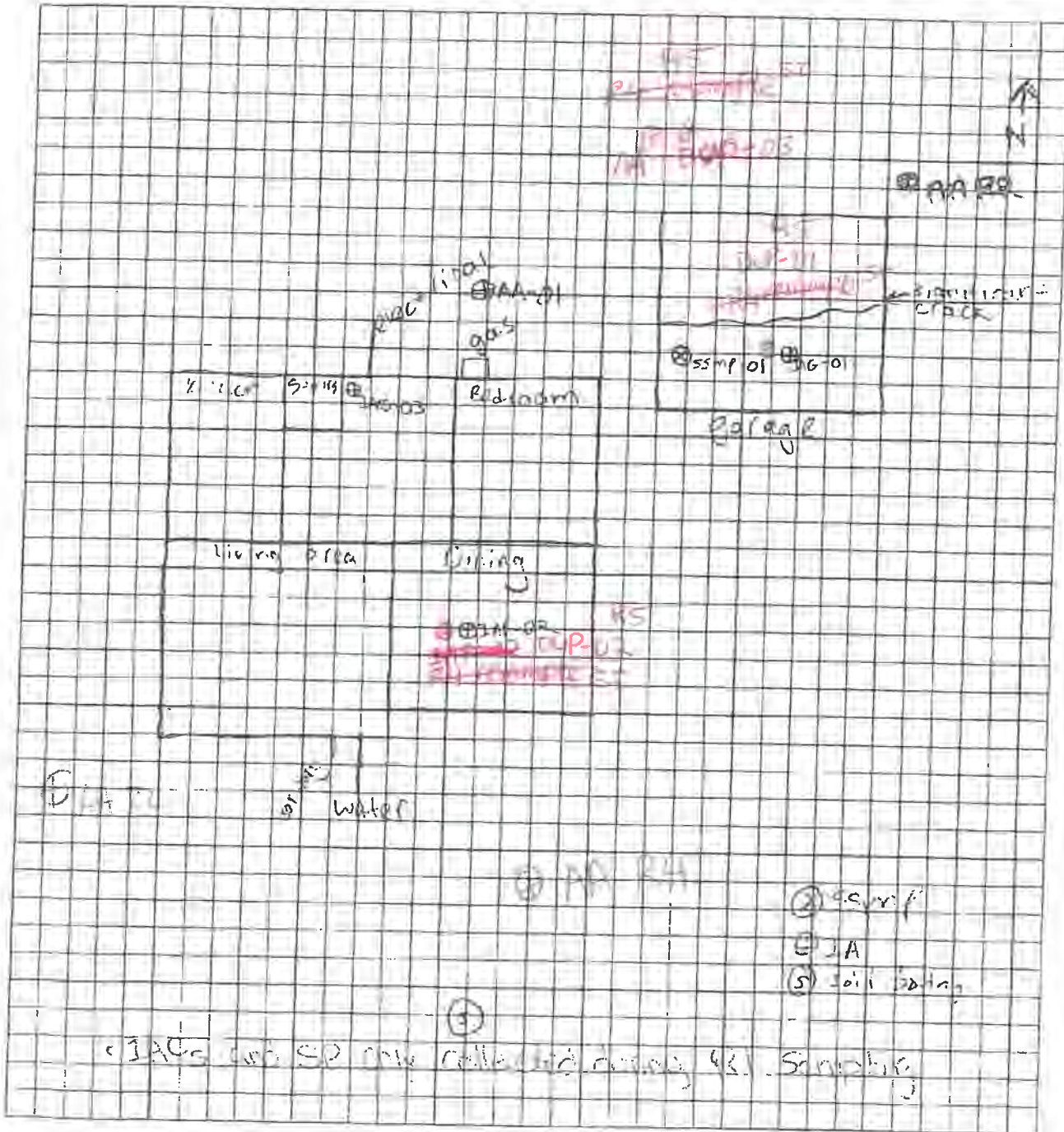
List specific products found in the residence or area that have the potential to affect indoor air quality (e.g., gasoline or kerosene storage cans, glues, paints, cleaning solvents/products, polishes/waxes, new furniture/ carpet, nail polish/hairspray/cologne).

Potential Source	Location	Size and Condition	Chemical Ingredients	Field Instrument Reading (units)	Photo Y/N	
Gasoline Storage Cans and Equipment	Garage	5 gal	Empty	0.00 ppb	Y	- empty
Kerosene Storage Cans	Garage	Kerosene Heater	icks	0.00 ppb	Y	- empty
Paints/Thinners/Strippers	Garage	Small Cans	Various Vocs	0.00 ppb	Y	- removed
Cleaning Solvents	Garage	Small Cans	Brite Clean / Cab Clean	0.00 ppb	Y	- removed
Hobby Supplies - Glue, Paint, Etc.	N/A					
Oven Cleaner	N/A					
Carpet/Upholstery Cleaners	N/A					
Household Cleaners (non-solvent)	Bathroom					
Wash Balls	N/A					
Polishes/Waxes	Garage	Brushing	Turtle Wax Armor All	0.00 ppb	Y	- removed
Insecticides	Garage	2-1 quart	Ortho Home Defense	0.00 ppb	Y	- removed
Furniture/Floor Polish	N/A					
Hairspray	Bathroom	Various Aerosols	Various Vocs	0.00 ppb	Y	- removed
Cologne/Perfume						
Air Fresheners	House	Candles	Not Lit	0.00 ppb	N	- not removed
Interior Fuel Tank	N/A					
Wood Stove/Fireplace	N/A					
New Furniture/Upholstery	N/A					
New Carpeting/Flooring	N/A					
Others (fill in below)						
Bond Adhesives	Garage	Small	Green Glue	0.00 ppb	Y	- removed
Glue	Garage			0.00	Y	- removed
Nail Polish	Garage			0.00	Y	- removed
Bond Adhesives	Garage			0.00	Y	- removed

R5
 R4 ST
 Resamp

Garage PID: 0 ppb

Subject 24934 Starfish			
Project No. M1001454.0003		Sheet	
Calculations By Seth Turner	Date 10-22-18	Checked By	Date



Office Name & Address (Reporting Information): Arcadis of Michigan, LLC 28550 Cabot Drive, Suite 500, Novi, MI 48377		Project Name: Ford LTP Off-site Sampling	
Field Manager: Adam Richmond		Project Number: MI001454.0003 / 30016344	
Phone Number: 248.994.2240	Special Instructions: Report ONLY: 1,1-DCE, cis-1,2- DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadena.com. Cadena #E203631. Level IV Reporting.	Site Address: 34934 STANDISH	
Email Address for Result Reporting: Kristoffer.Hinskey@arcadis.com		Sampler Name: Seth Turner, Xenia Chan	
Summa Canister Size (1L, 2.7 L, 6L) 6 Liter	Lab: Eurofins		

Sample ID	Sample Location Description	Indoor/ Outdoor	PID in Sampling Area (ppb)	Canister Number	Flow Controller Number	Sample Collection Start Date	Sample Collection Start Time	Beginning Canister Pressure (in. Hg)	Sample Collection End Date	Sample Collection End Time	Ending Canister Pressure (in. Hg)	HVAC System Information						Notes
												HVAC Fan On Start?	HVAC Fan On End?	Heat On Start?	Heat On End?	Temperature Setting (°F) Start	Temperature Setting (°F) End	
IAG-34934STANDISH-01_020720	Garage	Indoor	0	6L2241	22131	2/6/2020	16:58	-29.5	2/7/2020	16:02	-5	Yes	yes	Yes	Yes	68	68	--
DUP-34934STANDISH-01_020720	Garage	Indoor	0	6L0577	22061	2/6/2020	16:59	-30.31	2/7/2020	16:03	-9	Yes	yes	Yes	Yes	68	68	--
IAF-34934STANDISH-02_020720	Living room	Indoor	83	6L1506	24938	2/6/2020	17:01	-29.7	2/7/2020	15:57	-7	Yes	yes	Yes	Yes	68	68	--
DUP-34934STANDISH-02_020720	Living room	Indoor	83	6L2658	22693	2/6/2020	17:04	-29.6	2/7/2020	15:58	-8	Yes	yes	Yes	Yes	68	68	--
AA-34934STANDISH-01_020720	Backyard	Outdoor	0	6L2418	24927	2/6/2020	17:08	-29.6	2/7/2020	16:00	-6	--	--	--	--	--	--	--
DUP-34934STANDISH-03_020720	Backyard	Outdoor	0	6L1980	24940	2/6/2020	17:08	-29.6	2/7/2020	16:01	-6.5	--	--	--	--	--	--	--
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Meteorological Data							General Notes or Observations	
Date	Time	Temp. (°F)		Relative Humidity (%)	Barometric Pressure (in. Hg)	Air Speed (mph)	Source of Weather Information	
		Indoor	Outdoor					
2/6/2020	16:57	68	30	75	30.92	N 9	weather.com app	
2/7/2020	16:05	68	28	54	29.84	4 NW	weather.com app	
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Soil Vapor Collection Log Sheet

Office Name & Address (Reporting Information): Arcadis of Michigan, LLC 28550 Cabot Drive, Suite 500, Novi, MI 48377		Project Name: Ford LTP Off-site Sampling	
Field Manager: Adam Richmond		Project Number: MI001454.0003 / 30016344	
Phone Number: 248.994.2240	Special Instructions: Report ONLY: 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,4-Dioxane, PCE, TCE and VC. Submit results through Cadena at jim.tomalia@cadenac.com. Cadena #E203631. Level IV Reporting.	Site Address: 34934 STANDISH	
Email Address for Result Reporting: Kristoffer.Hinskey@arcadis.com	Helium Detector Model Used: Dielectric MGD-2002	Helium Leak Test Method: Bucket Shroud	Summa Canister Size (1L, 2.7 L, 6L): 1 Liter
		Lab: Eurofins	Sampler Name: Xenia Chan

Sample ID	Sample Location Description	Date	Pre-Sampling Shut-In / Leak-Down Test Pass/Fail?	Helium Tracer Test - Performed During Sample Point Purge			Purge Volume (mL)	Purge Rate (mL/min)	Canister Number	Flow Controller Number	Sample Collection Start Time	Starting Canister Pressure (in. Hg)	Sample Collection End Time	Ending Canister Pressure (in. Hg)	Post-Sampling CO ₂ Reading from GEM (%)	Post-Sampling O ₂ Reading from GEM (%)	Micromanometer Reading (in. WC)
				Shroud Helium Concentration During Purge (% Helium)	Helium Reading in Purged Vapor (% Helium)	Helium Test Pass/Fail (Purge contains <5% of shroud to pass)?											
SSMP-34934STANDISH-01_020720	Garage	2/7/2020	Pass	54.2	0	Pass	100	100	1L3222	24905	16:03	-29.7	16:15	-6	0.3	22.6	0.00013
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Date	Time	Temp. (°F)		Relative Humidity (%)	Barometric Pressure (in. Hg)	Source of Weather Information	Purge Volume Calculations: The purge volume for each sample has been pre-calculated using the information below. For sub-slab soil vapor samples the sample train tubing length is ~54 inches and the interior tubing radius is 0.085". Three volumes of the sample train is 60 milliliters using the equation for volume of a cylinder (volume = pi * radius ² * height) where Volume = 60 ml, radius = 0.85" and height = 54". To have sufficient volume to conduct helium leak testing 100 milliliters should be purged from each sample point. For exterior soil vapor sampling 60 milliliters should be used for the above ground sample train. Each additional foot of sub-grade tubing account for approximately 13 ml. To have sufficient volume to conduct helium leak testing at least 100 milliliters should be purged from each sample point.
		Indoor	Outdoor				
2/7/2020	16:18	68	32	57	29.74	weather.com app	
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SAFETY DATA SHEET

1. Identification

Product identifier Lectra-Motive® Electric Parts Cleaner

Other means of identification

Product Code No. 05018 (Item# 1003634)

Recommended use Energized electrical cleaner

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Manufactured or sold by:

Company name CRC Industries, Inc.

Address 885 Louis Dr.
Warminster, PA 18974 US

Telephone

General Information 215-674-4300

Technical Assistance 800-521-3168

Customer Service 800-272-4620

24-Hour Emergency 800-424-9300 (US)

(CHEMTREC) 703-527-3887 (International)

Website www.crcindustries.com

2. Hazard(s) identification

Physical hazards	Gases under pressure	Compressed gas
Health hazards	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2B
	Sensitization, skin	Category 1B
	Carcinogenicity	Category 1B
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 2
	Hazardous to the aquatic environment, long-term hazard	Category 2
OSHA defined hazards	Not classified.	

Label elements



Signal word Danger

Hazard statement Contains gas under pressure; may explode if heated. Causes skin irritation. May cause an allergic skin reaction. Causes eye irritation. May cause drowsiness or dizziness. May cause cancer. Toxic to aquatic life. Toxic to aquatic life with long lasting effects.

Precautionary statement

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not puncture or incinerate container. Do not expose to heat or store at temperatures above 49°C/120°F. Use with adequate ventilation. Open doors and windows or use other means to ensure a fresh air supply during use and while product is drying. If you experience any symptoms listed on this label, increase ventilation or leave the area. Avoid breathing mist or vapor. Wash thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection. Avoid release to the environment.

Response	If on skin: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. IF exposed or concerned: Get medical advice/attention. Collect spillage.
Storage	Store locked up. Protect from sunlight. Store in a well-ventilated place. Exposure to high temperature may cause can to burst.
Disposal	Dispose of contents/container in accordance with local/regional/national regulations.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	When exposed to extreme heat or hot surfaces, vapors may decompose to harmful or fatal corrosive gases such as hydrogen chloride and possibly phosgene.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
tetrachloroethylene	perchloroethylene	127-18-4	90 - 100
carbon dioxide		124-38-9	1 - 5

Specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact	Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions. If skin irritation or rash occurs: Get medical advice/attention.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Ingestion	In the unlikely event of swallowing contact a physician or poison control center. Rinse mouth. Get medical attention if symptoms occur.
Most important symptoms/effects, acute and delayed	May cause drowsiness and dizziness. Headache. Nausea, vomiting. Irritation of eyes and mucous membranes. Exposed individuals may experience eye tearing, redness, and discomfort. Irritation of nose and throat. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.
General information	IF exposed or concerned: Get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Dry chemical, CO2, or water spray.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Contents under pressure. Pressurized container may rupture when exposed to heat or flame. During fire, gases hazardous to health may be formed. When exposed to extreme heat or hot surfaces, vapors may decompose to harmful or fatal corrosive gases such as hydrogen chloride and possibly phosgene.
Special protective equipment and precautions for firefighters	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.
Fire-fighting equipment/instructions	In case of fire: Stop leak if safe to do so. Move containers from fire area if you can do so without risk. Containers should be cooled with water to prevent vapor pressure build up.
General fire hazards	Contents under pressure. Pressurized container may rupture when exposed to heat or flame.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks). Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist or vapor. Emergency personnel need self-contained breathing equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Collect spillage. This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways. Stop the flow of material, if this is without risk. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Put material in suitable, covered, labeled containers. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Pressurized container: Do not pierce or burn, even after use. Use with adequate ventilation. Open doors and windows or use other means to ensure a fresh air supply during use and while product is drying. If you experience any symptoms listed on this label, increase ventilation or leave the area. Do not use if spray button is missing or defective. Do not spray on a naked flame or any other incandescent material. Do not smoke while using or until sprayed surface is thoroughly dry. Do not cut, weld, solder, drill, grind, or expose containers to heat, flame, sparks, or other sources of ignition. Use caution around energized equipment. The metal container will conduct electricity if it contacts a live source. This may result in injury to the user from electrical shock and/or flash fire. Avoid breathing mist or vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Should be handled in closed systems, if possible. Use only in well-ventilated areas. Wear appropriate personal protective equipment. Avoid release to the environment. Do not empty into drains. Observe good industrial hygiene practices. For product usage instructions, see the product label.

Conditions for safe storage, including any incompatibilities

Level 1 Aerosol.

Contents under pressure. Do not handle or store near an open flame, heat or other sources of ignition. Do not puncture or incinerate container. Do not expose to heat or store at temperatures above 49 °C/120 °F. Protect from sunlight. Store in a well-ventilated place. Store in cool place. Exposure to high temperature may cause can to burst. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
carbon dioxide (CAS 124-38-9)	PEL	9000 mg/m ³
		5000 ppm

US. OSHA Table Z-2 (29 CFR 1910.1000)

Components	Type	Value
tetrachloroethylene (CAS 127-18-4)	Ceiling	200 ppm
	TWA	100 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
carbon dioxide (CAS 124-38-9)	STEL	30000 ppm
	TWA	5000 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
tetrachloroethylene (CAS 127-18-4)	STEL	100 ppm
	TWA	25 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
carbon dioxide (CAS 124-38-9)	STEL	54000 mg/m ³
	TWA	30000 ppm
		9000 mg/m ³
		5000 ppm

Biological limit values**ACGIH Biological Exposure Indices**

Components	Value	Determinant	Specimen	Sampling Time
tetrachloroethylene (CAS 127-18-4)	0.5 mg/l	Tetrachloroethylene	Blood	*
	3 ppm	Tetrachloroethylene	End-exhaled air	*

* - For sampling details, please see the source document.

Exposure guidelines**US - Minnesota Haz Subs: Skin designation applies**

tetrachloroethylene (CAS 127-18-4)

Skin designation applies.

Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower should be available when handling this product. Provide eyewash station.

Individual protection measures, such as personal protective equipment**Eye/face protection**

Wear safety glasses with side shields (or goggles).

Skin protection**Hand protection**

Wear protective gloves such as: Nitrile. Viton/butyl. Polyvinyl alcohol (PVA). Silver Shield®

Other

Wear appropriate chemical resistant clothing.

Respiratory protection

If engineering controls are not feasible or if exposure exceeds the applicable exposure limits, use a NIOSH-approved cartridge respirator with an organic vapor cartridge. Use a self-contained breathing apparatus in confined spaces and for emergencies. Air monitoring is needed to determine actual employee exposure levels.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

Observe any medical surveillance requirements. When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

9. Physical and chemical properties**Appearance****Physical state**

Liquid.

Form

Aerosol.

Color

Colorless.

Odor

Irritating.

Odor threshold

50 ppm

pH

Not available.

Melting point/freezing point

-8.1 °F (-22.3 °C) estimated

Initial boiling point and boiling range

250.3 °F (121.3 °C) estimated

Flash point

None (Tag Closed Cup)

Evaporation rate	Very fast.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Vapor pressure	1230.2 hPa estimated
Vapor density	5.76 (air = 1)
Relative density	1.62
Solubility (water)	0.02 % (77 °F (25 °C))
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity (kinematic)	Not available.
Percent volatile	97.9 % estimated
Other information	
Partition coefficient (oil/water)	2.88

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Heat, flames and sparks. Contact with incompatible materials. When exposed to extreme heat or hot surfaces, vapors may decompose to harmful or fatal corrosive gases such as hydrogen chloride and possibly phosgene.
Incompatible materials	Strong oxidizing agents. Strong acids. Strong bases.
Hazardous decomposition products	Hydrogen chloride. Trace amounts of chlorine and phosgene. Carbon oxides. Halogenated materials. Carbonyl halides.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Prolonged inhalation may be harmful. May cause drowsiness and dizziness. Headache. Nausea, vomiting.
Skin contact	Causes skin irritation. May cause an allergic skin reaction.
Eye contact	Causes eye irritation.
Ingestion	Ingestion of large amounts may produce gastrointestinal disturbances including irritation, nausea, and diarrhea.

Symptoms related to the physical, chemical and toxicological characteristics May cause drowsiness and dizziness. Headache. Nausea, vomiting. Irritation of eyes and mucous membranes. Exposed individuals may experience eye tearing, redness, and discomfort. Irritation of nose and throat. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.

Information on toxicological effects

Acute toxicity None known.

Components	Species	Test Results
tetrachloroethylene (CAS 127-18-4)		
Acute		
Dermal		
LD50	Rabbit	> 3228 mg/kg

Components	Species	Test Results
Oral LD50	Rat	2629 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation	Causes skin irritation.
Serious eye damage/eye irritation	Causes eye irritation.
Respiratory sensitization	Not a respiratory sensitizer.
Skin sensitization	May cause an allergic skin reaction.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	May cause cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity

tetrachloroethylene (CAS 127-18-4) 2A Probably carcinogenic to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens

tetrachloroethylene (CAS 127-18-4) Reasonably Anticipated to be a Human Carcinogen.

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	May cause drowsiness and dizziness.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not an aspiration hazard.
Chronic effects	Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.

12. Ecological information

Ecotoxicity Toxic to aquatic life with long lasting effects. Accumulation in aquatic organisms is expected.

Components	Species	Test Results
tetrachloroethylene (CAS 127-18-4)		
Aquatic		
Fish	LC50 Rainbow trout,donaldson trout (Oncorhynchus mykiss)	4.73 - 5.27 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)

tetrachloroethylene 2.88

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal of waste from residues / unused products This material and its container must be disposed of as hazardous waste. Consult authorities before disposal. Contents under pressure. Do not puncture, incinerate or crush. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose in accordance with all applicable regulations.

Hazardous waste code
D039: Waste Tetrachloroethylene
F001: Waste Halogenated Solvent - Spent Halogenated Solvent Used in Degreasing
F002: Waste Halogenated Solvent - Spent Halogenated Solvent

US RCRA Hazardous Waste U List: Reference

tetrachloroethylene (CAS 127-18-4) U210

Contaminated packaging

Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information**DOT**

UN number	UN1950
UN proper shipping name	Aerosols, poison, Limited Quantity
Transport hazard class(es)	
Class	2.2
Subsidiary risk	6.1(PGIII)
Label(s)	2.2, 6.1
Packing group	Not applicable.
Special precautions for user	Forbidden from transportation by air.
Packaging exceptions	306
Packaging non bulk	None
Packaging bulk	None

IATA

UN number	UN1950
UN proper shipping name	Aerosols, non-flammable, containing substances in Division 6.1, Packing Group III
Transport hazard class(es)	
Class	2.2
Subsidiary risk	6.1
Packing group	Not applicable.
ERG Code	2P
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed with restrictions.
Cargo aircraft only	Allowed with restrictions.

IMDG

UN number	UN1950
UN proper shipping name	AEROSOLS
Transport hazard class(es)	
Class	2
Subsidiary risk	6.1
Packing group	Not applicable.
Environmental hazards	
Marine pollutant	No.
EmS	Not available.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

tetrachloroethylene (CAS 127-18-4)

CERCLA Hazardous Substance List (40 CFR 302.4)

tetrachloroethylene (CAS 127-18-4) Listed.

CERCLA Hazardous Substances: Reportable quantity

tetrachloroethylene (CAS 127-18-4) 100 LBS

Spills or releases resulting in the loss of any ingredient at or above its RQ require immediate notification to the National Response Center (800-424-8802) and to your Local Emergency Planning Committee.

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

tetrachloroethylene (CAS 127-18-4)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.**Food and Drug Administration (FDA)** Not regulated.**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

Section 311/312 Immediate Hazard - Yes
Hazard categories Delayed Hazard - Yes
 Fire Hazard - No
 Pressure Hazard - Yes
 Reactivity Hazard - No

SARA 302 Extremely hazardous substance No**US state regulations****US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))**

tetrachloroethylene (CAS 127-18-4)

US. New Jersey Worker and Community Right-to-Know Act

carbon dioxide (CAS 124-38-9)

tetrachloroethylene (CAS 127-18-4)

US. Massachusetts RTK - Substance List

carbon dioxide (CAS 124-38-9)

tetrachloroethylene (CAS 127-18-4)

US. Pennsylvania Worker and Community Right-to-Know Law

carbon dioxide (CAS 124-38-9)

tetrachloroethylene (CAS 127-18-4)

US. Rhode Island RTK

carbon dioxide (CAS 124-38-9)

tetrachloroethylene (CAS 127-18-4)

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

tetrachloroethylene (CAS 127-18-4)

Listed: April 1, 1988

Volatile organic compounds (VOC) regulations**EPA****VOC content (40 CFR 51.100(s))** 0 %**Consumer products (40 CFR 59, Subpt. C)** Not regulated**State****Consumer products** This product is regulated as an Energized Electrical Cleaner for the following states: California, Connecticut, Delaware, District of Columbia, Illinois, Indiana, Maine, Maryland, Massachusetts, Michigan, New Jersey, New York, Ohio, Pennsylvania, Rhode Island and Virginia. It is for energized equipment use only. It is not to be used for motorized vehicle maintenance or their parts. This product is compliant for use in all 50 states.**VOC content (CA)** 0 %**VOC content (OTC)** 0 %**International Inventories**

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes

Country(s) or region	Inventory name	On inventory (yes/no)*
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date	12-20-2013
Revision date	10-25-2017
Prepared by	Allison Yoon
Version #	04
Further information	CRC # 491G/1002481
HMIS® ratings	Health: 2* Flammability: 0 Physical hazard: 0 Personal protection: B
NFPA ratings	Health: 2 Flammability: 0 Instability: 0

NFPA ratings



Disclaimer

The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. This information is accurate to the best of CRC's knowledge or obtained from sources believed by CRC to be accurate. Before using any product, read all warnings and directions on the label. For further clarification of any information contained on this (M)SDS consult your supervisor, a health & safety professional, or CRC Industries, Inc..

Revision Information

This document has undergone significant changes and should be reviewed in its entirety.

Attachment 6

Soil Boring Logs and Well Construction Logs

Soil Boring Log

Project Name: Ford Livonia Automatic Transmissions Plant Date Started: 04/10/2019 Logger: S. Johnson
 Project Number: 30050315 Date Completed: 04/10/2019 Editor: C. Cisco
 Project Location: Livonia, MI Weather Conditions: 38° F, Cloudy

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Sample ID	PID (ppm)	USCS Class	Description	Construction Details	Well
1					0.0	(0.0-0.3') TOPSOIL.		2.0" dia. SCH-40 PVC Casing (0.0-1.0') Cement (1.0-3.5') Bentonite Pellets (3.5-10.0') Filter Pack Sand	
2		60		0.0	(0.3-1.0') SAND, very fine to fine, subrounded to subangular; and GRANULES, subrounded to subangular; little small pebbles, subrounded to subangular; well sorted; dry; loose; very dark grayish brown (10YR 3/2).				
3				0.0	(1.0-4.0') SAND, fine to medium, subrounded to subangular; well sorted; moist; loose; yellowish brown (10YR 5/6).				
4				0.0	(4.0-5.0') SAND, very fine, subrounded to subangular; and SILT, nonplastic, rapid dilatancy; well sorted; moist; soft; very dark grayish brown (10YR 3/2).				
5				0.0	(5.0-7.5') NO RECOVERY. Note: Boring appeared wet at 5.0' bgs.				
6					NR			(4.5-9.5') 2.0" dia. Stainless Steel 0.010 slot Well Screen	
7		60		NR					
8				0.0	(7.5-9.6') SILT, nonplastic, rapid dilatancy, soft; moist to wet; black (10YR 2/1).				
9				0.0	Note: Color change to gray (10YR 5/1) at 8.3' bgs.				
10				0.0	(9.6-10.0') SAND, fine to coarse, subrounded to subangular; little granules, subrounded to subangular; poorly sorted; moist; very dark gray (10YR 3/1). End of boring at 10.0' bgs.				
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

Drilling Co.: Fibertec Sampling Method: 5' Macrocore
 Driller: Nick Wiseman Sampling Interval: Continuous
 Drilling Method: Hand Auger / Direct Push Water Level Start (ft. bgs.): 5.0
 Drilling Fluid: None Water Level Finish (ft. btoc.): NA
 Remarks: ' / ft = feet; " / in = inch; bgs = below ground surface; Converted to Well: Yes No
Hand Auger to 5.0' bgs. Surface Elev.: 668.2
 North Coord.: 320345.8
 East Coord.: 13387196.0

SOIL BORING LOG - 2013 ©COMMON INFORMATION NOTES AND DATA BORING LOGSMASTER FORD LTP BORING LOGS - 073120.GPJ ARCADIS 2013.GDT 2/2/21

ARCADIS
Soil Boring Log

Boring No.: MW-575
Sheet: 1 of 1

Project Name: Ford LTP
Project Number: M1001454.0003.00002
Project Location: NE AT&PC PROPERTY

Date Started: 4-10-19 Date Completed: 4-10-19
Logger: S. J. HURON Editor:
Weather Conditions: 38° (RAD)

Depth (feet)	Recovery (in.)	PID (ppm)	Description
1	60"	0.0	(0-0.3') TOPSOIL
2	HA	0.0	(0.3-1') SAND, VF-F, SA-SR, W SORTED; AND GRANULES, SA-SR; LITTLE SMALL PEBBLE, SA-SR; DRY; LOOSE; V. DARK GRAYISH BROWN (10 YR 3/2)
3	60"	0.0	(1-4') SAND, F-H, SA-SR, W SORTED; MOIST; LOOSE; YELLOWISH BROWN (10 YR 5/6)
4		0.0	
5		0.0	(4-5') SAND, VF, SA-SR, W SORTED; AND SILT; NP; RD; MOIST; SOFT; V. DARK GRAYISH BROWN (10 YR 3/2)
6		NR	NOTE: WET @ 5' BGS
7	60" HSA	30" NR	NOTE: NO RECOVERY FROM 5-7.5' BGS (7.5-8.5') SILT; NP; RD; SOFT; MOIST - WET; BLACK (10 YR 2/1)
8		0.0	NOTE: COLOR CHANGE TO GRAY (10 YR 5/1) @ 8.5' BGS
9		0.0	(8.5-9.6') SAND
10		0.0	(9.6-10') SAND, F-L, SA-SR, P SORTED; LITTLE GRANULES, SA-SR; MOIST; V. DARK GRAY (10 YR 3/1)
11			
12			END @ 10' BGS
13			
14			
15			
16			
17			
18			
19			
20			

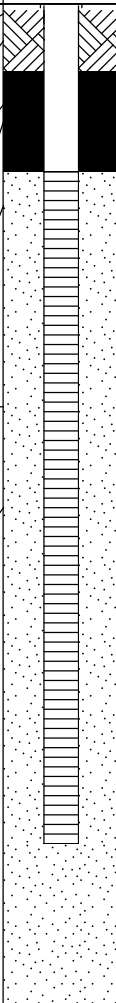
Drilling Co.: FIBRETEC
Driller: NICK WISEMAN
Drilling Method: HSA HA / DIRECT PUSH
Drilling Fluid:
Remarks: SCREEN: 4.5-9.5'

Sampling Method: 5.0' YES MARC CORE
Sampling Interval: Continuous
Water Level Start: 5'
Water Level Finish: NA
Converted to Well: Yes No
Surface Elev: NA
North Coor: NA
East Coor: NA



Soil Boring Log

Project Name: Ford Livonia Automatic Transmissions Plant Date Started: 12/04/2018 Logger: J. Barker
 Project Number: 30050315 Date Completed: 12/04/2018 Editor: C. Cisco
 Project Location: Livonia, MI Weather Conditions: 20° F, Partly Cloudy

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Sample ID	PID (ppm)	USCS Class	Description	Construction Details	Well
1					102	(0.0-0.5') TOPSOIL.		8.0" Flush Mount (0.0-1.0') Cement 8.0" dia. drilled hole (1.0-2.5') Bentonite Pellets (2.5-15.0') Filter Pack Sand 2.0" dia. SCH-40 PVC Casing (2.5-12.5') 2.0" dia. Stainless Steel 0.010 slot Well Screen	
2				16.5	(0.5-1.0') SAND, fine; and SILT; well sorted; moist; very loose; dark brown (10YR 3/3).				
3				9.5	(1.0-4.0') SAND, fine; and CLAY; well sorted; moist; very loose; very dark grayish brown (10YR 3/2).				
4				14.5					
5				4.1	(4.0-7.0') SAND, fine to medium; trace coarse sand, subrounded to subangular; little clay; well sorted; wet; very loose; dark yellowish brown (10YR 4/4).				
6				5.6					
7				12.2					
8		58		10.2	(7.0-7.5') SAND, fine to medium; trace coarse sand, subrounded to subangular; little clay; well sorted; wet; very loose; grayish brown (10YR 5/2).				
9				44	(7.5-8.5') CLAY, medium plasticity, no dilatancy; moist; soft; grayish brown (10YR 5/2).				
10				8.1	(8.5-11.0') SILT, nonplastic, no dilatancy; trace clay; wet; soft; grayish brown (10YR 5/2). Note: Laminations less than 1/4" thick present at 9.5' bgs.				
11				NR					
12				22	(11.0-12.5') CLAY, medium plasticity, no dilatancy; trace sand, medium; very stiff; grayish brown (10YR 5/2).				
13		46		22.1	(12.5-15.0') SILT, nonplastic, no dilatancy; and CLAY; little sand; wet; very soft; grayish brown (10YR 5/2). Note: Non-cohesive.				
14				24					
15				4.7					
16						End of boring at 15.0' bgs.			
17									
18									
19									
20									

Drilling Co.: Dakota Sampling Method: 5' Macrocore
 Driller: Al Smith Sampling Interval: Continuous
 Drilling Method: Hand Auger / Direct Push Water Level Start (ft. bgs.): 4.0
 Drilling Fluid: None Water Level Finish (ft. btoc.): NA
 Remarks: ' / ft = feet; " / in = inch; bgs = below ground surface; Converted to Well: Yes No
Hand Auger to 5.0' bgs. Surface Elev.: 655.5
 North Coord.: 319337.9
 East Coord.: 13389443.3

SOIL BORING LOG - 2013 ©COMMON INFORMATION NOTES AND DATA BORING LOGSMASTER FORD LTP BORING LOGS - 07/31/2010.GPJ ARCADIS 2013.GDT 2/2/21

Project Name: Ford LTP 4 Date Started: 12-4-18 Logger: J. Baker
 Project Number: MI001454.0003.00002 Date Completed: 12-4-18 Editor:
 Project Location: Beacon St ROW 12001 Weather Conditions: 20's, partly cloudy

Depth (feet)	Recovery (in.)	PID (ppm)	Description
1	HA	102	0-0.5 Topsoil
2	HA	10.5	0.5-1 SAND F and SILT well sorted, moist, very loose dark brown (10YR 3/3)
3		9.5	1-4 SAND F and CLAY well sorted, moist, very loose, very dark grayish brown (10YR 3/2)
4		14.5	4-7 SAND F-M trace CLAY little CLAY well sorted
5		4.1	wet, very loose, dark yellowish brown (10YR 4/4)
6		5.4	7-7.5 SAA w/color change to grayish brown
7	MC	12.2	(10YR 5/2)
8	58"	10.2	7.5-8.5 CLAY medium plasticity, no dilatancy, moist soft grayish brown (10YR 5/2)
9		44	8.5-11 SILT trace CLAY, non plastic, no dilatancy, wet soft grayish brown (10YR 5/2)
10		8.1	4.5 SAA, laminations 2/4 thick
11	MC		11-12.5 CLAY trace SAND M, medium plasticity, no dilatancy, very soft, grayish brown (10YR 5/2)
12		22	
13	46"	27.1	12.5 SILT and CLAY little SAND, non plastic (non-cohesive), no dilatancy, wet, very soft grayish brown (10YR 5/2)
14		24	
15		4.7	
16			15' EOB
17			
18			
19			
20			

Drilling Co.: Dakota
 Driller: A. Smith
 Drilling Method: DP
 Drilling Fluid: None
 Remarks: _____

Sampling Method: HA to SFT, Macrocore to 15 FT
 Sampling Interval: Continuous
 Water Level Start: 4 FT
 Water Level Finish: NA
 Converted to Well: Yes No
 Surface Elev: NA
 North Coord: NA
 East Coord: NA

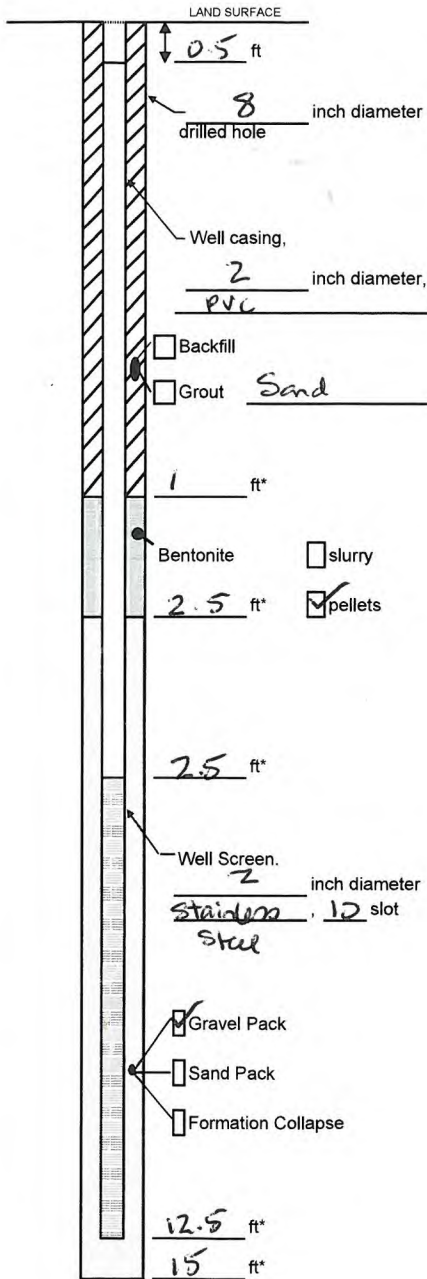
Jay R

ARCADIS

Well Construction Log

(Unconsolidated)

8" FLUSH MOUNT



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project Ford LTP Well MW-1065
Town/City Livonia
County - Wayne State MI
Permit No. -

Beacon St
ROW

Land-Surface Elevation and Datum:

- feet Surveyed
 Estimated

Installation Date(s) 12.4.18

Drilling Method ~~Augers on Geoprobe~~
HSA

Drilling Contractor Fibertec Dakota

Drilling Fluid NA

Jay P

Development Technique(s) and Date(s)

SUBMERSIBLE PUMP AND
SURGE BLOCK

Caitlin O'Neill

Fluid Loss During Drilling - gallons

Water Removed During Development 50 gallons

Static Depth to Water 2.65 feet below M.P.

Pumping Depth to Water 7.02 feet below M.P.

Pumping Duration 50 ^{MINUTES} ~~hours~~

Yield 1.084 gpm Date 12/6/18

Specific Capacity 0.248 gpm/ft

1 GAL/55.36 SEC

Well Purpose Monitoring

Turbidity (NTU)	Time
222	12:39
954	12:49
187	12:59
80.2	13:19
40.0	13:29

DTW	Time
2.65	12:39
5.68	12:49
6.14	12:59
6.70	13:09
6.89	13:19
7.02	13:29

Remarks SURGE @ 12:17, 13:09

START TIME: 12:39

END TIME: 13:29

Prepared by Caitlin O'Neill J Barker / C. O'NEILL

Soil Boring Log

Project Name: Ford LTP Date Started: 12/12/2018 Logger: C. Weaver
 Project Number: MI001454.0003.00002 Date Completed: 12/12/2018 Editor: NA
 Project Location: Livonia, MI Weather Conditions: 33° F, cloudy, windy

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Sample ID	PID (ppm)	USCS Class	Description	Construction Details	Well
-1									
0							(0.0-0.3') Topsoil.	Flush mount 12" dia. drilled hole Cement (0-0.5ft)	
1							(0.3-7.5') SAND, very fine to medium, subrounded to subangular; trace silt; well sorted; dry; dark grayish brown (10YR 4/2) to dark yellowish brown (10YR 4/4).	Bentonite Pellets (0.5-1.5 ft)	
2								2" dia. PVC Casing	
3			60						
4							Note: Some organics (roots); well sorted; dry from 4-5' bgs.		
5								Sand Pack (1.5-15 ft)	
6								2" dia. Stainless-Steel Sch 40 PVC 0.010" slot Well Screen (4-14 ft)	
7									
8			32				(7.5-8.0') SAND, fine to medium, subrounded to subangular; some small to medium pebbles, subrounded to subangular; trace silt; poorly sorted; dry; brown (10YR 5/3).		

Drilling Co.: Dakota Technologies Sampling Method: Hollow Stem Auger
 Driller: A L. Andy, Robect, Elliott Sampling Interval: Continuous
 Drilling Method: Hand Auger/Hollow Stem Auger Water Level Start (ft. bgs.): 6.0
 Drilling Fluid: None Water Level Finish (ft. btoc.): NA
 Remarks: ' / ft = feet; " / in = inch; bgs = below ground surface; Converted to Well: Yes No
ppm = parts per million; NA = not available or not applicable. Hand Auger to 5.0' Surface Elev.: NA
bgs. Sleeve from 5-10' bgs become stuck in HSA, missing/loss may have occurred. North Coor.: NA
 East Coor.: NA

LTP-BORINGS_D-BORING LOGS\WORKING\ADDITIONAL BORING LOGS\IGNIT TEMPLATE (EXISTING)\BP-LTP RAVINDRA.GPJ ARCADIS.GDT 2/11/19

Soil Boring Log

Project Name: Ford LTP
 Project Number: MI001454.0003.00002
 Project Location: Livonia, MI

Date Started: 12/12/2018 Date Completed: 12/12/2018
 Logger: C. Weaver Editor: NA
 Weather Conditions: 33° F, cloudy, windy

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Sample ID	PID (ppm)	USCS Class	Description	Construction Details	Well
9						(8.0-8.5') SAND, fine to medium, subrounded to subangular; trace silt, no dilatancy, nonplastic; well sorted; moist; brown (10YR 4/4).		2" dia. Stainless-Steel Sch 40 PVC 0.010" slot Well Screen (4-14 ft)	
						(8.5-8.6') SAND, medium to coarse, subrounded to subangular; and small Pebbles/Granules, subrounded to subangular; poorly sorted; moist; grayish brown (10YR 5/2).			
						(8.6-8.9') SAND, medium to coarse, subrounded to subangular; some silt, no dilatancy, no plasticity; well sorted; grayish brown (10YR 5/2).			
10						(8.9-9.5') SAND, medium to coarse, subrounded to subangular; and small to medium pebbles/granules, subrounded to subangular; trace silt; poorly sorted; moist; grayish brown (10YR 5/2).			
						(9.5-10.5') SAND, fine to medium, subrounded to subangular; some silt, no dilatancy, nonplastic; well sorted; moist; brown (10YR 5/2).			
						(10.5-11.4') SAND, fine to medium, subrounded to subangular; and granules, subrounded to subangular; trace small pebbles, subrounded to subangular; poorly sorted; wet; grayish brown (10YR 5/2).			
11						(11.4-12.0') SILT, low plasticity, rapid dilatancy; well sorted; wet; gray (10YR 5/1).			
						(12.0-12.2') CLAY, medium plasticity, SILT, slow dilatancy; gray (10YR 5/1).			
			55			(12.2-12.3') SILT, slow dilatancy, no plasticity; some clay; trace sand, very fine, subrounded to subangular; poorly sorted; wet; gray (10YR 5/1).			
						(12.3-15.0') CLAY, high plasticity, rapid dilatancy; some silt; medium stiff; gray (10YR 5/1).			
12									
13									
14									
15							End of boring at 15.0 ft bgs.		
16									
17									
18									

Remarks: ' / ft = feet; " / in = inch; bgs = below ground surface; ppm = parts per million; NA = not available or not applicable. Hand Auger to 5.0' bgs.

LTP-BORINGS D-BORING LOGS/LTP - SOIL BORING LOGS/WORKING/ADDITIONAL BORING LOGS/INT TEMPLATE (EXISTING)/BP-LTP RAVINDRA.GRU ARCADIS.GDT 2/11/19



Design & Consultancy
for natural and
built assets

Front Yard Boring No.: MW-128S
34360 Capitol St.

Sheet: 1 of 1

Soil Boring Log

Project Name: Ford LTP Date Started: 12/12/2018 Logger: C. weaver
Project Number MI001454.0004.00002 Date Completed: 12/12/2018 Editor:
Project Location Livonia, MI Weather Conditions: 33°F, cloudy, windy

Depth (feet)	Blow Counts	Sample ID & Time	Recovery (in.)	PID (ppm)	USCS Class.	Description	Construction Details
1						(0.0-0.3) TOPSOIL	
2						(0.3-7.5) SAND, VF-MED, SR-SA; trace silt; dark grayish brown (10YR 4/2) to dark yellowish brown (10YR 4/4). Note: Some organics (roots) from 4-5' bgs; w.s.; dry. - cw 12/12/18	
3	60" HSA		60"			(7.5-8.0) SAND, F-MED, SR-SA; some small-MED pebbles SR-SA; trace silt, P.S., dry, brown (10YR 5/2).	
4						(8.0-8.5) SAND, F-MED, SR-SA; trace silt, NO OIL, NO PI; WS, moist, brown (10YR 4/4).	
5						(8.5-8.6) SAND, MED-C, SR-SR; and small pebbles/granules, SR-SA; P.S, moist, grayish brown (10YR 5/2).	
6						(8.6-8.9) SAND, VF-F, SR-SA; some silt, NO OIL, NO PI; moist, w.s., grayish brown (10YR 5/2).	
7	60" HSA		32"			(8.9-9.5) SAND, MED-C, SR-SA; and small-MED pebbles/granules, SR-SA; trace silt, moist, P.S., grayish brown (10YR 5/2).	
8						(9.5-10.5) SAND, F-MED, SR-SA; some silt, NO OIL, NO PI; moist, w.s., grayish brown (10YR 5/2).	
9						(10.5-11.4) SAND, F-MED, SR-SA, and granules, SR-SA; trace small pebbles, SR-SR; P.S, wet, grayish brown (10YR 5/2).	
10						(11.4-12.0) SILT, Rapid Oil, Low PI, w.s., moist, Gray (10YR 5/1). MED	
11	60" HSA		55"			(12.0-12.2) CLAY, slow oil, low PI, and silt gray (10YR 5/1). MED cw 12/12/18	
12						(12.2-12.3) SILT, slow oil, no PI; some clay gray (10YR 5/1), trace SAND VF, SR-SR wet, P.S.	
13						(12.3-15.0) CLAY Rapid Oil, High PI, some silt, med stiff, gray (10YR 5/1).	
14							
15							

EOB: 15.0' bgs

Drilling Co.: Dakota
Driller: Al, Elliott, Robert.
Drilling Method: Hand Auger, Hollow Stem
Drilling Fluid:
Remarks: sleeve from 5-10' bgs became stuck in HSA, mixing/loss may have occurred.

Sampling Method: Hollow Stem Auger
Sampling Interval: Continuous
Water Level Start: ~ 6.0' bgs
Water Level Finish:
Converted to Well: Yes No
Surface Elev:
North Coor:
East Coor:

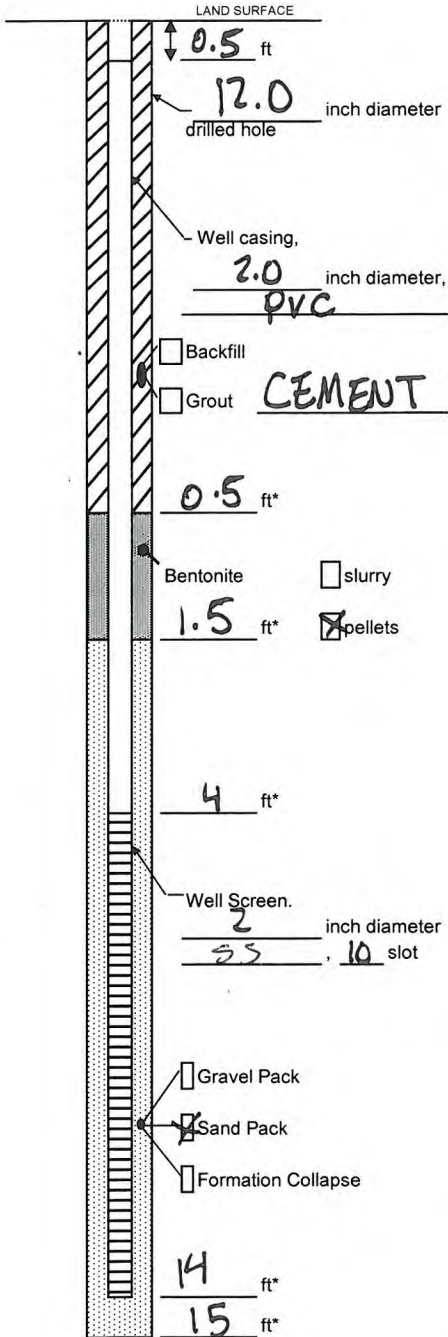
Log

Chandra W...

ARCADIS

Well Construction Log

(Unconsolidated)



Measuring Point is Top of Well Casing Unless Otherwise Noted.

* Depth Below Land Surface

Project Ford Well MW-128S
 Town/City Livonia
 County Wayne State MI
 Permit No. NA

Front East side
 OF 34360
 Capitol St.

Christina Weaver

Land-Surface Elevation and Datum: _____ feet Surveyed Estimated
 Installation Date(s) 12/12/2018
 Drilling Method Hollow Stem Auger /HA
 Drilling Contractor Fibertec / Dakota
 Drilling Fluid N/A

Begin pump: 0950
 End pump: 1049

Development Technique(s) and Date(s)
Submersible pump, PVC
Surge
12/21/18

NTU

0950	71000
0956	605
1001	71000
1017	534
1021	342
1031	119
1040	613
1045	21.8
1049	14.8

Fluid Loss During Drilling — none gallons
 Water Removed During Development 247 gallons
 Static Depth to Water 6.75 feet below M.P.
 Pumping Depth to Water 11.2 feet below M.P.
 Pumping Duration 59 hours minutes
 Yield 1.0344 gpm Date 12/21/18
 Specific Capacity 0.2346 gpm/ft

DTW

0950	6.75
0953	-Below 11.0'
1000	Stuck on Pump, 8.90
1015	10.34'
1021	11.45'
1030	Below 12.0'
1049	11.2

Well Purpose Monitoring
 Remarks Start pump: 0950
End pump: 1049
Surged at! Beginning, 1003, 1030
* Pump turned off between 1004
and 1015 to switch out pump.

Prepared by C. Weaver / Christina Weaver
Christina Weaver

Soil Boring Log

Project Name: Ford Livonia Automatic Transmissions Plant Date Started: 02/20/2019 Logger: C. Weaver
 Project Number: 30050315 Date Completed: 02/20/2019 Editor: C. Cisco
 Project Location: Livonia, MI Weather Conditions: 30° F, Partly Cloudy

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Sample ID	PID (ppm)	USCS Class	Description	Construction Details	Well
1					0.0		(0.0-0.3') TOPSOIL/GRASS.	8.0" Flush Mount (0.0-1.0') Cement 12.0" dia. drilled hole (1.0-5.0') Bentonite Pellets 2.0" dia. SCH-40 PVC Casing (5.0-10.0') Filter Pack Sand (5.0-10.0') 2.0" dia. Stainless Steel 0.010 slot Well Screen	
2			60		0.0	(0.3-4.0') SAND, very fine to medium, subrounded to subangular; trace granules, subrounded to subangular; well sorted; dry; yellowish brown (10YR 5/6).			
3					0.0				
4					0.0				
5					0.0	(4.0-6.0') SAND, very fine to very coarse, subrounded to subangular; and granules, subrounded to subangular; trace small pebbles, subrounded to subangular; poorly sorted; moist; yellowish brown (10YR 5/6).			
6					0.0	(6.0-6.1') SAND, very fine to very coarse, subrounded to subangular; little clay, nonplastic, slow dilatancy; trace small pebbles, subrounded to subangular; poorly sorted; moist; dark yellowish brown (10YR 4/4).			
7			49		0.0	(6.1-6.9') SAND, fine to very coarse, subrounded to subangular; some granules, subrounded to subangular; trace small pebbles, subrounded to subangular; trace silt; poorly sorted; wet; brown (10YR 5/3).			
8					0.0	(6.9-7.0') SILT, nonplastic, rapid dilatancy; and SAND, very fine to medium, subrounded to subangular; well sorted; wet; brown (10YR 5/3).			
9					0.0	Note: Boring appeared wet at 6.9' bgs.			
10					0.0	(7.0-7.5') SAND, very fine to very coarse, subrounded to subangular; and SILT, nonplastic, rapid dilatancy; trace small granules, subrounded to subangular; poorly sorted; wet; brown (10YR 5/3).			
11						(7.5-8.3') SILT, nonplastic, rapid dilatancy; some sand, very fine to medium, subrounded to subangular; well sorted; wet; brown (10YR 5/3).			
12						(8.3-8.4') SAND, medium to coarse, subrounded to subangular; and granules, subrounded to subangular; trace silt; poorly sorted; wet; brown (10YR 5/3).			
13						(8.4-9.0') SAND, very fine to medium, subrounded to subangular; little silt, nonplastic, rapid dilatancy; well sorted; wet; brown (10YR 5/3).			
14						(9.0-9.7') SILT, nonplastic, rapid dilatancy; and SAND, very fine to fine; well sorted; wet; brown (10YR 5/3).			
15						(9.7-10.0') CLAY, high plasticity, slow dilatancy; little silt; well sorted; wet; gray (10YR 6/1).			
16						End of boring at 10.0' bgs.			
17									
18									
19									
20									

Drilling Co.: Cascade Sampling Method: 5' Macrocore
 Driller: T. Grossmann Sampling Interval: Continuous
 Drilling Method: Hand Auger / Direct Push Water Level Start (ft. bgs.): 6.9
 Drilling Fluid: None Water Level Finish (ft. btoc.): NA
 Remarks: ' / ft = feet; " / in = inch; bgs = below ground surface; Converted to Well: Yes No
Hand Auger to 5.0' bgs. Surface Elev.: 657.4
 North Coor.: 319263.3
 East Coor.: 13389605.8

Residential @ 12001 Stacks.
 NE corner of front yard
 28' from NE corner of house.

ARCADIS Soil Boring Log					Boring No.: MW-1673
Project Name: Ford LTP					Sheet: 1 of 1
Project Number: MI001454.0003.00002			Date Started: 2/20/19		Logger: Christina Weaver
Project Location: Livonia, MI			Date Completed: 2/20/19		Editor:
					Weather Conditions: 30°F, Partly cloudy, slight rain
Depth (feet)	Sample ID & Time	Recovery (in.)	PID (ppm)	USCS Class.	Description
1			0.0		(0.0-0.3)' TOPSOIL, grass
2		60"	0.0		(0.3-4.0)' SAND, VF-M, SR-SA; trace granules, SR-SA; dry, ws, yellowish brown (10 YR 5/6)
3	60" HA		0.0		(4.0-6.0)' SAND, VF-UC, SR-SA; and granules, SR-SA; trace sm. pebb., SR-SA; moist, PS, yellowish brown (10 YR 5/6)
4			0.0		(6.0-6.1)' SAND, VF-UC, SR-SA; little clay, slow dil, no PI; trace sm. pebbles, SR-SA; moist, PS, dark yellowish brown (10 YR 4/4)
5			0.0		(6.1-6.9)' SAND, F-UC, SR-SA; some granules, SR-SA; trace sm. Peb., SR-SA; trace silt; wet, PS, brown (10 YR 5/3)
6	60" HA	49"	0.0		(6.9-7.0)' SILT, Rapid dil, no PI, and sand, VF-M, SR-SA; wet, ws, brown (10 YR 5/3)
7			0.0		(7.0-7.5)' SAND, VF-UC, SR-SA; and silt, Rapid dil, no PI; trace sm. granules, SR-SA; wet, PS, brown (10 YR 5/3)
8			0.0		(7.5-8.3)' SILT, Rapid dil, no PI; some sand, VF-M, SR-SA; wet, ws, brown (10 YR 5/3)
9			0.0		(8.3-8.4)' SAND, M-C; SR-SA; and granules, SR-SA; trace silt; wet, PS, brown (10 YR 5/3)
10			0.0		(8.4-9.0)' SAND, VF-M, SR-SA; little silt, Rapid dil, no PI; wet, ws, brown (10 YR 5/3)
11			0.0		(9.0-9.7)' SILT, Rapid dil, no PI; and sand, VF-F; wet, ws, brown (10 YR 5/3)
12			0.0		(9.7-10.0)' CLAY, slow dil, no ^{low} 2/20/19 High PI; little silt, wet, ws, gray (10 YR 6/1)
13			0.0		EoB @ 10.0' bgs. Boring appears wet at 7.0' bgs. DTW = 6.9' bgs measured with WLM
14			0.0		
15			0.0		
16			0.0		
17			0.0		
18			0.0		
19			0.0		
20			0.0		

Drilling Co.: Cascade
 Driller: T. Crossmann
 Drilling Method: Hand Auger, Hollow Stem Auger
 Drilling Fluid: NA
 Remarks:

Sampling Method: 5' Macro Core
 Sampling Interval: Continuous
 Water Level Start: DTW = 4.4' ^{on 2/20/19} 6.9' bgs measured with WLM
 Water Level Finish: NA
 Converted to Well: Yes No
 Surface Elev: NA
 North Coord: NA
 East Coord: NA

Christina Weaver
 2/20/19

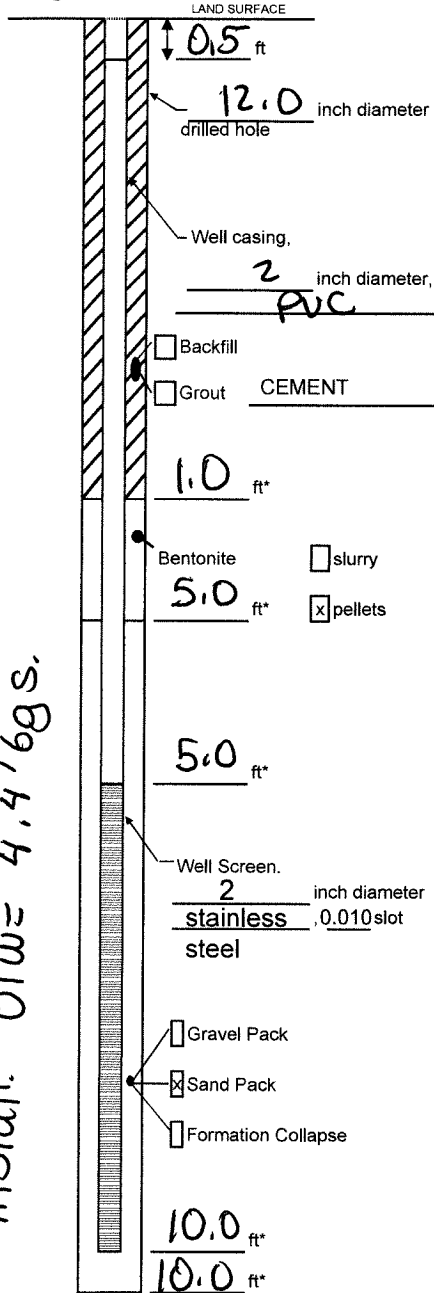
Residential @ 12001 Stack.
 5th CW 2/20/19 NE side of front yard
 40' from Beacon, 36' from
 Stack, 34' from fire hydrant,
 28' from house.

ARCADIS

Well Construction Log
 (Unconsolidated)

8" Flush mount

Screen interval based on DTW at time of
 install. DTW = 4.4' bgs.



Measuring Point is
 Top of Well Casing
 Unless Otherwise Noted.

* Depth Below Land Surface

Project Ford LTP -- MI001454.0003.00002 Well MW-167S
 Town/City Livonia
 County Wayne State MI
 Permit No. _____
 Land-Surface Elevation and Datum: _____ feet Surveyed Estimated
 Installation Date(s) 2/20/19
 Drilling Method Hand Auger, Hollow Stem Auger
 Drilling Contractor Cascade
 Drilling Fluid NA

Chastner
Ullman
 2/20/19

Development Technique(s) and Date(s)
Submersible Pump, PVC Surge
2/21/19

Fluid Loss During Drilling _____ gallons
 Water Removed During Development 16 gallons
 Static Depth to Water 5.47 feet below M.P.
 Pumping Depth to Water 5.60 feet below M.P.
 Pumping Duration 40 minutes
 Yield 0.30 gpm Date 2/21/19
 Specific Capacity 2.31 gpm/ft

Time	(NTU) Turbidity	(ft bgs) DTW
1710	>8100	5.59
1715	215	5.60
1720	181	5.60
1730	71100	5.59
1735	71100	5.59
1740	127	5.60
1745	42.9	5.60

Well Purpose Monitoring

Remarks 1720-1725
Surged at: 1655-1700, 1725-1730 ER
Beginning TD: 9.59'
Ending TD: 9.27'
Began Pump: 1705
Ended Pump: 1745

Prepared by C. Weaver / E. Redner

EW
ER

Soil Boring Log

Project Name: Ford Livonia Automatic Transmissions Plant Date Started: 02/21/2019 Logger: S. Johnson
 Project Number: 30050315 Date Completed: 02/21/2019 Editor: C. Cisco
 Project Location: Livonia, MI Weather Conditions: 39° F, Sunny

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Sample ID	PID (ppm)	USCS Class	Description	Construction Details	Well
1			60		0.0	(0.0-0.3') TOPSOIL.	8.0" Flush Mount (0.0-1.0') Cement 2.0" dia. SCH-40 PVC Casing 12.0" dia. drilled hole (1.0-7.0') Bentonite Pellets		
2				0.7	(0.3-1.0') SAND, very fine, subrounded to subangular; some silt; well sorted; dry; loose; dark brown (10YR 3/3).				
3				1.2	(1.0-4.0') SAND, fine, subrounded to subangular; well sorted; dry; loose; yellowish brown (10YR 5/6).				
4				1.2	(4.0-7.5') SAND, very fine, subrounded to subangular; and SILT; well sorted; dry; loose; yellowish brown (10YR 5/6).				
5			36		0.8		(7.0-15.0') Filter Pack Sand		
6				0.2	Note: No recovery from 5.0-6.7' bgs.				
7				0.2	Note: Oxidation observed from 6.7-7.5' bgs.				
8				0.2	(7.5-8.5') SAND, fine to medium, subrounded to subangular; well sorted; dry; loose; gray (10YR 5/1).				
9				0.3	(8.5-12.0') SILT, nonplastic, rapid dilatancy; some sand, very fine, subrounded to subangular; soft; moist; gray (10YR 5/1).				
10				0.3					
11			60		0.2		(8.0-13.0') 2.0" dia. Stainless Steel 0.010 Slot Well Screen		
12				0.3					
13				0.2	(12.0-12.5') SILT, nonplastic, rapid dilatancy; and SAND, very fine to fine, subrounded to subangular; medium stiff; moist; gray (10YR 5/1).				
14				0.2	(12.5-12.7') CLAY, high plasticity, no dilatancy; little silt; moist; soft; gray (10YR 5/1).				
15				0.3	(12.7-13.6') SAND, fine to medium, subrounded to subangular; well sorted; moist; medium dense; moist; gray (10YR 5/1).				
16					0.2	(13.6-14.6') SAND, fine to coarse, subrounded to subangular; some granules, subrounded to subangular; trace medium pebbles, subrounded to subangular; poorly sorted; moist; loose; gray (10YR 5/1).			
17					0.2	(14.6-15.0') SAND, very fine to fine, subrounded to subangular; well sorted; moist; medium dense; gray (10YR 5/1).			
18						End of boring at 15.0' bgs.			
19									
20									

Drilling Co.: Cascade Sampling Method: 5' Macrocore
 Driller: C. Aldrich and A. Peris Sampling Interval: Continuous
 Drilling Method: Hand Auger / Direct Push Water Level Start (ft. bgs.): 10.5
 Drilling Fluid: None Water Level Finish (ft. btoc.): NA
 Remarks: ' / ft = feet; " / in = inch; bgs = below ground surface; Converted to Well: Yes No
Hand Auger to 5.0' bgs. Surface Elev.: 668.7
 North Coord.: 318445.1
 East Coord.: 13388053.8

RESIDENCE: 34934 STANDISH

ARCADIS
Soil Boring Log

Boring No.: MW-1835

Sheet: 1 of 1

Project Name: Ford LTP Date Started: 2-21-19 Logger: S. JOHNSON
 Project Number: MI001454.0003.00002 Date Completed: 2-21-19 Editor:
 Project Location: Livonia, MI 34934 STANDISH Weather Conditions: 39°, SUNNY

Depth (feet)	Sample ID & Time	Recovery (in.)	PID (ppm)	USCS Class.	Description
1	60" HA	60"	0.0		(0-0.3') TOPSOIL
2			0.7		(0.3-1') SAND, VF, SA-SR; SOME SILT; W SORTED; DRY; LOOSE; D BROWN (10 YR 3/3)
3			1.2		(1-4') SAND, F, SA-SR; W SORTED; DRY; LOOSE; YELLOWISH BROWN (10 YR 5/6)
4			1.2		(4-7.5') SAND, VF, SA-SR; AND SILT; W SORTED; DRY;
5	60" ↓ HSA	36" ↓	0.8		LOOSE; YELLOWISH BROWN (10 YR 5/6)
6			0.2		NOTE: OXIDATION FROM 6.7-7.5' BGS
7			0.2		NOTE: NO RECOVERY FROM 5-6.7' BGS
8			0.2		(7.5-8.5') SAND, F-M, SA-SR; W SORTED; DRY; LOOSE; GRAY; (10 YR 5/1)
9			0.3		(8.5-12') SILT; SOME SAND; VF, SA-SR; NP; RD;
10			0.3		SOFT; MOIST; GRAY (10 YR 5/1)
11	60" HSA	60"	0.2		(12-12.5') SILT; AND SAND; VF-F, SA-SR; NP; RD; M STIFF; MOIST; GRAY (10 YR 5/1)
12			0.3		(12.5-12.7') CLAY; LITTLE SILT; HP; ND; SOFT; MOIST; GRAY (10 YR 5/1)
13			0.2		(12.7-13.6') SAND, F-M, SA-SR; W SORTED; M DENSE;
14			0.2		MOIST; GRAY (10 YR 5/1)
15			0.3		(13.6-14.6') SAND, F-C, SA-SR; SOME GRANULES, SA-SR; TRACE M PEBBLES, SA-SR; P SORTED; MOIST;
16			0.3		LOOSE; GRAY (10 YR 5/1)
17					(14.6-15') SAND, VF-F, SA-SR; W SORTED; MOIST; M DENSE; GRAY (10 YR 5/1)
18					EOB @ 15' BGS
19					
20					

Drilling Co.: Cascade
 Driller: CHRIS A. AND ADRIAN
 Drilling Method: Hand Auger, Hollow Stem Auger
 Drilling Fluid: NA
 Remarks: WELL SCREEN! 8-13' BGS

Sampling Method: 5' Macro Core
 Sampling Interval: Continuous
 Water Level Start: 10.5' BGS
 Water Level Finish: NA
 Converted to Well: Yes No
 Surface Elev: NA
 North Coord: NA
 East Coord: NA

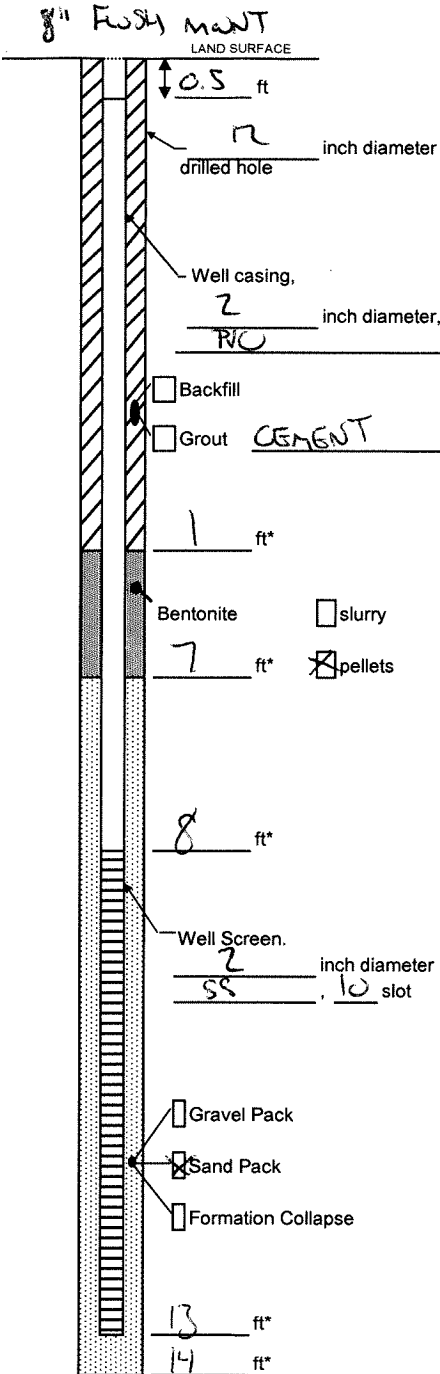
ARCADIS

RESIDENTIAL: 34934 STAUDISM

Well Construction Log

(Unconsolidated)

SCREEN INTEGRAL BASED ON DTW @ TIME OF INSTALL



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project Ford Well MW-1835
 Town/City Livonia
 County Wayne State MI
 Permit No. NA
 Land-Surface Elevation and Datum:
 _____ feet Surveyed Estimated
 Installation Date(s) 2/20/19
 Drilling Method Hollow Stem Auger
 Drilling Contractor ~~Fibertec~~ CASCADE
 Drilling Fluid —

Development Technique(s) and Date(s)
Submersible pump, PVC
Surge
2/28/19
 Fluid Loss During Drilling none gallons
 Water Removed During Development ~40 gallons
 Static Depth to Water 8.5 feet below M.P.
 Pumping Depth to Water 9.2 feet below M.P.
 Pumping Duration 59 ^{hours} minutes
 Yield 0.75 gpm Date 2/28/19
 Specific Capacity 1.071 gpm/ft
 Pump = 1 gal / 80 seconds
 Well Purpose Monitoring

Time	NTU	DTW
1151	284	9.2
1156	109	9.2
1201	89.1	9.2
1206	—	— Surged
1216	715	9.3
1221	159	9.2
1226	58.5	9.2
1228	—	— Surged
1233	71100	9.1
1238	142	9.2
1243	41.8	9.2

Remarks Surged at: Beginning, 1206

Began Pump: 1146
Ended Pump: 1245

Prepared by S. Johnson / C. Weaver

Christina Mear 2/28/19

Soil Boring Log

Project Name: Ford Livonia Automatic Transmissions Plant Date Started: 01/17/2020 Logger: C. Weaver
 Project Number: 30050315 Date Completed: 01/17/2020 Editor: C. Weaver
 Project Location: Livonia, MI Weather Conditions: 25° F, Partly Cloudy

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Sample ID	PID (ppm)	USCS Class	Description	Construction Details	Well
1					0.0		(0.0-0.3') GRAVEL; and small to large PEBBLES.	8.0" Flush Mount (0.0-1.0') Cement 2.0" dia. SCH-40 PVC Casing	
2		60			0.0	(0.3-1.0') SAND, fine to medim, subrounded to subanglar; trace small pebbles, subrounded; well sorted; dry; yellowish brown (10YR 5/4).			
3					0.0	(1.0-2.0') SAND, medium to coarse, subrounded to subangular; some granules, subrounded to subangular; trace medium pebbles, subrounded; well sorted; dry; black (10YR 2/1).			
4					0.0	(2.0-8.2') SAND, fine to medium, subrounded to subangular; little silt; trace small pebbles, subangular; well sorted; dry to wet; yellowish brown (10YR 5/4) to brownish yellow (10YR 6/6).			
5					0.0		(1.0-8.0') Bentonite Pellets		
6					0.0			(8.0-15.0') Filter Pack Sand	
7					0.0		Note: Color change to strong brown (10YR 5/6) from 7.0-7.2' bgs.		
8		47			0.0	(8.2-9.0') SILT, nonplastic, rapid dilatancy; little sand, fine; moist; soft; brownish yellow (10YR 6/6).			
9					0.0		(9.0-12.5') SAND, fine to medium, subrounded to subangular; some silt; well sorted; moist to wet; gray (10YR 6/1).	(9.0-14.0') 2.0" dia. Stainless Steel 0.010 Slot Well Screen	
10					0.0		Note: Boring appears wet at 11.0' bgs. Depth to water is 10.85' bgs.		
11					0.0	(12.5-13.5') SILT, nonplastic, rapid dilatancy; wet; gray (10YR 6/1).			
12		40			0.0	(13.5-15.0') SAND, fine to very coarse, subrounded to subangular; little granules to small pebbles; poorly sorted; wet; gray (10YR 6/1).			
13					0.0		End of boring at 15.0' bgs.		
14									
15									
16									
17									
18									
19									
20									

Drilling Co.: Fibertec Sampling Method: 5' Macrocore
 Driller: Mark Ryerson Sampling Interval: Continuous
 Drilling Method: Hand Auger / Direct Push Water Level Start (ft. bgs.): 10.85
 Drilling Fluid: None Water Level Finish (ft. btoc.): NA
 Remarks: ' / ft = feet; " / in = inch; bgs = below ground surface; Converted to Well: Yes No
Hand Auger to 5.0' bgs. Surface Elev.: 671.8
 North Coord.: 318371.1
 East Coord.: 13387279.7

ARCADIS
Soil Boring Log

Boring No: MW-2085

Sheet 1 of 1

Project Name: Ford LTP - Data Gap Evaluation
Project Number: 30016342.0001B
Project Location: Livonia, MI

Date Started: 1/15/2020 Date Completed: 1/17/2020
Logger: Christina Weaver Editor:

Weather Conditions: 25°F, Partly Cloudy

Depth (feet)	Sample ID & Time	Recovery (ft.)	PID (ppm)	USCS Class.	Description
1			0.0		(0.0-0.3') GRAVEL # MED-Lg PEBBLES
2			0.0		(0.3-1.0') SAND, F-M, SH-SA; trace small pebbles, SB; well sorted; dry; yellowish brown (10 YR 5/4)
3	60" AA	46"	0.0		(1.0-2.0') SAND, M-C, SH-SA; some granules, SB-SA; trace med pebbles, SB; well sorted; dry; black (10 YR 2/1)
4			0.0		(2.0-8.2') SAND F-M SB-SA; little silt; trace small pebbles, SB; well sorted, dry to wet; yellowish brown (10 YR 5/4) to brownish yellow (10 YR 6/6)
5			0.0		Note color change to string brown (10 YR 3/6) from 8.2' to 8.5' bgs
6			0.0		(8.2-9.0') SILT, nonplastic, rapid dilatancy; silty sand, Fy moist; soft, brownish yellow (10 YR 6/2);
7	60" DP	47"	0.0		(9.0-12.5') SAND, F-M, SB-SA; some silt; moist to wet; well sorted; gray (10 YR 4/1).
8			0.0		(12.5-13.5') SILT, rapid dilatancy, non plastic; granular vs. wet
9			0.0		Submer. bgs appears wet at 11.0' bgs
10			0.0		(13.5-15.0') SAND, f-vc, SH-SA; little silty pebbles to granules; wet; gray (10 YR 4/1).
11	60" DP	46"	0.0		EDB @ 15.0' bgs
12			0.0		Note - D/W measurement is 10.85' bgs
13			0.0		
14			0.0		
15			0.0		
16			0.0		
17			0.0		
18			0.0		
19			0.0		
20			0.0		

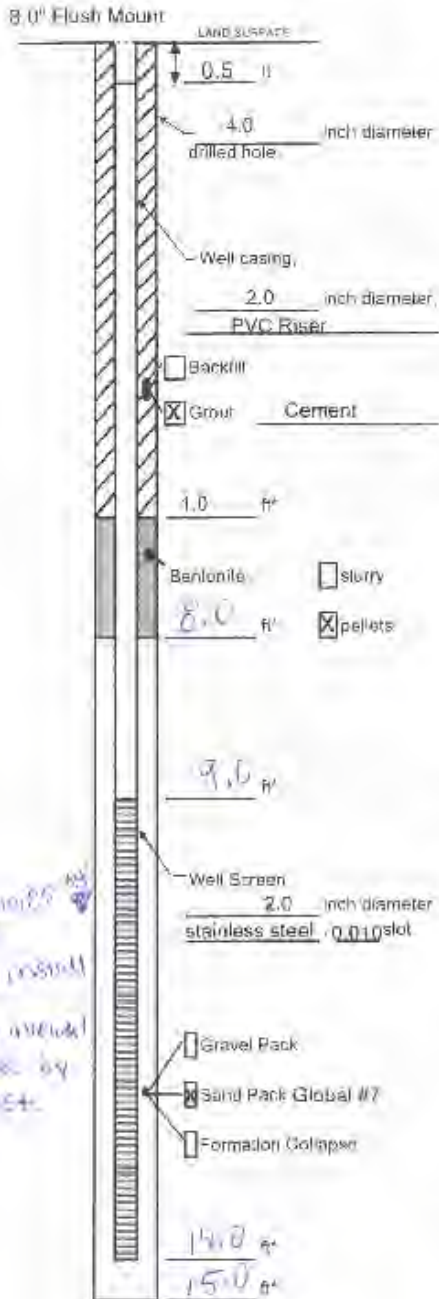
Drilling Co.:	Fibertec	Sampling Method:	5.0' Macro Core
Driller:	Mark Ryerson	Sampling Interval:	Continuous
Drilling Method:	Hand Auger/ Direct Push	Water Level Start:	n/w = 10.85' bgs
Drilling Fluid:	None	Water Level Finish:	NA
Remarks:		Converted to Well:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No SCREEN SET 7-17
		Surface Elev.:	NA Per I ground appx 1
		North Coord.:	NA
		East Coord.:	NA

ARCADIS

Well Construction Log

(Unconsolidated)

East property boundary behind 4th
Conisbant & across from Emergency
Plant TE in the gravel
(Location 7)



1/24/20
measured during install
Screen interval approved by J. Doast

Measuring Point is Top of Well Casing Unless Otherwise Noted
* Depth Below Land Surface

Project: 30015342001B - Ford LTM Data Cap Evaluation Well MW-2015

Town/City: LIVONIA

County: Wayne State: MI

Permit No: NA

Land Surface Elevation and Datum:
NA feet Surveyed Estimated

Installation Date(s): 1/17/2020

Drilling Method: Hand Auger / Direct Push / Hollow Stem Auger

Drilling Contractor: Fibertec, Mark Khyer

Drilling Fluid: NA

well development
Time N/A

Development Technique(s) and Date(s):
Submersible Pump, PVC surge block
1/24/20

Fluid Loss During Drilling: NA gallons

Water Removed During Development: 23.68 gallons

Static Depth to Water: 10.26 feet below M.F.

Pumping Depth to Water: 10.38 feet below M.F.

Pumping Duration: 32 ^{minutes} ~~hours~~

Yield: 0.74 gpm Date: 1/24/20

Specific Capacity: 6.17 gpm/ft

TIME	DFW
1251	10.26
1307	10.38

Well Purpose: Monitoring

Remarks: Surged at 1249 and 1307
Start pump 1251
end pump 1323
truck broken, purge until clear per J. Doast

Prepared by: Christina Weaver

1/24/2020
1/24/2020

Soil Boring Log

Project Name: Ford Livonia Automatic Transmissions Plant Date Started: 01/21/2020 Logger: C. Weaver
 Project Number: 30050315 Date Completed: 01/21/2020 Editor: C. Weaver
 Project Location: Livonia, MI Weather Conditions: 20° F, Cloudy, Slight Wind

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Sample ID	PID (ppm)	USCS Class	Description	Construction Details	Well
1					0.0		(0.0-0.5') ASPHALT.	8.0" Flush Mount (0.0-1.0') Cement 2.0" dia. SCH-40 PVC Casing (1.0-4.5') Bentonite Pellets (4.5-12.0') Filter Pack Sand (5.5-10.5') 2.0" dia. Stainless Steel 0.010 Slot Well Screen	
2			60		0.0		(0.5-7.5') SAND, fine to medium, subrounded to subangular; trace small pebbles, subangular; well sorted; dry; brownish yellow (10YR 6/6) to yellowish brown (10YR 5/8).		
3					0.0				
4					0.0				
5					0.0				
6					0.0				
7					0.0				
8			46		0.0		(7.5-9.0') SAND, fine to medium, subrounded to subangular; some silt; well sorted; moist to wet; brown (10YR 5/3). Note: Boring appears wet at 8.0' bgs. Depth to water is 7.54' bgs. Note: Small clay lense, high plasticity, no dilatancy >0.5" thick at 8.9' bgs.		
9					0.0				
10					0.0		(9.0-9.5') SAND, very fine to very coarse, subrounded to subangular; some granules to small pebbles, subrounded to subangular; poorly sorted; wet; brown (10YR 5/3).		
11					0.0		(9.5-11.8') SAND, fine to medium, subrounded to subangular; and SILT, nonplastic, rapid dilatancy; well sorted; wet; grayish brown (10YR 5/2).		
12					0.0				
13			36		0.0		(11.8-15.0') SAND, very fine to very coarse, subrounded to subangular; some granules to medium pebbles, subrounded to subangular; poorly sorted; wet; dark grayish brown (10YR 4/2).		
14					0.0				
15					0.0		End of boring at 15.0' bgs.		
16									
17									
18									
19									
20									

Drilling Co.: Fibertec Sampling Method: 5' Macrocore
 Driller: Mark Ryerson Sampling Interval: Continuous
 Drilling Method: Hand Auger / Direct Push Water Level Start (ft. bgs.): 7.54
 Drilling Fluid: None Water Level Finish (ft. btoc.): NA
 Remarks: ' / ft = feet; " / in = inch; bgs = below ground surface; Converted to Well: Yes No
Hand Auger to 5.0' bgs. Surface Elev.: 668.6
 North Coor.: 320314.3
 East Coor.: 13387423.2

SOIL BORING LOG - 2013 ©COMMON INFORMATION NOTES AND DATA BORING LOGSMASTER FORD LTP BORING LOGS - 07/31/20.GPJ ARCADIS 2013.GDT 2/2/21

Originally MW-215,
 but refusal scrapped location
 (Location 13)

ARCADIS Soil Boring Log					Boring No: MW-215 CW
Project Name: Ford LTP - Data Gap Evaluation					Date Started: 1/20/2020
Project Number: 30016342.0001B					Logger: Christina Weaver
Project Location: Livonia, MI					Date Completed: 1/20/2020
					Editor:
					Weather Conditions: 12% cloudy, slight wind
Depth (feet)	Sample ID & Time	Recovery (in.)	PID (ppm)	USCS Class.	Description
1	2' 11"	2'	0.0		10-20% SAND, small to large pebbles (2-2.5) SAND, FM, SK-SH. More sand to medium pebbles, SK-SH.
2			0.0		
3					17% wet sand, gravel (10% SK-SH)
4					
5					Refusal at 3.0'
6					Approved to use off.
7					Concrete to 4.0'
8					
9					Location Scrapped by I. Gust
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Drilling Co.:	Fibrotec	Sampling Method:	5.0' Macro Core
Driller:	Mark Ryerson	Sampling Interval:	Continuous
Drilling Method:	Hand Auger/ Direct Push	Water Level Start:	gauge
Drilling Fluid:	None	Water Level Finish:	NA
Remarks:		Converted to Well:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Surface Elev.:	NA
		North Coord.:	NA
		East Coord.:	NA

Christina Weaver
 1/20/2020
 Document #ENFM011, Revision 06

(Location 14)

ARCADIS
Soil Boring Log

Boring No: MW-2145

Sheet: 1 of 1

Project Name: Ford LTP - Data Gap Evaluation
Project Number: 30016342.0001B
Project Location: Livonia, MI

Date Started: 1/21/2020
Date Completed: 1/21/2020
Logger: Christina Weaver
Editor:

Weather Conditions: 20% slight wind, cloudy

Depth (feet)	Sample ID & Time	Recovery (in.)	PIV (ppm)	USCS Class.	Description
1			0.0		(0.0-0.5') ASPHALT
2			0.0		(0.5-7.5') SAND, F-M, SR-SA trace small pebbles, SA, well sorted, dry; brownish yellow (10 VR 6/6) to yellowish brown (10 VR 5/6)
3	60" HF	60"	0.0		
4			0.0		(7.5-9.0') SAND, F-M, SR-SA - some silt - moist to wet, well sorted, well sorted; brown (10 VR 5/3)
5			0.0		
6			0.0		(9.0-9.5') SAND, VF-VC, SR-SA - some granules to small pebbles, SR-SA, poorly sorted; wet; brown (10 VR 5/3)
7			0.0		
8	60" DP	46"	0.0		
9			0.0		(9.5-11.8') SAND, F-M, SR-SA; mud silt, nonplastic, rapid dilatancy; well sorted; wet; grayish brown (10 VR 5/2)
10			0.0		
11	60" DP	30"	0.0		(11.8-15.0') SAND, VF-VC, SR-SA - some granules to medium pebbles, SR-SA - poorly sorted; wet; dark grayish brown (10 VR 4/2)
12			0.0		
13			0.0		
14			0.0		* note: small clay lens > 0.5" at 8.9' bgs high plasticity, no dilatancy.
15			0.0		
16					
17					* note: boring appears wet at 8.0' bgs. OTW = 7.54' bgs
18					* I lost approval screen interval 5.5-10.5' bgs
19					End of boring at 15.0' bgs
20					<i>Christina Weaver</i> 01/21/2020

Drilling Co: Fibertec
 Driller: Mark Ryerson
 Drilling Method: Hand Auger/ Direct Push
 Drilling Fluid: None
 Remarks: _____

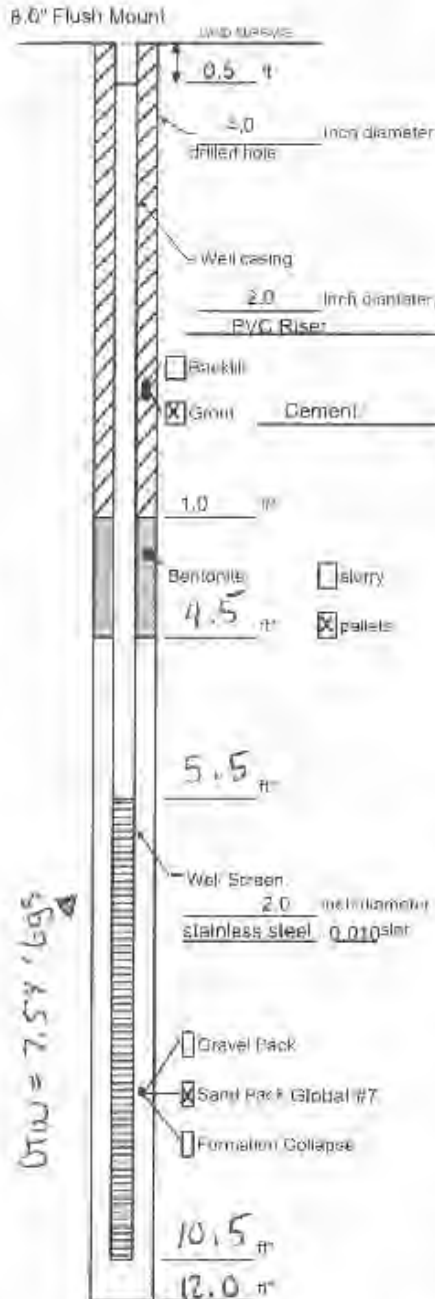
Sampling Method: 60' Macro Core
 Sampling Interval: Continuous
 Water Level Start: OTW = 7.54' bgs
 Water Level Finish: NA
 Converted to Well: Yes No
 Surface Elev: NA
 North Coord: NA
 East Coord: NA

Western Parking lot of ATS
Commercial building at the
end of Belden Court.

ARCADIS

Well Construction Log

(Unconsulted)



DTW measurement taken at time of install. I. Drost approved screen interval.

DTW = 7.54' 60%

Measuring Points:
Top of Well Casing
Unless Otherwise Noted

Depth Below Land Surface

Project: 301551260015 Fluid / TP Data Use Evaluation - Well MW: 2145

Town/City: Livonia

County: Wayne State: MI

Permit No: NA

Land-Surface Elevation and Datum:
NA feet Surveyed Estimated

Installation Date(s): 1/21/2020

Drilling Method: Hand Auger / Direct Push / Hollow Stem Auger

Drilling Contractor: Fibertec, M. Ryelson

Drilling Fluid: NA

Well Development

Time	NTU
1436	234
1441	308
1446	176
1451	97.6
1454	51.7
1459	38.2
1504	26.7
1509	28.4

Development Technique(s) and Direction:

Submersible Pump: PVC surge block

1/23/20

Fluid Loss During Drilling: NA gallons

Water Removed During Development: 2441 gallons

Static Depth to Water: 6.94 feet below M.P.

Rising Depth to Water: 7.37 feet below M.P.

Pumping Duration: 33 mins

Yield: 0.74 gpm Date: 1/23/2020

Specific Capacity: 1.72 gpm/ft

2.86 m³/min

Time	DTW
1429	6.94
1453	7.37

Well Purpose: Monitoring

Remarks: Surged at: 1438 Second Surge: 1454
start pump: 1436
stop pump: 1509

Prepared by: Christina Weaver / M. Ryelson

Christina Weaver
1/21/2020

1/24/2020

Soil Boring Log

Project Name: Ford Livonia Automatic Transmissions Plant Date Started: 07/27/2020 Logger: C. Weaver
 Project Number: 30050315 Date Completed: 07/27/2020 Editor: C. Cisco
 Project Location: Livonia, MI Weather Conditions: 85° F, Sunny

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Sample ID	PID (ppm)	USCS Class	Description	Construction Details	Well
1				SB-138(0.5-1.0) _072720 @ 12:23	0.0		(0.0-0.5') CONCRETE.	(0.0-1.0') Concrete	
2			60	SB-138(1.0-2.0) _072720 @ 12:30	0.0		(0.5-7.5') SAND, fine to medium, subrounded to subangular; little silt; trace pebbles, small, subangular; well sorted; dry; yellowish brown (10YR 5/4) to pale brown (10YR 6/3).		
3				SB-138(2.0-3.0) _072720 @ 12:39	0.0			(1.0-9.0') Backfilled with Bentonite	
4				SB-138(3.0-4.0) _072720 @ 12:49	0.0				
5				SB-138(4.0-5.0) _072720 @ 12:51	0.0				
6			12	SB-138(5.0-6.0) _072720 @ 15:25	0.0				
7				SB-138(6.0-7.0) _072720 @ 15:30 and DUP-02 collected	0.0		Note: Boring appears wet at 7.0' bgs.		
8			25		0.0		(7.5-9.0') SAND, fine to very coarse, subrounded to subangular; some granules, subrounded to subangular; poorly sorted; wet; light brownish gray (10YR 6/2).		
9					0.0		End of boring at 9.0' bgs.		
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

Drilling Co.: Fibertec Sampling Method: 3' Macrocore
 Driller: Shane Raymo Sampling Interval: Continuous
 Drilling Method: Hand Auger / Direct Push Water Level Start (ft. bgs.): 7.0
 Drilling Fluid: None Water Level Finish (ft. btoc.): NA
 Remarks: ' / ft = feet; " / in = inch; bgs = below ground surface. Converted to Well: Yes No
 Surface Elev.: _____
 North Coor.: _____
 East Coor.: _____

Soil Boring Log

Project Name: Ford Livonia Automatic Transmissions Plant Date Started: 07/27/2020 Logger: C. Weaver
 Project Number: 30050315 Date Completed: 07/27/2020 Editor: C. Cisco
 Project Location: Livonia, MI Weather Conditions: 88° F, Sunny

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Sample ID	PID (ppm)	USCS Class	Description	Construction Details	Well
1				SB-139(0.5-1.0) _072720 @ 13:10	0.0	(0.0-0.5') CONCRETE.		(0.0-1.0') Concrete	
2			60	SB-139(1.0-2.0) _072720 @ 13:13	0.0	(0.5-1.0') SAND, fine to medium, subrounded to subangular; trace pebbles, small to medium, subrounded to subangular; well sorted; dry; very dark grayish brown (10YR 3/2).		(1.0-9.0') Backfilled with Bentonite	
3			SB-139(2.0-3.0) _072720 @ 13:16	0.0	(1.0-2.0') SAND, very fine to medium, subrounded to subangular; some silt; well sorted; dry; yellowish brown (10YR 5/4).				
4			SB-139(3.0-4.0) _072720 @ 13:20	0.0	(2.0-7.5') SAND, fine to medium, subrounded to subangular; trace silt; well sorted; dry to wet; yellowish brown (10YR 5/4).				
5			SB-139(4.0-5.0) _072720 @ 13:25	0.0					
6			12	SB-139(5.0-6.0) _072720 @ 15:17	0.0				
7			30	SB-139(6.0-7.0) _072720 @ 15:19	0.0		Note: Boring appears wet at 7.0' bgs.		
8					0.0	(7.5-9.0') SAND, fine to very coarse, subrounded to subangular; some granules, subrounded to subangular; poorly sorted; wet; light brownish gray (10YR 6/2).			
9					0.0		End of boring at 9.0' bgs.		
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

Drilling Co.: Fibertec Sampling Method: 3' Macrocore
 Driller: Shane Raymo Sampling Interval: Continuous
 Drilling Method: Hand Auger / Direct Push Water Level Start (ft. bgs.): 7.0
 Drilling Fluid: None Water Level Finish (ft. btoc.): NA
 Remarks: ' / ft = feet; " / in = inch; bgs = below ground surface. Converted to Well: Yes No
 Surface Elev.: _____
 North Coor.: _____
 East Coor.: _____

Soil Boring Log

Project Name: Ford Livonia Automatic Transmissions Plant Date Started: 07/27/2020 Logger: C. Weaver
 Project Number: 30050315 Date Completed: 07/27/2020 Editor: C. Cisco
 Project Location: Livonia, MI Weather Conditions: 90° F, Sunny

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Sample ID	PID (ppm)	USCS Class	Description	Construction Details	Well
1			60	SB-140(0.5-1.0) _072720 @ 13:33	0.0	(0.0-0.5') CONCRETE.	(0.0-1.0') Concrete		
2		SB-140(1.0-2.0) _072720 @ 13:37		0.0	(0.5-2.0') SAND, fine to medium, subrounded to subangular; little silt; trace pebbles, small, subrounded to subangular; well sorted; dry; yellowish brown (10YR 5/4).				
3		SB-140(2.0-3.0) _072720 @ 14:50		0.0	(2.0-2.1') CONCRETE, fragments.				
4		SB-140(3.0-4.0) _072720 @ 14:55		0.0	(2.1-4.0') SAND, very fine to medium, subrounded to subangular; some to little silt; well sorted; dry to wet; yellowish brown (10YR 5/4) to light brownish gray (10YR 6/2).				
5			12	SB-140(4.0-5.0) _072720 @ 14:55	0.0	(4.0-5.0') CONCRETE.	(1.0-9.0') Backfilled with Bentonite		
6		SB-140(5.0-6.0) _072720 @ 15:06		0.0	(5.0-7.5') SAND, very fine to medium, subrounded to subangular; some to little silt; well sorted; dry to wet; yellowish brown (10YR 5/4) to light brownish gray (10YR 6/2).				
7		SB-140(6.0-7.0) _072720 @ 15:09 and DUP-01 collected		0.0	Note: Boring appears wet at 7.0' bgs.				
8			29		0.0	(7.5-9.0') SAND, fine to very coarse, subrounded to subangular; some granules, subrounded to subangular; poorly sorted; wet; light brownish gray (10YR 6/2).			
9						0.0	End of boring at 9.0' bgs.		
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

Drilling Co.: Fibertec Sampling Method: 3' Macrocore
 Driller: Shane Raymo Sampling Interval: Continuous
 Drilling Method: Hand Auger / Direct Push Water Level Start (ft. bgs.): 7.0
 Drilling Fluid: None Water Level Finish (ft. btoc.): NA
 Remarks: ' / ft = feet; " / in = inch; bgs = below ground surface. Converted to Well: Yes No
 Surface Elev.: _____
 North Coor.: _____
 East Coor.: _____

Soil Boring Log

Project Name: Ford Livonia Automatic Transmissions Plant Date Started: 07/27/2020 Logger: C. Weaver
 Project Number: 30050315 Date Completed: 07/27/2020 Editor: C. Cisco
 Project Location: Livonia, MI Weather Conditions: 86° F, Sunny

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Sample ID	PID (ppm)	USCS Class	Description	Construction Details	Well
1				TMW-20-01(0.5-1.0) _072720 @ 10:05	0.0	(0.0-0.5') CONCRETE.		3.75" dia. drilled hole 1.0" dia. PVC riser (3.5-8.5') 1.0" dia. Pre-Packed PVC 0.010-slot Temp Well Screen	
2			60	TMW-20-01(1.0-2.0) _072720 @ 10:10	0.0	(0.5-1.0') SAND, fine to medium, subrounded to subangular; trace pebbles, small to medium, subrounded to subangular; well sorted; dry; very dark grayish brown (10YR 3/2).			
3				TMW-20-01(2.0-3.0) _072720 @ 10:40	0.0	(1.0-2.0') SAND, very fine to medium, subrounded to subangular; some silt; well sorted; dry; yellowish brown (10YR 5/4).			
4				TMW-20-01(3.0-4.0) _072720 @ 11:04	0.0	(2.0-7.0') SAND, fine to medium, subrounded to subangular; trace silt; well sorted; dry to moist; pale brown (10YR 6/3). Note: Brick fragments present from 2.0-2.5' bgs.			
5				TMW-20-01(4.0-5.0) _072720 @ 11:07					
6			12	TMW-20-01(5.0-6.0) _072720 @ 11:10					
7				TMW-20-01(3.5-8.5) _072720 @ 16:52	0.0				
8			12	TMW-20-01(6.0-7.0) _072720 @ 11:30	0.0	(7.0-7.5') SAND, fine to very coarse, subrounded to subangular; some granules, subrounded to subangular; trace pebbles, small, subrounded to subangular; poorly sorted; wet; gray (10YR 6/1).			
9					0.0	(7.5-8.0') SAND, fine to medium, subrounded to subangular; little silt; well sorted; wet; gray (10YR 6/1).			
10					0.0	(8.0-12.0') SAND, fine to very coarse, subrounded to subangular; some granules, subrounded to subangular; trace pebbles, small, subrounded to subangular; poorly sorted; wet; gray (10YR 6/1).			
11			24		0.0				
12					0.0				
End of boring at 12.0' bgs.									
13									
14									
15									
16									
17									
18									
19									
20									

Drilling Co.: Fibertec Sampling Method: 3' Macrocore
 Driller: Shane Raymo Sampling Interval: Continuous
 Drilling Method: Hand Auger / Direct Push Water Level Start (ft. bgs.): 7.0
 Drilling Fluid: None Water Level Finish (ft. btoc.): NA
 Remarks: ' / ft = feet; " / in = inch; bgs = below ground surface. Converted to Well: Yes No
Temporary well installed. Removed/abandoned after collecting sample, backfilled with bentonite. Surface Elev.: _____
 North Coor: _____
 East Coor: _____

ARCADIS
Soil Boring Log

Boring No.: SB-13B
Sheet: 1 of 1

Project Name: Ford LTP
Project Number: 30050315.303.01
Project Location: Livonia, MI

Date Started: 07/27/2020
Date Completed: 07/27/2020
Weather Conditions: HS°F, SUNNY

Depth (feet)	Sample ID & Time	Recovery (in.)	PID (ppm)	Description
1	SD-13B10.5-11_0727 @ 1223		0.0	(0.0 - 0.5') CONCRETE.
2	1-2 @ 1230	0-5' HA	0.0	(0.5 - 7.5') SAND, F-M, SR-SA; LITTLE SILT; TRACE PEBBLES SMALL SA; WELL SORTED; DRY.
3	2-3 @ 1239	60" RECOV.	0.0	YELLOWISH BROWN (104R S14) TO PALE BROWN (104R 613).
4	3-4 @ 1249		0.0	(7.5 - 9.0') SAND, F-VC, SR-SA; SOME GRANULES, SR-SA;
5	4-5 @ 1251		0.0	POORLY SORTED; WET; LIGHT BROWNISH GRAY (104R 612).
6	5-6 @ 1525	5-6' DP 2'R	0.0	
7	6-7 @ 1530 +DUP-02	6-9' DP 25' REC.	0.0	NOTE: BORING APPEARS WET AT 7.0' BGS.
8			0.0	
9			0.0	
10			0.0	EOB @ 9.0' BGS
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

BACKFILLED WITH BENTONITE. TOPPED WITH CONCRETE.

Christina Weaver
072720

Drilling Co.: Fibertec
Driller: SHANE RAMMO
Drilling Method: Hand Auger/ Direct Push
Drilling Fluid: None
Remarks:

Sampling Method: 3.0' Macrocore
Sampling Interval: Continuous
Water Level Start: BORING APPEARS WET AT 7.0'
Water Level Finish: NA
Converted to MW : Yes No
Surface Elev: NA
North Coord: NA
East Coord: NA

Project Name: Ford LTP Date Started: 07/27/2020 Logger: Christina Weaver
 Project Number: 30050315.303.01 Date Completed: 07/27/2020 Editor:
 Project Location: Livonia, MI Weather Conditions: 88°F, SUNNY

Depth (feet)	Sample ID & Time	Recovery (in.)	PID (ppm)	Description
1	SB-139(0.5-1)_072720 C1310	0-5' HA	0.0	(0.0 - 0.5') CONCRETE.
2	1-2@ 1313	60" RECOVERY	0.0	(0.5 - 1.0') SAND, F-M, SR-SA; TRACE PEBBLES, S-M, SR-SA; WELL SORTED; DRY; VERY DARK GRAYISH BROWN (10YR 3/2).
3	2-3@ 1316		0.0	(1.0 - 2.0') SAND, VF-M, SR-SA; SOME SILT; WELL SORTED; DRY; YELLOWISH BROWN (10YR 5/4).
4	3-4@ 1320		0.0	(2.0 - 7.5') SAND, F-M, SR-SA; TRACE SILT; WELL SORTED; DRY TO WET; YELLOWISH BROWN (10YR 5/4).
5	4-5@ 1325		0.0	(7.5 - 9.0') SAND, F-VC, SR-SA; SOME GRANULES, SR-SA; POORLY SORTED, WET; LIGHT BROWNISH GRAY (10YR 6/2).
6	5-6@ 1517	5-6' OP. 12" HOLE	0.0	
7	6-7@ 1519	6-9' DP 30" HOLE	0.0	
8			0.0	
9				NOTE: BORING APPEARS WET @ 7.0' BGS.
10				EOB @ 9.0' BGS.
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

BACKFILLED WITH BENTONITE FORMED WITH COMMERCE

Christina Weaver
072720

Drilling Co.: Fibertec Sampling Method: 3.0' Macrocore
 Driller: SHANE RAYMO Sampling Interval: Continuous
 Drilling Method: Hand Auger/ Direct Push Water Level Start: BORING APPEARS WET AT 7.0'
 Drilling Fluid: None Water Level Finish: NA
 Remarks: Converted to MW : Yes No
 Surface Elev: NA
 North Coord: NA
 East Coord: NA

ARCADIS
Soil Boring Log

Boring No.: SB-140

Sheet: 1 of 1

Project Name: Ford LTP
Project Number: 30050315.303.01
Project Location: Livonia, MI

Date Started: 07/27/2020
Date Completed: 07/27/2020
Weather Conditions: 90°F, SUNNY

Depth (feet)	Sample ID & Time	Recovery (in.)	PID (ppm)	Description
1	SB-140(0.5-1.0) 0727 @ 1333	0-5' HA	0.0	(0.0 - 0.5') CONCRETE.
2	1-2 @ 1351		0.0	(0.5 - 2.0') SAND, F-M, SR-SA; LITTLE SILT; TRACE PEBBLES SMALL, SR-SA; WELL SORTED; DRY; YELLOWISH BROWN (10YR 6/4).
3	2-3 @ 1450	60' RECOVERY	0.0	(2.0 - 2.1') CONCRETE. FRAGMENTS.
4	3-4 @ 1455		0.0	(2.1 - 4.0') SAND, VF-M, SR-SA; SOME TO LITTLE SILT; WELL SORTED; DRY TO WET; YELLOWISH BROWN (10YR 6/4) TO LIGHT BROWNISH GRAY (10YR 6/2).
5	4-5 @ 1500	5-6' BP 2" REC.	0.0	(4.0 - 5.0') CONCRETE.
6	5-6 @ 1506		0.0	(5.0 - 7.5') SAND, VF-M, SR-SA; SOME TO LITTLE SILT; WELL SORTED; DRY TO WET; YELLOWISH BROWN (10YR 6/4) TO LIGHT BROWNISH GRAY (10YR 6/2).
7	6-7 @ 1509 + OUP-01	6-9' 29" REC.	0.0	(7.5 - 9.0') SAND, F-VC, SR-SA; SOME GRANULES, SR-SA; POORLY SORTED; WET; LIGHT BROWNISH GRAY (10YR 6/2).
8			0.0	
9				NOTE: BORING APPEARS WET AT 2.0' BGS.
10				EDB @ 9.0' BGS.
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

BACK FILLED WITH BENTONITE. TOPPED WITH CEMENT.

Christina Weaver
072720

Drilling Co.: Fibertec
Driller: SHANE RAYMO
Drilling Method: Hand Auger/ Direct Push
Drilling Fluid: None
Remarks:

Sampling Method: 3.0' Macrocore
Sampling Interval: Continuous
Water Level Start: BORING APPEARS WET AT 7.0' BGS.
Water Level Finish: NA
Converted to MW: Yes No
Surface Elev: NA
North Coor: NA
East Coor: NA

Project Name: Ford LTP Date Started: 07/27/2020 Logger: Christina Weaver
Project Number: 30050315.303.01 Date Completed: 07/27/2020 Editor:
Project Location: Livonia, MI Weather Conditions: 6:05, SUNNY

Depth (feet)	Sample ID & Time	Recovery (in.)	PID (ppm)	Description
1	TMW-20-01(0.5-1.0) 072720 @ 1005		0.0	(0.0-0.5') CONCRETE.
2	1-2 @ 1010	0-5' HA	0.0	(0.5-1.0') SAND, F-M, SR-SA; TRACE PEBBLES, S-M, SR-SA; WELL SORTED; DRY; VERY DARK GRAYISH BROWN (10YR 3/2).
3	2-3 @ 1040	60" REC.	0.0	(1.0-2.0') SAND F-M SR-SA; SOME SILT; WELL SORTED; DRY; YELLOWISH BROWN (10YR 5/4).
4	3-4 @ 1104		0.0	(2.0-7.0') SAND, F-M, SR-SA; TRACE SILT; WELL SORTED; DRY TO MOIST; PALE BROWN (10YR 6/3). NOTE: BRICK FRAGMENTS FOUND 2.0-2.5'
5	4-5 @ 1107		0.0	(7.0-7.5') SAND, F-VC, SR-SA; SOME GRANULES, SR-SA; TRACE PEBBLES, SMALL; SR-SA; POORLY SORTED; WET; GRAY (10YR 6/1).
6	5-6 @ 1110	5-6' OP 12" REC	0.0	
7	6-7 @ 1130	6-9' OP 12" REC	0.0	(7.5-8.0') SAND, F-M, SR-SA; LITTLE SILT; WELL SORTED 12.0' WET; GRAY (10YR 6/1).
8	TMW-20-01(3.5- 8.5)-072720 @ 1652		0.0	(8.0-10.5') SAND, F-VC SR-SA; SOME GRANULES, SR-SA; TRACE PEBBLES, SMALL SR-SA; POORLY SORTED; WET; GRAY (10YR 6/1).
9			0.0	
10		6-12' OP	0.0	NOTE: BORING APPEARS WET AT 7.0' BGS.
11		24" REC	0.0	
12			0.0	EOB @ 12.0' BGS.
13				
14				
15				
16				TEMP WELL WILL ONLY ADVANCE TO 8.5'
17				HOLE COLLAPSE PREVENTS FURTHER ADVANCE.
18				
19				
20				

TEMP WELL REMOVED. BRICK FILLED WITH BEAUTIFULITE. TOPPED WITH CONCRETE.

TEMP WELL WILL ONLY ADVANCE TO 8.5'
HOLE COLLAPSE PREVENTS FURTHER ADVANCE.

Christina Weaver
072720.

Drilling Co.: Fibertec Sampling Method: 3.0' Macrocore
Driller: SHANE RAYMO. Sampling Interval: Continuous
Drilling Method: Hand Auger/ Direct Push Water Level Start: BORING APPEARS WET AT 7.0'
Drilling Fluid: None Water Level Finish: NA
Remarks: TEMP WELL CAN NOT ADVANCE TO DESIRED DEPTH OF 10.0', HOLE COLLAPSE / FORCE OF CART PROBE LIMIT DEPTH. Converted to MW : Yes - TEMP No
Surface Elev: NA
North Coord: NA
East Coord: NA

Soil Boring Log

Project Name: Ford Livonia Automatic Transmissions Plant Date Started: 07/28/2020 Logger: C. Weaver
 Project Number: 30050315 Date Completed: 07/28/2020 Editor: C. Cisco
 Project Location: Livonia, MI Weather Conditions: 75° F, Sunny

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Sample ID	PID (ppm)	USCS Class	Description	Construction Details	Well
1				SB-141(0.5-1.0) _072820 @ 09:38	0.0	(0.0-0.3') CONCRETE.		(0.0-1.0') Concrete	
2			60	SB-141(1.0-2.0) _072820 @ 09:45	0.0	(0.3-7.3') SAND, very fine to fine; trace pebbles, small, subangular; well sorted; dry; yellowish brown (10YR 5/6).			
3			SB-141(2.0-3.0) _072820 @ 09:48	0.0					
4			SB-141(3.0-4.0) _072820 @ 09:53	0.0					
5			SB-141(4.0-5.0) _072820 @ 09:56	0.0					
6			SB-141(5.0-6.0) _072820 @ 10:18	0.0					
7			36	SB-141(6.0-7.0) _072820 @ 10:27	0.0	(7.3-12.0') SAND, fine to medium, subrounded to subangular; little to trace silt; well sorted; moist to wet; yellow (10YR 7/6) to grayish brown (10YR 5/2). Note: Fibers present at 7.5' bgs. Note: Boring appears wet at 8.0' bgs. Note: Clay seam, high plasticity, low dilatancy approximately 1/2" thick present at 8.5' bgs.			(1.0-12.0') Backfilled with Bentonite
8			SB-141(7.0-8.0) _072820 @ 10:30	0.0					
9					0.0				
10			36		0.0				
11					0.0				
12					0.0				
							End of boring at 12.0' bgs.		
13									
14									
15									
16									
17									
18									
19									
20									

Drilling Co.: Fibertec Sampling Method: 3' Macrocore
 Driller: Shane Raymo Sampling Interval: Continuous
 Drilling Method: Hand Auger / Direct Push Water Level Start (ft. bgs.): 9.0
 Drilling Fluid: None Water Level Finish (ft. btoc.): NA
 Remarks: ' / ft = feet; " / in = inch; bgs = below ground surface. Converted to Well: Yes No
 Surface Elev.: _____
 North Coord.: _____
 East Coord.: _____

Soil Boring Log

Project Name: Ford Livonia Automatic Transmissions Plant Date Started: 07/28/2020 Logger: C. Weaver
 Project Number: 30050315 Date Completed: 07/28/2020 Editor: C. Cisco
 Project Location: Livonia, MI Weather Conditions: 90° F, Sunny

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Sample ID	PID (ppm)	USCS Class	Description	Construction Details	Well
1				SB-142(0.5-1.0) _072820 @ 12:40	0.0	(0.0-0.3') CONCRETE.	(0.3-7.5') SAND, very fine to fine; trace pebbles, small, subangular; well sorted; dry; yellowish brown (10YR 5/6).	(0.0-1.0') Concrete	
2			60	SB-142(1.0-2.0) _072820 @ 12:41	0.0				
3				SB-142(2.0-3.0) _072820 @ 12:42	0.0				
4				SB-142(3.0-4.0) _072820 @ 12:43	0.0				
5				SB-142(4.0-5.0) _072820 @ 12:44 and	0.0				
6			12	MS/MSD collected	0.0		Note: Grain size increases to fine to medium at 6.0' bgs.	(1.0-9.0') Backfilled with Bentonite	
7				SB-142(5.0-6.0) _072820 @ 12:58	0.0				
8			30	SB-142(6.0-7.0) _072820 @ 13:01	0.0		(7.5-9.0') SAND, fine to medium, subrounded to subangular; little silt; well sorted; moist to wet; yellow (10YR 7/6) to grayish brown (10YR 5/2). Note: Boring appears wet at 8.0' bgs.		
9				SB-142(7.0-8.0) _072820 @ 13:00	0.0		Note: Clay seam, high plasticity, low dilatancy approximately 1/2" thick present at 8.5' bgs. End of boring at 9.0' bgs.		
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

Drilling Co.: Fibertec Sampling Method: 3' Macrocore
 Driller: Shane Raymo Sampling Interval: Continuous
 Drilling Method: Hand Auger / Direct Push Water Level Start (ft. bgs.): 8.0
 Drilling Fluid: None Water Level Finish (ft. bgs.): NA
 Remarks: ' / ft = feet; " / in = inch; bgs = below ground surface. Converted to Well: Yes No
 Surface Elev.: _____
 North Coor.: _____
 East Coor.: _____

Soil Boring Log

Project Name: Ford Livonia Automatic Transmissions Plant Date Started: 07/28/2020 Logger: C. Weaver
 Project Number: 30050315 Date Completed: 07/28/2020 Editor: C. Cisco
 Project Location: Livonia, MI Weather Conditions: 79° F, Sunny

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Sample ID	PID (ppm)	USCS Class	Description	Construction Details	Well
1				SB-143(0.5-1.0) _072820 @ 13:20 and MS/MSD collected	0.0		(0.0-0.3') CONCRETE.	(0.0-1.0') Concrete	
2			60	SB-143(1.0-2.0) _072820 @ 13:21	0.0		(0.3-7.3') SAND, very fine to fine; trace pebbles, small, subangular; well sorted; dry; yellowish brown (10YR 5/6).		
3				SB-143(2.0-3.0) _072820 @ 13:22	0.0				
4				SB-143(3.0-4.0) _072820 @ 13:23 and MS/MSD collected	0.0				
5			12	SB-143(4.0-5.0) _072820 @ 13:24	0.0			(1.0-9.0') Backfilled with Bentonite	
6				SB-143(5.0-6.0) _072820 @ 13:40	0.0				
7			28	SB-143(6.0-7.0) _072820 @ 13:45	0.0		(7.3-9.0') SAND, fine to medium, subrounded to subangular; little silt; well sorted; moist to wet; yellow (10YR 7/6) to grayish brown (10YR 5/2). Note: Boring appears wet at 8.0' bgs.		
8				SB-143(7.0-8.0) _072820 @ 13:50	0.0		Note: Clay seam, high plasticity, low dilatancy approximately 1/4" thick present at 8.7' bgs.		
9							End of boring at 9.0' bgs.		
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

Drilling Co.: Fibertec Sampling Method: 3' Macrocore
 Driller: Shane Raymo Sampling Interval: Continuous
 Drilling Method: Hand Auger / Direct Push Water Level Start (ft. bgs.): 8.0
 Drilling Fluid: None Water Level Finish (ft. bgs.): NA
 Remarks: ' / ft = feet; " / in = inch; bgs = below ground surface. Converted to Well: Yes No
 Surface Elev.: _____
 North Coor.: _____
 East Coor.: _____

Soil Boring Log

Project Name: Ford Livonia Automatic Transmissions Plant Date Started: 07/28/2020 Logger: C. Weaver
 Project Number: 30050315 Date Completed: 07/28/2020 Editor: C. Cisco
 Project Location: Livonia, MI Weather Conditions: 75° F, Sunny

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Sample ID	PID (ppm)	USCS Class	Description	Construction Details	Well
1				TMW-20-02(0.5-1.0) _072820 @ 11:06	0.0	(0.0-0.3') CONCRETE.		3.75" dia. drilled hole	
2			60	TMW-20-02(1.0-2.0) _072820 @ 11:07	0.0	(0.3-7.5') SAND, very fine to fine; trace pebbles, small, subangular; well sorted; dry; yellowish brown (10YR 5/6).			
3				TMW-20-02(2.0-3.0) _072820 @ 11:08	0.0			1.0" dia. PVC riser	
4				TMW-20-02(3.0-4.0) _072820 @ 11:09	0.0				
5				TMW-20-02(4.0-5.0) _072820 @ 11:10	0.0				
6			12	TMW-20-02(5.0-6.0) _072820 @ 11:29	0.0		Note: Grain size increases to fine to medium at 6.0' bgs.	(7.0-12.0') 1.0" dia. Pre-Packed PVC 0.010-slot Temp Well Screen	
7			36	TMW-20-02(6.0-7.0) _072820 @ 11:30 and DUP-03 collected	0.0				
8				TMW-20-02(7.0-8.0) _072820 @ 11:34	0.0	(7.5-12.0') SAND, fine to medium, subrounded to subangular; little silt; well sorted; moist to wet; yellow (10YR 7/6) to grayish brown (10YR 5/2). Note: Boring appears wet at 8.0' bgs.			
9				TMW-20-02(7.0-12.0) _072820 @ 15:05	0.0		Note: Clay seam, high plasticity, low dilatancy approximately 1/2" thick present at 8.8' bgs.		
10			36		0.0				
11					0.0				
12					0.0				
							End of boring at 12.0' bgs.		
13									
14									
15									
16									
17									
18									
19									
20									

Drilling Co.: Fibertec Sampling Method: 3' Macrocore
 Driller: Shane Raymo Sampling Interval: Continuous
 Drilling Method: Hand Auger / Direct Push Water Level Start (ft. bgs.): 8.0
 Drilling Fluid: None Water Level Finish (ft. bgs.): NA
 Remarks: ' / ft = feet; " / in = inch; bgs = below ground surface. Converted to Well: Yes No
Temporary well installed. Removed/abandoned after Surface Elev.:
collecting sample, backfilled with bentonite. North Coor.:
 East Coor.:

SOIL BORING LOG - 2013 ©COMMON INFORMATION NOTES AND DATA BORING LOGSMASTER FORD LTP BORING LOGS ©20121.GPJ ARCADIS 2013.GDT 2/1/21

ARCADIS
Soil Boring Log

Boring No.: SB-131

Sheet: 1 of 1

Project Name: Ford LTP
Project Number: 30050315.303.01
Project Location: Livonia, MI

Date Started: 07/28/2020 Logger: Christina Weaver
Date Completed: 07/28/2020 Editor:
Weather Conditions: 75°F, SUNNY

Depth (feet)	Sample ID & Time	Recovery (in.)	PID (ppm)	Description
1	SB-141(0.5-1) 07/28/20 C0938	0-5' HA	0.0	(0.0-0.3') CONCRETE.
2	1-2@0945		0.0	(0.3-7.3') SAND, UF-F; TRACE PEBBLES, Small, SR; WELL SORTED; URY; YELLOWISH
3	2-3@0948	60" REC'D	0.0	BROWN (10 YR 5/6).
4	3-4@0953		0.0	NOTE: GRAIN SIZE INCREASES TO F-M AT 6.0' BGS.
5	4-5@0956		0.0	(7.3-12.0') SAND, F-M, SR-SA; LITTLE TO TRACE SILT; WELL SORTED; MOIST TO WET; YELLOW (10 YR 7/6) TO GRAYISH
6	5-6@1018	5-6' OP 2" REC'D	0.0	BROWN (10 YR 5/2).
7	6-7@1027	6-9' DP	0.0	NOTE: INSULATION TYPE FUZ AT 7.5'. (FIBERS).
8	7-8@1030	36" REC	0.0	NOTE: BORING APPEARS WET AT 8.0' BGS.
9			0.0	NOTE: SEAM OF CLAY, HIGH PLASTICITY, LOW DILATAN ~ 1/2" THICK AT 8.5'
10		9-12' DP	0.0	
11		36" REC	0.0	
12			0.0	EOB @ 12.0' BGS.
13				
14				
15				
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19				
20				

BACKFILLED WITH BEAUTOATE.
TOPPED WITH CONCRETE.

Christina Weaver
072820

Drilling Co.: Fibertec
Driller: SHANE RAYMO
Drilling Method: Hand Auger/ Direct Push
Drilling Fluid: None
Remarks:

Sampling Method: 3.0' Macrocore
Sampling Interval: Continuous
Water Level Start: BORING APPEARS WET AT 9.0' BGS
Water Level Finish: NA
Converted to MW : Yes No
Surface Elev: NA
North Coord: NA
East Coord: NA

ARCADIS
Soil Boring Log

Boring No.: SE-142
Sheet: 1 of 1

Project Name: Ford LTP Date Started: 07/28/2020 Logger: Christina Weaver
Project Number: 30050315.303.01 Date Completed: 07/28/2020 Editor:
Project Location: Livonia, MI Weather Conditions: 80°F, SUNNY

Depth (feet)	Sample ID & Time	Recovery (in.)	PID (ppm)	Description
1	SB-142(0.5-1)-07272 @ 1240	0-5' HR	0.0	(0.0 - 0.3') CONCRETE.
2	1-2 @ 1241		0.0	(0.3 - 7.5') SAND, VF-F; TRACE PEBBLES, SMALL, SA; WELL SORTED; DRY; YELLOWISH BROWN (10YR 5/6)
3	2-3 @ 1242	60" RECOVER	0.0	(7.5 - 12.0') SAND, F-M, SR-SA; LITTLE SILT; WELL SORTED MOIST TO WET; YELLOW (10YR 7/6). TO
4	3-4 @ 1243		0.0	GRAYISH BROWN (10YR 5/2).
5	4-5 @ 1244		0.0	NOTE: GRAIN SIZE INCREASES TO F-M AT 6.0' BGS.
6	5-6 @ 1258	5-6' RECOVER	0.0	
7	6-7 @ 1301	6-9' DP	0.0	
8	7-8 @ 1300	3" REC.	0.0	NOTE: BORING APPEARS WET AT 8.0' BGS.
9			0.0	NOTE: SEAM OF CLAY, HIGH PLASTICITY, LOW DILATANCY ~ 1/2" THICK AT 8.5' BGS.
10				EOB @ 9.0' BGS.
11				
12				
13				
14				
15				
16				
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18				
19				
20				

BACKFILLED WITH GENTRAITE
TOPPED WITH CEMENT.

Christina Weaver
07/28/20

Drilling Co.: Fibertec Sampling Method: 3.0' Macrocore
Driller: SHANE RAYMO. Sampling Interval: Continuous
Drilling Method: Hand Auger/ Direct Push Water Level Start: BORING APPEARS WET AT 8.0'
Drilling Fluid: None Water Level Finish: NA
Remarks: Converted to MW : Yes No
Surface Elev: NA
North Coord: NA
East Coord: NA

ARCADIS
Soil Boring Log

Boring No.: SB-143

Sheet: 1 of 1

Project Name: Ford LTP
Project Number: 30050315.303.01
Project Location: Livonia, MI

Date Started: 07/28/2020 Logger: Christina Weaver
Date Completed: 07/28/2020 Editor:
Weather Conditions: 79°F, SUNNY

Depth (feet)	Sample ID & Time	Recovery (in.)	PID (ppm)	Description
1	50-143(0.5-1) 0728 @ 1320		0.0	(0.0 - 0.3') CONCRETE.
2	1-2@1321	0-5' HA	0.0	(0.3 - 7.3') SAND, UF-F; TRACE PEBBLES, SMALL, SA; WELL SORTED; DRY; YELLOWISH BROWN (10YR 5/6).
3	2-3@1322	60" RECOV.	0.0	(7.3 - 9.0') SAND, F-M, SR-SA; LITTLE SILT; WELL SORTED; MOIST TO WET; YELLOW (10YR 7/6) TO GRAYISH BROWN (10YR 5/2).
4	3-4@1323		0.0	
5	4-5@1324		0.0	NOTE: BORING APPEARS WET AT 8.0' BGS.
6	5-6@1340	5-6' DP 12" REC	0.0	NOTE: SEAM OF CLAY, HIGH PLASTICITY, LOW DELTANCY ~ 1/4" THICK AT 8.7' BGS.
7	6-7@1345	6-4' DP	0.0	
8	7-8@1350	28" REC	0.0	
9			0.0	EOB @ 9.0' BGS.
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

BRICK FILLED WITH GERMOLITE. TOPPED WITH CONCRETE

Christina Weaver
072820

Drilling Co.: Fibertec
Driller: SHANE RAYMOND
Drilling Method: Hand Auger/ Direct Push
Drilling Fluid: None
Remarks:

Sampling Method: 3.0' Macrocore
Sampling Interval: Continuous
Water Level Start: BORING APPEARS WET AT 8.0'
Water Level Finish: NA
Converted to MW : Yes No
Surface Elev: NA
North Coord: NA
East Coord: NA

Project Name: Ford LTP
Project Number: 30050315.303.01
Project Location: Livonia, MI

Date Started: 07/28/2020 Date Completed: 07/28/2020
Logger: Christina Weaver Editor: _____
Weather Conditions: 75°F, Sunny

Depth (feet)	Sample ID & Time	Recovery (in.)	PID (ppm)	Description
1	TMW-20-01(05-1) -072820 @ 1106	0-5' HA	0.0	(0.0 - 0.3') CONCRETE.
2	1-2 @ 1107		0.0	(0.3 - 7.5') SAND, U-F-F; TRACE PEBBLES, small, SA; WELL SORTED; DRY; YELLOWISH BROWN (10 YR 5/6).
3	2-3 @ 1108	60" RECOV.	0.0	(7.5 - 12.0') SAND, F-M, SR-SA; LITTLE SILT; WELL SORTED; MOIST TO WET; YELLOW (10 YR 7/6). TO GRAYISH BROWN (10 YR 5/2).
4	3-4 @ 1109		0.0	
5	4-5 @ 1110		0.0	
6	5-6 @ 1129	5-6' DP 12" REC.	0.0	NOTE: GRAIN SIZE INCREASES TO F-M AT 6.0' BGS.
7	6-7 @ 1130 + DWP	6-7' DP	0.0	
8	7-8 @ 1134	36" REC.	0.0	NOTE: BORING APPEARS WET AT 8.0' BGS.
9	TMW-20-02 (7-12)_072820		0.0	NOTE: SEAM OF CLAY, HIGH PLASTICITY, LOW DILATANCY ~ 1/2" THICK AT 8.8'
10	@ 1505	9-12' DP	0.0	
11		36" REC.	0.0	
12			0.0	EOB @ 12.0' BGS.
13				
14				
15				
16				
17				
18				
19				
20				

TEMP WELL REMOVED. BRCK FILLED WITH DEWULFITE. TOPPED WITH CONCRETE.

Christina Weaver
072820

Drilling Co.: Fibertec
Driller: SHANE RAYMO
Drilling Method: Hand Auger/ Direct Push
Drilling Fluid: None
Remarks: TEMP WELL SCREEN SET AT MAX DEPTH 12.0'. NOT ENOUGH WATER / RECOVERY TO CONDUCT LOW-FLOW TEST WITH VSC. GRAB SAMPLE TAKEN AT

Sampling Method: 3.0' Macrocore
Sampling Interval: Continuous
Water Level Start: BORING APPEARS WET AT 8.0'
Water Level Finish: NA
Converted to MW: Yes - TEMP, No
Surface Elev: NA
North Coord: NA
East Coord: NA

I, DROST'S APPROVAL. CAN NOT DRIVE SCREEN FURTHER THAN 12.0' WITH CART PROBE.
ENFM011-Soil Boringlog (Boring Log)

Arcadis of Michigan, LLC
28550 Cabot Drive, Suite 500
Novi
Michigan 48377
Phone: 248 994 2240

www.arcadis.com