

## ANALYTICAL REPORT

Eurofins Canton  
180 S. Van Buren Avenue  
Barberton, OH 44203  
Tel: (330)497-9396

Laboratory Job ID: 240-163280-1  
Client Project/Site: Ford LTP - Off Site

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

Attn: Kristoffer Hinskey



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Authorized for release by:  
3/18/2022 9:55:14 AM

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



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# Definitions/Glossary

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

Job ID: 240-163280-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

## Glossary

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

# Case Narrative

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

Job ID: 240-163280-1

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## Job ID: 240-163280-1

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### Laboratory: Eurofins Canton

#### Narrative

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#### Job Narrative 240-163280-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 3/4/2022 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.6° C, 2.2° C and 2.8° C.

#### GC/MS VOA

Method 8260B: The continuing calibration verification (CCV) associated with batch 519393 recovered above the upper control limit for multiple analytes. The samples associated with this CCV were non-detect for the affected analytes; therefore, the data have been reported. The associated samples are impacted: TRIP BLANK\_113 (240-163280-1) and MW-168S\_022822 (240-163280-2).

Method 8260B: The laboratory control sample (LCS) for 519393 recovered outside control limits for multiple analytes. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported: TRIP BLANK\_113 (240-163280-1), MW-168S\_022822 (240-163280-2) and (LCS 240-519393/5).

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

#### VOA Prep

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



# Method Summary

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

Job ID: 240-163280-1

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

**Protocol References:**

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

**Laboratory References:**

TAL CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

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

# Sample Summary

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

Job ID: 240-163280-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-163280-1	TRIP BLANK_113	Water	02/28/22 00:00	03/04/22 08:00
240-163280-2	MW-168S_022822	Water	02/28/22 10:40	03/04/22 08:00

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

# Detection Summary

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

Job ID: 240-163280-1

**Client Sample ID: TRIP BLANK\_113**

**Lab Sample ID: 240-163280-1**

No Detections.

**Client Sample ID: MW-168S\_022822**

**Lab Sample ID: 240-163280-2**

No Detections.

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

This Detection Summary does not include radiochemical test results.

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# Client Sample Results

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

Job ID: 240-163280-1

**Client Sample ID: TRIP BLANK\_113**

**Lab Sample ID: 240-163280-1**

**Date Collected: 02/28/22 00:00**

**Matrix: Water**

**Date Received: 03/04/22 08:00**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/08/22 16:35	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/08/22 16:35	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/08/22 16:35	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/08/22 16:35	1
Trichloroethene	1.0	U *+	1.0	0.44	ug/L			03/08/22 16:35	1
Vinyl chloride	1.0	U *+	1.0	0.45	ug/L			03/08/22 16:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	75		62 - 137		03/08/22 16:35	1
4-Bromofluorobenzene (Surr)	113		56 - 136		03/08/22 16:35	1
Toluene-d8 (Surr)	86		78 - 122		03/08/22 16:35	1
Dibromofluoromethane (Surr)	96		73 - 120		03/08/22 16:35	1



# Client Sample Results

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

Job ID: 240-163280-1

**Client Sample ID: MW-168S\_022822**

**Lab Sample ID: 240-163280-2**

**Date Collected: 02/28/22 10:40**

**Matrix: Water**

**Date Received: 03/04/22 08:00**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			03/09/22 00:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	80		66 - 120					03/09/22 00:19	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/08/22 16:59	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/08/22 16:59	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/08/22 16:59	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/08/22 16:59	1
Trichloroethene	1.0	U **	1.0	0.44	ug/L			03/08/22 16:59	1
Vinyl chloride	1.0	U **	1.0	0.45	ug/L			03/08/22 16:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	79		62 - 137					03/08/22 16:59	1
4-Bromofluorobenzene (Surr)	114		56 - 136					03/08/22 16:59	1
Toluene-d8 (Surr)	81		78 - 122					03/08/22 16:59	1
Dibromofluoromethane (Surr)	95		73 - 120					03/08/22 16:59	1

# Surrogate Summary

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

Job ID: 240-163280-1

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

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA	BFB	TOL	DBFM
		(62-137)	(56-136)	(78-122)	(73-120)
240-163280-1	TRIP BLANK_113	75	113	86	96
240-163280-2	MW-168S_022822	79	114	81	95
240-163304-E-4 MS	Matrix Spike	70	113	79	87
240-163304-K-4 MSD	Matrix Spike Duplicate	78	114	81	91
LCS 240-519393/5	Lab Control Sample	71	117	82	92
MB 240-519393/8	Method Blank	80	110	83	92

### Surrogate Legend

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

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

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

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA
		(66-120)
240-163280-2	MW-168S_022822	80
240-163307-G-3 MS	Matrix Spike	82
240-163307-M-3 MSD	Matrix Spike Duplicate	82
LCS 240-519472/4	Lab Control Sample	80
MB 240-519472/5	Method Blank	80

### Surrogate Legend

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

# QC Sample Results

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

Job ID: 240-163280-1

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

**Lab Sample ID: MB 240-519393/8**  
**Matrix: Water**  
**Analysis Batch: 519393**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/08/22 12:57	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/08/22 12:57	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/08/22 12:57	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/08/22 12:57	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/08/22 12:57	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/08/22 12:57	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	80		62 - 137		03/08/22 12:57	1
4-Bromofluorobenzene (Surr)	110		56 - 136		03/08/22 12:57	1
Toluene-d8 (Surr)	83		78 - 122		03/08/22 12:57	1
Dibromofluoromethane (Surr)	92		73 - 120		03/08/22 12:57	1

**Lab Sample ID: LCS 240-519393/5**  
**Matrix: Water**  
**Analysis Batch: 519393**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	20.0	24.3		ug/L		121	63 - 134
cis-1,2-Dichloroethene	20.0	23.4		ug/L		117	77 - 123
Tetrachloroethene	20.0	19.2		ug/L		96	76 - 123
trans-1,2-Dichloroethene	20.0	24.8		ug/L		124	75 - 124
Trichloroethene	20.0	24.9	*+	ug/L		125	70 - 122
Vinyl chloride	20.0	29.2	*+	ug/L		146	60 - 144

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	71		62 - 137
4-Bromofluorobenzene (Surr)	117		56 - 136
Toluene-d8 (Surr)	82		78 - 122
Dibromofluoromethane (Surr)	92		73 - 120

**Lab Sample ID: 240-163304-E-4 MS**  
**Matrix: Water**  
**Analysis Batch: 519393**

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U	20.0	23.3		ug/L		117	56 - 135
cis-1,2-Dichloroethene	0.65	J	20.0	21.9		ug/L		106	66 - 128
Tetrachloroethene	1.0	U	20.0	17.3		ug/L		86	62 - 131
trans-1,2-Dichloroethene	1.0	U	20.0	22.5		ug/L		113	56 - 136
Trichloroethene	1.0	U *+	20.0	21.8		ug/L		109	61 - 124
Vinyl chloride	1.0	U *+	20.0	26.8		ug/L		134	43 - 157

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	70		62 - 137
4-Bromofluorobenzene (Surr)	113		56 - 136
Toluene-d8 (Surr)	79		78 - 122

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# QC Sample Results

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

Job ID: 240-163280-1

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

**Lab Sample ID: 240-163304-E-4 MS**  
**Matrix: Water**  
**Analysis Batch: 519393**

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

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	87		73 - 120

**Lab Sample ID: 240-163304-K-4 MSD**  
**Matrix: Water**  
**Analysis Batch: 519393**

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

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		Limit
1,1-Dichloroethene	1.0	U	20.0	24.2		ug/L		121	56 - 135	4	26
cis-1,2-Dichloroethene	0.65	J	20.0	23.5		ug/L		114	66 - 128	7	14
Tetrachloroethene	1.0	U	20.0	17.5		ug/L		87	62 - 131	1	20
trans-1,2-Dichloroethene	1.0	U	20.0	24.4		ug/L		122	56 - 136	8	15
Trichloroethene	1.0	U *+	20.0	23.1		ug/L		115	61 - 124	6	15
Vinyl chloride	1.0	U *+	20.0	26.6		ug/L		133	43 - 157	1	24

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	78		62 - 137
4-Bromofluorobenzene (Surr)	114		56 - 136
Toluene-d8 (Surr)	81		78 - 122
Dibromofluoromethane (Surr)	91		73 - 120

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

**Lab Sample ID: MB 240-519472/5**  
**Matrix: Water**  
**Analysis Batch: 519472**

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			03/08/22 22:14	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	80		66 - 120		03/08/22 22:14	1

**Lab Sample ID: LCS 240-519472/4**  
**Matrix: Water**  
**Analysis Batch: 519472**

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

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec.
		Result	Qualifier				Limits
1,4-Dioxane	10.0	9.05		ug/L		90	80 - 122

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	80		66 - 120

**Lab Sample ID: 240-163307-G-3 MS**  
**Matrix: Water**  
**Analysis Batch: 519472**

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

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.
	Result	Qualifier	Added	Result	Qualifier				Limits
1,4-Dioxane	2.0	U	10.0	10.1		ug/L		101	51 - 153

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# QC Sample Results

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

Job ID: 240-163280-1

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

<i>Surrogate</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	82		66 - 120

Lab Sample ID: 240-163307-M-3 MSD  
 Matrix: Water  
 Analysis Batch: 519472

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

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
1,4-Dioxane	2.0	U	10.0	10.5		ug/L		105	51 - 153	4	16

<i>Surrogate</i>	<i>%Recovery</i>	<i>MSD MSD Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	82		66 - 120



# QC Association Summary

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

Job ID: 240-163280-1

## GC/MS VOA

### Analysis Batch: 519393

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-163280-1	TRIP BLANK_113	Total/NA	Water	8260B	
240-163280-2	MW-168S_022822	Total/NA	Water	8260B	
MB 240-519393/8	Method Blank	Total/NA	Water	8260B	
LCS 240-519393/5	Lab Control Sample	Total/NA	Water	8260B	
240-163304-E-4 MS	Matrix Spike	Total/NA	Water	8260B	
240-163304-K-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

### Analysis Batch: 519472

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-163280-2	MW-168S_022822	Total/NA	Water	8260B SIM	
MB 240-519472/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-519472/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-163307-G-3 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-163307-M-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

# Lab Chronicle

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

Job ID: 240-163280-1

**Client Sample ID: TRIP BLANK\_113**

**Lab Sample ID: 240-163280-1**

**Date Collected: 02/28/22 00:00**

**Matrix: Water**

**Date Received: 03/04/22 08:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	519393	03/08/22 16:35	LEE	TAL CAN

**Client Sample ID: MW-168S\_022822**

**Lab Sample ID: 240-163280-2**

**Date Collected: 02/28/22 10:40**

**Matrix: Water**

**Date Received: 03/04/22 08:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	519393	03/08/22 16:59	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	519472	03/09/22 00:19	CS	TAL CAN

**Laboratory References:**

TAL CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

# Accreditation/Certification Summary

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

Job ID: 240-163280-1

## Laboratory: Eurofins Canton

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

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-22 *
Connecticut	State	PH-0590	12-31-21 *
Florida	NELAP	E87225	06-30-22
Georgia	State	4062	02-23-22 *
Illinois	NELAP	200004	07-31-22
Iowa	State	421	06-01-23
Kansas	NELAP	E-10336	04-30-22
Kentucky (UST)	State	112225	02-23-22 *
Kentucky (WW)	State	KY98016	12-31-22
Minnesota	NELAP	039-999-348	12-31-22
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	11-06-22
New York	NELAP	10975	03-31-22
Ohio	State	8303	02-23-23
Ohio VAP	State	CL0024	02-27-23
Oregon	NELAP	4062	02-27-23
Pennsylvania	NELAP	68-00340	08-31-22
Texas	NELAP	T104704517-21-14	08-31-22
Virginia	NELAP	11570	09-14-22
Washington	State	C971	01-12-23
West Virginia DEP	State	210	12-31-22

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

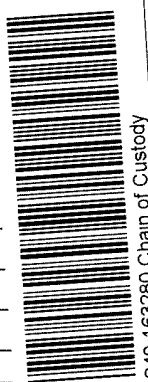




Chain of Custody Record

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

Company Name	Arcaadis	DW	NPDES	RCRA	Other
Client Contact	Kris Hinskey	Regulatory program			
Address	28550 Cabot Drive, Suite 500	Site Contact	Julia McClafferty	Lab Contact	Mike DeMonico
City/State/Zip	Novi, MI, 48377	Telephone	734-644-5131	Telephone	330-497-9396
Phone	248-994-2240	Email	kristoffer.hinskey@arcaadis.com	Analysis Turnaround Time	
Project Name	Ford LTP Off-Site	Sampler Name	<i>Dominic Burner</i>	TAT if different from below	
Project Number	30080642-402.04	Method of Shipment/Carrier		10 day	3 weeks
PO #	30080642-402.04	Shipping/Tracking No		1 week	2 weeks
				2 days	1 week
				1 day	1 day

Sample Identification	Sample Date	Sample Time	Matrix				Containers & Preservatives						Filtered Sample (Y/N)	Composite=C / Grab=G	Analyses						Sample Specific Notes / Special Instructions:						
			Air	Aqueous	Sediment	Solid	Other	H2SO4	HNO3	HCl	NaOH	ZnAc			NaOH	Other	1-DCE 8260B	cis-1,2-DCE 8260B	Trans-1,2-DCE 8260B	PCE 8260B		TCE 8260B	Vinyl Chloride 8260B	1,4-Dioxane 8260B SIM			
TRIP BLANK_113	---	---	1																							1 Trip Blank	
MMN-1085-022822	04/28/22	1040	6																							3 VOAs for 8260B 3 VOAs for 8260B SIM	
 240-163280 Chain of Custody																											

Possible Hazard Identification  
 Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)  
 Return to Client  Disposal By Lab  Archive For \_\_\_\_\_ Months

Company	Arcaadis	Date/Time	02/28/22 1345	Received by	Nov cold storage	Company	Arcaadis	Date/Time	02/28/22 1345
Company	Arcaadis	Date/Time	3/3/22 1315	Received by	<i>[Signature]</i>	Company	ETA	Date/Time	3-3-22 1316
Company	ETA	Date/Time	3/3/22 1354	Received in Laboratory	<i>[Signature]</i>	Company	EE TNC	Date/Time	3-4-22 800

Special Instructions/QC Requirements & Comments  
 Sample Address 3AAGC CAPITAL  
 Submit all results through Cadena at jtomalia@cadenaco.com Cadena #E203631  
 Level IV Reporting requested

Relinquished by *[Signature]*  
 Relinquished by *[Signature]*  
 Relinquished by *[Signature]*

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**Eurofins TestAmerica Canton Sample Receipt Form/Narrative**  
**Canton Facility**

Login # : 163280

Client Arcaadis Site Name \_\_\_\_\_ Cooler unpacked by Adam Janot  
 Cooler Received on 3-4-22 Opened on 3-4-22  
 FedEx. 1<sup>st</sup> Grd Exp UPS FAS Chippewab Client Drop Off TestAmerica Courier Other

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

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

1. Cooler temperature upon receipt  See Multiple Cooler Form  
 IR GUN# IR-14 (CF -0.2 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp \_\_\_\_\_ °C  
 IR GUN #IR-15 (CF -0.7°C) Observed Cooler Temp \_\_\_\_\_ °C Corrected Cooler Temp \_\_\_\_\_ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 ea Yes No  
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA  
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No  
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)? Yes No
10. Were correct bottle(s) used for the test(s) indicated? Yes No
11. Sufficient quantity received to perform indicated analyses? Yes No
12. Are these work share samples and all listed on the COC? Yes   
 If yes, Questions 13-17 have been checked at the originating laboratory
13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC157842
14. Were VOAs on the COC? Yes No
15. Were air bubbles >6 mm in any VOA vials?  ← Larger than this Yes No NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 01042016 Yes No
17. Was a LL Hg or Me Hg trip blank present? Yes No

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

Contacted PM \_\_\_\_\_ Date \_\_\_\_\_ by \_\_\_\_\_ via Verbal Voice Mail Other \_\_\_\_\_  
 Concerning \_\_\_\_\_

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES  additional next page Samples processed by: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

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

20. SAMPLE PRESERVATION  
 Sample(s) \_\_\_\_\_ were further preserved in the laboratory  
 Time preserved \_\_\_\_\_ Preservative(s) added/Lot number(s) \_\_\_\_\_  
 VOA Sample Preservation - Date/Time VOAs Frozen \_\_\_\_\_

Login # : \_\_\_\_\_

Eurofins TestAmerica Canton Sample Receipt Multiple Cooler Form				
Cooler Description (Circle)	IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)
TA Client Box Other	IR-14 IR-15	3.0	2.8	Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15	1.8	1.6	Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15	2.4	2.2	Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None

See Temperature Excursion Form

# DATA VERIFICATION REPORT



March 18, 2022

Kris Hinskey  
Arcadis Inc  
10559 Citation Ave  
Suite 100  
Brighton, MI 48116

CADENA project ID: E203631  
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater  
Project number: 30080642.402.04 WA04 OFF-SITE GW  
Event Specific Scope of Work References: Sample COC  
Laboratory: Eurofins Environment Testing LLC - North Central  
Laboratory submittal: 163280-1  
Sample date: 2022-02-28  
Report received by CADENA: 2022-03-18  
Initial Data Verification completed by CADENA: 2022-03-18  
Number of Samples:2  
Sample Matrices:Water  
Test Categories:GCMS VOC

**Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.**

The following minor QC exceptions or missing information were noted:

GCMS VOC QC batch 519393 LCS recoveries were outliers biased high for the following analytes: TRICHLOROETHENE and VINYL CHORIDE. Associated client sample results were non-detect so qualification was not required based on these high bias QC outliers.

GCMS VOC QC batch CCV response outliers as noted in the laboratory submittal case narrative were not used to qualify client sample results as part of this level 2 data package verification review.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

## CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

# Analytical Results Summary

CADENA Project ID: E203631

Laboratory: Eurofins Environment Testing LLC - North Central

Laboratory Submittal: 163280-1

Sample Name: TRIP BLANK\_113 MW-168S\_022822  
 Lab Sample ID: 2401632801 2401632802  
 Sample Date: 2/28/2022 2/28/2022

Analyte	Cas No.	Report		Units	Valid Qualifier	Report		Units	Valid Qualifier	
		Result	Limit			Result	Limit			
<b>GC/MS VOC</b>										
<u>OSW-8260B</u>										
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
<u>OSW-8260BBSim</u>										
1,4-Dioxane	123-91-1					ND	2.0	ug/l	---	

# Ford Motor Company – Livonia Transmission Project

## DATA REVIEW

### Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG # 240-163280-1

CADENA Verification Report: 2022-03-18

Analyses Performed By:


TestAmerica

North Canton, Ohio

Report # 45036R

Review Level: Tier III

Project: 30080642.402.02





## DATA REVIEW

### SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-163280-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III) include a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis	
					VOC	VOC SIM
TRIP BLANK_113	240-163280-1	Water	02/28/2022		X	
MW-168S_022822	240-163280-2	Water	02/28/2022		X	X

## DATA REVIEW

### ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

## DATA REVIEW

### ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260B and 8260B SIM. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
  - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
  - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
  - E The compound was quantitated above the calibration range.
  - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
  - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
  - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
  - J+ The result is an estimated quantity, but the result may be biased high.
  - J- The result is an estimated quantity, but the result may be biased low.
  - UB Analyte considered non-detect at the listed value due to associated blank contamination.
  - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
  - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

## DATA REVIEW

### VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

#### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260B/8260B-SIM	Water	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl

All samples were analyzed within the specified holding time criteria.

#### 2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

#### 3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

##### 3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (20%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

##### 3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

Sample ID	Initial / Continuing	Compound	Criteria
TRIP BLANK_113 MW-168S_022822	Continuous Calibration Verification %D	Vinyl chloride	+32.3%
		1,1-Dichloroethene	+25.5%
		Trichloroethene	+23%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
Initial and Continuing Calibration	RRF <0.05	Non-detect	R
		Detect	J
	RRF <0.01 <sup>1</sup>	Non-detect	R
		Detect	J

## DATA REVIEW

Initial/Continuing	Criteria	Sample Result	Qualification
	RRF >0.05 or RRF >0.01 <sup>1</sup>	Non-detect	No Action
		Detect	
Initial Calibration	%RSD > 20% or a correlation coefficient <0.99	Non-detect	UJ
		Detect	J
	%RSD > 90%	Non-detect	R
		Detect	J
Continuing Calibration	%D >20% (increase in sensitivity)	Non-detect	No Action
		Detect	J
	%D >20% (decrease in sensitivity)	Non-detect	UJ
		Detect	J
	%D > 90% (increase/decrease in sensitivity)	Non-detect	R
		Detect	J

Note:

<sup>1</sup>RRF of 0.01 only applies to compounds which are typically poor responding compounds

### 4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

### 5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

A field duplicate sample is not collected for samples from this SDG.

### 6. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

No compounds were detected in the samples within this SDG.

### 7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

**DATA REVIEW**

**DATA VALIDATION CHECKLIST FOR VOCs**

VOCs: 8260B/8260B-SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
<b>GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)</b>					
<b>Tier II Validation</b>					
Holding times/Preservation		X		X	
<b>Tier III Validation</b>					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X	X		
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Field Duplicate RPD	X				X
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation


%R Percent recovery

RPD Relative percent difference

%D Percent difference

## DATA REVIEW

VALIDATION PERFORMED BY: Bhagyashree Fulzele

SIGNATURE: 

DATE: March 29, 2022

PEER REVIEW: Andrew Korycinski

DATE: March 30, 2022

**NO CORRECTIONS/QUALIFIERS ADDED  
TO SAMPLE ANALYSIS DATA SHEETS**






**CHAIN OF CUSTODY  
CORRECTED SAMPLE ANALYSIS DATA  
SHEETS**



## Chain of Custody Record

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

Client Contact			Regulatory program														TestAmerica Laboratories, Inc.	
Company Name Arcadis			DW				NPDES				RCRA				Other		COC No	
Address: 28550 Cabot Drive, Suite 500			Client Project Manager Kris Hinskey				Site Contact: Julia McClafferty				Lab Contact: Mike DelMonico				1 of 1 COCs			
City/State/Zip: Novi, MI, 48377			Telephone 248-994-2240				Telephone 734-644-5131				Telephone 330-497-9396				For lab use only			
Phone 248-994-2240			Email kristoffer.hinskey@arcadis.com				Analysis Turnaround Time				Analyses				Walk-in client			
Project Name Ford LTP Off-Site			Sampler Name <i>Dominic Berner</i>				TAT if different from below 10 day ✓ 3 weeks 2 weeks 1 week 2 days 1 day				Filtered Sample (Y/N) Composite=C / Grab=G 1 1-DCE 8260B cis-1,2 DCE 8260B Trans-1,2-DCE 8260B PCE 8260B TOE 8260B Vinyl Chloride 8260B 1,4-Dioxane 8260B SIM				Lab sampling			
Project Number: 30080642.402.04			Method of Shipment/Carrier				Shipping/Tracking No								Job/SDG No			
PO # 30080642.402.04																	Sample Specific Notes / Special Instructions:	
Sample Identification			Sample Date	Sample Time	Matrix						Containers & Preservatives							
					Air	Aqueous	Sediment	Solid	Other	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Unpres	Other		
TRIP BLANK_113			—	—														1 Trip Blank
MW-1685-022822			02/28/22	1040														3 VOAs for 8260B 3 VOAs for 8260B SIM
 240-163280 Chain of Custody																		
Possible Hazard Identification										Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)								
<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown										Return to Client <input type="checkbox"/> Disposal By Lab <input checked="" type="checkbox"/> Archive For <input type="text"/> Months								
Special Instructions/QC Requirements & Comments																		
Sample Address 34480 CAPITAL																		
Submit all results through Cadena at jtomalia@cadenaco.com Cadena #E203631																		
Level IV Reporting requested																		
Relinquished by: <i>[Signature]</i>			Company: Arcadis			Date/Time: 02/28/22 1345			Received by: <i>[Signature]</i>			Company: Arcadis			Date/Time: 02/28/22 1345			
Relinquished by: <i>[Signature]</i>			Company: Arcadis			Date/Time: 3/3/22 1315			Received by: <i>[Signature]</i>			Company: EETA			Date/Time: 3-3-22 1316			
Relinquished by: <i>[Signature]</i>			Company: EETA			Date/Time: 3-3-22 1354			Received in Laboratory by: <i>[Signature]</i>			Company: EETNC			Date/Time: 3-4-22 8:00			

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# Client Sample Results

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

Job ID: 240-163280-1

**Client Sample ID: TRIP BLANK\_113**

**Lab Sample ID: 240-163280-1**

**Date Collected: 02/28/22 00:00**

**Matrix: Water**

**Date Received: 03/04/22 08:00**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/08/22 16:35	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/08/22 16:35	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/08/22 16:35	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/08/22 16:35	1
Trichloroethene	1.0	U *	1.0	0.44	ug/L			03/08/22 16:35	1
Vinyl chloride	1.0	U *	1.0	0.45	ug/L			03/08/22 16:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	75		62 - 137		03/08/22 16:35	1
4-Bromofluorobenzene (Surr)	113		56 - 136		03/08/22 16:35	1
Toluene-d8 (Surr)	86		78 - 122		03/08/22 16:35	1
Dibromofluoromethane (Surr)	96		73 - 120		03/08/22 16:35	1

# Client Sample Results

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

Job ID: 240-163280-1

**Client Sample ID: MW-168S\_022822**

**Lab Sample ID: 240-163280-2**

**Date Collected: 02/28/22 10:40**

**Matrix: Water**

**Date Received: 03/04/22 08:00**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			03/09/22 00:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	80		66 - 120					03/09/22 00:19	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/08/22 16:59	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/08/22 16:59	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/08/22 16:59	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/08/22 16:59	1
Trichloroethene	1.0	U *	1.0	0.44	ug/L			03/08/22 16:59	1
Vinyl chloride	1.0	U *	1.0	0.45	ug/L			03/08/22 16:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	79		62 - 137					03/08/22 16:59	1
4-Bromofluorobenzene (Surr)	114		56 - 136					03/08/22 16:59	1
Toluene-d8 (Surr)	81		78 - 122					03/08/22 16:59	1
Dibromofluoromethane (Surr)	95		73 - 120					03/08/22 16:59	1