

ANALYTICAL REPORT

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Laboratory Job ID: 240-119751-1
Client Project/Site: Ford LTP Livonia MI - E203728

For:
ARCADIS U.S., Inc.
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Attn: Kristoffer Hinskey



Authorized for release by:
10/15/2019 2:55:15 PM

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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 Livonia MI - E203728

Job ID: 240-119751-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
F1	MS and/or MSD Recovery is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
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
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

Job ID: 240-119751-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Livonia MI - E203728

Report Number: 240-119751-1

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

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

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

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

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

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

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

RECEIPT

The samples were received on 10/1/2019 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 2.4° C, 3.1° C, 3.4° C and 5.3° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples MW-57_092719 (240-119751-1), MW-64_092719 (240-119751-2), MW-71_092719 (240-119751-3), MW-62_092719 (240-119751-4), MW-40_092819 (240-119751-5), MW-31_092819 (240-119751-6), MW-30_092819 (240-119751-7), MW-41_092819 (240-119751-8) and TRIP BLANK (2) (240-119751-9) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 10/09/2019, 10/10/2019 and 10/11/2019.

1,1,2,2-Tetrachloroethane, 1,1,2-Trichloroethane and 1,2-Dibromoethane failed the recovery criteria low for LCS 240-404848/4. Cyclohexane and Diethyl ether failed the recovery criteria high.

1,1,2,2-Tetrachloroethane, 1,1,2-Trichloroethane and 1,2-Dibromoethane failed the recovery criteria low for LCS 240-405078/4. Cyclohexane failed the recovery criteria high.

1,1,2,2-Tetrachloroethane, 1,1,2-Trichloroethane, 1,2-Dibromoethane, Bromodichloromethane and trans-1,3-Dichloropropene failed the recovery criteria low for LCS 240-405286/4. Cyclohexane failed the recovery criteria high. Refer to the QC report for details.

1,1,2,2-Tetrachloroethane, 1,1,2-Trichloroethane and 1,2-Dibromoethane failed the recovery criteria low for the MS and MSD of sample

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

Job ID: 240-119751-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

MW-30-MS_092819 (240-119751-7) in batch 240-404848. Cyclohexane and Diethyl ether failed the recovery criteria high.

There was an MS/MSD analyzed in batch 240-404847 but could not be reported because the associated sample needed reanalyzed in a different batch: TRIP BLANK (2) (240-119751-9).

The laboratory control sample (LCS) for analytical batch 240-404848 recovered outside control limits for the following analyte: Ethylene Dibromide. Ethylene Dibromide has been identified as a poor performing analyte when analyzed using this method; therefore, re-extraction/re-analysis was not performed.

The laboratory control sample (LCS) analyzed in batch 240-404848 was below the recovery control criteria for the following analytes: 1,1,2-Trichloroethane and 1,1,2,2-Tetrachloroethane. This variance only affects results measured above the reporting limit. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. This demonstrates the analyte reporting limit is valid, and it is acceptable to report ND results (non-detects). The samples associated with the LCS were non-detects for the affected analytes; therefore, the results were reported. The following samples are impacted: MW-30_092819 (240-119751-7) and (LCS 240-404848/4).

The laboratory control sample (LCS) for analytical batch 240-404848 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: MW-30_092819 (240-119751-7) and (LCS 240-404848/4).

The laboratory control sample (LCS) for analytical batch 240-405078 recovered outside control limits for the following analyte: Cyclohexane. This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data has been reported: MW-57_092719 (240-119751-1), MW-64_092719 (240-119751-2), MW-71_092719 (240-119751-3), MW-62_092719 (240-119751-4) and (LCS 240-405078/4).

The laboratory control sample (LCS) for analytical batch 240-405078 recovered outside control limits for the following analyte: Ethylene Dibromide. Ethylene Dibromide has been identified as a poor performing analyte when analyzed using this method; therefore, re-extraction/re-analysis was not performed: MW-57_092719 (240-119751-1), MW-64_092719 (240-119751-2), MW-71_092719 (240-119751-3), MW-62_092719 (240-119751-4) and (LCS 240-405078/4).

The laboratory control sample (LCS) analyzed in batch 240-405078 was below the recovery control criteria for the following analytes: 1,1,2,2-Tetrachloroethane and 1,1,2-Trichloroethane. This variance only affects results measured above the reporting limit. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. This demonstrates the analyte reporting limit is valid, and it is acceptable to report ND results (non-detects). The samples associated with the LCS were non-detects for the affected analytes; therefore, the results were reported. The following samples are impacted: MW-57_092719 (240-119751-1), MW-64_092719 (240-119751-2), MW-71_092719 (240-119751-3), MW-62_092719 (240-119751-4) and (LCS 240-405078/4).

The continuing calibration verification (CCV) for analytical batch 240-405286 exceeded control criteria for 1,2-Dichloropropane. The samples associated with this CCV were non-detects for the affected analytes. In accordance with the laboratory SOP, a low level CCV at the reporting limit (labeled as an MRL) was analyzed and the affected compounds were detected; therefore the data has been reported. No further corrective action was required: MW-40_092819 (240-119751-5), MW-31_092819 (240-119751-6) and (CCVIS 240-405286/2).

The laboratory control sample (LCS) for analytical batch 240-405286 recovered outside control limits for the following analyte: Cyclohexane. This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data has been reported: MW-40_092819 (240-119751-5), MW-31_092819 (240-119751-6) and (LCS 240-405286/4).

The laboratory control sample (LCS) analyzed in batch 240-405286 was below the recovery control criteria for multiple analytes. This variance only affects results measured above the reporting limit. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. This demonstrates the analyte reporting limit is valid, and it is acceptable to report ND results (non-detects). The samples associated with the LCS were non-detects for the affected analytes; therefore, the results were reported. The following samples are impacted: MW-40_092819 (240-119751-5), MW-31_092819 (240-119751-6) and (LCS 240-405286/4).

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

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

Job ID: 240-119751-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Samples MW-57_092719 (240-119751-1), MW-64_092719 (240-119751-2), MW-71_092719 (240-119751-3), MW-62_092719 (240-119751-4), MW-40_092819 (240-119751-5), MW-31_092819 (240-119751-6), MW-30_092819 (240-119751-7) and MW-41_092819 (240-119751-8) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 10/04/2019.

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



Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

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



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-119751-1	MW-57_092719	Water	09/27/19 09:59	10/01/19 09:30	
240-119751-2	MW-64_092719	Water	09/27/19 11:45	10/01/19 09:30	
240-119751-3	MW-71_092719	Water	09/27/19 13:18	10/01/19 09:30	
240-119751-4	MW-62_092719	Water	09/27/19 16:03	10/01/19 09:30	
240-119751-5	MW-40_092819	Water	09/28/19 09:30	10/01/19 09:30	
240-119751-6	MW-31_092819	Water	09/28/19 11:15	10/01/19 09:30	
240-119751-7	MW-30_092819	Water	09/28/19 12:45	10/01/19 09:30	
240-119751-8	MW-41_092819	Water	09/28/19 14:30	10/01/19 09:30	
240-119751-9	TRIP BLANK (2)	Water	09/27/19 00:00	10/01/19 09:30	



Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

Client Sample ID: MW-57_092719

Lab Sample ID: 240-119751-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	3.3		2.0	0.86	ug/L	1		8260B SIM	Total/NA
Vinyl chloride	0.90	J	1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: MW-64_092719

Lab Sample ID: 240-119751-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	9.9		1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: MW-71_092719

Lab Sample ID: 240-119751-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.3	J	2.0	0.86	ug/L	1		8260B SIM	Total/NA
cis-1,2-Dichloroethene	0.41	J	1.0	0.16	ug/L	1		8260B	Total/NA
Vinyl chloride	0.41	J	1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: MW-62_092719

Lab Sample ID: 240-119751-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	3.1		2.0	0.86	ug/L	1		8260B SIM	Total/NA
Vinyl chloride	0.65	J	1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: MW-40_092819

Lab Sample ID: 240-119751-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	2.8		1.0	0.16	ug/L	1		8260B	Total/NA
trans-1,2-Dichloroethene	0.43	J	1.0	0.19	ug/L	1		8260B	Total/NA
Vinyl chloride	0.90	J	1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: MW-31_092819

Lab Sample ID: 240-119751-6

No Detections.

Client Sample ID: MW-30_092819

Lab Sample ID: 240-119751-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	14		2.0	0.86	ug/L	1		8260B SIM	Total/NA

Client Sample ID: MW-41_092819

Lab Sample ID: 240-119751-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.2	J	2.0	0.86	ug/L	1		8260B SIM	Total/NA
cis-1,2-Dichloroethene	2.0		1.0	0.16	ug/L	1		8260B	Total/NA
trans-1,2-Dichloroethene	0.24	J	1.0	0.19	ug/L	1		8260B	Total/NA
Vinyl chloride	1.5		1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: TRIP BLANK (2)

Lab Sample ID: 240-119751-9

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

Client Sample ID: MW-57_092719

Lab Sample ID: 240-119751-1

Date Collected: 09/27/19 09:59

Matrix: Water

Date Received: 10/01/19 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	3.3		2.0	0.86	ug/L			10/04/19 19:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		63 - 125					10/04/19 19:37	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	0.19	ug/L			10/10/19 15:56	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/10/19 15:56	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/10/19 15:56	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/10/19 15:56	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/10/19 15:56	1
Vinyl chloride	0.90	J	1.0	0.20	ug/L			10/10/19 15:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	70		59 - 120					10/10/19 15:56	1
Dibromofluoromethane (Surr)	98		75 - 128					10/10/19 15:56	1
1,2-Dichloroethane-d4 (Surr)	99		70 - 121					10/10/19 15:56	1
Toluene-d8 (Surr)	95		70 - 123					10/10/19 15:56	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

Client Sample ID: MW-64_092719

Lab Sample ID: 240-119751-2

Date Collected: 09/27/19 11:45

Matrix: Water

Date Received: 10/01/19 09:30

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			10/04/19 20:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		63 - 125		10/04/19 20:02	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	0.19	ug/L			10/10/19 16:21	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/10/19 16:21	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/10/19 16:21	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/10/19 16:21	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/10/19 16:21	1
Vinyl chloride	9.9		1.0	0.20	ug/L			10/10/19 16:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	74		59 - 120		10/10/19 16:21	1
Dibromofluoromethane (Surr)	107		75 - 128		10/10/19 16:21	1
1,2-Dichloroethane-d4 (Surr)	112		70 - 121		10/10/19 16:21	1
Toluene-d8 (Surr)	95		70 - 123		10/10/19 16:21	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

Client Sample ID: MW-71_092719

Lab Sample ID: 240-119751-3

Date Collected: 09/27/19 13:18

Matrix: Water

Date Received: 10/01/19 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.3	J	2.0	0.86	ug/L			10/04/19 20:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		63 - 125					10/04/19 20:27	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	0.19	ug/L			10/10/19 16:47	1
cis-1,2-Dichloroethene	0.41	J	1.0	0.16	ug/L			10/10/19 16:47	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/10/19 16:47	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/10/19 16:47	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/10/19 16:47	1
Vinyl chloride	0.41	J	1.0	0.20	ug/L			10/10/19 16:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	78		59 - 120					10/10/19 16:47	1
Dibromofluoromethane (Surr)	101		75 - 128					10/10/19 16:47	1
1,2-Dichloroethane-d4 (Surr)	99		70 - 121					10/10/19 16:47	1
Toluene-d8 (Surr)	96		70 - 123					10/10/19 16:47	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

Client Sample ID: MW-62_092719

Lab Sample ID: 240-119751-4

Date Collected: 09/27/19 16:03

Matrix: Water

Date Received: 10/01/19 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	3.1		2.0	0.86	ug/L			10/04/19 20:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		63 - 125					10/04/19 20:51	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	0.19	ug/L			10/10/19 17:14	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/10/19 17:14	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/10/19 17:14	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/10/19 17:14	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/10/19 17:14	1
Vinyl chloride	0.65	J	1.0	0.20	ug/L			10/10/19 17:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	74		59 - 120					10/10/19 17:14	1
Dibromofluoromethane (Surr)	106		75 - 128					10/10/19 17:14	1
1,2-Dichloroethane-d4 (Surr)	101		70 - 121					10/10/19 17:14	1
Toluene-d8 (Surr)	96		70 - 123					10/10/19 17:14	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

Client Sample ID: MW-40_092819

Lab Sample ID: 240-119751-5

Date Collected: 09/28/19 09:30

Matrix: Water

Date Received: 10/01/19 09:30

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			10/04/19 21:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		63 - 125		10/04/19 21:16	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	0.19	ug/L			10/11/19 16:36	1
cis-1,2-Dichloroethene	2.8		1.0	0.16	ug/L			10/11/19 16:36	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/11/19 16:36	1
trans-1,2-Dichloroethene	0.43	J	1.0	0.19	ug/L			10/11/19 16:36	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/11/19 16:36	1
Vinyl chloride	0.90	J	1.0	0.20	ug/L			10/11/19 16:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	74		59 - 120		10/11/19 16:36	1
Dibromofluoromethane (Surr)	96		75 - 128		10/11/19 16:36	1
1,2-Dichloroethane-d4 (Surr)	97		70 - 121		10/11/19 16:36	1
Toluene-d8 (Surr)	96		70 - 123		10/11/19 16:36	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

Client Sample ID: MW-31_092819

Lab Sample ID: 240-119751-6

Date Collected: 09/28/19 11:15

Matrix: Water

Date Received: 10/01/19 09:30

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			10/04/19 21:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		63 - 125		10/04/19 21:41	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	0.19	ug/L			10/11/19 17:08	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/11/19 17:08	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/11/19 17:08	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/11/19 17:08	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/11/19 17:08	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/11/19 17:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	70		59 - 120		10/11/19 17:08	1
Dibromofluoromethane (Surr)	108		75 - 128		10/11/19 17:08	1
1,2-Dichloroethane-d4 (Surr)	103		70 - 121		10/11/19 17:08	1
Toluene-d8 (Surr)	94		70 - 123		10/11/19 17:08	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

Client Sample ID: MW-30_092819

Lab Sample ID: 240-119751-7

Date Collected: 09/28/19 12:45

Matrix: Water

Date Received: 10/01/19 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	14		2.0	0.86	ug/L			10/04/19 17:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		63 - 125		10/04/19 17:08	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	0.19	ug/L			10/09/19 22:18	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/09/19 22:18	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/09/19 22:18	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/09/19 22:18	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/09/19 22:18	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/09/19 22:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	81		59 - 120		10/09/19 22:18	1
Dibromofluoromethane (Surr)	110		75 - 128		10/09/19 22:18	1
1,2-Dichloroethane-d4 (Surr)	98		70 - 121		10/09/19 22:18	1
Toluene-d8 (Surr)	95		70 - 123		10/09/19 22:18	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

Client Sample ID: MW-41_092819

Lab Sample ID: 240-119751-8

Date Collected: 09/28/19 14:30

Matrix: Water

Date Received: 10/01/19 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.2	J	2.0	0.86	ug/L			10/04/19 18:22	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		63 - 125					10/04/19 18:22	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	0.19	ug/L			10/10/19 18:50	1
cis-1,2-Dichloroethene	2.0		1.0	0.16	ug/L			10/10/19 18:50	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/10/19 18:50	1
trans-1,2-Dichloroethene	0.24	J	1.0	0.19	ug/L			10/10/19 18:50	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/10/19 18:50	1
Vinyl chloride	1.5		1.0	0.20	ug/L			10/10/19 18:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	75		59 - 120					10/10/19 18:50	1
Dibromofluoromethane (Surr)	117		75 - 128					10/10/19 18:50	1
1,2-Dichloroethane-d4 (Surr)	97		70 - 121					10/10/19 18:50	1
Toluene-d8 (Surr)	91		70 - 123					10/10/19 18:50	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

Client Sample ID: TRIP BLANK (2)

Lab Sample ID: 240-119751-9

Date Collected: 09/27/19 00:00

Matrix: Water

Date Received: 10/01/19 09:30

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	0.19	ug/L			10/09/19 20:30	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/09/19 20:30	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/09/19 20:30	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/09/19 20:30	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/09/19 20:30	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/09/19 20:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	70		59 - 120		10/09/19 20:30	1
Dibromofluoromethane (Surr)	117		75 - 128		10/09/19 20:30	1
1,2-Dichloroethane-d4 (Surr)	96		70 - 121		10/09/19 20:30	1
Toluene-d8 (Surr)	88		70 - 123		10/09/19 20:30	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		BFB (59-120)	DBFM (75-128)	DCA (70-121)	TOL (70-123)
240-119751-1	MW-57_092719	70	98	99	95
240-119751-2	MW-64_092719	74	107	112	95
240-119751-3	MW-71_092719	78	101	99	96
240-119751-4	MW-62_092719	74	106	101	96
240-119751-5	MW-40_092819	74	96	97	96
240-119751-6	MW-31_092819	70	108	103	94
240-119751-7	MW-30_092819	81	110	98	95
240-119751-7 MS	MW-30-MS_092819	77	103	99	90
240-119751-7 MSD	MW-30-MSD_092819	71	102	102	94
240-119751-8	MW-41_092819	75	117	97	91
240-119751-8 MS	MW-41-MS_092819	94	106	86	97
240-119751-8 MSD	MW-41-MSD_092819	97	101	83	98
240-119751-9	TRIP BLANK (2)	70	117	96	88
240-119753-D-2 MSD	Matrix Spike Duplicate	78	106	99	96
240-119753-H-2 MS	Matrix Spike	75	109	97	98
240-119753-H-3 MS	Matrix Spike	75	106	97	100
240-119753-I-3 MSD	Matrix Spike Duplicate	73	101	101	95
LCS 240-404847/4	Lab Control Sample	95	99	82	99
LCS 240-404848/4	Lab Control Sample	70	105	103	93
LCS 240-405077/4	Lab Control Sample	96	98	84	97
LCS 240-405078/4	Lab Control Sample	79	102	94	98
LCS 240-405286/4	Lab Control Sample	77	102	102	98
MB 240-404847/7	Method Blank	77	113	93	93
MB 240-404848/7	Method Blank	74	109	100	94
MB 240-405077/7	Method Blank	74	116	95	91
MB 240-405078/7	Method Blank	74	101	99	94
MB 240-405286/7	Method Blank	71	106	99	92

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
 DBFM = Dibromofluoromethane (Surr)
 DCA = 1,2-Dichloroethane-d4 (Surr)
 TOL = Toluene-d8 (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
		(63-125)
240-119751-1	MW-57_092719	103
240-119751-2	MW-64_092719	101
240-119751-3	MW-71_092719	102
240-119751-4	MW-62_092719	101
240-119751-5	MW-40_092819	104
240-119751-6	MW-31_092819	103
240-119751-7	MW-30_092819	100
240-119751-7 MS	MW-30-MS_092819	102
240-119751-7 MSD	MW-30-MSD_092819	102
240-119751-8	MW-41_092819	103

Eurofins TestAmerica, Canton

Surrogate Summary

Client: ARCADIS U.S., Inc.

Job ID: 240-119751-1

Project/Site: Ford LTP Livonia MI - E203728

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (63-125)
240-119751-8 MS	MW-41-MS_092819	105
240-119751-8 MSD	MW-41-MSD_092819	103
LCS 240-404131/4	Lab Control Sample	98
MB 240-404131/5	Method Blank	97

Surrogate Legend

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

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

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

Lab Sample ID: MB 240-404847/7
Matrix: Water
Analysis Batch: 404847

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	0.19	ug/L			10/09/19 13:44	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/09/19 13:44	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/09/19 13:44	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/09/19 13:44	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/09/19 13:44	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/09/19 13:44	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	77		59 - 120		10/09/19 13:44	1
Dibromofluoromethane (Surr)	113		75 - 128		10/09/19 13:44	1
1,2-Dichloroethane-d4 (Surr)	93		70 - 121		10/09/19 13:44	1
Toluene-d8 (Surr)	93		70 - 123		10/09/19 13:44	1

Lab Sample ID: LCS 240-404847/4
Matrix: Water
Analysis Batch: 404847

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	10.0	10.1		ug/L		101	69 - 134
1,1,2,2-Tetrachloroethane	10.0	9.00		ug/L		90	65 - 139
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	12.0		ug/L		120	50 - 156
1,1,2-Trichloroethane	10.0	10.2		ug/L		102	78 - 133
1,1-Dichloroethane	10.0	9.57		ug/L		96	75 - 133
1,1-Dichloroethene	10.0	10.4		ug/L		104	65 - 139
1,2,4-Trichlorobenzene	10.0	8.91		ug/L		89	42 - 133
1,2,4-Trimethylbenzene	10.0	8.53		ug/L		85	74 - 120
1,2-Dibromo-3-Chloropropane	10.0	9.40		ug/L		94	46 - 132
1,2-Dibromoethane	10.0	10.1		ug/L		101	77 - 123
1,2-Dichlorobenzene	10.0	9.56		ug/L		96	78 - 120
1,2-Dichloroethane	10.0	8.92		ug/L		89	71 - 135
1,2-Dichloropropane	10.0	9.77		ug/L		98	78 - 133
1,3,5-Trimethylbenzene	10.0	8.68		ug/L		87	75 - 121
1,3-Dichlorobenzene	10.0	9.58		ug/L		96	78 - 120
1,4-Dichlorobenzene	10.0	9.28		ug/L		93	78 - 120
2-Butanone (MEK)	20.0	19.7		ug/L		99	39 - 163
2-Hexanone	20.0	18.1		ug/L		91	43 - 148
4-Methyl-2-pentanone (MIBK)	20.0	20.1		ug/L		101	49 - 143
Acetone	20.0	17.0		ug/L		85	21 - 162
Benzene	10.0	9.99		ug/L		100	80 - 123
Bromodichloromethane	10.0	9.95		ug/L		100	77 - 125
Bromoform	10.0	10.9		ug/L		109	49 - 141
Bromomethane	10.0	6.13		ug/L		61	41 - 175
Carbon disulfide	10.0	10.5		ug/L		105	60 - 138
Carbon tetrachloride	10.0	11.3		ug/L		113	63 - 140
Chlorobenzene	10.0	10.3		ug/L		103	80 - 121
Chloroethane	10.0	5.60		ug/L		56	33 - 173
Chloroform	10.0	9.65		ug/L		97	79 - 127

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

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

Lab Sample ID: LCS 240-404847/4
Matrix: Water
Analysis Batch: 404847

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloromethane	10.0	6.43		ug/L		64	54 - 143
cis-1,2-Dichloroethene	10.0	10.8		ug/L		108	76 - 128
cis-1,3-Dichloropropene	10.0	10.3		ug/L		103	64 - 132
Cyclohexane	10.0	9.82		ug/L		98	58 - 145
Dibromochloromethane	10.0	10.9		ug/L		109	70 - 132
Dichlorodifluoromethane	10.0	6.18		ug/L		62	29 - 148
Diethyl ether	10.0	9.55		ug/L		95	70 - 146
Ethylbenzene	10.0	11.0		ug/L		110	80 - 120
Isopropylbenzene	10.0	10.3		ug/L		103	74 - 120
Methyl acetate	20.0	17.7		ug/L		88	52 - 145
Methyl tert-butyl ether	10.0	9.61		ug/L		96	51 - 133
Methylcyclohexane	10.0	10.3		ug/L		103	60 - 125
Methylene Chloride	10.0	10.7		ug/L		107	70 - 134
Styrene	10.0	10.8		ug/L		108	79 - 120
Tetrachloroethene	10.0	10.4		ug/L		104	74 - 130
Toluene	10.0	10.2		ug/L		102	78 - 129
trans-1,2-Dichloroethene	10.0	11.0		ug/L		110	78 - 133
trans-1,3-Dichloropropene	10.0	8.99		ug/L		90	55 - 128
Trichloroethene	10.0	10.9		ug/L		109	76 - 125
Trichlorofluoromethane	10.0	8.32		ug/L		83	51 - 164
Vinyl chloride	10.0	6.32		ug/L		63	58 - 143
Xylenes, Total	20.0	21.4		ug/L		107	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	95		59 - 120
Dibromofluoromethane (Surr)	99		75 - 128
1,2-Dichloroethane-d4 (Surr)	82		70 - 121
Toluene-d8 (Surr)	99		70 - 123

Lab Sample ID: MB 240-404848/7
Matrix: Water
Analysis Batch: 404848

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	0.19	ug/L			10/09/19 15:05	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/09/19 15:05	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/09/19 15:05	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/09/19 15:05	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/09/19 15:05	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/09/19 15:05	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	74		59 - 120		10/09/19 15:05	1
Dibromofluoromethane (Surr)	109		75 - 128		10/09/19 15:05	1
1,2-Dichloroethane-d4 (Surr)	100		70 - 121		10/09/19 15:05	1
Toluene-d8 (Surr)	94		70 - 123		10/09/19 15:05	1

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

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

Lab Sample ID: LCS 240-404848/4

Matrix: Water

Analysis Batch: 404848

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	10.0	10.3		ug/L		103	69 - 134
1,1,1,2-Tetrachloroethane	10.0	5.43	*	ug/L		54	65 - 139
1,1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	13.2		ug/L		132	50 - 156
1,1,2-Trichloroethane	10.0	6.81	*	ug/L		68	78 - 133
1,1-Dichloroethane	10.0	12.9		ug/L		129	75 - 133
1,1-Dichloroethene	10.0	10.0		ug/L		100	65 - 139
1,2,4-Trichlorobenzene	10.0	9.09		ug/L		91	42 - 133
1,2,4-Trimethylbenzene	10.0	8.66		ug/L		87	74 - 120
1,2-Dibromo-3-Chloropropane	10.0	5.61		ug/L		56	46 - 132
1,2-Dibromoethane	10.0	6.96	*	ug/L		70	77 - 123
1,2-Dichlorobenzene	10.0	9.43		ug/L		94	78 - 120
1,2-Dichloroethane	10.0	12.0		ug/L		120	71 - 135
1,2-Dichloropropane	10.0	13.3		ug/L		133	78 - 133
1,3,5-Trimethylbenzene	10.0	8.57		ug/L		86	75 - 121
1,3-Dichlorobenzene	10.0	9.48		ug/L		95	78 - 120
1,4-Dichlorobenzene	10.0	9.08		ug/L		91	78 - 120
2-Butanone (MEK)	20.0	17.5		ug/L		88	39 - 163
2-Hexanone	20.0	14.9		ug/L		74	43 - 148
4-Methyl-2-pentanone (MIBK)	20.0	18.1		ug/L		90	49 - 143
Acetone	20.0	22.0		ug/L		110	21 - 162
Benzene	10.0	9.88		ug/L		99	80 - 123
Bromodichloromethane	10.0	8.07		ug/L		81	77 - 125
Bromoform	10.0	6.64		ug/L		66	49 - 141
Bromomethane	10.0	9.49		ug/L		95	41 - 175
Carbon disulfide	10.0	9.26		ug/L		93	60 - 138
Carbon tetrachloride	10.0	11.7		ug/L		117	63 - 140
Chlorobenzene	10.0	9.12		ug/L		91	80 - 121
Chloroethane	10.0	11.7		ug/L		117	33 - 173
Chloroform	10.0	9.27		ug/L		93	79 - 127
Chloromethane	10.0	12.2		ug/L		122	54 - 143
cis-1,2-Dichloroethene	10.0	10.1		ug/L		101	76 - 128
cis-1,3-Dichloropropene	10.0	8.50		ug/L		85	64 - 132
Cyclohexane	10.0	16.0	*	ug/L		160	58 - 145
Dibromochloromethane	10.0	7.80		ug/L		78	70 - 132
Dichlorodifluoromethane	10.0	6.78		ug/L		68	29 - 148
Diethyl ether	10.0	15.0	*	ug/L		150	70 - 146
Ethylbenzene	10.0	9.10		ug/L		91	80 - 120
Isopropylbenzene	10.0	9.36		ug/L		94	74 - 120
Methyl acetate	20.0	21.6		ug/L		108	52 - 145
Methyl tert-butyl ether	10.0	7.24		ug/L		72	51 - 133
Methylcyclohexane	10.0	10.9		ug/L		109	60 - 125
Methylene Chloride	10.0	7.76		ug/L		78	70 - 134
Styrene	10.0	8.45		ug/L		84	79 - 120
Tetrachloroethene	10.0	12.6		ug/L		126	74 - 130
Toluene	10.0	8.94		ug/L		89	78 - 129
trans-1,2-Dichloroethene	10.0	10.1		ug/L		101	78 - 133
trans-1,3-Dichloropropene	10.0	6.26		ug/L		63	55 - 128
Trichloroethene	10.0	11.3		ug/L		113	76 - 125

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

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

Lab Sample ID: LCS 240-404848/4
Matrix: Water
Analysis Batch: 404848

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Trichlorofluoromethane	10.0	10.6		ug/L		106	51 - 164
Vinyl chloride	10.0	12.7		ug/L		127	58 - 143
Xylenes, Total	20.0	18.4		ug/L		92	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	70		59 - 120
Dibromofluoromethane (Surr)	105		75 - 128
1,2-Dichloroethane-d4 (Surr)	103		70 - 121
Toluene-d8 (Surr)	93		70 - 123

Lab Sample ID: 240-119751-7 MS
Matrix: Water
Analysis Batch: 404848

Client Sample ID: MW-30-MS_092819
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	1.0	U	10.0	9.15		ug/L		92	51 - 138
1,1,1,2-Tetrachloroethane	1.0	U F1 *	10.0	5.15	F1	ug/L		52	60 - 137
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	10.0	12.0		ug/L		120	31 - 156
1,1,2-Trichloroethane	1.0	U F1 *	10.0	6.24	F1	ug/L		62	76 - 132
1,1-Dichloroethane	1.0	U	10.0	12.4		ug/L		124	63 - 136
1,1-Dichloroethene	1.0	U	10.0	9.84		ug/L		98	53 - 140
1,2,4-Trichlorobenzene	1.0	U	10.0	7.31		ug/L		73	30 - 126
1,2,4-Trimethylbenzene	1.0	U	10.0	7.77		ug/L		78	62 - 120
1,2-Dibromo-3-Chloropropane	1.0	U	10.0	5.55		ug/L		56	38 - 124
1,2-Dibromoethane	1.0	U F1 *	10.0	6.24	F1	ug/L		62	71 - 123
1,2-Dichlorobenzene	1.0	U	10.0	8.45		ug/L		85	64 - 120
1,2-Dichloroethane	1.0	U	10.0	11.3		ug/L		113	65 - 135
1,2-Dichloropropane	1.0	U	10.0	12.4		ug/L		124	70 - 132
1,3,5-Trimethylbenzene	1.0	U	10.0	7.51		ug/L		75	64 - 120
1,3-Dichlorobenzene	1.0	U	10.0	8.19		ug/L		82	62 - 120
1,4-Dichlorobenzene	1.0	U	10.0	8.78		ug/L		88	63 - 120
2-Butanone (MEK)	10	U	20.0	16.5		ug/L		83	37 - 156
2-Hexanone	10	U	20.0	13.5		ug/L		68	42 - 150
4-Methyl-2-pentanone (MIBK)	10	U	20.0	17.5		ug/L		88	44 - 143
Acetone	10	U	20.0	20.0		ug/L		100	10 - 168
Benzene	1.0	U	10.0	9.34		ug/L		93	71 - 122
Bromodichloromethane	1.0	U	10.0	7.98		ug/L		80	64 - 125
Bromoform	1.0	U	10.0	5.75		ug/L		57	44 - 129
Bromomethane	1.0	U	10.0	7.21		ug/L		72	19 - 187
Carbon disulfide	5.0	U	10.0	9.28		ug/L		93	43 - 144
Carbon tetrachloride	1.0	U	10.0	10.3		ug/L		103	41 - 143
Chlorobenzene	1.0	U	10.0	7.88		ug/L		79	70 - 123
Chloroethane	1.0	U	10.0	9.40		ug/L		94	11 - 189
Chloroform	1.0	U	10.0	8.66		ug/L		87	68 - 130
Chloromethane	1.0	U	10.0	9.01		ug/L		90	31 - 154
cis-1,2-Dichloroethene	1.0	U	10.0	9.64		ug/L		96	64 - 130
cis-1,3-Dichloropropene	1.0	U	10.0	7.05		ug/L		71	48 - 127
Cyclohexane	1.0	U F1 *	10.0	14.2	F1	ug/L		142	42 - 135

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

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

Lab Sample ID: 240-119751-7 MS

Matrix: Water

Analysis Batch: 404848

Client Sample ID: MW-30-MS_092819

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.
	Result	Qualifier		Result	Qualifier				
Dibromochloromethane	1.0	U	10.0	6.97		ug/L		70	60 - 129
Dichlorodifluoromethane	1.0	U	10.0	6.62		ug/L		66	28 - 136
Diethyl ether	1.0	U F1 *	10.0	14.1	F1	ug/L		141	65 - 134
Ethylbenzene	1.0	U	10.0	8.01		ug/L		80	66 - 120
Isopropylbenzene	1.0	U	10.0	8.24		ug/L		82	59 - 120
Methyl acetate	10	U	20.0	17.6		ug/L		88	41 - 142
Methyl tert-butyl ether	1.0	U	10.0	7.03		ug/L		70	41 - 136
Methylcyclohexane	1.0	U	10.0	9.73		ug/L		97	37 - 123
Methylene Chloride	5.0	U	10.0	8.94		ug/L		89	61 - 130
Styrene	1.0	U	10.0	7.42		ug/L		74	68 - 120
Tetrachloroethene	1.0	U	10.0	10.6		ug/L		106	51 - 136
Toluene	1.0	U	10.0	7.87		ug/L		79	62 - 132
trans-1,2-Dichloroethene	1.0	U	10.0	9.12		ug/L		91	68 - 133
trans-1,3-Dichloropropene	1.0	U	10.0	5.10		ug/L		51	40 - 125
Trichloroethene	1.0	U	10.0	10.8		ug/L		108	55 - 131
Trichlorofluoromethane	1.0	U	10.0	9.53		ug/L		95	37 - 174
Vinyl chloride	1.0	U	10.0	12.1		ug/L		121	43 - 154
Xylenes, Total	2.0	U	20.0	16.1		ug/L		81	67 - 120

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	77		59 - 120
Dibromofluoromethane (Surr)	103		75 - 128
1,2-Dichloroethane-d4 (Surr)	99		70 - 121
Toluene-d8 (Surr)	90		70 - 123

Lab Sample ID: 240-119751-7 MSD

Matrix: Water

Analysis Batch: 404848

Client Sample ID: MW-30-MSD_092819

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier		Result	Qualifier						
1,1,1-Trichloroethane	1.0	U	10.0	9.38		ug/L		94	51 - 138	2	27
1,1,1,2-Tetrachloroethane	1.0	U F1 *	10.0	5.78	F1	ug/L		58	60 - 137	12	31
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	10.0	10.6		ug/L		106	31 - 156	13	35
1,1,2-Trichloroethane	1.0	U F1 *	10.0	6.22	F1	ug/L		62	76 - 132	0	25
1,1-Dichloroethane	1.0	U	10.0	12.1		ug/L		121	63 - 136	3	23
1,1-Dichloroethene	1.0	U	10.0	9.12		ug/L		91	53 - 140	8	35
1,2,4-Trichlorobenzene	1.0	U	10.0	8.36		ug/L		84	30 - 126	13	35
1,2,4-Trimethylbenzene	1.0	U	10.0	7.43		ug/L		74	62 - 120	4	27
1,2-Dibromo-3-Chloropropane	1.0	U	10.0	6.19		ug/L		62	38 - 124	11	35
1,2-Dibromoethane	1.0	U F1 *	10.0	6.20	F1	ug/L		62	71 - 123	1	27
1,2-Dichlorobenzene	1.0	U	10.0	8.78		ug/L		88	64 - 120	4	30
1,2-Dichloroethane	1.0	U	10.0	10.3		ug/L		103	65 - 135	10	24
1,2-Dichloropropane	1.0	U	10.0	11.2		ug/L		112	70 - 132	10	26
1,3,5-Trimethylbenzene	1.0	U	10.0	7.55		ug/L		76	64 - 120	1	23
1,3-Dichlorobenzene	1.0	U	10.0	8.77		ug/L		88	62 - 120	7	31
1,4-Dichlorobenzene	1.0	U	10.0	8.88		ug/L		89	63 - 120	1	28
2-Butanone (MEK)	10	U	20.0	16.5		ug/L		83	37 - 156	0	35
2-Hexanone	10	U	20.0	14.1		ug/L		70	42 - 150	4	35

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

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

Lab Sample ID: 240-119751-7 MSD
Matrix: Water
Analysis Batch: 404848

Client Sample ID: MW-30-MSD_092819
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4-Methyl-2-pentanone (MIBK)	10	U	20.0	17.0		ug/L		85	44 - 143	3	35
Acetone	10	U	20.0	20.9		ug/L		105	10 - 168	4	35
Benzene	1.0	U	10.0	8.95		ug/L		89	71 - 122	4	22
Bromodichloromethane	1.0	U	10.0	7.01		ug/L		70	64 - 125	13	27
Bromoform	1.0	U	10.0	5.78		ug/L		58	44 - 129	1	28
Bromomethane	1.0	U	10.0	6.93		ug/L		69	19 - 187	4	35
Carbon disulfide	5.0	U	10.0	9.00		ug/L		90	43 - 144	3	33
Carbon tetrachloride	1.0	U	10.0	9.50		ug/L		95	41 - 143	9	30
Chlorobenzene	1.0	U	10.0	7.75		ug/L		77	70 - 123	2	23
Chloroethane	1.0	U	10.0	9.84		ug/L		98	11 - 189	5	35
Chloroform	1.0	U	10.0	8.11		ug/L		81	68 - 130	7	23
Chloromethane	1.0	U	10.0	8.42		ug/L		84	31 - 154	7	35
cis-1,2-Dichloroethene	1.0	U	10.0	9.47		ug/L		95	64 - 130	2	21
cis-1,3-Dichloropropene	1.0	U	10.0	7.07		ug/L		71	48 - 127	0	30
Cyclohexane	1.0	U F1 *	10.0	13.7	F1	ug/L		137	42 - 135	4	35
Dibromochloromethane	1.0	U	10.0	6.48		ug/L		65	60 - 129	7	26
Dichlorodifluoromethane	1.0	U	10.0	6.61		ug/L		66	28 - 136	0	35
Diethyl ether	1.0	U F1 *	10.0	13.6	F1	ug/L		136	65 - 134	4	33
Ethylbenzene	1.0	U	10.0	7.67		ug/L		77	66 - 120	4	24
Isopropylbenzene	1.0	U	10.0	7.62		ug/L		76	59 - 120	8	31
Methyl acetate	10	U	20.0	17.8		ug/L		89	41 - 142	1	35
Methyl tert-butyl ether	1.0	U	10.0	6.62		ug/L		66	41 - 136	6	29
Methylcyclohexane	1.0	U	10.0	8.63		ug/L		86	37 - 123	12	35
Methylene Chloride	5.0	U	10.0	7.48		ug/L		75	61 - 130	18	29
Styrene	1.0	U	10.0	7.23		ug/L		72	68 - 120	3	26
Tetrachloroethene	1.0	U	10.0	10.2		ug/L		102	51 - 136	4	23
Toluene	1.0	U	10.0	7.97		ug/L		80	62 - 132	1	23
trans-1,2-Dichloroethene	1.0	U	10.0	8.49		ug/L		85	68 - 133	7	24
trans-1,3-Dichloropropene	1.0	U	10.0	5.32		ug/L		53	40 - 125	4	27
Trichloroethene	1.0	U	10.0	9.89		ug/L		99	55 - 131	9	23
Trichlorofluoromethane	1.0	U	10.0	9.74		ug/L		97	37 - 174	2	35
Vinyl chloride	1.0	U	10.0	12.3		ug/L		123	43 - 154	2	29
Xylenes, Total	2.0	U	20.0	15.4		ug/L		77	67 - 120	5	25

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	71		59 - 120
Dibromofluoromethane (Surr)	102		75 - 128
1,2-Dichloroethane-d4 (Surr)	102		70 - 121
Toluene-d8 (Surr)	94		70 - 123

Lab Sample ID: MB 240-405077/7
Matrix: Water
Analysis Batch: 405077

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	0.19	ug/L			10/10/19 13:40	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/10/19 13:40	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/10/19 13:40	1

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

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

Lab Sample ID: MB 240-405077/7
Matrix: Water
Analysis Batch: 405077

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/10/19 13:40	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/10/19 13:40	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/10/19 13:40	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	74		59 - 120		10/10/19 13:40	1
Dibromofluoromethane (Surr)	116		75 - 128		10/10/19 13:40	1
1,2-Dichloroethane-d4 (Surr)	95		70 - 121		10/10/19 13:40	1
Toluene-d8 (Surr)	91		70 - 123		10/10/19 13:40	1

Lab Sample ID: LCS 240-405077/4
Matrix: Water
Analysis Batch: 405077

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

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec.
		Result	Qualifier				Limits
1,1,1-Trichloroethane	10.0	9.86		ug/L		99	69 - 134
1,1,2,2-Tetrachloroethane	10.0	9.31		ug/L		93	65 - 139
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	10.9		ug/L		109	50 - 156
1,1,2-Trichloroethane	10.0	10.1		ug/L		101	78 - 133
1,1-Dichloroethane	10.0	8.79		ug/L		88	75 - 133
1,1-Dichloroethene	10.0	9.74		ug/L		97	65 - 139
1,2,4-Trichlorobenzene	10.0	9.15		ug/L		92	42 - 133
1,2,4-Trimethylbenzene	10.0	8.50		ug/L		85	74 - 120
1,2-Dibromo-3-Chloropropane	10.0	10.1		ug/L		101	46 - 132
1,2-Dibromoethane	10.0	10.1		ug/L		101	77 - 123
1,2-Dichlorobenzene	10.0	9.61		ug/L		96	78 - 120
1,2-Dichloroethane	10.0	8.54		ug/L		85	71 - 135
1,2-Dichloropropane	10.0	9.12		ug/L		91	78 - 133
1,3,5-Trimethylbenzene	10.0	8.41		ug/L		84	75 - 121
1,3-Dichlorobenzene	10.0	9.34		ug/L		93	78 - 120
1,4-Dichlorobenzene	10.0	9.09		ug/L		91	78 - 120
2-Butanone (MEK)	20.0	19.6		ug/L		98	39 - 163
2-Hexanone	20.0	19.4		ug/L		97	43 - 148
4-Methyl-2-pentanone (MIBK)	20.0	19.6		ug/L		98	49 - 143
Acetone	20.0	16.5		ug/L		83	21 - 162
Benzene	10.0	9.49		ug/L		95	80 - 123
Bromodichloromethane	10.0	9.49		ug/L		95	77 - 125
Bromoform	10.0	11.4		ug/L		114	49 - 141
Bromomethane	10.0	6.14		ug/L		61	41 - 175
Carbon disulfide	10.0	9.81		ug/L		98	60 - 138
Carbon tetrachloride	10.0	10.7		ug/L		107	63 - 140
Chlorobenzene	10.0	9.84		ug/L		98	80 - 121
Chloroethane	10.0	5.30		ug/L		53	33 - 173
Chloroform	10.0	9.20		ug/L		92	79 - 127
Chloromethane	10.0	5.87		ug/L		59	54 - 143
cis-1,2-Dichloroethene	10.0	10.3		ug/L		103	76 - 128
cis-1,3-Dichloropropene	10.0	9.97		ug/L		100	64 - 132
Cyclohexane	10.0	9.39		ug/L		94	58 - 145

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

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

Lab Sample ID: LCS 240-405077/4

Matrix: Water

Analysis Batch: 405077

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dibromochloromethane	10.0	10.8		ug/L		108	70 - 132
Dichlorodifluoromethane	10.0	6.10		ug/L		61	29 - 148
Diethyl ether	10.0	9.64		ug/L		96	70 - 146
Ethylbenzene	10.0	10.3		ug/L		103	80 - 120
Isopropylbenzene	10.0	9.96		ug/L		100	74 - 120
Methyl acetate	20.0	18.3		ug/L		92	52 - 145
Methyl tert-butyl ether	10.0	9.40		ug/L		94	51 - 133
Methylcyclohexane	10.0	9.66		ug/L		97	60 - 125
Methylene Chloride	10.0	10.1		ug/L		101	70 - 134
Styrene	10.0	10.6		ug/L		106	79 - 120
Tetrachloroethene	10.0	9.91		ug/L		99	74 - 130
Toluene	10.0	9.87		ug/L		99	78 - 129
trans-1,2-Dichloroethene	10.0	10.3		ug/L		103	78 - 133
trans-1,3-Dichloropropene	10.0	8.76		ug/L		88	55 - 128
Trichloroethene	10.0	10.2		ug/L		102	76 - 125
Trichlorofluoromethane	10.0	8.10		ug/L		81	51 - 164
Vinyl chloride	10.0	6.13		ug/L		61	58 - 143
Xylenes, Total	20.0	21.2		ug/L		106	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	96		59 - 120
Dibromofluoromethane (Surr)	98		75 - 128
1,2-Dichloroethane-d4 (Surr)	84		70 - 121
Toluene-d8 (Surr)	97		70 - 123

Lab Sample ID: 240-119751-8 MS

Matrix: Water

Analysis Batch: 405077

Client Sample ID: MW-41-MS_092819

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	1.0	U	10.0	10.1		ug/L		101	51 - 138
1,1,2,2-Tetrachloroethane	1.0	U	10.0	9.52		ug/L		95	60 - 137
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	10.0	11.6		ug/L		116	31 - 156
1,1,2-Trichloroethane	1.0	U	10.0	9.74		ug/L		97	76 - 132
1,1-Dichloroethane	1.0	U	10.0	9.51		ug/L		95	63 - 136
1,1-Dichloroethene	1.0	U	10.0	10.2		ug/L		102	53 - 140
1,2,4-Trichlorobenzene	1.0	U	10.0	8.32		ug/L		83	30 - 126
1,2,4-Trimethylbenzene	1.0	U	10.0	8.35		ug/L		83	62 - 120
1,2-Dibromo-3-Chloropropane	1.0	U	10.0	10.3		ug/L		103	38 - 124
1,2-Dibromoethane	1.0	U	10.0	9.72		ug/L		97	71 - 123
1,2-Dichlorobenzene	1.0	U	10.0	9.57		ug/L		96	64 - 120
1,2-Dichloroethane	1.0	U	10.0	9.16		ug/L		92	65 - 135
1,2-Dichloropropane	1.0	U	10.0	9.60		ug/L		96	70 - 132
1,3,5-Trimethylbenzene	1.0	U	10.0	8.37		ug/L		84	64 - 120
1,3-Dichlorobenzene	1.0	U	10.0	9.45		ug/L		94	62 - 120
1,4-Dichlorobenzene	1.0	U	10.0	9.16		ug/L		92	63 - 120
2-Butanone (MEK)	10	U	20.0	19.0		ug/L		95	37 - 156
2-Hexanone	10	U	20.0	23.1		ug/L		115	42 - 150

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

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

Lab Sample ID: 240-119751-8 MS

Client Sample ID: MW-41-MS_092819

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 405077

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.
	Result	Qualifier		Added	Result				
4-Methyl-2-pentanone (MIBK)	10	U	20.0	23.4		ug/L		117	44 - 143
Acetone	10	U	20.0	20.7		ug/L		104	10 - 168
Benzene	1.0	U	10.0	9.68		ug/L		97	71 - 122
Bromodichloromethane	1.0	U	10.0	9.84		ug/L		98	64 - 125
Bromoform	1.0	U	10.0	11.0		ug/L		110	44 - 129
Bromomethane	1.0	U	10.0	5.59		ug/L		56	19 - 187
Carbon disulfide	5.0	U	10.0	11.1		ug/L		111	43 - 144
Carbon tetrachloride	1.0	U	10.0	11.0		ug/L		110	41 - 143
Chlorobenzene	1.0	U	10.0	9.66		ug/L		97	70 - 123
Chloroethane	1.0	U	10.0	4.92		ug/L		49	11 - 189
Chloroform	1.0	U	10.0	9.43		ug/L		94	68 - 130
Chloromethane	1.0	U	10.0	4.10		ug/L		41	31 - 154
cis-1,2-Dichloroethene	2.0		10.0	12.2		ug/L		102	64 - 130
cis-1,3-Dichloropropene	1.0	U	10.0	9.04		ug/L		90	48 - 127
Cyclohexane	1.0	U	10.0	9.60		ug/L		96	42 - 135
Dibromochloromethane	1.0	U	10.0	10.7		ug/L		107	60 - 129
Dichlorodifluoromethane	1.0	U	10.0	5.90		ug/L		59	28 - 136
Diethyl ether	1.0	U	10.0	9.57		ug/L		96	65 - 134
Ethylbenzene	1.0	U	10.0	10.6		ug/L		106	66 - 120
Isopropylbenzene	1.0	U	10.0	9.74		ug/L		97	59 - 120
Methyl acetate	10	U	20.0	18.7		ug/L		93	41 - 142
Methyl tert-butyl ether	1.0	U	10.0	9.44		ug/L		94	41 - 136
Methylcyclohexane	1.0	U	10.0	9.51		ug/L		95	37 - 123
Methylene Chloride	5.0	U	10.0	10.9		ug/L		109	61 - 130
Styrene	1.0	U	10.0	10.4		ug/L		104	68 - 120
Tetrachloroethene	1.0	U	10.0	10.4		ug/L		104	51 - 136
Toluene	1.0	U	10.0	9.85		ug/L		98	62 - 132
trans-1,2-Dichloroethene	0.24	J	10.0	10.7		ug/L		104	68 - 133
trans-1,3-Dichloropropene	1.0	U	10.0	8.75		ug/L		87	40 - 125
Trichloroethene	1.0	U	10.0	10.7		ug/L		107	55 - 131
Trichlorofluoromethane	1.0	U	10.0	8.06		ug/L		81	37 - 174
Vinyl chloride	1.5		10.0	7.56		ug/L		61	43 - 154
Xylenes, Total	2.0	U	20.0	20.6		ug/L		103	67 - 120

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	94		59 - 120
Dibromofluoromethane (Surr)	106		75 - 128
1,2-Dichloroethane-d4 (Surr)	86		70 - 121
Toluene-d8 (Surr)	97		70 - 123

Lab Sample ID: 240-119751-8 MSD

Client Sample ID: MW-41-MSD_092819

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 405077

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier		Added	Result						
1,1,1-Trichloroethane	1.0	U	10.0	9.76		ug/L		98	51 - 138	4	27
1,1,2,2-Tetrachloroethane	1.0	U	10.0	9.43		ug/L		94	60 - 137	1	31
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	10.0	10.9		ug/L		109	31 - 156	6	35

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

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

Lab Sample ID: 240-119751-8 MSD

Client Sample ID: MW-41-MSD_092819

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 405077

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,2-Trichloroethane	1.0	U	10.0	10.1		ug/L		101	76 - 132	4	25
1,1-Dichloroethane	1.0	U	10.0	9.23		ug/L		92	63 - 136	3	23
1,1-Dichloroethene	1.0	U	10.0	9.88		ug/L		99	53 - 140	3	35
1,2,4-Trichlorobenzene	1.0	U	10.0	8.66		ug/L		87	30 - 126	4	35
1,2,4-Trimethylbenzene	1.0	U	10.0	8.38		ug/L		84	62 - 120	0	27
1,2-Dibromo-3-Chloropropane	1.0	U	10.0	10.6		ug/L		106	38 - 124	2	35
1,2-Dibromoethane	1.0	U	10.0	10.1		ug/L		101	71 - 123	4	27
1,2-Dichlorobenzene	1.0	U	10.0	9.63		ug/L		96	64 - 120	1	30
1,2-Dichloroethane	1.0	U	10.0	9.11		ug/L		91	65 - 135	1	24
1,2-Dichloropropane	1.0	U	10.0	9.46		ug/L		95	70 - 132	1	26
1,3,5-Trimethylbenzene	1.0	U	10.0	8.27		ug/L		83	64 - 120	1	23
1,3-Dichlorobenzene	1.0	U	10.0	9.55		ug/L		96	62 - 120	1	31
1,4-Dichlorobenzene	1.0	U	10.0	9.08		ug/L		91	63 - 120	1	28
2-Butanone (MEK)	10	U	20.0	20.4		ug/L		102	37 - 156	7	35
2-Hexanone	10	U	20.0	23.4		ug/L		117	42 - 150	1	35
4-Methyl-2-pentanone (MIBK)	10	U	20.0	24.0		ug/L		120	44 - 143	3	35
Acetone	10	U	20.0	18.7		ug/L		93	10 - 168	10	35
Benzene	1.0	U	10.0	9.70		ug/L		97	71 - 122	0	22
Bromodichloromethane	1.0	U	10.0	9.28		ug/L		93	64 - 125	6	27
Bromoform	1.0	U	10.0	10.9		ug/L		109	44 - 129	1	28
Bromomethane	1.0	U	10.0	5.78		ug/L		58	19 - 187	3	35
Carbon disulfide	5.0	U	10.0	10.8		ug/L		108	43 - 144	2	33
Carbon tetrachloride	1.0	U	10.0	10.8		ug/L		108	41 - 143	1	30
Chlorobenzene	1.0	U	10.0	9.76		ug/L		98	70 - 123	1	23
Chloroethane	1.0	U	10.0	5.37		ug/L		54	11 - 189	9	35
Chloroform	1.0	U	10.0	9.20		ug/L		92	68 - 130	2	23
Chloromethane	1.0	U	10.0	4.57		ug/L		46	31 - 154	11	35
cis-1,2-Dichloroethene	2.0		10.0	12.1		ug/L		101	64 - 130	1	21
cis-1,3-Dichloropropene	1.0	U	10.0	9.27		ug/L		93	48 - 127	3	30
Cyclohexane	1.0	U	10.0	9.19		ug/L		92	42 - 135	4	35
Dibromochloromethane	1.0	U	10.0	10.5		ug/L		105	60 - 129	2	26
Dichlorodifluoromethane	1.0	U	10.0	5.86		ug/L		59	28 - 136	1	35
Diethyl ether	1.0	U	10.0	9.77		ug/L		98	65 - 134	2	33
Ethylbenzene	1.0	U	10.0	10.2		ug/L		102	66 - 120	4	24
Isopropylbenzene	1.0	U	10.0	9.92		ug/L		99	59 - 120	2	31
Methyl acetate	10	U	20.0	18.7		ug/L		93	41 - 142	0	35
Methyl tert-butyl ether	1.0	U	10.0	9.50		ug/L		95	41 - 136	1	29
Methylcyclohexane	1.0	U	10.0	9.07		ug/L		91	37 - 123	5	35
Methylene Chloride	5.0	U	10.0	10.3		ug/L		103	61 - 130	5	29
Styrene	1.0	U	10.0	10.5		ug/L		105	68 - 120	2	26
Tetrachloroethene	1.0	U	10.0	10.5		ug/L		105	51 - 136	1	23
Toluene	1.0	U	10.0	9.78		ug/L		98	62 - 132	1	23
trans-1,2-Dichloroethene	0.24	J	10.0	10.5		ug/L		102	68 - 133	2	24
trans-1,3-Dichloropropene	1.0	U	10.0	8.70		ug/L		87	40 - 125	1	27
Trichloroethene	1.0	U	10.0	10.5		ug/L		105	55 - 131	1	23
Trichlorofluoromethane	1.0	U	10.0	8.10		ug/L		81	37 - 174	1	35
Vinyl chloride	1.5		10.0	7.56		ug/L		61	43 - 154	0	29
Xylenes, Total	2.0	U	20.0	20.7		ug/L		104	67 - 120	0	25

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

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

Lab Sample ID: 240-119751-8 MSD
Matrix: Water
Analysis Batch: 405077

Client Sample ID: MW-41-MSD_092819
Prep Type: Total/NA

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	97		59 - 120
Dibromofluoromethane (Surr)	101		75 - 128
1,2-Dichloroethane-d4 (Surr)	83		70 - 121
Toluene-d8 (Surr)	98		70 - 123

Lab Sample ID: MB 240-405078/7
Matrix: Water
Analysis Batch: 405078

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	0.19	ug/L			10/10/19 14:14	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/10/19 14:14	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/10/19 14:14	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/10/19 14:14	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/10/19 14:14	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/10/19 14:14	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	74		59 - 120		10/10/19 14:14	1
Dibromofluoromethane (Surr)	101		75 - 128		10/10/19 14:14	1
1,2-Dichloroethane-d4 (Surr)	99		70 - 121		10/10/19 14:14	1
Toluene-d8 (Surr)	94		70 - 123		10/10/19 14:14	1

Lab Sample ID: LCS 240-405078/4
Matrix: Water
Analysis Batch: 405078

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	10.0	10.4		ug/L		104	69 - 134
1,1,2,2-Tetrachloroethane	10.0	5.52	*	ug/L		55	65 - 139
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	12.2		ug/L		122	50 - 156
1,1,2-Trichloroethane	10.0	7.69	*	ug/L		77	78 - 133
1,1-Dichloroethane	10.0	13.3		ug/L		133	75 - 133
1,1-Dichloroethene	10.0	10.4		ug/L		104	65 - 139
1,2,4-Trichlorobenzene	10.0	9.68		ug/L		97	42 - 133
1,2,4-Trimethylbenzene	10.0	8.93		ug/L		89	74 - 120
1,2-Dibromo-3-Chloropropane	10.0	6.65		ug/L		66	46 - 132
1,2-Dibromoethane	10.0	7.12	*	ug/L		71	77 - 123
1,2-Dichlorobenzene	10.0	9.74		ug/L		97	78 - 120
1,2-Dichloroethane	10.0	11.8		ug/L		118	71 - 135
1,2-Dichloropropane	10.0	12.9		ug/L		129	78 - 133
1,3,5-Trimethylbenzene	10.0	9.05		ug/L		90	75 - 121
1,3-Dichlorobenzene	10.0	9.98		ug/L		100	78 - 120
1,4-Dichlorobenzene	10.0	10.7		ug/L		107	78 - 120
2-Butanone (MEK)	20.0	16.7		ug/L		84	39 - 163
2-Hexanone	20.0	15.9		ug/L		79	43 - 148
4-Methyl-2-pentanone (MIBK)	20.0	17.2		ug/L		86	49 - 143

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

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

Lab Sample ID: LCS 240-405078/4
Matrix: Water
Analysis Batch: 405078

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	20.7		ug/L		104	21 - 162
Benzene	10.0	9.97		ug/L		100	80 - 123
Bromodichloromethane	10.0	8.70		ug/L		87	77 - 125
Bromoform	10.0	6.19		ug/L		62	49 - 141
Bromomethane	10.0	8.34		ug/L		83	41 - 175
Carbon disulfide	10.0	9.50		ug/L		95	60 - 138
Carbon tetrachloride	10.0	11.1		ug/L		111	63 - 140
Chlorobenzene	10.0	9.92		ug/L		99	80 - 121
Chloroethane	10.0	9.37		ug/L		94	33 - 173
Chloroform	10.0	9.43		ug/L		94	79 - 127
Chloromethane	10.0	11.0		ug/L		110	54 - 143
cis-1,2-Dichloroethene	10.0	10.7		ug/L		107	76 - 128
cis-1,3-Dichloropropene	10.0	8.23		ug/L		82	64 - 132
Cyclohexane	10.0	15.3	*	ug/L		153	58 - 145
Dibromochloromethane	10.0	8.15		ug/L		81	70 - 132
Dichlorodifluoromethane	10.0	5.41		ug/L		54	29 - 148
Diethyl ether	10.0	14.0		ug/L		140	70 - 146
Ethylbenzene	10.0	10.2		ug/L		102	80 - 120
Isopropylbenzene	10.0	9.99		ug/L		100	74 - 120
Methyl acetate	20.0	18.7		ug/L		93	52 - 145
Methyl tert-butyl ether	10.0	7.24		ug/L		72	51 - 133
Methylcyclohexane	10.0	9.91		ug/L		99	60 - 125
Methylene Chloride	10.0	9.13		ug/L		91	70 - 134
Styrene	10.0	9.13		ug/L		91	79 - 120
Tetrachloroethene	10.0	12.1		ug/L		121	74 - 130
Toluene	10.0	10.5		ug/L		105	78 - 129
trans-1,2-Dichloroethene	10.0	10.3		ug/L		103	78 - 133
trans-1,3-Dichloropropene	10.0	6.57		ug/L		66	55 - 128
Trichloroethene	10.0	11.6		ug/L		116	76 - 125
Trichlorofluoromethane	10.0	8.85		ug/L		88	51 - 164
Vinyl chloride	10.0	10.9		ug/L		109	58 - 143
Xylenes, Total	20.0	20.4		ug/L		102	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	79		59 - 120
Dibromofluoromethane (Surr)	102		75 - 128
1,2-Dichloroethane-d4 (Surr)	94		70 - 121
Toluene-d8 (Surr)	98		70 - 123

Lab Sample ID: 240-119753-D-2 MSD
Matrix: Water
Analysis Batch: 405078

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	1.0	U	10.0	9.82		ug/L		98	51 - 138	2	27
1,1,2,2-Tetrachloroethane	1.0	U * F1	10.0	4.96	F1	ug/L		50	60 - 137	6	31
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	10.0	12.2		ug/L		122	31 - 156	2	35
1,1,2-Trichloroethane	1.0	U * F1	10.0	6.92	F1	ug/L		69	76 - 132	2	25

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

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

Lab Sample ID: 240-119753-D-2 MSD

Client Sample ID: Matrix Spike Duplicate

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 405078

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	RPD
	Result	Qualifier		Result	Qualifier				Limits		Limit
1,1-Dichloroethane	1.0	U F1	10.0	13.7	F1	ug/L		137	63 - 136	9	23
1,1-Dichloroethene	1.0	U	10.0	10.1		ug/L		101	53 - 140	9	35
1,2,4-Trichlorobenzene	1.0	U	10.0	7.76		ug/L		78	30 - 126	6	35
1,2,4-Trimethylbenzene	1.0	U	10.0	8.11		ug/L		81	62 - 120	5	27
1,2-Dibromo-3-Chloropropane	1.0	U	10.0	5.07		ug/L		51	38 - 124	13	35
1,2-Dibromoethane	1.0	U * F1	10.0	6.75	F1	ug/L		68	71 - 123	6	27
1,2-Dichlorobenzene	1.0	U	10.0	8.15		ug/L		81	64 - 120	2	30
1,2-Dichloroethane	1.0	U	10.0	11.4		ug/L		114	65 - 135	2	24
1,2-Dichloropropane	1.0	U F1	10.0	13.5	F1	ug/L		135	70 - 132	9	26
1,3,5-Trimethylbenzene	1.0	U	10.0	7.46		ug/L		75	64 - 120	0	23
1,3-Dichlorobenzene	1.0	U	10.0	8.22		ug/L		82	62 - 120	3	31
1,4-Dichlorobenzene	1.0	U	10.0	8.79		ug/L		88	63 - 120	1	28
2-Butanone (MEK)	10	U	20.0	16.1		ug/L		81	37 - 156	17	35
2-Hexanone	10	U	20.0	14.2		ug/L		71	42 - 150	3	35
4-Methyl-2-pentanone (MIBK)	10	U	20.0	17.2		ug/L		86	44 - 143	0	35
Acetone	10	U	20.0	18.7		ug/L		93	10 - 168	15	35
Benzene	1.0	U	10.0	9.49		ug/L		95	71 - 122	1	22
Bromodichloromethane	1.0	U	10.0	7.92		ug/L		79	64 - 125	7	27
Bromoform	1.0	U	10.0	6.44		ug/L		64	44 - 129	8	28
Bromomethane	1.0	U	10.0	7.79		ug/L		78	19 - 187	1	35
Carbon disulfide	5.0	U	10.0	8.89		ug/L		89	43 - 144	1	33
Carbon tetrachloride	1.0	U	10.0	11.1		ug/L		111	41 - 143	8	30
Chlorobenzene	1.0	U	10.0	9.26		ug/L		93	70 - 123	7	23
Chloroethane	1.0	U	10.0	9.93		ug/L		99	11 - 189	12	35
Chloroform	1.0	U	10.0	9.08		ug/L		91	68 - 130	5	23
Chloromethane	1.0	U	10.0	10.1		ug/L		101	31 - 154	2	35
cis-1,2-Dichloroethene	1.0	U	10.0	10.9		ug/L		109	64 - 130	11	21
cis-1,3-Dichloropropene	1.0	U	10.0	7.61		ug/L		76	48 - 127	2	30
Cyclohexane	1.0	U * F1	10.0	15.5	F1	ug/L		155	42 - 135	4	35
Dibromochloromethane	1.0	U	10.0	7.38		ug/L		74	60 - 129	5	26
Dichlorodifluoromethane	1.0	U	10.0	6.15		ug/L		61	28 - 136	8	35
Diethyl ether	1.0	U F1	10.0	13.8	F1	ug/L		138	65 - 134	7	33
Ethylbenzene	1.0	U	10.0	9.22		ug/L		92	66 - 120	1	24
Isopropylbenzene	1.0	U	10.0	8.94		ug/L		89	59 - 120	1	31
Methyl acetate	10	U	20.0	17.5		ug/L		87	41 - 142	5	35
Methyl tert-butyl ether	1.0	U	10.0	7.09		ug/L		71	41 - 136	4	29
Methylcyclohexane	1.0	U	10.0	9.96		ug/L		100	37 - 123	3	35
Methylene Chloride	5.0	U	10.0	8.47		ug/L		85	61 - 130	9	29
Styrene	1.0	U	10.0	8.55		ug/L		86	68 - 120	8	26
Tetrachloroethene	1.0	U	10.0	11.9		ug/L		119	51 - 136	9	23
Toluene	1.0	U	10.0	9.05		ug/L		91	62 - 132	7	23
trans-1,2-Dichloroethene	1.0	U	10.0	9.98		ug/L		100	68 - 133	4	24
trans-1,3-Dichloropropene	1.0	U	10.0	6.07		ug/L		61	40 - 125	7	27
Trichloroethene	1.0	U	10.0	10.5		ug/L		105	55 - 131	2	23
Trichlorofluoromethane	1.0	U	10.0	10.4		ug/L		104	37 - 174	3	35
Vinyl chloride	1.0	U	10.0	12.7		ug/L		127	43 - 154	3	29
Xylenes, Total	2.0	U	20.0	17.8		ug/L		89	67 - 120	1	25

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

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

Lab Sample ID: 240-119753-D-2 MSD
Matrix: Water
Analysis Batch: 405078

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

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	78		59 - 120
Dibromofluoromethane (Surr)	106		75 - 128
1,2-Dichloroethane-d4 (Surr)	99		70 - 121
Toluene-d8 (Surr)	96		70 - 123

Lab Sample ID: 240-119753-H-2 MS
Matrix: Water
Analysis Batch: 405078

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
1,1,1-Trichloroethane	1.0	U	10.0	9.63		ug/L		96	51 - 138
1,1,2,2-Tetrachloroethane	1.0	U * F1	10.0	5.26	F1	ug/L		53	60 - 137
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	10.0	12.0		ug/L		120	31 - 156
1,1,2-Trichloroethane	1.0	U * F1	10.0	6.79	F1	ug/L		68	76 - 132
1,1-Dichloroethane	1.0	U F1	10.0	12.6		ug/L		126	63 - 136
1,1-Dichloroethene	1.0	U	10.0	11.1		ug/L		111	53 - 140
1,2,4-Trichlorobenzene	1.0	U	10.0	7.31		ug/L		73	30 - 126
1,2,4-Trimethylbenzene	1.0	U	10.0	7.73		ug/L		77	62 - 120
1,2-Dibromo-3-Chloropropane	1.0	U	10.0	5.79		ug/L		58	38 - 124
1,2-Dibromoethane	1.0	U * F1	10.0	6.38	F1	ug/L		64	71 - 123
1,2-Dichlorobenzene	1.0	U	10.0	8.34		ug/L		83	64 - 120
1,2-Dichloroethane	1.0	U	10.0	11.3		ug/L		113	65 - 135
1,2-Dichloropropane	1.0	U F1	10.0	12.3		ug/L		123	70 - 132
1,3,5-Trimethylbenzene	1.0	U	10.0	7.43		ug/L		74	64 - 120
1,3-Dichlorobenzene	1.0	U	10.0	8.49		ug/L		85	62 - 120
1,4-Dichlorobenzene	1.0	U	10.0	8.73		ug/L		87	63 - 120
2-Butanone (MEK)	10	U	20.0	13.6		ug/L		68	37 - 156
2-Hexanone	10	U	20.0	13.9		ug/L		69	42 - 150
4-Methyl-2-pentanone (MIBK)	10	U	20.0	17.3		ug/L		86	44 - 143
Acetone	10	U	20.0	21.7		ug/L		109	10 - 168
Benzene	1.0	U	10.0	9.58		ug/L		96	71 - 122
Bromodichloromethane	1.0	U	10.0	7.42		ug/L		74	64 - 125
Bromoform	1.0	U	10.0	5.96		ug/L		60	44 - 129
Bromomethane	1.0	U	10.0	7.70		ug/L		77	19 - 187
Carbon disulfide	5.0	U	10.0	8.78		ug/L		88	43 - 144
Carbon tetrachloride	1.0	U	10.0	10.2		ug/L		102	41 - 143
Chlorobenzene	1.0	U	10.0	8.67		ug/L		87	70 - 123
Chloroethane	1.0	U	10.0	8.77		ug/L		88	11 - 189
Chloroform	1.0	U	10.0	8.68		ug/L		87	68 - 130
Chloromethane	1.0	U	10.0	9.83		ug/L		98	31 - 154
cis-1,2-Dichloroethene	1.0	U	10.0	9.75		ug/L		98	64 - 130
cis-1,3-Dichloropropene	1.0	U	10.0	7.47		ug/L		75	48 - 127
Cyclohexane	1.0	U * F1	10.0	14.9	F1	ug/L		149	42 - 135
Dibromochloromethane	1.0	U	10.0	7.04		ug/L		70	60 - 129
Dichlorodifluoromethane	1.0	U	10.0	6.68		ug/L		67	28 - 136
Diethyl ether	1.0	U F1	10.0	13.0		ug/L		130	65 - 134
Ethylbenzene	1.0	U	10.0	9.12		ug/L		91	66 - 120
Isopropylbenzene	1.0	U	10.0	9.01		ug/L		90	59 - 120

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

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

Lab Sample ID: 240-119753-H-2 MS

Matrix: Water

Analysis Batch: 405078

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.
	Result	Qualifier		Result	Qualifier				
Methyl acetate	10	U	20.0	18.3		ug/L		92	41 - 142
Methyl tert-butyl ether	1.0	U	10.0	6.83		ug/L		68	41 - 136
Methylcyclohexane	1.0	U	10.0	10.2		ug/L		102	37 - 123
Methylene Chloride	5.0	U	10.0	7.72		ug/L		77	61 - 130
Styrene	1.0	U	10.0	7.89		ug/L		79	68 - 120
Tetrachloroethene	1.0	U	10.0	10.8		ug/L		108	51 - 136
Toluene	1.0	U	10.0	8.48		ug/L		85	62 - 132
trans-1,2-Dichloroethene	1.0	U	10.0	9.57		ug/L		96	68 - 133
trans-1,3-Dichloropropene	1.0	U	10.0	5.64		ug/L		56	40 - 125
Trichloroethene	1.0	U	10.0	10.8		ug/L		108	55 - 131
Trichlorofluoromethane	1.0	U	10.0	10.1		ug/L		101	37 - 174
Vinyl chloride	1.0	U	10.0	13.1		ug/L		131	43 - 154
Xylenes, Total	2.0	U	20.0	17.7		ug/L		89	67 - 120

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	75		59 - 120
Dibromofluoromethane (Surr)	109		75 - 128
1,2-Dichloroethane-d4 (Surr)	97		70 - 121
Toluene-d8 (Surr)	98		70 - 123

Lab Sample ID: MB 240-405286/7

Matrix: Water

Analysis Batch: 405286

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/11/19 14:28	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/11/19 14:28	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/11/19 14:28	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/11/19 14:28	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/11/19 14:28	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/11/19 14:28	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	71		59 - 120		10/11/19 14:28	1
Dibromofluoromethane (Surr)	106		75 - 128		10/11/19 14:28	1
1,2-Dichloroethane-d4 (Surr)	99		70 - 121		10/11/19 14:28	1
Toluene-d8 (Surr)	92		70 - 123		10/11/19 14:28	1

Lab Sample ID: LCS 240-405286/4

Matrix: Water

Analysis Batch: 405286

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.
		Result	Qualifier				
1,1,1-Trichloroethane	10.0	9.32		ug/L		93	69 - 134
1,1,1,2,2-Tetrachloroethane	10.0	5.11	*	ug/L		51	65 - 139
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	12.0		ug/L		120	50 - 156
1,1,2-Trichloroethane	10.0	6.48	*	ug/L		65	78 - 133

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

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

Lab Sample ID: LCS 240-405286/4

Matrix: Water

Analysis Batch: 405286

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethane	10.0	12.0		ug/L		120	75 - 133
1,1-Dichloroethene	10.0	9.22		ug/L		92	65 - 139
1,2,4-Trichlorobenzene	10.0	8.43		ug/L		84	42 - 133
1,2,4-Trimethylbenzene	10.0	8.28		ug/L		83	74 - 120
1,2-Dibromo-3-Chloropropane	10.0	4.96		ug/L		50	46 - 132
1,2-Dibromoethane	10.0	6.74	*	ug/L		67	77 - 123
1,2-Dichlorobenzene	10.0	8.74		ug/L		87	78 - 120
1,2-Dichloroethane	10.0	10.5		ug/L		105	71 - 135
1,2-Dichloropropane	10.0	12.1		ug/L		121	78 - 133
1,3,5-Trimethylbenzene	10.0	8.21		ug/L		82	75 - 121
1,3-Dichlorobenzene	10.0	9.19		ug/L		92	78 - 120
1,4-Dichlorobenzene	10.0	8.77		ug/L		88	78 - 120
2-Butanone (MEK)	20.0	15.1		ug/L		75	39 - 163
2-Hexanone	20.0	13.0		ug/L		65	43 - 148
4-Methyl-2-pentanone (MIBK)	20.0	15.0		ug/L		75	49 - 143
Acetone	20.0	18.7		ug/L		94	21 - 162
Benzene	10.0	9.35		ug/L		93	80 - 123
Bromodichloromethane	10.0	7.31	*	ug/L		73	77 - 125
Bromoform	10.0	5.95		ug/L		60	49 - 141
Bromomethane	10.0	8.60		ug/L		86	41 - 175
Carbon disulfide	10.0	8.23		ug/L		82	60 - 138
Carbon tetrachloride	10.0	10.3		ug/L		103	63 - 140
Chlorobenzene	10.0	8.85		ug/L		88	80 - 121
Chloroethane	10.0	9.82		ug/L		98	33 - 173
Chloroform	10.0	8.66		ug/L		87	79 - 127
Chloromethane	10.0	11.1		ug/L		111	54 - 143
cis-1,2-Dichloroethene	10.0	9.67		ug/L		97	76 - 128
cis-1,3-Dichloropropene	10.0	7.04		ug/L		70	64 - 132
Cyclohexane	10.0	14.8	*	ug/L		148	58 - 145
Dibromochloromethane	10.0	7.08		ug/L		71	70 - 132
Dichlorodifluoromethane	10.0	6.18		ug/L		62	29 - 148
Diethyl ether	10.0	12.7		ug/L		127	70 - 146
Ethylbenzene	10.0	9.14		ug/L		91	80 - 120
Isopropylbenzene	10.0	8.78		ug/L		88	74 - 120
Methyl acetate	20.0	17.1		ug/L		85	52 - 145
Methyl tert-butyl ether	10.0	6.53		ug/L		65	51 - 133
Methylcyclohexane	10.0	9.82		ug/L		98	60 - 125
Methylene Chloride	10.0	7.34		ug/L		73	70 - 134
Styrene	10.0	8.05		ug/L		80	79 - 120
Tetrachloroethene	10.0	12.5		ug/L		125	74 - 130
Toluene	10.0	8.77		ug/L		88	78 - 129
trans-1,2-Dichloroethene	10.0	9.00		ug/L		90	78 - 133
trans-1,3-Dichloropropene	10.0	5.44	*	ug/L		54	55 - 128
Trichloroethene	10.0	10.5		ug/L		105	76 - 125
Trichlorofluoromethane	10.0	10.3		ug/L		103	51 - 164
Vinyl chloride	10.0	11.4		ug/L		114	58 - 143
Xylenes, Total	20.0	17.9		ug/L		90	80 - 120

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

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

Lab Sample ID: LCS 240-405286/4

Matrix: Water

Analysis Batch: 405286

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	77		59 - 120
Dibromofluoromethane (Surr)	102		75 - 128
1,2-Dichloroethane-d4 (Surr)	102		70 - 121
Toluene-d8 (Surr)	98		70 - 123

Lab Sample ID: 240-119753-H-3 MS

Matrix: Water

Analysis Batch: 405286

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS		Unit	D	%Rec	%Rec. Limits
				Result	Qualifier				
1,1,1-Trichloroethane	1.0	U	10.0	9.56		ug/L		96	51 - 138
1,1,2,2-Tetrachloroethane	1.0	U F1 *	10.0	4.98	F1	ug/L		50	60 - 137
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	10.0	13.1		ug/L		131	31 - 156
1,1,2-Trichloroethane	1.0	U F1 *	10.0	6.22	F1	ug/L		62	76 - 132
1,1-Dichloroethane	1.0	U	10.0	12.2		ug/L		122	63 - 136
1,1-Dichloroethene	1.0	U	10.0	10.1		ug/L		101	53 - 140
1,2,4-Trichlorobenzene	1.0	U	10.0	7.56		ug/L		76	30 - 126
1,2,4-Trimethylbenzene	1.0	U	10.0	8.15		ug/L		82	62 - 120
1,2-Dibromo-3-Chloropropane	1.0	U	10.0	4.95		ug/L		50	38 - 124
1,2-Dibromoethane	1.0	U F1 *	10.0	6.24	F1	ug/L		62	71 - 123
1,2-Dichlorobenzene	1.0	U	10.0	8.26		ug/L		83	64 - 120
1,2-Dichloroethane	1.0	U	10.0	10.1		ug/L		101	65 - 135
1,2-Dichloropropane	1.0	U	10.0	11.9		ug/L		119	70 - 132
1,3,5-Trimethylbenzene	1.0	U	10.0	8.09		ug/L		81	64 - 120
1,3-Dichlorobenzene	1.0	U	10.0	9.12		ug/L		91	62 - 120
1,4-Dichlorobenzene	1.0	U	10.0	8.85		ug/L		89	63 - 120
2-Butanone (MEK)	10	U	20.0	14.8		ug/L		74	37 - 156
2-Hexanone	10	U	20.0	13.0		ug/L		65	42 - 150
4-Methyl-2-pentanone (MIBK)	10	U	20.0	16.3		ug/L		81	44 - 143
Acetone	10	U	20.0	16.0		ug/L		80	10 - 168
Benzene	1.0	U	10.0	9.80		ug/L		98	71 - 122
Bromodichloromethane	1.0	U *	10.0	6.95		ug/L		70	64 - 125
Bromoform	1.0	U	10.0	5.55		ug/L		56	44 - 129
Bromomethane	1.0	U	10.0	6.18		ug/L		62	19 - 187
Carbon disulfide	5.0	U	10.0	10.9		ug/L		109	43 - 144
Carbon tetrachloride	1.0	U	10.0	10.8		ug/L		108	41 - 143
Chlorobenzene	1.0	U	10.0	8.51		ug/L		85	70 - 123
Chloroethane	1.0	U	10.0	8.37		ug/L		84	11 - 189
Chloroform	1.0	U	10.0	8.45		ug/L		85	68 - 130
Chloromethane	1.0	U	10.0	5.31		ug/L		53	31 - 154
cis-1,2-Dichloroethene	1.0	U	10.0	9.22		ug/L		92	64 - 130
cis-1,3-Dichloropropene	1.0	U	10.0	6.68		ug/L		67	48 - 127
Cyclohexane	1.0	U F1 *	10.0	16.9	F1	ug/L		169	42 - 135
Dibromochloromethane	1.0	U	10.0	6.20		ug/L		62	60 - 129
Dichlorodifluoromethane	1.0	U	10.0	6.66		ug/L		67	28 - 136
Diethyl ether	1.0	U	10.0	12.2		ug/L		122	65 - 134
Ethylbenzene	1.0	U	10.0	8.80		ug/L		88	66 - 120
Isopropylbenzene	1.0	U	10.0	8.85		ug/L		88	59 - 120

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

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

Lab Sample ID: 240-119753-H-3 MS

Matrix: Water

Analysis Batch: 405286

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	Limits
	Result	Qualifier		Result	Qualifier					
Methyl acetate	10	U	20.0	17.8		ug/L		89	41 - 142	
Methyl tert-butyl ether	1.0	U	10.0	6.62		ug/L		66	41 - 136	
Methylcyclohexane	1.0	U	10.0	10.8		ug/L		108	37 - 123	
Methylene Chloride	5.0	U	10.0	7.30		ug/L		73	61 - 130	
Styrene	1.0	U	10.0	8.46		ug/L		85	68 - 120	
Tetrachloroethene	1.0	U	10.0	12.0		ug/L		120	51 - 136	
Toluene	1.0	U	10.0	8.36		ug/L		84	62 - 132	
trans-1,2-Dichloroethene	1.0	U	10.0	9.11		ug/L		91	68 - 133	
trans-1,3-Dichloropropene	1.0	U *	10.0	5.44		ug/L		54	40 - 125	
Trichloroethene	1.0	U	10.0	10.8		ug/L		108	55 - 131	
Trichlorofluoromethane	1.0	U	10.0	10.5		ug/L		105	37 - 174	
Vinyl chloride	5.9		10.0	18.2		ug/L		123	43 - 154	
Xylenes, Total	2.0	U	20.0	17.4		ug/L		87	67 - 120	

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	75		59 - 120
Dibromofluoromethane (Surr)	106		75 - 128
1,2-Dichloroethane-d4 (Surr)	97		70 - 121
Toluene-d8 (Surr)	100		70 - 123

Lab Sample ID: 240-119753-I-3 MSD

Matrix: Water

Analysis Batch: 405286

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier							
1,1,1-Trichloroethane	1.0	U	10.0	9.35		ug/L		94	51 - 138	2	27	
1,1,1,2-Tetrachloroethane	1.0	U F1 *	10.0	5.12	F1	ug/L		51	60 - 137	3	31	
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	10.0	12.4		ug/L		124	31 - 156	5	35	
1,1,2-Trichloroethane	1.0	U F1 *	10.0	6.45	F1	ug/L		64	76 - 132	4	25	
1,1-Dichloroethane	1.0	U	10.0	11.9		ug/L		119	63 - 136	3	23	
1,1-Dichloroethene	1.0	U	10.0	9.71		ug/L		97	53 - 140	4	35	
1,2,4-Trichlorobenzene	1.0	U	10.0	7.91		ug/L		79	30 - 126	5	35	
1,2,4-Trimethylbenzene	1.0	U	10.0	8.04		ug/L		80	62 - 120	1	27	
1,2-Dibromo-3-Chloropropane	1.0	U	10.0	4.24		ug/L		42	38 - 124	15	35	
1,2-Dibromoethane	1.0	U F1 *	10.0	5.78	F1	ug/L		58	71 - 123	8	27	
1,2-Dichlorobenzene	1.0	U	10.0	8.44		ug/L		84	64 - 120	2	30	
1,2-Dichloroethane	1.0	U	10.0	10.9		ug/L		109	65 - 135	7	24	
1,2-Dichloropropane	1.0	U	10.0	11.9		ug/L		119	70 - 132	0	26	
1,3,5-Trimethylbenzene	1.0	U	10.0	7.65		ug/L		76	64 - 120	6	23	
1,3-Dichlorobenzene	1.0	U	10.0	8.86		ug/L		89	62 - 120	3	31	
1,4-Dichlorobenzene	1.0	U	10.0	8.99		ug/L		90	63 - 120	2	28	
2-Butanone (MEK)	10	U	20.0	17.0		ug/L		85	37 - 156	14	35	
2-Hexanone	10	U	20.0	12.8		ug/L		64	42 - 150	1	35	
4-Methyl-2-pentanone (MIBK)	10	U	20.0	16.5		ug/L		82	44 - 143	1	35	
Acetone	10	U	20.0	17.7		ug/L		89	10 - 168	10	35	
Benzene	1.0	U	10.0	9.26		ug/L		93	71 - 122	6	22	
Bromodichloromethane	1.0	U *	10.0	7.10		ug/L		71	64 - 125	2	27	
Bromoform	1.0	U	10.0	6.01		ug/L		60	44 - 129	8	28	

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

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

Lab Sample ID: 240-119753-I-3 MSD
Matrix: Water
Analysis Batch: 405286

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bromomethane	1.0	U	10.0	5.93		ug/L		59	19 - 187	4	35
Carbon disulfide	5.0	U	10.0	11.0		ug/L		110	43 - 144	0	33
Carbon tetrachloride	1.0	U	10.0	10.5		ug/L		105	41 - 143	3	30
Chlorobenzene	1.0	U	10.0	8.49		ug/L		85	70 - 123	0	23
Chloroethane	1.0	U	10.0	8.65		ug/L		87	11 - 189	3	35
Chloroform	1.0	U	10.0	8.43		ug/L		84	68 - 130	0	23
Chloromethane	1.0	U	10.0	4.93		ug/L		49	31 - 154	8	35
cis-1,2-Dichloroethene	1.0	U	10.0	9.51		ug/L		95	64 - 130	3	21
cis-1,3-Dichloropropene	1.0	U	10.0	6.87		ug/L		69	48 - 127	3	30
Cyclohexane	1.0	U F1 *	10.0	16.3	F1	ug/L		163	42 - 135	4	35
Dibromochloromethane	1.0	U	10.0	6.51		ug/L		65	60 - 129	5	26
Dichlorodifluoromethane	1.0	U	10.0	6.72		ug/L		67	28 - 136	1	35
Diethyl ether	1.0	U	10.0	12.8		ug/L		128	65 - 134	5	33
Ethylbenzene	1.0	U	10.0	8.76		ug/L		88	66 - 120	1	24
Isopropylbenzene	1.0	U	10.0	8.81		ug/L		88	59 - 120	0	31
Methyl acetate	10	U	20.0	18.1		ug/L		91	41 - 142	2	35
Methyl tert-butyl ether	1.0	U	10.0	6.81		ug/L		68	41 - 136	3	29
Methylcyclohexane	1.0	U	10.0	10.4		ug/L		104	37 - 123	4	35
Methylene Chloride	5.0	U	10.0	8.67		ug/L		87	61 - 130	17	29
Styrene	1.0	U	10.0	7.85		ug/L		79	68 - 120	7	26
Tetrachloroethene	1.0	U	10.0	11.6		ug/L		116	51 - 136	3	23
Toluene	1.0	U	10.0	8.19		ug/L		82	62 - 132	2	23
trans-1,2-Dichloroethene	1.0	U	10.0	8.86		ug/L		89	68 - 133	3	24
trans-1,3-Dichloropropene	1.0	U *	10.0	5.44		ug/L		54	40 - 125	0	27
Trichloroethene	1.0	U	10.0	10.6		ug/L		106	55 - 131	2	23
Trichlorofluoromethane	1.0	U	10.0	10.5		ug/L		105	37 - 174	0	35
Vinyl chloride	5.9		10.0	18.0		ug/L		120	43 - 154	1	29
Xylenes, Total	2.0	U	20.0	16.5		ug/L		83	67 - 120	5	25

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	73		59 - 120
Dibromofluoromethane (Surr)	101		75 - 128
1,2-Dichloroethane-d4 (Surr)	101		70 - 121
Toluene-d8 (Surr)	95		70 - 123

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

Lab Sample ID: MB 240-404131/5
Matrix: Water
Analysis Batch: 404131

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			10/04/19 13:00	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		63 - 125		10/04/19 13:00	1

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

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

Lab Sample ID: LCS 240-404131/4
Matrix: Water
Analysis Batch: 404131

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	11.6		ug/L		116	59 - 131
Surrogate	%Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	98		63 - 125				

Lab Sample ID: 240-119751-7 MS
Matrix: Water
Analysis Batch: 404131

Client Sample ID: MW-30-MS_092819
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	14		10.0	24.3		ug/L		106	52 - 129
Surrogate	%Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	102		63 - 125						

Lab Sample ID: 240-119751-7 MSD
Matrix: Water
Analysis Batch: 404131

Client Sample ID: MW-30-MSD_092819
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
1,4-Dioxane	14		10.0	26.5		ug/L		129	52 - 129	9	13
Surrogate	%Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	102		63 - 125								

Lab Sample ID: 240-119751-8 MS
Matrix: Water
Analysis Batch: 404131

Client Sample ID: MW-41-MS_092819
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	1.2	J	10.0	10.8		ug/L		97	52 - 129
Surrogate	%Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	105		63 - 125						

Lab Sample ID: 240-119751-8 MSD
Matrix: Water
Analysis Batch: 404131

Client Sample ID: MW-41-MSD_092819
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
1,4-Dioxane	1.2	J	10.0	12.4		ug/L		112	52 - 129	13	13
Surrogate	%Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	103		63 - 125								

QC Association Summary

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

GC/MS VOA

Analysis Batch: 404131

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119751-1	MW-57_092719	Total/NA	Water	8260B SIM	
240-119751-2	MW-64_092719	Total/NA	Water	8260B SIM	
240-119751-3	MW-71_092719	Total/NA	Water	8260B SIM	
240-119751-4	MW-62_092719	Total/NA	Water	8260B SIM	
240-119751-5	MW-40_092819	Total/NA	Water	8260B SIM	
240-119751-6	MW-31_092819	Total/NA	Water	8260B SIM	
240-119751-7	MW-30_092819	Total/NA	Water	8260B SIM	
240-119751-8	MW-41_092819	Total/NA	Water	8260B SIM	
MB 240-404131/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-404131/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-119751-7 MS	MW-30-MS_092819	Total/NA	Water	8260B SIM	
240-119751-7 MSD	MW-30-MSD_092819	Total/NA	Water	8260B SIM	
240-119751-8 MS	MW-41-MS_092819	Total/NA	Water	8260B SIM	
240-119751-8 MSD	MW-41-MSD_092819	Total/NA	Water	8260B SIM	

Analysis Batch: 404847

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119751-9	TRIP BLANK (2)	Total/NA	Water	8260B	
MB 240-404847/7	Method Blank	Total/NA	Water	8260B	
LCS 240-404847/4	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 404848

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119751-7	MW-30_092819	Total/NA	Water	8260B	
MB 240-404848/7	Method Blank	Total/NA	Water	8260B	
LCS 240-404848/4	Lab Control Sample	Total/NA	Water	8260B	
240-119751-7 MS	MW-30-MS_092819	Total/NA	Water	8260B	
240-119751-7 MSD	MW-30-MSD_092819	Total/NA	Water	8260B	

Analysis Batch: 405077

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119751-8	MW-41_092819	Total/NA	Water	8260B	
MB 240-405077/7	Method Blank	Total/NA	Water	8260B	
LCS 240-405077/4	Lab Control Sample	Total/NA	Water	8260B	
240-119751-8 MS	MW-41-MS_092819	Total/NA	Water	8260B	
240-119751-8 MSD	MW-41-MSD_092819	Total/NA	Water	8260B	

Analysis Batch: 405078

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119751-1	MW-57_092719	Total/NA	Water	8260B	
240-119751-2	MW-64_092719	Total/NA	Water	8260B	
240-119751-3	MW-71_092719	Total/NA	Water	8260B	
240-119751-4	MW-62_092719	Total/NA	Water	8260B	
MB 240-405078/7	Method Blank	Total/NA	Water	8260B	
LCS 240-405078/4	Lab Control Sample	Total/NA	Water	8260B	
240-119753-D-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
240-119753-H-2 MS	Matrix Spike	Total/NA	Water	8260B	

Analysis Batch: 405286

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119751-5	MW-40_092819	Total/NA	Water	8260B	

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QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

GC/MS VOA (Continued)

Analysis Batch: 405286 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119751-6	MW-31_092819	Total/NA	Water	8260B	
MB 240-405286/7	Method Blank	Total/NA	Water	8260B	
LCS 240-405286/4	Lab Control Sample	Total/NA	Water	8260B	
240-119753-H-3 MS	Matrix Spike	Total/NA	Water	8260B	
240-119753-I-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

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

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

Client Sample ID: MW-57_092719

Lab Sample ID: 240-119751-1

Date Collected: 09/27/19 09:59

Matrix: Water

Date Received: 10/01/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	405078	10/10/19 15:56	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	404131	10/04/19 19:37	SAM	TAL CAN

Client Sample ID: MW-64_092719

Lab Sample ID: 240-119751-2

Date Collected: 09/27/19 11:45

Matrix: Water

Date Received: 10/01/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	405078	10/10/19 16:21	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	404131	10/04/19 20:02	SAM	TAL CAN

Client Sample ID: MW-71_092719

Lab Sample ID: 240-119751-3

Date Collected: 09/27/19 13:18

Matrix: Water

Date Received: 10/01/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	405078	10/10/19 16:47	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	404131	10/04/19 20:27	SAM	TAL CAN

Client Sample ID: MW-62_092719

Lab Sample ID: 240-119751-4

Date Collected: 09/27/19 16:03

Matrix: Water

Date Received: 10/01/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	405078	10/10/19 17:14	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	404131	10/04/19 20:51	SAM	TAL CAN

Client Sample ID: MW-40_092819

Lab Sample ID: 240-119751-5

Date Collected: 09/28/19 09:30

Matrix: Water

Date Received: 10/01/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	405286	10/11/19 16:36	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	404131	10/04/19 21:16	SAM	TAL CAN

Client Sample ID: MW-31_092819

Lab Sample ID: 240-119751-6

Date Collected: 09/28/19 11:15

Matrix: Water

Date Received: 10/01/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	405286	10/11/19 17:08	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	404131	10/04/19 21:41	SAM	TAL CAN

Eurofins TestAmerica, Canton

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

Client Sample ID: MW-30_092819

Lab Sample ID: 240-119751-7

Date Collected: 09/28/19 12:45

Matrix: Water

Date Received: 10/01/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	404848	10/09/19 22:18	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	404131	10/04/19 17:08	SAM	TAL CAN

Client Sample ID: MW-41_092819

Lab Sample ID: 240-119751-8

Date Collected: 09/28/19 14:30

Matrix: Water

Date Received: 10/01/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	405077	10/10/19 18:50	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	404131	10/04/19 18:22	SAM	TAL CAN

Client Sample ID: TRIP BLANK (2)

Lab Sample ID: 240-119751-9

Date Collected: 09/27/19 00:00

Matrix: Water

Date Received: 10/01/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	404847	10/09/19 20:30	LRW	TAL CAN

Laboratory References:

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

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-119751-1

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

Chain of Custody Record

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

Client Contact Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240 Project Name: Ford LTP Project Number: M1001454.0004.0001B PO # M1001454.0004.0001B		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other	
Client Project Manager: Kris Hinskey Telephone: 248-994-2240 Email: kristoffer.hinskey@arcadis.com		Lab Contact: Mike DelMonico Telephone: 330-497-9396	
Method of Shipment/Carrier: Shipping/Tracking No:		Analysis Turnaround Time TAT if different from below 10 day <input type="checkbox"/> 3 weeks <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day <input type="checkbox"/>	
Sample Identification		Containers & Preservatives	
Sample Date	Sample Time	Matrix	Containers & Preservatives
		Air	NaOH
		Aqueous	HCl
		Sediment	NaOH
		Solid	NaOH
		Other:	Other:
		H2SO4	HNO3
		HCl	Filtered Sample (Y/N)
		Other:	Composite (C/Grab-C)
			VOCs 8260B
			1,4-Dioxane 8260B SIM
MW-57-092719	9/27/19 9:54	X	N 6 3 3
MW-64-092719	9/27/19 11:45	X	N 6 3 3
MW-71-092719	9/27/19 13:18	X	N 6 3 3
MW-62-092719	9/27/19 16:03	X	N 6 3 3
MW-40-092819	9/28/19 9:30	X	N 6 3 3
MW-31-092819	9/28/19 11:15	X	N 6 3 3
MW-30-092819	9/28/19 12:45	X	N 6 3 3
MW-30-MS-042819	9/28/19 12:45	X	N 6 3 3
MW-30-MSD-042819	9/28/19 12:45	X	N 6 3 3
MW-41092819	9/28/19 14:30	X	N 6 3 3



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

Special Instructions/QC Requirements & Comments:
 Submit all results through Cadena at jim.tomalia@cadenacom.com. Cadena #E203728
 Level IV Reporting.

Relinquished by: M. Sawyer	Company: Arcadis	Date/Time: 9/28/19 15:40	Received by: John McLaughlin	Company: Arcadis	Date/Time: 9/28/19 15:40
Relinquished by: John McLaughlin	Company: Arcadis	Date/Time: 9/28/19 16:30	Received by: N. Cold Storage	Company: Arcadis	Date/Time: 9/28/19 16:30
Relinquished by: John McLaughlin	Company: Arcadis	Date/Time: 9/30/19 10:18	Received in Laboratory by: Nolly Hanson	Company: Arcadis	Date/Time: 9/30/19 10:18
Relinquished by: John McLaughlin	Company: Arcadis	Date/Time: 9/30/19 14:20	Received in Laboratory by: Nolly Hanson	Company: Arcadis	Date/Time: 9/30/19 14:20

Chain of Custody Record

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

Client Contact Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240 Project Name: Ford LTP Project Number: MI001454.0004.0001B PO # MI001454.0004.0001B		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other	
Client Project Manager: Kris Hinskey Telephone: 248-994-2240 Email: kris@arcadis.com		Lab Contact: Mike DelMonico Telephone: 330-497-9396	
Method of Shipment/Carrier: Shipping/Tracking No:		Analysis Turnaround Time TAT, if different from below: <input type="checkbox"/> 3 weeks <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day	
Sample Identification MW-41-MS-092819 MW-41-MSD-092819 Trip Blank (2)		Containers & Preservatives H2SO4 <input type="checkbox"/> HNO3 <input type="checkbox"/> HCl <input type="checkbox"/> NaOH <input type="checkbox"/> NaAc <input type="checkbox"/> LiPFS <input type="checkbox"/> Other:	
Matrix Air <input type="checkbox"/> Aqueous <input type="checkbox"/> Sediment <input type="checkbox"/> Solid <input type="checkbox"/> Other:		Filtered Sample (Y/N) Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	
Sample Date 9/28/19 14:30 9/28/19 14:30		Composite C/Grab-C C <input type="checkbox"/> Grab-C <input checked="" type="checkbox"/>	
Sample Time 14:30 14:30		VOCs 8260B 1,4-Dioxane 8260B SIM	
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Irritable <input type="checkbox"/> In Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Special Instructions/OC Requirements & Comments: Submit all results through Cadena at jim.tomalia@cadenalab.com. Cadena #E203728 Level IV Reporting.			
Relinquished by: M. W. Hinskey Relinquished by: J. M. W. Hinskey Relinquished by: Kelly Harrison Relinquished by: Kelly Harrison		Received by: M. W. Hinskey Received by: Nov. 5th 2019 Received in Laboratory by: Kelly Harrison Date/Time: 9/28/19 15:40 Date/Time: 9/28/19 16:30 Date/Time: 9/30/19 10:48	
Company: Arcadis Company: Arcadis Company: Arcadis		Company: Arcadis Company: Arcadis Company: Arcadis	
Date/Time: 9/28/19 14:30 Date/Time: 9/28/19 14:30 Date/Time: 9/30/19 10:48		Date/Time: 9/28/19 15:40 Date/Time: 9/28/19 16:30 Date/Time: 9/30/19 10:48	
MW-41-MS-092819 MW-41-MSD-092819 Trip Blank (2)		10-01-19 930	

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Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 119751

Client Arcadis Site Name _____ Cooler unpacked by: [Signature]
 Cooler Received on 10-01-19 Opened on 10-01-19
 FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

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

TestAmerica Cooler # 1A 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

- Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN# IR-10 (CF +0.7°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN# IR-11 (CF +0.9°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
- Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 4 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
- Shippers' packing slip attached to the cooler(s)? Yes No
- Did custody papers accompany the sample(s)? Yes No
- Were the custody papers relinquished & signed in the appropriate place? Yes No
- Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
- Did all bottles arrive in good condition (Unbroken)? Yes No
- Could all bottle labels be reconciled with the COC? Yes No
- Were correct bottle(s) used for the test(s) indicated? Yes No
- Sufficient quantity received to perform indicated analyses? Yes No
- Are these work share samples? Yes No
 If yes, Questions 12-16 have been checked at the originating laboratory.
- Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC991818
- Were VOAs on the COC? Yes No
- Were air bubbles >6 mm in any VOA vials? Yes No NA  ← Larger than this.
- Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # NA Yes No
- 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 _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by: [Signature]

18. 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)

19. 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: _____

