

ANALYTICAL REPORT

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

Laboratory Job ID: 240-119761-1
Client Project/Site: Ford LTP Livonia MI - E203728

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

Attn: Kristoffer Hinskey



Authorized for release by:
10/15/2019 2:57:43 PM

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

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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: 240-119761-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
E	Result exceeded calibration range.
F1	MS and/or MSD Recovery is outside acceptance limits.
H	Sample was prepped or analyzed beyond the specified holding time
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: 240-119761-1

Job ID: 240-119761-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Livonia MI - E203728

Report Number: 240-119761-1

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 temperature of the cooler at receipt was 2.4° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples MW-49_092719 (240-119761-1), MW-45_092719 (240-119761-2), TW-16-04_092719 (240-119761-3), TW-16-03_092719 (240-119761-4), PW-16-02_092719 (240-119761-5), DUP-10 (240-119761-6) and TRIP BLANK (240-119761-7) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 10/10/2019, 10/11/2019 and 10/12/2019.

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. Refer to the QC report for details.

Samples MW-49_092719 (240-119761-1)[2500X], MW-45_092719 (240-119761-2)[25X], TW-16-04_092719 (240-119761-3)[2.5X], TW-16-03_092719 (240-119761-4)[5X], PW-16-02_092719 (240-119761-5)[5X], DUP-10 (240-119761-6)[1000X] and DUP-10 (240-119761-6)[5000X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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-45_092719 (240-119761-2), TW-16-04_092719 (240-119761-3), TW-16-03_092719 (240-119761-4) and (LCS

Case Narrative

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

Job ID: 240-119761-1

Job ID: 240-119761-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

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-45_092719 (240-119761-2), TW-16-04_092719 (240-119761-3), TW-16-03_092719 (240-119761-4) 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-45_092719 (240-119761-2), TW-16-04_092719 (240-119761-3), TW-16-03_092719 (240-119761-4) and (LCS 240-405078/4).

Due to excessive workload samples were run past hold time: DUP-10 (240-119761-6).

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

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Samples MW-49_092719 (240-119761-1), MW-45_092719 (240-119761-2), TW-16-04_092719 (240-119761-3), TW-16-03_092719 (240-119761-4), PW-16-02_092719 (240-119761-5) and DUP-10 (240-119761-6) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 10/07/2019.

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: 240-119761-1

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: 240-119761-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-119761-1	MW-49_092719	Water	09/27/19 09:55	10/01/19 09:30	
240-119761-2	MW-45_092719	Water	09/27/19 11:23	10/01/19 09:30	
240-119761-3	TW-16-04_092719	Water	09/27/19 12:53	10/01/19 09:30	
240-119761-4	TW-16-03_092719	Water	09/27/19 13:57	10/01/19 09:30	
240-119761-5	PW-16-02_092719	Water	09/27/19 14:56	10/01/19 09:30	
240-119761-6	DUP-10	Water	09/27/19 00:00	10/01/19 09:30	
240-119761-7	TRIP BLANK	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: 240-119761-1

Client Sample ID: MW-49_092719

Lab Sample ID: 240-119761-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	8.9		2.0	0.86	ug/L	1		8260B SIM	Total/NA
cis-1,2-Dichloroethene	28000		2500	400	ug/L	2500		8260B	Total/NA
Vinyl chloride	8100		2500	500	ug/L	2500		8260B	Total/NA

Client Sample ID: MW-45_092719

Lab Sample ID: 240-119761-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	160		25	4.0	ug/L	25		8260B	Total/NA
Vinyl chloride	310		25	5.0	ug/L	25		8260B	Total/NA

Client Sample ID: TW-16-04_092719

Lab Sample ID: 240-119761-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	13		2.5	0.40	ug/L	2.5		8260B	Total/NA
Vinyl chloride	49		2.5	0.50	ug/L	2.5		8260B	Total/NA

Client Sample ID: TW-16-03_092719

Lab Sample ID: 240-119761-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.93	J	2.0	0.86	ug/L	1		8260B SIM	Total/NA
cis-1,2-Dichloroethene	35		1.0	0.16	ug/L	1		8260B	Total/NA
Vinyl chloride	53		5.0	1.0	ug/L	5		8260B	Total/NA

Client Sample ID: PW-16-02_092719

Lab Sample ID: 240-119761-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.4	J	2.0	0.86	ug/L	1		8260B SIM	Total/NA
cis-1,2-Dichloroethene	20		5.0	0.80	ug/L	5		8260B	Total/NA
Vinyl chloride	59		5.0	1.0	ug/L	5		8260B	Total/NA

Client Sample ID: DUP-10

Lab Sample ID: 240-119761-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	9.1		2.0	0.86	ug/L	1		8260B SIM	Total/NA
cis-1,2-Dichloroethene	28000		5000	800	ug/L	5000		8260B	Total/NA
Vinyl chloride	7600		5000	1000	ug/L	5000		8260B	Total/NA
cis-1,2-Dichloroethene - RA	29000	H	1000	160	ug/L	1000		8260B	Total/NA
Vinyl chloride - RA	7600	H	1000	200	ug/L	1000		8260B	Total/NA

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-119761-7

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: 240-119761-1

Client Sample ID: MW-49_092719

Lab Sample ID: 240-119761-1

Date Collected: 09/27/19 09:55

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	8.9		2.0	0.86	ug/L			10/07/19 14:01	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		63 - 125					10/07/19 14:01	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	2500	U	2500	480	ug/L			10/11/19 19:53	2500
cis-1,2-Dichloroethene	28000		2500	400	ug/L			10/11/19 19:53	2500
Tetrachloroethene	2500	U	2500	380	ug/L			10/11/19 19:53	2500
trans-1,2-Dichloroethene	2500	U	2500	480	ug/L			10/11/19 19:53	2500
Trichloroethene	2500	U	2500	250	ug/L			10/11/19 19:53	2500
Vinyl chloride	8100		2500	500	ug/L			10/11/19 19:53	2500
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	74		59 - 120					10/11/19 19:53	2500
Dibromofluoromethane (Surr)	115		75 - 128					10/11/19 19:53	2500
1,2-Dichloroethane-d4 (Surr)	94		70 - 121					10/11/19 19:53	2500
Toluene-d8 (Surr)	88		70 - 123					10/11/19 19:53	2500

Client Sample Results

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

Job ID: 240-119761-1

Client Sample ID: MW-45_092719

Lab Sample ID: 240-119761-2

Date Collected: 09/27/19 11:23

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	-		10/07/19 14:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		63 - 125		10/07/19 14:26	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	25	U	25	4.8	ug/L	-		10/10/19 19:47	25
cis-1,2-Dichloroethene	160		25	4.0	ug/L			10/10/19 19:47	25
Tetrachloroethene	25	U	25	3.8	ug/L			10/10/19 19:47	25
trans-1,2-Dichloroethene	25	U	25	4.8	ug/L			10/10/19 19:47	25
Trichloroethene	25	U	25	2.5	ug/L			10/10/19 19:47	25
Vinyl chloride	310		25	5.0	ug/L			10/10/19 19:47	25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	73		59 - 120		10/10/19 19:47	25
Dibromofluoromethane (Surr)	104		75 - 128		10/10/19 19:47	25
1,2-Dichloroethane-d4 (Surr)	97		70 - 121		10/10/19 19:47	25
Toluene-d8 (Surr)	93		70 - 123		10/10/19 19:47	25

Client Sample Results

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

Job ID: 240-119761-1

Client Sample ID: TW-16-04_092719

Lab Sample ID: 240-119761-3

Date Collected: 09/27/19 12:53

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			10/07/19 14:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		63 - 125		10/07/19 14:51	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	2.5	U	2.5	0.48	ug/L			10/10/19 20:12	2.5
cis-1,2-Dichloroethene	13		2.5	0.40	ug/L			10/10/19 20:12	2.5
Tetrachloroethene	2.5	U	2.5	0.38	ug/L			10/10/19 20:12	2.5
trans-1,2-Dichloroethene	2.5	U	2.5	0.48	ug/L			10/10/19 20:12	2.5
Trichloroethene	2.5	U	2.5	0.25	ug/L			10/10/19 20:12	2.5
Vinyl chloride	49		2.5	0.50	ug/L			10/10/19 20:12	2.5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	71		59 - 120		10/10/19 20:12	2.5
Dibromofluoromethane (Surr)	102		75 - 128		10/10/19 20:12	2.5
1,2-Dichloroethane-d4 (Surr)	96		70 - 121		10/10/19 20:12	2.5
Toluene-d8 (Surr)	95		70 - 123		10/10/19 20:12	2.5

Client Sample Results

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

Job ID: 240-119761-1

Client Sample ID: TW-16-03_092719

Lab Sample ID: 240-119761-4

Date Collected: 09/27/19 13:57

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	0.93	J	2.0	0.86	ug/L			10/07/19 15:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		63 - 125					10/07/19 15:16	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			10/10/19 20:38	1
cis-1,2-Dichloroethene	35		1.0	0.16	ug/L			10/10/19 20:38	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/10/19 20:38	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/10/19 20:38	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/10/19 20:38	1
Vinyl chloride	53		5.0	1.0	ug/L			10/11/19 15:29	5
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	73		59 - 120					10/10/19 20:38	1
4-Bromofluorobenzene (Surr)	74		59 - 120					10/11/19 15:29	5
Dibromofluoromethane (Surr)	98		75 - 128					10/10/19 20:38	1
Dibromofluoromethane (Surr)	117		75 - 128					10/11/19 15:29	5
1,2-Dichloroethane-d4 (Surr)	100		70 - 121					10/10/19 20:38	1
1,2-Dichloroethane-d4 (Surr)	96		70 - 121					10/11/19 15:29	5
Toluene-d8 (Surr)	91		70 - 123					10/10/19 20:38	1
Toluene-d8 (Surr)	91		70 - 123					10/11/19 15:29	5

Client Sample Results

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

Job ID: 240-119761-1

Client Sample ID: PW-16-02_092719

Lab Sample ID: 240-119761-5

Date Collected: 09/27/19 14:56

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	1.4	J	2.0	0.86	ug/L			10/07/19 15:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		63 - 125					10/07/19 15:41	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	5.0	U	5.0	0.95	ug/L			10/11/19 15:53	5
cis-1,2-Dichloroethene	20		5.0	0.80	ug/L			10/11/19 15:53	5
Tetrachloroethene	5.0	U	5.0	0.75	ug/L			10/11/19 15:53	5
trans-1,2-Dichloroethene	5.0	U	5.0	0.95	ug/L			10/11/19 15:53	5
Trichloroethene	5.0	U	5.0	0.50	ug/L			10/11/19 15:53	5
Vinyl chloride	59		5.0	1.0	ug/L			10/11/19 15:53	5
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	72		59 - 120					10/11/19 15:53	5
Dibromofluoromethane (Surr)	116		75 - 128					10/11/19 15:53	5
1,2-Dichloroethane-d4 (Surr)	98		70 - 121					10/11/19 15:53	5
Toluene-d8 (Surr)	92		70 - 123					10/11/19 15:53	5

Client Sample Results

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

Job ID: 240-119761-1

Client Sample ID: DUP-10

Lab Sample ID: 240-119761-6

Date Collected: 09/27/19 00:00

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	9.1		2.0	0.86	ug/L			10/07/19 16:06	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		63 - 125					10/07/19 16:06	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	5000	U	5000	950	ug/L			10/11/19 20:17	5000
cis-1,2-Dichloroethene	28000		5000	800	ug/L			10/11/19 20:17	5000
Tetrachloroethene	5000	U	5000	750	ug/L			10/11/19 20:17	5000
trans-1,2-Dichloroethene	5000	U	5000	950	ug/L			10/11/19 20:17	5000
Trichloroethene	5000	U	5000	500	ug/L			10/11/19 20:17	5000
Vinyl chloride	7600		5000	1000	ug/L			10/11/19 20:17	5000
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	74		59 - 120					10/11/19 20:17	5000
Dibromofluoromethane (Surr)	119		75 - 128					10/11/19 20:17	5000
1,2-Dichloroethane-d4 (Surr)	101		70 - 121					10/11/19 20:17	5000
Toluene-d8 (Surr)	87		70 - 123					10/11/19 20:17	5000

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1000	U H	1000	190	ug/L			10/12/19 20:10	1000
cis-1,2-Dichloroethene	29000	H	1000	160	ug/L			10/12/19 20:10	1000
Tetrachloroethene	1000	U H	1000	150	ug/L			10/12/19 20:10	1000
trans-1,2-Dichloroethene	1000	U H	1000	190	ug/L			10/12/19 20:10	1000
Trichloroethene	1000	U H	1000	100	ug/L			10/12/19 20:10	1000
Vinyl chloride	7600	H	1000	200	ug/L			10/12/19 20:10	1000
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	73		59 - 120					10/12/19 20:10	1000
Dibromofluoromethane (Surr)	110		75 - 128					10/12/19 20:10	1000
1,2-Dichloroethane-d4 (Surr)	90		70 - 121					10/12/19 20:10	1000
Toluene-d8 (Surr)	91		70 - 123					10/12/19 20:10	1000

Client Sample Results

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

Job ID: 240-119761-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-119761-7

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
Acetone	10	U	10	5.4	ug/L			10/11/19 13:54	1
Benzene	1.0	U	1.0	0.13	ug/L			10/11/19 13:54	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			10/11/19 13:54	1
Bromoform	1.0	U	1.0	0.76	ug/L			10/11/19 13:54	1
Bromomethane	1.0	U	1.0	0.42	ug/L			10/11/19 13:54	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			10/11/19 13:54	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			10/11/19 13:54	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			10/11/19 13:54	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			10/11/19 13:54	1
Chloroethane	1.0	U	1.0	0.83	ug/L			10/11/19 13:54	1
Chloroform	1.0	U	1.0	0.13	ug/L			10/11/19 13:54	1
Chloromethane	1.0	U	1.0	0.20	ug/L			10/11/19 13:54	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/11/19 13:54	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			10/11/19 13:54	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			10/11/19 13:54	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			10/11/19 13:54	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			10/11/19 13:54	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			10/11/19 13:54	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			10/11/19 13:54	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			10/11/19 13:54	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			10/11/19 13:54	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			10/11/19 13:54	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			10/11/19 13:54	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			10/11/19 13:54	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/11/19 13:54	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			10/11/19 13:54	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			10/11/19 13:54	1
2-Hexanone	10	U	10	0.54	ug/L			10/11/19 13:54	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			10/11/19 13:54	1
Methyl acetate	10	U	10	1.7	ug/L			10/11/19 13:54	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			10/11/19 13:54	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			10/11/19 13:54	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			10/11/19 13:54	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			10/11/19 13:54	1
Styrene	1.0	U	1.0	0.10	ug/L			10/11/19 13:54	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			10/11/19 13:54	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/11/19 13:54	1
Toluene	1.0	U	1.0	0.14	ug/L			10/11/19 13:54	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/11/19 13:54	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			10/11/19 13:54	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			10/11/19 13:54	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			10/11/19 13:54	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			10/11/19 13:54	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/11/19 13:54	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			10/11/19 13:54	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			10/11/19 13:54	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.14	ug/L			10/11/19 13:54	1
1,2,4-Trimethylbenzene	1.0	U	1.0	0.070	ug/L			10/11/19 13:54	1
1,3,5-Trimethylbenzene	1.0	U	1.0	0.12	ug/L			10/11/19 13:54	1

Eurofins TestAmerica, Canton

Client Sample Results

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

Job ID: 240-119761-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-119761-7

Date Collected: 09/27/19 00:00

Matrix: Water

Date Received: 10/01/19 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/11/19 13:54	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			10/11/19 13:54	1
Diethyl ether	1.0	U	1.0	0.19	ug/L			10/11/19 13:54	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	74		59 - 120					10/11/19 13:54	1
Dibromofluoromethane (Surr)	114		75 - 128					10/11/19 13:54	1
1,2-Dichloroethane-d4 (Surr)	94		70 - 121					10/11/19 13:54	1
Toluene-d8 (Surr)	89		70 - 123					10/11/19 13:54	1

Surrogate Summary

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

Job ID: 240-119761-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		BFB (59-120)	DBFM (75-128)	DCA (70-121)	TOL (70-123)
240-119675-B-6 MS	Matrix Spike	99	99	83	99
240-119675-B-6 MSD	Matrix Spike Duplicate	95	97	79	98
240-119753-D-2 MSD	Matrix Spike Duplicate	78	106	99	96
240-119753-H-2 MS	Matrix Spike	75	109	97	98
240-119761-1	MW-49_092719	74	115	94	88
240-119761-2	MW-45_092719	73	104	97	93
240-119761-3	TW-16-04_092719	71	102	96	95
240-119761-4	TW-16-03_092719	73	98	100	91
240-119761-4	TW-16-03_092719	74	117	96	91
240-119761-5	PW-16-02_092719	72	116	98	92
240-119761-6	DUP-10	74	119	101	87
240-119761-6 - RA	DUP-10	73	110	90	91
240-119761-7	TRIP BLANK	74	114	94	89
240-119842-B-69 MS	Matrix Spike	96	102	80	96
240-119842-E-69 MSD	Matrix Spike Duplicate	99	103	82	98
LCS 240-405078/4	Lab Control Sample	79	102	94	98
LCS 240-405284/4	Lab Control Sample	94	99	78	95
LCS 240-405434/4	Lab Control Sample	93	97	76	98
MB 240-405078/7	Method Blank	74	101	99	94
MB 240-405284/7	Method Blank	77	109	91	91
MB 240-405434/7	Method Blank	76	111	92	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

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		DCA (63-125)
240-119753-C-2 MS	Matrix Spike	103
240-119753-C-2 MSD	Matrix Spike Duplicate	104
240-119761-1	MW-49_092719	88
240-119761-2	MW-45_092719	100
240-119761-3	TW-16-04_092719	99
240-119761-4	TW-16-03_092719	98
240-119761-5	PW-16-02_092719	100
240-119761-6	DUP-10	95
LCS 240-404405/4	Lab Control Sample	100
MB 240-404405/5	Method Blank	101

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: 240-119761-1

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

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

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			10/10/19 14:14	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			10/10/19 14:14	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			10/10/19 14:14	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			10/10/19 14:14	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			10/10/19 14:14	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			10/10/19 14:14	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			10/10/19 14:14	1
Acetone	10	U	10	5.4	ug/L			10/10/19 14:14	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			10/10/19 14:14	1
Benzene	1.0	U	1.0	0.13	ug/L			10/10/19 14:14	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			10/10/19 14:14	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/10/19 14:14	1
Bromoform	1.0	U	1.0	0.76	ug/L			10/10/19 14:14	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			10/10/19 14:14	1
Bromomethane	1.0	U	1.0	0.42	ug/L			10/10/19 14:14	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			10/10/19 14:14	1
2-Hexanone	10	U	10	0.54	ug/L			10/10/19 14:14	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			10/10/19 14:14	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			10/10/19 14:14	1
Chloroethane	1.0	U	1.0	0.83	ug/L			10/10/19 14:14	1
Chloroform	1.0	U	1.0	0.13	ug/L			10/10/19 14:14	1
Chloromethane	1.0	U	1.0	0.20	ug/L			10/10/19 14:14	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	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
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			10/10/19 14:14	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			10/10/19 14:14	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			10/10/19 14:14	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			10/10/19 14:14	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			10/10/19 14:14	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			10/10/19 14:14	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			10/10/19 14:14	1
Methyl acetate	10	U	10	1.7	ug/L			10/10/19 14:14	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			10/10/19 14:14	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			10/10/19 14:14	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			10/10/19 14:14	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			10/10/19 14:14	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			10/10/19 14:14	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			10/10/19 14:14	1
Styrene	1.0	U	1.0	0.10	ug/L			10/10/19 14:14	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/10/19 14:14	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			10/10/19 14:14	1
Toluene	1.0	U	1.0	0.14	ug/L			10/10/19 14:14	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.14	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
1,2,4-Trimethylbenzene	1.0	U	1.0	0.070	ug/L			10/10/19 14:14	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			10/10/19 14:14	1
1,3,5-Trimethylbenzene	1.0	U	1.0	0.12	ug/L			10/10/19 14:14	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/10/19 14:14	1

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119761-1

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

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

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Trichlorofluoromethane	1.0	U	1.0	0.45	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
Diethyl ether	1.0	U	1.0	0.19	ug/L			10/10/19 14:14	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			10/10/19 14:14	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
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
1,2-Dibromoethane	10.0	7.12	*	ug/L		71	77 - 123
1,2-Dichlorobenzene	10.0	9.74		ug/L		97	78 - 120
1,3-Dichlorobenzene	10.0	9.98		ug/L		100	78 - 120
2-Butanone (MEK)	20.0	16.7		ug/L		84	39 - 163
1,4-Dichlorobenzene	10.0	10.7		ug/L		107	78 - 120
1,1-Dichloroethane	10.0	13.3		ug/L		133	75 - 133
Acetone	20.0	20.7		ug/L		104	21 - 162
1,2-Dichloroethane	10.0	11.8		ug/L		118	71 - 135
Benzene	10.0	9.97		ug/L		100	80 - 123
Bromodichloromethane	10.0	8.70		ug/L		87	77 - 125
1,1-Dichloroethene	10.0	10.4		ug/L		104	65 - 139
Bromoform	10.0	6.19		ug/L		62	49 - 141
1,2-Dichloropropane	10.0	12.9		ug/L		129	78 - 133
Bromomethane	10.0	8.34		ug/L		83	41 - 175
Carbon disulfide	10.0	9.50		ug/L		95	60 - 138
2-Hexanone	20.0	15.9		ug/L		79	43 - 148
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
4-Methyl-2-pentanone (MIBK)	20.0	17.2		ug/L		86	49 - 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
1,1,2,2-Tetrachloroethane	10.0	5.52	*	ug/L		55	65 - 139
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

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119761-1

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
Methyl tert-butyl ether	10.0	7.24		ug/L		72	51 - 133
Methylcyclohexane	10.0	9.91		ug/L		99	60 - 125
1,2,4-Trichlorobenzene	10.0	9.68		ug/L		97	42 - 133
Methylene Chloride	10.0	9.13		ug/L		91	70 - 134
1,1,1-Trichloroethane	10.0	10.4		ug/L		104	69 - 134
1,1,2-Trichloroethane	10.0	7.69	*	ug/L		77	78 - 133
Styrene	10.0	9.13		ug/L		91	79 - 120
Tetrachloroethene	10.0	12.1		ug/L		121	74 - 130
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	12.2		ug/L		122	50 - 156
Toluene	10.0	10.5		ug/L		105	78 - 129
trans-1,2-Dichloroethene	10.0	10.3		ug/L		103	78 - 133
1,2,4-Trimethylbenzene	10.0	8.93		ug/L		89	74 - 120
trans-1,3-Dichloropropene	10.0	6.57		ug/L		66	55 - 128
1,3,5-Trimethylbenzene	10.0	9.05		ug/L		90	75 - 121
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
Diethyl ether	10.0	14.0		ug/L		140	70 - 146
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
1,2-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
1,3-Dichlorobenzene	1.0	U	10.0	8.22		ug/L		82	62 - 120	3	31
2-Butanone (MEK)	10	U	20.0	16.1		ug/L		81	37 - 156	17	35
1,4-Dichlorobenzene	1.0	U	10.0	8.79		ug/L		88	63 - 120	1	28
1,1-Dichloroethane	1.0	U F1	10.0	13.7	F1	ug/L		137	63 - 136	9	23
Acetone	10	U	20.0	18.7		ug/L		93	10 - 168	15	35
1,2-Dichloroethane	1.0	U	10.0	11.4		ug/L		114	65 - 135	2	24
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
1,1-Dichloroethene	1.0	U	10.0	10.1		ug/L		101	53 - 140	9	35
Bromoform	1.0	U	10.0	6.44		ug/L		64	44 - 129	8	28
1,2-Dichloropropane	1.0	U F1	10.0	13.5	F1	ug/L		135	70 - 132	9	26
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
2-Hexanone	10	U	20.0	14.2		ug/L		71	42 - 150	3	35

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119761-1

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
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
4-Methyl-2-pentanone (MIBK)	10	U	20.0	17.2		ug/L		86	44 - 143	0	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
1,1,2,2-Tetrachloroethane	1.0	U * F1	10.0	4.96	F1	ug/L		50	60 - 137	6	31
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
1,2,4-Trichlorobenzene	1.0	U	10.0	7.76		ug/L		78	30 - 126	6	35
Methylene Chloride	5.0	U	10.0	8.47		ug/L		85	61 - 130	9	29
1,1,1-Trichloroethane	1.0	U	10.0	9.82		ug/L		98	51 - 138	2	27
1,1,2-Trichloroethane	1.0	U * F1	10.0	6.92	F1	ug/L		69	76 - 132	2	25
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
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	10.0	12.2		ug/L		122	31 - 156	2	35
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
1,2,4-Trimethylbenzene	1.0	U	10.0	8.11		ug/L		81	62 - 120	5	27
trans-1,3-Dichloropropene	1.0	U	10.0	6.07		ug/L		61	40 - 125	7	27
1,3,5-Trimethylbenzene	1.0	U	10.0	7.46		ug/L		75	64 - 120	0	23
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
Diethyl ether	1.0	U F1	10.0	13.8	F1	ug/L		138	65 - 134	7	33
Xylenes, Total	2.0	U	20.0	17.8		ug/L		89	67 - 120	1	25

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
1,2-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

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119761-1

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

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

Client Sample ID: Matrix Spike

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 405078

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec. Limits
	Result	Qualifier	Added	Result	Qualifier				
1,2-Dichlorobenzene	1.0	U	10.0	8.34		ug/L		83	64 - 120
1,3-Dichlorobenzene	1.0	U	10.0	8.49		ug/L		85	62 - 120
2-Butanone (MEK)	10	U	20.0	13.6		ug/L		68	37 - 156
1,4-Dichlorobenzene	1.0	U	10.0	8.73		ug/L		87	63 - 120
1,1-Dichloroethane	1.0	U F1	10.0	12.6		ug/L		126	63 - 136
Acetone	10	U	20.0	21.7		ug/L		109	10 - 168
1,2-Dichloroethane	1.0	U	10.0	11.3		ug/L		113	65 - 135
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
1,1-Dichloroethene	1.0	U	10.0	11.1		ug/L		111	53 - 140
Bromoform	1.0	U	10.0	5.96		ug/L		60	44 - 129
1,2-Dichloropropane	1.0	U F1	10.0	12.3		ug/L		123	70 - 132
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
2-Hexanone	10	U	20.0	13.9		ug/L		69	42 - 150
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
4-Methyl-2-pentanone (MIBK)	10	U	20.0	17.3		ug/L		86	44 - 143
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
1,1,2,2-Tetrachloroethane	1.0	U * F1	10.0	5.26	F1	ug/L		53	60 - 137
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
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
1,2,4-Trichlorobenzene	1.0	U	10.0	7.31		ug/L		73	30 - 126
Methylene Chloride	5.0	U	10.0	7.72		ug/L		77	61 - 130
1,1,1-Trichloroethane	1.0	U	10.0	9.63		ug/L		96	51 - 138
1,1,2-Trichloroethane	1.0	U * F1	10.0	6.79	F1	ug/L		68	76 - 132
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
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	10.0	12.0		ug/L		120	31 - 156
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
1,2,4-Trimethylbenzene	1.0	U	10.0	7.73		ug/L		77	62 - 120
trans-1,3-Dichloropropene	1.0	U	10.0	5.64		ug/L		56	40 - 125
1,3,5-Trimethylbenzene	1.0	U	10.0	7.43		ug/L		74	64 - 120
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
Diethyl ether	1.0	U F1	10.0	13.0		ug/L		130	65 - 134

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119761-1

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 Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Xylenes, Total	2.0	U	20.0	17.7		ug/L		89	67 - 120
Surrogate	MS %Recovery	MS Qualifier	Limits						
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 240-405284/7

Matrix: Water

Analysis Batch: 405284

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			10/11/19 13:29	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			10/11/19 13:29	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			10/11/19 13:29	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			10/11/19 13:29	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			10/11/19 13:29	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			10/11/19 13:29	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			10/11/19 13:29	1
Acetone	10	U	10	5.4	ug/L			10/11/19 13:29	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			10/11/19 13:29	1
Benzene	1.0	U	1.0	0.13	ug/L			10/11/19 13:29	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			10/11/19 13:29	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/11/19 13:29	1
Bromoform	1.0	U	1.0	0.76	ug/L			10/11/19 13:29	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			10/11/19 13:29	1
Bromomethane	1.0	U	1.0	0.42	ug/L			10/11/19 13:29	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			10/11/19 13:29	1
2-Hexanone	10	U	10	0.54	ug/L			10/11/19 13:29	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			10/11/19 13:29	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			10/11/19 13:29	1
Chloroethane	1.0	U	1.0	0.83	ug/L			10/11/19 13:29	1
Chloroform	1.0	U	1.0	0.13	ug/L			10/11/19 13:29	1
Chloromethane	1.0	U	1.0	0.20	ug/L			10/11/19 13:29	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			10/11/19 13:29	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/11/19 13:29	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			10/11/19 13:29	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			10/11/19 13:29	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			10/11/19 13:29	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			10/11/19 13:29	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			10/11/19 13:29	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			10/11/19 13:29	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			10/11/19 13:29	1
Methyl acetate	10	U	10	1.7	ug/L			10/11/19 13:29	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			10/11/19 13:29	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			10/11/19 13:29	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			10/11/19 13:29	1

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119761-1

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

Lab Sample ID: MB 240-405284/7
Matrix: Water
Analysis Batch: 405284

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Methylene Chloride	5.0	U	5.0	2.6	ug/L			10/11/19 13:29	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			10/11/19 13:29	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			10/11/19 13:29	1
Styrene	1.0	U	1.0	0.10	ug/L			10/11/19 13:29	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/11/19 13:29	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			10/11/19 13:29	1
Toluene	1.0	U	1.0	0.14	ug/L			10/11/19 13:29	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.14	ug/L			10/11/19 13:29	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/11/19 13:29	1
1,2,4-Trimethylbenzene	1.0	U	1.0	0.070	ug/L			10/11/19 13:29	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			10/11/19 13:29	1
1,3,5-Trimethylbenzene	1.0	U	1.0	0.12	ug/L			10/11/19 13:29	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/11/19 13:29	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			10/11/19 13:29	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/11/19 13:29	1
Diethyl ether	1.0	U	1.0	0.19	ug/L			10/11/19 13:29	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			10/11/19 13:29	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	77		59 - 120		10/11/19 13:29	1
Dibromofluoromethane (Surr)	109		75 - 128		10/11/19 13:29	1
1,2-Dichloroethane-d4 (Surr)	91		70 - 121		10/11/19 13:29	1
Toluene-d8 (Surr)	91		70 - 123		10/11/19 13:29	1

Lab Sample ID: LCS 240-405284/4
Matrix: Water
Analysis Batch: 405284

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromoethane	10.0	10.1		ug/L		101	77 - 123
1,2-Dichlorobenzene	10.0	9.46		ug/L		95	78 - 120
1,3-Dichlorobenzene	10.0	9.47		ug/L		95	78 - 120
2-Butanone (MEK)	20.0	19.8		ug/L		99	39 - 163
1,4-Dichlorobenzene	10.0	8.98		ug/L		90	78 - 120
1,1-Dichloroethane	10.0	9.25		ug/L		93	75 - 133
Acetone	20.0	15.6		ug/L		78	21 - 162
1,2-Dichloroethane	10.0	8.90		ug/L		89	71 - 135
Benzene	10.0	9.90		ug/L		99	80 - 123
Bromodichloromethane	10.0	9.91		ug/L		99	77 - 125
1,1-Dichloroethene	10.0	10.5		ug/L		105	65 - 139
Bromoform	10.0	11.3		ug/L		113	49 - 141
1,2-Dichloropropane	10.0	9.85		ug/L		99	78 - 133
Bromomethane	10.0	6.50		ug/L		65	41 - 175
Carbon disulfide	10.0	10.0		ug/L		100	60 - 138
2-Hexanone	20.0	17.6		ug/L		88	43 - 148
Carbon tetrachloride	10.0	10.8		ug/L		108	63 - 140
Chlorobenzene	10.0	9.79		ug/L		98	80 - 121

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119761-1

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

Lab Sample ID: LCS 240-405284/4
Matrix: Water
Analysis Batch: 405284

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloroethane	10.0	5.34		ug/L		53	33 - 173
Chloroform	10.0	9.65		ug/L		97	79 - 127
Chloromethane	10.0	6.06		ug/L		61	54 - 143
4-Methyl-2-pentanone (MIBK)	20.0	19.7		ug/L		98	49 - 143
cis-1,2-Dichloroethene	10.0	10.5		ug/L		105	76 - 128
cis-1,3-Dichloropropene	10.0	10.3		ug/L		103	64 - 132
Cyclohexane	10.0	9.70		ug/L		97	58 - 145
Dibromochloromethane	10.0	10.8		ug/L		108	70 - 132
Dichlorodifluoromethane	10.0	5.63		ug/L		56	29 - 148
1,1,2,2-Tetrachloroethane	10.0	9.10		ug/L		91	65 - 139
Ethylbenzene	10.0	10.5		ug/L		105	80 - 120
Isopropylbenzene	10.0	10.2		ug/L		102	74 - 120
Methyl acetate	20.0	18.6		ug/L		93	52 - 145
Methyl tert-butyl ether	10.0	9.62		ug/L		96	51 - 133
Methylcyclohexane	10.0	10.2		ug/L		102	60 - 125
1,2,4-Trichlorobenzene	10.0	8.74		ug/L		87	42 - 133
Methylene Chloride	10.0	10.5		ug/L		105	70 - 134
1,1,1-Trichloroethane	10.0	10.1		ug/L		101	69 - 134
1,1,2-Trichloroethane	10.0	10.0		ug/L		100	78 - 133
Styrene	10.0	10.3		ug/L		103	79 - 120
Tetrachloroethene	10.0	10.5		ug/L		105	74 - 130
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	11.5		ug/L		115	50 - 156
Toluene	10.0	9.86		ug/L		99	78 - 129
trans-1,2-Dichloroethene	10.0	10.6		ug/L		106	78 - 133
1,2,4-Trimethylbenzene	10.0	8.47		ug/L		85	74 - 120
trans-1,3-Dichloropropene	10.0	8.69		ug/L		87	55 - 128
1,3,5-Trimethylbenzene	10.0	8.49		ug/L		85	75 - 121
Trichloroethene	10.0	11.0		ug/L		110	76 - 125
Trichlorofluoromethane	10.0	8.04		ug/L		80	51 - 164
Vinyl chloride	10.0	6.30		ug/L		63	58 - 143
Diethyl ether	10.0	9.45		ug/L		94	70 - 146
Xylenes, Total	20.0	21.3		ug/L		107	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	94		59 - 120
Dibromofluoromethane (Surr)	99		75 - 128
1,2-Dichloroethane-d4 (Surr)	78		70 - 121
Toluene-d8 (Surr)	95		70 - 123

Lab Sample ID: 240-119675-B-6 MS
Matrix: Water
Analysis Batch: 405284

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
2-Butanone (MEK)	670	U	1330	1150		ug/L		86	37 - 156
1,1-Dichloroethane	67	U	667	625		ug/L		94	63 - 136
Acetone	670	U	1330	1120		ug/L		84	10 - 168
Benzene	67	U	667	652		ug/L		98	71 - 122

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119761-1

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

Lab Sample ID: 240-119675-B-6 MS

Matrix: Water

Analysis Batch: 405284

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	Limits
	Result	Qualifier		Result	Qualifier					
1,1-Dichloroethene	67	U	667	687		ug/L		103	53 - 140	
Carbon disulfide	330	U	667	677		ug/L		101	43 - 144	
Chloroform	12	J	667	641		ug/L		94	68 - 130	
cis-1,2-Dichloroethene	240		667	878		ug/L		96	64 - 130	
1,1,2,2-Tetrachloroethane	67	U	667	605		ug/L		91	60 - 137	
Ethylbenzene	67	U	667	735		ug/L		110	66 - 120	
Methylene Chloride	330	U	667	710		ug/L		107	61 - 130	
1,1,1-Trichloroethane	67	U	667	678		ug/L		102	51 - 138	
Styrene	67	U	667	734		ug/L		110	68 - 120	
Tetrachloroethene	2200		667	2790	E	ug/L		91	51 - 136	
Toluene	67	U	667	688		ug/L		103	62 - 132	
trans-1,2-Dichloroethene	67	U	667	729		ug/L		109	68 - 133	
Trichloroethene	56	J	667	802		ug/L		112	55 - 131	
Vinyl chloride	67	U	667	419		ug/L		63	43 - 154	
Xylenes, Total	130	U	1330	1470		ug/L		110	67 - 120	

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	99		59 - 120
Dibromofluoromethane (Surr)	99		75 - 128
1,2-Dichloroethane-d4 (Surr)	83		70 - 121
Toluene-d8 (Surr)	99		70 - 123

Lab Sample ID: 240-119675-B-6 MSD

Matrix: Water

Analysis Batch: 405284

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							
2-Butanone (MEK)	670	U	1330	1190		ug/L		89	37 - 156	3	35	
1,1-Dichloroethane	67	U	667	620		ug/L		93	63 - 136	1	23	
Acetone	670	U	1330	995		ug/L		75	10 - 168	12	35	
Benzene	67	U	667	660		ug/L		99	71 - 122	1	22	
1,1-Dichloroethene	67	U	667	678		ug/L		102	53 - 140	1	35	
Carbon disulfide	330	U	667	677		ug/L		102	43 - 144	0	33	
Chloroform	12	J	667	639		ug/L		94	68 - 130	0	23	
cis-1,2-Dichloroethene	240		667	910		ug/L		101	64 - 130	4	21	
1,1,2,2-Tetrachloroethane	67	U	667	584		ug/L		88	60 - 137	3	31	
Ethylbenzene	67	U	667	716		ug/L		107	66 - 120	3	24	
Methylene Chloride	330	U	667	700		ug/L		105	61 - 130	1	29	
1,1,1-Trichloroethane	67	U	667	665		ug/L		100	51 - 138	2	27	
Styrene	67	U	667	724		ug/L		109	68 - 120	1	26	
Tetrachloroethene	2200		667	2690	E	ug/L		74	51 - 136	4	23	
Toluene	67	U	667	670		ug/L		100	62 - 132	3	23	
trans-1,2-Dichloroethene	67	U	667	707		ug/L		106	68 - 133	3	24	
Trichloroethene	56	J	667	791		ug/L		110	55 - 131	1	23	
Vinyl chloride	67	U	667	403		ug/L		60	43 - 154	4	29	
Xylenes, Total	130	U	1330	1440		ug/L		108	67 - 120	2	25	

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119761-1

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

Lab Sample ID: 240-119675-B-6 MSD
Matrix: Water
Analysis Batch: 405284

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

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	95		59 - 120
Dibromofluoromethane (Surr)	97		75 - 128
1,2-Dichloroethane-d4 (Surr)	79		70 - 121
Toluene-d8 (Surr)	98		70 - 123

Lab Sample ID: MB 240-405434/7
Matrix: Water
Analysis Batch: 405434

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			10/12/19 19:46	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			10/12/19 19:46	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			10/12/19 19:46	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			10/12/19 19:46	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			10/12/19 19:46	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			10/12/19 19:46	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			10/12/19 19:46	1
Acetone	10	U	10	5.4	ug/L			10/12/19 19:46	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			10/12/19 19:46	1
Benzene	1.0	U	1.0	0.13	ug/L			10/12/19 19:46	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			10/12/19 19:46	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/12/19 19:46	1
Bromoform	1.0	U	1.0	0.76	ug/L			10/12/19 19:46	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			10/12/19 19:46	1
Bromomethane	1.0	U	1.0	0.42	ug/L			10/12/19 19:46	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			10/12/19 19:46	1
2-Hexanone	10	U	10	0.54	ug/L			10/12/19 19:46	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			10/12/19 19:46	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			10/12/19 19:46	1
Chloroethane	1.0	U	1.0	0.83	ug/L			10/12/19 19:46	1
Chloroform	1.0	U	1.0	0.13	ug/L			10/12/19 19:46	1
Chloromethane	1.0	U	1.0	0.20	ug/L			10/12/19 19:46	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			10/12/19 19:46	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/12/19 19:46	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			10/12/19 19:46	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			10/12/19 19:46	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			10/12/19 19:46	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			10/12/19 19:46	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			10/12/19 19:46	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			10/12/19 19:46	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			10/12/19 19:46	1
Methyl acetate	10	U	10	1.7	ug/L			10/12/19 19:46	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			10/12/19 19:46	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			10/12/19 19:46	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			10/12/19 19:46	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			10/12/19 19:46	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			10/12/19 19:46	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			10/12/19 19:46	1

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119761-1

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

Lab Sample ID: MB 240-405434/7
Matrix: Water
Analysis Batch: 405434

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Styrene	1.0	U	1.0	0.10	ug/L			10/12/19 19:46	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/12/19 19:46	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			10/12/19 19:46	1
Toluene	1.0	U	1.0	0.14	ug/L			10/12/19 19:46	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.14	ug/L			10/12/19 19:46	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/12/19 19:46	1
1,2,4-Trimethylbenzene	1.0	U	1.0	0.070	ug/L			10/12/19 19:46	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			10/12/19 19:46	1
1,3,5-Trimethylbenzene	1.0	U	1.0	0.12	ug/L			10/12/19 19:46	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/12/19 19:46	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			10/12/19 19:46	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/12/19 19:46	1
Diethyl ether	1.0	U	1.0	0.19	ug/L			10/12/19 19:46	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			10/12/19 19:46	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	76		59 - 120		10/12/19 19:46	1
Dibromofluoromethane (Surr)	111		75 - 128		10/12/19 19:46	1
1,2-Dichloroethane-d4 (Surr)	92		70 - 121		10/12/19 19:46	1
Toluene-d8 (Surr)	92		70 - 123		10/12/19 19:46	1

Lab Sample ID: LCS 240-405434/4
Matrix: Water
Analysis Batch: 405434

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromoethane	10.0	9.71		ug/L		97	77 - 123
1,2-Dichlorobenzene	10.0	9.55		ug/L		95	78 - 120
1,3-Dichlorobenzene	10.0	9.47		ug/L		95	78 - 120
2-Butanone (MEK)	20.0	17.8		ug/L		89	39 - 163
1,4-Dichlorobenzene	10.0	9.39		ug/L		94	78 - 120
1,1-Dichloroethane	10.0	9.21		ug/L		92	75 - 133
Acetone	20.0	17.1		ug/L		86	21 - 162
1,2-Dichloroethane	10.0	8.19		ug/L		82	71 - 135
Benzene	10.0	9.72		ug/L		97	80 - 123
Bromodichloromethane	10.0	9.62		ug/L		96	77 - 125
1,1-Dichloroethene	10.0	9.83		ug/L		98	65 - 139
Bromoform	10.0	11.0		ug/L		110	49 - 141
1,2-Dichloropropane	10.0	9.67		ug/L		97	78 - 133
Bromomethane	10.0	5.72		ug/L		57	41 - 175
Carbon disulfide	10.0	9.80		ug/L		98	60 - 138
2-Hexanone	20.0	17.4		ug/L		87	43 - 148
Carbon tetrachloride	10.0	10.6		ug/L		106	63 - 140
Chlorobenzene	10.0	9.83		ug/L		98	80 - 121
Chloroethane	10.0	5.41		ug/L		54	33 - 173
Chloroform	10.0	9.20		ug/L		92	79 - 127
Chloromethane	10.0	5.63		ug/L		56	54 - 143

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119761-1

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

Lab Sample ID: LCS 240-405434/4
Matrix: Water
Analysis Batch: 405434

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4-Methyl-2-pentanone (MIBK)	20.0	18.5		ug/L		92	49 - 143
cis-1,2-Dichloroethene	10.0	10.1		ug/L		101	76 - 128
cis-1,3-Dichloropropene	10.0	10.1		ug/L		101	64 - 132
Cyclohexane	10.0	9.55		ug/L		96	58 - 145
Dibromochloromethane	10.0	10.2		ug/L		102	70 - 132
Dichlorodifluoromethane	10.0	5.24		ug/L		52	29 - 148
1,1,2,2-Tetrachloroethane	10.0	8.97		ug/L		90	65 - 139
Ethylbenzene	10.0	10.2		ug/L		102	80 - 120
Isopropylbenzene	10.0	9.71		ug/L		97	74 - 120
Methyl acetate	20.0	17.3		ug/L		86	52 - 145
Methyl tert-butyl ether	10.0	9.12		ug/L		91	51 - 133
Methylcyclohexane	10.0	9.88		ug/L		99	60 - 125
1,2,4-Trichlorobenzene	10.0	8.73		ug/L		87	42 - 133
Methylene Chloride	10.0	9.82		ug/L		98	70 - 134
1,1,1-Trichloroethane	10.0	9.76		ug/L		98	69 - 134
1,1,2-Trichloroethane	10.0	9.30		ug/L		93	78 - 133
Styrene	10.0	10.3		ug/L		103	79 - 120
Tetrachloroethene	10.0	10.2		ug/L		102	74 - 130
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	11.4		ug/L		114	50 - 156
Toluene	10.0	9.84		ug/L		98	78 - 129
trans-1,2-Dichloroethene	10.0	10.5		ug/L		105	78 - 133
1,2,4-Trimethylbenzene	10.0	8.50		ug/L		85	74 - 120
trans-1,3-Dichloropropene	10.0	8.65		ug/L		86	55 - 128
1,3,5-Trimethylbenzene	10.0	8.43		ug/L		84	75 - 121
Trichloroethene	10.0	11.0		ug/L		110	76 - 125
Trichlorofluoromethane	10.0	7.79		ug/L		78	51 - 164
Vinyl chloride	10.0	5.76		ug/L		58	58 - 143
Diethyl ether	10.0	9.20		ug/L		92	70 - 146
Xylenes, Total	20.0	20.2		ug/L		101	80 - 120

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	93		59 - 120
Dibromofluoromethane (Surr)	97		75 - 128
1,2-Dichloroethane-d4 (Surr)	76		70 - 121
Toluene-d8 (Surr)	98		70 - 123

Lab Sample ID: 240-119842-B-69 MS
Matrix: Water
Analysis Batch: 405434

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U	10.0	9.93		ug/L		99	53 - 140
Carbon tetrachloride	1.0	U	10.0	10.6		ug/L		106	41 - 143
Chloroform	1.0	U	10.0	9.11		ug/L		91	68 - 130
Chloromethane	1.0	U	10.0	5.57		ug/L		56	31 - 154
cis-1,2-Dichloroethene	1.0	U	10.0	9.84		ug/L		98	64 - 130
Methylene Chloride	5.0	U	10.0	10.4		ug/L		104	61 - 130
1,1,1-Trichloroethane	1.0	U	10.0	9.63		ug/L		96	51 - 138

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119761-1

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

Lab Sample ID: 240-119842-B-69 MS

Client Sample ID: Matrix Spike

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 405434

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.
	Result	Qualifier		Result	Qualifier				
Tetrachloroethene	1.0	U	10.0	10.3		ug/L		103	51 - 136
trans-1,2-Dichloroethene	1.0	U	10.0	10.4		ug/L		104	68 - 133
Trichloroethene	1.0	U	10.0	10.3		ug/L		103	55 - 131
Vinyl chloride	1.0	U	10.0	5.67		ug/L		57	43 - 154
MS MS									
Surrogate	%Recovery	Qualifier	Limits						
4-Bromofluorobenzene (Surr)	96		59 - 120						
Dibromofluoromethane (Surr)	102		75 - 128						
1,2-Dichloroethane-d4 (Surr)	80		70 - 121						
Toluene-d8 (Surr)	96		70 - 123						

Lab Sample ID: 240-119842-E-69 MSD

Client Sample ID: Matrix Spike Duplicate

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 405434

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	RPD
	Result	Qualifier		Result	Qualifier						
1,1-Dichloroethene	1.0	U	10.0	9.31		ug/L		93	53 - 140	7	35
Carbon tetrachloride	1.0	U	10.0	10.2		ug/L		102	41 - 143	4	30
Chloroform	1.0	U	10.0	8.99		ug/L		90	68 - 130	1	23
Chloromethane	1.0	U	10.0	5.80		ug/L		58	31 - 154	4	35
cis-1,2-Dichloroethene	1.0	U	10.0	9.44		ug/L		94	64 - 130	4	21
Methylene Chloride	5.0	U	10.0	9.47		ug/L		95	61 - 130	10	29
1,1,1-Trichloroethane	1.0	U	10.0	9.42		ug/L		94	51 - 138	2	27
Tetrachloroethene	1.0	U	10.0	9.53		ug/L		95	51 - 136	8	23
trans-1,2-Dichloroethene	1.0	U	10.0	10.2		ug/L		102	68 - 133	1	24
Trichloroethene	1.0	U	10.0	10.5		ug/L		105	55 - 131	2	23
Vinyl chloride	1.0	U	10.0	5.88		ug/L		59	43 - 154	4	29
MSD MSD											
Surrogate	%Recovery	Qualifier	Limits								
4-Bromofluorobenzene (Surr)	99		59 - 120								
Dibromofluoromethane (Surr)	103		75 - 128								
1,2-Dichloroethane-d4 (Surr)	82		70 - 121								
Toluene-d8 (Surr)	98		70 - 123								

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

Lab Sample ID: MB 240-404405/5

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 404405

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			10/07/19 12:46	1
MB MB									
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
1,2-Dichloroethane-d4 (Surr)	101		63 - 125		10/07/19 12:46	1			

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119761-1

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

Lab Sample ID: LCS 240-404405/4
Matrix: Water
Analysis Batch: 404405

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	11.8		ug/L	-	118	59 - 131
Surrogate							
	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	100		63 - 125				

Lab Sample ID: 240-119753-C-2 MS
Matrix: Water
Analysis Batch: 404405

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
1,4-Dioxane	4.4		10.0	15.3		ug/L	-	108	52 - 129
Surrogate									
	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	103		63 - 125						

Lab Sample ID: 240-119753-C-2 MSD
Matrix: Water
Analysis Batch: 404405

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
1,4-Dioxane	4.4		10.0	14.7		ug/L	-	103	52 - 129	4	13
Surrogate											
	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	104		63 - 125								

QC Association Summary

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

Job ID: 240-119761-1

GC/MS VOA

Analysis Batch: 404405

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119761-1	MW-49_092719	Total/NA	Water	8260B SIM	
240-119761-2	MW-45_092719	Total/NA	Water	8260B SIM	
240-119761-3	TW-16-04_092719	Total/NA	Water	8260B SIM	
240-119761-4	TW-16-03_092719	Total/NA	Water	8260B SIM	
240-119761-5	PW-16-02_092719	Total/NA	Water	8260B SIM	
240-119761-6	DUP-10	Total/NA	Water	8260B SIM	
MB 240-404405/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-404405/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-119753-C-2 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-119753-C-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 405078

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119761-2	MW-45_092719	Total/NA	Water	8260B	
240-119761-3	TW-16-04_092719	Total/NA	Water	8260B	
240-119761-4	TW-16-03_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: 405284

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119761-1	MW-49_092719	Total/NA	Water	8260B	
240-119761-4	TW-16-03_092719	Total/NA	Water	8260B	
240-119761-5	PW-16-02_092719	Total/NA	Water	8260B	
240-119761-6	DUP-10	Total/NA	Water	8260B	
240-119761-7	TRIP BLANK	Total/NA	Water	8260B	
MB 240-405284/7	Method Blank	Total/NA	Water	8260B	
LCS 240-405284/4	Lab Control Sample	Total/NA	Water	8260B	
240-119675-B-6 MS	Matrix Spike	Total/NA	Water	8260B	
240-119675-B-6 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Analysis Batch: 405434

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119761-6 - RA	DUP-10	Total/NA	Water	8260B	
MB 240-405434/7	Method Blank	Total/NA	Water	8260B	
LCS 240-405434/4	Lab Control Sample	Total/NA	Water	8260B	
240-119842-B-69 MS	Matrix Spike	Total/NA	Water	8260B	
240-119842-E-69 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Lab Chronicle

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

Job ID: 240-119761-1

Client Sample ID: MW-49_092719

Lab Sample ID: 240-119761-1

Date Collected: 09/27/19 09:55

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		2500	405284	10/11/19 19:53	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	404405	10/07/19 14:01	SAM	TAL CAN

Client Sample ID: MW-45_092719

Lab Sample ID: 240-119761-2

Date Collected: 09/27/19 11:23

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		25	405078	10/10/19 19:47	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	404405	10/07/19 14:26	SAM	TAL CAN

Client Sample ID: TW-16-04_092719

Lab Sample ID: 240-119761-3

Date Collected: 09/27/19 12:53

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		2.5	405078	10/10/19 20:12	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	404405	10/07/19 14:51	SAM	TAL CAN

Client Sample ID: TW-16-03_092719

Lab Sample ID: 240-119761-4

Date Collected: 09/27/19 13:57

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 20:38	LRW	TAL CAN
Total/NA	Analysis	8260B		5	405284	10/11/19 15:29	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	404405	10/07/19 15:16	SAM	TAL CAN

Client Sample ID: PW-16-02_092719

Lab Sample ID: 240-119761-5

Date Collected: 09/27/19 14:56

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		5	405284	10/11/19 15:53	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	404405	10/07/19 15:41	SAM	TAL CAN

Client Sample ID: DUP-10

Lab Sample ID: 240-119761-6

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		5000	405284	10/11/19 20:17	LRW	TAL CAN
Total/NA	Analysis	8260B	RA	1000	405434	10/12/19 20:10	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	404405	10/07/19 16:06	SAM	TAL CAN

Eurofins TestAmerica, Canton

Lab Chronicle

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

Job ID: 240-119761-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-119761-7

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	405284	10/11/19 13:54	LRW	TAL CAN

Laboratory References:

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

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Accreditation/Certification Summary

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

Job ID: 240-119761-1

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

TestAmerica Laboratory location: Brighton --- 10448 Chatham 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: krstoffer.hinskey@arcadis.com		Site Contact: Rachel Bielak 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		Containers & Preservatives	
Sample Date	Sample Time	Matrix	Other:
MW-49-092719	9/27/19 955	Air	H2SO4
MW-45-092719	9/27/19 1123	Aqueous	HNO3
TW-16-04-092719	9/27/19 1253	Sediment	HCl
TW-16-03-092719	9/27/19 1357	Solid	NaOH
PW-16-02-092719	9/27/19 1456	Other:	ZnAc
DUP-10	9/27/19		NaOH
Trp Blank			Others:
			1,4-Dioxane 8260B SIM
			VOCs 8260B
			Filtered Sample (Y/N)
			Composite=C / Grab=C
			Sample Specific Notes / Special Instructions:
			6 bottles
			6 bottles
			6 bottles
			6 bottles
			6 bottles
			6 bottles



Possible Hazard Identification: Non-Hazard Irritant Poison B Unknown
 Special Instructions/QC Requirements & Comments:
 Submit all results through Cadena at jim.tomalia@cadena.com. Cadena #E203728
 Level IV Reporting.

Relinquished by: Xenia Chan	Company: Arcadis	Date/Time: 9/28/19 1500	Received by: Julia Muffels	Company: Arcadis	Date/Time: 9/28/19 1630
Relinquished by: Julia Muffels	Company: Arcadis	Date/Time: 9/28/19 1630	Received by: Noji Cor Storage	Company: Arcadis	Date/Time: 9/30/19 1049
Relinquished by: Julia Muffels	Company: Arcadis	Date/Time: 9/30/19 1049	Received in Laboratory by: Noji Cor Storage	Company: Arcadis	Date/Time: 9/30/19 1420

Relinquished by: Noji Cor Storage
 Company: Arcadis
 Date/Time: 9/30/19 1420

Relinquished by: Noji Cor Storage
 Company: Arcadis
 Date/Time: 9/30/19 1420

Eurofins TestAmerica Canton Sample Receipt Form/Narrative

Login # : 119761


Canton Facility

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

Cooler unpacked by: [Signature]

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

1. Cooler temperature upon receipt
 IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. 1.7 °C Corrected Cooler Temp. 2.4 °C
 IR GUN #IR-11 (CF +0.9°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. 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 NA
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples?
 If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC991818
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? Yes No NA  Larger than this.
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # NA Yes No
16. 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: MS

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: _____