

ANALYTICAL REPORT

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

Laboratory Job ID: 240-119521-1

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:
10/10/2019 3:46:43 PM

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

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

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

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

Table of Contents

Cover Page	1
Table of Contents	2
Definitions/Glossary	3
Case Narrative	4
Method Summary	7
Sample Summary	8
Detection Summary	9
Client Sample Results	10
Surrogate Summary	17
QC Sample Results	19
QC Association Summary	34
Lab Chronicle	36
Certification Summary	38
Chain of Custody	39



Definitions/Glossary

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

Job ID: 240-119521-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
*	ISTD response or retention time outside acceptable limits
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
E	Result exceeded calibration range.
F1	MS and/or MSD Recovery is outside acceptance limits.
F2	MS/MSD RPD exceeds control 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.
X	Surrogate is outside control limits

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: 240-119521-1

Job ID: 240-119521-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Livonia MI - E203728

Report Number: 240-119521-1

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 9/26/2019 9:50 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.9° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples MW-51_092419 (240-119521-1), MW-23_092419 (240-119521-2), TW-16-02_092419 (240-119521-3), TW-16-01_092419 (240-119521-4), DUP-08 (240-119521-5), TRIP BLANK (240-119521-6) and PW-16-01_092419 (240-119521-7) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 10/04/2019, 10/06/2019 and 10/07/2019.

1,1,2,2-Tetrachloroethane, 1,1,2-Trichloroethane and 1,3,5-Trimethylbenzene failed the recovery criteria low for LCS 240-403996/4. Methyl acetate failed the recovery criteria high. 1,1-Dichloroethane, 1,2-Dichloropropane, Cyclohexane, Diethyl ether and Trichloroethene failed the recovery criteria high for LCS 240-404173/4. 1,1,2,2-Tetrachloroethane failed the recovery criteria low for LCS 240-404299/4. Cyclohexane failed the recovery criteria high. 1,1-Dichloroethane, 1,2-Dichloropropane, Cyclohexane, Diethyl ether and Tetrachloroethene failed the recovery criteria high for LCS 240-404390/4. Refer to the QC report for details.

Samples MW-23_092419 (240-119521-2)[2500X], TW-16-02_092419 (240-119521-3)[333.33X], TW-16-01_092419 (240-119521-4)[20X], DUP-08 (240-119521-5)[2500X] and PW-16-01_092419 (240-119521-7)[100X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Case Narrative

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

Job ID: 240-119521-1

Job ID: 240-119521-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

The laboratory control sample (LCS) analyzed in batch 240-403996 was below the recovery control criteria for multiple analytes. This variance only affects results measured above the reporting limit. A MRL 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-51_092419 (240-119521-1) and (LCS 240-403996/4).

The laboratory control sample (LCS) for analytical batch 240-403996 recovered outside control limits for the following analyte: Methyl acetate. This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data has been reported: MW-51_092419 (240-119521-1) and (LCS 240-403996/4).

There was an MS/MSD analyzed in batch 240-403996 but could not be reported because the associated sample needed reanalyzed in a different batch: MW-51_092419 (240-119521-1).

The continuing calibration verification (CCV) for analytical batch 240-404173 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-23_092419 (240-119521-2), TW-16-01_092419 (240-119521-4), DUP-08 (240-119521-5), TRIP BLANK (240-119521-6), PW-16-01_092419 (240-119521-7) and (CCVIS 240-404173/2).

The laboratory control sample (LCS) for analytical batch 240-404173 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-23_092419 (240-119521-2), TW-16-01_092419 (240-119521-4), DUP-08 (240-119521-5), TRIP BLANK (240-119521-6), PW-16-01_092419 (240-119521-7) and (LCS 240-404173/4).

The laboratory control sample (LCS) for analytical batch 240-404299 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: TW-16-02_092419 (240-119521-3) and (LCS 240-404299/4).

The laboratory control sample (LCS) analyzed in batch 240-404299 was below the recovery control criteria for the following analyte: 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: TW-16-02_092419 (240-119521-3) and (LCS 240-404299/4).

The laboratory control sample (LCS) for analytical batch 240-404390 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: (LCS 240-404390/4).

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-51_092419 (240-119521-1), MW-23_092419 (240-119521-2), TW-16-02_092419 (240-119521-3), TW-16-01_092419 (240-119521-4), DUP-08 (240-119521-5) and PW-16-01_092419 (240-119521-7) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 10/02/2019 and 10/03/2019.

1,2-Dichloroethane-d4 (Surr) failed the surrogate recovery criteria low for MW-23_092419 (240-119521-2). Refer to the QC report for details.

1,4-Dioxane failed the recovery criteria low for the MS of sample DUP-08MS (240-119521-5) in batch 240-403637.

1,4-Dioxane exceeded the RPD limit for the MSD of sample DUP-08MSD (240-119521-5) in batch 240-403637. Refer to the QC report for details.

Internal standard (ISTD) response for the following samples were outside control limits: DUP-08 (240-119521-5), (240-119521-C-5 MS) and (240-119521-C-5 MSD). The sample was re-extracted and/or re-analyzed with concurring results, and the original set of data has

Case Narrative

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

Job ID: 240-119521-1

Job ID: 240-119521-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

been reported.

Surrogate recovery for the following sample was outside control limits: MW-23_092419 (240-119521-2). Evidence of matrix interference is present.

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

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

Method Summary

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

Job ID: 240-119521-1

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: 240-119521-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-119521-1	MW-51_092419	Water	09/24/19 10:25	09/26/19 09:50	
240-119521-2	MW-23_092419	Water	09/24/19 16:57	09/26/19 09:50	
240-119521-3	TW-16-02_092419	Water	09/24/19 12:35	09/26/19 09:50	
240-119521-4	TW-16-01_092419	Water	09/24/19 13:56	09/26/19 09:50	
240-119521-5	DUP-08	Water	09/24/19 00:00	09/26/19 09:50	
240-119521-6	TRIP BLANK	Water	09/24/19 00:00	09/26/19 09:50	
240-119521-7	PW-16-01_092419	Water	09/24/19 15:25	09/26/19 09:50	

Detection Summary

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

Job ID: 240-119521-1

Client Sample ID: MW-51_092419

Lab Sample ID: 240-119521-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	3.2		2.0	0.86	ug/L	1		8260B SIM	Total/NA
Vinyl chloride	0.28	J	1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: MW-23_092419

Lab Sample ID: 240-119521-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	43000		2500	400	ug/L	2500		8260B	Total/NA
trans-1,2-Dichloroethene	1600	J	2500	480	ug/L	2500		8260B	Total/NA
Trichloroethene	11000		2500	250	ug/L	2500		8260B	Total/NA
Vinyl chloride	1600	J	2500	500	ug/L	2500		8260B	Total/NA

Client Sample ID: TW-16-02_092419

Lab Sample ID: 240-119521-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	2.2		2.0	0.86	ug/L	1		8260B SIM	Total/NA
cis-1,2-Dichloroethene	2800		330	53	ug/L	333.33		8260B	Total/NA
Vinyl chloride	7600		330	67	ug/L	333.33		8260B	Total/NA

Client Sample ID: TW-16-01_092419

Lab Sample ID: 240-119521-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	170		20	3.2	ug/L	20		8260B	Total/NA
Vinyl chloride	420		20	4.0	ug/L	20		8260B	Total/NA

Client Sample ID: DUP-08

Lab Sample ID: 240-119521-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	45000		2500	400	ug/L	2500		8260B	Total/NA
trans-1,2-Dichloroethene	1300	J	2500	480	ug/L	2500		8260B	Total/NA
Trichloroethene	10000		2500	250	ug/L	2500		8260B	Total/NA
Vinyl chloride	1500	J	2500	500	ug/L	2500		8260B	Total/NA

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-119521-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.53	J	1.0	0.16	ug/L	1		8260B	Total/NA
Trichloroethene	0.37	J*	1.0	0.10	ug/L	1		8260B	Total/NA

Client Sample ID: PW-16-01_092419

Lab Sample ID: 240-119521-7

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	310		100	16	ug/L	100		8260B	Total/NA
Vinyl chloride	2000		100	20	ug/L	100		8260B	Total/NA

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: 240-119521-1

Client Sample ID: MW-51_092419

Lab Sample ID: 240-119521-1

Date Collected: 09/24/19 10:25

Matrix: Water

Date Received: 09/26/19 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	3.2		2.0	0.86	ug/L			10/02/19 14:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		63 - 125					10/02/19 14:24	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			10/04/19 05:48	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/04/19 05:48	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/04/19 05:48	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/04/19 05:48	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/04/19 05:48	1
Vinyl chloride	0.28	J	1.0	0.20	ug/L			10/04/19 05:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	77		59 - 120					10/04/19 05:48	1
Dibromofluoromethane (Surr)	99		75 - 128					10/04/19 05:48	1
1,2-Dichloroethane-d4 (Surr)	107		70 - 121					10/04/19 05:48	1
Toluene-d8 (Surr)	96		70 - 123					10/04/19 05:48	1

Client Sample Results

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

Job ID: 240-119521-1

Client Sample ID: MW-23_092419

Lab Sample ID: 240-119521-2

Date Collected: 09/24/19 16:57

Matrix: Water

Date Received: 09/26/19 09:50

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	-		10/03/19 12:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	62	X	63 - 125					10/03/19 12:10	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	-		10/04/19 20:59	2500
cis-1,2-Dichloroethene	43000		2500	400	ug/L			10/04/19 20:59	2500
Tetrachloroethene	2500	U	2500	380	ug/L			10/04/19 20:59	2500
trans-1,2-Dichloroethene	1600	J	2500	480	ug/L			10/04/19 20:59	2500
Trichloroethene	11000		2500	250	ug/L			10/07/19 15:27	2500
Vinyl chloride	1600	J	2500	500	ug/L			10/04/19 20:59	2500
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	79		59 - 120					10/04/19 20:59	2500
4-Bromofluorobenzene (Surr)	75		59 - 120					10/07/19 15:27	2500
Dibromofluoromethane (Surr)	103		75 - 128					10/04/19 20:59	2500
Dibromofluoromethane (Surr)	92		75 - 128					10/07/19 15:27	2500
1,2-Dichloroethane-d4 (Surr)	105		70 - 121					10/04/19 20:59	2500
1,2-Dichloroethane-d4 (Surr)	104		70 - 121					10/07/19 15:27	2500
Toluene-d8 (Surr)	95		70 - 123					10/04/19 20:59	2500
Toluene-d8 (Surr)	93		70 - 123					10/07/19 15:27	2500

Client Sample Results

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

Job ID: 240-119521-1

Client Sample ID: TW-16-02_092419

Lab Sample ID: 240-119521-3

Date Collected: 09/24/19 12:35

Matrix: Water

Date Received: 09/26/19 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.2		2.0	0.86	ug/L			10/02/19 15:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		63 - 125		10/02/19 15:14	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	330	U	330	63	ug/L			10/06/19 16:24	333.33
cis-1,2-Dichloroethene	2800		330	53	ug/L			10/06/19 16:24	333.33
Tetrachloroethene	330	U	330	50	ug/L			10/06/19 16:24	333.33
trans-1,2-Dichloroethene	330	U	330	63	ug/L			10/06/19 16:24	333.33
Trichloroethene	330	U	330	33	ug/L			10/06/19 16:24	333.33
Vinyl chloride	7600		330	67	ug/L			10/06/19 16:24	333.33

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	76		59 - 120		10/06/19 16:24	333.33
Dibromofluoromethane (Surr)	103		75 - 128		10/06/19 16:24	333.33
1,2-Dichloroethane-d4 (Surr)	109		70 - 121		10/06/19 16:24	333.33
Toluene-d8 (Surr)	94		70 - 123		10/06/19 16:24	333.33

Client Sample Results

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

Job ID: 240-119521-1

Client Sample ID: TW-16-01_092419

Lab Sample ID: 240-119521-4

Date Collected: 09/24/19 13:56

Matrix: Water

Date Received: 09/26/19 09:50

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			10/02/19 15:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		63 - 125		10/02/19 15:40	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	20	U	20	3.8	ug/L			10/04/19 21:50	20
cis-1,2-Dichloroethene	170		20	3.2	ug/L			10/04/19 21:50	20
Tetrachloroethene	20	U	20	3.0	ug/L			10/04/19 21:50	20
trans-1,2-Dichloroethene	20	U	20	3.8	ug/L			10/04/19 21:50	20
Trichloroethene	20	U *	20	2.0	ug/L			10/04/19 21:50	20
Vinyl chloride	420		20	4.0	ug/L			10/04/19 21:50	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	75		59 - 120		10/04/19 21:50	20
Dibromofluoromethane (Surr)	105		75 - 128		10/04/19 21:50	20
1,2-Dichloroethane-d4 (Surr)	102		70 - 121		10/04/19 21:50	20
Toluene-d8 (Surr)	94		70 - 123		10/04/19 21:50	20

Client Sample Results

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

Job ID: 240-119521-1

Client Sample ID: DUP-08

Lab Sample ID: 240-119521-5

Date Collected: 09/24/19 00:00

Matrix: Water

Date Received: 09/26/19 09:50

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 * F1 F2	2.0	0.86	ug/L	-		10/02/19 16:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		63 - 125		10/02/19 16:05	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	-		10/04/19 22:15	2500
cis-1,2-Dichloroethene	45000		2500	400	ug/L			10/04/19 22:15	2500
Tetrachloroethene	2500	U	2500	380	ug/L			10/04/19 22:15	2500
trans-1,2-Dichloroethene	1300	J	2500	480	ug/L			10/04/19 22:15	2500
Trichloroethene	10000		2500	250	ug/L			10/07/19 15:52	2500
Vinyl chloride	1500	J	2500	500	ug/L			10/04/19 22:15	2500

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	76		59 - 120		10/04/19 22:15	2500
4-Bromofluorobenzene (Surr)	78		59 - 120		10/07/19 15:52	2500
Dibromofluoromethane (Surr)	106		75 - 128		10/04/19 22:15	2500
Dibromofluoromethane (Surr)	100		75 - 128		10/07/19 15:52	2500
1,2-Dichloroethane-d4 (Surr)	107		70 - 121		10/04/19 22:15	2500
1,2-Dichloroethane-d4 (Surr)	105		70 - 121		10/07/19 15:52	2500
Toluene-d8 (Surr)	94		70 - 123		10/04/19 22:15	2500
Toluene-d8 (Surr)	94		70 - 123		10/07/19 15:52	2500

Client Sample Results

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

Job ID: 240-119521-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-119521-6

Date Collected: 09/24/19 00:00

Matrix: Water

Date Received: 09/26/19 09:50

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			10/04/19 17:10	1
cis-1,2-Dichloroethene	0.53	J	1.0	0.16	ug/L			10/04/19 17:10	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/04/19 17:10	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/04/19 17:10	1
Trichloroethene	0.37	J*	1.0	0.10	ug/L			10/04/19 17:10	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/04/19 17:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	79		59 - 120		10/04/19 17:10	1
Dibromofluoromethane (Surr)	103		75 - 128		10/04/19 17:10	1
1,2-Dichloroethane-d4 (Surr)	107		70 - 121		10/04/19 17:10	1
Toluene-d8 (Surr)	92		70 - 123		10/04/19 17:10	1

Client Sample Results

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

Job ID: 240-119521-1

Client Sample ID: PW-16-01_092419

Lab Sample ID: 240-119521-7

Date Collected: 09/24/19 15:25

Matrix: Water

Date Received: 09/26/19 09:50

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	-		10/02/19 17:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		63 - 125		10/02/19 17:20	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	100	U	100	19	ug/L	-		10/04/19 22:41	100
cis-1,2-Dichloroethene	310		100	16	ug/L			10/04/19 22:41	100
Tetrachloroethene	100	U	100	15	ug/L			10/04/19 22:41	100
trans-1,2-Dichloroethene	100	U	100	19	ug/L			10/04/19 22:41	100
Trichloroethene	100	U *	100	10	ug/L			10/04/19 22:41	100
Vinyl chloride	2000		100	20	ug/L			10/04/19 22:41	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	74		59 - 120		10/04/19 22:41	100
Dibromofluoromethane (Surr)	107		75 - 128		10/04/19 22:41	100
1,2-Dichloroethane-d4 (Surr)	108		70 - 121		10/04/19 22:41	100
Toluene-d8 (Surr)	94		70 - 123		10/04/19 22:41	100

Surrogate Summary

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

Job ID: 240-119521-1

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)
240-119521-1	MW-51_092419	77	99	107	96
240-119521-2	MW-23_092419	79	103	105	95
240-119521-2	MW-23_092419	75	92	104	93
240-119521-3	TW-16-02_092419	76	103	109	94
240-119521-4	TW-16-01_092419	75	105	102	94
240-119521-5	DUP-08	76	106	107	94
240-119521-5	DUP-08	78	100	105	94
240-119521-6	TRIP BLANK	79	103	107	92
240-119521-7	PW-16-01_092419	74	107	108	94
240-119527-E-12 MS	Matrix Spike	73	103	107	99
240-119527-E-12 MSD	Matrix Spike Duplicate	75	105	107	95
240-119527-H-12 MS	Matrix Spike	80	102	105	98
240-119527-I-12 MSD	Matrix Spike Duplicate	77	104	113	94
240-119529-B-25 MS	Matrix Spike	78	96	101	101
240-119529-B-25 MSD	Matrix Spike Duplicate	81	102	102	102
LCS 240-403996/4	Lab Control Sample	81	106	102	96
LCS 240-404173/4	Lab Control Sample	83	103	105	101
LCS 240-404299/4	Lab Control Sample	78	101	103	97
LCS 240-404390/4	Lab Control Sample	84	98	103	96
MB 240-403996/7	Method Blank	77	103	101	96
MB 240-404173/7	Method Blank	77	101	102	94
MB 240-404299/7	Method Blank	79	99	106	98
MB 240-404390/7	Method Blank	75	98	105	93

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)
240-119521-1	MW-51_092419	101
240-119521-2	MW-23_092419	62 X
240-119521-3	TW-16-02_092419	98
240-119521-4	TW-16-01_092419	100
240-119521-5	DUP-08	86
240-119521-5 MS	DUP-08	84
240-119521-5 MSD	DUP-08	92
240-119521-7	PW-16-01_092419	98
240-119556-B-5 MS	Matrix Spike	72
240-119556-B-5 MSD	Matrix Spike Duplicate	75
LCS 240-403637/4	Lab Control Sample	99
LCS 240-403886/4	Lab Control Sample	74
MB 240-403637/5	Method Blank	99
MB 240-403886/5	Method Blank	75

Eurofins TestAmerica, Canton

Surrogate Summary

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

Job ID: 240-119521-1

Surrogate Legend

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

1

2

3

4

5

6

7

8

9

10

11

12

13

14

QC Sample Results

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

Job ID: 240-119521-1

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

Lab Sample ID: MB 240-403996/7
Matrix: Water
Analysis Batch: 403996

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			10/04/19 02:25	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/04/19 02:25	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/04/19 02:25	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/04/19 02:25	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/04/19 02:25	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/04/19 02:25	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	77		59 - 120		10/04/19 02:25	1
Dibromofluoromethane (Surr)	103		75 - 128		10/04/19 02:25	1
1,2-Dichloroethane-d4 (Surr)	101		70 - 121		10/04/19 02:25	1
Toluene-d8 (Surr)	96		70 - 123		10/04/19 02:25	1

Lab Sample ID: LCS 240-403996/4
Matrix: Water
Analysis Batch: 403996

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	9.16		ug/L		92	69 - 134
1,1,1,2-Tetrachloroethane	10.0	6.43	*	ug/L		64	65 - 139
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	10.5		ug/L		105	50 - 156
1,1,2-Trichloroethane	10.0	7.70	*	ug/L		77	78 - 133
1,1-Dichloroethane	10.0	12.2		ug/L		122	75 - 133
1,1-Dichloroethene	10.0	8.51		ug/L		85	65 - 139
1,2,4-Trichlorobenzene	10.0	8.35		ug/L		84	42 - 133
1,2,4-Trimethylbenzene	10.0	7.66		ug/L		77	74 - 120
1,2-Dibromo-3-Chloropropane	10.0	8.86		ug/L		89	46 - 132
1,2-Dibromoethane	10.0	8.18		ug/L		82	77 - 123
1,2-Dichlorobenzene	10.0	8.89		ug/L		89	78 - 120
1,2-Dichloroethane	10.0	11.7		ug/L		117	71 - 135
1,2-Dichloropropane	10.0	11.6		ug/L		116	78 - 133
1,3,5-Trimethylbenzene	10.0	7.41	*	ug/L		74	75 - 121
1,3-Dichlorobenzene	10.0	9.01		ug/L		90	78 - 120
1,4-Dichlorobenzene	10.0	8.55		ug/L		85	78 - 120
2-Butanone (MEK)	20.0	22.9		ug/L		115	39 - 163
2-Hexanone	20.0	20.3		ug/L		102	43 - 148
4-Methyl-2-pentanone (MIBK)	20.0	22.9		ug/L		114	49 - 143
Acetone	20.0	27.0		ug/L		135	21 - 162
Benzene	10.0	9.32		ug/L		93	80 - 123
Bromodichloromethane	10.0	8.39		ug/L		84	77 - 125
Bromoform	10.0	8.96		ug/L		90	49 - 141
Bromomethane	10.0	8.56		ug/L		86	41 - 175
Carbon disulfide	10.0	8.28		ug/L		83	60 - 138
Carbon tetrachloride	10.0	10.0		ug/L		100	63 - 140
Chlorobenzene	10.0	8.35		ug/L		84	80 - 121
Chloroethane	10.0	10.4		ug/L		104	33 - 173
Chloroform	10.0	8.55		ug/L		85	79 - 127

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119521-1

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

Lab Sample ID: LCS 240-403996/4
Matrix: Water
Analysis Batch: 403996

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	10.3		ug/L		103	54 - 143
cis-1,2-Dichloroethene	10.0	9.62		ug/L		96	76 - 128
cis-1,3-Dichloropropene	10.0	7.75		ug/L		77	64 - 132
Cyclohexane	10.0	13.8		ug/L		138	58 - 145
Dibromochloromethane	10.0	8.39		ug/L		84	70 - 132
Dichlorodifluoromethane	10.0	5.76		ug/L		58	29 - 148
Diethyl ether	10.0	14.2		ug/L		142	70 - 146
Ethylbenzene	10.0	8.35		ug/L		84	80 - 120
Isopropylbenzene	10.0	8.20		ug/L		82	74 - 120
Methyl acetate	20.0	29.3 *		ug/L		147	52 - 145
Methyl tert-butyl ether	10.0	7.90		ug/L		79	51 - 133
Methylcyclohexane	10.0	9.06		ug/L		91	60 - 125
Methylene Chloride	10.0	7.71		ug/L		77	70 - 134
Styrene	10.0	7.92		ug/L		79	79 - 120
Tetrachloroethene	10.0	10.9		ug/L		109	74 - 130
Toluene	10.0	8.58		ug/L		86	78 - 129
trans-1,2-Dichloroethene	10.0	8.76		ug/L		88	78 - 133
trans-1,3-Dichloropropene	10.0	6.65		ug/L		66	55 - 128
Trichloroethene	10.0	10.6		ug/L		106	76 - 125
Trichlorofluoromethane	10.0	8.84		ug/L		88	51 - 164
Vinyl chloride	10.0	10.2		ug/L		102	58 - 143
Xylenes, Total	20.0	16.9		ug/L		84	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	81		59 - 120
Dibromofluoromethane (Surr)	106		75 - 128
1,2-Dichloroethane-d4 (Surr)	102		70 - 121
Toluene-d8 (Surr)	96		70 - 123

Lab Sample ID: MB 240-404173/7
Matrix: Water
Analysis Batch: 404173

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			10/04/19 16:45	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/04/19 16:45	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/04/19 16:45	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/04/19 16:45	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/04/19 16:45	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/04/19 16:45	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	77		59 - 120		10/04/19 16:45	1
Dibromofluoromethane (Surr)	101		75 - 128		10/04/19 16:45	1
1,2-Dichloroethane-d4 (Surr)	102		70 - 121		10/04/19 16:45	1
Toluene-d8 (Surr)	94		70 - 123		10/04/19 16:45	1

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119521-1

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

Lab Sample ID: LCS 240-404173/4

Matrix: Water

Analysis Batch: 404173

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	9.59		ug/L		96	69 - 134
1,1,2,2-Tetrachloroethane	10.0	7.10		ug/L		71	65 - 139
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	11.3		ug/L		113	50 - 156
1,1,2-Trichloroethane	10.0	8.95		ug/L		90	78 - 133
1,1-Dichloroethane	10.0	13.4	*	ug/L		134	75 - 133
1,1-Dichloroethene	10.0	9.58		ug/L		96	65 - 139
1,2,4-Trichlorobenzene	10.0	10.0		ug/L		100	42 - 133
1,2,4-Trimethylbenzene	10.0	9.19		ug/L		92	74 - 120
1,2-Dibromo-3-Chloropropane	10.0	9.15		ug/L		92	46 - 132
1,2-Dibromoethane	10.0	9.62		ug/L		96	77 - 123
1,2-Dichlorobenzene	10.0	10.1		ug/L		101	78 - 120
1,2-Dichloroethane	10.0	13.0		ug/L		130	71 - 135
1,2-Dichloropropane	10.0	13.7	*	ug/L		137	78 - 133
1,3,5-Trimethylbenzene	10.0	8.87		ug/L		89	75 - 121
1,3-Dichlorobenzene	10.0	10.2		ug/L		102	78 - 120
1,4-Dichlorobenzene	10.0	10.3		ug/L		103	78 - 120
2-Butanone (MEK)	20.0	22.4		ug/L		112	39 - 163
2-Hexanone	20.0	22.0		ug/L		110	43 - 148
4-Methyl-2-pentanone (MIBK)	20.0	23.3		ug/L		117	49 - 143
Acetone	20.0	30.0		ug/L		150	21 - 162
Benzene	10.0	10.5		ug/L		105	80 - 123
Bromodichloromethane	10.0	8.93		ug/L		89	77 - 125
Bromoform	10.0	8.92		ug/L		89	49 - 141
Bromomethane	10.0	7.74		ug/L		77	41 - 175
Carbon disulfide	10.0	9.14		ug/L		91	60 - 138
Carbon tetrachloride	10.0	11.1		ug/L		111	63 - 140
Chlorobenzene	10.0	9.90		ug/L		99	80 - 121
Chloroethane	10.0	11.1		ug/L		111	33 - 173
Chloroform	10.0	9.40		ug/L		94	79 - 127
Chloromethane	10.0	11.0		ug/L		110	54 - 143
cis-1,2-Dichloroethene	10.0	10.8		ug/L		108	76 - 128
cis-1,3-Dichloropropene	10.0	9.11		ug/L		91	64 - 132
Cyclohexane	10.0	14.6	*	ug/L		146	58 - 145
Dibromochloromethane	10.0	9.50		ug/L		95	70 - 132
Dichlorodifluoromethane	10.0	5.02		ug/L		50	29 - 148
Diethyl ether	10.0	16.0	*	ug/L		160	70 - 146
Ethylbenzene	10.0	10.6		ug/L		106	80 - 120
Isopropylbenzene	10.0	9.79		ug/L		98	74 - 120
Methyl acetate	20.0	28.7		ug/L		144	52 - 145
Methyl tert-butyl ether	10.0	8.31		ug/L		83	51 - 133
Methylcyclohexane	10.0	9.71		ug/L		97	60 - 125
Methylene Chloride	10.0	8.20		ug/L		82	70 - 134
Styrene	10.0	9.62		ug/L		96	79 - 120
Tetrachloroethene	10.0	12.8		ug/L		128	74 - 130
Toluene	10.0	10.3		ug/L		103	78 - 129
trans-1,2-Dichloroethene	10.0	9.73		ug/L		97	78 - 133
trans-1,3-Dichloropropene	10.0	7.70		ug/L		77	55 - 128
Trichloroethene	10.0	12.8	*	ug/L		128	76 - 125

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119521-1

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

Lab Sample ID: LCS 240-404173/4
Matrix: Water
Analysis Batch: 404173

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	9.65		ug/L		96	51 - 164
Vinyl chloride	10.0	10.7		ug/L		107	58 - 143
Xylenes, Total	20.0	19.6		ug/L		98	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	83		59 - 120
Dibromofluoromethane (Surr)	103		75 - 128
1,2-Dichloroethane-d4 (Surr)	105		70 - 121
Toluene-d8 (Surr)	101		70 - 123

Lab Sample ID: 240-119527-H-12 MS
Matrix: Water
Analysis Batch: 404173

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	6.6		40.0	43.7		ug/L		93	51 - 138
1,1,2,2-Tetrachloroethane	4.0	U	40.0	28.4		ug/L		71	60 - 137
1,1,2-Trichloroethane	4.0	U	40.0	36.0		ug/L		90	76 - 132
1,1-Dichloroethane	250	E *	40.0	296	E 4	ug/L		108	63 - 136
1,1-Dichloroethene	50		40.0	86.3		ug/L		92	53 - 140
1,2,4-Trichlorobenzene	4.0	U	40.0	36.2		ug/L		90	30 - 126
1,2,4-Trimethylbenzene	4.0	U	40.0	30.8		ug/L		77	62 - 120
1,2-Dibromo-3-Chloropropane	4.0	U	40.0	29.2		ug/L		73	38 - 124
1,2-Dibromoethane	4.0	U	40.0	36.2		ug/L		90	71 - 123
1,2-Dichlorobenzene	4.0	U	40.0	36.5		ug/L		91	64 - 120
1,2-Dichloroethane	4.0	U F1	40.0	54.4	F1	ug/L		136	65 - 135
1,2-Dichloropropane	4.0	U F1 *	40.0	54.0	F1	ug/L		135	70 - 132
1,3,5-Trimethylbenzene	4.0	U	40.0	31.0		ug/L		77	64 - 120
1,3-Dichlorobenzene	4.0	U	40.0	35.2		ug/L		88	62 - 120
1,4-Dichlorobenzene	4.0	U	40.0	38.4		ug/L		96	63 - 120
2-Butanone (MEK)	40	U	80.0	93.3		ug/L		117	37 - 156
2-Hexanone	40	U	80.0	86.0		ug/L		107	42 - 150
4-Methyl-2-pentanone (MIBK)	40	U	80.0	93.2		ug/L		117	44 - 143
Acetone	40	U	80.0	113		ug/L		141	10 - 168
Benzene	4.0	U	40.0	40.5		ug/L		101	71 - 122
Bromodichloromethane	4.0	U	40.0	35.6		ug/L		89	64 - 125
Bromoform	4.0	U	40.0	35.2		ug/L		88	44 - 129
Bromomethane	4.0	U	40.0	32.9		ug/L		82	19 - 187
Carbon disulfide	20	U	40.0	35.0		ug/L		88	43 - 144
Carbon tetrachloride	4.0	U	40.0	41.2		ug/L		103	41 - 143
Chlorobenzene	4.0	U	40.0	38.1		ug/L		95	70 - 123
Chloroethane	8.2		40.0	51.8		ug/L		109	11 - 189
Chloroform	4.0	U	40.0	37.8		ug/L		94	68 - 130
Chloromethane	4.0	U	40.0	50.8		ug/L		127	31 - 154
cis-1,2-Dichloroethene	4.0	U	40.0	44.4		ug/L		111	64 - 130
cis-1,3-Dichloropropene	4.0	U	40.0	34.2		ug/L		86	48 - 127
Dibromochloromethane	4.0	U	40.0	37.2		ug/L		93	60 - 129
Dichlorodifluoromethane	4.0	U	40.0	24.2		ug/L		60	28 - 136

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119521-1

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

Lab Sample ID: 240-119527-H-12 MS

Matrix: Water

Analysis Batch: 404173

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	Limits
	Result	Qualifier		Result	Qualifier					
Ethylbenzene	4.0	U	40.0	37.2		ug/L		93	66 - 120	
Isopropylbenzene	4.0	U	40.0	35.7		ug/L		89	59 - 120	
Methyl tert-butyl ether	4.0	U	40.0	33.5		ug/L		84	41 - 136	
Methylene Chloride	20	U	40.0	34.6		ug/L		87	61 - 130	
Styrene	4.0	U	40.0	37.4		ug/L		94	68 - 120	
Tetrachloroethene	4.0	U	40.0	48.3		ug/L		121	51 - 136	
Toluene	4.0	U	40.0	38.9		ug/L		97	62 - 132	
trans-1,2-Dichloroethene	4.0	U	40.0	37.8		ug/L		95	68 - 133	
trans-1,3-Dichloropropene	4.0	U	40.0	29.1		ug/L		73	40 - 125	
Trichloroethene	1.6	J *	40.0	46.4		ug/L		112	55 - 131	
Trichlorofluoromethane	4.0	U	40.0	37.3		ug/L		93	37 - 174	
Vinyl chloride	2.6	J	40.0	48.8		ug/L		116	43 - 154	
Xylenes, Total	8.0	U	80.0	76.6		ug/L		96	67 - 120	

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	80		59 - 120
Dibromofluoromethane (Surr)	102		75 - 128
1,2-Dichloroethane-d4 (Surr)	105		70 - 121
Toluene-d8 (Surr)	98		70 - 123

Lab Sample ID: 240-119527-I-12 MSD

Matrix: Water

Analysis Batch: 404173

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	6.6		40.0	43.9		ug/L		93	51 - 138	1	27	
1,1,2,2-Tetrachloroethane	4.0	U	40.0	28.0		ug/L		70	60 - 137	1	31	
1,1,2-Trichloroethane	4.0	U	40.0	34.0		ug/L		85	76 - 132	6	25	
1,1-Dichloroethane	250	E *	40.0	289	E 4	ug/L		91	63 - 136	2	23	
1,1-Dichloroethene	50		40.0	86.3		ug/L		92	53 - 140	0	35	
1,2,4-Trichlorobenzene	4.0	U	40.0	35.3		ug/L		88	30 - 126	3	35	
1,2,4-Trimethylbenzene	4.0	U	40.0	31.7		ug/L		79	62 - 120	3	27	
1,2-Dibromo-3-Chloropropane	4.0	U	40.0	32.3		ug/L		81	38 - 124	10	35	
1,2-Dibromoethane	4.0	U	40.0	32.0		ug/L		80	71 - 123	12	27	
1,2-Dichlorobenzene	4.0	U	40.0	36.6		ug/L		92	64 - 120	0	30	
1,2-Dichloroethane	4.0	U F1	40.0	52.0		ug/L		130	65 - 135	5	24	
1,2-Dichloropropane	4.0	U F1 *	40.0	52.2		ug/L		130	70 - 132	3	26	
1,3,5-Trimethylbenzene	4.0	U	40.0	32.0		ug/L		80	64 - 120	3	23	
1,3-Dichlorobenzene	4.0	U	40.0	36.3		ug/L		91	62 - 120	3	31	
1,4-Dichlorobenzene	4.0	U	40.0	36.6		ug/L		91	63 - 120	5	28	
2-Butanone (MEK)	40	U	80.0	94.6		ug/L		118	37 - 156	1	35	
2-Hexanone	40	U	80.0	78.9		ug/L		99	42 - 150	9	35	
4-Methyl-2-pentanone (MIBK)	40	U	80.0	97.6		ug/L		122	44 - 143	5	35	
Acetone	40	U	80.0	121		ug/L		151	10 - 168	6	35	
Benzene	4.0	U	40.0	39.8		ug/L		100	71 - 122	2	22	
Bromodichloromethane	4.0	U	40.0	33.6		ug/L		84	64 - 125	6	27	
Bromoform	4.0	U	40.0	31.1		ug/L		78	44 - 129	12	28	
Bromomethane	4.0	U	40.0	36.0		ug/L		90	19 - 187	9	35	

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119521-1

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

Lab Sample ID: 240-119527-I-12 MSD
Matrix: Water
Analysis Batch: 404173

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 disulfide	20	U	40.0	33.7		ug/L		84	43 - 144	4	33
Carbon tetrachloride	4.0	U	40.0	40.6		ug/L		101	41 - 143	2	30
Chlorobenzene	4.0	U	40.0	33.6		ug/L		84	70 - 123	12	23
Chloroethane	8.2		40.0	53.9		ug/L		114	11 - 189	4	35
Chloroform	4.0	U	40.0	36.2		ug/L		91	68 - 130	4	23
Chloromethane	4.0	U	40.0	51.4		ug/L		128	31 - 154	1	35
cis-1,2-Dichloroethene	4.0	U	40.0	41.6		ug/L		104	64 - 130	7	21
cis-1,3-Dichloropropene	4.0	U	40.0	32.2		ug/L		80	48 - 127	6	30
Dibromochloromethane	4.0	U	40.0	32.2		ug/L		80	60 - 129	15	26
Dichlorodifluoromethane	4.0	U	40.0	26.3		ug/L		66	28 - 136	9	35
Ethylbenzene	4.0	U	40.0	31.3		ug/L		78	66 - 120	17	24
Isopropylbenzene	4.0	U	40.0	32.3		ug/L		81	59 - 120	10	31
Methyl tert-butyl ether	4.0	U	40.0	32.9		ug/L		82	41 - 136	2	29
Methylene Chloride	20	U	40.0	32.7		ug/L		82	61 - 130	6	29
Styrene	4.0	U	40.0	32.3		ug/L		81	68 - 120	15	26
Tetrachloroethene	4.0	U	40.0	45.0		ug/L		112	51 - 136	7	23
Toluene	4.0	U	40.0	34.9		ug/L		87	62 - 132	11	23
trans-1,2-Dichloroethene	4.0	U	40.0	38.4		ug/L		96	68 - 133	2	24
trans-1,3-Dichloropropene	4.0	U	40.0	25.6		ug/L		64	40 - 125	13	27
Trichloroethene	1.6	J *	40.0	45.6		ug/L		110	55 - 131	2	23
Trichlorofluoromethane	4.0	U	40.0	40.2		ug/L		100	37 - 174	7	35
Vinyl chloride	2.6	J	40.0	48.4		ug/L		115	43 - 154	1	29
Xylenes, Total	8.0	U	80.0	66.3		ug/L		83	67 - 120	14	25

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	77		59 - 120
Dibromofluoromethane (Surr)	104		75 - 128
1,2-Dichloroethane-d4 (Surr)	113		70 - 121
Toluene-d8 (Surr)	94		70 - 123

Lab Sample ID: MB 240-404299/7
Matrix: Water
Analysis Batch: 404299

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			10/06/19 14:42	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/06/19 14:42	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/06/19 14:42	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/06/19 14:42	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/06/19 14:42	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/06/19 14:42	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	79		59 - 120		10/06/19 14:42	1
Dibromofluoromethane (Surr)	99		75 - 128		10/06/19 14:42	1
1,2-Dichloroethane-d4 (Surr)	106		70 - 121		10/06/19 14:42	1
Toluene-d8 (Surr)	98		70 - 123		10/06/19 14:42	1

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119521-1

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

Lab Sample ID: LCS 240-404299/4

Matrix: Water

Analysis Batch: 404299

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	9.41		ug/L		94	69 - 134
1,1,1,2-Tetrachloroethane	10.0	6.26	*	ug/L		63	65 - 139
1,1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	11.4		ug/L		114	50 - 156
1,1,2-Trichloroethane	10.0	7.78		ug/L		78	78 - 133
1,1-Dichloroethane	10.0	12.1		ug/L		121	75 - 133
1,1-Dichloroethene	10.0	9.78		ug/L		98	65 - 139
1,2,4-Trichlorobenzene	10.0	8.39		ug/L		84	42 - 133
1,2,4-Trimethylbenzene	10.0	7.92		ug/L		79	74 - 120
1,2-Dibromo-3-Chloropropane	10.0	8.07		ug/L		81	46 - 132
1,2-Dibromoethane	10.0	8.28		ug/L		83	77 - 123
1,2-Dichlorobenzene	10.0	9.13		ug/L		91	78 - 120
1,2-Dichloroethane	10.0	11.4		ug/L		114	71 - 135
1,2-Dichloropropane	10.0	12.3		ug/L		123	78 - 133
1,3,5-Trimethylbenzene	10.0	8.09		ug/L		81	75 - 121
1,3-Dichlorobenzene	10.0	9.15		ug/L		91	78 - 120
1,4-Dichlorobenzene	10.0	9.18		ug/L		92	78 - 120
2-Butanone (MEK)	20.0	21.4		ug/L		107	39 - 163
2-Hexanone	20.0	19.8		ug/L		99	43 - 148
4-Methyl-2-pentanone (MIBK)	20.0	21.9		ug/L		109	49 - 143
Acetone	20.0	26.3		ug/L		131	21 - 162
Benzene	10.0	9.72		ug/L		97	80 - 123
Bromodichloromethane	10.0	8.09		ug/L		81	77 - 125
Bromoform	10.0	8.42		ug/L		84	49 - 141
Bromomethane	10.0	9.26		ug/L		93	41 - 175
Carbon disulfide	10.0	8.73		ug/L		87	60 - 138
Carbon tetrachloride	10.0	10.6		ug/L		106	63 - 140
Chlorobenzene	10.0	9.08		ug/L		91	80 - 121
Chloroethane	10.0	10.9		ug/L		109	33 - 173
Chloroform	10.0	8.87		ug/L		89	79 - 127
Chloromethane	10.0	11.9		ug/L		119	54 - 143
cis-1,2-Dichloroethene	10.0	10.1		ug/L		101	76 - 128
cis-1,3-Dichloropropene	10.0	8.69		ug/L		87	64 - 132
Cyclohexane	10.0	15.5	*	ug/L		155	58 - 145
Dibromochloromethane	10.0	8.42		ug/L		84	70 - 132
Dichlorodifluoromethane	10.0	6.87		ug/L		69	29 - 148
Diethyl ether	10.0	14.4		ug/L		144	70 - 146
Ethylbenzene	10.0	9.31		ug/L		93	80 - 120
Isopropylbenzene	10.0	9.15		ug/L		91	74 - 120
Methyl acetate	20.0	26.2		ug/L		131	52 - 145
Methyl tert-butyl ether	10.0	7.55		ug/L		76	51 - 133
Methylcyclohexane	10.0	10.6		ug/L		106	60 - 125
Methylene Chloride	10.0	7.78		ug/L		78	70 - 134
Styrene	10.0	8.42		ug/L		84	79 - 120
Tetrachloroethene	10.0	12.8		ug/L		128	74 - 130
Toluene	10.0	8.97		ug/L		90	78 - 129
trans-1,2-Dichloroethene	10.0	9.50		ug/L		95	78 - 133
trans-1,3-Dichloropropene	10.0	7.05		ug/L		70	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: 240-119521-1

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

Lab Sample ID: LCS 240-404299/4
Matrix: Water
Analysis Batch: 404299

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	10.5		ug/L		105	51 - 164
Vinyl chloride	10.0	12.1		ug/L		121	58 - 143
Xylenes, Total	20.0	17.7		ug/L		88	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	78		59 - 120
Dibromofluoromethane (Surr)	101		75 - 128
1,2-Dichloroethane-d4 (Surr)	103		70 - 121
Toluene-d8 (Surr)	97		70 - 123

Lab Sample ID: 240-119527-E-12 MS
Matrix: Water
Analysis Batch: 404299

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	8.0	J	100	103		ug/L		95	51 - 138
1,1,2,2-Tetrachloroethane	10	U *	100	67.0		ug/L		67	60 - 137
1,1,2-Trichloroethane	10	U F1	100	81.9		ug/L		82	76 - 132
1,1-Dichloroethane	280		100	390		ug/L		108	63 - 136
1,1-Dichloroethene	55		100	152		ug/L		97	53 - 140
1,2,4-Trichlorobenzene	10	U	100	88.2		ug/L		88	30 - 126
1,2,4-Trimethylbenzene	10	U	100	78.5		ug/L		79	62 - 120
1,2-Dibromo-3-Chloropropane	10	U	100	73.5		ug/L		73	38 - 124
1,2-Dibromoethane	10	U	100	80.0		ug/L		80	71 - 123
1,2-Dichlorobenzene	10	U	100	87.7		ug/L		88	64 - 120
1,2-Dichloroethane	10	U	100	119		ug/L		119	65 - 135
1,2-Dichloropropane	10	U F1	100	126		ug/L		126	70 - 132
1,3,5-Trimethylbenzene	10	U	100	79.4		ug/L		79	64 - 120
1,3-Dichlorobenzene	10	U	100	89.8		ug/L		90	62 - 120
1,4-Dichlorobenzene	10	U	100	91.8		ug/L		92	63 - 120
2-Butanone (MEK)	100	U	200	227		ug/L		113	37 - 156
2-Hexanone	100	U	200	192		ug/L		96	42 - 150
4-Methyl-2-pentanone (MIBK)	100	U	200	220		ug/L		110	44 - 143
Acetone	100	U	200	263		ug/L		132	10 - 168
Benzene	10	U	100	96.4		ug/L		96	71 - 122
Bromodichloromethane	10	U	100	86.6		ug/L		87	64 - 125
Bromoform	10	U	100	80.9		ug/L		81	44 - 129
Bromomethane	10	U	100	88.0		ug/L		88	19 - 187
Carbon disulfide	50	U	100	90.2		ug/L		90	43 - 144
Carbon tetrachloride	10	U	100	103		ug/L		103	41 - 143
Chlorobenzene	10	U	100	90.2		ug/L		90	70 - 123
Chloroethane	10	U	100	122		ug/L		122	11 - 189
Chloroform	10	U	100	90.3		ug/L		90	68 - 130
Chloromethane	10	U	100	126		ug/L		126	31 - 154
cis-1,2-Dichloroethene	10	U	100	103		ug/L		103	64 - 130
cis-1,3-Dichloropropene	10	U	100	82.6		ug/L		83	48 - 127
Dibromochloromethane	10	U	100	89.2		ug/L		89	60 - 129
Dichlorodifluoromethane	10	U	100	75.0		ug/L		75	28 - 136

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119521-1

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

Lab Sample ID: 240-119527-E-12 MS

Matrix: Water

Analysis Batch: 404299

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	Limits
	Result	Qualifier		Result	Qualifier					
Ethylbenzene	10	U	100	94.2		ug/L		94	66 - 120	
Isopropylbenzene	10	U	100	87.7		ug/L		88	59 - 120	
Methyl tert-butyl ether	10	U	100	77.6		ug/L		78	41 - 136	
Methylene Chloride	50	U	100	79.0		ug/L		79	61 - 130	
Styrene	10	U	100	86.3		ug/L		86	68 - 120	
Tetrachloroethene	10	U	100	119		ug/L		119	51 - 136	
Toluene	10	U	100	92.7		ug/L		93	62 - 132	
trans-1,2-Dichloroethene	10	U	100	95.9		ug/L		96	68 - 133	
trans-1,3-Dichloropropene	10	U	100	73.7		ug/L		74	40 - 125	
Trichloroethene	10	U	100	112		ug/L		112	55 - 131	
Trichlorofluoromethane	10	U	100	105		ug/L		105	37 - 174	
Vinyl chloride	10	U	100	124		ug/L		124	43 - 154	
Xylenes, Total	20	U	200	175		ug/L		88	67 - 120	

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	73		59 - 120
Dibromofluoromethane (Surr)	103		75 - 128
1,2-Dichloroethane-d4 (Surr)	107		70 - 121
Toluene-d8 (Surr)	99		70 - 123

Lab Sample ID: 240-119527-E-12 MSD

Matrix: Water

Analysis Batch: 404299

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	8.0	J	100	107		ug/L		99	51 - 138	4	27	
1,1,2,2-Tetrachloroethane	10	U *	100	66.3		ug/L		66	60 - 137	1	31	
1,1,2-Trichloroethane	10	U F1	100	75.2	F1	ug/L		75	76 - 132	9	25	
1,1-Dichloroethane	280		100	391		ug/L		109	63 - 136	0	23	
1,1-Dichloroethene	55		100	156		ug/L		101	53 - 140	2	35	
1,2,4-Trichlorobenzene	10	U	100	91.5		ug/L		92	30 - 126	4	35	
1,2,4-Trimethylbenzene	10	U	100	83.4		ug/L		83	62 - 120	6	27	
1,2-Dibromo-3-Chloropropane	10	U	100	76.5		ug/L		76	38 - 124	4	35	
1,2-Dibromoethane	10	U	100	77.1		ug/L		77	71 - 123	4	27	
1,2-Dichlorobenzene	10	U	100	92.9		ug/L		93	64 - 120	6	30	
1,2-Dichloroethane	10	U	100	125		ug/L		125	65 - 135	5	24	
1,2-Dichloropropane	10	U F1	100	133	F1	ug/L		133	70 - 132	6	26	
1,3,5-Trimethylbenzene	10	U	100	86.2		ug/L		86	64 - 120	8	23	
1,3-Dichlorobenzene	10	U	100	92.3		ug/L		92	62 - 120	3	31	
1,4-Dichlorobenzene	10	U	100	93.1		ug/L		93	63 - 120	1	28	
2-Butanone (MEK)	100	U	200	218		ug/L		109	37 - 156	4	35	
2-Hexanone	100	U	200	192		ug/L		96	42 - 150	0	35	
4-Methyl-2-pentanone (MIBK)	100	U	200	223		ug/L		112	44 - 143	1	35	
Acetone	100	U	200	263		ug/L		132	10 - 168	0	35	
Benzene	10	U	100	102		ug/L		102	71 - 122	6	22	
Bromodichloromethane	10	U	100	86.4		ug/L		86	64 - 125	0	27	
Bromoform	10	U	100	79.9		ug/L		80	44 - 129	1	28	
Bromomethane	10	U	100	90.1		ug/L		90	19 - 187	2	35	

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119521-1

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

Lab Sample ID: 240-119527-E-12 MSD

Matrix: Water

Analysis Batch: 404299

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	RPD
	Result	Qualifier		Result	Qualifier				Limits		
Carbon disulfide	50	U	100	91.5		ug/L		91	43 - 144	1	33
Carbon tetrachloride	10	U	100	107		ug/L		107	41 - 143	4	30
Chlorobenzene	10	U	100	87.1		ug/L		87	70 - 123	4	23
Chloroethane	10	U	100	129		ug/L		129	11 - 189	6	35
Chloroform	10	U	100	94.8		ug/L		95	68 - 130	5	23
Chloromethane	10	U	100	121		ug/L		121	31 - 154	4	35
cis-1,2-Dichloroethene	10	U	100	105		ug/L		105	64 - 130	2	21
cis-1,3-Dichloropropene	10	U	100	87.4		ug/L		87	48 - 127	6	30
Dibromochloromethane	10	U	100	83.6		ug/L		84	60 - 129	6	26
Dichlorodifluoromethane	10	U	100	74.5		ug/L		74	28 - 136	1	35
Ethylbenzene	10	U	100	90.6		ug/L		91	66 - 120	4	24
Isopropylbenzene	10	U	100	89.4		ug/L		89	59 - 120	2	31
Methyl tert-butyl ether	10	U	100	80.1		ug/L		80	41 - 136	3	29
Methylene Chloride	50	U	100	81.3		ug/L		81	61 - 130	3	29
Styrene	10	U	100	83.0		ug/L		83	68 - 120	4	26
Tetrachloroethene	10	U	100	122		ug/L		122	51 - 136	3	23
Toluene	10	U	100	89.5		ug/L		89	62 - 132	4	23
trans-1,2-Dichloroethene	10	U	100	102		ug/L		102	68 - 133	6	24
trans-1,3-Dichloropropene	10	U	100	65.8		ug/L		66	40 - 125	11	27
Trichloroethene	10	U	100	125		ug/L		125	55 - 131	11	23
Trichlorofluoromethane	10	U	100	107		ug/L		107	37 - 174	1	35
Vinyl chloride	10	U	100	127		ug/L		127	43 - 154	2	29
Xylenes, Total	20	U	200	179		ug/L		89	67 - 120	2	25

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	75		59 - 120
Dibromofluoromethane (Surr)	105		75 - 128
1,2-Dichloroethane-d4 (Surr)	107		70 - 121
Toluene-d8 (Surr)	95		70 - 123

Lab Sample ID: MB 240-404390/7

Matrix: Water

Analysis Batch: 404390

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			10/07/19 15:02	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/07/19 15:02	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/07/19 15:02	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/07/19 15:02	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/07/19 15:02	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/07/19 15:02	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	75		59 - 120		10/07/19 15:02	1
Dibromofluoromethane (Surr)	98		75 - 128		10/07/19 15:02	1
1,2-Dichloroethane-d4 (Surr)	105		70 - 121		10/07/19 15:02	1
Toluene-d8 (Surr)	93		70 - 123		10/07/19 15:02	1

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119521-1

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

Lab Sample ID: LCS 240-404390/4
Matrix: Water
Analysis Batch: 404390

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	9.40		ug/L		94	69 - 134
1,1,2,2-Tetrachloroethane	10.0	7.37		ug/L		74	65 - 139
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	10.5		ug/L		105	50 - 156
1,1,2-Trichloroethane	10.0	8.97		ug/L		90	78 - 133
1,1-Dichloroethane	10.0	13.5	*	ug/L		135	75 - 133
1,1-Dichloroethene	10.0	10.3		ug/L		103	65 - 139
1,2,4-Trichlorobenzene	10.0	10.3		ug/L		103	42 - 133
1,2,4-Trimethylbenzene	10.0	9.22		ug/L		92	74 - 120
1,2-Dibromo-3-Chloropropane	10.0	9.15		ug/L		92	46 - 132
1,2-Dibromoethane	10.0	9.37		ug/L		94	77 - 123
1,2-Dichlorobenzene	10.0	10.5		ug/L		105	78 - 120
1,2-Dichloroethane	10.0	12.8		ug/L		128	71 - 135
1,2-Dichloropropane	10.0	13.8	*	ug/L		138	78 - 133
1,3,5-Trimethylbenzene	10.0	8.89		ug/L		89	75 - 121
1,3-Dichlorobenzene	10.0	10.3		ug/L		103	78 - 120
1,4-Dichlorobenzene	10.0	10.8		ug/L		108	78 - 120
2-Butanone (MEK)	20.0	25.1		ug/L		126	39 - 163
2-Hexanone	20.0	21.9		ug/L		110	43 - 148
4-Methyl-2-pentanone (MIBK)	20.0	23.9		ug/L		119	49 - 143
Acetone	20.0	26.3		ug/L		132	21 - 162
Benzene	10.0	10.4		ug/L		104	80 - 123
Bromodichloromethane	10.0	8.72		ug/L		87	77 - 125
Bromoform	10.0	8.33		ug/L		83	49 - 141
Bromomethane	10.0	8.25		ug/L		82	41 - 175
Carbon disulfide	10.0	9.22		ug/L		92	60 - 138
Carbon tetrachloride	10.0	10.4		ug/L		104	63 - 140
Chlorobenzene	10.0	10.2		ug/L		102	80 - 121
Chloroethane	10.0	11.1		ug/L		111	33 - 173
Chloroform	10.0	9.43		ug/L		94	79 - 127
Chloromethane	10.0	12.3		ug/L		123	54 - 143
cis-1,2-Dichloroethene	10.0	10.9		ug/L		109	76 - 128
cis-1,3-Dichloropropene	10.0	9.24		ug/L		92	64 - 132
Cyclohexane	10.0	14.6	*	ug/L		146	58 - 145
Dibromochloromethane	10.0	9.85		ug/L		98	70 - 132
Dichlorodifluoromethane	10.0	6.07		ug/L		61	29 - 148
Diethyl ether	10.0	16.3	*	ug/L		163	70 - 146
Ethylbenzene	10.0	10.3		ug/L		103	80 - 120
Isopropylbenzene	10.0	9.77		ug/L		98	74 - 120
Methyl acetate	20.0	27.6		ug/L		138	52 - 145
Methyl tert-butyl ether	10.0	8.35		ug/L		84	51 - 133
Methylcyclohexane	10.0	9.10		ug/L		91	60 - 125
Methylene Chloride	10.0	9.17		ug/L		92	70 - 134
Styrene	10.0	9.95		ug/L		100	79 - 120
Tetrachloroethene	10.0	13.5	*	ug/L		135	74 - 130
Toluene	10.0	10.0		ug/L		100	78 - 129
trans-1,2-Dichloroethene	10.0	9.98		ug/L		100	78 - 133
trans-1,3-Dichloropropene	10.0	7.42		ug/L		74	55 - 128
Trichloroethene	10.0	11.7		ug/L		117	76 - 125

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119521-1

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

Lab Sample ID: LCS 240-404390/4
Matrix: Water
Analysis Batch: 404390

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	9.22		ug/L		92	51 - 164
Vinyl chloride	10.0	10.8		ug/L		108	58 - 143
Xylenes, Total	20.0	19.8		ug/L		99	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	84		59 - 120
Dibromofluoromethane (Surr)	98		75 - 128
1,2-Dichloroethane-d4 (Surr)	103		70 - 121
Toluene-d8 (Surr)	96		70 - 123

Lab Sample ID: 240-119529-B-25 MS
Matrix: Water
Analysis Batch: 404390

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	40	U	400	426		ug/L		107	51 - 138
1,1,2,2-Tetrachloroethane	40	U	400	278		ug/L		69	60 - 137
1,1,2-Trichloroethane	40	U	400	338		ug/L		85	76 - 132
1,1-Dichloroethane	40	U F1 *	400	550	F1	ug/L		137	63 - 136
1,1-Dichloroethene	40	U	400	385		ug/L		96	53 - 140
1,2-Dichlorobenzene	40	U	400	384		ug/L		96	64 - 120
1,2-Dichloroethane	40	U	400	512		ug/L		128	65 - 135
1,2-Dichloropropane	40	U F1 *	400	527		ug/L		132	70 - 132
2-Butanone (MEK)	400	U	800	923		ug/L		115	37 - 156
2-Hexanone	400	U	800	785		ug/L		98	42 - 150
4-Methyl-2-pentanone (MIBK)	400	U	800	870		ug/L		109	44 - 143
Acetone	400	U	800	969		ug/L		121	10 - 168
Benzene	40	U	400	401		ug/L		100	71 - 122
Bromodichloromethane	40	U	400	354		ug/L		89	64 - 125
Bromoform	40	U	400	349		ug/L		87	44 - 129
Bromomethane	40	U	400	286		ug/L		71	19 - 187
Carbon disulfide	200	U	400	418		ug/L		104	43 - 144
Carbon tetrachloride	40	U	400	424		ug/L		106	41 - 143
Chlorobenzene	40	U	400	400		ug/L		100	70 - 123
Chloroethane	40	U	400	458		ug/L		115	11 - 189
Chloroform	40	U	400	381		ug/L		95	68 - 130
Chloromethane	40	U	400	288		ug/L		72	31 - 154
cis-1,2-Dichloroethene	990		400	1370		ug/L		93	64 - 130
cis-1,3-Dichloropropene	40	U	400	340		ug/L		85	48 - 127
Dibromochloromethane	40	U	400	338		ug/L		84	60 - 129
Ethylbenzene	40	U	400	377		ug/L		94	66 - 120
Methylene Chloride	200	U	400	342		ug/L		86	61 - 130
Styrene	40	U	400	370		ug/L		93	68 - 120
Tetrachloroethene	40	U *	400	485		ug/L		121	51 - 136
Toluene	40	U	400	388		ug/L		97	62 - 132
trans-1,2-Dichloroethene	40	U	400	382		ug/L		96	68 - 133
trans-1,3-Dichloropropene	40	U	400	273		ug/L		68	40 - 125
Trichloroethene	40	U	400	476		ug/L		119	55 - 131

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119521-1

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

Lab Sample ID: 240-119529-B-25 MS

Matrix: Water

Analysis Batch: 404390

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
Vinyl chloride	270		400	778		ug/L		128	43 - 154
Xylenes, Total	80	U	800	756		ug/L		95	67 - 120
Surrogate	MS %Recovery	MS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	78		59 - 120						
Dibromofluoromethane (Surr)	96		75 - 128						
1,2-Dichloroethane-d4 (Surr)	101		70 - 121						
Toluene-d8 (Surr)	101		70 - 123						

Lab Sample ID: 240-119529-B-25 MSD

Matrix: Water

Analysis Batch: 404390

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	40	U	400	375		ug/L		94	51 - 138	13	27
1,1,2,2-Tetrachloroethane	40	U	400	240		ug/L		60	60 - 137	14	31
1,1,2-Trichloroethane	40	U	400	332		ug/L		83	76 - 132	2	25
1,1-Dichloroethane	40	U F1 *	400	520		ug/L		130	63 - 136	6	23
1,1-Dichloroethene	40	U	400	374		ug/L		94	53 - 140	3	35
1,2-Dichlorobenzene	40	U	400	371		ug/L		93	64 - 120	3	30
1,2-Dichloroethane	40	U	400	484		ug/L		121	65 - 135	6	24
1,2-Dichloropropane	40	U F1 *	400	535	F1	ug/L		134	70 - 132	2	26
2-Butanone (MEK)	400	U	800	911		ug/L		114	37 - 156	1	35
2-Hexanone	400	U	800	724		ug/L		91	42 - 150	8	35
4-Methyl-2-pentanone (MIBK)	400	U	800	805		ug/L		101	44 - 143	8	35
Acetone	400	U	800	957		ug/L		120	10 - 168	1	35
Benzene	40	U	400	399		ug/L		100	71 - 122	1	22
Bromodichloromethane	40	U	400	350		ug/L		87	64 - 125	1	27
Bromoform	40	U	400	295		ug/L		74	44 - 129	17	28
Bromomethane	40	U	400	279		ug/L		70	19 - 187	2	35
Carbon disulfide	200	U	400	406		ug/L		102	43 - 144	3	33
Carbon tetrachloride	40	U	400	380		ug/L		95	41 - 143	11	30
Chlorobenzene	40	U	400	373		ug/L		93	70 - 123	7	23
Chloroethane	40	U	400	410		ug/L		103	11 - 189	11	35
Chloroform	40	U	400	370		ug/L		93	68 - 130	3	23
Chloromethane	40	U	400	265		ug/L		66	31 - 154	9	35
cis-1,2-Dichloroethene	990		400	1440		ug/L		112	64 - 130	5	21
cis-1,3-Dichloropropene	40	U	400	320		ug/L		80	48 - 127	6	30
Dibromochloromethane	40	U	400	337		ug/L		84	60 - 129	0	26
Ethylbenzene	40	U	400	361		ug/L		90	66 - 120	4	24
Methylene Chloride	200	U	400	346		ug/L		87	61 - 130	1	29
Styrene	40	U	400	342		ug/L		86	68 - 120	8	26
Tetrachloroethene	40	U *	400	452		ug/L		113	51 - 136	7	23
Toluene	40	U	400	368		ug/L		92	62 - 132	5	23
trans-1,2-Dichloroethene	40	U	400	381		ug/L		95	68 - 133	0	24
trans-1,3-Dichloropropene	40	U	400	253		ug/L		63	40 - 125	8	27
Trichloroethene	40	U	400	458		ug/L		114	55 - 131	4	23
Vinyl chloride	270		400	784		ug/L		129	43 - 154	1	29

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119521-1

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

Lab Sample ID: 240-119529-B-25 MSD
Matrix: Water
Analysis Batch: 404390

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
Xylenes, Total	80	U	800	728		ug/L		91	67 - 120	4	25
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
4-Bromofluorobenzene (Surr)	81		59 - 120								
Dibromofluoromethane (Surr)	102		75 - 128								
1,2-Dichloroethane-d4 (Surr)	102		70 - 121								
Toluene-d8 (Surr)	102		70 - 123								

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

Lab Sample ID: MB 240-403637/5
Matrix: Water
Analysis Batch: 403637

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			10/02/19 11:53	1
Surrogate	MB %Recovery	MB Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	99		63 - 125						
							Prepared	Analyzed	Dil Fac
								10/02/19 11:53	1

Lab Sample ID: LCS 240-403637/4
Matrix: Water
Analysis Batch: 403637

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	10.4		ug/L		104	59 - 131
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	99		63 - 125				

Lab Sample ID: 240-119521-5 MS
Matrix: Water
Analysis Batch: 403637

Client Sample ID: DUP-08
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U * F1 F2	10.0	4.73	* F1	ug/L		47	52 - 129
Surrogate	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	84		63 - 125						

Lab Sample ID: 240-119521-5 MSD
Matrix: Water
Analysis Batch: 403637

Client Sample ID: DUP-08
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	2.0	U * F1 F2	10.0	5.43	* F2	ug/L		54	52 - 129	14	13

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119521-1

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

Lab Sample ID: 240-119521-5 MSD
Matrix: Water
Analysis Batch: 403637

Client Sample ID: DUP-08
Prep Type: Total/NA

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	92		63 - 125

Lab Sample ID: MB 240-403886/5
Matrix: Water
Analysis Batch: 403886

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			10/03/19 11:20	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	75		63 - 125		10/03/19 11:20	1

Lab Sample ID: LCS 240-403886/4
Matrix: Water
Analysis Batch: 403886

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	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	74		63 - 125

Lab Sample ID: 240-119556-B-5 MS
Matrix: Water
Analysis Batch: 403886

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	2.0	U	10.0	11.3		ug/L		113	52 - 129

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	72		63 - 125

Lab Sample ID: 240-119556-B-5 MSD
Matrix: Water
Analysis Batch: 403886

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	2.0	U	10.0	11.9		ug/L		119	52 - 129	5	13

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	75		63 - 125

QC Association Summary

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

Job ID: 240-119521-1

GC/MS VOA

Analysis Batch: 403637

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119521-1	MW-51_092419	Total/NA	Water	8260B SIM	
240-119521-3	TW-16-02_092419	Total/NA	Water	8260B SIM	
240-119521-4	TW-16-01_092419	Total/NA	Water	8260B SIM	
240-119521-5	DUP-08	Total/NA	Water	8260B SIM	
240-119521-7	PW-16-01_092419	Total/NA	Water	8260B SIM	
MB 240-403637/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-403637/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-119521-5 MS	DUP-08	Total/NA	Water	8260B SIM	
240-119521-5 MSD	DUP-08	Total/NA	Water	8260B SIM	

Analysis Batch: 403886

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119521-2	MW-23_092419	Total/NA	Water	8260B SIM	
MB 240-403886/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-403886/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-119556-B-5 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-119556-B-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 403996

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119521-1	MW-51_092419	Total/NA	Water	8260B	
MB 240-403996/7	Method Blank	Total/NA	Water	8260B	
LCS 240-403996/4	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 404173

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119521-2	MW-23_092419	Total/NA	Water	8260B	
240-119521-4	TW-16-01_092419	Total/NA	Water	8260B	
240-119521-5	DUP-08	Total/NA	Water	8260B	
240-119521-6	TRIP BLANK	Total/NA	Water	8260B	
240-119521-7	PW-16-01_092419	Total/NA	Water	8260B	
MB 240-404173/7	Method Blank	Total/NA	Water	8260B	
LCS 240-404173/4	Lab Control Sample	Total/NA	Water	8260B	
240-119527-H-12 MS	Matrix Spike	Total/NA	Water	8260B	
240-119527-I-12 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Analysis Batch: 404299

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119521-3	TW-16-02_092419	Total/NA	Water	8260B	
MB 240-404299/7	Method Blank	Total/NA	Water	8260B	
LCS 240-404299/4	Lab Control Sample	Total/NA	Water	8260B	
240-119527-E-12 MS	Matrix Spike	Total/NA	Water	8260B	
240-119527-E-12 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Analysis Batch: 404390

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119521-2	MW-23_092419	Total/NA	Water	8260B	
240-119521-5	DUP-08	Total/NA	Water	8260B	
MB 240-404390/7	Method Blank	Total/NA	Water	8260B	
LCS 240-404390/4	Lab Control Sample	Total/NA	Water	8260B	
240-119529-B-25 MS	Matrix Spike	Total/NA	Water	8260B	

Eurofins TestAmerica, Canton

QC Association Summary

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

Job ID: 240-119521-1

GC/MS VOA (Continued)

Analysis Batch: 404390 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119529-B-25 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: 240-119521-1

Client Sample ID: MW-51_092419

Lab Sample ID: 240-119521-1

Date Collected: 09/24/19 10:25

Matrix: Water

Date Received: 09/26/19 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	403996	10/04/19 05:48	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	403637	10/02/19 14:24	SAM	TAL CAN

Client Sample ID: MW-23_092419

Lab Sample ID: 240-119521-2

Date Collected: 09/24/19 16:57

Matrix: Water

Date Received: 09/26/19 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2500	404173	10/04/19 20:59	LRW	TAL CAN
Total/NA	Analysis	8260B		2500	404390	10/07/19 15:27	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	403886	10/03/19 12:10	SAM	TAL CAN

Client Sample ID: TW-16-02_092419

Lab Sample ID: 240-119521-3

Date Collected: 09/24/19 12:35

Matrix: Water

Date Received: 09/26/19 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		333.33	404299	10/06/19 16:24	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	403637	10/02/19 15:14	SAM	TAL CAN

Client Sample ID: TW-16-01_092419

Lab Sample ID: 240-119521-4

Date Collected: 09/24/19 13:56

Matrix: Water

Date Received: 09/26/19 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		20	404173	10/04/19 21:50	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	403637	10/02/19 15:40	SAM	TAL CAN

Client Sample ID: DUP-08

Lab Sample ID: 240-119521-5

Date Collected: 09/24/19 00:00

Matrix: Water

Date Received: 09/26/19 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2500	404173	10/04/19 22:15	LRW	TAL CAN
Total/NA	Analysis	8260B		2500	404390	10/07/19 15:52	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	403637	10/02/19 16:05	SAM	TAL CAN

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-119521-6

Date Collected: 09/24/19 00:00

Matrix: Water

Date Received: 09/26/19 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	404173	10/04/19 17:10	LRW	TAL CAN

Lab Chronicle

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

Job ID: 240-119521-1

Client Sample ID: PW-16-01_092419

Lab Sample ID: 240-119521-7

Date Collected: 09/24/19 15:25

Matrix: Water

Date Received: 09/26/19 09:50

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Prepared or Analyzed</u>	<u>Analyst</u>	<u>Lab</u>
Total/NA	Analysis	8260B		100	404173	10/04/19 22:41	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	403637	10/02/19 17:20	SAM	TAL CAN

Laboratory References:

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

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

Accreditation/Certification Summary

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

Job ID: 240-119521-1

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

Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility


Login # : 119518

Client Arcadis Site Name _____
 Cooler Received on 9-26-19 Opened on 9-26-19
 FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Cooler unpacked by: _____

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

TestAmerica Cooler # 114 Foam Box Client Cooler Box Other _____
 Packing material used: Bubble Wrap Foam Plastic Bag None Other _____
 COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN# IR-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
 2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 2 Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
 -Were tamper/custody seals intact and uncompromised? Yes No NA
 3. Shippers' packing slip attached to the cooler(s)? Yes No
 4. Did custody papers accompany the sample(s)? Yes No
 5. Were the custody papers relinquished & signed in the appropriate place? Yes No
 6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
 7. Did all bottles arrive in good condition (Unbroken)? Yes No
 8. Could all bottle labels 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? Yes No
- 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 # _____ 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: Martin

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: _____

