

ANALYTICAL REPORT

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Tel: (330)497-9396

Laboratory Job ID: 240-119558-1

Client Project/Site: Ford LTP Livonia MI - E203728

For:

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



Authorized for release by:
10/11/2019 2:28:20 PM

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

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Definitions/Glossary

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

Job ID: 240-119558-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
F1	MS and/or MSD Recovery is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Case Narrative

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

Job ID: 240-119558-1

Job ID: 240-119558-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Livonia MI - E203728

Report Number: 240-119558-1

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 9/27/2019 8:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.4° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples MW-55_092519 (240-119558-1), MW-55D_092519 (240-119558-2), MW-56_092519 (240-119558-3), MW-122_092519 (240-119558-4), MW-68_092519 (240-119558-5) and TRIP BLANK (240-119558-6) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 10/05/2019, 10/07/2019, 10/08/2019 and 10/09/2019.

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.

The continuing calibration verification (CCV) for analytical batch 240-404390 exceeded control criteria for 1,2-Dichloropropane compounds. 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: TRIP BLANK (240-119558-6) and (CCVIS 240-404390/2).

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: TRIP BLANK (240-119558-6) and (LCS 240-404390/4).

Case Narrative

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

Job ID: 240-119558-1

Job ID: 240-119558-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

NO MS/MSD in batch 404189 due to an incorrect spike amount added: MW-55_092519 (240-119558-1) and MW-55D_092519 (240-119558-2).

There was an MS/MSD analyzed in batch 240-404847 but could not be reported because the associated sample needed reanalyzed in a different batch: MW-122_092519 (240-119558-4) and MW-68_092519 (240-119558-5).

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-55_092519 (240-119558-1), MW-55D_092519 (240-119558-2), MW-56_092519 (240-119558-3), MW-122_092519 (240-119558-4) and MW-68_092519 (240-119558-5) 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.

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: 240-119558-1

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: 240-119558-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-119558-1	MW-55_092519	Water	09/25/19 10:10	09/27/19 08:40	
240-119558-2	MW-55D_092519	Water	09/25/19 11:40	09/27/19 08:40	
240-119558-3	MW-56_092519	Water	09/25/19 13:56	09/27/19 08:40	
240-119558-4	MW-122_092519	Water	09/25/19 15:27	09/27/19 08:40	
240-119558-5	MW-68_092519	Water	09/25/19 16:50	09/27/19 08:40	
240-119558-6	TRIP BLANK	Water	09/25/19 00:00	09/27/19 08:40	

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

Detection Summary

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

Job ID: 240-119558-1

Client Sample ID: MW-55_092519

Lab Sample ID: 240-119558-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.89	J	1.0	0.16	ug/L	1		8260B	Total/NA
Vinyl chloride	0.58	J	1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: MW-55D_092519

Lab Sample ID: 240-119558-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	2.6		2.0	0.86	ug/L	1		8260B SIM	Total/NA
cis-1,2-Dichloroethene	0.79	J	1.0	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: MW-56_092519

Lab Sample ID: 240-119558-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	2.4		2.0	0.86	ug/L	1		8260B SIM	Total/NA
cis-1,2-Dichloroethene	0.34	J	1.0	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: MW-122_092519

Lab Sample ID: 240-119558-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.9	J	2.0	0.86	ug/L	1		8260B SIM	Total/NA
Vinyl chloride	2.4		1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: MW-68_092519

Lab Sample ID: 240-119558-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	32		1.0	0.16	ug/L	1		8260B	Total/NA
trans-1,2-Dichloroethene	4.2		1.0	0.19	ug/L	1		8260B	Total/NA
Trichloroethene	0.57	J	1.0	0.10	ug/L	1		8260B	Total/NA
Vinyl chloride	6.8		1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-119558-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	0.94	J	1.0	0.10	ug/L	1		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: 240-119558-1

Client Sample ID: MW-55_092519

Lab Sample ID: 240-119558-1

Date Collected: 09/25/19 10:10

Matrix: Water

Date Received: 09/27/19 08:40

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 22:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	78		63 - 125		10/02/19 22:16	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			10/05/19 06:23	1
cis-1,2-Dichloroethene	0.89	J	1.0	0.16	ug/L			10/05/19 06:23	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/05/19 06:23	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/05/19 06:23	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/05/19 06:23	1
Vinyl chloride	0.58	J	1.0	0.20	ug/L			10/05/19 06:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		59 - 120		10/05/19 06:23	1
Dibromofluoromethane (Surr)	86		75 - 128		10/05/19 06:23	1
1,2-Dichloroethane-d4 (Surr)	115		70 - 121		10/05/19 06:23	1
Toluene-d8 (Surr)	99		70 - 123		10/05/19 06:23	1

Client Sample Results

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

Job ID: 240-119558-1

Client Sample ID: MW-55D_092519

Lab Sample ID: 240-119558-2

Date Collected: 09/25/19 11:40

Matrix: Water

Date Received: 09/27/19 08:40

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.6		2.0	0.86	ug/L			10/02/19 22:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	75		63 - 125		10/02/19 22:41	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/05/19 06:45	1
cis-1,2-Dichloroethene	0.79	J	1.0	0.16	ug/L			10/05/19 06:45	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/05/19 06:45	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/05/19 06:45	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/05/19 06:45	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/05/19 06:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		59 - 120		10/05/19 06:45	1
Dibromofluoromethane (Surr)	85		75 - 128		10/05/19 06:45	1
1,2-Dichloroethane-d4 (Surr)	121		70 - 121		10/05/19 06:45	1
Toluene-d8 (Surr)	100		70 - 123		10/05/19 06:45	1

Client Sample Results

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

Job ID: 240-119558-1

Client Sample ID: MW-56_092519

Lab Sample ID: 240-119558-3

Date Collected: 09/25/19 13:56

Matrix: Water

Date Received: 09/27/19 08:40

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.4		2.0	0.86	ug/L			10/02/19 23:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	77		63 - 125					10/02/19 23:07	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			10/08/19 21:53	1
cis-1,2-Dichloroethene	0.34	J	1.0	0.16	ug/L			10/08/19 21:53	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/08/19 21:53	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/08/19 21:53	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/08/19 21:53	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/08/19 21:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	73		59 - 120					10/08/19 21:53	1
Dibromofluoromethane (Surr)	116		75 - 128					10/08/19 21:53	1
1,2-Dichloroethane-d4 (Surr)	99		70 - 121					10/08/19 21:53	1
Toluene-d8 (Surr)	92		70 - 123					10/08/19 21:53	1

Client Sample Results

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

Job ID: 240-119558-1

Client Sample ID: MW-122_092519

Lab Sample ID: 240-119558-4

Date Collected: 09/25/19 15:27

Matrix: Water

Date Received: 09/27/19 08:40

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.9	J	2.0	0.86	ug/L			10/02/19 23:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	77		63 - 125		10/02/19 23:32	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/09/19 18:54	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/09/19 18:54	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/09/19 18:54	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/09/19 18:54	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/09/19 18:54	1
Vinyl chloride	2.4		1.0	0.20	ug/L			10/09/19 18:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	72		59 - 120		10/09/19 18:54	1
Dibromofluoromethane (Surr)	115		75 - 128		10/09/19 18:54	1
1,2-Dichloroethane-d4 (Surr)	98		70 - 121		10/09/19 18:54	1
Toluene-d8 (Surr)	92		70 - 123		10/09/19 18:54	1

Client Sample Results

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

Job ID: 240-119558-1

Client Sample ID: MW-68_092519

Lab Sample ID: 240-119558-5

Date Collected: 09/25/19 16:50

Matrix: Water

Date Received: 09/27/19 08:40

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 13:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	76		63 - 125		10/03/19 13:01	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		10/09/19 19:18	1
cis-1,2-Dichloroethene	32		1.0	0.16	ug/L			10/07/19 22:45	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L	-		10/09/19 19:18	1
trans-1,2-Dichloroethene	4.2		1.0	0.19	ug/L			10/09/19 19:18	1
Trichloroethene	0.57	J	1.0	0.10	ug/L			10/09/19 19:18	1
Vinyl chloride	6.8		1.0	0.20	ug/L			10/09/19 19:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	76		59 - 120		10/07/19 22:45	1
4-Bromofluorobenzene (Surr)	76		59 - 120		10/09/19 19:18	1
Dibromofluoromethane (Surr)	103		75 - 128		10/07/19 22:45	1
Dibromofluoromethane (Surr)	115		75 - 128		10/09/19 19:18	1
1,2-Dichloroethane-d4 (Surr)	107		70 - 121		10/07/19 22:45	1
1,2-Dichloroethane-d4 (Surr)	97		70 - 121		10/09/19 19:18	1
Toluene-d8 (Surr)	94		70 - 123		10/07/19 22:45	1
Toluene-d8 (Surr)	91		70 - 123		10/09/19 19:18	1

Client Sample Results

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

Job ID: 240-119558-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-119558-6

Date Collected: 09/25/19 00:00

Matrix: Water

Date Received: 09/27/19 08:40

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			10/07/19 23:10	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/07/19 23:10	1
Tetrachloroethene	1.0	U *	1.0	0.15	ug/L			10/07/19 23:10	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/07/19 23:10	1
Trichloroethene	0.94	J	1.0	0.10	ug/L			10/07/19 23:10	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/07/19 23:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	74		59 - 120		10/07/19 23:10	1
Dibromofluoromethane (Surr)	97		75 - 128		10/07/19 23:10	1
1,2-Dichloroethane-d4 (Surr)	102		70 - 121		10/07/19 23:10	1
Toluene-d8 (Surr)	97		70 - 123		10/07/19 23:10	1

Surrogate Summary

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

Job ID: 240-119558-1

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)
240-119529-B-25 MS	Matrix Spike	78	96	101	101
240-119529-B-25 MSD	Matrix Spike Duplicate	81	102	102	102
240-119558-1	MW-55_092519	98	86	115	99
240-119558-2	MW-55D_092519	104	85	121	100
240-119558-3	MW-56_092519	73	116	99	92
240-119558-4	MW-122_092519	72	115	98	92
240-119558-5	MW-68_092519	76	103	107	94
240-119558-5	MW-68_092519	76	115	97	91
240-119558-6	TRIP BLANK	74	97	102	97
240-119697-D-6 MS	Matrix Spike	103	101	83	101
240-119697-F-6 MSD	Matrix Spike Duplicate	97	97	80	96
LCS 240-404189/4	Lab Control Sample	99	84	111	97
LCS 240-404390/4	Lab Control Sample	84	98	103	96
LCS 240-404671/4	Lab Control Sample	95	98	86	101
LCS 240-404847/4	Lab Control Sample	95	99	82	99
MB 240-404189/6	Method Blank	102	91	121	100
MB 240-404390/7	Method Blank	75	98	105	93
MB 240-404671/7	Method Blank	76	110	90	93
MB 240-404847/7	Method Blank	77	113	93	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

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		DCA (63-125)
240-119520-F-2 MS	Matrix Spike	77
240-119520-F-2 MSD	Matrix Spike Duplicate	76
240-119556-B-5 MS	Matrix Spike	72
240-119556-B-5 MSD	Matrix Spike Duplicate	75
240-119558-1	MW-55_092519	78
240-119558-2	MW-55D_092519	75
240-119558-3	MW-56_092519	77
240-119558-4	MW-122_092519	77
240-119558-5	MW-68_092519	76
LCS 240-403698/4	Lab Control Sample	75
LCS 240-403886/4	Lab Control Sample	74
MB 240-403698/5	Method Blank	75
MB 240-403886/5	Method Blank	75

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: 240-119558-1

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

Lab Sample ID: MB 240-404189/6
Matrix: Water
Analysis Batch: 404189

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 23:00	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/04/19 23:00	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/04/19 23:00	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/04/19 23:00	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/04/19 23:00	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/04/19 23:00	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		59 - 120		10/04/19 23:00	1
Dibromofluoromethane (Surr)	91		75 - 128		10/04/19 23:00	1
1,2-Dichloroethane-d4 (Surr)	121		70 - 121		10/04/19 23:00	1
Toluene-d8 (Surr)	100		70 - 123		10/04/19 23:00	1

Lab Sample ID: LCS 240-404189/4
Matrix: Water
Analysis Batch: 404189

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	10.0	10.5		ug/L		105	69 - 134
1,1,1,2-Tetrachloroethane	10.0	12.4		ug/L		124	65 - 139
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	8.34		ug/L		83	50 - 156
1,1,2-Trichloroethane	10.0	10.6		ug/L		106	78 - 133
1,1-Dichloroethane	10.0	10.6		ug/L		106	75 - 133
1,1-Dichloroethene	10.0	9.04		ug/L		90	65 - 139
1,2,4-Trichlorobenzene	10.0	8.29		ug/L		83	42 - 133
1,2,4-Trimethylbenzene	10.0	11.0		ug/L		110	74 - 120
1,2-Dibromo-3-Chloropropane	10.0	8.56		ug/L		86	46 - 132
1,2-Dibromoethane	10.0	10.6		ug/L		106	77 - 123
1,2-Dichlorobenzene	10.0	9.82		ug/L		98	78 - 120
1,2-Dichloroethane	10.0	12.5		ug/L		125	71 - 135
1,2-Dichloropropane	10.0	11.9		ug/L		119	78 - 133
1,3,5-Trimethylbenzene	10.0	10.9		ug/L		109	75 - 121
1,3-Dichlorobenzene	10.0	9.43		ug/L		94	78 - 120
1,4-Dichlorobenzene	10.0	10.2		ug/L		102	78 - 120
2-Butanone (MEK)	20.0	25.2		ug/L		126	39 - 163
2-Hexanone	20.0	26.8		ug/L		134	43 - 148
4-Methyl-2-pentanone (MIBK)	20.0	26.1		ug/L		130	49 - 143
Acetone	20.0	27.1		ug/L		136	21 - 162
Benzene	10.0	10.3		ug/L		103	80 - 123
Bromodichloromethane	10.0	10.8		ug/L		108	77 - 125
Bromoform	10.0	7.51		ug/L		75	49 - 141
Bromomethane	10.0	8.42		ug/L		84	41 - 175
Carbon disulfide	10.0	7.31		ug/L		73	60 - 138
Carbon tetrachloride	10.0	9.11		ug/L		91	63 - 140
Chlorobenzene	10.0	10.1		ug/L		101	80 - 121
Chloroethane	10.0	10.1		ug/L		101	33 - 173
Chloroform	10.0	10.5		ug/L		105	79 - 127

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119558-1

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

Lab Sample ID: LCS 240-404189/4
Matrix: Water
Analysis Batch: 404189

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	9.29		ug/L		93	54 - 143
cis-1,2-Dichloroethene	10.0	9.44		ug/L		94	76 - 128
cis-1,3-Dichloropropene	10.0	10.3		ug/L		103	64 - 132
Cyclohexane	10.0	10.4		ug/L		104	58 - 145
Dibromochloromethane	10.0	8.50		ug/L		85	70 - 132
Dichlorodifluoromethane	10.0	7.86		ug/L		79	29 - 148
Diethyl ether	10.0	11.3		ug/L		113	70 - 146
Ethylbenzene	10.0	9.57		ug/L		96	80 - 120
Isopropylbenzene	10.0	9.86		ug/L		99	74 - 120
Methyl acetate	20.0	25.2		ug/L		126	52 - 145
Methyl tert-butyl ether	10.0	11.0		ug/L		110	51 - 133
Methylcyclohexane	10.0	9.55		ug/L		96	60 - 125
Methylene Chloride	10.0	9.56		ug/L		96	70 - 134
Styrene	10.0	10.0		ug/L		100	79 - 120
Tetrachloroethene	10.0	8.54		ug/L		85	74 - 130
Toluene	10.0	10.6		ug/L		106	78 - 129
trans-1,2-Dichloroethene	10.0	9.24		ug/L		92	78 - 133
trans-1,3-Dichloropropene	10.0	10.0		ug/L		100	55 - 128
Trichloroethene	10.0	9.58		ug/L		96	76 - 125
Trichlorofluoromethane	10.0	9.26		ug/L		93	51 - 164
Vinyl chloride	10.0	9.47		ug/L		95	58 - 143
Xylenes, Total	20.0	19.9		ug/L		100	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		59 - 120
Dibromofluoromethane (Surr)	84		75 - 128
1,2-Dichloroethane-d4 (Surr)	111		70 - 121
Toluene-d8 (Surr)	97		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 Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
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 %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
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: 240-119558-1

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: 240-119558-1

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: 240-119558-1

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: 240-119558-1

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

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

Client Sample ID: Matrix Spike Duplicate

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 404390

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								

Lab Sample ID: MB 240-404671/7

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 404671

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			10/08/19 16:19	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/08/19 16:19	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/08/19 16:19	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/08/19 16:19	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/08/19 16:19	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/08/19 16:19	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	76		59 - 120					10/08/19 16:19	1
Dibromofluoromethane (Surr)	110		75 - 128					10/08/19 16:19	1
1,2-Dichloroethane-d4 (Surr)	90		70 - 121					10/08/19 16:19	1
Toluene-d8 (Surr)	93		70 - 123					10/08/19 16:19	1

Lab Sample ID: LCS 240-404671/4

Client Sample ID: Lab Control Sample

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 404671

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	10.0	9.90		ug/L		99	69 - 134
1,1,1,2-Tetrachloroethane	10.0	9.20		ug/L		92	65 - 139
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	11.7		ug/L		117	50 - 156
1,1,2-Trichloroethane	10.0	9.87		ug/L		99	78 - 133
1,1-Dichloroethane	10.0	9.21		ug/L		92	75 - 133
1,1-Dichloroethene	10.0	9.72		ug/L		97	65 - 139
1,2,4-Trichlorobenzene	10.0	9.38		ug/L		94	42 - 133
1,2,4-Trimethylbenzene	10.0	8.79		ug/L		88	74 - 120
1,2-Dibromo-3-Chloropropane	10.0	10.2		ug/L		102	46 - 132
1,2-Dibromoethane	10.0	10.1		ug/L		101	77 - 123
1,2-Dichlorobenzene	10.0	9.66		ug/L		97	78 - 120
1,2-Dichloroethane	10.0	8.74		ug/L		87	71 - 135
1,2-Dichloropropane	10.0	9.76		ug/L		98	78 - 133
1,3,5-Trimethylbenzene	10.0	8.80		ug/L		88	75 - 121
1,3-Dichlorobenzene	10.0	9.73		ug/L		97	78 - 120
1,4-Dichlorobenzene	10.0	9.47		ug/L		95	78 - 120

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119558-1

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

Lab Sample ID: LCS 240-404671/4
Matrix: Water
Analysis Batch: 404671

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Butanone (MEK)	20.0	19.0		ug/L		95	39 - 163
2-Hexanone	20.0	17.1		ug/L		86	43 - 148
4-Methyl-2-pentanone (MIBK)	20.0	20.0		ug/L		100	49 - 143
Acetone	20.0	17.7		ug/L		88	21 - 162
Benzene	10.0	9.92		ug/L		99	80 - 123
Bromodichloromethane	10.0	9.99		ug/L		100	77 - 125
Bromoform	10.0	11.3		ug/L		113	49 - 141
Bromomethane	10.0	6.05		ug/L		61	41 - 175
Carbon disulfide	10.0	10.0		ug/L		100	60 - 138
Carbon tetrachloride	10.0	10.9		ug/L		109	63 - 140
Chlorobenzene	10.0	10.2		ug/L		102	80 - 121
Chloroethane	10.0	5.18		ug/L		52	33 - 173
Chloroform	10.0	9.13		ug/L		91	79 - 127
Chloromethane	10.0	6.10		ug/L		61	54 - 143
cis-1,2-Dichloroethene	10.0	10.0		ug/L		100	76 - 128
cis-1,3-Dichloropropene	10.0	10.4		ug/L		104	64 - 132
Cyclohexane	10.0	9.76		ug/L		98	58 - 145
Dibromochloromethane	10.0	10.2		ug/L		102	70 - 132
Dichlorodifluoromethane	10.0	6.43		ug/L		64	29 - 148
Diethyl ether	10.0	9.50		ug/L		95	70 - 146
Ethylbenzene	10.0	10.4		ug/L		104	80 - 120
Isopropylbenzene	10.0	10.4		ug/L		104	74 - 120
Methyl acetate	20.0	17.4		ug/L		87	52 - 145
Methyl tert-butyl ether	10.0	9.28		ug/L		93	51 - 133
Methylcyclohexane	10.0	9.94		ug/L		99	60 - 125
Methylene Chloride	10.0	10.9		ug/L		109	70 - 134
Styrene	10.0	10.6		ug/L		106	79 - 120
Tetrachloroethene	10.0	10.4		ug/L		104	74 - 130
Toluene	10.0	9.95		ug/L		100	78 - 129
trans-1,2-Dichloroethene	10.0	10.9		ug/L		109	78 - 133
trans-1,3-Dichloropropene	10.0	8.64		ug/L		86	55 - 128
Trichloroethene	10.0	11.2		ug/L		112	76 - 125
Trichlorofluoromethane	10.0	8.31		ug/L		83	51 - 164
Vinyl chloride	10.0	6.13		ug/L		61	58 - 143
Xylenes, Total	20.0	21.4		ug/L		107	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	95		59 - 120
Dibromofluoromethane (Surr)	98		75 - 128
1,2-Dichloroethane-d4 (Surr)	86		70 - 121
Toluene-d8 (Surr)	101		70 - 123

Lab Sample ID: 240-119697-D-6 MS
Matrix: Water
Analysis Batch: 404671

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	1.0	U	10.0	9.81		ug/L		98	51 - 138

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119558-1

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

Lab Sample ID: 240-119697-D-6 MS

Client Sample ID: Matrix Spike

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 404671

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec. Limits
	Result	Qualifier	Added	Result	Qualifier				
1,1,2,2-Tetrachloroethane	1.0	U	10.0	9.22		ug/L		92	60 - 137
1,1,2-Trichloroethane	1.0	U	10.0	10.4		ug/L		104	76 - 132
1,1-Dichloroethane	1.0	U	10.0	9.07		ug/L		91	63 - 136
1,1-Dichloroethene	0.65	J	10.0	10.7		ug/L		100	53 - 140
1,2,4-Trichlorobenzene	1.0	U	10.0	8.55		ug/L		86	30 - 126
1,2,4-Trimethylbenzene	1.0	U	10.0	8.24		ug/L		82	62 - 120
1,2-Dibromoethane	1.0	U	10.0	10.5		ug/L		105	71 - 123
1,2-Dichlorobenzene	1.0	U	10.0	9.39		ug/L		94	64 - 120
1,2-Dichloroethane	1.0	U	10.0	8.76		ug/L		88	65 - 135
1,2-Dichloropropane	1.0	U	10.0	9.21		ug/L		92	70 - 132
1,3,5-Trimethylbenzene	1.0	U	10.0	8.06		ug/L		81	64 - 120
1,3-Dichlorobenzene	1.0	U	10.0	9.28		ug/L		93	62 - 120
1,4-Dichlorobenzene	1.0	U	10.0	9.14		ug/L		91	63 - 120
Benzene	1.0	U	10.0	9.45		ug/L		94	71 - 122
Bromodichloromethane	1.0	U	10.0	9.50		ug/L		95	64 - 125
Bromoform	1.0	U	10.0	12.3		ug/L		123	44 - 129
Bromomethane	1.0	U	10.0	6.07		ug/L		61	19 - 187
Carbon tetrachloride	1.0	U	10.0	10.8		ug/L		108	41 - 143
Chlorobenzene	1.0	U	10.0	10.2		ug/L		102	70 - 123
Chloroethane	1.0	U	10.0	6.12		ug/L		61	11 - 189
Chloroform	1.0	U	10.0	9.08		ug/L		91	68 - 130
Chloromethane	1.0	U	10.0	6.65		ug/L		66	31 - 154
cis-1,2-Dichloroethene	1.3		10.0	11.0		ug/L		97	64 - 130
cis-1,3-Dichloropropene	1.0	U	10.0	9.03		ug/L		90	48 - 127
Dibromochloromethane	1.0	U	10.0	10.7		ug/L		107	60 - 129
Dichlorodifluoromethane	1.0	U	10.0	5.24		ug/L		52	28 - 136
Ethylbenzene	1.0	U	10.0	10.8		ug/L		108	66 - 120
Isopropylbenzene	1.0	U	10.0	10.2		ug/L		102	59 - 120
Methylene Chloride	5.0	U	10.0	10.3		ug/L		103	61 - 130
Styrene	1.0	U	10.0	10.9		ug/L		109	68 - 120
Tetrachloroethene	0.20	J	10.0	11.0		ug/L		108	51 - 136
Toluene	1.0	U	10.0	10.4		ug/L		104	62 - 132
trans-1,2-Dichloroethene	1.0	U	10.0	10.8		ug/L		108	68 - 133
trans-1,3-Dichloropropene	1.0	U	10.0	8.93		ug/L		89	40 - 125
Trichloroethene	9.9		10.0	19.5		ug/L		96	55 - 131
Trichlorofluoromethane	7.3		10.0	14.0		ug/L		67	37 - 174
Vinyl chloride	0.25	J	10.0	6.36		ug/L		61	43 - 154
Xylenes, Total	2.0	U	20.0	21.3		ug/L		107	67 - 120

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

QC Sample Results

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

Job ID: 240-119558-1

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

Lab Sample ID: 240-119697-F-6 MSD

Matrix: Water

Analysis Batch: 404671

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	1.0	U	10.0	10.3		ug/L		103	51 - 138	5	27
1,1,2,2-Tetrachloroethane	1.0	U	10.0	8.72		ug/L		87	60 - 137	6	31
1,1,2-Trichloroethane	1.0	U	10.0	10.2		ug/L		102	76 - 132	2	25
1,1-Dichloroethane	1.0	U	10.0	9.18		ug/L		92	63 - 136	1	23
1,1-Dichloroethene	0.65	J	10.0	10.5		ug/L		98	53 - 140	2	35
1,2,4-Trichlorobenzene	1.0	U	10.0	8.55		ug/L		85	30 - 126	0	35
1,2,4-Trimethylbenzene	1.0	U	10.0	8.15		ug/L		82	62 - 120	1	27
1,2-Dibromoethane	1.0	U	10.0	10.2		ug/L		102	71 - 123	4	27
1,2-Dichlorobenzene	1.0	U	10.0	8.91		ug/L		89	64 - 120	5	30
1,2-Dichloroethane	1.0	U	10.0	8.83		ug/L		88	65 - 135	1	24
1,2-Dichloropropane	1.0	U	10.0	9.20		ug/L		92	70 - 132	0	26
1,3,5-Trimethylbenzene	1.0	U	10.0	8.21		ug/L		82	64 - 120	2	23
1,3-Dichlorobenzene	1.0	U	10.0	9.19		ug/L		92	62 - 120	1	31
1,4-Dichlorobenzene	1.0	U	10.0	9.04		ug/L		90	63 - 120	1	28
Benzene	1.0	U	10.0	9.57		ug/L		96	71 - 122	1	22
Bromodichloromethane	1.0	U	10.0	9.78		ug/L		98	64 - 125	3	27
Bromoform	1.0	U	10.0	11.5		ug/L		115	44 - 129	7	28
Bromomethane	1.0	U	10.0	5.91		ug/L		59	19 - 187	3	35
Carbon tetrachloride	1.0	U	10.0	10.7		ug/L		107	41 - 143	1	30
Chlorobenzene	1.0	U	10.0	9.89		ug/L		99	70 - 123	3	23
Chloroethane	1.0	U	10.0	5.69		ug/L		57	11 - 189	7	35
Chloroform	1.0	U	10.0	9.12		ug/L		91	68 - 130	0	23
Chloromethane	1.0	U	10.0	6.56		ug/L		66	31 - 154	1	35
cis-1,2-Dichloroethene	1.3		10.0	11.0		ug/L		98	64 - 130	0	21
cis-1,3-Dichloropropene	1.0	U	10.0	9.18		ug/L		92	48 - 127	2	30
Dibromochloromethane	1.0	U	10.0	10.4		ug/L		104	60 - 129	3	26
Dichlorodifluoromethane	1.0	U	10.0	5.88		ug/L		59	28 - 136	11	35
Ethylbenzene	1.0	U	10.0	10.5		ug/L		105	66 - 120	3	24
Isopropylbenzene	1.0	U	10.0	9.84		ug/L		98	59 - 120	4	31
Methylene Chloride	5.0	U	10.0	9.88		ug/L		99	61 - 130	4	29
Styrene	1.0	U	10.0	10.3		ug/L		103	68 - 120	6	26
Tetrachloroethene	0.20	J	10.0	10.6		ug/L		104	51 - 136	4	23
Toluene	1.0	U	10.0	9.99		ug/L		100	62 - 132	4	23
trans-1,2-Dichloroethene	1.0	U	10.0	10.6		ug/L		106	68 - 133	2	24
trans-1,3-Dichloropropene	1.0	U	10.0	8.73		ug/L		87	40 - 125	2	27
Trichloroethene	9.9		10.0	19.5		ug/L		96	55 - 131	0	23
Trichlorofluoromethane	7.3		10.0	14.3		ug/L		70	37 - 174	2	35
Vinyl chloride	0.25	J	10.0	6.18		ug/L		59	43 - 154	3	29
Xylenes, Total	2.0	U	20.0	20.9		ug/L		105	67 - 120	2	25

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	97		59 - 120
Dibromofluoromethane (Surr)	97		75 - 128
1,2-Dichloroethane-d4 (Surr)	80		70 - 121
Toluene-d8 (Surr)	96		70 - 123

QC Sample Results

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

Job ID: 240-119558-1

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

Lab Sample ID: MB 240-404847/7

Matrix: Water

Analysis Batch: 404847

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/09/19 13:44	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/09/19 13:44	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/09/19 13:44	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/09/19 13:44	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/09/19 13:44	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/09/19 13:44	1

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

Lab Sample ID: LCS 240-404847/4

Matrix: Water

Analysis Batch: 404847

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

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

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119558-1

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

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

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

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

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

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

Lab Sample ID: MB 240-403698/5
Matrix: Water
Analysis Batch: 403698

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 13:50	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	75		63 - 125		10/02/19 13:50	1

Lab Sample ID: LCS 240-403698/4
Matrix: Water
Analysis Batch: 403698

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

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119558-1

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

Lab Sample ID: LCS 240-403698/4
Matrix: Water
Analysis Batch: 403698

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

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

Lab Sample ID: 240-119520-F-2 MS
Matrix: Water
Analysis Batch: 403698

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	0.93	J	10.0	11.7		ug/L		108	52 - 129	
Surrogate	MS %Recovery	MS Qualifier	Limits							
1,2-Dichloroethane-d4 (Surr)	77		63 - 125							

Lab Sample ID: 240-119520-F-2 MSD
Matrix: Water
Analysis Batch: 403698

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	0.93	J	10.0	11.7		ug/L		108	52 - 129	0	13
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	76		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				

QC Sample Results

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

Job ID: 240-119558-1

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

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
MS MS									
Surrogate	%Recovery	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
MSD MSD											
Surrogate	%Recovery	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: 240-119558-1

GC/MS VOA

Analysis Batch: 403698

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119558-1	MW-55_092519	Total/NA	Water	8260B SIM	
240-119558-2	MW-55D_092519	Total/NA	Water	8260B SIM	
240-119558-3	MW-56_092519	Total/NA	Water	8260B SIM	
240-119558-4	MW-122_092519	Total/NA	Water	8260B SIM	
MB 240-403698/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-403698/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-119520-F-2 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-119520-F-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 403886

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119558-5	MW-68_092519	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: 404189

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119558-1	MW-55_092519	Total/NA	Water	8260B	
240-119558-2	MW-55D_092519	Total/NA	Water	8260B	
MB 240-404189/6	Method Blank	Total/NA	Water	8260B	
LCS 240-404189/4	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 404390

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119558-5	MW-68_092519	Total/NA	Water	8260B	
240-119558-6	TRIP BLANK	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	
240-119529-B-25 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Analysis Batch: 404671

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119558-3	MW-56_092519	Total/NA	Water	8260B	
MB 240-404671/7	Method Blank	Total/NA	Water	8260B	
LCS 240-404671/4	Lab Control Sample	Total/NA	Water	8260B	
240-119697-D-6 MS	Matrix Spike	Total/NA	Water	8260B	
240-119697-F-6 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Analysis Batch: 404847

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119558-4	MW-122_092519	Total/NA	Water	8260B	
240-119558-5	MW-68_092519	Total/NA	Water	8260B	
MB 240-404847/7	Method Blank	Total/NA	Water	8260B	
LCS 240-404847/4	Lab Control Sample	Total/NA	Water	8260B	

Lab Chronicle

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

Job ID: 240-119558-1

Client Sample ID: MW-55_092519

Lab Sample ID: 240-119558-1

Date Collected: 09/25/19 10:10

Matrix: Water

Date Received: 09/27/19 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	404189	10/05/19 06:23	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	403698	10/02/19 22:16	SAM	TAL CAN

Client Sample ID: MW-55D_092519

Lab Sample ID: 240-119558-2

Date Collected: 09/25/19 11:40

Matrix: Water

Date Received: 09/27/19 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	404189	10/05/19 06:45	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	403698	10/02/19 22:41	SAM	TAL CAN

Client Sample ID: MW-56_092519

Lab Sample ID: 240-119558-3

Date Collected: 09/25/19 13:56

Matrix: Water

Date Received: 09/27/19 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	404671	10/08/19 21:53	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	403698	10/02/19 23:07	SAM	TAL CAN

Client Sample ID: MW-122_092519

Lab Sample ID: 240-119558-4

Date Collected: 09/25/19 15:27

Matrix: Water

Date Received: 09/27/19 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	404847	10/09/19 18:54	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	403698	10/02/19 23:32	SAM	TAL CAN

Client Sample ID: MW-68_092519

Lab Sample ID: 240-119558-5

Date Collected: 09/25/19 16:50

Matrix: Water

Date Received: 09/27/19 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	404390	10/07/19 22:45	LRW	TAL CAN
Total/NA	Analysis	8260B		1	404847	10/09/19 19:18	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	403886	10/03/19 13:01	SAM	TAL CAN

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-119558-6

Date Collected: 09/25/19 00:00

Matrix: Water

Date Received: 09/27/19 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	404390	10/07/19 23:10	LRW	TAL CAN

Laboratory References:

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

Eurofins TestAmerica, Canton

Accreditation/Certification Summary

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

Job ID: 240-119558-1

Laboratory: Eurofins TestAmerica, Canton

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

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



Chain of Custody Record

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

Regulatory program: DW NPDES RCRA Other

Client Contact
Company Name: Arcadis
Address: 28550 Cabot Drive, Suite 500
City/State/Zip: Novi, MI, 48377
Phone: 248-994-2240

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

Site Contact: Rachel Brelak
Telephone: 330-497-9396

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

Project Name: Ford LTP
Project Number: MI001454.0004.0001B
Shipping/Tracking No:

Method of Shipment/Carrier:
Analysis Turnaround Time
TAT if different from below
 3 weeks
 2 weeks
 1 week
 2 days
 1 day

Sample Identification	Sample Date	Sample Time	Matrix			Containers & Preservatives							Filtered Sample (Y/N)	Composite=C/Grab=G	VOCs 8260B	1,4-Dioxane 8260B SIM	Analyses	COCs	
			Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl	NaOH	ZnAc							LiPeps
MW-55-092519	9/25/19	1010																	
MW-55D-092519	9/25/19	1140																	
MW-56-092519	9/25/19	1356																	
MW-122-092519	9/25/19	1527																	
MW-68-092519	9/25/19	1650																	
Trip Blank																			



Possible Hazard Identification
 Non-Hazard Lammable Corrosive Irritant Unknown

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

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
<i>[Signature]</i>	Arcadis	9/25/19/1735	<i>[Signature]</i>	Arcadis	9/25/19/1735
<i>[Signature]</i>	Arcadis	9/25/19/1900	Novi Cold Storage	Arcadis	9/25/19/1900
<i>[Signature]</i>	Arcadis	9/26/19 13:30	Molly Hanson	ETAL-MI	9/26/19 1330

ETAL-MI 9/26/19 1445
Molly Hanson 9-27-19 810



Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 119558

Client Accadi's Site Name _____


Cooler unpacked by: _____

Cooler Received on 9-27-19 Opened on 9-27-19

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

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

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

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. 3.7 °C Corrected Cooler Temp. 4.4 °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 1 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?  Larger than this. Yes ~~No~~ NA
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: _____

GTB

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: _____