

ANALYTICAL REPORT

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Tel: (330)497-9396

Laboratory Job ID: 240-119556-1
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 2:21:07 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: 240-119556-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
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.
▫	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: 240-119556-1

Job ID: 240-119556-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Livonia MI - E203728

Report Number: 240-119556-1

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 2.1° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples MW-33_092519 (240-119556-1), MW-38_092519 (240-119556-2), MW-37_092519 (240-119556-3), MW-21_092519 (240-119556-4), MW-18_092519 (240-119556-5) and TRIP BLANK (240-119556-6) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 10/05/2019 and 10/08/2019.

Sample MW-21_092519 (240-119556-4)[500X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Method(s) 8260B: NO MS/MSD in batch 404189 due to an incorrect spike amount added.

MW-33_092519 (240-119556-1), MW-38_092519 (240-119556-2) and MW-37_092519 (240-119556-3)

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

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Case Narrative

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

Job ID: 240-119556-1

Job ID: 240-119556-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

Samples MW-33_092519 (240-119556-1), MW-38_092519 (240-119556-2), MW-37_092519 (240-119556-3), MW-21_092519 (240-119556-4) and MW-18_092519 (240-119556-5) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 10/03/2019.

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

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Method Summary

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

Job ID: 240-119556-1

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: 240-119556-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-119556-1	MW-33_092519	Water	09/25/19 09:56	09/27/19 08:40	
240-119556-2	MW-38_092519	Water	09/25/19 11:10	09/27/19 08:40	
240-119556-3	MW-37_092519	Water	09/25/19 12:50	09/27/19 08:40	
240-119556-4	MW-21_092519	Water	09/25/19 14:42	09/27/19 08:40	
240-119556-5	MW-18_092519	Water	09/25/19 16:15	09/27/19 08:40	
240-119556-6	TRIP BLANK	Water	09/25/19 00:00	09/27/19 08:40	

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- 11
- 12
- 13
- 14

Detection Summary

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

Job ID: 240-119556-1

Client Sample ID: MW-33_092519

Lab Sample ID: 240-119556-1

No Detections.

Client Sample ID: MW-38_092519

Lab Sample ID: 240-119556-2

No Detections.

Client Sample ID: MW-37_092519

Lab Sample ID: 240-119556-3

No Detections.

Client Sample ID: MW-21_092519

Lab Sample ID: 240-119556-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	58		2.0	0.86	ug/L	1		8260B SIM	Total/NA
cis-1,2-Dichloroethene	15000		500	80	ug/L	500		8260B	Total/NA
Trichloroethene	190	J	500	50	ug/L	500		8260B	Total/NA
Vinyl chloride	3000		500	100	ug/L	500		8260B	Total/NA

Client Sample ID: MW-18_092519

Lab Sample ID: 240-119556-5

No Detections.

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-119556-6

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

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

Job ID: 240-119556-1

Client Sample ID: MW-33_092519

Lab Sample ID: 240-119556-1

Date Collected: 09/25/19 09:56

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	2.0	U	2.0	0.86	ug/L			10/03/19 13:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	71		63 - 125					10/03/19 13:26	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 01:56	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/05/19 01:56	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/05/19 01:56	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/05/19 01:56	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/05/19 01:56	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/05/19 01:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		59 - 120					10/05/19 01:56	1
Dibromofluoromethane (Surr)	89		75 - 128					10/05/19 01:56	1
1,2-Dichloroethane-d4 (Surr)	120		70 - 121					10/05/19 01:56	1
Toluene-d8 (Surr)	99		70 - 123					10/05/19 01:56	1

Client Sample Results

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

Job ID: 240-119556-1

Client Sample ID: MW-38_092519

Lab Sample ID: 240-119556-2

Date Collected: 09/25/19 11:10

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			10/03/19 13:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	72		63 - 125		10/03/19 13:52	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 02:19	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/05/19 02:19	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/05/19 02:19	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/05/19 02:19	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/05/19 02:19	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/05/19 02:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		59 - 120		10/05/19 02:19	1
Dibromofluoromethane (Surr)	89		75 - 128		10/05/19 02:19	1
1,2-Dichloroethane-d4 (Surr)	121		70 - 121		10/05/19 02:19	1
Toluene-d8 (Surr)	99		70 - 123		10/05/19 02:19	1

Client Sample Results

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

Job ID: 240-119556-1

Client Sample ID: MW-37_092519

Lab Sample ID: 240-119556-3

Date Collected: 09/25/19 12:50

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 14:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	72		63 - 125		10/03/19 14:17	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 02:41	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L	-		10/05/19 02:41	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L	-		10/05/19 02:41	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		10/05/19 02:41	1
Trichloroethene	1.0	U	1.0	0.10	ug/L	-		10/05/19 02:41	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L	-		10/05/19 02:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		59 - 120		10/05/19 02:41	1
Dibromofluoromethane (Surr)	85		75 - 128		10/05/19 02:41	1
1,2-Dichloroethane-d4 (Surr)	114		70 - 121		10/05/19 02:41	1
Toluene-d8 (Surr)	95		70 - 123		10/05/19 02:41	1

Client Sample Results

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

Job ID: 240-119556-1

Client Sample ID: MW-21_092519

Lab Sample ID: 240-119556-4

Date Collected: 09/25/19 14:42

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	58		2.0	0.86	ug/L			10/03/19 14:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	65		63 - 125					10/03/19 14:42	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	500	U	500	95	ug/L			10/08/19 19:54	500
cis-1,2-Dichloroethene	15000		500	80	ug/L			10/08/19 19:54	500
Tetrachloroethene	500	U	500	75	ug/L			10/08/19 19:54	500
trans-1,2-Dichloroethene	500	U	500	95	ug/L			10/08/19 19:54	500
Trichloroethene	190	J	500	50	ug/L			10/08/19 19:54	500
Vinyl chloride	3000		500	100	ug/L			10/08/19 19:54	500
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	77		59 - 120					10/08/19 19:54	500
Dibromofluoromethane (Surr)	111		75 - 128					10/08/19 19:54	500
1,2-Dichloroethane-d4 (Surr)	95		70 - 121					10/08/19 19:54	500
Toluene-d8 (Surr)	92		70 - 123					10/08/19 19:54	500

Client Sample Results

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

Job ID: 240-119556-1

Client Sample ID: MW-18_092519

Lab Sample ID: 240-119556-5

Date Collected: 09/25/19 16:15

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 15:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	73		63 - 125		10/03/19 15:07	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 20:18	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/08/19 20:18	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/08/19 20:18	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/08/19 20:18	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/08/19 20:18	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/08/19 20:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	74		59 - 120		10/08/19 20:18	1
Dibromofluoromethane (Surr)	118		75 - 128		10/08/19 20:18	1
1,2-Dichloroethane-d4 (Surr)	98		70 - 121		10/08/19 20:18	1
Toluene-d8 (Surr)	91		70 - 123		10/08/19 20:18	1

Client Sample Results

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

Job ID: 240-119556-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-119556-6

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			10/08/19 20:42	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/08/19 20:42	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/08/19 20:42	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/08/19 20:42	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/08/19 20:42	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/08/19 20:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	71		59 - 120		10/08/19 20:42	1
Dibromofluoromethane (Surr)	116		75 - 128		10/08/19 20:42	1
1,2-Dichloroethane-d4 (Surr)	97		70 - 121		10/08/19 20:42	1
Toluene-d8 (Surr)	91		70 - 123		10/08/19 20:42	1

Surrogate Summary

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

Job ID: 240-119556-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB	DBFM	DCA	TOL
		(59-120)	(75-128)	(70-121)	(70-123)
240-119556-1	MW-33_092519	102	89	120	99
240-119556-2	MW-38_092519	104	89	121	99
240-119556-3	MW-37_092519	93	85	114	95
240-119556-4	MW-21_092519	77	111	95	92
240-119556-5	MW-18_092519	74	118	98	91
240-119556-6	TRIP BLANK	71	116	97	91
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 240-404671/4	Lab Control Sample	95	98	86	101
MB 240-404189/6	Method Blank	102	91	121	100
MB 240-404671/7	Method Blank	76	110	90	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)
240-119556-1	MW-33_092519	71
240-119556-2	MW-38_092519	72
240-119556-3	MW-37_092519	72
240-119556-4	MW-21_092519	65
240-119556-5	MW-18_092519	73
240-119556-5 MS	MW-18_092519	72
240-119556-5 MSD	MW-18_092519	75
LCS 240-403886/4	Lab Control Sample	74
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: 240-119556-1

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: 240-119556-1

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 240-404671/7
Matrix: Water
Analysis Batch: 404671

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			10/08/19 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

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119556-1

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
1,1,1-Trichloroethane	10.0	9.90		ug/L		99	69 - 134
1,1,2,2-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
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

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119556-1

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
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
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

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119556-1

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

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

Matrix: Water

Analysis Batch: 404671

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	Limits
	Result	Qualifier		Result	Qualifier					
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	
MS MS										
Surrogate	%Recovery	Qualifier	Limits							
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							

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	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	Limits	RPD	RPD
	Result	Qualifier		Result	Qualifier							
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	

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119556-1

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
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

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

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: 240-119556-5 MS

Matrix: Water

Analysis Batch: 403886

Client Sample ID: MW-18_092519

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

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-119556-1

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

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

Client Sample ID: MW-18_092519
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	%Recovery	MSD Qualifier	MSD Limits								
1,2-Dichloroethane-d4 (Surr)	75		63 - 125								

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

QC Association Summary

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

Job ID: 240-119556-1

GC/MS VOA

Analysis Batch: 403886

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119556-1	MW-33_092519	Total/NA	Water	8260B SIM	
240-119556-2	MW-38_092519	Total/NA	Water	8260B SIM	
240-119556-3	MW-37_092519	Total/NA	Water	8260B SIM	
240-119556-4	MW-21_092519	Total/NA	Water	8260B SIM	
240-119556-5	MW-18_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	
240-119556-5 MS	MW-18_092519	Total/NA	Water	8260B SIM	
240-119556-5 MSD	MW-18_092519	Total/NA	Water	8260B SIM	

Analysis Batch: 404189

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119556-1	MW-33_092519	Total/NA	Water	8260B	
240-119556-2	MW-38_092519	Total/NA	Water	8260B	
240-119556-3	MW-37_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: 404671

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119556-4	MW-21_092519	Total/NA	Water	8260B	
240-119556-5	MW-18_092519	Total/NA	Water	8260B	
240-119556-6	TRIP BLANK	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	

Lab Chronicle

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

Job ID: 240-119556-1

Client Sample ID: MW-33_092519

Lab Sample ID: 240-119556-1

Date Collected: 09/25/19 09:56

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	404189	10/05/19 01:56	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	403886	10/03/19 13:26	SAM	TAL CAN

Client Sample ID: MW-38_092519

Lab Sample ID: 240-119556-2

Date Collected: 09/25/19 11:10

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 02:19	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	403886	10/03/19 13:52	SAM	TAL CAN

Client Sample ID: MW-37_092519

Lab Sample ID: 240-119556-3

Date Collected: 09/25/19 12:50

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	404189	10/05/19 02:41	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	403886	10/03/19 14:17	SAM	TAL CAN

Client Sample ID: MW-21_092519

Lab Sample ID: 240-119556-4

Date Collected: 09/25/19 14:42

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		500	404671	10/08/19 19:54	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	403886	10/03/19 14:42	SAM	TAL CAN

Client Sample ID: MW-18_092519

Lab Sample ID: 240-119556-5

Date Collected: 09/25/19 16:15

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 20:18	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	403886	10/03/19 15:07	SAM	TAL CAN

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-119556-6

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	404671	10/08/19 20:42	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: 240-119556-1

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

MICHIGAN 190

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

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

Client Contact Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240 Project Name: Ford LTP Project Number: M1001454.0004.0001B PO # M1001454.0004.0001B		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other	
Client Project Manager: Kris Hinsky Telephone: 248-994-2240 Email: kristoffer.hinsky@arcadis.com		Site Contact: Rachel Biak Telephone: 330-497-9396	
Method of Shipment/Carrier: Shipping/Tracking No:		Analysis Turnaround Time IAT if different from below <input type="checkbox"/> 3 weeks <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day	
Sample Identification		Containers & Preservatives	
Sample Date	Sample Time	Matrix	Other:
		Air	H2SO4
		Aqueous	HNO3
		Sediment	HCl
		Solid	NaOH
		Other:	ZnAc/NaOH
			Umpres
			Other:
			Filtered Sample (Y / N)
			Composite=C / Grab=G
			VOCs 8260B
			1,4-Dioxane 8260B SIM
			Analyses
			For lab use only
			Walk-in client
			Lab sampling
			Job/SDG No:
			COCs
			Special Specific Notes / Instructions:



Possible Hazard Identification
 Non-Hazard Irritant Poison B Unknown

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

Relinquished by: <i>Kevin Spinn</i>	Date/Time: 9/25/19/1650	Received by: <i>Maedlin</i>	Company: Arcadis	Date/Time: 9/25/19/1650
Relinquished by: <i>Maedlin</i>	Date/Time: 9/25/19/1900	Received by: <i>Nori Cold Storage</i>	Company: Arcadis	Date/Time: 9/25/19/1900
Relinquished by: <i>Maedlin</i>	Date/Time: 9/25/19	Received in Laboratory by: <i>Nelly Hanson</i>	Company: Arcadis	Date/Time: 9/26/19 1336

ETA - M) 9/27/19 840



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

Login # : 119556

Client Accadis Site Name _____
Cooler Received on 9-27-19 Opened on 9-27-19

Cooler unpacked by:
[Signature]

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. 1.4 °C Corrected Cooler Temp. 2.1 °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? Yes 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:
GB

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: _____