

ANALYTICAL REPORT

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Laboratory Job ID: 240-114323-1

Client Project/Site: Ford LTP Livonia MI - E203728

For:

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



Authorized for release by:
6/27/2019 10:12:45 AM

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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: 240-114323-1

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: 240-114323-1

Job ID: 240-114323-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Livonia MI - E203728

Report Number: 240-114323-1

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 6/13/2019 8:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 2.5° C, 2.7° C and 4.1° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples MW-10_061119 (240-114323-1), MW-4_061119 (240-114323-2), MW-3_061119 (240-114323-3), MW-2_061119 (240-114323-4), MW-5_061119 (240-114323-5) and TRIP BLANK (240-114323-6) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 06/22/2019.

Samples MW-10_061119 (240-114323-1)[100X], MW-4_061119 (240-114323-2)[1000X] and MW-2_061119 (240-114323-4)[100X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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-10_061119 (240-114323-1), MW-4_061119 (240-114323-2), MW-3_061119 (240-114323-3), MW-2_061119 (240-114323-4) and MW-5_061119 (240-114323-5) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 06/17/2019.

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: 240-114323-1

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: 240-114323-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-114323-1	MW-10_061119	Water	06/11/19 10:05	06/13/19 08:30	
240-114323-2	MW-4_061119	Water	06/11/19 11:18	06/13/19 08:30	
240-114323-3	MW-3_061119	Water	06/11/19 13:20	06/13/19 08:30	
240-114323-4	MW-2_061119	Water	06/11/19 14:57	06/13/19 08:30	
240-114323-5	MW-5_061119	Water	06/11/19 17:33	06/13/19 08:30	
240-114323-6	TRIP BLANK	Water	06/11/19 00:00	06/13/19 08:30	

- 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: 240-114323-1

Client Sample ID: MW-10_061119

Lab Sample ID: 240-114323-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	6.1		2.0	0.86	ug/L	1		8260B SIM	Total/NA
Vinyl chloride	3600		100	20	ug/L	100		8260B	Total/NA

Client Sample ID: MW-4_061119

Lab Sample ID: 240-114323-2

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
cis-1,2-Dichloroethene	6400		1000	160	ug/L	1000		8260B	Total/NA
trans-1,2-Dichloroethene	310	J	1000	190	ug/L	1000		8260B	Total/NA
Trichloroethene	13000		1000	100	ug/L	1000		8260B	Total/NA

Client Sample ID: MW-3_061119

Lab Sample ID: 240-114323-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.8	J	2.0	0.86	ug/L	1		8260B SIM	Total/NA
cis-1,2-Dichloroethene	0.23	J	1.0	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: MW-2_061119

Lab Sample ID: 240-114323-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	5.8		2.0	0.86	ug/L	1		8260B SIM	Total/NA
cis-1,2-Dichloroethene	3400		100	16	ug/L	100		8260B	Total/NA
trans-1,2-Dichloroethene	790		100	19	ug/L	100		8260B	Total/NA
Vinyl chloride	190		100	20	ug/L	100		8260B	Total/NA

Client Sample ID: MW-5_061119

Lab Sample ID: 240-114323-5

No Detections.

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-114323-6

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: 240-114323-1

Client Sample ID: MW-10_061119

Lab Sample ID: 240-114323-1

Date Collected: 06/11/19 10:05

Matrix: Water

Date Received: 06/13/19 08:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	6.1		2.0	0.86	ug/L			06/17/19 12:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		63 - 125		06/17/19 12:58	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	100	U	100	19	ug/L			06/22/19 19:48	100
cis-1,2-Dichloroethene	100	U	100	16	ug/L			06/22/19 19:48	100
Tetrachloroethene	100	U	100	15	ug/L			06/22/19 19:48	100
trans-1,2-Dichloroethene	100	U	100	19	ug/L			06/22/19 19:48	100
Trichloroethene	100	U	100	10	ug/L			06/22/19 19:48	100
Vinyl chloride	3600		100	20	ug/L			06/22/19 19:48	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		70 - 121		06/22/19 19:48	100
4-Bromofluorobenzene (Surr)	90		59 - 120		06/22/19 19:48	100
Toluene-d8 (Surr)	103		70 - 123		06/22/19 19:48	100
Dibromofluoromethane (Surr)	105		75 - 128		06/22/19 19:48	100

Client Sample Results

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

Job ID: 240-114323-1

Client Sample ID: MW-4_061119

Lab Sample ID: 240-114323-2

Date Collected: 06/11/19 11:18

Matrix: Water

Date Received: 06/13/19 08:30

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	-		06/17/19 13:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		63 - 125					06/17/19 13:23	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1000	U	1000	190	ug/L	-		06/22/19 20:11	1000
cis-1,2-Dichloroethene	6400		1000	160	ug/L			06/22/19 20:11	1000
Tetrachloroethene	1000	U	1000	150	ug/L			06/22/19 20:11	1000
trans-1,2-Dichloroethene	310	J	1000	190	ug/L			06/22/19 20:11	1000
Trichloroethene	13000		1000	100	ug/L			06/22/19 20:11	1000
Vinyl chloride	1000	U	1000	200	ug/L			06/22/19 20:11	1000
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		70 - 121					06/22/19 20:11	1000
4-Bromofluorobenzene (Surr)	89		59 - 120					06/22/19 20:11	1000
Toluene-d8 (Surr)	97		70 - 123					06/22/19 20:11	1000
Dibromofluoromethane (Surr)	95		75 - 128					06/22/19 20:11	1000

Client Sample Results

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

Job ID: 240-114323-1

Client Sample ID: MW-3_061119

Lab Sample ID: 240-114323-3

Date Collected: 06/11/19 13:20

Matrix: Water

Date Received: 06/13/19 08:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.8	J	2.0	0.86	ug/L			06/17/19 13:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		63 - 125					06/17/19 13:48	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			06/22/19 20:33	1
cis-1,2-Dichloroethene	0.23	J	1.0	0.16	ug/L			06/22/19 20:33	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/22/19 20:33	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/22/19 20:33	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/22/19 20:33	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/22/19 20:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		70 - 121					06/22/19 20:33	1
4-Bromofluorobenzene (Surr)	94		59 - 120					06/22/19 20:33	1
Toluene-d8 (Surr)	103		70 - 123					06/22/19 20:33	1
Dibromofluoromethane (Surr)	108		75 - 128					06/22/19 20:33	1

Client Sample Results

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

Job ID: 240-114323-1

Client Sample ID: MW-2_061119

Lab Sample ID: 240-114323-4

Date Collected: 06/11/19 14:57

Matrix: Water

Date Received: 06/13/19 08:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	5.8		2.0	0.86	ug/L			06/17/19 14:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		63 - 125		06/17/19 14:14	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	100	U	100	19	ug/L			06/22/19 20:55	100
cis-1,2-Dichloroethene	3400		100	16	ug/L			06/22/19 20:55	100
Tetrachloroethene	100	U	100	15	ug/L			06/22/19 20:55	100
trans-1,2-Dichloroethene	790		100	19	ug/L			06/22/19 20:55	100
Trichloroethene	100	U	100	10	ug/L			06/22/19 20:55	100
Vinyl chloride	190		100	20	ug/L			06/22/19 20:55	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		70 - 121		06/22/19 20:55	100
4-Bromofluorobenzene (Surr)	93		59 - 120		06/22/19 20:55	100
Toluene-d8 (Surr)	103		70 - 123		06/22/19 20:55	100
Dibromofluoromethane (Surr)	107		75 - 128		06/22/19 20:55	100

Client Sample Results

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

Job ID: 240-114323-1

Client Sample ID: MW-5_061119

Lab Sample ID: 240-114323-5

Date Collected: 06/11/19 17:33

Matrix: Water

Date Received: 06/13/19 08:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			06/17/19 14:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		63 - 125		06/17/19 14:39	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			06/22/19 21:17	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/22/19 21:17	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/22/19 21:17	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/22/19 21:17	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/22/19 21:17	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/22/19 21:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		70 - 121		06/22/19 21:17	1
4-Bromofluorobenzene (Surr)	92		59 - 120		06/22/19 21:17	1
Toluene-d8 (Surr)	106		70 - 123		06/22/19 21:17	1
Dibromofluoromethane (Surr)	106		75 - 128		06/22/19 21:17	1

Client Sample Results

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

Job ID: 240-114323-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-114323-6

Date Collected: 06/11/19 00:00

Matrix: Water

Date Received: 06/13/19 08:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/22/19 21:39	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/22/19 21:39	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/22/19 21:39	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/22/19 21:39	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/22/19 21:39	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/22/19 21:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		70 - 121		06/22/19 21:39	1
4-Bromofluorobenzene (Surr)	97		59 - 120		06/22/19 21:39	1
Toluene-d8 (Surr)	105		70 - 123		06/22/19 21:39	1
Dibromofluoromethane (Surr)	112		75 - 128		06/22/19 21:39	1

Surrogate Summary

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

Job ID: 240-114323-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-121)	BFB (59-120)	TOL (70-123)	DBFM (75-128)
240-114181-G-3 MS	Matrix Spike	94	99	103	97
240-114181-L-3 MSD	Matrix Spike Duplicate	90	96	98	94
240-114323-1	MW-10_061119	105	90	103	105
240-114323-2	MW-4_061119	100	89	97	95
240-114323-3	MW-3_061119	101	94	103	108
240-114323-4	MW-2_061119	106	93	103	107
240-114323-5	MW-5_061119	106	92	106	106
240-114323-6	TRIP BLANK	103	97	105	112
LCS 240-387696/4	Lab Control Sample	102	106	111	101
LCSD 240-387696/8	Lab Control Sample Dup	100	105	112	101
MB 240-387696/6	Method Blank	106	93	108	102

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (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)
240-114323-1	MW-10_061119	86
240-114323-2	MW-4_061119	85
240-114323-3	MW-3_061119	90
240-114323-4	MW-2_061119	91
240-114323-5	MW-5_061119	84
240-114331-F-4 MS	Matrix Spike	90
240-114331-F-4 MSD	Matrix Spike Duplicate	88
LCS 240-386516/4	Lab Control Sample	86
MB 240-386516/5	Method Blank	86

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: 240-114323-1

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

Lab Sample ID: MB 240-387696/6
Matrix: Water
Analysis Batch: 387696

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			06/22/19 13:52	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/22/19 13:52	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/22/19 13:52	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/22/19 13:52	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/22/19 13:52	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/22/19 13:52	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		70 - 121		06/22/19 13:52	1
4-Bromofluorobenzene (Surr)	93		59 - 120		06/22/19 13:52	1
Toluene-d8 (Surr)	108		70 - 123		06/22/19 13:52	1
Dibromofluoromethane (Surr)	102		75 - 128		06/22/19 13:52	1

Lab Sample ID: LCS 240-387696/4
Matrix: Water
Analysis Batch: 387696

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	11.0		ug/L		110	65 - 139
cis-1,2-Dichloroethene	10.0	10.8		ug/L		108	76 - 128
Tetrachloroethene	10.0	9.53		ug/L		95	74 - 130
trans-1,2-Dichloroethene	10.0	10.8		ug/L		108	78 - 133
Trichloroethene	10.0	9.42		ug/L		94	76 - 125
Vinyl chloride	10.0	9.80		ug/L		98	58 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	102		70 - 121
4-Bromofluorobenzene (Surr)	106		59 - 120
Toluene-d8 (Surr)	111		70 - 123
Dibromofluoromethane (Surr)	101		75 - 128

Lab Sample ID: LCSD 240-387696/8
Matrix: Water
Analysis Batch: 387696

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	10.0	11.0		ug/L		110	65 - 139	0	35
cis-1,2-Dichloroethene	10.0	10.5		ug/L		105	76 - 128	3	35
Tetrachloroethene	10.0	9.10		ug/L		91	74 - 130	5	35
trans-1,2-Dichloroethene	10.0	10.9		ug/L		109	78 - 133	1	35
Trichloroethene	10.0	9.64		ug/L		96	76 - 125	2	35
Vinyl chloride	10.0	10.3		ug/L		103	58 - 143	5	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	100		70 - 121
4-Bromofluorobenzene (Surr)	105		59 - 120
Toluene-d8 (Surr)	112		70 - 123

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-114323-1

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

Lab Sample ID: LCSD 240-387696/8
Matrix: Water
Analysis Batch: 387696

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

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	101		75 - 128

Lab Sample ID: 240-114181-G-3 MS
Matrix: Water
Analysis Batch: 387696

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

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec. Limits
	Result	Qualifier	Added	Result	Qualifier				
1,1-Dichloroethene	1.0	U	10.0	8.51		ug/L		85	53 - 140
cis-1,2-Dichloroethene	1.0	U	10.0	9.72		ug/L		97	64 - 130
Tetrachloroethene	1.0	U	10.0	7.38		ug/L		74	51 - 136
trans-1,2-Dichloroethene	1.0	U	10.0	9.53		ug/L		95	68 - 133
Trichloroethene	1.0	U	10.0	7.85		ug/L		79	55 - 131
Vinyl chloride	1.5		10.0	8.91		ug/L		74	43 - 154

Surrogate	MS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	94		70 - 121
4-Bromofluorobenzene (Surr)	99		59 - 120
Toluene-d8 (Surr)	103		70 - 123
Dibromofluoromethane (Surr)	97		75 - 128

Lab Sample ID: 240-114181-L-3 MSD
Matrix: Water
Analysis Batch: 387696

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

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
	Result	Qualifier	Added	Result	Qualifier						
1,1-Dichloroethene	1.0	U	10.0	9.50		ug/L		95	53 - 140	11	35
cis-1,2-Dichloroethene	1.0	U	10.0	9.86		ug/L		99	64 - 130	1	21
Tetrachloroethene	1.0	U	10.0	8.11		ug/L		81	51 - 136	9	23
trans-1,2-Dichloroethene	1.0	U	10.0	9.50		ug/L		95	68 - 133	0	24
Trichloroethene	1.0	U	10.0	8.22		ug/L		82	55 - 131	5	23
Vinyl chloride	1.5		10.0	10.0		ug/L		85	43 - 154	12	29

Surrogate	MSD		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	90		70 - 121
4-Bromofluorobenzene (Surr)	96		59 - 120
Toluene-d8 (Surr)	98		70 - 123
Dibromofluoromethane (Surr)	94		75 - 128

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

Lab Sample ID: MB 240-386516/5
Matrix: Water
Analysis Batch: 386516

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			06/17/19 11:17	1

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-114323-1

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

Lab Sample ID: MB 240-386516/5
Matrix: Water
Analysis Batch: 386516

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

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	86		63 - 125		06/17/19 11:17	1

Lab Sample ID: LCS 240-386516/4
Matrix: Water
Analysis Batch: 386516

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	86		63 - 125

Lab Sample ID: 240-114331-F-4 MS
Matrix: Water
Analysis Batch: 386516

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

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	90		63 - 125

Lab Sample ID: 240-114331-F-4 MSD
Matrix: Water
Analysis Batch: 386516

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

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	88		63 - 125

QC Association Summary

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

Job ID: 240-114323-1

GC/MS VOA

Analysis Batch: 386516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-114323-1	MW-10_061119	Total/NA	Water	8260B SIM	
240-114323-2	MW-4_061119	Total/NA	Water	8260B SIM	
240-114323-3	MW-3_061119	Total/NA	Water	8260B SIM	
240-114323-4	MW-2_061119	Total/NA	Water	8260B SIM	
240-114323-5	MW-5_061119	Total/NA	Water	8260B SIM	
MB 240-386516/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-386516/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-114331-F-4 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-114331-F-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 387696

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-114323-1	MW-10_061119	Total/NA	Water	8260B	
240-114323-2	MW-4_061119	Total/NA	Water	8260B	
240-114323-3	MW-3_061119	Total/NA	Water	8260B	
240-114323-4	MW-2_061119	Total/NA	Water	8260B	
240-114323-5	MW-5_061119	Total/NA	Water	8260B	
240-114323-6	TRIP BLANK	Total/NA	Water	8260B	
MB 240-387696/6	Method Blank	Total/NA	Water	8260B	
LCS 240-387696/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 240-387696/8	Lab Control Sample Dup	Total/NA	Water	8260B	
240-114181-G-3 MS	Matrix Spike	Total/NA	Water	8260B	
240-114181-L-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Lab Chronicle

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

Job ID: 240-114323-1

Client Sample ID: MW-10_061119

Lab Sample ID: 240-114323-1

Date Collected: 06/11/19 10:05

Matrix: Water

Date Received: 06/13/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		100	387696	06/22/19 19:48	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	386516	06/17/19 12:58	SAM	TAL CAN

Client Sample ID: MW-4_061119

Lab Sample ID: 240-114323-2

Date Collected: 06/11/19 11:18

Matrix: Water

Date Received: 06/13/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1000	387696	06/22/19 20:11	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	386516	06/17/19 13:23	SAM	TAL CAN

Client Sample ID: MW-3_061119

Lab Sample ID: 240-114323-3

Date Collected: 06/11/19 13:20

Matrix: Water

Date Received: 06/13/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	387696	06/22/19 20:33	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	386516	06/17/19 13:48	SAM	TAL CAN

Client Sample ID: MW-2_061119

Lab Sample ID: 240-114323-4

Date Collected: 06/11/19 14:57

Matrix: Water

Date Received: 06/13/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		100	387696	06/22/19 20:55	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	386516	06/17/19 14:14	SAM	TAL CAN

Client Sample ID: MW-5_061119

Lab Sample ID: 240-114323-5

Date Collected: 06/11/19 17:33

Matrix: Water

Date Received: 06/13/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	387696	06/22/19 21:17	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	386516	06/17/19 14:39	SAM	TAL CAN

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-114323-6

Date Collected: 06/11/19 00:00

Matrix: Water

Date Received: 06/13/19 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	387696	06/22/19 21:39	LEE	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: 240-114323-1

Laboratory: Eurofins TestAmerica, Canton

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


Authority	Program	EPA Region	Identification Number	Expiration Date
California	State		2927	02-23-20
California	State Program	9	2927	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19 *
Florida	NELAP		E87225	06-30-19
Illinois	NELAP	5	200004	07-31-19 *
Illinois	NELAP		004498	07-31-19
Iowa	State Program	7	421	06-01-21
Kansas	NELAP	7	E-10336	04-30-20
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19 *
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19 *
New Jersey	NELAP		OH001	06-30-19
New York	NELAP	2	10975	03-31-20
New York	NELAP		10975	03-31-20
Ohio VAP	State Program	5	CL0024	06-05-21
Oregon	NELAP	10	4062	02-23-20
Oregon	NELAP		4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Pennsylvania	NELAP		68-00340	08-31-19
Texas	NELAP	6	T104704517-18-10	08-31-19 *
Texas	NELAP		T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19 *
Virginia	NELAP		010101	09-14-19
Washington	State		C971	01-12-20
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

MICHIGAN Chain of Custody Record
190

4.0/4.1
 2.6/2.7
 24/25

Client Information		Sampler: <i>Julia McCafferty</i>		Lab PM: DelMonico, Michael	Carrier Tracking No(s):	COC No: 240-61361-26116.6
Client Contact: Caitlin O'Neill		Phone: 734-972-8627		E-Mail: michael.delmonico@testamerica.com	Page: Page 6 of 10	
Company: ARCADIS U.S. Inc		Due Date Requested:		Analysis Requested		
Address: 28550 Cabot Drive Suite 500		TAT Requested (days):		Total Number of containers		
City: Novi		10 day / standard				
State, Zip: MI, 48377		PO #: 064-00018		Preservation Codes:		
Phone:		MI001454-0006-0000T		A - HCL B - NaOH M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - NaHSO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 X - EDTA Y - other (specify)		
Project Name: Ford LTP Livonia MI - E20368T-72B		WO #: Cadena #: E20368T-72B		Other:		
Project #: 24015353		Email: Caitlin.O'Neill@arcadis.com				
Site: LTP		Sample Date		Special Instructions/Note:		
Sample Identification		Sample Time				
MW-10-06/119	6/11/19	1005	G	Water	Field Filtered Sample (Yes or No)	8260B, 8260B, SIM
MW-4-06/119	↓	1118	G	Water	Perform MS/MSD (Yes or No)	8260B - VOCs (Short List)
MW-3-06/119	↓	1320	G	Water		
MW-2-06/119	↓	1457	G	Water		
MW-5-06/119	↓	1733	G	Water		
Trip Blank				Water		
Trip Blank				Water		
				Water		
				Water		
				Water		
				Water		



240-114323 Chain of Custody

Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological

Deliverable Requested: I, II, III, IV, Other (specify)

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

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:
Relinquished by: <i>Julia McCafferty</i>	6/11/19/1816	
Relinquished by: <i>RACHEL BIELAK Paul Fulmer</i>	6/12/19 1020	Company: ARCADIS
Relinquished by: <i>[Signature]</i>	6-12-19 1340	Company: EIA
Custody Seal Intact: <input type="checkbox"/>	Custody Seal No.:	
Δ Yes Δ No		

Method of Shipment: *Non Cold Storage* Date/Time: *6/11/19/2015* Company: *Arcadis*
 Received by: *[Signature]* Date/Time: *6-12-19 1020* Company: *EIA*
 Received by: *[Signature]* Date/Time: *6/13/19 0940* Company: *EIA*
 Cooler Temperature(s) °C and Other Remarks: *8.32*

Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 111373

Client ARCADIS Site Name _____

Cooler unpacked by:

Asant

Cooler Received on 6/13/19 Opened on 6/14/19
 FedEx: 1st Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

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

TestAmerica Cooler # CANTON 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-8 (CF +0.1 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN #36 (CF +0.6 °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 ea Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC984738
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? Yes No NA Larger than this.
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # B904401NB 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:

AMM

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: _____

