

## ANALYTICAL REPORT

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Laboratory Job ID: 240-119515-1  
Client Project/Site: Ford LTP Livonia MI - E203631

For:  
ARCADIS U.S., Inc.  
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Novi, Michigan 48377

Attn: Kristoffer Hinskey



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Authorized for release by:  
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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 - E203631

Job ID: 240-119515-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
*	ISTD response or retention time outside acceptable limits
F1	MS and/or MSD Recovery is outside acceptance limits.
F2	MS/MSD RPD exceeds control limits
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 - E203631

Job ID: 240-119515-1

**Job ID: 240-119515-1**

**Laboratory: Eurofins TestAmerica, Canton**

**Narrative**

## CASE NARRATIVE

**Client: ARCADIS U.S., Inc.**

**Project: Ford LTP Livonia MI - E203631**

**Report Number: 240-119515-1**

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

### **RECEIPT**

The samples were received on 9/26/2019 9:50 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.0° C.

### **VOLATILE ORGANIC COMPOUNDS (GCMS)**

Samples MW-107S\_092419 (240-119515-1) and TRIP BLANK (1) (240-119515-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 10/03/2019 and 10/04/2019.

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

### **VOLATILE ORGANIC COMPOUNDS (GCMS SIM)**

Sample MW-107S\_092419 (240-119515-1) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 10/02/2019.

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 - E203631

Job ID: 240-119515-1

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 - E203631

Job ID: 240-119515-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-119515-1	MW-107S_092419	Water	09/24/19 10:52	09/26/19 09:50	
240-119515-2	TRIP BLANK (1)	Water	09/24/19 00:00	09/26/19 09:50	

- 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 - E203631

Job ID: 240-119515-1

**Client Sample ID: MW-107S\_092419**

**Lab Sample ID: 240-119515-1**

No Detections.

**Client Sample ID: TRIP BLANK (1)**

**Lab Sample ID: 240-119515-2**

No Detections.

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

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 - E203631

Job ID: 240-119515-1

**Client Sample ID: MW-107S\_092419**

**Lab Sample ID: 240-119515-1**

Date Collected: 09/24/19 10:52

Matrix: Water

Date Received: 09/26/19 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			10/02/19 20:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		63 - 125		10/02/19 20:41	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			10/04/19 15:13	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/04/19 15:13	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/04/19 15:13	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/04/19 15:13	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/04/19 15:13	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/04/19 15:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		70 - 121		10/04/19 15:13	1
4-Bromofluorobenzene (Surr)	75		59 - 120		10/04/19 15:13	1
Toluene-d8 (Surr)	93		70 - 123		10/04/19 15:13	1
Dibromofluoromethane (Surr)	111		75 - 128		10/04/19 15:13	1



# Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119515-1

**Client Sample ID: TRIP BLANK (1)**

**Lab Sample ID: 240-119515-2**

**Date Collected: 09/24/19 00:00**

**Matrix: Water**

**Date Received: 09/26/19 09:50**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/03/19 20:57	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/03/19 20:57	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/03/19 20:57	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/03/19 20:57	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/03/19 20:57	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/03/19 20:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		70 - 121		10/03/19 20:57	1
4-Bromofluorobenzene (Surr)	70		59 - 120		10/03/19 20:57	1
Toluene-d8 (Surr)	90		70 - 123		10/03/19 20:57	1
Dibromofluoromethane (Surr)	110		75 - 128		10/03/19 20:57	1

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119515-1

## 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)
240-119515-1	MW-107S_092419	92	75	93	111
240-119515-2	TRIP BLANK (1)	95	70	90	110
240-119518-E-3 MS	Matrix Spike	82	93	99	97
240-119518-F-3 MSD	Matrix Spike Duplicate	86	93	100	99
240-119527-K-1 MS	Matrix Spike	82	92	97	100
240-119527-L-1 MSD	Matrix Spike Duplicate	78	96	100	102
LCS 240-403913/4	Lab Control Sample	81	98	101	102
LCS 240-404123/4	Lab Control Sample	81	92	98	101
MB 240-403913/7	Method Blank	92	74	90	111
MB 240-404123/7	Method Blank	90	73	91	107

#### 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)
240-119515-1	MW-107S_092419	102
240-119521-C-5 MS	Matrix Spike	84
240-119521-C-5 MSD	Matrix Spike Duplicate	92
LCS 240-403637/4	Lab Control Sample	99
MB 240-403637/5	Method Blank	99

#### Surrogate Legend

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

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119515-1

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

**Lab Sample ID: MB 240-403913/7**  
**Matrix: Water**  
**Analysis Batch: 403913**

**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			10/03/19 14:35	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/03/19 14:35	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/03/19 14:35	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/03/19 14:35	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/03/19 14:35	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/03/19 14:35	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		70 - 121		10/03/19 14:35	1
4-Bromofluorobenzene (Surr)	74		59 - 120		10/03/19 14:35	1
Toluene-d8 (Surr)	90		70 - 123		10/03/19 14:35	1
Dibromofluoromethane (Surr)	111		75 - 128		10/03/19 14:35	1

**Lab Sample ID: LCS 240-403913/4**  
**Matrix: Water**  
**Analysis Batch: 403913**

**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	9.72		ug/L		97	65 - 139
cis-1,2-Dichloroethene	10.0	10.1		ug/L		101	76 - 128
Tetrachloroethene	10.0	10.6		ug/L		106	74 - 130
trans-1,2-Dichloroethene	10.0	10.4		ug/L		104	78 - 133
Trichloroethene	10.0	10.7		ug/L		107	76 - 125
Vinyl chloride	10.0	5.99		ug/L		60	58 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	81		70 - 121
4-Bromofluorobenzene (Surr)	98		59 - 120
Toluene-d8 (Surr)	101		70 - 123
Dibromofluoromethane (Surr)	102		75 - 128

**Lab Sample ID: 240-119518-E-3 MS**  
**Matrix: Water**  
**Analysis Batch: 403913**

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U	10.0	9.30		ug/L		93	53 - 140
cis-1,2-Dichloroethene	1.0	U	10.0	10.0		ug/L		100	64 - 130
Tetrachloroethene	1.0	U	10.0	8.00		ug/L		80	51 - 136
trans-1,2-Dichloroethene	1.0	U	10.0	10.0		ug/L		100	68 - 133
Trichloroethene	0.17	J	10.0	9.53		ug/L		94	55 - 131
Vinyl chloride	1.0	U	10.0	6.05		ug/L		60	43 - 154

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	82		70 - 121
4-Bromofluorobenzene (Surr)	93		59 - 120
Toluene-d8 (Surr)	99		70 - 123

Eurofins TestAmerica, Canton

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119515-1

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

**Lab Sample ID: 240-119518-E-3 MS**  
**Matrix: Water**  
**Analysis Batch: 403913**

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

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	97		75 - 128

**Lab Sample ID: 240-119518-F-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 403913**

**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-Dichloroethene	1.0	U	10.0	8.56		ug/L		86	53 - 140	8	35
cis-1,2-Dichloroethene	1.0	U	10.0	9.55		ug/L		96	64 - 130	5	21
Tetrachloroethene	1.0	U	10.0	6.98		ug/L		70	51 - 136	14	23
trans-1,2-Dichloroethene	1.0	U	10.0	9.10		ug/L		91	68 - 133	10	24
Trichloroethene	0.17	J	10.0	8.47		ug/L		83	55 - 131	12	23
Vinyl chloride	1.0	U	10.0	5.65		ug/L		57	43 - 154	7	29

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	86		70 - 121
4-Bromofluorobenzene (Surr)	93		59 - 120
Toluene-d8 (Surr)	100		70 - 123
Dibromofluoromethane (Surr)	99		75 - 128

**Lab Sample ID: MB 240-404123/7**  
**Matrix: Water**  
**Analysis Batch: 404123**

**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 14:22	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/04/19 14:22	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/04/19 14:22	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/04/19 14:22	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/04/19 14:22	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/04/19 14:22	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		70 - 121		10/04/19 14:22	1
4-Bromofluorobenzene (Surr)	73		59 - 120		10/04/19 14:22	1
Toluene-d8 (Surr)	91		70 - 123		10/04/19 14:22	1
Dibromofluoromethane (Surr)	107		75 - 128		10/04/19 14:22	1

**Lab Sample ID: LCS 240-404123/4**  
**Matrix: Water**  
**Analysis Batch: 404123**

**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	10.3		ug/L		103	65 - 139
cis-1,2-Dichloroethene	10.0	10.1		ug/L		101	76 - 128
Tetrachloroethene	10.0	10.8		ug/L		108	74 - 130
trans-1,2-Dichloroethene	10.0	10.8		ug/L		108	78 - 133
Trichloroethene	10.0	11.2		ug/L		112	76 - 125

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# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119515-1

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

**Lab Sample ID: LCS 240-404123/4**

**Matrix: Water**

**Analysis Batch: 404123**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Vinyl chloride	10.0	5.87		ug/L		59	58 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	81		70 - 121
4-Bromofluorobenzene (Surr)	92		59 - 120
Toluene-d8 (Surr)	98		70 - 123
Dibromofluoromethane (Surr)	101		75 - 128

**Lab Sample ID: 240-119527-K-1 MS**

**Matrix: Water**

**Analysis Batch: 404123**

**Client Sample ID: Matrix Spike**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	11		10.0	19.4		ug/L		87	53 - 140
cis-1,2-Dichloroethene	0.28	J	10.0	10.4		ug/L		101	64 - 130
Tetrachloroethene	0.21	J	10.0	10.6		ug/L		104	51 - 136
trans-1,2-Dichloroethene	1.0	U	10.0	10.8		ug/L		108	68 - 133
Trichloroethene	0.14	J	10.0	10.8		ug/L		107	55 - 131
Vinyl chloride	1.0	U	10.0	6.23		ug/L		62	43 - 154

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	82		70 - 121
4-Bromofluorobenzene (Surr)	92		59 - 120
Toluene-d8 (Surr)	97		70 - 123
Dibromofluoromethane (Surr)	100		75 - 128

**Lab Sample ID: 240-119527-L-1 MSD**

**Matrix: Water**

**Analysis Batch: 404123**

**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-Dichloroethene	11		10.0	19.6		ug/L		89	53 - 140	1	35
cis-1,2-Dichloroethene	0.28	J	10.0	10.4		ug/L		102	64 - 130	0	21
Tetrachloroethene	0.21	J	10.0	10.7		ug/L		105	51 - 136	1	23
trans-1,2-Dichloroethene	1.0	U	10.0	10.5		ug/L		105	68 - 133	3	24
Trichloroethene	0.14	J	10.0	11.0		ug/L		108	55 - 131	1	23
Vinyl chloride	1.0	U	10.0	6.85		ug/L		68	43 - 154	9	29

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	78		70 - 121
4-Bromofluorobenzene (Surr)	96		59 - 120
Toluene-d8 (Surr)	100		70 - 123
Dibromofluoromethane (Surr)	102		75 - 128

# QC Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119515-1

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

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

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L	-		10/02/19 11:53	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		63 - 125					10/02/19 11:53	1

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

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	10.4		ug/L	-	104	59 - 131
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	99		63 - 125				

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

**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 * F1 F2	10.0	4.73	F1 *	ug/L	-	47	52 - 129
Surrogate	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	84		63 - 125						

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

**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	Limit
1,4-Dioxane	2.0	U * F1 F2	10.0	5.43	F2 *	ug/L	-	54	52 - 129	14	13
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	92		63 - 125								

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119515-1

## GC/MS VOA

### Analysis Batch: 403637

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119515-1	MW-107S_092419	Total/NA	Water	8260B SIM	
MB 240-403637/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-403637/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-119521-C-5 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-119521-C-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

### Analysis Batch: 403913

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119515-2	TRIP BLANK (1)	Total/NA	Water	8260B	
MB 240-403913/7	Method Blank	Total/NA	Water	8260B	
LCS 240-403913/4	Lab Control Sample	Total/NA	Water	8260B	
240-119518-E-3 MS	Matrix Spike	Total/NA	Water	8260B	
240-119518-F-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

### Analysis Batch: 404123

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119515-1	MW-107S_092419	Total/NA	Water	8260B	
MB 240-404123/7	Method Blank	Total/NA	Water	8260B	
LCS 240-404123/4	Lab Control Sample	Total/NA	Water	8260B	
240-119527-K-1 MS	Matrix Spike	Total/NA	Water	8260B	
240-119527-L-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119515-1

**Client Sample ID: MW-107S\_092419**

**Lab Sample ID: 240-119515-1**

**Date Collected: 09/24/19 10:52**

**Matrix: Water**

**Date Received: 09/26/19 09:50**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	404123	10/04/19 15:13	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	403637	10/02/19 20:41	SAM	TAL CAN

**Client Sample ID: TRIP BLANK (1)**

**Lab Sample ID: 240-119515-2**

**Date Collected: 09/24/19 00:00**

**Matrix: Water**

**Date Received: 09/26/19 09:50**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	403913	10/03/19 20:57	LRW	TAL CAN

**Laboratory References:**

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



# Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119515-1

## Laboratory: Eurofins TestAmerica, Canton

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

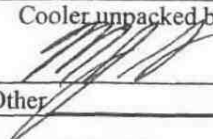
Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-20
Connecticut	State	PH-0590	12-31-19
Florida	NELAP	E87225	06-30-20
Georgia	State	4062	02-23-20
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-20
Kansas	NELAP	E-10336	04-30-20
Kentucky (UST)	State	112225	02-23-20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



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

Login # : 119515

Client Arcadi's Site Name \_\_\_\_\_  
 Cooler Received on 9-26-19 Opened on 9-26-19  
 FedEx: 1<sup>st</sup>  Grd  Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other \_\_\_\_\_

Cooler unpacked by:  


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


TestAmerica Cooler # 11 Foam Box  Client Cooler  Box  Other \_\_\_\_\_  
 Packing material used: Bubble Wrap Foam  Plastic Bag None  Other \_\_\_\_\_  
 COOLANT: Wet Ice Blue Ice  Dry Ice  Water  None

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


\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**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: \_\_\_\_\_



