

## ANALYTICAL REPORT

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

Laboratory Job ID: 240-112955-1  
Client Project/Site: Ford LTP Livonia MI - E203631

For:  
ARCADIS U.S., Inc.  
28550 Cabot Drive  
Suite 500  
Novi, Michigan 48377

Attn: Kristoffer Hinskey



---

Authorized for release by:  
6/5/2019 11:56:38 AM

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

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

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

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

# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	2
Definitions/Glossary . . . . .	3
Case Narrative . . . . .	4
Method Summary . . . . .	6
Sample Summary . . . . .	7
Detection Summary . . . . .	8
Client Sample Results . . . . .	9
Surrogate Summary . . . . .	14
QC Sample Results . . . . .	15
QC Association Summary . . . . .	17
Lab Chronicle . . . . .	18
Certification Summary . . . . .	19
Chain of Custody . . . . .	20



# Definitions/Glossary

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

Job ID: 240-112955-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
X	Surrogate is outside control limits

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	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: 240-112955-1

**Job ID: 240-112955-1**

**Laboratory: Eurofins TestAmerica, Canton**

**Narrative**

## CASE NARRATIVE

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

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

**Report Number: 240-112955-1**

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 5/21/2019 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.2° C.

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

Samples MW-81S\_051719 (240-112955-1), MW-81\_051719 (240-112955-2), MW-82SR\_051719 (240-112955-3), MW-82D\_051719 (240-112955-4) and TRIP BLANK (240-112955-5) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 05/29/2019.

1,2-Dichloroethane-d4 (Surr) failed the surrogate recovery criteria high for TRIP BLANK (240-112955-5). Refer to the QC report for details.

Surrogate recovery for the following sample was outside the upper control limit: TRIP BLANK (240-112955-5). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

There was an MS/MSD analyzed in batch 383535 but could not be reported because the associated sample needed reanalyzed in a different batch: MW-81S\_051719 (240-112955-1), MW-81\_051719 (240-112955-2), MW-82SR\_051719 (240-112955-3), MW-82D\_051719 (240-112955-4) and TRIP BLANK (240-112955-5).

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

# Case Narrative

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

Job ID: 240-112955-1

---

## Job ID: 240-112955-1 (Continued)

---

### Laboratory: Eurofins TestAmerica, Canton (Continued)

#### VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Samples MW-81S\_051719 (240-112955-1), MW-81\_051719 (240-112955-2), MW-82SR\_051719 (240-112955-3) and MW-82D\_051719 (240-112955-4) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 05/28/2019.

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

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

# Method Summary

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

Job ID: 240-112955-1

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: 240-112955-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-112955-1	MW-81S_051719	Water	05/17/19 11:17	05/21/19 09:00	
240-112955-2	MW-81_051719	Water	05/17/19 12:03	05/21/19 09:00	
240-112955-3	MW-82SR_051719	Water	05/17/19 13:42	05/21/19 09:00	
240-112955-4	MW-82D_051719	Water	05/17/19 14:27	05/21/19 09:00	
240-112955-5	TRIP BLANK	Water	05/17/19 00:00	05/21/19 09:00	

- 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: 240-112955-1

**Client Sample ID: MW-81S\_051719**

**Lab Sample ID: 240-112955-1**

No Detections.

**Client Sample ID: MW-81\_051719**

**Lab Sample ID: 240-112955-2**

No Detections.

**Client Sample ID: MW-82SR\_051719**

**Lab Sample ID: 240-112955-3**

No Detections.

**Client Sample ID: MW-82D\_051719**

**Lab Sample ID: 240-112955-4**

No Detections.

**Client Sample ID: TRIP BLANK**

**Lab Sample ID: 240-112955-5**

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 - E203631

Job ID: 240-112955-1

**Client Sample ID: MW-81S\_051719**

**Lab Sample ID: 240-112955-1**

Date Collected: 05/17/19 11:17

Matrix: Water

Date Received: 05/21/19 09:00

**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	-		05/28/19 18:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		63 - 125		05/28/19 18:01	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		05/29/19 16:34	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L	-		05/29/19 16:34	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L	-		05/29/19 16:34	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		05/29/19 16:34	1
Trichloroethene	1.0	U	1.0	0.10	ug/L	-		05/29/19 16:34	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L	-		05/29/19 16:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		70 - 121		05/29/19 16:34	1
4-Bromofluorobenzene (Surr)	67		59 - 120		05/29/19 16:34	1
Toluene-d8 (Surr)	73		70 - 123		05/29/19 16:34	1
Dibromofluoromethane (Surr)	105		75 - 128		05/29/19 16:34	1

# Client Sample Results

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

Job ID: 240-112955-1

**Client Sample ID: MW-81\_051719**

**Lab Sample ID: 240-112955-2**

Date Collected: 05/17/19 12:03

Matrix: Water

Date Received: 05/21/19 09:00

**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			05/28/19 18:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		63 - 125		05/28/19 18:26	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			05/29/19 16:57	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			05/29/19 16:57	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			05/29/19 16:57	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			05/29/19 16:57	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			05/29/19 16:57	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			05/29/19 16:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	121		70 - 121		05/29/19 16:57	1
4-Bromofluorobenzene (Surr)	69		59 - 120		05/29/19 16:57	1
Toluene-d8 (Surr)	74		70 - 123		05/29/19 16:57	1
Dibromofluoromethane (Surr)	112		75 - 128		05/29/19 16:57	1

# Client Sample Results

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

Job ID: 240-112955-1

**Client Sample ID: MW-82SR\_051719**

**Lab Sample ID: 240-112955-3**

Date Collected: 05/17/19 13:42

Matrix: Water

Date Received: 05/21/19 09:00

**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			05/28/19 18:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		63 - 125		05/28/19 18:51	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			05/29/19 17:26	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			05/29/19 17:26	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			05/29/19 17:26	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			05/29/19 17:26	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			05/29/19 17:26	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			05/29/19 17:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	118		70 - 121		05/29/19 17:26	1
4-Bromofluorobenzene (Surr)	67		59 - 120		05/29/19 17:26	1
Toluene-d8 (Surr)	71		70 - 123		05/29/19 17:26	1
Dibromofluoromethane (Surr)	112		75 - 128		05/29/19 17:26	1

# Client Sample Results

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

Job ID: 240-112955-1

**Client Sample ID: MW-82D\_051719**

**Lab Sample ID: 240-112955-4**

Date Collected: 05/17/19 14:27

Matrix: Water

Date Received: 05/21/19 09:00

**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	-		05/28/19 19:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		63 - 125		05/28/19 19:17	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	-		05/29/19 17:50	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L	-		05/29/19 17:50	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L	-		05/29/19 17:50	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		05/29/19 17:50	1
Trichloroethene	1.0	U	1.0	0.10	ug/L	-		05/29/19 17:50	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L	-		05/29/19 17:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	117		70 - 121		05/29/19 17:50	1
4-Bromofluorobenzene (Surr)	69		59 - 120		05/29/19 17:50	1
Toluene-d8 (Surr)	74		70 - 123		05/29/19 17:50	1
Dibromofluoromethane (Surr)	111		75 - 128		05/29/19 17:50	1

# Client Sample Results

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

Job ID: 240-112955-1

**Client Sample ID: TRIP BLANK**

**Lab Sample ID: 240-112955-5**

**Date Collected: 05/17/19 00:00**

**Matrix: Water**

**Date Received: 05/21/19 09:00**

**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			05/29/19 18:20	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			05/29/19 18:20	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			05/29/19 18:20	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			05/29/19 18:20	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			05/29/19 18:20	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			05/29/19 18:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	126	X	70 - 121		05/29/19 18:20	1
4-Bromofluorobenzene (Surr)	69		59 - 120		05/29/19 18:20	1
Toluene-d8 (Surr)	75		70 - 123		05/29/19 18:20	1
Dibromofluoromethane (Surr)	116		75 - 128		05/29/19 18:20	1

# Surrogate Summary

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

Job ID: 240-112955-1

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

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (70-121)	BFB (59-120)	TOL (70-123)	DBFM (75-128)
240-112955-1	MW-81S_051719	113	67	73	105
240-112955-2	MW-81_051719	121	69	74	112
240-112955-3	MW-82SR_051719	118	67	71	112
240-112955-4	MW-82D_051719	117	69	74	111
240-112955-5	TRIP BLANK	126 X	69	75	116
LCS 240-383535/4	Lab Control Sample	97	83	76	94
MB 240-383535/6	Method Blank	113	68	73	109

#### 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)
240-112872-C-5 MS	Matrix Spike	92
240-112872-C-5 MSD	Matrix Spike Duplicate	87
240-112955-1	MW-81S_051719	88
240-112955-2	MW-81_051719	91
240-112955-3	MW-82SR_051719	87
240-112955-4	MW-82D_051719	90
LCS 240-383278/4	Lab Control Sample	86
MB 240-383278/5	Method Blank	88

#### 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: 240-112955-1

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

**Lab Sample ID: MB 240-383535/6**  
**Matrix: Water**  
**Analysis Batch: 383535**

**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			05/29/19 15:15	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			05/29/19 15:15	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			05/29/19 15:15	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			05/29/19 15:15	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			05/29/19 15:15	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			05/29/19 15:15	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		70 - 121		05/29/19 15:15	1
4-Bromofluorobenzene (Surr)	68		59 - 120		05/29/19 15:15	1
Toluene-d8 (Surr)	73		70 - 123		05/29/19 15:15	1
Dibromofluoromethane (Surr)	109		75 - 128		05/29/19 15:15	1

**Lab Sample ID: LCS 240-383535/4**  
**Matrix: Water**  
**Analysis Batch: 383535**

**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	9.78		ug/L		98	65 - 139
cis-1,2-Dichloroethene	10.0	9.72		ug/L		97	76 - 128
Tetrachloroethene	10.0	12.1		ug/L		121	74 - 130
trans-1,2-Dichloroethene	10.0	10.2		ug/L		102	78 - 133
Trichloroethene	10.0	10.7		ug/L		107	76 - 125
Vinyl chloride	10.0	9.38		ug/L		94	58 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	97		70 - 121
4-Bromofluorobenzene (Surr)	83		59 - 120
Toluene-d8 (Surr)	76		70 - 123
Dibromofluoromethane (Surr)	94		75 - 128

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

**Lab Sample ID: MB 240-383278/5**  
**Matrix: Water**  
**Analysis Batch: 383278**

**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			05/28/19 12:34	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		63 - 125		05/28/19 12:34	1

# QC Sample Results

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

Job ID: 240-112955-1

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

**Lab Sample ID: LCS 240-383278/4**  
**Matrix: Water**  
**Analysis Batch: 383278**

**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	12.3		ug/L		123	59 - 131
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>LCS Limits</b>				
1,2-Dichloroethane-d4 (Surr)	86		63 - 125				

**Lab Sample ID: 240-112872-C-5 MS**  
**Matrix: Water**  
**Analysis Batch: 383278**

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	10.0	11.7		ug/L		117	52 - 129
<b>Surrogate</b>	<b>%Recovery</b>	<b>MS Qualifier</b>	<b>MS Limits</b>						
1,2-Dichloroethane-d4 (Surr)	92		63 - 125						

**Lab Sample ID: 240-112872-C-5 MSD**  
**Matrix: Water**  
**Analysis Batch: 383278**

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	2.0	U	10.0	12.0		ug/L		120	52 - 129	3	13
<b>Surrogate</b>	<b>%Recovery</b>	<b>MSD Qualifier</b>	<b>MSD Limits</b>								
1,2-Dichloroethane-d4 (Surr)	87		63 - 125								



# QC Association Summary

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

Job ID: 240-112955-1

## GC/MS VOA

### Analysis Batch: 383278

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-112955-1	MW-81S_051719	Total/NA	Water	8260B SIM	
240-112955-2	MW-81_051719	Total/NA	Water	8260B SIM	
240-112955-3	MW-82SR_051719	Total/NA	Water	8260B SIM	
240-112955-4	MW-82D_051719	Total/NA	Water	8260B SIM	
MB 240-383278/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-383278/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-112872-C-5 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-112872-C-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

### Analysis Batch: 383535

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-112955-1	MW-81S_051719	Total/NA	Water	8260B	
240-112955-2	MW-81_051719	Total/NA	Water	8260B	
240-112955-3	MW-82SR_051719	Total/NA	Water	8260B	
240-112955-4	MW-82D_051719	Total/NA	Water	8260B	
240-112955-5	TRIP BLANK	Total/NA	Water	8260B	
MB 240-383535/6	Method Blank	Total/NA	Water	8260B	
LCS 240-383535/4	Lab Control Sample	Total/NA	Water	8260B	

# Lab Chronicle

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

Job ID: 240-112955-1

**Client Sample ID: MW-81S\_051719**

**Lab Sample ID: 240-112955-1**

**Date Collected: 05/17/19 11:17**

**Matrix: Water**

**Date Received: 05/21/19 09:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	383535	05/29/19 16:34	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	383278	05/28/19 18:01	SAM	TAL CAN

**Client Sample ID: MW-81\_051719**

**Lab Sample ID: 240-112955-2**

**Date Collected: 05/17/19 12:03**

**Matrix: Water**

**Date Received: 05/21/19 09:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	383535	05/29/19 16:57	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	383278	05/28/19 18:26	SAM	TAL CAN

**Client Sample ID: MW-82SR\_051719**

**Lab Sample ID: 240-112955-3**

**Date Collected: 05/17/19 13:42**

**Matrix: Water**

**Date Received: 05/21/19 09:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	383535	05/29/19 17:26	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	383278	05/28/19 18:51	SAM	TAL CAN

**Client Sample ID: MW-82D\_051719**

**Lab Sample ID: 240-112955-4**

**Date Collected: 05/17/19 14:27**

**Matrix: Water**

**Date Received: 05/21/19 09:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	383535	05/29/19 17:50	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	383278	05/28/19 19:17	SAM	TAL CAN

**Client Sample ID: TRIP BLANK**

**Lab Sample ID: 240-112955-5**

**Date Collected: 05/17/19 00:00**

**Matrix: Water**

**Date Received: 05/21/19 09:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	383535	05/29/19 18:20	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: 240-112955-1

## Laboratory: Eurofins TestAmerica, Canton

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

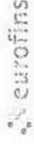
Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19 *
Illinois	NELAP	5	200004	07-31-19 *
Iowa	State Program	7	421	06-01-21
Kansas	NELAP	7	E-10336	04-30-20
Kentucky (UST)	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 York	NELAP	2	10975	03-31-20
Ohio VAP	State Program	5	CL0024	09-06-19 *
Oregon	NELAP	10	4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19 *
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19 *
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.

Eurofins TestAmerica, Canton

**MICHIGAN**  
 Chain of Custody Record  
**190**

2.4/2.0



<b>Client Information</b>		Lab PM: DelMonico, Michael		Carrier Tracking No(s):	
Client Contact: Caitlin O'Neill		Phone: 248-722-2411		COC No: 240-60548-25803.8	
Company: ARCADIS U.S. Inc		E-Mail: michael.delmonico@testamericainc.com		Page: 8 of 10	
Address: 28550 Cabot Drive Suite 500		City: Novi		Job #: 10	
State, Zip: MI, 48377		PO #: 248-722-2411		Analysis Requested	
Phone: 248-722-2411		TAT Requested (days): 10		Preservation Codes:	
Email: Caitlin.O'Neill@arcadis.com		W/O #: 24015353		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecylhydro U - Acetone V - MCAA W - pH 4.5 Z - other (specify)	
Project Name: Ford LTP Livonia MI - E203631		Cadena #: E203631		Other:	
Site: Ford LTP		SSOW#:		Special Instructions/Note:	

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=organic, A=air)	Field Filled Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs (Short List)	8260B - VOCs SIM	Total Number of Containers	Special Instructions/Note:
MW-815-051719	5/17/19	1117	G	Water	XX	XX			6	
MW-81-051719	5/17/19	1203	G	Water	XX	XX			6	
MW-82SR-051719	5/17/19	1342	G	Water	XX	XX			6	
MW-82D-051719	5/17/19	1427	G	Water	XX	XX			6	
Trip blank				Water					1	Trip blank

240-112955 Chain of Custody

Sample Disposal (A fee may be assessed... are retained longer than 1 month)  
 Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months

Special Instructions/QC Requirements:

Empty Kit Requisitioned by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Method of Shipment: \_\_\_\_\_

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

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

Requisitioned by: Seth Turner	Date/Time: 5/17/19 / 1830	Company: Arcadis	Date/Time: 5/17/19 / 1830	Company: Arcadis
Requisitioned by: Caitlin O'Neill	Date/Time: 5/20/19 1045	Company: Arcadis	Date/Time: 5-20-19 1045	Company: EIA
Requisitioned by: [Signature]	Date/Time: 5-20-19 1137	Company: EIA	Date/Time: 5/21/19 900	Company: EIA

Custody Seal No.: \_\_\_\_\_  
 Yes  No





TestAmerica Canton Sample Receipt Form/Narrative

Login # : 112955

Canton Facility

Client Arcadis Site Name 5/20/19 Cooler unpacked by: [Signature]
Cooler Received on 5/20/19 Opened on 5/20/19
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

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

TestAmerica Cooler # 7A 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 IR GUN# IR-8 (CF -0.2 °C) Observed Cooler Temp. 2.4 °C Corrected Cooler Temp. 2.2 °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
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? Larger than this. Yes No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 83410 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: JR

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: