

## ANALYTICAL REPORT

Eurofins TestAmerica, Canton  
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North Canton, OH 44720  
Tel: (330)497-9396

Laboratory Job ID: 240-119409-1

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: 240-119409-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
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 - E203631

Job ID: 240-119409-1

**Job ID: 240-119409-1**

**Laboratory: Eurofins TestAmerica, Canton**

**Narrative**

## CASE NARRATIVE

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

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

**Report Number: 240-119409-1**

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 9/25/2019 8:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.0° C and 3.3° C.

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

Samples MW-82D\_092319 (240-119409-1), MW-82SR\_092319 (240-119409-2), MW-72S\_092319 (240-119409-3), MW-72\_092319 (240-119409-4) and TRIP BLANK (1) (240-119409-5) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 10/02/2019.

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

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

Samples MW-82D\_092319 (240-119409-1), MW-82SR\_092319 (240-119409-2), MW-72S\_092319 (240-119409-3) and MW-72\_092319 (240-119409-4) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 10/01/2019.

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: 240-119409-1

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: 240-119409-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-119409-1	MW-82D_092319	Water	09/23/19 10:21	09/25/19 08:40	
240-119409-2	MW-82SR_092319	Water	09/23/19 11:42	09/25/19 08:40	
240-119409-3	MW-72S_092319	Water	09/23/19 13:53	09/25/19 08:40	
240-119409-4	MW-72_092319	Water	09/23/19 14:54	09/25/19 08:40	
240-119409-5	TRIP BLANK (1)	Water	09/23/19 00:00	09/25/19 08:40	

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

# Detection Summary

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

Job ID: 240-119409-1

**Client Sample ID: MW-82D\_092319**

**Lab Sample ID: 240-119409-1**

No Detections.

**Client Sample ID: MW-82SR\_092319**

**Lab Sample ID: 240-119409-2**

No Detections.

**Client Sample ID: MW-72S\_092319**

**Lab Sample ID: 240-119409-3**

No Detections.

**Client Sample ID: MW-72\_092319**

**Lab Sample ID: 240-119409-4**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	1.5		1.0	0.20	ug/L	1		8260B	Total/NA

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

**Lab Sample ID: 240-119409-5**

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: 240-119409-1

**Client Sample ID: MW-82D\_092319**

**Lab Sample ID: 240-119409-1**

Date Collected: 09/23/19 10:21

Matrix: Water

Date Received: 09/25/19 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	-		10/01/19 19:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	75		63 - 125		10/01/19 19:54	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	-		10/02/19 08:48	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L	-		10/02/19 08:48	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L	-		10/02/19 08:48	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		10/02/19 08:48	1
Trichloroethene	1.0	U	1.0	0.10	ug/L	-		10/02/19 08:48	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L	-		10/02/19 08:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		70 - 121		10/02/19 08:48	1
4-Bromofluorobenzene (Surr)	77		59 - 120		10/02/19 08:48	1
Toluene-d8 (Surr)	89		70 - 123		10/02/19 08:48	1
Dibromofluoromethane (Surr)	122		75 - 128		10/02/19 08:48	1



# Client Sample Results

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

Job ID: 240-119409-1

**Client Sample ID: MW-82SR\_092319**

**Lab Sample ID: 240-119409-2**

Date Collected: 09/23/19 11:42

Matrix: Water

Date Received: 09/25/19 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			10/01/19 21:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	74		63 - 125		10/01/19 21:10	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			10/02/19 09:59	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/02/19 09:59	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/02/19 09:59	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/02/19 09:59	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/02/19 09:59	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/02/19 09:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		70 - 121		10/02/19 09:59	1
4-Bromofluorobenzene (Surr)	77		59 - 120		10/02/19 09:59	1
Toluene-d8 (Surr)	94		70 - 123		10/02/19 09:59	1
Dibromofluoromethane (Surr)	111		75 - 128		10/02/19 09:59	1

# Client Sample Results

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

Job ID: 240-119409-1

**Client Sample ID: MW-72S\_092319**

**Lab Sample ID: 240-119409-3**

Date Collected: 09/23/19 13:53

Matrix: Water

Date Received: 09/25/19 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			10/01/19 21:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	77		63 - 125		10/01/19 21:35	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			10/02/19 10:24	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/02/19 10:24	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/02/19 10:24	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/02/19 10:24	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/02/19 10:24	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/02/19 10:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		70 - 121		10/02/19 10:24	1
4-Bromofluorobenzene (Surr)	75		59 - 120		10/02/19 10:24	1
Toluene-d8 (Surr)	89		70 - 123		10/02/19 10:24	1
Dibromofluoromethane (Surr)	115		75 - 128		10/02/19 10:24	1

# Client Sample Results

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

Job ID: 240-119409-1

**Client Sample ID: MW-72\_092319**

**Lab Sample ID: 240-119409-4**

Date Collected: 09/23/19 14:54

Matrix: Water

Date Received: 09/25/19 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	-		10/01/19 22:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	70		63 - 125		10/01/19 22:00	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	-		10/02/19 10:47	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L	-		10/02/19 10:47	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L	-		10/02/19 10:47	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		10/02/19 10:47	1
Trichloroethene	1.0	U	1.0	0.10	ug/L	-		10/02/19 10:47	1
<b>Vinyl chloride</b>	<b>1.5</b>		1.0	0.20	ug/L	-		10/02/19 10:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		70 - 121		10/02/19 10:47	1
4-Bromofluorobenzene (Surr)	74		59 - 120		10/02/19 10:47	1
Toluene-d8 (Surr)	87		70 - 123		10/02/19 10:47	1
Dibromofluoromethane (Surr)	117		75 - 128		10/02/19 10:47	1

# Client Sample Results

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

Job ID: 240-119409-1

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

**Lab Sample ID: 240-119409-5**

**Date Collected: 09/23/19 00:00**

**Matrix: Water**

**Date Received: 09/25/19 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			10/02/19 22:11	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/02/19 22:11	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/02/19 22:11	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/02/19 22:11	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/02/19 22:11	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/02/19 22:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		70 - 121		10/02/19 22:11	1
4-Bromofluorobenzene (Surr)	75		59 - 120		10/02/19 22:11	1
Toluene-d8 (Surr)	91		70 - 123		10/02/19 22:11	1
Dibromofluoromethane (Surr)	118		75 - 128		10/02/19 22:11	1

# Surrogate Summary

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

Job ID: 240-119409-1

## 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)
240-119409-1	MW-82D_092319	97	77	89	122
240-119409-1 MS	MW-82D-MS_092319	89	97	100	101
240-119409-1 MSD	MW-82D-MSD_092319	87	96	97	105
240-119409-2	MW-82SR_092319	95	77	94	111
240-119409-3	MW-72S_092319	94	75	89	115
240-119409-4	MW-72_092319	96	74	87	117
240-119409-5	TRIP BLANK (1)	98	75	91	118
240-119411-A-2 MS	Matrix Spike	84	98	99	105
240-119411-D-2 MSD	Matrix Spike Duplicate	81	96	97	105
LCS 240-403523/4	Lab Control Sample	83	97	98	100
LCS 240-403677/4	Lab Control Sample	82	98	97	102
MB 240-403523/7	Method Blank	91	76	90	110
MB 240-403677/7	Method Blank	96	79	91	111

#### 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)
240-119409-1	MW-82D_092319	75
240-119409-1 MS	MW-82D-MS_092319	76
240-119409-1 MSD	MW-82D-MSD_092319	74
240-119409-2	MW-82SR_092319	74
240-119409-3	MW-72S_092319	77
240-119409-4	MW-72_092319	70
LCS 240-403399/4	Lab Control Sample	80
MB 240-403399/5	Method Blank	76

#### 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: 240-119409-1

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

**Lab Sample ID: MB 240-403523/7**  
**Matrix: Water**  
**Analysis Batch: 403523**

**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			10/02/19 02:03	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/02/19 02:03	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/02/19 02:03	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/02/19 02:03	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/02/19 02:03	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/02/19 02:03	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		70 - 121		10/02/19 02:03	1
4-Bromofluorobenzene (Surr)	76		59 - 120		10/02/19 02:03	1
Toluene-d8 (Surr)	90		70 - 123		10/02/19 02:03	1
Dibromofluoromethane (Surr)	110		75 - 128		10/02/19 02:03	1

**Lab Sample ID: LCS 240-403523/4**  
**Matrix: Water**  
**Analysis Batch: 403523**

**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	10.6		ug/L		106	65 - 139
cis-1,2-Dichloroethene	10.0	10.6		ug/L		106	76 - 128
Tetrachloroethene	10.0	9.55		ug/L		95	74 - 130
trans-1,2-Dichloroethene	10.0	10.6		ug/L		106	78 - 133
Trichloroethene	10.0	10.7		ug/L		107	76 - 125
Vinyl chloride	10.0	6.34		ug/L		63	58 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	83		70 - 121
4-Bromofluorobenzene (Surr)	97		59 - 120
Toluene-d8 (Surr)	98		70 - 123
Dibromofluoromethane (Surr)	100		75 - 128

**Lab Sample ID: 240-119409-1 MS**  
**Matrix: Water**  
**Analysis Batch: 403523**

**Client Sample ID: MW-82D-MS\_092319**  
**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	10.3		ug/L		103	53 - 140
cis-1,2-Dichloroethene	1.0	U	10.0	10.2		ug/L		102	64 - 130
Tetrachloroethene	1.0	U	10.0	9.04		ug/L		90	51 - 136
trans-1,2-Dichloroethene	1.0	U	10.0	10.7		ug/L		107	68 - 133
Trichloroethene	1.0	U	10.0	10.1		ug/L		101	55 - 131
Vinyl chloride	1.0	U	10.0	6.17		ug/L		62	43 - 154

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	89		70 - 121
4-Bromofluorobenzene (Surr)	97		59 - 120
Toluene-d8 (Surr)	100		70 - 123

# QC Sample Results

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

Job ID: 240-119409-1

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

**Lab Sample ID: 240-119409-1 MS**  
**Matrix: Water**  
**Analysis Batch: 403523**

**Client Sample ID: MW-82D-MS\_092319**  
**Prep Type: Total/NA**

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

**Lab Sample ID: 240-119409-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 403523**

**Client Sample ID: MW-82D-MSD\_092319**  
**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	9.64		ug/L		96	53 - 140	7	35
cis-1,2-Dichloroethene	1.0	U	10.0	10.1		ug/L		101	64 - 130	1	21
Tetrachloroethene	1.0	U	10.0	8.53		ug/L		85	51 - 136	6	23
trans-1,2-Dichloroethene	1.0	U	10.0	10.7		ug/L		107	68 - 133	0	24
Trichloroethene	1.0	U	10.0	10.1		ug/L		101	55 - 131	1	23
Vinyl chloride	1.0	U	10.0	6.12		ug/L		61	43 - 154	1	29

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	87		70 - 121
4-Bromofluorobenzene (Surr)	96		59 - 120
Toluene-d8 (Surr)	97		70 - 123
Dibromofluoromethane (Surr)	105		75 - 128

**Lab Sample ID: MB 240-403677/7**  
**Matrix: Water**  
**Analysis Batch: 403677**

**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			10/02/19 14:57	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/02/19 14:57	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/02/19 14:57	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/02/19 14:57	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/02/19 14:57	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/02/19 14:57	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		70 - 121		10/02/19 14:57	1
4-Bromofluorobenzene (Surr)	79		59 - 120		10/02/19 14:57	1
Toluene-d8 (Surr)	91		70 - 123		10/02/19 14:57	1
Dibromofluoromethane (Surr)	111		75 - 128		10/02/19 14:57	1

**Lab Sample ID: LCS 240-403677/4**  
**Matrix: Water**  
**Analysis Batch: 403677**

**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	10.9		ug/L		109	65 - 139
cis-1,2-Dichloroethene	10.0	10.9		ug/L		109	76 - 128
Tetrachloroethene	10.0	10.7		ug/L		107	74 - 130
trans-1,2-Dichloroethene	10.0	10.9		ug/L		109	78 - 133
Trichloroethene	10.0	11.6		ug/L		116	76 - 125

Eurofins TestAmerica, Canton

# QC Sample Results

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

Job ID: 240-119409-1

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

Lab Sample ID: LCS 240-403677/4

Matrix: Water

Analysis Batch: 403677

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	6.45		ug/L		65	58 - 143

  

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	82		70 - 121
4-Bromofluorobenzene (Surr)	98		59 - 120
Toluene-d8 (Surr)	97		70 - 123
Dibromofluoromethane (Surr)	102		75 - 128

Lab Sample ID: 240-119411-A-2 MS

Matrix: Water

Analysis Batch: 403677

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	10.3		ug/L		103	53 - 140
cis-1,2-Dichloroethene	1.0	U	10.0	10.5		ug/L		105	64 - 130
Tetrachloroethene	1.0	U	10.0	10.3		ug/L		103	51 - 136
trans-1,2-Dichloroethene	1.0	U	10.0	10.8		ug/L		108	68 - 133
Trichloroethene	1.0	U	10.0	10.7		ug/L		107	55 - 131
Vinyl chloride	0.98	J	10.0	6.92		ug/L		59	43 - 154

  

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	84		70 - 121
4-Bromofluorobenzene (Surr)	98		59 - 120
Toluene-d8 (Surr)	99		70 - 123
Dibromofluoromethane (Surr)	105		75 - 128

Lab Sample ID: 240-119411-D-2 MSD

Matrix: Water

Analysis Batch: 403677

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	10.2		ug/L		102	53 - 140	0	35
cis-1,2-Dichloroethene	1.0	U	10.0	10.2		ug/L		102	64 - 130	3	21
Tetrachloroethene	1.0	U	10.0	9.89		ug/L		99	51 - 136	4	23
trans-1,2-Dichloroethene	1.0	U	10.0	10.9		ug/L		109	68 - 133	1	24
Trichloroethene	1.0	U	10.0	10.9		ug/L		109	55 - 131	2	23
Vinyl chloride	0.98	J	10.0	7.13		ug/L		61	43 - 154	3	29

  

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	81		70 - 121
4-Bromofluorobenzene (Surr)	96		59 - 120
Toluene-d8 (Surr)	97		70 - 123
Dibromofluoromethane (Surr)	105		75 - 128



# QC Sample Results

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

Job ID: 240-119409-1

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

**Lab Sample ID: MB 240-403399/5**  
**Matrix: Water**  
**Analysis Batch: 403399**

**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			10/01/19 12:21	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	76		63 - 125					10/01/19 12:21	1

**Lab Sample ID: LCS 240-403399/4**  
**Matrix: Water**  
**Analysis Batch: 403399**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	11.8		ug/L		118	59 - 131
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	80		63 - 125				

**Lab Sample ID: 240-119409-1 MS**  
**Matrix: Water**  
**Analysis Batch: 403399**

**Client Sample ID: MW-82D-MS\_092319**  
**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	11.8		ug/L		118	52 - 129
Surrogate	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	76		63 - 125						

**Lab Sample ID: 240-119409-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 403399**

**Client Sample ID: MW-82D-MSD\_092319**  
**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	10.0	12.2		ug/L		122	52 - 129	3	13
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	74		63 - 125								

# QC Association Summary

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

Job ID: 240-119409-1

## GC/MS VOA

### Analysis Batch: 403399

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119409-1	MW-82D_092319	Total/NA	Water	8260B SIM	
240-119409-2	MW-82SR_092319	Total/NA	Water	8260B SIM	
240-119409-3	MW-72S_092319	Total/NA	Water	8260B SIM	
240-119409-4	MW-72_092319	Total/NA	Water	8260B SIM	
MB 240-403399/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-403399/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-119409-1 MS	MW-82D-MS_092319	Total/NA	Water	8260B SIM	
240-119409-1 MSD	MW-82D-MSD_092319	Total/NA	Water	8260B SIM	

### Analysis Batch: 403523

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119409-1	MW-82D_092319	Total/NA	Water	8260B	
240-119409-2	MW-82SR_092319	Total/NA	Water	8260B	
240-119409-3	MW-72S_092319	Total/NA	Water	8260B	
240-119409-4	MW-72_092319	Total/NA	Water	8260B	
MB 240-403523/7	Method Blank	Total/NA	Water	8260B	
LCS 240-403523/4	Lab Control Sample	Total/NA	Water	8260B	
240-119409-1 MS	MW-82D-MS_092319	Total/NA	Water	8260B	
240-119409-1 MSD	MW-82D-MSD_092319	Total/NA	Water	8260B	

### Analysis Batch: 403677

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119409-5	TRIP BLANK (1)	Total/NA	Water	8260B	
MB 240-403677/7	Method Blank	Total/NA	Water	8260B	
LCS 240-403677/4	Lab Control Sample	Total/NA	Water	8260B	
240-119411-A-2 MS	Matrix Spike	Total/NA	Water	8260B	
240-119411-D-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

# Lab Chronicle

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

Job ID: 240-119409-1

**Client Sample ID: MW-82D\_092319**

**Lab Sample ID: 240-119409-1**

**Date Collected: 09/23/19 10:21**

**Matrix: Water**

**Date Received: 09/25/19 08:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	403523	10/02/19 08:48	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	403399	10/01/19 19:54	SAM	TAL CAN

**Client Sample ID: MW-82SR\_092319**

**Lab Sample ID: 240-119409-2**

**Date Collected: 09/23/19 11:42**

**Matrix: Water**

**Date Received: 09/25/19 08:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	403523	10/02/19 09:59	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	403399	10/01/19 21:10	SAM	TAL CAN

**Client Sample ID: MW-72S\_092319**

**Lab Sample ID: 240-119409-3**

**Date Collected: 09/23/19 13:53**

**Matrix: Water**

**Date Received: 09/25/19 08:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	403523	10/02/19 10:24	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	403399	10/01/19 21:35	SAM	TAL CAN

**Client Sample ID: MW-72\_092319**

**Lab Sample ID: 240-119409-4**

**Date Collected: 09/23/19 14:54**

**Matrix: Water**

**Date Received: 09/25/19 08:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	403523	10/02/19 10:47	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	403399	10/01/19 22:00	SAM	TAL CAN

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

**Lab Sample ID: 240-119409-5**

**Date Collected: 09/23/19 00:00**

**Matrix: Water**

**Date Received: 09/25/19 08:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	403677	10/02/19 22:11	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: 240-119409-1

## 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





Canton Facility

Client ETA Michigan

Site Name \_\_\_\_\_

Cooler unpacked by:

Cooler Received on 9/25/19

Opened on 9/25/19

Coil Brown

FedEx: 1<sup>st</sup> Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other \_\_\_\_\_

Receipt After-hours: Drop-off Date/Time

Storage Location

TestAmerica Cooler # ETA 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  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

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  No  NA

15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # Covered  Yes  No

16. Was a LL Hg or Me Hg trip blank present?  Yes  No

Contacted PM \_\_\_\_\_ Date \_\_\_\_\_ by \_\_\_\_\_ via Verbal Voice Mail Other \_\_\_\_\_

Concerning \_\_\_\_\_

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

RC

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: \_\_\_\_\_

