

## ANALYTICAL REPORT

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Laboratory Job ID: 240-114521-1

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 11:34:10 AM

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*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 . . . . .	5
Sample Summary . . . . .	6
Detection Summary . . . . .	7
Client Sample Results . . . . .	8
Surrogate Summary . . . . .	13
QC Sample Results . . . . .	14
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 - E203728

Job ID: 240-114521-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
F2	MS/MSD RPD exceeds control limits
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: 240-114521-1

**Job ID: 240-114521-1**

**Laboratory: Eurofins TestAmerica, Canton**

**Narrative**

## CASE NARRATIVE

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

**Project: Ford LTP Livonia MI - E203728**

**Report Number: 240-114521-1**

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 6/18/2019 8:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 3.1° C, 3.7° C and 3.9° C.

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

Samples MW-34\_061519 (240-114521-1), MW-15-61D\_061519 (240-114521-2), MW-42\_061519 (240-114521-3), MW-35\_061519 (240-114521-4) and TRIP BLANK (240-114521-5) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 06/24/2019 and 06/25/2019.

Trichloroethene exceeded the RPD limit for the MSD of sample MW-42\_061519MSD (240-114521-3) in batch 240-387956. Refer to the QC report for details.

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-34\_061519 (240-114521-1), MW-15-61D\_061519 (240-114521-2), MW-42\_061519 (240-114521-3) and MW-35\_061519 (240-114521-4) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 06/20/2019.

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: 240-114521-1

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: 240-114521-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-114521-1	MW-34_061519	Water	06/15/19 09:52	06/18/19 08:40	
240-114521-2	MW-15-61D_061519	Water	06/15/19 11:24	06/18/19 08:40	
240-114521-3	MW-42_061519	Water	06/15/19 13:11	06/18/19 08:40	
240-114521-4	MW-35_061519	Water	06/15/19 15:05	06/18/19 08:40	
240-114521-5	TRIP BLANK	Water	06/15/19 00:00	06/18/19 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 - E203728

Job ID: 240-114521-1

## Client Sample ID: MW-34\_061519

Lab Sample ID: 240-114521-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	5.6		2.0	0.86	ug/L	1		8260B SIM	Total/NA
Vinyl chloride	0.89	J	1.0	0.20	ug/L	1		8260B	Total/NA

## Client Sample ID: MW-15-61D\_061519

Lab Sample ID: 240-114521-2

No Detections.

## Client Sample ID: MW-42\_061519

Lab Sample ID: 240-114521-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	2.5		2.0	0.86	ug/L	1		8260B SIM	Total/NA
Vinyl chloride	0.67	J	1.0	0.20	ug/L	1		8260B	Total/NA

## Client Sample ID: MW-35\_061519

Lab Sample ID: 240-114521-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	5.2		2.0	0.86	ug/L	1		8260B SIM	Total/NA
Vinyl chloride	6.7		1.0	0.20	ug/L	1		8260B	Total/NA

## Client Sample ID: TRIP BLANK

Lab Sample ID: 240-114521-5

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 - E203728

Job ID: 240-114521-1

**Client Sample ID: MW-34\_061519**

**Lab Sample ID: 240-114521-1**

Date Collected: 06/15/19 09:52

Matrix: Water

Date Received: 06/18/19 08:40

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	5.6		2.0	0.86	ug/L			06/20/19 18:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		63 - 125		06/20/19 18:02	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			06/24/19 22:14	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/24/19 22:14	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/24/19 22:14	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/24/19 22:14	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/24/19 22:14	1
Vinyl chloride	0.89	J	1.0	0.20	ug/L			06/24/19 22:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	117		70 - 121		06/24/19 22:14	1
4-Bromofluorobenzene (Surr)	108		59 - 120		06/24/19 22:14	1
Toluene-d8 (Surr)	97		70 - 123		06/24/19 22:14	1
Dibromofluoromethane (Surr)	114		75 - 128		06/24/19 22:14	1



# Client Sample Results

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

Job ID: 240-114521-1

**Client Sample ID: MW-15-61D\_061519**

**Lab Sample ID: 240-114521-2**

Date Collected: 06/15/19 11:24

Matrix: Water

Date Received: 06/18/19 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	-		06/20/19 18:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		63 - 125		06/20/19 18:27	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	-		06/24/19 22:43	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L	-		06/24/19 22:43	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L	-		06/24/19 22:43	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		06/24/19 22:43	1
Trichloroethene	1.0	U	1.0	0.10	ug/L	-		06/24/19 22:43	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L	-		06/24/19 22:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		70 - 121		06/24/19 22:43	1
4-Bromofluorobenzene (Surr)	93		59 - 120		06/24/19 22:43	1
Toluene-d8 (Surr)	92		70 - 123		06/24/19 22:43	1
Dibromofluoromethane (Surr)	108		75 - 128		06/24/19 22:43	1

# Client Sample Results

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

Job ID: 240-114521-1

**Client Sample ID: MW-42\_061519**

**Lab Sample ID: 240-114521-3**

Date Collected: 06/15/19 13:11

Matrix: Water

Date Received: 06/18/19 08:40

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.5		2.0	0.86	ug/L			06/20/19 18:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		63 - 125		06/20/19 18:52	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/24/19 23:08	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/24/19 23:08	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/24/19 23:08	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/24/19 23:08	1
Trichloroethene	1.0	U F2	1.0	0.10	ug/L			06/24/19 23:08	1
Vinyl chloride	0.67	J	1.0	0.20	ug/L			06/24/19 23:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	114		70 - 121		06/24/19 23:08	1
4-Bromofluorobenzene (Surr)	86		59 - 120		06/24/19 23:08	1
Toluene-d8 (Surr)	87		70 - 123		06/24/19 23:08	1
Dibromofluoromethane (Surr)	95		75 - 128		06/24/19 23:08	1

# Client Sample Results

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

Job ID: 240-114521-1

**Client Sample ID: MW-35\_061519**

**Lab Sample ID: 240-114521-4**

Date Collected: 06/15/19 15:05

Matrix: Water

Date Received: 06/18/19 08:40

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	5.2		2.0	0.86	ug/L			06/20/19 20:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		63 - 125		06/20/19 20:07	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/25/19 00:22	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/25/19 00:22	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/25/19 00:22	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/25/19 00:22	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/25/19 00:22	1
Vinyl chloride	6.7		1.0	0.20	ug/L			06/25/19 00:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	114		70 - 121		06/25/19 00:22	1
4-Bromofluorobenzene (Surr)	96		59 - 120		06/25/19 00:22	1
Toluene-d8 (Surr)	87		70 - 123		06/25/19 00:22	1
Dibromofluoromethane (Surr)	120		75 - 128		06/25/19 00:22	1

# Client Sample Results

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

Job ID: 240-114521-1

**Client Sample ID: TRIP BLANK**

**Lab Sample ID: 240-114521-5**

**Date Collected: 06/15/19 00:00**

**Matrix: Water**

**Date Received: 06/18/19 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			06/25/19 00:46	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/25/19 00:46	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/25/19 00:46	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/25/19 00:46	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/25/19 00:46	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/25/19 00:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		70 - 121		06/25/19 00:46	1
4-Bromofluorobenzene (Surr)	93		59 - 120		06/25/19 00:46	1
Toluene-d8 (Surr)	94		70 - 123		06/25/19 00:46	1
Dibromofluoromethane (Surr)	119		75 - 128		06/25/19 00:46	1

# Surrogate Summary

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

Job ID: 240-114521-1

## 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)
240-114521-1	MW-34_061519	117	108	97	114
240-114521-2	MW-15-61D_061519	107	93	92	108
240-114521-3	MW-42_061519	114	86	87	95
240-114521-3 MS	MW-42_061519	111	92	97	109
240-114521-3 MSD	MW-42_061519	113	104	90	113
240-114521-4	MW-35_061519	114	96	87	120
240-114521-5	TRIP BLANK	112	93	94	119
LCS 240-387956/4	Lab Control Sample	106	92	87	106
MB 240-387956/7	Method Blank	110	85	88	115

#### 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)
240-114521-1	MW-34_061519	108
240-114521-2	MW-15-61D_061519	108
240-114521-3	MW-42_061519	110
240-114521-3 MS	MW-42_061519	113
240-114521-3 MSD	MW-42_061519	109
240-114521-4	MW-35_061519	109
LCS 240-387287/4	Lab Control Sample	108
MB 240-387287/5	Method Blank	106

#### 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: 240-114521-1

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

**Lab Sample ID: MB 240-387956/7**  
**Matrix: Water**  
**Analysis Batch: 387956**

**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			06/24/19 18:14	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/24/19 18:14	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/24/19 18:14	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/24/19 18:14	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/24/19 18:14	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/24/19 18:14	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		70 - 121		06/24/19 18:14	1
4-Bromofluorobenzene (Surr)	85		59 - 120		06/24/19 18:14	1
Toluene-d8 (Surr)	88		70 - 123		06/24/19 18:14	1
Dibromofluoromethane (Surr)	115		75 - 128		06/24/19 18:14	1

**Lab Sample ID: LCS 240-387956/4**  
**Matrix: Water**  
**Analysis Batch: 387956**

**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	9.86		ug/L		99	76 - 128
Tetrachloroethene	10.0	11.9		ug/L		119	74 - 130
trans-1,2-Dichloroethene	10.0	9.51		ug/L		95	78 - 133
Trichloroethene	10.0	12.2		ug/L		122	76 - 125
Vinyl chloride	10.0	9.63		ug/L		96	58 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	106		70 - 121
4-Bromofluorobenzene (Surr)	92		59 - 120
Toluene-d8 (Surr)	87		70 - 123
Dibromofluoromethane (Surr)	106		75 - 128

**Lab Sample ID: 240-114521-3 MS**  
**Matrix: Water**  
**Analysis Batch: 387956**

**Client Sample ID: MW-42\_061519**  
**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	8.58		ug/L		86	53 - 140
cis-1,2-Dichloroethene	1.0	U	10.0	8.32		ug/L		83	64 - 130
Tetrachloroethene	1.0	U	10.0	10.5		ug/L		105	51 - 136
trans-1,2-Dichloroethene	1.0	U	10.0	8.48		ug/L		85	68 - 133
Trichloroethene	1.0	U F2	10.0	8.82		ug/L		88	55 - 131
Vinyl chloride	0.67	J	10.0	9.69		ug/L		90	43 - 154

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	111		70 - 121
4-Bromofluorobenzene (Surr)	92		59 - 120
Toluene-d8 (Surr)	97		70 - 123

# QC Sample Results

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

Job ID: 240-114521-1

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

**Lab Sample ID: 240-114521-3 MS**  
**Matrix: Water**  
**Analysis Batch: 387956**

**Client Sample ID: MW-42\_061519**  
**Prep Type: Total/NA**

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	109		75 - 128

**Lab Sample ID: 240-114521-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 387956**

**Client Sample ID: MW-42\_061519**  
**Prep Type: Total/NA**

Analyte	Sample	Sample	Spike	MSD		Unit	D	%Rec	%Rec.		RPD	Limit
	Result	Qualifier		Result	Qualifier				Limits	RPD		
1,1-Dichloroethene	1.0	U	10.0	9.34		ug/L		93	53 - 140	8	35	
cis-1,2-Dichloroethene	1.0	U	10.0	9.01		ug/L		90	64 - 130	8	21	
Tetrachloroethene	1.0	U	10.0	9.55		ug/L		96	51 - 136	9	23	
trans-1,2-Dichloroethene	1.0	U	10.0	8.87		ug/L		89	68 - 133	4	24	
Trichloroethene	1.0	U F2	10.0	11.4	F2	ug/L		114	55 - 131	26	23	
Vinyl chloride	0.67	J	10.0	9.27		ug/L		86	43 - 154	4	29	

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	113		70 - 121
4-Bromofluorobenzene (Surr)	104		59 - 120
Toluene-d8 (Surr)	90		70 - 123
Dibromofluoromethane (Surr)	113		75 - 128

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

**Lab Sample ID: MB 240-387287/5**  
**Matrix: Water**  
**Analysis Batch: 387287**

**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			06/20/19 12:10	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	106		63 - 125		06/20/19 12:10	1

**Lab Sample ID: LCS 240-387287/4**  
**Matrix: Water**  
**Analysis Batch: 387287**

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

Analyte	Spike	LCS LCS		Unit	D	%Rec	%Rec.
		Result	Qualifier				
1,4-Dioxane	10.0	9.56		ug/L		96	59 - 131

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	108		63 - 125

**Lab Sample ID: 240-114521-3 MS**  
**Matrix: Water**  
**Analysis Batch: 387287**

**Client Sample ID: MW-42\_061519**  
**Prep Type: Total/NA**

Analyte	Sample	Sample	Spike	MS MS		Unit	D	%Rec	%Rec.
	Result	Qualifier		Result	Qualifier				
1,4-Dioxane	2.5		10.0	13.9		ug/L		114	52 - 129

Eurofins TestAmerica, Canton

# QC Sample Results

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

Job ID: 240-114521-1

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

<i>Surrogate</i>	<i>MS</i> <i>%Recovery</i>	<i>MS</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	113		63 - 125

Lab Sample ID: 240-114521-3 MSD  
 Matrix: Water  
 Analysis Batch: 387287

Client Sample ID: MW-42\_061519  
 Prep Type: Total/NA

<i>Analyte</i>	<i>Sample</i> <i>Result</i>	<i>Sample</i> <i>Qualifier</i>	<i>Spike</i> <i>Added</i>	<i>MSD</i> <i>Result</i>	<i>MSD</i> <i>Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec.</i> <i>Limits</i>	<i>RPD</i>	<i>RPD</i> <i>Limit</i>
1,4-Dioxane	2.5		10.0	12.9		ug/L		104	52 - 129	8	13

<i>Surrogate</i>	<i>MSD</i> <i>%Recovery</i>	<i>MSD</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	109		63 - 125

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# QC Association Summary

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

Job ID: 240-114521-1

## GC/MS VOA

### Analysis Batch: 387287

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-114521-1	MW-34_061519	Total/NA	Water	8260B SIM	
240-114521-2	MW-15-61D_061519	Total/NA	Water	8260B SIM	
240-114521-3	MW-42_061519	Total/NA	Water	8260B SIM	
240-114521-4	MW-35_061519	Total/NA	Water	8260B SIM	
MB 240-387287/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-387287/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-114521-3 MS	MW-42_061519	Total/NA	Water	8260B SIM	
240-114521-3 MSD	MW-42_061519	Total/NA	Water	8260B SIM	

### Analysis Batch: 387956

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-114521-1	MW-34_061519	Total/NA	Water	8260B	
240-114521-2	MW-15-61D_061519	Total/NA	Water	8260B	
240-114521-3	MW-42_061519	Total/NA	Water	8260B	
240-114521-4	MW-35_061519	Total/NA	Water	8260B	
240-114521-5	TRIP BLANK	Total/NA	Water	8260B	
MB 240-387956/7	Method Blank	Total/NA	Water	8260B	
LCS 240-387956/4	Lab Control Sample	Total/NA	Water	8260B	
240-114521-3 MS	MW-42_061519	Total/NA	Water	8260B	
240-114521-3 MSD	MW-42_061519	Total/NA	Water	8260B	

# Lab Chronicle

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

Job ID: 240-114521-1

**Client Sample ID: MW-34\_061519**

**Lab Sample ID: 240-114521-1**

**Date Collected: 06/15/19 09:52**

**Matrix: Water**

**Date Received: 06/18/19 08:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	387956	06/24/19 22:14	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	387287	06/20/19 18:02	SAM	TAL CAN

**Client Sample ID: MW-15-61D\_061519**

**Lab Sample ID: 240-114521-2**

**Date Collected: 06/15/19 11:24**

**Matrix: Water**

**Date Received: 06/18/19 08:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	387956	06/24/19 22:43	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	387287	06/20/19 18:27	SAM	TAL CAN

**Client Sample ID: MW-42\_061519**

**Lab Sample ID: 240-114521-3**

**Date Collected: 06/15/19 13:11**

**Matrix: Water**

**Date Received: 06/18/19 08:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	387956	06/24/19 23:08	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	387287	06/20/19 18:52	SAM	TAL CAN

**Client Sample ID: MW-35\_061519**

**Lab Sample ID: 240-114521-4**

**Date Collected: 06/15/19 15:05**

**Matrix: Water**

**Date Received: 06/18/19 08:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	387956	06/25/19 00:22	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	387287	06/20/19 20:07	SAM	TAL CAN

**Client Sample ID: TRIP BLANK**

**Lab Sample ID: 240-114521-5**

**Date Collected: 06/15/19 00:00**

**Matrix: Water**

**Date Received: 06/18/19 08:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	387956	06/25/19 00:46	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 - E203728

Job ID: 240-114521-1

## 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	06-30-20
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.

**EUROFINS TestAmerica, Canton MICHIGAN Chain of Custody Record 190**

4101 Shuffel Street NW  
North Canton, OH 44720  
Phone: 330-497-9396 Fax: 330-497-0772

**Client Information**  
 Client Contact: **Patrick Labadie**  
 Company: **ARCADIS U.S. Inc**  
 Address: **28550 Cabot Drive Suite 500**  
 City: **Novi**  
 State, Zip: **MI, 48377**  
 Phone: **0664-00013**  
**MI001454, 0006-00904**  
 Email: **Caitlin\_O'Neill@arcadis.com**  
 Project Name: **Ford LTP Livonia MI - E203624728**  
 Site: **LTP**

**Analysis Requested**  
 Lab PM: **DelMonico, Michael**  
 E-Mail: **michael.delmonico@testamericainc.com**  
 Carrier Tracking No(s):  
 COC No: **240-61361-26116.6**  
 Page: **Page 6 of 10**  
 Job #:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Solid, Over-sat, BT-Tissue, A-Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs (Short List)	8260B, 8260B SIM	Total Number of Containers	Special Instructions/Note:
MW-34-061519	6-15-19	9:52	G	Water	N/A	X	X	6		
MW-15-61D-061519	6-15-19	11:24	G	Water	N/A	X	X	6		
MW-42-061519	6-15-19	13:11	G	Water	N/A	X	X	8		
MW-35-061519	6-15-19	15:05	G	Water	N/A	X	X	6		
T.P.P. blank	6-15-19			Water	N/A	X	X	1		
				Water						
				Water						
				Water						
				Water						
				Water						
				Water						



**Possible Hazard Identification**  
 Non-Hazard  
 Flammable  
 Skin Irritant  
 Poison B  
 Unknown  
 Radiological  
 Deliverable Requested: I, II, III, IV, V, 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/OC Requirements:**

**Empty Kit Relinquished by:** **Patrick Labadie** Date: **6-15-19 / 4:10**

**Relinquished by:** **RACHEL WILSMAN** Date/Time: **06/17/19 11:45** Company: **ARCADIS**

**Relinquished by:** **[Signature]** Date/Time: **6-12-19 12:34** Company: **ETA**

**Custody Seal Intact:**  Yes  No

**Relinquished by:** **[Signature]** Date/Time: **6-15-19 / 4:10** Company: **ARCADIS**

**Relinquished by:** **[Signature]** Date/Time: **6-17-19 11:45** Company: **ETA**

**Relinquished by:** **[Signature]** Date/Time: **6-18-19 8:30** Company: **ETA**

**Cooler Temperature(s) °C and Other Remarks:**





**Eurofins TestAmerica Canton Sample Receipt Form/Narrative** Login #: 114521  
**Canton Facility**

Client Arcadis Site Name \_\_\_\_\_ Cooler unpacked by: [Signature]  
 Cooler Received on 6-18-19 Opened on 6-18-19  
 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 # 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

- See Multiple Cooler Form
- Cooler temperature upon receipt  
 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
  - Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 3
    - 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
  - Shippers' packing slip attached to the cooler(s)?  Yes  No
  - Did custody papers accompany the sample(s)?  Yes  No
  - Were the custody papers relinquished & signed in the appropriate place?  Yes  No
  - Was/were the person(s) who collected the samples clearly identified on the COC?  Yes  No
  - Did all bottles arrive in good condition (Unbroken)?  Yes  No
  - Could all bottle labels be reconciled with the COC?  Yes  No
  - Were correct bottle(s) used for the test(s) indicated?  Yes  No
  - Sufficient quantity received to perform indicated analyses?  Yes  No
  - Are these work share samples?  Yes  No
  - If yes, Questions 12-16 have been checked at the originating laboratory.
  - Were all preserved sample(s) at the correct pH upon receipt?  Yes  No  NA pH Strip Lot# HC984738
  - Were VOAs on the COC?  Yes  No
  - Were air bubbles >6 mm in any VOA vials?  Yes  No  NA  Larger than this.
  - Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # H832701VB  Yes  No
  - 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: [Signature]  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

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

