

## ANALYTICAL REPORT

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

Laboratory Job ID: 240-131196-1  
Client Project/Site: Ford LTP On-Site

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

Attn: Kristoffer Hinskey



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Authorized for release by:  
6/17/2020 10:48:23 AM

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



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# Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Ford LTP On-Site

Job ID: 240-131196-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery 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
CFU	Colony Forming Unit
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)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
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)
TNTC	Too Numerous To Count

# Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Ford LTP On-Site

Job ID: 240-131196-1

**Job ID: 240-131196-1**

**Laboratory: Eurofins TestAmerica, Canton**

**Narrative**

## CASE NARRATIVE

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

**Project: Ford LTP On-Site**

**Report Number: 240-131196-1**

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 6/3/2020 9:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.8° C and 3.9° C.

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

Samples TRIP BLANK (240-131196-1), MW-213S\_053020 (240-131196-2), MW-43\_053020 (240-131196-3) and MW-52\_053020 (240-131196-4) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 06/09/2020 and 06/10/2020.

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-213S\_053020 (240-131196-2), MW-43\_053020 (240-131196-3) and MW-52\_053020 (240-131196-4) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 06/10/2020 and 06/11/2020.

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 On-Site

Job ID: 240-131196-1

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 On-Site

Job ID: 240-131196-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-131196-1	TRIP BLANK	Water	05/30/20 00:00	06/03/20 09:20	
240-131196-2	MW-213S_053020	Water	05/30/20 09:23	06/03/20 09:20	
240-131196-3	MW-43_053020	Water	05/30/20 10:45	06/03/20 09:20	
240-131196-4	MW-52_053020	Water	05/30/20 12:14	06/03/20 09:20	

- 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 On-Site

Job ID: 240-131196-1

## Client Sample ID: TRIP BLANK

Lab Sample ID: 240-131196-1

No Detections.

## Client Sample ID: MW-213S\_053020

Lab Sample ID: 240-131196-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.74	J	1.0	0.16	ug/L	1		8260B	Total/NA
Vinyl chloride	1.3		1.0	0.20	ug/L	1		8260B	Total/NA

## Client Sample ID: MW-43\_053020

Lab Sample ID: 240-131196-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	3.3		2.0	0.86	ug/L	1		8260B SIM	Total/NA
Vinyl chloride	0.28	J	1.0	0.20	ug/L	1		8260B	Total/NA

## Client Sample ID: MW-52\_053020

Lab Sample ID: 240-131196-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	4.5		1.0	0.20	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

# Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Ford LTP On-Site

Job ID: 240-131196-1

**Client Sample ID: TRIP BLANK**

**Lab Sample ID: 240-131196-1**

**Date Collected: 05/30/20 00:00**

**Matrix: Water**

**Date Received: 06/03/20 09:20**

**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			06/09/20 20:01	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/09/20 20:01	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/09/20 20:01	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/09/20 20:01	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/09/20 20:01	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/09/20 20:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		75 - 130		06/09/20 20:01	1
4-Bromofluorobenzene (Surr)	107		47 - 134		06/09/20 20:01	1
Toluene-d8 (Surr)	90		69 - 122		06/09/20 20:01	1
Dibromofluoromethane (Surr)	97		78 - 129		06/09/20 20:01	1



# Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Ford LTP On-Site

Job ID: 240-131196-1

**Client Sample ID: MW-213S\_053020**

**Lab Sample ID: 240-131196-2**

Date Collected: 05/30/20 09:23

Matrix: Water

Date Received: 06/03/20 09:20

**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			06/10/20 15:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		70 - 133		06/10/20 15:49	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			06/10/20 18:34	1
<b>cis-1,2-Dichloroethene</b>	<b>0.74</b>	<b>J</b>	1.0	0.16	ug/L			06/10/20 18:34	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/10/20 18:34	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/10/20 18:34	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/10/20 18:34	1
<b>Vinyl chloride</b>	<b>1.3</b>		1.0	0.20	ug/L			06/10/20 18:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		75 - 130		06/10/20 18:34	1
4-Bromofluorobenzene (Surr)	102		47 - 134		06/10/20 18:34	1
Toluene-d8 (Surr)	86		69 - 122		06/10/20 18:34	1
Dibromofluoromethane (Surr)	106		78 - 129		06/10/20 18:34	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Ford LTP On-Site

Job ID: 240-131196-1

**Client Sample ID: MW-43\_053020**

**Lab Sample ID: 240-131196-3**

Date Collected: 05/30/20 10:45

Matrix: Water

Date Received: 06/03/20 09:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	3.3		2.0	0.86	ug/L			06/10/20 16:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		70 - 133		06/10/20 16:14	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			06/10/20 19:01	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/10/20 19:01	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/10/20 19:01	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/10/20 19:01	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/10/20 19:01	1
Vinyl chloride	0.28	J	1.0	0.20	ug/L			06/10/20 19:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		75 - 130		06/10/20 19:01	1
4-Bromofluorobenzene (Surr)	104		47 - 134		06/10/20 19:01	1
Toluene-d8 (Surr)	95		69 - 122		06/10/20 19:01	1
Dibromofluoromethane (Surr)	100		78 - 129		06/10/20 19:01	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Ford LTP On-Site

Job ID: 240-131196-1

**Client Sample ID: MW-52\_053020**

**Lab Sample ID: 240-131196-4**

Date Collected: 05/30/20 12:14

Matrix: Water

Date Received: 06/03/20 09:20

**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			06/11/20 10:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		70 - 133		06/11/20 10:01	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			06/10/20 19:26	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/10/20 19:26	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/10/20 19:26	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/10/20 19:26	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/10/20 19:26	1
<b>Vinyl chloride</b>	<b>4.5</b>		1.0	0.20	ug/L			06/10/20 19:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		75 - 130		06/10/20 19:26	1
4-Bromofluorobenzene (Surr)	107		47 - 134		06/10/20 19:26	1
Toluene-d8 (Surr)	93		69 - 122		06/10/20 19:26	1
Dibromofluoromethane (Surr)	101		78 - 129		06/10/20 19:26	1

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Ford LTP On-Site

Job ID: 240-131196-1

## 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 (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-131159-C-3 MS	Matrix Spike	91	102	94	98
240-131159-C-3 MSD	Matrix Spike Duplicate	95	101	93	95
240-131196-1	TRIP BLANK	101	107	90	97
240-131196-2	MW-213S_053020	96	102	86	106
240-131196-3	MW-43_053020	94	104	95	100
240-131196-4	MW-52_053020	101	107	93	101
240-131198-E-1 MS	Matrix Spike	92	108	94	97
240-131198-F-1 MSD	Matrix Spike Duplicate	95	104	92	97
LCS 240-437510/4	Lab Control Sample	93	105	91	103
LCS 240-437717/4	Lab Control Sample	94	107	90	96
MB 240-437510/7	Method Blank	93	105	90	96
MB 240-437717/7	Method Blank	95	101	90	89

#### 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
		(70-133)
240-131196-2	MW-213S_053020	100
240-131196-3	MW-43_053020	99
240-131196-4	MW-52_053020	100
240-131199-D-2 MS	Matrix Spike	107
240-131199-D-2 MSD	Matrix Spike Duplicate	102
240-131242-A-3 MS	Matrix Spike	99
240-131242-A-3 MSD	Matrix Spike Duplicate	108
LCS 240-437619/4	Lab Control Sample	97
LCS 240-437824/4	Lab Control Sample	103
MB 240-437619/5	Method Blank	94
MB 240-437824/5	Method Blank	99

#### Surrogate Legend

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

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Ford LTP On-Site

Job ID: 240-131196-1

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

**Lab Sample ID: MB 240-437510/7**  
**Matrix: Water**  
**Analysis Batch: 437510**

**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			06/09/20 13:45	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/09/20 13:45	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/09/20 13:45	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/09/20 13:45	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/09/20 13:45	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/09/20 13:45	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		75 - 130		06/09/20 13:45	1
4-Bromofluorobenzene (Surr)	105		47 - 134		06/09/20 13:45	1
Toluene-d8 (Surr)	90		69 - 122		06/09/20 13:45	1
Dibromofluoromethane (Surr)	96		78 - 129		06/09/20 13:45	1

**Lab Sample ID: LCS 240-437510/4**  
**Matrix: Water**  
**Analysis Batch: 437510**

**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	73 - 129
cis-1,2-Dichloroethene	10.0	10.3		ug/L		103	75 - 124
Tetrachloroethene	10.0	10.6		ug/L		106	70 - 125
trans-1,2-Dichloroethene	10.0	9.78		ug/L		98	74 - 130
Trichloroethene	10.0	9.90		ug/L		99	71 - 121
Vinyl chloride	10.0	12.7		ug/L		127	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	93		75 - 130
4-Bromofluorobenzene (Surr)	105		47 - 134
Toluene-d8 (Surr)	91		69 - 122
Dibromofluoromethane (Surr)	103		78 - 129

**Lab Sample ID: 240-131159-C-3 MS**  
**Matrix: Water**  
**Analysis Batch: 437510**

**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
cis-1,2-Dichloroethene	1.0	U	10.0	10.1		ug/L		101	68 - 121
trans-1,2-Dichloroethene	1.0	U	10.0	10.1		ug/L		101	69 - 126
Trichloroethene	1.0	U	10.0	9.03		ug/L		90	56 - 124
Vinyl chloride	1.0	U F1	10.0	13.8	F1	ug/L		138	49 - 136

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	91		75 - 130
4-Bromofluorobenzene (Surr)	102		47 - 134
Toluene-d8 (Surr)	94		69 - 122
Dibromofluoromethane (Surr)	98		78 - 129

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Ford LTP On-Site

Job ID: 240-131196-1

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

**Lab Sample ID: 240-131159-C-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 437510**

**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
cis-1,2-Dichloroethene	1.0	U	10.0	10.6		ug/L		106	68 - 121	5	35
trans-1,2-Dichloroethene	1.0	U	10.0	10.9		ug/L		109	69 - 126	7	35
Trichloroethene	1.0	U	10.0	9.61		ug/L		96	56 - 124	6	35
Vinyl chloride	1.0	U F1	10.0	14.8	F1	ug/L		148	49 - 136	7	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	95		75 - 130
4-Bromofluorobenzene (Surr)	101		47 - 134
Toluene-d8 (Surr)	93		69 - 122
Dibromofluoromethane (Surr)	95		78 - 129

**Lab Sample ID: MB 240-437717/7**  
**Matrix: Water**  
**Analysis Batch: 437717**

**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			06/10/20 16:29	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/10/20 16:29	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/10/20 16:29	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/10/20 16:29	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/10/20 16:29	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/10/20 16:29	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		75 - 130		06/10/20 16:29	1
4-Bromofluorobenzene (Surr)	101		47 - 134		06/10/20 16:29	1
Toluene-d8 (Surr)	90		69 - 122		06/10/20 16:29	1
Dibromofluoromethane (Surr)	89		78 - 129		06/10/20 16:29	1

**Lab Sample ID: LCS 240-437717/4**  
**Matrix: Water**  
**Analysis Batch: 437717**

**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	10.8		ug/L		108	73 - 129
cis-1,2-Dichloroethene	10.0	10.9		ug/L		109	75 - 124
Tetrachloroethene	10.0	11.4		ug/L		114	70 - 125
trans-1,2-Dichloroethene	10.0	10.6		ug/L		106	74 - 130
Trichloroethene	10.0	10.3		ug/L		103	71 - 121
Vinyl chloride	10.0	12.0		ug/L		120	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	94		75 - 130
4-Bromofluorobenzene (Surr)	107		47 - 134
Toluene-d8 (Surr)	90		69 - 122
Dibromofluoromethane (Surr)	96		78 - 129

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Ford LTP On-Site

Job ID: 240-131196-1

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

**Lab Sample ID: 240-131198-E-1 MS**  
**Matrix: Water**  
**Analysis Batch: 437717**

**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	11.3		ug/L		113	64 - 132
cis-1,2-Dichloroethene	1.0	U	10.0	10.8		ug/L		108	68 - 121
Tetrachloroethene	1.0	U	10.0	11.0		ug/L		110	52 - 129
trans-1,2-Dichloroethene	1.0	U	10.0	11.2		ug/L		112	69 - 126
Trichloroethene	1.3		10.0	11.0		ug/L		98	56 - 124
Vinyl chloride	1.0	U F1	10.0	14.6	F1	ug/L		146	49 - 136
<b>MS MS</b>									
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
1,2-Dichloroethane-d4 (Surr)	92		75 - 130						
4-Bromofluorobenzene (Surr)	108		47 - 134						
Toluene-d8 (Surr)	94		69 - 122						
Dibromofluoromethane (Surr)	97		78 - 129						

**Lab Sample ID: 240-131198-F-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 437717**

**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	11.2		ug/L		112	64 - 132	1	35
cis-1,2-Dichloroethene	1.0	U	10.0	10.8		ug/L		108	68 - 121	0	35
Tetrachloroethene	1.0	U	10.0	12.2		ug/L		122	52 - 129	10	35
trans-1,2-Dichloroethene	1.0	U	10.0	10.6		ug/L		106	69 - 126	5	35
Trichloroethene	1.3		10.0	11.1		ug/L		98	56 - 124	0	35
Vinyl chloride	1.0	U F1	10.0	14.6	F1	ug/L		146	49 - 136	0	35
<b>MSD MSD</b>											
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>								
1,2-Dichloroethane-d4 (Surr)	95		75 - 130								
4-Bromofluorobenzene (Surr)	104		47 - 134								
Toluene-d8 (Surr)	92		69 - 122								
Dibromofluoromethane (Surr)	97		78 - 129								

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

**Lab Sample ID: MB 240-437619/5**  
**Matrix: Water**  
**Analysis Batch: 437619**

**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			06/10/20 06:16	1
<b>MB MB</b>									
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
1,2-Dichloroethane-d4 (Surr)	94		70 - 133						
							<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
								06/10/20 06:16	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Ford LTP On-Site

Job ID: 240-131196-1

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

**Lab Sample ID: LCS 240-437619/4**  
**Matrix: Water**  
**Analysis Batch: 437619**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	10.5		ug/L		105	80 - 135
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>LCS Limits</b>				
1,2-Dichloroethane-d4 (Surr)	97		70 - 133				

**Lab Sample ID: 240-131199-D-2 MS**  
**Matrix: Water**  
**Analysis Batch: 437619**

**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	2.9		10.0	10.9		ug/L		80	46 - 170
<b>Surrogate</b>	<b>%Recovery</b>	<b>MS Qualifier</b>	<b>MS Limits</b>						
1,2-Dichloroethane-d4 (Surr)	107		70 - 133						

**Lab Sample ID: 240-131199-D-2 MSD**  
**Matrix: Water**  
**Analysis Batch: 437619**

**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	2.9		10.0	11.2		ug/L		84	46 - 170	3	26
<b>Surrogate</b>	<b>%Recovery</b>	<b>MSD Qualifier</b>	<b>MSD Limits</b>								
1,2-Dichloroethane-d4 (Surr)	102		70 - 133								

**Lab Sample ID: MB 240-437824/5**  
**Matrix: Water**  
**Analysis Batch: 437824**

**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			06/11/20 07:01	1	
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>	<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>				
1,2-Dichloroethane-d4 (Surr)	99		70 - 133		06/11/20 07:01	1				

**Lab Sample ID: LCS 240-437824/4**  
**Matrix: Water**  
**Analysis Batch: 437824**

**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	9.69		ug/L		97	80 - 135
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>LCS Limits</b>				
1,2-Dichloroethane-d4 (Surr)	103		70 - 133				



# QC Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Ford LTP On-Site

Job ID: 240-131196-1

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

**Lab Sample ID: 240-131242-A-3 MS**  
**Matrix: Water**  
**Analysis Batch: 437824**

**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	9.89		ug/L		99	46 - 170
<b>Surrogate</b>	<b>%Recovery</b>	<b>MS Qualifier</b>	<b>MS Limits</b>						
1,2-Dichloroethane-d4 (Surr)	99		70 - 133						

**Lab Sample ID: 240-131242-A-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 437824**

**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	9.97		ug/L		100	46 - 170	1	26
<b>Surrogate</b>	<b>%Recovery</b>	<b>MSD Qualifier</b>	<b>MSD Limits</b>								
1,2-Dichloroethane-d4 (Surr)	108		70 - 133								



# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Ford LTP On-Site

Job ID: 240-131196-1

## GC/MS VOA

### Analysis Batch: 437510

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-131196-1	TRIP BLANK	Total/NA	Water	8260B	
MB 240-437510/7	Method Blank	Total/NA	Water	8260B	
LCS 240-437510/4	Lab Control Sample	Total/NA	Water	8260B	
240-131159-C-3 MS	Matrix Spike	Total/NA	Water	8260B	
240-131159-C-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

### Analysis Batch: 437619

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-131196-2	MW-213S_053020	Total/NA	Water	8260B SIM	
240-131196-3	MW-43_053020	Total/NA	Water	8260B SIM	
MB 240-437619/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-437619/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-131199-D-2 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-131199-D-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

### Analysis Batch: 437717

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-131196-2	MW-213S_053020	Total/NA	Water	8260B	
240-131196-3	MW-43_053020	Total/NA	Water	8260B	
240-131196-4	MW-52_053020	Total/NA	Water	8260B	
MB 240-437717/7	Method Blank	Total/NA	Water	8260B	
LCS 240-437717/4	Lab Control Sample	Total/NA	Water	8260B	
240-131198-E-1 MS	Matrix Spike	Total/NA	Water	8260B	
240-131198-F-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

### Analysis Batch: 437824

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-131196-4	MW-52_053020	Total/NA	Water	8260B SIM	
MB 240-437824/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-437824/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-131242-A-3 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-131242-A-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Ford LTP On-Site

Job ID: 240-131196-1

**Client Sample ID: TRIP BLANK**

**Lab Sample ID: 240-131196-1**

**Date Collected: 05/30/20 00:00**

**Matrix: Water**

**Date Received: 06/03/20 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	437510	06/09/20 20:01	LRW	TAL CAN

**Client Sample ID: MW-213S\_053020**

**Lab Sample ID: 240-131196-2**

**Date Collected: 05/30/20 09:23**

**Matrix: Water**

**Date Received: 06/03/20 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	437717	06/10/20 18:34	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	437619	06/10/20 15:49	TJL2	TAL CAN

**Client Sample ID: MW-43\_053020**

**Lab Sample ID: 240-131196-3**

**Date Collected: 05/30/20 10:45**

**Matrix: Water**

**Date Received: 06/03/20 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	437717	06/10/20 19:01	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	437619	06/10/20 16:14	TJL2	TAL CAN

**Client Sample ID: MW-52\_053020**

**Lab Sample ID: 240-131196-4**

**Date Collected: 05/30/20 12:14**

**Matrix: Water**

**Date Received: 06/03/20 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	437717	06/10/20 19:26	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	437824	06/11/20 10:01	SAM	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 On-Site

Job ID: 240-131196-1

## 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	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-20
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-20
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

Chain of Custody Record

3/2/3-9 2.1/2.8

TestAmerica Laboratory location: Brighton --- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

<b>Client Contact</b> Company Name: Arcadis Address: 28550 Cobot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240 Project Name: Ford LTP On-Site Project Number: 30050315.401.03 PO # 30050315.401.03		<b>Regulatory program:</b> <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other	
<b>Client Project Manager:</b> Kris Hinskey Telephone: 248-994-2240 Email: kris@hinskey@arcadis.com		<b>Site Contact:</b> Julia McClafferty Telephone: 734-644-5131	
<b>Lab Contact:</b> Mike DeMonico Telephone: 330-497-9396		Lab Contact: Mike DeMonico Telephone: 330-497-9396	
<b>Sampler Name:</b> XENIA CHAN		<b>Analysis Turnaround Time</b> TAT if different from below <input type="checkbox"/> 3 weeks <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day	
<b>Method of Shipment/Carrier:</b> Shipping/Tracking No:		<b>Containers &amp; Preservatives</b> H2SO4 <input type="checkbox"/> HNO3 <input type="checkbox"/> HCl <input type="checkbox"/> NaOH <input type="checkbox"/> ZnAc <input type="checkbox"/> Other:	
<b>Sample Identification</b>		<b>Matrix</b> Air <input type="checkbox"/> Aqueous <input type="checkbox"/> Sediment <input type="checkbox"/> Solid <input type="checkbox"/> Other:	
Sample Date <del>5/30/20</del> 5/30/20 923 5/30/20 1045 5/30/20 1214	Sample Time --- 923 1045 1214	<b>Filtered Sample (Y/N)</b> NG NG NG NG	
Sample Specific Notes / Special Instructions: 1 TRIP BLANK 3 VOA for 8260B 3 VOA for 8260B SIM		<b>Analyses</b> 1,1-DCE 8260B cis-1,2-DCE 8260B Trans-1,2-DCE 8260B PCE 8260B TCE 8260B Vinyl Chloride 8260B 1,4-Dioxane 8260B SIM	



<b>Possible Hazard Identification</b> <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown		<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b> <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
<b>Special Instructions/QC Requirements &amp; Comments:</b> Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203728 Level IV Reporting requested.			
Requisitioned by: XE... RACHEL BIELAK Paul Jahn	Date/Time: 5/30/20 1305 Date/Time: 5/30/20 1605 Date/Time: 6/1/20 0955	Company: ARCADIS Company: ARCADIS Company: Arcadis	Date/Time: 5/30/20 1305 Date/Time: 5/30/20 1605 Date/Time: 6/1/20 9:58
Requisitioned by: [Signature] Requisitioned by: [Signature]		Received in Laboratory by: [Signature] Received by: [Signature]	
Requisitioned by: [Signature]		Received in Laboratory by: [Signature]	
Requisitioned by: [Signature]		Received in Laboratory by: [Signature]	

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

Login # : 131196

**Canton Facility**

Client Arceadis Site Name \_\_\_\_\_  
 Cooler Received on 6-2-20 Opened on 6-2-20  
 FedEx: 1<sup>st</sup>  Grid Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Cooler unpacked by:  
Adam Boney

**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: Water 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. 32 °C Corrected Cooler Temp. 39 °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 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  
 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# HC902937  
 13. Were VOAs on the COC? Yes No  
 14. Were air bubbles >6 mm in any VOA vials?  Larger than this. Yes No NA  
 15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # \_\_\_\_\_ Yes No  
 16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:  
 VOAs  
 Oil and Grease  
 TOC

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

**17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES**

Samples processed by:  
Ryan

Received 1 of 2 coolers. Did not receive last sample on COC: MW52-05302. Second cooler arrived day after (6-3)

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