

## ANALYTICAL REPORT

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

Laboratory Job ID: 240-126004-1  
Client Project/Site: Ford LTP On Site

For:  
ARCADIS U.S., Inc.  
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Suite 500  
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 On Site

Job ID: 240-126004-1

## 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.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

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

Job ID: 240-126004-1

**Job ID: 240-126004-1**

**Laboratory: Eurofins TestAmerica, Canton**

**Narrative**

## CASE NARRATIVE

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

**Project: Ford LTP On Site**

**Report Number: 240-126004-1**

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 2/8/2020 9:35 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.4° C.

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

Samples TRIP BLANK (240-126004-1), MW-37\_020620 (240-126004-2), MW-38\_020620 (240-126004-3) and MW-25\_020620 (240-126004-4) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 02/12/2020 and 02/13/2020.

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-37\_020620 (240-126004-2), MW-38\_020620 (240-126004-3) and MW-25\_020620 (240-126004-4) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 02/11/2020 and 02/12/2020.

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: 240-126004-1

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: 240-126004-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-126004-1	TRIP BLANK	Water	02/06/20 00:00	02/08/20 09:35	
240-126004-2	MW-37_020620	Water	02/06/20 11:20	02/08/20 09:35	
240-126004-3	MW-38_020620	Water	02/06/20 12:55	02/08/20 09:35	
240-126004-4	MW-25_020620	Water	02/06/20 15:43	02/08/20 09:35	

- 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: 240-126004-1

**Client Sample ID: TRIP BLANK**

**Lab Sample ID: 240-126004-1**

No Detections.

**Client Sample ID: MW-37\_020620**

**Lab Sample ID: 240-126004-2**

No Detections.

**Client Sample ID: MW-38\_020620**

**Lab Sample ID: 240-126004-3**

No Detections.

**Client Sample ID: MW-25\_020620**

**Lab Sample ID: 240-126004-4**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
1,4-Dioxane	5.7		2.0	0.86	ug/L	1			8260B SIM	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: 240-126004-1

**Client Sample ID: TRIP BLANK**

**Lab Sample ID: 240-126004-1**

**Date Collected: 02/06/20 00:00**

**Matrix: Water**

**Date Received: 02/08/20 09:35**

**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			02/12/20 18:17	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/12/20 18:17	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/12/20 18:17	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/12/20 18:17	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/12/20 18:17	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/12/20 18:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		75 - 130		02/12/20 18:17	1
4-Bromofluorobenzene (Surr)	104		47 - 134		02/12/20 18:17	1
Toluene-d8 (Surr)	99		69 - 122		02/12/20 18:17	1
Dibromofluoromethane (Surr)	86		78 - 129		02/12/20 18:17	1



# Client Sample Results

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

Job ID: 240-126004-1

**Client Sample ID: MW-37\_020620**

**Lab Sample ID: 240-126004-2**

Date Collected: 02/06/20 11:20

Matrix: Water

Date Received: 02/08/20 09:35

**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	-		02/11/20 21:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		70 - 133		02/11/20 21:54	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	-		02/12/20 18:42	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L	-		02/12/20 18:42	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L	-		02/12/20 18:42	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		02/12/20 18:42	1
Trichloroethene	1.0	U	1.0	0.10	ug/L	-		02/12/20 18:42	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L	-		02/12/20 18:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		75 - 130		02/12/20 18:42	1
4-Bromofluorobenzene (Surr)	102		47 - 134		02/12/20 18:42	1
Toluene-d8 (Surr)	97		69 - 122		02/12/20 18:42	1
Dibromofluoromethane (Surr)	88		78 - 129		02/12/20 18:42	1

# Client Sample Results

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

Job ID: 240-126004-1

**Client Sample ID: MW-38\_020620**

**Lab Sample ID: 240-126004-3**

Date Collected: 02/06/20 12:55

Matrix: Water

Date Received: 02/08/20 09:35

**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	-		02/12/20 19:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		70 - 133		02/12/20 19:19	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	-		02/12/20 19:07	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L	-		02/12/20 19:07	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L	-		02/12/20 19:07	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		02/12/20 19:07	1
Trichloroethene	1.0	U	1.0	0.10	ug/L	-		02/12/20 19:07	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L	-		02/12/20 19:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	75		75 - 130		02/12/20 19:07	1
4-Bromofluorobenzene (Surr)	105		47 - 134		02/12/20 19:07	1
Toluene-d8 (Surr)	94		69 - 122		02/12/20 19:07	1
Dibromofluoromethane (Surr)	85		78 - 129		02/12/20 19:07	1

# Client Sample Results

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

Job ID: 240-126004-1

**Client Sample ID: MW-25\_020620**

**Lab Sample ID: 240-126004-4**

Date Collected: 02/06/20 15:43

Matrix: Water

Date Received: 02/08/20 09:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	5.7		2.0	0.86	ug/L			02/12/20 20:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		70 - 133		02/12/20 20:36	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			02/13/20 19:26	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/13/20 19:26	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/13/20 19:26	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/13/20 19:26	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/13/20 19:26	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/13/20 19:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		75 - 130		02/13/20 19:26	1
4-Bromofluorobenzene (Surr)	108		47 - 134		02/13/20 19:26	1
Toluene-d8 (Surr)	97		69 - 122		02/13/20 19:26	1
Dibromofluoromethane (Surr)	85		78 - 129		02/13/20 19:26	1

# Surrogate Summary

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

Job ID: 240-126004-1

## 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)
240-126004-1	TRIP BLANK	93	104	99	86
240-126004-2	MW-37_020620	94	102	97	88
240-126004-3	MW-38_020620	75	105	94	85
240-126004-3 MS	MW-38-MS_020620	79	103	93	87
240-126004-3 MSD	MW-38-MSD_020620	78	107	93	89
240-126004-4	MW-25_020620	97	108	97	85
240-126004-4 MS	MW-25_020620	92	110	93	83
240-126004-4 MSD	MW-25_020620	87	103	93	88
LCS 240-422520/4	Lab Control Sample	94	100	95	87
LCS 240-422714/4	Lab Control Sample	94	104	91	90
MB 240-422520/7	Method Blank	93	103	96	88
MB 240-422714/7	Method Blank	95	107	95	91

#### 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)
240-125898-A-5 MS	Matrix Spike	98
240-125898-A-5 MSD	Matrix Spike Duplicate	99
240-126004-2	MW-37_020620	99
240-126004-3	MW-38_020620	99
240-126004-3 MS	MW-38-MS_020620	100
240-126004-3 MSD	MW-38-MSD_020620	100
240-126004-4	MW-25_020620	101
LCS 240-422331/4	Lab Control Sample	95
LCS 240-422563/4	Lab Control Sample	97
MB 240-422331/5	Method Blank	96
MB 240-422563/5	Method Blank	96

#### Surrogate Legend

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

# QC Sample Results

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

Job ID: 240-126004-1

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

**Lab Sample ID: MB 240-422520/7**  
**Matrix: Water**  
**Analysis Batch: 422520**

**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			02/12/20 16:38	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/12/20 16:38	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/12/20 16:38	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/12/20 16:38	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/12/20 16:38	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/12/20 16:38	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		75 - 130		02/12/20 16:38	1
4-Bromofluorobenzene (Surr)	103		47 - 134		02/12/20 16:38	1
Toluene-d8 (Surr)	96		69 - 122		02/12/20 16:38	1
Dibromofluoromethane (Surr)	88		78 - 129		02/12/20 16:38	1

**Lab Sample ID: LCS 240-422520/4**  
**Matrix: Water**  
**Analysis Batch: 422520**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	9.66		ug/L		97	73 - 129
cis-1,2-Dichloroethene	10.0	10.2		ug/L		102	75 - 124
Tetrachloroethene	10.0	9.32		ug/L		93	70 - 125
trans-1,2-Dichloroethene	10.0	10.1		ug/L		101	74 - 130
Trichloroethene	10.0	9.09		ug/L		91	71 - 121
Vinyl chloride	10.0	9.69		ug/L		97	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	94		75 - 130
4-Bromofluorobenzene (Surr)	100		47 - 134
Toluene-d8 (Surr)	95		69 - 122
Dibromofluoromethane (Surr)	87		78 - 129

**Lab Sample ID: 240-126004-3 MS**  
**Matrix: Water**  
**Analysis Batch: 422520**

**Client Sample ID: MW-38-MS\_020620**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U	10.0	9.19		ug/L		92	64 - 132
cis-1,2-Dichloroethene	1.0	U	10.0	9.76		ug/L		98	68 - 121
Tetrachloroethene	1.0	U	10.0	8.21		ug/L		82	52 - 129
trans-1,2-Dichloroethene	1.0	U	10.0	9.95		ug/L		100	69 - 126
Trichloroethene	1.0	U	10.0	8.18		ug/L		82	56 - 124
Vinyl chloride	1.0	U	10.0	10.2		ug/L		102	49 - 136

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	79		75 - 130
4-Bromofluorobenzene (Surr)	103		47 - 134
Toluene-d8 (Surr)	93		69 - 122

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# QC Sample Results

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

Job ID: 240-126004-1

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

**Lab Sample ID: 240-126004-3 MS**  
**Matrix: Water**  
**Analysis Batch: 422520**

**Client Sample ID: MW-38-MS\_020620**  
**Prep Type: Total/NA**

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	87		78 - 129

**Lab Sample ID: 240-126004-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 422520**

**Client Sample ID: MW-38-MSD\_020620**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	10.0	8.85		ug/L		88	64 - 132	4	35
cis-1,2-Dichloroethene	1.0	U	10.0	9.43		ug/L		94	68 - 121	3	35
Tetrachloroethene	1.0	U	10.0	8.42		ug/L		84	52 - 129	3	35
trans-1,2-Dichloroethene	1.0	U	10.0	9.14		ug/L		91	69 - 126	9	35
Trichloroethene	1.0	U	10.0	7.83		ug/L		78	56 - 124	4	35
Vinyl chloride	1.0	U	10.0	10.9		ug/L		109	49 - 136	6	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	78		75 - 130
4-Bromofluorobenzene (Surr)	107		47 - 134
Toluene-d8 (Surr)	93		69 - 122
Dibromofluoromethane (Surr)	89		78 - 129

**Lab Sample ID: MB 240-422714/7**  
**Matrix: Water**  
**Analysis Batch: 422714**

**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			02/13/20 19:01	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/13/20 19:01	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/13/20 19:01	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/13/20 19:01	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/13/20 19:01	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/13/20 19:01	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		75 - 130		02/13/20 19:01	1
4-Bromofluorobenzene (Surr)	107		47 - 134		02/13/20 19:01	1
Toluene-d8 (Surr)	95		69 - 122		02/13/20 19:01	1
Dibromofluoromethane (Surr)	91		78 - 129		02/13/20 19:01	1

**Lab Sample ID: LCS 240-422714/4**  
**Matrix: Water**  
**Analysis Batch: 422714**

**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	73 - 129
cis-1,2-Dichloroethene	10.0	10.3		ug/L		103	75 - 124
Tetrachloroethene	10.0	9.81		ug/L		98	70 - 125
trans-1,2-Dichloroethene	10.0	10.6		ug/L		106	74 - 130
Trichloroethene	10.0	9.46		ug/L		95	71 - 121

Eurofins TestAmerica, Canton

# QC Sample Results

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

Job ID: 240-126004-1

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

**Lab Sample ID: LCS 240-422714/4**  
**Matrix: Water**  
**Analysis Batch: 422714**

**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	9.91		ug/L		99	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	94		75 - 130
4-Bromofluorobenzene (Surr)	104		47 - 134
Toluene-d8 (Surr)	91		69 - 122
Dibromofluoromethane (Surr)	90		78 - 129

**Lab Sample ID: 240-126004-4 MS**  
**Matrix: Water**  
**Analysis Batch: 422714**

**Client Sample ID: MW-25\_020620**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U	10.0	9.64		ug/L		96	64 - 132
cis-1,2-Dichloroethene	1.0	U	10.0	9.89		ug/L		99	68 - 121
Tetrachloroethene	1.0	U	10.0	9.52		ug/L		95	52 - 129
trans-1,2-Dichloroethene	1.0	U	10.0	9.90		ug/L		99	69 - 126
Trichloroethene	1.0	U	10.0	8.96		ug/L		90	56 - 124
Vinyl chloride	1.0	U	10.0	11.3		ug/L		113	49 - 136

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	92		75 - 130
4-Bromofluorobenzene (Surr)	110		47 - 134
Toluene-d8 (Surr)	93		69 - 122
Dibromofluoromethane (Surr)	83		78 - 129

**Lab Sample ID: 240-126004-4 MSD**  
**Matrix: Water**  
**Analysis Batch: 422714**

**Client Sample ID: MW-25\_020620**  
**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	9.41		ug/L		94	64 - 132	2	35
cis-1,2-Dichloroethene	1.0	U	10.0	9.94		ug/L		99	68 - 121	0	35
Tetrachloroethene	1.0	U	10.0	8.31		ug/L		83	52 - 129	14	35
trans-1,2-Dichloroethene	1.0	U	10.0	9.91		ug/L		99	69 - 126	0	35
Trichloroethene	1.0	U	10.0	8.73		ug/L		87	56 - 124	3	35
Vinyl chloride	1.0	U	10.0	11.9		ug/L		119	49 - 136	5	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	87		75 - 130
4-Bromofluorobenzene (Surr)	103		47 - 134
Toluene-d8 (Surr)	93		69 - 122
Dibromofluoromethane (Surr)	88		78 - 129

# QC Sample Results

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

Job ID: 240-126004-1

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

**Lab Sample ID: MB 240-422331/5**  
**Matrix: Water**  
**Analysis Batch: 422331**

**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	-		02/11/20 12:04	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		70 - 133					02/11/20 12:04	1

**Lab Sample ID: LCS 240-422331/4**  
**Matrix: Water**  
**Analysis Batch: 422331**

**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	10.2		ug/L	-	102	80 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	95		70 - 133				

**Lab Sample ID: 240-125898-A-5 MS**  
**Matrix: Water**  
**Analysis Batch: 422331**

**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	9.37		ug/L	-	94	46 - 170
Surrogate	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	98		70 - 133						

**Lab Sample ID: 240-125898-A-5 MSD**  
**Matrix: Water**  
**Analysis Batch: 422331**

**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	9.61		ug/L	-	96	46 - 170	3	26
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	99		70 - 133								

**Lab Sample ID: MB 240-422563/5**  
**Matrix: Water**  
**Analysis Batch: 422563**

**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	-		02/12/20 14:10	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		70 - 133					02/12/20 14:10	1

Eurofins TestAmerica, Canton



# QC Sample Results

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

Job ID: 240-126004-1

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

**Lab Sample ID: LCS 240-422563/4**  
**Matrix: Water**  
**Analysis Batch: 422563**

**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	9.83		ug/L		98	80 - 135
<b>LCS LCS</b>							
Surrogate	%Recovery	Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	97		70 - 133				

**Lab Sample ID: 240-126004-3 MS**  
**Matrix: Water**  
**Analysis Batch: 422563**

**Client Sample ID: MW-38-MS\_020620**  
**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	9.76		ug/L		98	46 - 170
<b>MS MS</b>									
Surrogate	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	100		70 - 133						

**Lab Sample ID: 240-126004-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 422563**

**Client Sample ID: MW-38-MSD\_020620**  
**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	9.19		ug/L		92	46 - 170	6	26
<b>MSD MSD</b>											
Surrogate	%Recovery	Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	100		70 - 133								

# QC Association Summary

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

Job ID: 240-126004-1

## GC/MS VOA

### Analysis Batch: 422331

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-126004-2	MW-37_020620	Total/NA	Water	8260B SIM	
MB 240-422331/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-422331/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-125898-A-5 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-125898-A-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

### Analysis Batch: 422520

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-126004-1	TRIP BLANK	Total/NA	Water	8260B	
240-126004-2	MW-37_020620	Total/NA	Water	8260B	
240-126004-3	MW-38_020620	Total/NA	Water	8260B	
MB 240-422520/7	Method Blank	Total/NA	Water	8260B	
LCS 240-422520/4	Lab Control Sample	Total/NA	Water	8260B	
240-126004-3 MS	MW-38-MS_020620	Total/NA	Water	8260B	
240-126004-3 MSD	MW-38-MSD_020620	Total/NA	Water	8260B	

### Analysis Batch: 422563

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-126004-3	MW-38_020620	Total/NA	Water	8260B SIM	
240-126004-4	MW-25_020620	Total/NA	Water	8260B SIM	
MB 240-422563/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-422563/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-126004-3 MS	MW-38-MS_020620	Total/NA	Water	8260B SIM	
240-126004-3 MSD	MW-38-MSD_020620	Total/NA	Water	8260B SIM	

### Analysis Batch: 422714

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-126004-4	MW-25_020620	Total/NA	Water	8260B	
MB 240-422714/7	Method Blank	Total/NA	Water	8260B	
LCS 240-422714/4	Lab Control Sample	Total/NA	Water	8260B	
240-126004-4 MS	MW-25_020620	Total/NA	Water	8260B	
240-126004-4 MSD	MW-25_020620	Total/NA	Water	8260B	

# Lab Chronicle

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

Job ID: 240-126004-1

**Client Sample ID: TRIP BLANK**

**Lab Sample ID: 240-126004-1**

**Date Collected: 02/06/20 00:00**

**Matrix: Water**

**Date Received: 02/08/20 09:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	422520	02/12/20 18:17	LRW	TAL CAN

**Client Sample ID: MW-37\_020620**

**Lab Sample ID: 240-126004-2**

**Date Collected: 02/06/20 11:20**

**Matrix: Water**

**Date Received: 02/08/20 09:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	422520	02/12/20 18:42	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	422331	02/11/20 21:54	SAM	TAL CAN

**Client Sample ID: MW-38\_020620**

**Lab Sample ID: 240-126004-3**

**Date Collected: 02/06/20 12:55**

**Matrix: Water**

**Date Received: 02/08/20 09:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	422520	02/12/20 19:07	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	422563	02/12/20 19:19	SAM	TAL CAN

**Client Sample ID: MW-25\_020620**

**Lab Sample ID: 240-126004-4**

**Date Collected: 02/06/20 15:43**

**Matrix: Water**

**Date Received: 02/08/20 09:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	422714	02/13/20 19:26	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	422563	02/12/20 20:36	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: 240-126004-1

## 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	06-01-21
Kansas	NELAP	E-10336	04-30-20
Kentucky (UST)	State	112225	02-23-20
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	03-31-20
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	01-12-21
West Virginia DEP	State	210	12-31-20

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Chain of Custody Record

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

Regulatory program:  DW  NPDES  RCRA  Other

Client Project Manager: Kris Hinskey  
 Telephone: 248-994-2240  
 Email: kristoffer.hinskey@arcadis.com

Company Name: Arcadis  
 Address: 28550 Cabot Drive, Suite 500  
 City/State/Zip: Novi, MI, 48377

Lab Contact: Mike DeMonico  
 Telephone: 330-497-9396

Project Name: Ford LTP On-Site  
 Project Number: 30042006.0401.02  
 PO # 30042006.0401.02

Sampler Name: Kara Donahue  
 Method of Shipment/Carrier:  
 Shipping/Tracking No:

Sample Identification	Sample Date	Sample Time	Matrix				Containers & Preservatives				Filtered Sample (Y/N)	Composite C/Grab G	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	Sample Specific Notes / Special Instructions:
			Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl										
TRIP BLANK	---	---	X																	1 VOA
MW-37-020620	2/6/20	1120	X																	3 VOA for 8260 B 3 VOA for 8260 BSA
MW-38-020620	2/6/20	1255	X																	18 VOA Gox
MW-38-MS-020620	2/6/20	1255	X																	MS/MSD
MW-38-MSD-020620	2/6/20	1255	X																	9 for 8260 B 9 for 8260 BSA
MW-25-020620	2/6/20	1543	X																	3 VOA for 8260 B 3 VOA for 8260 BSA



240-126004 Chain of Custody

Possible Hazard Identification:  Non-Hazard  Flammable  Irritant  Poison B  Unknown

Special Instructions/QC Requirements & Comments:  
 Submit all results through Cadena at jomalisa@cadenaco.com. Cadena #E203728  
 Level IV Reporting requested.

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Kara Donahue	Arcadis	2/6/20 1650	Michael Watson	Arcadis	2/6/20 1650
Michael Watson	Arcadis	2/6/20 1820	Arcadis Cold Storage	Arcadis	2/6/20 1820
Kara Donahue	Arcadis	2/7/20 1030	Molly Haxson	ETAL-MI	2/7/20 1030

2-8-20 985  
 ETAL-MI  
 BTRC


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

Login # : 126004

Client Arcadis of Michigan Site Name \_\_\_\_\_ Cooler unpacked by: [Signature]  
 Cooler Received on 2-8-20 Opened on 2-8-20  
 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 # TA 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. 2.7°C Corrected Cooler Temp. 3.4 °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 7 Yes No  
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA  
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No  
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC995364
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? Yes No NA  ← Larger than this.
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: MS  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

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