

## ANALYTICAL REPORT

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

Laboratory Job ID: 240-139620-1  
Client Project/Site: Ford LTP - Off Site

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

Attn: Kristoffer Hinskey



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Authorized for release by:  
11/19/2020 9:47:17 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 - Off Site

Job ID: 240-139620-1

## 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.
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
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 - Off Site

Job ID: 240-139620-1

**Job ID: 240-139620-1**

**Laboratory: Eurofins TestAmerica, Canton**

**Narrative**

## CASE NARRATIVE

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

**Project: Ford LTP - Off Site**

**Report Number: 240-139620-1**

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 11/5/2020 9:20 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.1° C.

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

Samples TRIP BLANK (240-139620-1), MW-82D\_110320 (240-139620-2), MW-82SR\_110320 (240-139620-3), MW-81\_110320 (240-139620-4) and MW-81S\_110320 (240-139620-5) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/12/2020 and 11/15/2020.

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-82D\_110320 (240-139620-2), MW-82SR\_110320 (240-139620-3), MW-81\_110320 (240-139620-4) and MW-81S\_110320 (240-139620-5) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 11/10/2020.

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 - Off Site

Job ID: 240-139620-1

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 - Off Site

Job ID: 240-139620-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-139620-1	TRIP BLANK	Water	11/03/20 00:00	11/05/20 09:20	
240-139620-2	MW-82D_110320	Water	11/03/20 11:30	11/05/20 09:20	
240-139620-3	MW-82SR_110320	Water	11/03/20 12:30	11/05/20 09:20	
240-139620-4	MW-81_110320	Water	11/03/20 14:30	11/05/20 09:20	
240-139620-5	MW-81S_110320	Water	11/03/20 15:25	11/05/20 09:20	

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# Detection Summary

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

Job ID: 240-139620-1

## Client Sample ID: TRIP BLANK

Lab Sample ID: 240-139620-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	0.21	J	1.0	0.20	ug/L	1		8260B	Total/NA

## Client Sample ID: MW-82D\_110320

Lab Sample ID: 240-139620-2

No Detections.

## Client Sample ID: MW-82SR\_110320

Lab Sample ID: 240-139620-3

No Detections.

## Client Sample ID: MW-81\_110320

Lab Sample ID: 240-139620-4

No Detections.

## Client Sample ID: MW-81S\_110320

Lab Sample ID: 240-139620-5

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

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# Client Sample Results

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

Job ID: 240-139620-1

**Client Sample ID: TRIP BLANK**

**Lab Sample ID: 240-139620-1**

**Date Collected: 11/03/20 00:00**

**Matrix: Water**

**Date Received: 11/05/20 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			11/12/20 06:38	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/12/20 06:38	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/12/20 06:38	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/12/20 06:38	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/12/20 06:38	1
<b>Vinyl chloride</b>	<b>0.21</b>	<b>J</b>	1.0	0.20	ug/L			11/12/20 06:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		75 - 130		11/12/20 06:38	1
4-Bromofluorobenzene (Surr)	76		47 - 134		11/12/20 06:38	1
Toluene-d8 (Surr)	94		69 - 122		11/12/20 06:38	1
Dibromofluoromethane (Surr)	89		78 - 129		11/12/20 06:38	1



# Client Sample Results

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

Job ID: 240-139620-1

**Client Sample ID: MW-82D\_110320**

**Lab Sample ID: 240-139620-2**

Date Collected: 11/03/20 11:30

Matrix: Water

Date Received: 11/05/20 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			11/10/20 19:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		70 - 133		11/10/20 19:15	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			11/12/20 07:00	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/12/20 07:00	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/12/20 07:00	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/12/20 07:00	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/12/20 07:00	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/12/20 07:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		75 - 130		11/12/20 07:00	1
4-Bromofluorobenzene (Surr)	74		47 - 134		11/12/20 07:00	1
Toluene-d8 (Surr)	93		69 - 122		11/12/20 07:00	1
Dibromofluoromethane (Surr)	88		78 - 129		11/12/20 07:00	1

# Client Sample Results

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

Job ID: 240-139620-1

**Client Sample ID: MW-82SR\_110320**

**Lab Sample ID: 240-139620-3**

Date Collected: 11/03/20 12:30

Matrix: Water

Date Received: 11/05/20 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			11/10/20 19:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		70 - 133					11/10/20 19:40	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			11/15/20 12:59	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/15/20 12:59	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/15/20 12:59	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/15/20 12:59	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/15/20 12:59	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/15/20 12:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		75 - 130					11/15/20 12:59	1
4-Bromofluorobenzene (Surr)	85		47 - 134					11/15/20 12:59	1
Toluene-d8 (Surr)	95		69 - 122					11/15/20 12:59	1
Dibromofluoromethane (Surr)	79		78 - 129					11/15/20 12:59	1

# Client Sample Results

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

Job ID: 240-139620-1

**Client Sample ID: MW-81\_110320**

**Lab Sample ID: 240-139620-4**

Date Collected: 11/03/20 14:30

Matrix: Water

Date Received: 11/05/20 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			11/10/20 20:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		70 - 133		11/10/20 20:06	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			11/15/20 13:21	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/15/20 13:21	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/15/20 13:21	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/15/20 13:21	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/15/20 13:21	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/15/20 13:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		75 - 130		11/15/20 13:21	1
4-Bromofluorobenzene (Surr)	83		47 - 134		11/15/20 13:21	1
Toluene-d8 (Surr)	95		69 - 122		11/15/20 13:21	1
Dibromofluoromethane (Surr)	81		78 - 129		11/15/20 13:21	1

# Client Sample Results

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

Job ID: 240-139620-1

**Client Sample ID: MW-81S\_110320**

**Lab Sample ID: 240-139620-5**

Date Collected: 11/03/20 15:25

Matrix: Water

Date Received: 11/05/20 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			11/10/20 20:30	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		70 - 133					11/10/20 20:30	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			11/15/20 13:43	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/15/20 13:43	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/15/20 13:43	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/15/20 13:43	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/15/20 13:43	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/15/20 13:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		75 - 130					11/15/20 13:43	1
4-Bromofluorobenzene (Surr)	85		47 - 134					11/15/20 13:43	1
Toluene-d8 (Surr)	96		69 - 122					11/15/20 13:43	1
Dibromofluoromethane (Surr)	81		78 - 129					11/15/20 13:43	1

# Surrogate Summary

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

Job ID: 240-139620-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-139618-D-3 MS	Matrix Spike	95	100	103	81
240-139618-D-3 MSD	Matrix Spike Duplicate	94	99	103	81
240-139620-1	TRIP BLANK	110	76	94	89
240-139620-2	MW-82D_110320	108	74	93	88
240-139620-3	MW-82SR_110320	100	85	95	79
240-139620-4	MW-81_110320	102	83	95	81
240-139620-5	MW-81S_110320	102	85	96	81
240-139671-B-2 MS	Matrix Spike	92	102	100	78
240-139671-B-2 MSD	Matrix Spike Duplicate	93	104	104	79
LCS 240-460439/4	Lab Control Sample	91	100	104	80
LCS 240-461048/4	Lab Control Sample	93	104	103	80
MB 240-460439/7	Method Blank	105	78	95	85
MB 240-461048/7	Method Blank	102	82	94	81

### 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

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		DCA (70-133)
240-139618-A-4 MS	Matrix Spike	105
240-139618-A-4 MSD	Matrix Spike Duplicate	109
240-139620-2	MW-82D_110320	106
240-139620-3	MW-82SR_110320	106
240-139620-4	MW-81_110320	106
240-139620-5	MW-81S_110320	106
LCS 240-460152/4	Lab Control Sample	106
MB 240-460152/5	Method Blank	104

### Surrogate Legend

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

# QC Sample Results

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

Job ID: 240-139620-1

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

**Lab Sample ID: MB 240-460439/7**  
**Matrix: Water**  
**Analysis Batch: 460439**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/11/20 23:22	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/11/20 23:22	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/11/20 23:22	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/11/20 23:22	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/11/20 23:22	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/11/20 23:22	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	105		75 - 130		11/11/20 23:22	1
4-Bromofluorobenzene (Surr)	78		47 - 134		11/11/20 23:22	1
Toluene-d8 (Surr)	95		69 - 122		11/11/20 23:22	1
Dibromofluoromethane (Surr)	85		78 - 129		11/11/20 23:22	1

**Lab Sample ID: LCS 240-460439/4**  
**Matrix: Water**  
**Analysis Batch: 460439**

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

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
1,1-Dichloroethene	10.0	9.42		ug/L		94	73 - 129
cis-1,2-Dichloroethene	10.0	9.79		ug/L		98	75 - 124
Tetrachloroethene	10.0	9.66		ug/L		97	70 - 125
trans-1,2-Dichloroethene	10.0	9.77		ug/L		98	74 - 130
Trichloroethene	10.0	8.03		ug/L		80	71 - 121
Vinyl chloride	10.0	9.49		ug/L		95	61 - 134

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	91		75 - 130
4-Bromofluorobenzene (Surr)	100		47 - 134
Toluene-d8 (Surr)	104		69 - 122
Dibromofluoromethane (Surr)	80		78 - 129

**Lab Sample ID: 240-139618-D-3 MS**  
**Matrix: Water**  
**Analysis Batch: 460439**

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

Analyte	Sample Sample		Spike Added	MS MS		Unit	D	%Rec	%Rec. Limits
	Result	Qualifier		Result	Qualifier				
1,1-Dichloroethene	4.0	U	40.0	27.0		ug/L		67	64 - 132
cis-1,2-Dichloroethene	13		40.0	45.6		ug/L		80	68 - 121
Tetrachloroethene	4.0	U	40.0	27.8		ug/L		69	52 - 129
trans-1,2-Dichloroethene	2.6	J	40.0	35.2		ug/L		81	69 - 126
Trichloroethene	4.0	U	40.0	25.0		ug/L		62	56 - 124
Vinyl chloride	130	F1	40.0	132	F1	ug/L		11	49 - 136

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	95		75 - 130
4-Bromofluorobenzene (Surr)	100		47 - 134
Toluene-d8 (Surr)	103		69 - 122

# QC Sample Results

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

Job ID: 240-139620-1

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

**Lab Sample ID: 240-139618-D-3 MS**  
**Matrix: Water**  
**Analysis Batch: 460439**

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

<i>Surrogate</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
<i>Dibromofluoromethane (Surr)</i>	81		78 - 129

**Lab Sample ID: 240-139618-D-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 460439**

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

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
1,1-Dichloroethene	4.0	U	40.0	31.3		ug/L		78	64 - 132	15	35
cis-1,2-Dichloroethene	13		40.0	47.0		ug/L		84	68 - 121	3	35
Tetrachloroethene	4.0	U	40.0	30.1		ug/L		75	52 - 129	8	35
trans-1,2-Dichloroethene	2.6	J	40.0	36.6		ug/L		85	69 - 126	4	35
Trichloroethene	4.0	U	40.0	26.9		ug/L		67	56 - 124	8	35
Vinyl chloride	130	F1	40.0	137	F1	ug/L		25	49 - 136	4	35

  

<i>Surrogate</i>	<i>%Recovery</i>	<i>MSD MSD Qualifier</i>	<i>Limits</i>
<i>1,2-Dichloroethane-d4 (Surr)</i>	94		75 - 130
<i>4-Bromofluorobenzene (Surr)</i>	99		47 - 134
<i>Toluene-d8 (Surr)</i>	103		69 - 122
<i>Dibromofluoromethane (Surr)</i>	81		78 - 129

**Lab Sample ID: MB 240-461048/7**  
**Matrix: Water**  
**Analysis Batch: 461048**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

<i>Analyte</i>	<i>MB Result</i>	<i>MB Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/15/20 10:05	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/15/20 10:05	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/15/20 10:05	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/15/20 10:05	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/15/20 10:05	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/15/20 10:05	1

  

<i>Surrogate</i>	<i>%Recovery</i>	<i>MB MB Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>1,2-Dichloroethane-d4 (Surr)</i>	102		75 - 130		11/15/20 10:05	1
<i>4-Bromofluorobenzene (Surr)</i>	82		47 - 134		11/15/20 10:05	1
<i>Toluene-d8 (Surr)</i>	94		69 - 122		11/15/20 10:05	1
<i>Dibromofluoromethane (Surr)</i>	81		78 - 129		11/15/20 10:05	1

**Lab Sample ID: LCS 240-461048/4**  
**Matrix: Water**  
**Analysis Batch: 461048**

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

<i>Analyte</i>	<i>Spike Added</i>	<i>LCS Result</i>	<i>LCS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. Limits</i>
1,1-Dichloroethene	10.0	8.14		ug/L		81	73 - 129
cis-1,2-Dichloroethene	10.0	9.37		ug/L		94	75 - 124
Tetrachloroethene	10.0	8.23		ug/L		82	70 - 125
trans-1,2-Dichloroethene	10.0	9.11		ug/L		91	74 - 130
Trichloroethene	10.0	7.44		ug/L		74	71 - 121

Eurofins TestAmerica, Canton

# QC Sample Results

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

Job ID: 240-139620-1

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

**Lab Sample ID: LCS 240-461048/4**  
**Matrix: Water**  
**Analysis Batch: 461048**

**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	9.09		ug/L		91	61 - 134
<b>Surrogate</b>							
	<b>LCS %Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
1,2-Dichloroethane-d4 (Surr)	93		75 - 130				
4-Bromofluorobenzene (Surr)	104		47 - 134				
Toluene-d8 (Surr)	103		69 - 122				
Dibromofluoromethane (Surr)	80		78 - 129				

**Lab Sample ID: 240-139671-B-2 MS**  
**Matrix: Water**  
**Analysis Batch: 461048**

**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	10	U	100	81.5		ug/L		82	64 - 132
cis-1,2-Dichloroethene	200		100	275		ug/L		72	68 - 121
Tetrachloroethene	10	U	100	77.5		ug/L		78	52 - 129
trans-1,2-Dichloroethene	7.1	J	100	94.7		ug/L		88	69 - 126
Trichloroethene	10	U	100	69.5		ug/L		69	56 - 124
Vinyl chloride	9.1	J	100	110		ug/L		101	49 - 136
<b>Surrogate</b>									
	<b>MS %Recovery</b>	<b>MS Qualifier</b>	<b>Limits</b>						
1,2-Dichloroethane-d4 (Surr)	92		75 - 130						
4-Bromofluorobenzene (Surr)	102		47 - 134						
Toluene-d8 (Surr)	100		69 - 122						
Dibromofluoromethane (Surr)	78		78 - 129						

**Lab Sample ID: 240-139671-B-2 MSD**  
**Matrix: Water**  
**Analysis Batch: 461048**

**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	10	U	100	84.1		ug/L		84	64 - 132	3	35
cis-1,2-Dichloroethene	200		100	281		ug/L		78	68 - 121	2	35
Tetrachloroethene	10	U	100	78.9		ug/L		79	52 - 129	2	35
trans-1,2-Dichloroethene	7.1	J	100	98.8		ug/L		92	69 - 126	4	35
Trichloroethene	10	U	100	71.6		ug/L		72	56 - 124	3	35
Vinyl chloride	9.1	J	100	112		ug/L		103	49 - 136	2	35
<b>Surrogate</b>											
	<b>MSD %Recovery</b>	<b>MSD Qualifier</b>	<b>Limits</b>								
1,2-Dichloroethane-d4 (Surr)	93		75 - 130								
4-Bromofluorobenzene (Surr)	104		47 - 134								
Toluene-d8 (Surr)	104		69 - 122								
Dibromofluoromethane (Surr)	79		78 - 129								



# QC Sample Results

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

Job ID: 240-139620-1

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

**Lab Sample ID: MB 240-460152/5**  
**Matrix: Water**  
**Analysis Batch: 460152**

**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			11/10/20 13:04	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		70 - 133					11/10/20 13:04	1

**Lab Sample ID: LCS 240-460152/4**  
**Matrix: Water**  
**Analysis Batch: 460152**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	11.1		ug/L		111	80 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	106		70 - 133				

**Lab Sample ID: 240-139618-A-4 MS**  
**Matrix: Water**  
**Analysis Batch: 460152**

**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	1.7	J	10.0	12.3		ug/L		106	46 - 170
Surrogate	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	105		70 - 133						

**Lab Sample ID: 240-139618-A-4 MSD**  
**Matrix: Water**  
**Analysis Batch: 460152**

**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	Limit
1,4-Dioxane	1.7	J	10.0	12.5		ug/L		108	46 - 170	1	26
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	109		70 - 133								

# QC Association Summary

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

Job ID: 240-139620-1

## GC/MS VOA

### Analysis Batch: 460152

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-139620-2	MW-82D_110320	Total/NA	Water	8260B SIM	
240-139620-3	MW-82SR_110320	Total/NA	Water	8260B SIM	
240-139620-4	MW-81_110320	Total/NA	Water	8260B SIM	
240-139620-5	MW-81S_110320	Total/NA	Water	8260B SIM	
MB 240-460152/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-460152/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-139618-A-4 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-139618-A-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

### Analysis Batch: 460439

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-139620-1	TRIP BLANK	Total/NA	Water	8260B	
240-139620-2	MW-82D_110320	Total/NA	Water	8260B	
MB 240-460439/7	Method Blank	Total/NA	Water	8260B	
LCS 240-460439/4	Lab Control Sample	Total/NA	Water	8260B	
240-139618-D-3 MS	Matrix Spike	Total/NA	Water	8260B	
240-139618-D-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

### Analysis Batch: 461048

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-139620-3	MW-82SR_110320	Total/NA	Water	8260B	
240-139620-4	MW-81_110320	Total/NA	Water	8260B	
240-139620-5	MW-81S_110320	Total/NA	Water	8260B	
MB 240-461048/7	Method Blank	Total/NA	Water	8260B	
LCS 240-461048/4	Lab Control Sample	Total/NA	Water	8260B	
240-139671-B-2 MS	Matrix Spike	Total/NA	Water	8260B	
240-139671-B-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

# Lab Chronicle

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

Job ID: 240-139620-1

## Client Sample ID: TRIP BLANK

Lab Sample ID: 240-139620-1

Date Collected: 11/03/20 00:00

Matrix: Water

Date Received: 11/05/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	460439	11/12/20 06:38	LEE	TAL CAN

## Client Sample ID: MW-82D\_110320

Lab Sample ID: 240-139620-2

Date Collected: 11/03/20 11:30

Matrix: Water

Date Received: 11/05/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	460439	11/12/20 07:00	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	460152	11/10/20 19:15	SAM	TAL CAN

## Client Sample ID: MW-82SR\_110320

Lab Sample ID: 240-139620-3

Date Collected: 11/03/20 12:30

Matrix: Water

Date Received: 11/05/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	461048	11/15/20 12:59	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	460152	11/10/20 19:40	SAM	TAL CAN

## Client Sample ID: MW-81\_110320

Lab Sample ID: 240-139620-4

Date Collected: 11/03/20 14:30

Matrix: Water

Date Received: 11/05/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	461048	11/15/20 13:21	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	460152	11/10/20 20:06	SAM	TAL CAN

## Client Sample ID: MW-81S\_110320

Lab Sample ID: 240-139620-5

Date Collected: 11/03/20 15:25

Matrix: Water

Date Received: 11/05/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	461048	11/15/20 13:43	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	460152	11/10/20 20:30	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 - Off Site

Job ID: 240-139620-1

## 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	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-21
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	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-21
Texas	NELAP	T104704517-18-10	08-31-21
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-21
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20



<b>Eurofins TestAmerica Canton Sample Receipt Form/Narrative</b>		Login # : <u>139620</u>
<b>Canton Facility</b>		
Client <u>Arcadis</u>	Site Name _____	Cooler unpacked by: <u>Matt Snyder</u>
Cooler Received on <u>11-5-20</u>	Opened on <u>11-5-20</u>	
FedEx: 1 <sup>st</sup> <input checked="" type="radio"/> Grd <input type="radio"/> Exp    UPS    FAS    Clipper    Client Drop Off    TestAmerica Courier    Other _____		
<b>Receipt After-hours: Drop-off Date/Time</b>		<b>Storage Location</b>
TestAmerica Cooler # <u>TA</u>	Foam Box _____	Client Cooler _____
Packing material used: <u>Bubble Wrap</u>	Foam _____	Plastic Bag _____
COOLANT: <u>Wet Ice</u>	Blue Ice _____	Dry Ice _____
	Water _____	None _____
<input type="checkbox"/> See Multiple Cooler Form		
1. Cooler temperature upon receipt	IR GUN# IR-11 (CF +0.9 °C) Observed Cooler Temp. <u>0.2</u> °C Corrected Cooler Temp. <u>1.1</u> °C	IR GUN #IR-12 (CF +0.5 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity <u>1</u>	<input checked="" type="radio"/> Yes <input type="radio"/> No	<b>Tests that are not checked for pH by Receiving:</b>  VOAs Oil and Grease TOC
-Were the seals on the outside of the cooler(s) signed & dated?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA	
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA	
-Were tamper/custody seals intact and uncompromised?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA	
3. Shippers' packing slip attached to the cooler(s)?	<input checked="" type="radio"/> Yes <input type="radio"/> No	
4. Did custody papers accompany the sample(s)?	<input checked="" type="radio"/> Yes <input type="radio"/> No	
5. Were the custody papers relinquished & signed in the appropriate place?	<input checked="" type="radio"/> Yes <input type="radio"/> No	
6. Was/were the person(s) who collected the samples clearly identified on the COC?	<input checked="" type="radio"/> Yes <input type="radio"/> No	
7. Did all bottles arrive in good condition (Unbroken)?	<input checked="" type="radio"/> Yes <input type="radio"/> No	
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC?	<input checked="" type="radio"/> Yes <input type="radio"/> No	
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?	<input checked="" type="radio"/> Yes <input type="radio"/> No	
10. Were correct bottle(s) used for the test(s) indicated?	<input checked="" type="radio"/> Yes <input type="radio"/> No	
11. Sufficient quantity received to perform indicated analyses?	<input checked="" type="radio"/> Yes <input type="radio"/> No	
12. Are these work share samples and all listed on the COC?	<input checked="" type="radio"/> Yes <input type="radio"/> No	
If yes, Questions 13-17 have been checked at the originating laboratory.		
13. Were all preserved sample(s) at the correct pH upon receipt?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> NA	pH Strip Lot# <u>HC907861</u>
14. Were VOAs on the COC?	<input checked="" type="radio"/> Yes <input type="radio"/> No	
15. Were air bubbles >6 mm in any VOA vials?  Larger than this.	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA	
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____	<input checked="" type="radio"/> Yes <input type="radio"/> No	
17. Was a LL Hg or Me Hg trip blank present? _____	<input checked="" type="radio"/> Yes <input type="radio"/> No	
Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____		
Concerning _____		

<b>18. CHAIN OF CUSTODY &amp; SAMPLE DISCREPANCIES</b> <input type="checkbox"/> additional next page	Samples processed by: _____
_____ _____ _____ _____	

<b>19. SAMPLE CONDITION</b>
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)

<b>20. SAMPLE PRESERVATION</b>
Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____
VOA Sample Preservation - Date/Time VOAs Frozen: _____