

 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Kristoffer Hinskey  
ARCADIS U.S., Inc.  
28550 Cabot Drive  
Suite 500  
Novi Michigan 48377

Generated 11/16/2022 3:05:57 PM

**JOB DESCRIPTION**

Ford LTP - On Site

**JOB NUMBER**

240-175777-1



# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	2
Definitions/Glossary . . . . .	3
Case Narrative . . . . .	4
Method Summary . . . . .	5
Sample Summary . . . . .	6
Detection Summary . . . . .	7
Client Sample Results . . . . .	8
Surrogate Summary . . . . .	13
QC Sample Results . . . . .	14
QC Association Summary . . . . .	17
Lab Chronicle . . . . .	18
Certification Summary . . . . .	19
Chain of Custody . . . . .	20
Appendix . . . . .	23

# Definitions/Glossary

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

Job ID: 240-175777-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.
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 - On Site

Job ID: 240-175777-1

---

**Job ID: 240-175777-1**

---

**Laboratory: Eurofins Canton**

---

**Narrative**

**Job Narrative  
240-175777-1**

**Receipt**

The samples were received on 11/3/2022 9:45 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.8°C and 1.3°C

**GC/MS VOA**

Method 8260D\_SIM: Surrogate recovery for the following samples was outside control limits: MW-23\_110122 (240-175777-3). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8260D\_SIM: The following volatiles samples were diluted due to foaming at the time of purging during the original sample analysis: MW-29\_110122 (240-175777-4) and DUP-01 (240-175777-5). Elevated reporting limits (RLs) are provided.

No additional 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: 240-175777-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CAN
8260D SIM	Volatile Organic Compounds (GC/MS)	SW846	EET CAN
5030C	Purge and Trap	SW846	EET CAN

**Protocol References:**

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

# Sample Summary

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

Job ID: 240-175777-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-175777-1	TRIP BLANK_36	Water	11/01/22 00:00	11/03/22 09:45
240-175777-2	MW-22_110122	Water	11/01/22 10:50	11/03/22 09:45
240-175777-3	MW-23_110122	Water	11/01/22 12:05	11/03/22 09:45
240-175777-4	MW-29_110122	Water	11/01/22 13:05	11/03/22 09:45
240-175777-5	DUP-01	Water	11/01/22 00:00	11/03/22 09:45

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

# Detection Summary

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

Job ID: 240-175777-1

## Client Sample ID: TRIP BLANK\_36

Lab Sample ID: 240-175777-1

No Detections.

## Client Sample ID: MW-22\_110122

Lab Sample ID: 240-175777-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	53		2.0	0.86	ug/L	1		8260D SIM	Total/NA
Vinyl chloride	1400		40	18	ug/L	40		8260D	Total/NA

## Client Sample ID: MW-23\_110122

Lab Sample ID: 240-175777-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	13000		330	150	ug/L	333.33		8260D	Total/NA
trans-1,2-Dichloroethene	430		330	170	ug/L	333.33		8260D	Total/NA
Trichloroethene	700		330	150	ug/L	333.33		8260D	Total/NA
Vinyl chloride	570		330	150	ug/L	333.33		8260D	Total/NA

## Client Sample ID: MW-29\_110122

Lab Sample ID: 240-175777-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	9.9		4.0	1.7	ug/L	2		8260D SIM	Total/NA
cis-1,2-Dichloroethene	13		1.0	0.46	ug/L	1		8260D	Total/NA
trans-1,2-Dichloroethene	0.53	J	1.0	0.51	ug/L	1		8260D	Total/NA
Trichloroethene	0.58	J	1.0	0.44	ug/L	1		8260D	Total/NA
Vinyl chloride	2.8		1.0	0.45	ug/L	1		8260D	Total/NA

## Client Sample ID: DUP-01

Lab Sample ID: 240-175777-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	9.5		4.0	1.7	ug/L	2		8260D SIM	Total/NA
cis-1,2-Dichloroethene	12		1.0	0.46	ug/L	1		8260D	Total/NA
Trichloroethene	0.50	J	1.0	0.44	ug/L	1		8260D	Total/NA
Vinyl chloride	2.5		1.0	0.45	ug/L	1		8260D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

# Client Sample Results

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

Job ID: 240-175777-1

**Client Sample ID: TRIP BLANK\_36**

**Lab Sample ID: 240-175777-1**

**Date Collected: 11/01/22 00:00**

**Matrix: Water**

**Date Received: 11/03/22 09:45**

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/10/22 17:39	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/10/22 17:39	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/10/22 17:39	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/10/22 17:39	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/10/22 17:39	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/10/22 17:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		62 - 137		11/10/22 17:39	1
4-Bromofluorobenzene (Surr)	101		56 - 136		11/10/22 17:39	1
Toluene-d8 (Surr)	97		78 - 122		11/10/22 17:39	1
Dibromofluoromethane (Surr)	95		73 - 120		11/10/22 17:39	1



# Client Sample Results

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

Job ID: 240-175777-1

**Client Sample ID: MW-22\_110122**

**Lab Sample ID: 240-175777-2**

Date Collected: 11/01/22 10:50

Matrix: Water

Date Received: 11/03/22 09:45

**Method: SW846 8260D SIM - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	53		2.0	0.86	ug/L			11/11/22 19:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		66 - 120		11/11/22 19:36	1

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	40	U	40	20	ug/L			11/10/22 18:04	40
cis-1,2-Dichloroethene	40	U	40	18	ug/L			11/10/22 18:04	40
Tetrachloroethene	40	U	40	18	ug/L			11/10/22 18:04	40
trans-1,2-Dichloroethene	40	U	40	20	ug/L			11/10/22 18:04	40
Trichloroethene	40	U	40	18	ug/L			11/10/22 18:04	40
Vinyl chloride	1400		40	18	ug/L			11/10/22 18:04	40

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		62 - 137		11/10/22 18:04	40
4-Bromofluorobenzene (Surr)	104		56 - 136		11/10/22 18:04	40
Toluene-d8 (Surr)	100		78 - 122		11/10/22 18:04	40
Dibromofluoromethane (Surr)	98		73 - 120		11/10/22 18:04	40

# Client Sample Results

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

Job ID: 240-175777-1

**Client Sample ID: MW-23\_110122**

**Lab Sample ID: 240-175777-3**

Date Collected: 11/01/22 12:05

Matrix: Water

Date Received: 11/03/22 09:45

**Method: SW846 8260D 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			11/11/22 20:01	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	155	S1+	66 - 120					11/11/22 20:01	1

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	330	U	330	160	ug/L			11/10/22 18:28	333.33
<b>cis-1,2-Dichloroethene</b>	<b>13000</b>		330	150	ug/L			11/10/22 18:28	333.33
Tetrachloroethene	330	U	330	150	ug/L			11/10/22 18:28	333.33
<b>trans-1,2-Dichloroethene</b>	<b>430</b>		330	170	ug/L			11/10/22 18:28	333.33
<b>Trichloroethene</b>	<b>700</b>		330	150	ug/L			11/10/22 18:28	333.33
<b>Vinyl chloride</b>	<b>570</b>		330	150	ug/L			11/10/22 18:28	333.33
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	93		62 - 137					11/10/22 18:28	333.33
4-Bromofluorobenzene (Surr)	105		56 - 136					11/10/22 18:28	333.33
Toluene-d8 (Surr)	101		78 - 122					11/10/22 18:28	333.33
Dibromofluoromethane (Surr)	98		73 - 120					11/10/22 18:28	333.33

# Client Sample Results

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

Job ID: 240-175777-1

**Client Sample ID: MW-29\_110122**

**Lab Sample ID: 240-175777-4**

Date Collected: 11/01/22 13:05

Matrix: Water

Date Received: 11/03/22 09:45

**Method: SW846 8260D SIM - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	9.9		4.0	1.7	ug/L			11/11/22 20:25	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		66 - 120		11/11/22 20:25	2

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/10/22 18:53	1
cis-1,2-Dichloroethene	13		1.0	0.46	ug/L			11/10/22 18:53	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/10/22 18:53	1
trans-1,2-Dichloroethene	0.53	J	1.0	0.51	ug/L			11/10/22 18:53	1
Trichloroethene	0.58	J	1.0	0.44	ug/L			11/10/22 18:53	1
Vinyl chloride	2.8		1.0	0.45	ug/L			11/10/22 18:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		62 - 137		11/10/22 18:53	1
4-Bromofluorobenzene (Surr)	103		56 - 136		11/10/22 18:53	1
Toluene-d8 (Surr)	100		78 - 122		11/10/22 18:53	1
Dibromofluoromethane (Surr)	96		73 - 120		11/10/22 18:53	1

# Client Sample Results

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

Job ID: 240-175777-1

**Client Sample ID: DUP-01**

**Lab Sample ID: 240-175777-5**

Date Collected: 11/01/22 00:00

Matrix: Water

Date Received: 11/03/22 09:45

**Method: SW846 8260D SIM - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	9.5		4.0	1.7	ug/L			11/11/22 20:50	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		66 - 120		11/11/22 20:50	2

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/10/22 19:17	1
cis-1,2-Dichloroethene	12		1.0	0.46	ug/L			11/10/22 19:17	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/10/22 19:17	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/10/22 19:17	1
Trichloroethene	0.50	J	1.0	0.44	ug/L			11/10/22 19:17	1
Vinyl chloride	2.5		1.0	0.45	ug/L			11/10/22 19:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		62 - 137		11/10/22 19:17	1
4-Bromofluorobenzene (Surr)	102		56 - 136		11/10/22 19:17	1
Toluene-d8 (Surr)	98		78 - 122		11/10/22 19:17	1
Dibromofluoromethane (Surr)	97		73 - 120		11/10/22 19:17	1

# Surrogate Summary

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

Job ID: 240-175777-1

## Method: 8260D - Volatile Organic Compounds by 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 (62-137)	BFB (56-136)	TOL (78-122)	DBFM (73-120)
240-175777-1	TRIP BLANK_36	92	101	97	95
240-175777-2	MW-22_110122	94	104	100	98
240-175777-3	MW-23_110122	93	105	101	98
240-175777-4	MW-29_110122	92	103	100	96
240-175777-5	DUP-01	92	102	98	97
240-175891-D-8 MS	Matrix Spike	93	104	101	96
240-175891-H-8 MSD	Matrix Spike Duplicate	92	102	98	97
LCS 240-551304/5	Lab Control Sample	88	102	97	93
MB 240-551304/8	Method Blank	88	101	95	93

### Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)  
BFB = 4-Bromofluorobenzene (Surr)  
TOL = Toluene-d8 (Surr)  
DBFM = Dibromofluoromethane (Surr)

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

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA
		(66-120)
240-175777-2	MW-22_110122	110
240-175777-3	MW-23_110122	155 S1+
240-175777-4	MW-29_110122	101
240-175777-5	DUP-01	105
240-175783-J-3 MS	Matrix Spike	106
240-175783-N-3 MSD	Matrix Spike Duplicate	106
LCS 240-551642/3	Lab Control Sample	119
MB 240-551642/4	Method Blank	111

### Surrogate Legend

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

# QC Sample Results

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

Job ID: 240-175777-1

## Method: 8260D - Volatile Organic Compounds by GC/MS

**Lab Sample ID: MB 240-551304/8**  
**Matrix: Water**  
**Analysis Batch: 551304**

**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	0.49	ug/L			11/10/22 11:08	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/10/22 11:08	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/10/22 11:08	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/10/22 11:08	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/10/22 11:08	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/10/22 11:08	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	88		62 - 137		11/10/22 11:08	1
4-Bromofluorobenzene (Surr)	101		56 - 136		11/10/22 11:08	1
Toluene-d8 (Surr)	95		78 - 122		11/10/22 11:08	1
Dibromofluoromethane (Surr)	93		73 - 120		11/10/22 11:08	1

**Lab Sample ID: LCS 240-551304/5**  
**Matrix: Water**  
**Analysis Batch: 551304**

**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	20.0	16.6		ug/L		83	63 - 134
cis-1,2-Dichloroethene	20.0	17.6		ug/L		88	77 - 123
Tetrachloroethene	20.0	18.4		ug/L		92	76 - 123
trans-1,2-Dichloroethene	20.0	17.0		ug/L		85	75 - 124
Trichloroethene	20.0	17.7		ug/L		89	70 - 122
Vinyl chloride	20.0	17.2		ug/L		86	60 - 144

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	88		62 - 137
4-Bromofluorobenzene (Surr)	102		56 - 136
Toluene-d8 (Surr)	97		78 - 122
Dibromofluoromethane (Surr)	93		73 - 120

**Lab Sample ID: 240-175891-D-8 MS**  
**Matrix: Water**  
**Analysis Batch: 551304**

**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	1.0	U	20.0	17.9		ug/L		89	56 - 135
cis-1,2-Dichloroethene	1.0	U	20.0	18.3		ug/L		91	66 - 128
Tetrachloroethene	1.0	U	20.0	19.7		ug/L		99	62 - 131
trans-1,2-Dichloroethene	1.0	U	20.0	17.7		ug/L		89	56 - 136
Trichloroethene	1.0	U	20.0	18.2		ug/L		91	61 - 124
Vinyl chloride	3.5		20.0	22.3		ug/L		94	43 - 157

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	93		62 - 137
4-Bromofluorobenzene (Surr)	104		56 - 136
Toluene-d8 (Surr)	101		78 - 122

# QC Sample Results

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

Job ID: 240-175777-1

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

**Lab Sample ID: 240-175891-D-8 MS**  
**Matrix: Water**  
**Analysis Batch: 551304**

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

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
Dibromofluoromethane (Surr)	96		73 - 120

**Lab Sample ID: 240-175891-H-8 MSD**  
**Matrix: Water**  
**Analysis Batch: 551304**

**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	20.0	19.6		ug/L		98	56 - 135	9	26
cis-1,2-Dichloroethene	1.0	U	20.0	20.1		ug/L		100	66 - 128	9	14
Tetrachloroethene	1.0	U	20.0	20.9		ug/L		105	62 - 131	6	20
trans-1,2-Dichloroethene	1.0	U	20.0	19.5		ug/L		98	56 - 136	9	15
Trichloroethene	1.0	U	20.0	20.2		ug/L		101	61 - 124	10	15
Vinyl chloride	3.5		20.0	23.7		ug/L		101	43 - 157	6	24

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	92		62 - 137
4-Bromofluorobenzene (Surr)	102		56 - 136
Toluene-d8 (Surr)	98		78 - 122
Dibromofluoromethane (Surr)	97		73 - 120

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

**Lab Sample ID: MB 240-551642/4**  
**Matrix: Water**  
**Analysis Batch: 551642**

**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			11/11/22 17:29	1

	MB	MB		Prepared	Analyzed	Dil Fac
Surrogate	%Recovery	Qualifier	Limits			
1,2-Dichloroethane-d4 (Surr)	111		66 - 120		11/11/22 17:29	1

**Lab Sample ID: LCS 240-551642/3**  
**Matrix: Water**  
**Analysis Batch: 551642**

**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	9.82		ug/L		98	80 - 122

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	119		66 - 120

**Lab Sample ID: 240-175783-J-3 MS**  
**Matrix: Water**  
**Analysis Batch: 551642**

**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	9.98		ug/L		100	51 - 153

Eurofins Canton

# QC Sample Results

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

Job ID: 240-175777-1

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

<i>Surrogate</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	106		66 - 120

Lab Sample ID: 240-175783-N-3 MSD  
 Matrix: Water  
 Analysis Batch: 551642

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>
1,4-Dioxane	2.0	U	10.0	9.47		ug/L		95	51 - 153	5	16

<i>Surrogate</i>	<i>%Recovery</i>	<i>MSD MSD Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	106		66 - 120



# QC Association Summary

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

Job ID: 240-175777-1

## GC/MS VOA

### Analysis Batch: 551304

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-175777-1	TRIP BLANK_36	Total/NA	Water	8260D	
240-175777-2	MW-22_110122	Total/NA	Water	8260D	
240-175777-3	MW-23_110122	Total/NA	Water	8260D	
240-175777-4	MW-29_110122	Total/NA	Water	8260D	
240-175777-5	DUP-01	Total/NA	Water	8260D	
MB 240-551304/8	Method Blank	Total/NA	Water	8260D	
LCS 240-551304/5	Lab Control Sample	Total/NA	Water	8260D	
240-175891-D-8 MS	Matrix Spike	Total/NA	Water	8260D	
240-175891-H-8 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

### Analysis Batch: 551642

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-175777-2	MW-22_110122	Total/NA	Water	8260D SIM	
240-175777-3	MW-23_110122	Total/NA	Water	8260D SIM	
240-175777-4	MW-29_110122	Total/NA	Water	8260D SIM	
240-175777-5	DUP-01	Total/NA	Water	8260D SIM	
MB 240-551642/4	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-551642/3	Lab Control Sample	Total/NA	Water	8260D SIM	
240-175783-J-3 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-175783-N-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

# Lab Chronicle

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

Job ID: 240-175777-1

## Client Sample ID: TRIP BLANK\_36

Lab Sample ID: 240-175777-1

Date Collected: 11/01/22 00:00

Matrix: Water

Date Received: 11/03/22 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	551304	HMB	EET CAN	11/10/22 17:39

## Client Sample ID: MW-22\_110122

Lab Sample ID: 240-175777-2

Date Collected: 11/01/22 10:50

Matrix: Water

Date Received: 11/03/22 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		40	551304	HMB	EET CAN	11/10/22 18:04
Total/NA	Analysis	8260D SIM		1	551642	CS	EET CAN	11/11/22 19:36

## Client Sample ID: MW-23\_110122

Lab Sample ID: 240-175777-3

Date Collected: 11/01/22 12:05

Matrix: Water

Date Received: 11/03/22 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		333.33	551304	HMB	EET CAN	11/10/22 18:28
Total/NA	Analysis	8260D SIM		1	551642	CS	EET CAN	11/11/22 20:01

## Client Sample ID: MW-29\_110122

Lab Sample ID: 240-175777-4

Date Collected: 11/01/22 13:05

Matrix: Water

Date Received: 11/03/22 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	551304	HMB	EET CAN	11/10/22 18:53
Total/NA	Analysis	8260D SIM		2	551642	CS	EET CAN	11/11/22 20:25

## Client Sample ID: DUP-01

Lab Sample ID: 240-175777-5

Date Collected: 11/01/22 00:00

Matrix: Water

Date Received: 11/03/22 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	551304	HMB	EET CAN	11/10/22 19:17
Total/NA	Analysis	8260D SIM		2	551642	CS	EET CAN	11/11/22 20:50

### Laboratory References:

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

# Accreditation/Certification Summary

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

Job ID: 240-175777-1

## Laboratory: Eurofins 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	02-27-23
Connecticut	State	PH-0590	12-31-23
Florida	NELAP	E87225	06-30-23
Georgia	State	4062	02-27-23
Illinois	NELAP	200004	07-31-23
Iowa	State	421	06-01-23
Kentucky (UST)	State	112225	02-27-23
Kentucky (WW)	State	KY98016	12-31-22
Minnesota	NELAP	039-999-348	12-31-22
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-23
New York	NELAP	10975	04-01-23
Ohio	State	8303	02-27-23
Ohio VAP	State	CL0024	02-27-23
Oregon	NELAP	4062	02-27-23
Pennsylvania	NELAP	68-00340	08-31-23
Texas	NELAP	T104704517-22-17	08-31-23
Virginia	NELAP	460175	09-14-23
Washington	State	C971	01-12-23
West Virginia DEP	State	210	12-31-22



**Eurofins - Canton Sample Receipt Form/Narrative**  
**Barberton Facility**

Login #: 175711

Client Arcadis Site Name \_\_\_\_\_ Cooler unpacked by: OM

Cooler Received on 11-3-22 Opened on 11-3-22

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

Receipt After-hours: Drop-off Date/Time \_\_\_\_\_ Storage Location \_\_\_\_\_

Eurofins Cooler # EC 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-13 (CF +0.7 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C  
 IR GUN #IR-15 (CF 0.0°C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity Lea  Yes  No  
 -Were the seals on the outside of the cooler(s) signed & dated?  Yes  No  NA  
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?  Yes  No  NA  
 -Were tamper/custody seals intact and uncompromised?  Yes  No  NA

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

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 (ID/Date/Time) be reconciled with the COC?  Yes  No  
 9. For each sample, does the COC specify preservatives  (Y/N), # of containers  (Y/N), and sample type of grab/comp  (Y/N)?  
 10. Were correct bottle(s) used for the test(s) indicated?  Yes  No  
 11. Sufficient quantity received to perform indicated analyses?  Yes  No  
 12. Are these work share samples and all listed on the COC? Yes  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? Yes No  NA pH Strip Lot# HC286797  
 14. Were VOAs on the COC?  Yes  No  
 15. Were air bubbles >6 mm in any VOA vials?  Yes  No  NA  ← Larger than this.  
 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # Covered  Yes  No  
 17. Was a LL Hg or Me Hg trip blank present? Yes  No

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

Concerning \_\_\_\_\_

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES  additional next page Samples processed by: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

19. SAMPLE CONDITION  
 Sample(s) \_\_\_\_\_ were received after the recommended holding time had expired.  
 Sample(s) \_\_\_\_\_ were received in a broken container.  
 Sample(s) 1 x 40 mL for Dup-01 were received with bubble >6 mm in diameter. (Notify PM)

20. 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: \_\_\_\_\_



# Eurofins Canton

## Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the 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. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

## Authorization



Generated  
11/16/2022 3:05:57 PM

Authorized for release by  
Michael DelMonico, Project Manager I  
[Michael.DelMonico@et.eurofinsus.com](mailto:Michael.DelMonico@et.eurofinsus.com)  
(330)497-9396



# DATA VERIFICATION REPORT



November 17, 2022

Kris Hinskey  
Arcadis of Michigan  
28550 Cabot Drive  
Suite 500  
Novi, MI US 48377

CADENA project ID: E203728  
Project: Ford Livonia Transmission Plant - ON-SITE -Soil Gas, Ground water and Soil  
Project number: 30146655.401.03- onsite groundwater  
Event Specific Scope of Work References: Sample COC  
Laboratory: Eurofins Environment Testing LLC - Barberton  
Laboratory submittal: 175777-1  
Sample date: 2022-11-01  
Report received by CADENA: 2022-11-16  
Initial Data Verification completed by CADENA: 2022-11-17  
Number of Samples:5  
Sample Matrices:Water  
Test Categories:GCMS VOC  
**Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.**

The following minor QC exceptions or missing information were noted:

SIM GCMS VOC sample -003 surrogate recovery outliers did not result in qualification of client sample data.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia



Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

## CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

## Analytical Results Summary

CADENA Project ID: E203728

Laboratory: Eurofins Environment Testing LLC - Barberton

Laboratory Submittal: 175777-1

Analyte	Cas No.	Sample Name: TRIP BLANK_36				Sample Name: MW-22_110122				Sample Name: MW-23_110122				Sample Name: MW-29_110122				Sample Name: DUP-01			
		Result	Limit	Units	Valid	Result	Limit	Units	Valid	Result	Limit	Units	Valid	Result	Limit	Units	Valid	Result	Limit	Units	Valid
<b>GC/MS VOC</b>																					
<u>OSW-8260D</u>																					
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	40	ug/l	---	ND	330	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	ND	40	ug/l	---	13000	330	ug/l	---	13	1.0	ug/l	---	12	1.0	ug/l	---
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	40	ug/l	---	ND	330	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	ND	40	ug/l	---	430	330	ug/l	---	0.53	1.0	ug/l	J	ND	1.0	ug/l	---
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	40	ug/l	---	700	330	ug/l	---	0.58	1.0	ug/l	J	0.50	1.0	ug/l	J
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	1400	40	ug/l	---	570	330	ug/l	---	2.8	1.0	ug/l	---	2.5	1.0	ug/l	---
<u>OSW-8260DSIM</u>																					
1,4-Dioxane	123-91-1					53	2.0	ug/l	---	ND	2.0	ug/l	---	9.9	4.0	ug/l	---	9.5	4.0	ug/l	---