

# ANALYTICAL REPORT

## PREPARED FOR

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Suite 500  
Novi, Michigan 48377

Generated 8/30/2023 5:10:08 AM

## JOB DESCRIPTION

Ford LTP - On Site

## JOB NUMBER

240-190407-1

# Eurofins Cleveland

## Job Notes

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## Authorization



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# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	3
Definitions/Glossary . . . . .	4
Case Narrative . . . . .	5
Method Summary . . . . .	6
Sample Summary . . . . .	7
Detection Summary . . . . .	8
Client Sample Results . . . . .	9
Surrogate Summary . . . . .	14
QC Sample Results . . . . .	15
QC Association Summary . . . . .	22
Lab Chronicle . . . . .	23
Certification Summary . . . . .	24
Chain of Custody . . . . .	25

# Definitions/Glossary

Client: ARCADIS US Inc  
Project/Site: Ford LTP - On Site

Job ID: 240-190407-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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 US Inc  
Project/Site: Ford LTP - On Site

Job ID: 240-190407-1

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**Job ID: 240-190407-1**

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**Laboratory: Eurofins Cleveland**

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**Narrative**

**Job Narrative  
240-190407-1**

**Receipt**

The samples were received on 8/18/2023 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.5°C

**GC/MS VOA**

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 585139 was outside the method criteria for the following analyte(s): Vinyl chloride. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

Method 8260D: The method blank associated with 585304 contained cis-1,2-Dichloroethene greater than one-half the reporting limit (RL). The samples were not re-analyzed because of sample load. The sample results have been qualified and reported.

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 585304 was outside the method criteria for the following analyte(s): Vinyl chloride. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

Method 8260D: The method requirement for no headspace was not met. The following volatile sample was analyzed with headspace in the sample container(s): PW-16-02\_081623 (240-190407-2).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.



# Method Summary

Client: ARCADIS US Inc  
Project/Site: Ford LTP - On Site

Job ID: 240-190407-1

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

**Protocol References:**

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

**Laboratory References:**

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

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- 11
- 12
- 13
- 14

# Sample Summary

Client: ARCADIS US Inc  
Project/Site: Ford LTP - On Site

Job ID: 240-190407-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-190407-1	TRIP BLANK_73	Water	08/16/23 00:00	08/18/23 08:00
240-190407-2	PW-16-02_081623	Water	08/16/23 10:10	08/18/23 08:00
240-190407-3	MW-63_081623	Water	08/16/23 14:05	08/18/23 08:00
240-190407-4	MW-50_081623	Water	08/16/23 12:55	08/18/23 08:00
240-190407-5	MW-62_081623	Water	08/16/23 11:25	08/18/23 08:00

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- 2
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- 10
- 11
- 12
- 13
- 14

# Detection Summary

Client: ARCADIS US Inc  
Project/Site: Ford LTP - On Site

Job ID: 240-190407-1

## Client Sample ID: TRIP BLANK\_73

Lab Sample ID: 240-190407-1

No Detections.

## Client Sample ID: PW-16-02\_081623

Lab Sample ID: 240-190407-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.8	J	2.0	0.86	ug/L	1		8260D SIM	Total/NA
cis-1,2-Dichloroethene	1.6		1.0	0.46	ug/L	1		8260D	Total/NA
Vinyl chloride	23		1.0	0.45	ug/L	1		8260D	Total/NA

## Client Sample ID: MW-63\_081623

Lab Sample ID: 240-190407-3

No Detections.

## Client Sample ID: MW-50\_081623

Lab Sample ID: 240-190407-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.3	J	2.0	0.86	ug/L	1		8260D SIM	Total/NA
cis-1,2-Dichloroethene	9.5		6.7	3.1	ug/L	6.66		8260D	Total/NA
Vinyl chloride	210		6.7	3.0	ug/L	6.67		8260D	Total/NA

## Client Sample ID: MW-62\_081623

Lab Sample ID: 240-190407-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	2.6		2.0	0.86	ug/L	1		8260D SIM	Total/NA
cis-1,2-Dichloroethene	0.92	J B	1.0	0.46	ug/L	1		8260D	Total/NA
Vinyl chloride	0.99	J	1.0	0.45	ug/L	1		8260D	Total/NA

This Detection Summary does not include radiochemical test results.

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# Client Sample Results

Client: ARCADIS US Inc  
 Project/Site: Ford LTP - On Site

Job ID: 240-190407-1

**Client Sample ID: TRIP BLANK\_73**

**Lab Sample ID: 240-190407-1**

Date Collected: 08/16/23 00:00

Matrix: Water

Date Received: 08/18/23 08:00

**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			08/25/23 13:48	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/25/23 13:48	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/25/23 13:48	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/25/23 13:48	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/25/23 13:48	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/25/23 13:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		62 - 137		08/25/23 13:48	1
4-Bromofluorobenzene (Surr)	90		56 - 136		08/25/23 13:48	1
Toluene-d8 (Surr)	99		78 - 122		08/25/23 13:48	1
Dibromofluoromethane (Surr)	96		73 - 120		08/25/23 13:48	1

# Client Sample Results

Client: ARCADIS US Inc  
 Project/Site: Ford LTP - On Site

Job ID: 240-190407-1

**Client Sample ID: PW-16-02\_081623**

**Lab Sample ID: 240-190407-2**

Date Collected: 08/16/23 10:10

Matrix: Water

Date Received: 08/18/23 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.8	J	2.0	0.86	ug/L			08/25/23 18:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		66 - 120					08/25/23 18:53	1

**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			08/28/23 15:14	1
cis-1,2-Dichloroethene	1.6		1.0	0.46	ug/L			08/28/23 15:14	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/28/23 15:14	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/28/23 15:14	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/28/23 15:14	1
Vinyl chloride	23		1.0	0.45	ug/L			08/28/23 15:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		62 - 137					08/28/23 15:14	1
4-Bromofluorobenzene (Surr)	92		56 - 136					08/28/23 15:14	1
Toluene-d8 (Surr)	92		78 - 122					08/28/23 15:14	1
Dibromofluoromethane (Surr)	92		73 - 120					08/28/23 15:14	1

# Client Sample Results

Client: ARCADIS US Inc  
 Project/Site: Ford LTP - On Site

Job ID: 240-190407-1

**Client Sample ID: MW-63\_081623**

**Lab Sample ID: 240-190407-3**

Date Collected: 08/16/23 14:05

Matrix: Water

Date Received: 08/18/23 08:00

**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			08/25/23 19:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		66 - 120					08/25/23 19:17	1

**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			08/25/23 14:13	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/25/23 14:13	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/25/23 14:13	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/25/23 14:13	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/25/23 14:13	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/25/23 14:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		62 - 137					08/25/23 14:13	1
4-Bromofluorobenzene (Surr)	91		56 - 136					08/25/23 14:13	1
Toluene-d8 (Surr)	97		78 - 122					08/25/23 14:13	1
Dibromofluoromethane (Surr)	95		73 - 120					08/25/23 14:13	1

# Client Sample Results

Client: ARCADIS US Inc  
 Project/Site: Ford LTP - On Site

Job ID: 240-190407-1

**Client Sample ID: MW-50\_081623**

**Lab Sample ID: 240-190407-4**

Date Collected: 08/16/23 12:55

Matrix: Water

Date Received: 08/18/23 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.3	J	2.0	0.86	ug/L			08/25/23 19:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		66 - 120					08/25/23 19:41	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	6.7	U	6.7	3.3	ug/L			08/25/23 14:38	6.66
cis-1,2-Dichloroethene	9.5		6.7	3.1	ug/L			08/25/23 14:38	6.66
Tetrachloroethene	6.7	U	6.7	2.9	ug/L			08/25/23 14:38	6.66
trans-1,2-Dichloroethene	6.7	U F2	6.7	3.4	ug/L			08/25/23 14:38	6.66
Trichloroethene	6.7	U F2	6.7	2.9	ug/L			08/25/23 14:38	6.66
Vinyl chloride	210		6.7	3.0	ug/L			08/28/23 14:52	6.67
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		62 - 137					08/25/23 14:38	6.66
1,2-Dichloroethane-d4 (Surr)	99		62 - 137					08/28/23 14:52	6.67
4-Bromofluorobenzene (Surr)	92		56 - 136					08/25/23 14:38	6.66
4-Bromofluorobenzene (Surr)	89		56 - 136					08/28/23 14:52	6.67
Toluene-d8 (Surr)	100		78 - 122					08/25/23 14:38	6.66
Toluene-d8 (Surr)	91		78 - 122					08/28/23 14:52	6.67
Dibromofluoromethane (Surr)	96		73 - 120					08/25/23 14:38	6.66
Dibromofluoromethane (Surr)	100		73 - 120					08/28/23 14:52	6.67

# Client Sample Results

Client: ARCADIS US Inc  
 Project/Site: Ford LTP - On Site

Job ID: 240-190407-1

**Client Sample ID: MW-62\_081623**

**Lab Sample ID: 240-190407-5**

Date Collected: 08/16/23 11:25

Matrix: Water

Date Received: 08/18/23 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.6		2.0	0.86	ug/L			08/25/23 20:05	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)	99		66 - 120					08/25/23 20:05	1

**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			08/28/23 11:53	1
cis-1,2-Dichloroethene	0.92	J B	1.0	0.46	ug/L			08/28/23 11:53	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/28/23 11:53	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/28/23 11:53	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/28/23 11:53	1
Vinyl chloride	0.99	J	1.0	0.45	ug/L			08/28/23 11:53	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)	88		62 - 137					08/28/23 11:53	1
4-Bromofluorobenzene (Surr)	87		56 - 136					08/28/23 11:53	1
Toluene-d8 (Surr)	99		78 - 122					08/28/23 11:53	1
Dibromofluoromethane (Surr)	97		73 - 120					08/28/23 11:53	1

# Surrogate Summary

Client: ARCADIS US Inc  
Project/Site: Ford LTP - On Site

Job ID: 240-190407-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (62-137)	BFB (56-136)	TOL (78-122)	DBFM (73-120)
240-190359-D-1 MS	Matrix Spike	88	94	100	100
240-190359-F-1 MSD	Matrix Spike Duplicate	87	93	101	98
240-190407-1	TRIP BLANK_73	90	90	99	96
240-190407-2	PW-16-02_081623	101	92	92	92
240-190407-3	MW-63_081623	90	91	97	95
240-190407-4	MW-50_081623	90	92	100	96
240-190407-4	MW-50_081623	99	89	91	100
240-190407-4 MS	MW-50_081623	92	100	103	98
240-190407-4 MSD	MW-50_081623	91	97	99	99
240-190407-5	MW-62_081623	88	87	99	97
240-190468-B-1 MS	Matrix Spike	101	90	97	108
240-190468-B-1 MSD	Matrix Spike Duplicate	103	94	96	104
240-190514-E-1 MS	Matrix Spike	94	89	90	88
240-190514-F-1 MSD	Matrix Spike Duplicate	102	95	93	94
LCS 240-585139/4	Lab Control Sample	92	94	100	98
LCS 240-585304/4	Lab Control Sample	87	94	101	99
LCS 240-585307/4	Lab Control Sample	100	90	95	100
LCS 240-585357/5	Lab Control Sample	96	92	93	92
MB 240-585139/7	Method Blank	94	93	100	98
MB 240-585304/7	Method Blank	89	89	101	99
MB 240-585307/9	Method Blank	95	92	94	104
MB 240-585357/8	Method Blank	103	93	93	94

**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

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		DCA (66-120)
240-190229-C-3 MS	Matrix Spike	111
240-190229-C-3 MSD	Matrix Spike Duplicate	111
240-190407-2	PW-16-02_081623	107
240-190407-3	MW-63_081623	107
240-190407-4	MW-50_081623	102
240-190407-5	MW-62_081623	99
LCS 240-585153/5	Lab Control Sample	100
MB 240-585153/7	Method Blank	108

**Surrogate Legend**

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

# QC Sample Results

Client: ARCADIS US Inc  
Project/Site: Ford LTP - On Site

Job ID: 240-190407-1

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

Lab Sample ID: MB 240-585139/7

Matrix: Water

Analysis Batch: 585139

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			08/25/23 12:33	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/25/23 12:33	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/25/23 12:33	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/25/23 12:33	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/25/23 12:33	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/25/23 12:33	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	94		62 - 137		08/25/23 12:33	1
4-Bromofluorobenzene (Surr)	93		56 - 136		08/25/23 12:33	1
Toluene-d8 (Surr)	100		78 - 122		08/25/23 12:33	1
Dibromofluoromethane (Surr)	98		73 - 120		08/25/23 12:33	1

Lab Sample ID: LCS 240-585139/4

Matrix: Water

Analysis Batch: 585139

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	25.0	27.1		ug/L		108	63 - 134
cis-1,2-Dichloroethene	25.0	25.9		ug/L		104	77 - 123
Tetrachloroethene	25.0	27.0		ug/L		108	76 - 123
trans-1,2-Dichloroethene	25.0	25.0		ug/L		100	75 - 124
Trichloroethene	25.0	25.5		ug/L		102	70 - 122
Vinyl chloride	12.5	8.83		ug/L		71	60 - 144

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	92		62 - 137
4-Bromofluorobenzene (Surr)	94		56 - 136
Toluene-d8 (Surr)	100		78 - 122
Dibromofluoromethane (Surr)	98		73 - 120

Lab Sample ID: 240-190407-4 MS

Matrix: Water

Analysis Batch: 585139

Client Sample ID: MW-50\_081623

Prep Type: Total/NA

Analyte	Sample	Sample	Spike Added	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier		Result	Qualifier				
1,1-Dichloroethene	6.7	U	167	140		ug/L		84	56 - 135
cis-1,2-Dichloroethene	9.5		167	188		ug/L		107	66 - 128
Tetrachloroethene	6.7	U	167	150		ug/L		90	62 - 131
trans-1,2-Dichloroethene	6.7	U F2	167	136		ug/L		82	56 - 136
Trichloroethene	6.7	U F2	167	136		ug/L		82	61 - 124

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	92		62 - 137
4-Bromofluorobenzene (Surr)	100		56 - 136
Toluene-d8 (Surr)	103		78 - 122
Dibromofluoromethane (Surr)	98		73 - 120

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# QC Sample Results

Client: ARCADIS US Inc  
Project/Site: Ford LTP - On Site

Job ID: 240-190407-1

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

Lab Sample ID: 240-190407-4 MSD

Client Sample ID: MW-50\_081623

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 585139

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
1,1-Dichloroethene	6.7	U	167	172		ug/L		103	56 - 135	20	26
cis-1,2-Dichloroethene	9.5		167	197		ug/L		113	66 - 128	5	14
Tetrachloroethene	6.7	U	167	176		ug/L		106	62 - 131	16	20
trans-1,2-Dichloroethene	6.7	U F2	167	160	F2	ug/L		96	56 - 136	16	15
Trichloroethene	6.7	U F2	167	165	F2	ug/L		99	61 - 124	19	15
<b>MSD MSD</b>											
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>								
1,2-Dichloroethane-d4 (Surr)	91		62 - 137								
4-Bromofluorobenzene (Surr)	97		56 - 136								
Toluene-d8 (Surr)	99		78 - 122								
Dibromofluoromethane (Surr)	99		73 - 120								

Lab Sample ID: MB 240-585304/7

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 585304

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			08/28/23 11:28	1
cis-1,2-Dichloroethene	0.842	J	1.0	0.46	ug/L			08/28/23 11:28	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/28/23 11:28	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/28/23 11:28	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/28/23 11:28	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/28/23 11:28	1
<b>MB MB</b>									
<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)	89		62 - 137				08/28/23 11:28	1	
4-Bromofluorobenzene (Surr)	89		56 - 136				08/28/23 11:28	1	
Toluene-d8 (Surr)	101		78 - 122				08/28/23 11:28	1	
Dibromofluoromethane (Surr)	99		73 - 120				08/28/23 11:28	1	

Lab Sample ID: LCS 240-585304/4

Client Sample ID: Lab Control Sample

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 585304

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec
							Added
1,1-Dichloroethene	25.0	26.8		ug/L		107	63 - 134
cis-1,2-Dichloroethene	25.0	26.3		ug/L		105	77 - 123
Tetrachloroethene	25.0	25.8		ug/L		103	76 - 123
trans-1,2-Dichloroethene	25.0	25.0		ug/L		100	75 - 124
Trichloroethene	25.0	24.3		ug/L		97	70 - 122
Vinyl chloride	12.5	9.67		ug/L		77	60 - 144
<b>LCS LCS</b>							
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
1,2-Dichloroethane-d4 (Surr)	87		62 - 137				
4-Bromofluorobenzene (Surr)	94		56 - 136				
Toluene-d8 (Surr)	101		78 - 122				
Dibromofluoromethane (Surr)	99		73 - 120				

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# QC Sample Results

Client: ARCADIS US Inc  
Project/Site: Ford LTP - On Site

Job ID: 240-190407-1

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

Lab Sample ID: 240-190359-D-1 MS

Matrix: Water

Analysis Batch: 585304

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	88		62 - 137
4-Bromofluorobenzene (Surr)	94		56 - 136
Toluene-d8 (Surr)	100		78 - 122
Dibromofluoromethane (Surr)	100		73 - 120

Lab Sample ID: 240-190359-F-1 MSD

Matrix: Water

Analysis Batch: 585304

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	87		62 - 137
4-Bromofluorobenzene (Surr)	93		56 - 136
Toluene-d8 (Surr)	101		78 - 122
Dibromofluoromethane (Surr)	98		73 - 120

Lab Sample ID: MB 240-585307/9

Matrix: Water

Analysis Batch: 585307

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			08/28/23 14:28	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/28/23 14:28	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/28/23 14:28	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/28/23 14:28	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/28/23 14:28	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/28/23 14:28	1

  

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	95		62 - 137		08/28/23 14:28	1
4-Bromofluorobenzene (Surr)	92		56 - 136		08/28/23 14:28	1
Toluene-d8 (Surr)	94		78 - 122		08/28/23 14:28	1
Dibromofluoromethane (Surr)	104		73 - 120		08/28/23 14:28	1

Lab Sample ID: LCS 240-585307/4

Matrix: Water

Analysis Batch: 585307

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
cis-1,2-Dichloroethene	25.0	24.4		ug/L		98	77 - 123
Tetrachloroethene	25.0	29.2		ug/L		117	76 - 123
trans-1,2-Dichloroethene	25.0	24.9		ug/L		100	75 - 124
Trichloroethene	25.0	29.3		ug/L		117	70 - 122
Vinyl chloride	12.5	12.9		ug/L		103	60 - 144

  

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	100		62 - 137

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# QC Sample Results

Client: ARCADIS US Inc  
Project/Site: Ford LTP - On Site

Job ID: 240-190407-1

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

Lab Sample ID: LCS 240-585307/4

Matrix: Water

Analysis Batch: 585307

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Surrogate	LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	90		56 - 136
Toluene-d8 (Surr)	95		78 - 122
Dibromofluoromethane (Surr)	100		73 - 120

Lab Sample ID: 240-190468-B-1 MS

Matrix: Water

Analysis Batch: 585307

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier					
1,1-Dichloroethene	500	U	12500	13000		ug/L		104		56 - 135
cis-1,2-Dichloroethene	410	J	12500	12000		ug/L		93		66 - 128
Tetrachloroethene	1600		12500	14700		ug/L		105		62 - 131
trans-1,2-Dichloroethene	500	U	12500	12300		ug/L		98		56 - 136
Trichloroethene	10000		12500	23300		ug/L		105		61 - 124
Vinyl chloride	500	U	6250	5290		ug/L		85		43 - 157

Surrogate	MS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	101		62 - 137
4-Bromofluorobenzene (Surr)	90		56 - 136
Toluene-d8 (Surr)	97		78 - 122
Dibromofluoromethane (Surr)	108		73 - 120

Lab Sample ID: 240-190468-B-1 MSD

Matrix: Water

Analysis Batch: 585307

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier							
1,1-Dichloroethene	500	U	12500	13000		ug/L		104		56 - 135	0	26
cis-1,2-Dichloroethene	410	J	12500	12800		ug/L		99		66 - 128	6	14
Tetrachloroethene	1600		12500	15400		ug/L		111		62 - 131	5	20
trans-1,2-Dichloroethene	500	U	12500	11600		ug/L		93		56 - 136	5	15
Trichloroethene	10000		12500	22200		ug/L		96		61 - 124	5	15
Vinyl chloride	500	U	6250	5240		ug/L		84		43 - 157	1	24

Surrogate	MSD		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	103		62 - 137
4-Bromofluorobenzene (Surr)	94		56 - 136
Toluene-d8 (Surr)	96		78 - 122
Dibromofluoromethane (Surr)	104		73 - 120

Lab Sample ID: MB 240-585357/8

Matrix: Water

Analysis Batch: 585357

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			08/28/23 14:26	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/28/23 14:26	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/28/23 14:26	1

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# QC Sample Results

Client: ARCADIS US Inc  
Project/Site: Ford LTP - On Site

Job ID: 240-190407-1

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

Lab Sample ID: MB 240-585357/8

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 585357

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/28/23 14:26	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/28/23 14:26	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/28/23 14:26	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	103		62 - 137		08/28/23 14:26	1
4-Bromofluorobenzene (Surr)	93		56 - 136		08/28/23 14:26	1
Toluene-d8 (Surr)	93		78 - 122		08/28/23 14:26	1
Dibromofluoromethane (Surr)	94		73 - 120		08/28/23 14:26	1

Lab Sample ID: LCS 240-585357/5

Client Sample ID: Lab Control Sample

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 585357

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
1,1-Dichloroethene	25.0	27.4		ug/L		110	63 - 134
cis-1,2-Dichloroethene	25.0	25.5		ug/L		102	77 - 123
Tetrachloroethene	25.0	26.7		ug/L		107	76 - 123
trans-1,2-Dichloroethene	25.0	26.0		ug/L		104	75 - 124
Trichloroethene	25.0	25.8		ug/L		103	70 - 122
Vinyl chloride	12.5	11.3		ug/L		91	60 - 144

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	96		62 - 137
4-Bromofluorobenzene (Surr)	92		56 - 136
Toluene-d8 (Surr)	93		78 - 122
Dibromofluoromethane (Surr)	92		73 - 120

Lab Sample ID: 240-190514-E-1 MS

Client Sample ID: Matrix Spike

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 585357

Analyte	Sample	Sample	Spike Added	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier		Result	Qualifier				
1,1-Dichloroethene	1.0	U	25.0	25.6		ug/L		102	56 - 135
cis-1,2-Dichloroethene	1.0	U	25.0	24.6		ug/L		98	66 - 128
Tetrachloroethene	1.0	U	25.0	24.1		ug/L		97	62 - 131
trans-1,2-Dichloroethene	1.0	U	25.0	24.3		ug/L		97	56 - 136
Trichloroethene	1.0	U	25.0	23.7		ug/L		95	61 - 124
Vinyl chloride	0.45	J	12.5	11.0		ug/L		88	43 - 157

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	94		62 - 137
4-Bromofluorobenzene (Surr)	89		56 - 136
Toluene-d8 (Surr)	90		78 - 122
Dibromofluoromethane (Surr)	88		73 - 120

# QC Sample Results

Client: ARCADIS US Inc  
Project/Site: Ford LTP - On Site

Job ID: 240-190407-1

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

**Lab Sample ID: 240-190514-F-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 585357**

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

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
1,1-Dichloroethene	1.0	U	25.0	24.9		ug/L		100	56 - 135	3	26
cis-1,2-Dichloroethene	1.0	U	25.0	24.0		ug/L		96	66 - 128	3	14
Tetrachloroethene	1.0	U	25.0	23.0		ug/L		92	62 - 131	5	20
trans-1,2-Dichloroethene	1.0	U	25.0	23.7		ug/L		95	56 - 136	3	15
Trichloroethene	1.0	U	25.0	22.7		ug/L		91	61 - 124	4	15
Vinyl chloride	0.45	J	12.5	11.1		ug/L		89	43 - 157	1	24
<b>MSD MSD</b>											
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>								
1,2-Dichloroethane-d4 (Surr)	102		62 - 137								
4-Bromofluorobenzene (Surr)	95		56 - 136								
Toluene-d8 (Surr)	93		78 - 122								
Dibromofluoromethane (Surr)	94		73 - 120								

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

**Lab Sample ID: MB 240-585153/7**  
**Matrix: Water**  
**Analysis Batch: 585153**

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/25/23 12:00	1
<b>MB MB</b>									
<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)	108		66 - 120				08/25/23 12:00	1	

**Lab Sample ID: LCS 240-585153/5**  
**Matrix: Water**  
**Analysis Batch: 585153**

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

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec
		Result	Qualifier				Limits
1,4-Dioxane	10.0	9.06		ug/L		91	80 - 122
<b>LCS LCS</b>							
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
1,2-Dichloroethane-d4 (Surr)	100		66 - 120				

**Lab Sample ID: 240-190229-C-3 MS**  
**Matrix: Water**  
**Analysis Batch: 585153**

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

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec
	Result	Qualifier	Added	Result	Qualifier				Limits
1,4-Dioxane	2.0	U	10.0	10.2		ug/L		102	51 - 153
<b>MS MS</b>									
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
1,2-Dichloroethane-d4 (Surr)	111		66 - 120						

# QC Sample Results

Client: ARCADIS US Inc  
 Project/Site: Ford LTP - On Site

Job ID: 240-190407-1

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

Lab Sample ID: 240-190229-C-3 MSD

Matrix: Water

Analysis Batch: 585153

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	10.6		ug/L		106	51 - 153	4	16
<b>Surrogate</b>	<b>%Recovery</b>	<b>MSD Qualifier</b>	<b>MSD Limits</b>								
1,2-Dichloroethane-d4 (Surr)	111		66 - 120								

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

# QC Association Summary

Client: ARCADIS US Inc  
 Project/Site: Ford LTP - On Site

Job ID: 240-190407-1

## GC/MS VOA

### Analysis Batch: 585139

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-190407-1	TRIP BLANK_73	Total/NA	Water	8260D	
240-190407-3	MW-63_081623	Total/NA	Water	8260D	
240-190407-4	MW-50_081623	Total/NA	Water	8260D	
MB 240-585139/7	Method Blank	Total/NA	Water	8260D	
LCS 240-585139/4	Lab Control Sample	Total/NA	Water	8260D	
240-190407-4 MS	MW-50_081623	Total/NA	Water	8260D	
240-190407-4 MSD	MW-50_081623	Total/NA	Water	8260D	

### Analysis Batch: 585153

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-190407-2	PW-16-02_081623	Total/NA	Water	8260D SIM	
240-190407-3	MW-63_081623	Total/NA	Water	8260D SIM	
240-190407-4	MW-50_081623	Total/NA	Water	8260D SIM	
240-190407-5	MW-62_081623	Total/NA	Water	8260D SIM	
MB 240-585153/7	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-585153/5	Lab Control Sample	Total/NA	Water	8260D SIM	
240-190229-C-3 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-190229-C-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

### Analysis Batch: 585304

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-190407-5	MW-62_081623	Total/NA	Water	8260D	
MB 240-585304/7	Method Blank	Total/NA	Water	8260D	
LCS 240-585304/4	Lab Control Sample	Total/NA	Water	8260D	
240-190359-D-1 MS	Matrix Spike	Total/NA	Water	8260D	
240-190359-F-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

### Analysis Batch: 585307

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-190407-4	MW-50_081623	Total/NA	Water	8260D	
MB 240-585307/9	Method Blank	Total/NA	Water	8260D	
LCS 240-585307/4	Lab Control Sample	Total/NA	Water	8260D	
240-190468-B-1 MS	Matrix Spike	Total/NA	Water	8260D	
240-190468-B-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

### Analysis Batch: 585357

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-190407-2	PW-16-02_081623	Total/NA	Water	8260D	
MB 240-585357/8	Method Blank	Total/NA	Water	8260D	
LCS 240-585357/5	Lab Control Sample	Total/NA	Water	8260D	
240-190514-E-1 MS	Matrix Spike	Total/NA	Water	8260D	
240-190514-F-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

# Lab Chronicle

Client: ARCADIS US Inc  
Project/Site: Ford LTP - On Site

Job ID: 240-190407-1

**Client Sample ID: TRIP BLANK\_73**

**Lab Sample ID: 240-190407-1**

Date Collected: 08/16/23 00:00

Matrix: Water

Date Received: 08/18/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	585139	LEE	EET CLE	08/25/23 13:48

**Client Sample ID: PW-16-02\_081623**

**Lab Sample ID: 240-190407-2**

Date Collected: 08/16/23 10:10

Matrix: Water

Date Received: 08/18/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	585357	CDG	EET CLE	08/28/23 15:14
Total/NA	Analysis	8260D SIM		1	585153	MRL	EET CLE	08/25/23 18:53

**Client Sample ID: MW-63\_081623**

**Lab Sample ID: 240-190407-3**

Date Collected: 08/16/23 14:05

Matrix: Water

Date Received: 08/18/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	585139	LEE	EET CLE	08/25/23 14:13
Total/NA	Analysis	8260D SIM		1	585153	MRL	EET CLE	08/25/23 19:17

**Client Sample ID: MW-50\_081623**

**Lab Sample ID: 240-190407-4**

Date Collected: 08/16/23 12:55

Matrix: Water

Date Received: 08/18/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		6.66	585139	LEE	EET CLE	08/25/23 14:38
Total/NA	Analysis	8260D		6.67	585307	LEE	EET CLE	08/28/23 14:52
Total/NA	Analysis	8260D SIM		1	585153	MRL	EET CLE	08/25/23 19:41

**Client Sample ID: MW-62\_081623**

**Lab Sample ID: 240-190407-5**

Date Collected: 08/16/23 11:25

Matrix: Water

Date Received: 08/18/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	585304	LEE	EET CLE	08/28/23 11:53
Total/NA	Analysis	8260D SIM		1	585153	MRL	EET CLE	08/25/23 20:05

**Laboratory References:**

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

# Accreditation/Certification Summary

Client: ARCADIS US Inc  
 Project/Site: Ford LTP - On Site

Job ID: 240-190407-1

## Laboratory: Eurofins Cleveland

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	02-27-24
Georgia	State	4062	02-27-24
Illinois	NELAP	200004	07-31-24
Iowa	State	421	06-01-25
Kentucky (UST)	State	112225	02-28-24
Kentucky (WW)	State	KY98016	12-31-23
Michigan	State	9135	02-27-24
Minnesota	NELAP	039-999-348	12-31-23
Minnesota (Petrofund)	State	3506	08-01-23 *
New Jersey	NELAP	OH001	07-01-24
New York	NELAP	10975	04-02-24
Ohio	State	8303	02-27-24
Ohio VAP	State	ORELAP 4062	02-27-24
Oregon	NELAP	4062	02-27-24
Pennsylvania	NELAP	68-00340	08-31-24
Texas	NELAP	T104704517-22-19	08-31-23
Virginia	NELAP	460175	09-14-23
West Virginia DEP	State	210	12-31-23

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





**Chain of Custody Record**

06/05

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

<b>Client Contact</b> Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240 Project Name: Ford I.T.P. On-Site Project Number: 30167538-401.03 PO # 30167538-401.03		<b>Regulatory program:</b> <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other	
<b>Client Project Manager: Kris Hinsky</b> Telephone: 248-994-2240 E-mail: kris@arcadis.com		<b>Lab Contact: Mike DeMonico</b> Telephone: 330-497-9396	
<b>Sampler Name:</b> Lottie Joy		<b>Analysis Turnaround Time</b> IAT if different from below: 10 day <input checked="" type="checkbox"/> 3 weeks 1 week <input type="checkbox"/> 2 weeks 2 days <input type="checkbox"/> 1 week 1 day <input type="checkbox"/> 1 day	
<b>Method of Shipment/Carrier:</b> Shipping/Tracking No:		<b>Analyses</b>	
<b>Sample Identification</b>		Walk-in client Lab sampling Job/SDG No:	
Sample Date Sample Time Sample ID		For lab use only 1 of 1 COCs	
TRIP BLANK_73 PW-16-02-081623 MW-63-081623 MW-50-081623 MW-62-081623		Vinyl Chloride 8260D TCE 8260D PCE 8260D Trans-1,2-DCE 8260D cis-1,2-DCE 8260D 1,1-DCE 8260D Composite C/Grab-C Filtered Sample (Y/N) Composite C/Grab-C 1,4-Dioxane 8260D SIM	
Matrix: Air, Aqueous, Sediment, Solid, Other		Containers & Preservatives: H2SO4, HNO3, HCl, NaOH, NaOH, NaOH, Other	
Sample Date: 8/16/23 Sample Time: 1010 Sample ID: 1405 Sample ID: 1255 Sample ID: 1125		1 Trip Blank 3 VOAs for 8260D 3 VOAs for 8260D SIM	
Possible Hazard Identification: Non-hazard, Irritant, Poison B, Unknown		Sample Disposal (X fee may be assessed if samples are retained longer than 1 month): Return to Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Submit all results through Cadena at jomalie@cadenaco.com. Cadena #E203728 Level IV Reporting requested.			
Relinquished by: Lottie Joy Relinquished for: Air Release Relinquished by: Air Release		Date/Time: 8/16/23 1510 Date/Time: 8/17/23 1510 Date/Time: 8/17/23 1510	
Company: Arcadis Company: Arcadis Company: EETA		Company: ACCADIS Company: EETA Company: EETPC	



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Eurofins - Cleveland Sample Receipt Form/Narrative  
Barberton Facility

Login # : 190407

Client Arcadis Site Name \_\_\_\_\_ Cooler unpacked by: Nancy Rye  
Cooler Received on 8-18-23 Opened on 8-18-23

FedEx: 1<sup>st</sup> Grd Exp UPS FAS Waypoint 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 # 22 (CF -0.1 °C) Observed Cooler Temp. 0.6 °C Corrected Cooler Temp. 0.5 °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1
  - 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
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)? Yes  No
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# HC312502
14. Were VOAs on the COC? Yes  No  NA
15. Were air bubbles >6 mm in any VOA vials?  Larger than this. Yes  No  NA
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

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

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) \_\_\_\_\_ 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: \_\_\_\_\_

# DATA VERIFICATION REPORT



August 30, 2023

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: 30167538.401.03- onsite groundwater

Event Specific Scope of Work References: Sample COC

Laboratory: Eurofins Environment Testing LLC - Cleveland

Laboratory submittal: 190407-1

Sample date: 2023-08-16

Report received by CADENA: 2023-08-30

Initial Data Verification completed by CADENA: 2023-08-30

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:

SRN - Sample Receipt Non-conformance (HEADSPACE) - Sample -002 results for GCMS VOC should be considered to be estimated and qualified with J flags if detected and UJ flags if non-detect due to sample receipt non-conformance that affects the integrity of the sample. See laboratory submittal sample receipt forms for details.

MBK - GCMS VOC QC batch method blank had a detection below the RL for the following analyte: CIS-1,2-DICHLOROETHENE. The following client sample results should be considered to be non-detect at the RL and qualified with UB flags: -005.

GCMS VOC sample -004 MS or MSD recoveries but not both or RPD only were outliers for TRANS-1,2-DICHLOROETHENE, TRICHLOROETHENE, and VINYL CHLORIDE so client sample results were not qualified based on these QC outliers alone.

GCMS VOC QC batch CCV response outliers as noted in the laboratory submittal case narrative were not used to qualify client sample results as part of this level 2 data package verification review.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, MS/MSD Recovery, MS/MSD RPD, 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.

# Qualified Results Summary

CADENA Project ID: E203728

Laboratory: Eurofins Environment Testing LLC - Cleveland

Laboratory Submittal: 190407-1

<b>Sample Name:</b>	PW-16-02_081623	MW-62_081623
<b>Lab Sample ID:</b>	2401904072	2401904075
<b>Sample Date:</b>	8/16/2023	8/16/2023

Analyte	Cas No.	Report		Units	Valid	Report		Units	Valid	
		Result	Limit		Qualifier	Result	Limit		Qualifier	
<b>GC/MS VOC</b>										
<u>OSW-8260D</u>										
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	UJ					
cis-1,2-Dichloroethene	156-59-2	1.6	1.0	ug/l	J	0.92	1.0	ug/l	UB	
Tetrachloroethene	127-18-4	ND	1.0	ug/l	UJ					
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	UJ					
Trichloroethene	79-01-6	ND	1.0	ug/l	UJ					
Vinyl chloride	75-01-4	23	1.0	ug/l	UJ					

## Analytical Results Summary

CADENA Project ID: E203728

Laboratory: Eurofins Environment Testing LLC - Cleveland

Laboratory Submittal: 190407-1

Analyte	Cas No.	Sample Name: TRIP BLANK_73				Sample Name: PW-16-02_081623				Sample Name: MW-63_081623				Sample Name: MW-50_081623				Sample Name: MW-62_081623			
		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	1.0	ug/l	UJ	ND	1.0	ug/l	---	ND	6.7	ug/l	---	ND	1.0	ug/l	---
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	1.6	1.0	ug/l	J	ND	1.0	ug/l	---	9.5	6.7	ug/l	---	0.92	1.0	ug/l	UB
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	1.0	ug/l	UJ	ND	1.0	ug/l	---	ND	6.7	ug/l	---	ND	1.0	ug/l	---
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	ND	1.0	ug/l	UJ	ND	1.0	ug/l	---	ND	6.7	ug/l	---	ND	1.0	ug/l	---
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	1.0	ug/l	UJ	ND	1.0	ug/l	---	ND	6.7	ug/l	---	ND	1.0	ug/l	---
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	23	1.0	ug/l	UJ	ND	1.0	ug/l	---	210	6.7	ug/l	---	0.99	1.0	ug/l	J
<u>OSW-8260DSIM</u>																					
1,4-Dioxane	123-91-1					1.8	2.0	ug/l	J	ND	2.0	ug/l	---	1.3	2.0	ug/l	J	2.6	2.0	ug/l	---