

# ANALYTICAL REPORT

## PREPARED FOR

Attn: Kristoffer Hinskey  
ARCADIS US Inc  
28550 Cabot Drive  
Suite 500  
Novi, Michigan 48377

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## JOB DESCRIPTION

Ford LTP - On Site

## JOB NUMBER

240-185730-1

# Eurofins Cleveland

## Job Notes

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## Authorization



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

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## Definitions/Glossary

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

Job ID: 240-185730-1

### Qualifiers

#### GC/MS VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
F1	MS and/or MSD recovery exceeds control limits.
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: 240-185730-1

**Job ID: 240-185730-1**

**Laboratory: Eurofins Cleveland**

### Narrative

#### Job Narrative 240-185730-1

#### Receipt

The samples were received on 5/20/2023 8:00 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 1.2°C and 1.8°C

#### GC/MS VOA

Method 8260D: The continuing calibration verification (CCV) associated with batch 460-911906 recovered above the upper control limit for cis-1,2-Dichloroethene and trans-1,2-Dichloroethene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method 8260D: The laboratory control sample (LCS) for analytical batch 460-911906 recovered outside control limits for the following analyte: cis-1,2-Dichloroethene. This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data have been reported.

Method 8260D\_SIM: Internal standard (ISTD) response for Fluorobenzene for the following samples in analytical batch 460-911865 was outside acceptance criteria: MW-51\_051723 (240-185730-2), MW-51-MS\_051723 (240-185730-2[MS]), MW-51-MSD\_051723 (240-185730-2[MSD]) and PW-16-02\_051723 (240-185730-3). This ISTD does not correspond to any of the requested target compounds reported from this analytical batch; therefore, the data have been reported.

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: 240-185730-1

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

### Protocol References:

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

### Laboratory References:

EET EDI = Eurofins Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

## Sample Summary

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

Job ID: 240-185730-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-185730-1	TRIP BLANK_72	Water	05/17/23 00:00	05/20/23 08:00
240-185730-2	MW-51_051723	Water	05/17/23 13:00	05/20/23 08:00
240-185730-3	PW-16-02_051723	Water	05/17/23 14:05	05/20/23 08:00

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# Client Sample Results

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

Job ID: 240-185730-1

Client Sample ID: TRIP BLANK\_72

Lab Sample ID: 240-185730-1

Date Collected: 05/17/23 00:00

Matrix: Water

Date Received: 05/20/23 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			05/28/23 07:15	1
cis-1,2-Dichloroethene	1.0	U *+	1.0	0.46	ug/L			05/28/23 07:15	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/28/23 07:15	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/28/23 07:15	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/28/23 07:15	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/28/23 07:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		70 - 128		05/28/23 07:15	1
Dibromofluoromethane (Surr)	110		77 - 124		05/28/23 07:15	1
Toluene-d8 (Surr)	86		80 - 120		05/28/23 07:15	1
4-Bromofluorobenzene	119		76 - 120		05/28/23 07:15	1

# Client Sample Results

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

Job ID: 240-185730-1

Client Sample ID: MW-51\_051723

Lab Sample ID: 240-185730-2

Date Collected: 05/17/23 13:00

Matrix: Water

Date Received: 05/20/23 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			05/27/23 07:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	97		75 - 133					05/27/23 07:55	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			05/28/23 09:09	1
cis-1,2-Dichloroethene	1.0	U *	1.0	0.46	ug/L			05/28/23 09:09	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/28/23 09:09	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/28/23 09:09	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/28/23 09:09	1
Vinyl chloride	1.0	U F1	1.0	0.45	ug/L			05/28/23 09:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		70 - 128					05/28/23 09:09	1
Dibromofluoromethane (Surr)	103		77 - 124					05/28/23 09:09	1
Toluene-d8 (Surr)	98		80 - 120					05/28/23 09:09	1
4-Bromofluorobenzene	101		76 - 120					05/28/23 09:09	1

# Client Sample Results

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

Job ID: 240-185730-1

Client Sample ID: PW-16-02\_051723

Lab Sample ID: 240-185730-3

Date Collected: 05/17/23 14:05

Matrix: Water

Date Received: 05/20/23 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			05/27/23 08:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	105		75 - 133					05/27/23 08:17	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			05/30/23 10:33	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/30/23 10:33	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/30/23 10:33	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/30/23 10:33	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/30/23 10:33	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/30/23 10:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		70 - 128					05/30/23 10:33	1
Dibromofluoromethane (Surr)	123		77 - 124					05/30/23 10:33	1
Toluene-d8 (Surr)	95		80 - 120					05/30/23 10:33	1
4-Bromofluorobenzene	102		76 - 120					05/30/23 10:33	1

# Surrogate Summary

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

Job ID: 240-185730-1

## 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	DCA	DBFM	TOL	BFB
		(70-128)	(77-124)	(80-120)	(76-120)
240-185730-1	TRIP BLANK_72	105	110	86	119
240-185730-2	MW-51_051723	102	103	98	101
240-185730-2 MS	MW-51-MS_051723	86	96	97	104
240-185730-2 MSD	MW-51-MSD_051723	85	96	109	110
240-185730-3	PW-16-02_051723	91	123	95	102
LCS 460-911906/2	Lab Control Sample	88	101	91	116
LCS 460-912117/4	Lab Control Sample	90	104	99	99
LCSD 460-912117/5	Lab Control Sample Dup	89	104	97	100
MB 460-911906/6	Method Blank	98	103	97	105
MB 460-912117/8	Method Blank	91	113	95	104
<b>Surrogate Legend</b>					
DCA = 1,2-Dichloroethane-d4 (Surr)					
DBFM = Dibromofluoromethane (Surr)					
TOL = Toluene-d8 (Surr)					
BFB = 4-Bromofluorobenzene					

## 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	BFB						
		(75-133)						
240-185730-2	MW-51_051723	97						
240-185730-2 MS	MW-51-MS_051723	92						
240-185730-2 MSD	MW-51-MSD_051723	93						
240-185730-3	PW-16-02_051723	105						
LCS 460-911865/2	Lab Control Sample	86						
LCSD 460-911865/3	Lab Control Sample Dup	94						
MB 460-911865/6	Method Blank	95						
<b>Surrogate Legend</b>								
BFB = 4-Bromofluorobenzene								

# QC Sample Results

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

Job ID: 240-185730-1

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

Lab Sample ID: MB 460-911906/6

Matrix: Water

Analysis Batch: 911906

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/28/23 06:07	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/28/23 06:07	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/28/23 06:07	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/28/23 06:07	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/28/23 06:07	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/28/23 06:07	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		70 - 128		05/28/23 06:07	1
Dibromofluoromethane (Surr)	103		77 - 124		05/28/23 06:07	1
Toluene-d8 (Surr)	97		80 - 120		05/28/23 06:07	1
4-Bromofluorobenzene	105		76 - 120		05/28/23 06:07	1

Lab Sample ID: LCS 460-911906/2

Matrix: Water

Analysis Batch: 911906

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethene	20.0	23.9		ug/L		120	68 - 133
cis-1,2-Dichloroethene	20.0	24.7	*+	ug/L		123	78 - 121
Tetrachloroethene	20.0	22.1		ug/L		111	70 - 127
trans-1,2-Dichloroethene	20.0	25.2		ug/L		126	74 - 126
Trichloroethene	20.0	23.7		ug/L		119	71 - 121
Vinyl chloride	20.0	23.2		ug/L		116	55 - 144

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	88		70 - 128
Dibromofluoromethane (Surr)	101		77 - 124
Toluene-d8 (Surr)	91		80 - 120
4-Bromofluorobenzene	116		76 - 120

Lab Sample ID: 240-185730-2 MS

Matrix: Water

Analysis Batch: 911906

Client Sample ID: MW-51-MS\_051723

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethene	1.0	U	20.0	20.0		ug/L		100	68 - 133
cis-1,2-Dichloroethene	1.0	U *+	20.0	19.8		ug/L		99	78 - 121
Tetrachloroethene	1.0	U	20.0	21.2		ug/L		106	70 - 127
trans-1,2-Dichloroethene	1.0	U	20.0	19.5		ug/L		98	74 - 126
Trichloroethene	1.0	U	20.0	19.3		ug/L		96	71 - 121
Vinyl chloride	1.0	U F1	20.0	26.6		ug/L		133	55 - 144

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	86		70 - 128
Dibromofluoromethane (Surr)	96		77 - 124
Toluene-d8 (Surr)	97		80 - 120

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# QC Sample Results

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

Job ID: 240-185730-1

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

Lab Sample ID: 240-185730-2 MS

Matrix: Water

Analysis Batch: 911906

Client Sample ID: MW-51-MS\_051723

Prep Type: Total/NA

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene	104		76 - 120

Lab Sample ID: 240-185730-2 MSD

Matrix: Water

Analysis Batch: 911906

Client Sample ID: MW-51-MSD\_051723

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	20.4		ug/L		102	68 - 133	2	30
cis-1,2-Dichloroethene	1.0	U *	20.0	21.1		ug/L		105	78 - 121	6	30
Tetrachloroethene	1.0	U	20.0	24.8		ug/L		124	70 - 127	16	30
trans-1,2-Dichloroethene	1.0	U	20.0	20.6		ug/L		103	74 - 126	5	30
Trichloroethene	1.0	U	20.0	20.4		ug/L		102	71 - 121	6	30
Vinyl chloride	1.0	U F1	20.0	29.1	F1	ug/L		145	55 - 144	9	30

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	85		70 - 128
Dibromofluoromethane (Surr)	96		77 - 124
Toluene-d8 (Surr)	109		80 - 120
4-Bromofluorobenzene	110		76 - 120

Lab Sample ID: MB 460-912117/8

Matrix: Water

Analysis Batch: 912117

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/30/23 08:39	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/30/23 08:39	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/30/23 08:39	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/30/23 08:39	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/30/23 08:39	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/30/23 08:39	1

	MB	MB				
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		70 - 128		05/30/23 08:39	1
Dibromofluoromethane (Surr)	113		77 - 124		05/30/23 08:39	1
Toluene-d8 (Surr)	95		80 - 120		05/30/23 08:39	1
4-Bromofluorobenzene	104		76 - 120		05/30/23 08:39	1

Lab Sample ID: LCS 460-912117/4

Matrix: Water

Analysis Batch: 912117

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethene	20.0	21.4		ug/L		107	68 - 133
cis-1,2-Dichloroethene	20.0	20.4		ug/L		102	78 - 121
Tetrachloroethene	20.0	20.6		ug/L		103	70 - 127
trans-1,2-Dichloroethene	20.0	20.4		ug/L		102	74 - 126
Trichloroethene	20.0	21.0		ug/L		105	71 - 121

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# QC Sample Results

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

Job ID: 240-185730-1

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

Lab Sample ID: LCS 460-912117/4

Matrix: Water

Analysis Batch: 912117

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Vinyl chloride	20.0	17.3		ug/L		87	55 - 144

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	90		70 - 128
Dibromofluoromethane (Surr)	104		77 - 124
Toluene-d8 (Surr)	99		80 - 120
4-Bromofluorobenzene	99		76 - 120

Lab Sample ID: LCSD 460-912117/5

Matrix: Water

Analysis Batch: 912117

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1-Dichloroethene	20.0	21.3		ug/L		106	68 - 133	0	30
cis-1,2-Dichloroethene	20.0	20.3		ug/L		101	78 - 121	1	30
Tetrachloroethene	20.0	20.0		ug/L		100	70 - 127	3	30
trans-1,2-Dichloroethene	20.0	19.8		ug/L		99	74 - 126	3	30
Trichloroethene	20.0	19.5		ug/L		97	71 - 121	8	30
Vinyl chloride	20.0	15.8		ug/L		79	55 - 144	9	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	89		70 - 128
Dibromofluoromethane (Surr)	104		77 - 124
Toluene-d8 (Surr)	97		80 - 120
4-Bromofluorobenzene	100		76 - 120

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

Lab Sample ID: MB 460-911865/6

Matrix: Water

Analysis Batch: 911865

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			05/27/23 07:29	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	95		75 - 133		05/27/23 07:29	1

Lab Sample ID: LCS 460-911865/2

Matrix: Water

Analysis Batch: 911865

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	5.00	4.57		ug/L		91	57 - 124

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene	86		75 - 133

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# QC Sample Results

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

Job ID: 240-185730-1

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

Lab Sample ID: LCSD 460-911865/3

Matrix: Water

Analysis Batch: 911865

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,4-Dioxane			5.00	5.01		ug/L		100	57 - 124	9	30
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits								
4-Bromofluorobenzene	94		75 - 133								

Lab Sample ID: 240-185730-2 MS

Matrix: Water

Analysis Batch: 911865

Client Sample ID: MW-51-MS\_051723

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,4-Dioxane	2.0	U	5.00	4.09		ug/L		82	57 - 124		
Surrogate	MS %Recovery	MS Qualifier	Limits								
4-Bromofluorobenzene	92		75 - 133								

Lab Sample ID: 240-185730-2 MSD

Matrix: Water

Analysis Batch: 911865

Client Sample ID: MW-51-MSD\_051723

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	5.00	4.84		ug/L		97	57 - 124	17	30
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
4-Bromofluorobenzene	93		75 - 133								

## QC Association Summary

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

Job ID: 240-185730-1

### GC/MS VOA

#### Analysis Batch: 911865

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-185730-2	MW-51_051723	Total/NA	Water	8260D SIM	
240-185730-3	PW-16-02_051723	Total/NA	Water	8260D SIM	
MB 460-911865/6	Method Blank	Total/NA	Water	8260D SIM	
LCS 460-911865/2	Lab Control Sample	Total/NA	Water	8260D SIM	
LCSD 460-911865/3	Lab Control Sample Dup	Total/NA	Water	8260D SIM	
240-185730-2 MS	MW-51-MS_051723	Total/NA	Water	8260D SIM	
240-185730-2 MSD	MW-51-MSD_051723	Total/NA	Water	8260D SIM	

#### Analysis Batch: 911906

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-185730-1	TRIP BLANK_72	Total/NA	Water	8260D	
240-185730-2	MW-51_051723	Total/NA	Water	8260D	
MB 460-911906/6	Method Blank	Total/NA	Water	8260D	
LCS 460-911906/2	Lab Control Sample	Total/NA	Water	8260D	
240-185730-2 MS	MW-51-MS_051723	Total/NA	Water	8260D	
240-185730-2 MSD	MW-51-MSD_051723	Total/NA	Water	8260D	

#### Analysis Batch: 912117

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-185730-3	PW-16-02_051723	Total/NA	Water	8260D	
MB 460-912117/8	Method Blank	Total/NA	Water	8260D	
LCS 460-912117/4	Lab Control Sample	Total/NA	Water	8260D	
LCSD 460-912117/5	Lab Control Sample Dup	Total/NA	Water	8260D	

# Lab Chronicle

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

Job ID: 240-185730-1

**Client Sample ID: TRIP BLANK\_72**

**Lab Sample ID: 240-185730-1**

Date Collected: 05/17/23 00:00

Matrix: Water

Date Received: 05/20/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	911906	SZD	EET EDI	05/28/23 07:15

**Client Sample ID: MW-51\_051723**

**Lab Sample ID: 240-185730-2**

Date Collected: 05/17/23 13:00

Matrix: Water

Date Received: 05/20/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	911906	SZD	EET EDI	05/28/23 09:09
Total/NA	Analysis	8260D SIM		1	911865	SZD	EET EDI	05/27/23 07:55

**Client Sample ID: PW-16-02\_051723**

**Lab Sample ID: 240-185730-3**

Date Collected: 05/17/23 14:05

Matrix: Water

Date Received: 05/20/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	912117	SZD	EET EDI	05/30/23 10:33
Total/NA	Analysis	8260D SIM		1	911865	SZD	EET EDI	05/27/23 08:17

## Laboratory References:

EET EDI = Eurofins Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

## Accreditation/Certification Summary

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

Job ID: 240-185730-1

### Laboratory: Eurofins Edison

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Connecticut	State	PH-0818	01-30-24
DE Haz. Subst. Cleanup Act (HSCA)	State	N/A	01-01-24
Georgia	State	12028 (NJ)	06-30-23
Massachusetts	State	M-NJ312	06-30-23
New Jersey	NELAP	12028	06-30-23
New York	NELAP	11452	04-01-24
Pennsylvania	NELAP	68-00522	03-01-24
Rhode Island	State	LAO00376	12-30-23
USDA	US Federal Programs	P330-20-00244	11-03-23

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**Eurofins - Canton Sample Receipt Form/Narrative** Login # : \_\_\_\_\_  
**Barberton Facility**

Client Arcadis Site Name \_\_\_\_\_ Cooler unpacked by: Mandy  
Cooler Received on 5-20-23 Opened on 5-20-23  
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 # 0017 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 10 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity \_\_\_\_\_  
- 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)?  
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# HC208070  
14. Were VOAs on the COC? Yes No NA  
15. Were air bubbles >6 mm in any VOA vials? Yes Larger than this. Yes No NA  
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # \_\_\_\_\_ 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) \_\_\_\_\_ 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: \_\_\_\_\_

7015

[illegible]

## Login Sample Receipt Checklist

Client: ARCADIS US Inc

Job Number: 240-185730-1

**Login Number: 185730**

**List Number: 2**

**Creator: Rivera, Kenneth**

**List Source: Eurofins Edison**

**List Creation: 05/25/23 10:14 AM**

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	2059440
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.2°C, IR #9
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

# DATA VERIFICATION REPORT



June 05, 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: 185730-1

Sample date: 2023-05-17

Report received by CADENA: 2023-06-05

Initial Data Verification completed by CADENA: 2023-06-05

Number of Samples:3

Sample Matrices: Water and trip blank

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:

LCS recoveries were outliers biased HIGH for these tests and analytes (or one LCS and the associated LCS/LCSD RPD). All associated client sample results were non-detect for these analytes so were not affected by the high bias and qualification was not required: GCMS VOC QC batch 911906 - cis-1,2-dichloroethylene.

MS or MSD recoveries but not both or RPD only were outliers for the following analytes so results for the client sample spiked were not qualified based on these QC outliers alone: GCMS VOC sample -002 - vinyl chloride.

GCMS VOC CCV/INTERNAL STANDARD 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, LCS/LCD RPD, 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.

## Analytical Results Summary

**CADENA Project ID:** E203728

**Laboratory:** Eurofins Environment Testing LLC - Cleveland

**Laboratory Submittal:** 185730-1

**Sample Name:** TRIP BLANK\_72  
**Lab Sample ID:** 2401857301  
**Sample Date:** 5/17/2023

**MW-51\_051723**  
**2401857302**  
**5/17/2023**

**PW-16-02\_051723**  
**2401857303**  
**5/17/2023**

Analyte	Cas No.	Report		Units	Valid Qualifier	Report		Units	Valid Qualifier	Report		Units	Valid Qualifier
		Result	Limit			Result	Limit			Result	Limit		

### GC/MS VOC

#### OSW-8260D

1,1-Dichloroethene	75-35-4	ND	1.0	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	1.0	ug/l	---	ND	1.0	ug/l	---
Tetrachloroethene	127-18-4	ND	1.0	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	1.0	ug/l	---	ND	1.0	ug/l	---
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---

#### OSW-8260DSIM

1,4-Dioxane	123-91-1					ND	2.0	ug/l	---	ND	2.0	ug/l	---
-------------	----------	--	--	--	--	----	-----	------	-----	----	-----	------	-----