

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

240-185727-1

Eurofins Cleveland

Job Notes

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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



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Authorized for release by
Michael DelMonico, Project Manager I
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: 240-185727-1

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.
▫	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: 240-185727-1

Job ID: 240-185727-1

Laboratory: Eurofins Cleveland

Narrative

Job Narrative 240-185727-1

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 temperature of the cooler at receipt time was 1.8°C

GC/MS VOA

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 460-911905 was outside the method criteria for the following analyte(s): Trichloroethene. 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: Surrogate recovery for the following sample was outside the upper control limit: TRIP BLANK_120 (240-185727-1). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Method 8260D_SIM: Internal standard (ISTD) response for Fluorobenzene for the following samples in analytical batch 460-911865 was outside acceptance criteria: MW-209S_051823 (240-185727-2), MW-211S_051823 (240-185727-3), MW-212S_051823 (240-185727-4) and MW-213S_051823 (240-185727-5). 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: 240-185727-1

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: 240-185727-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-185727-1	TRIP BLANK_120	Water	05/18/23 00:00	05/20/23 08:00
240-185727-2	MW-209S_051823	Water	05/18/23 09:55	05/20/23 08:00
240-185727-3	MW-211S_051823	Water	05/18/23 10:55	05/20/23 08:00
240-185727-4	MW-212S_051823	Water	05/18/23 11:55	05/20/23 08:00
240-185727-5	MW-213S_051823	Water	05/18/23 12:55	05/20/23 08:00

Detection Summary

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

Job ID: 240-185727-1

Client Sample ID: TRIP BLANK_120

Lab Sample ID: 240-185727-1

No Detections.

Client Sample ID: MW-209S_051823

Lab Sample ID: 240-185727-2

No Detections.

Client Sample ID: MW-211S_051823

Lab Sample ID: 240-185727-3

No Detections.

Client Sample ID: MW-212S_051823

Lab Sample ID: 240-185727-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	1.6		1.0	0.46	ug/L	1		8260D	Total/NA
Vinyl chloride	0.50	J	1.0	0.45	ug/L	1		8260D	Total/NA

Client Sample ID: MW-213S_051823

Lab Sample ID: 240-185727-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.46	J	1.0	0.46	ug/L	1		8260D	Total/NA
Vinyl chloride	0.90	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: 240-185727-1

Client Sample ID: TRIP BLANK_120

Lab Sample ID: 240-185727-1

Date Collected: 05/18/23 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			05/27/23 19:31	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/27/23 19:31	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/27/23 19:31	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/27/23 19:31	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/27/23 19:31	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/27/23 19:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		70 - 128		05/27/23 19:31	1
Dibromofluoromethane (Surr)	103		77 - 124		05/27/23 19:31	1
Toluene-d8 (Surr)	108		80 - 120		05/27/23 19:31	1
4-Bromofluorobenzene	128	S1+	76 - 120		05/27/23 19:31	1

Client Sample Results

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

Job ID: 240-185727-1

Client Sample ID: MW-209S_051823

Lab Sample ID: 240-185727-2

Date Collected: 05/18/23 09:55

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 09:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	99		75 - 133					05/27/23 09:03	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			05/27/23 23:18	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/27/23 23:18	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/27/23 23:18	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/27/23 23:18	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/27/23 23:18	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/27/23 23:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		70 - 128					05/27/23 23:18	1
Dibromofluoromethane (Surr)	108		77 - 124					05/27/23 23:18	1
Toluene-d8 (Surr)	98		80 - 120					05/27/23 23:18	1
4-Bromofluorobenzene	99		76 - 120					05/27/23 23:18	1

Client Sample Results

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

Job ID: 240-185727-1

Client Sample ID: MW-211S_051823

Lab Sample ID: 240-185727-3

Date Collected: 05/18/23 10:55

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 09:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	102		75 - 133					05/27/23 09:25	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			05/27/23 23:41	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/27/23 23:41	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/27/23 23:41	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/27/23 23:41	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/27/23 23:41	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/27/23 23:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		70 - 128					05/27/23 23:41	1
Dibromofluoromethane (Surr)	113		77 - 124					05/27/23 23:41	1
Toluene-d8 (Surr)	98		80 - 120					05/27/23 23:41	1
4-Bromofluorobenzene	96		76 - 120					05/27/23 23:41	1

Client Sample Results

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

Job ID: 240-185727-1

Client Sample ID: MW-212S_051823

Lab Sample ID: 240-185727-4

Date Collected: 05/18/23 11:55

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 09:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	95		75 - 133					05/27/23 09:58	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 00:03	1
cis-1,2-Dichloroethene	1.6		1.0	0.46	ug/L			05/28/23 00:03	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/28/23 00:03	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/28/23 00:03	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/28/23 00:03	1
Vinyl chloride	0.50	J	1.0	0.45	ug/L			05/28/23 00:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		70 - 128					05/28/23 00:03	1
Dibromofluoromethane (Surr)	107		77 - 124					05/28/23 00:03	1
Toluene-d8 (Surr)	104		80 - 120					05/28/23 00:03	1
4-Bromofluorobenzene	109		76 - 120					05/28/23 00:03	1

Client Sample Results

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

Job ID: 240-185727-1

Client Sample ID: MW-213S_051823

Lab Sample ID: 240-185727-5

Date Collected: 05/18/23 12:55

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 10:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	103		75 - 133					05/27/23 10:20	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 00:26	1
cis-1,2-Dichloroethene	0.46	J	1.0	0.46	ug/L			05/28/23 00:26	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/28/23 00:26	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/28/23 00:26	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/28/23 00:26	1
Vinyl chloride	0.90	J	1.0	0.45	ug/L			05/28/23 00:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		70 - 128					05/28/23 00:26	1
Dibromofluoromethane (Surr)	103		77 - 124					05/28/23 00:26	1
Toluene-d8 (Surr)	97		80 - 120					05/28/23 00:26	1
4-Bromofluorobenzene	98		76 - 120					05/28/23 00:26	1

Surrogate Summary

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

Job ID: 240-185727-1

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 (70-128)	DBFM (77-124)	TOL (80-120)	BFB (76-120)
240-185646-A-2 MS	Matrix Spike	99	97	94	101
240-185646-A-2 MSD	Matrix Spike Duplicate	97	94	113	107
240-185727-1	TRIP BLANK_120	103	103	108	128 S1+
240-185727-2	MW-209S_051823	101	108	98	99
240-185727-3	MW-211S_051823	99	113	98	96
240-185727-4	MW-212S_051823	102	107	104	109
240-185727-5	MW-213S_051823	106	103	97	98
LCS 460-911905/3	Lab Control Sample	86	119	93	116
MB 460-911905/7	Method Blank	91	111	88	118
Surrogate Legend					
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)			
240-185727-2	MW-209S_051823	99			
240-185727-3	MW-211S_051823	102			
240-185727-4	MW-212S_051823	95			
240-185727-5	MW-213S_051823	103			
LCS 460-911865/2	Lab Control Sample	86			
LCSD 460-911865/3	Lab Control Sample Dup	94			
MB 460-911865/6	Method Blank	95			
Surrogate Legend					
BFB = 4-Bromofluorobenzene					

QC Sample Results

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

Job ID: 240-185727-1

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

Lab Sample ID: MB 460-911905/7

Matrix: Water

Analysis Batch: 911905

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			05/27/23 18:23	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/27/23 18:23	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/27/23 18:23	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/27/23 18:23	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/27/23 18:23	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/27/23 18:23	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		70 - 128		05/27/23 18:23	1
Dibromofluoromethane (Surr)	111		77 - 124		05/27/23 18:23	1
Toluene-d8 (Surr)	88		80 - 120		05/27/23 18:23	1
4-Bromofluorobenzene	118		76 - 120		05/27/23 18:23	1

Lab Sample ID: LCS 460-911905/3

Matrix: Water

Analysis Batch: 911905

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	23.2		ug/L		116	68 - 133
cis-1,2-Dichloroethene	20.0	22.2		ug/L		111	78 - 121
Tetrachloroethene	20.0	20.4		ug/L		102	70 - 127
trans-1,2-Dichloroethene	20.0	22.1		ug/L		111	74 - 126
Trichloroethene	20.0	18.6		ug/L		93	71 - 121
Vinyl chloride	20.0	25.1		ug/L		126	55 - 144

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	86		70 - 128
Dibromofluoromethane (Surr)	119		77 - 124
Toluene-d8 (Surr)	93		80 - 120
4-Bromofluorobenzene	116		76 - 120

Lab Sample ID: 240-185646-A-2 MS

Matrix: Water

Analysis Batch: 911905

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethene	1.0	U	20.0	20.7		ug/L		103	68 - 133
cis-1,2-Dichloroethene	1.0	U	20.0	20.6		ug/L		103	78 - 121
Tetrachloroethene	1.0	U	20.0	20.1		ug/L		101	70 - 127
trans-1,2-Dichloroethene	1.0	U	20.0	19.7		ug/L		98	74 - 126
Trichloroethene	1.0	U	20.0	20.4		ug/L		102	71 - 121
Vinyl chloride	0.75	J	20.0	18.9		ug/L		91	55 - 144

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	99		70 - 128
Dibromofluoromethane (Surr)	97		77 - 124
Toluene-d8 (Surr)	94		80 - 120

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QC Sample Results

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

Job ID: 240-185727-1

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

Lab Sample ID: 240-185646-A-2 MS

Matrix: Water

Analysis Batch: 911905

Client Sample ID: Matrix Spike

Prep Type: Total/NA

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene	101		76 - 120

Lab Sample ID: 240-185646-A-2 MSD

Matrix: Water

Analysis Batch: 911905

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	20.8		ug/L		104	68 - 133	1	30
cis-1,2-Dichloroethene	1.0	U	20.0	20.9		ug/L		104	78 - 121	1	30
Tetrachloroethene	1.0	U	20.0	23.7		ug/L		118	70 - 127	16	30
trans-1,2-Dichloroethene	1.0	U	20.0	20.5		ug/L		103	74 - 126	4	30
Trichloroethene	1.0	U	20.0	20.2		ug/L		101	71 - 121	1	30
Vinyl chloride	0.75	J	20.0	21.3		ug/L		103	55 - 144	12	30

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	97		70 - 128
Dibromofluoromethane (Surr)	94		77 - 124
Toluene-d8 (Surr)	113		80 - 120
4-Bromofluorobenzene	107		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

	MB	MB							
Surrogate	%Recovery	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

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

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

Eurofins Cleveland

QC Sample Results

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

Job ID: 240-185727-1

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

Surrogate	LCSD	LCSD	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene	94		75 - 133

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

QC Association Summary

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

Job ID: 240-185727-1

GC/MS VOA

Analysis Batch: 911865

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-185727-2	MW-209S_051823	Total/NA	Water	8260D SIM	
240-185727-3	MW-211S_051823	Total/NA	Water	8260D SIM	
240-185727-4	MW-212S_051823	Total/NA	Water	8260D SIM	
240-185727-5	MW-213S_051823	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	

Analysis Batch: 911905

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-185727-1	TRIP BLANK_120	Total/NA	Water	8260D	
240-185727-2	MW-209S_051823	Total/NA	Water	8260D	
240-185727-3	MW-211S_051823	Total/NA	Water	8260D	
240-185727-4	MW-212S_051823	Total/NA	Water	8260D	
240-185727-5	MW-213S_051823	Total/NA	Water	8260D	
MB 460-911905/7	Method Blank	Total/NA	Water	8260D	
LCS 460-911905/3	Lab Control Sample	Total/NA	Water	8260D	
240-185646-A-2 MS	Matrix Spike	Total/NA	Water	8260D	
240-185646-A-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Lab Chronicle

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

Job ID: 240-185727-1

Client Sample ID: TRIP BLANK_120

Lab Sample ID: 240-185727-1

Date Collected: 05/18/23 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	911905	SZD	EET EDI	05/27/23 19:31

Client Sample ID: MW-209S_051823

Lab Sample ID: 240-185727-2

Date Collected: 05/18/23 09:55

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	911905	SZD	EET EDI	05/27/23 23:18
Total/NA	Analysis	8260D SIM		1	911865	SZD	EET EDI	05/27/23 09:03

Client Sample ID: MW-211S_051823

Lab Sample ID: 240-185727-3

Date Collected: 05/18/23 10:55

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	911905	SZD	EET EDI	05/27/23 23:41
Total/NA	Analysis	8260D SIM		1	911865	SZD	EET EDI	05/27/23 09:25

Client Sample ID: MW-212S_051823

Lab Sample ID: 240-185727-4

Date Collected: 05/18/23 11:55

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	911905	SZD	EET EDI	05/28/23 00:03
Total/NA	Analysis	8260D SIM		1	911865	SZD	EET EDI	05/27/23 09:58

Client Sample ID: MW-213S_051823

Lab Sample ID: 240-185727-5

Date Collected: 05/18/23 12:55

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	911905	SZD	EET EDI	05/28/23 00:26
Total/NA	Analysis	8260D SIM		1	911865	SZD	EET EDI	05/27/23 10:20

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: 240-185727-1

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

1.8/1.8

Chain of Custody Record

TestAmerica

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

THE LEADER IN ENVIRONMENTAL TESTING

Client Contact		Regulatory program:		Site Contact: Christina Weaver		Lab Contact: Mike DelMonico	
Company Name: Arcadis		DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other <input type="checkbox"/>		Telephone: 248-994-2240		Telephone: 330-497-9396	
Address: 28550 Cabot Drive, Suite 500		City/State/Zip: Novi, MI, 48377		Email: kristoffer.hinskey@arcadis.com		COC No:	
Phone: 248-994-2240		Project Name: Ford LTP On-Site		Analysis Turnaround Time		For lab use only	
Project Number: 30167538-401.03		Method of Shipment/Carrier:		10 day <input type="checkbox"/> 3 weeks <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day <input type="checkbox"/>		Walk-in client	
PO # 30167538-401.03		Shipping/Tracking No:		Sampler Name: Joe Fogt		Lab sampling	
Sample Identification		Sample Date		Sample Time		Job/SDG No:	
Sample Date		Sample Time		Matrix		Sample Specific Notes / Special Instructions:	
Sample Date		Sample Time		Matrix		Sample Specific Notes / Special Instructions:	
6 TRIP BLANK_ 12.0	---	---	---	---	---	---	1 Trip Blank
MW-209s_051823	5-18-23	0955	6	---	---	---	3 VOAs for 8260B 3 VOAs for 8260B SIM
MW-211s_051823	5-18-23	1055	6	---	---	---	I
MW-212s_051823	5-18-23	1155	6	---	---	---	
MW-213s_051823	5-18-23	1255	6	---	---	---	



240-185727 Chain of Custody

MICHIGAN
190

Possible Hazard Identification		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
<input type="checkbox"/> Non-Hazard	<input type="checkbox"/> Irritant	<input type="checkbox"/> Return to Client	<input type="checkbox"/> Disposal By Lab
		Archive For _____ Months	

Special Instructions/QC Requirements & Comments:

Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203728

Level IV Reporting requested.

Relinquished by:		Date/Time:		Company:	
Relinquished by:		5-18-23 / 1415		Arcadis	
Relinquished by:		5-19-23 / 1100		Arcadis	
Relinquished by:		5-19-23 / 11:00		Arcadis	

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6/4/2023

Eurofins - Canton Sample Receipt Form/Narrative				Login # : _____	
Barberton Facility					
Client <u>Arcadis</u>		Site Name _____		Cooler unpacked by: <u>Mamoduly</u>	
Cooler Received on <u>5-20-23</u>		Opened on <u>5-20-23</u>			
FedEx: 1 st Grd Exp <u>UPS FAS</u>		<u>Clippo</u>		Client Drop Off Eurofins Courier Other _____	
Receipt After-hours: Drop-off Date/Time			Storage Location		
Eurofins Cooler # <u>ee2nc</u>		Foam Box _____		Client Cooler Box Other _____	
Packing material used: <u>Bubble Wrap</u>		Foam Plastic Bag None Other _____			
COOLANT: <u>Wet Ice</u>		Blue Ice Dry Ice Water None			
1. Cooler temperature upon receipt		<input type="checkbox"/> See Multiple Cooler Form			
IR GUN # <u>22</u> (CF <u>+0</u> °C)		Observed Cooler Temp. <u>1.8</u> °C		Corrected Cooler Temp. <u>1.8</u> °C	
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity _____		Yes No		Tests that are not checked for pH by Receiving: VOAs Oil and Grease TOC	
-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 <u>No</u> NA			
-Were tamper/custody seals intact and uncompromised?		Yes No NA			
3. Shippers' packing slip attached to the cooler(s)?		Yes <u>No</u>			
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 (<u>Y</u> /N), # of containers (<u>Y</u> /N), and sample type of grab/comp (<u>Y</u> /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 <u>No</u>			
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 <u>NA</u>		pH Strip Lot# <u>HC208070</u>	
14. Were VOAs on the COC?		Yes No			
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 # _____		Yes No			
17. Was a LL Hg or Me Hg trip blank present? _____		Yes <u>No</u>			
Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____					
Concerning _____					

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES		<input type="checkbox"/> 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) <u>Trip blank</u> 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: _____			

Chain of Custody Record

[illegible]

Login Sample Receipt Checklist

Client: ARCADIS US Inc

Job Number: 240-185727-1

Login Number: 185727

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: 185727-1

Sample date: 2023-05-18

Report received by CADENA: 2023-06-05

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

Number of Samples:5

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:

SUR - GCMS VOC surrogate recoveries were outside of laboratory control limits biased HIGH for at least 1 surrogate. These client sample results that were detected for the analytical fraction specified should be considered estimated and qualified with J flags (non-detect results do not require qualification): GCMS VOC sample -001 - all associated results ND - qualification not required.

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, 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: 185727-1

Analyte	Cas No.	Sample Name: TRIP BLANK_120				MW-209S_051823				MW-211S_051823				MW-212S_051823				MW-213S_051823			
		Lab Sample ID: 2401857271				2401857272				2401857273				2401857274				2401857275			
		Sample Date: 5/18/2023				5/18/2023				5/18/2023				5/18/2023				5/18/2023			
		Report	Valid	Report	Valid	Report	Valid	Report	Valid	Report	Valid	Report	Valid	Report	Valid	Report	Valid	Report	Valid	Report	Valid
		Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
GC/MS VOC																					
<u>OSW-8260D</u>																					
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	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	---	1.6	1.0	ug/l	---	0.46	1.0	ug/l	J
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	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	---	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	---	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	---	0.50	1.0	ug/l	J	0.90	1.0	ug/l	J
<u>OSW-8260DSIM</u>																					
1,4-Dioxane	123-91-1					ND	2.0	ug/l	---	ND	2.0	ug/l	---	ND	2.0	ug/l	---	ND	2.0	ug/l	---