

ANALYTICAL REPORT

PREPARED FOR

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Generated 12/4/2023 5:38:07 AM

JOB DESCRIPTION

Ford LTP - On Site

JOB NUMBER

240-195831-1

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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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	13
QC Sample Results	14
QC Association Summary	17
Lab Chronicle	18
Certification Summary	19
Chain of Custody	20

Definitions/Glossary

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

Job ID: 240-195831-1

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.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

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

Job ID: 240-195831-1

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Laboratory: Eurofins Cleveland

Narrative

**Job Narrative
240-195831-1**

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method. Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt

The samples were received on 11/21/2023 10:35 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 2.2°C and 3.9°C

GC/MS VOA

Method 8260D: The method requirement for no headspace was not met. The following volatile sample was analyzed with headspace in the sample container(s): DUP-01 (240-195831-4).

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: 240-195831-1

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



Sample Summary

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

Job ID: 240-195831-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-195831-1	TRIP BLANK_118	Water	11/17/23 00:00	11/21/23 10:35
240-195831-2	MW-51_111723	Water	11/17/23 13:41	11/21/23 10:35
240-195831-3	MW-19_111723	Water	11/17/23 15:02	11/21/23 10:35
240-195831-4	DUP-01	Water	11/17/23 00:00	11/21/23 10:35

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

Detection Summary

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

Job ID: 240-195831-1

Client Sample ID: TRIP BLANK_118

Lab Sample ID: 240-195831-1

No Detections.

Client Sample ID: MW-51_111723

Lab Sample ID: 240-195831-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.9	J	2.0	0.86	ug/L	1		8260D SIM	Total/NA

Client Sample ID: MW-19_111723

Lab Sample ID: 240-195831-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	280		4.0	1.7	ug/L	2		8260D SIM	Total/NA
cis-1,2-Dichloroethene	0.57	J	1.0	0.46	ug/L	1		8260D	Total/NA
Trichloroethene	0.94	J	1.0	0.44	ug/L	1		8260D	Total/NA
Vinyl chloride	0.69	J	1.0	0.45	ug/L	1		8260D	Total/NA

Client Sample ID: DUP-01

Lab Sample ID: 240-195831-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	280		4.0	1.7	ug/L	2		8260D SIM	Total/NA
cis-1,2-Dichloroethene	0.59	J	1.0	0.46	ug/L	1		8260D	Total/NA
Trichloroethene	0.86	J	1.0	0.44	ug/L	1		8260D	Total/NA
Vinyl chloride	0.70	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: 240-195831-1

Client Sample ID: TRIP BLANK_118

Lab Sample ID: 240-195831-1

Date Collected: 11/17/23 00:00

Matrix: Water

Date Received: 11/21/23 10:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/27/23 21:02	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/27/23 21:02	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/27/23 21:02	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/27/23 21:02	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/27/23 21:02	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/27/23 21:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		62 - 137		11/27/23 21:02	1
4-Bromofluorobenzene (Surr)	81		56 - 136		11/27/23 21:02	1
Toluene-d8 (Surr)	104		78 - 122		11/27/23 21:02	1
Dibromofluoromethane (Surr)	101		73 - 120		11/27/23 21:02	1

Client Sample Results

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

Job ID: 240-195831-1

Client Sample ID: MW-51_111723

Lab Sample ID: 240-195831-2

Date Collected: 11/17/23 13:41

Matrix: Water

Date Received: 11/21/23 10:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.9	J	2.0	0.86	ug/L			11/30/23 22:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		66 - 120					11/30/23 22:23	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			11/28/23 01:38	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/28/23 01:38	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/28/23 01:38	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/28/23 01:38	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/28/23 01:38	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/28/23 01:38	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		62 - 137					11/28/23 01:38	1
4-Bromofluorobenzene (Surr)	82		56 - 136					11/28/23 01:38	1
Toluene-d8 (Surr)	105		78 - 122					11/28/23 01:38	1
Dibromofluoromethane (Surr)	100		73 - 120					11/28/23 01:38	1

Client Sample Results

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

Job ID: 240-195831-1

Client Sample ID: MW-19_111723

Lab Sample ID: 240-195831-3

Date Collected: 11/17/23 15:02

Matrix: Water

Date Received: 11/21/23 10:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	280		4.0	1.7	ug/L			11/30/23 22:47	2
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		66 - 120					11/30/23 22:47	2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/28/23 02:03	1
cis-1,2-Dichloroethene	0.57	J	1.0	0.46	ug/L			11/28/23 02:03	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/28/23 02:03	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/28/23 02:03	1
Trichloroethene	0.94	J	1.0	0.44	ug/L			11/28/23 02:03	1
Vinyl chloride	0.69	J	1.0	0.45	ug/L			11/28/23 02:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		62 - 137					11/28/23 02:03	1
4-Bromofluorobenzene (Surr)	77		56 - 136					11/28/23 02:03	1
Toluene-d8 (Surr)	106		78 - 122					11/28/23 02:03	1
Dibromofluoromethane (Surr)	99		73 - 120					11/28/23 02:03	1

Client Sample Results

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

Job ID: 240-195831-1

Client Sample ID: DUP-01

Lab Sample ID: 240-195831-4

Date Collected: 11/17/23 00:00

Matrix: Water

Date Received: 11/21/23 10:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	280		4.0	1.7	ug/L			11/30/23 23:11	2
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		66 - 120					11/30/23 23:11	2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/28/23 02:28	1
cis-1,2-Dichloroethene	0.59	J	1.0	0.46	ug/L			11/28/23 02:28	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/28/23 02:28	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/28/23 02:28	1
Trichloroethene	0.86	J	1.0	0.44	ug/L			11/28/23 02:28	1
Vinyl chloride	0.70	J	1.0	0.45	ug/L			11/28/23 02:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		62 - 137					11/28/23 02:28	1
4-Bromofluorobenzene (Surr)	80		56 - 136					11/28/23 02:28	1
Toluene-d8 (Surr)	103		78 - 122					11/28/23 02:28	1
Dibromofluoromethane (Surr)	103		73 - 120					11/28/23 02:28	1

Surrogate Summary

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

Job ID: 240-195831-1

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)
240-195749-C-2 MS	Matrix Spike	102	98	109	99
240-195749-C-2 MSD	Matrix Spike Duplicate	101	97	108	99
240-195831-1	TRIP BLANK_118	111	81	104	101
240-195831-2	MW-51_111723	110	82	105	100
240-195831-3	MW-19_111723	111	77	106	99
240-195831-4	DUP-01	111	80	103	103
LCS 240-595841/5	Lab Control Sample	103	97	108	99
MB 240-595841/8	Method Blank	107	84	101	98

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)
240-195831-2	MW-51_111723	97
240-195831-3	MW-19_111723	99
240-195831-4	DUP-01	99
500-243000-A-1 MS	Matrix Spike	99
500-243000-A-1 MSD	Matrix Spike Duplicate	98
LCS 240-596235/4	Lab Control Sample	94
MB 240-596235/6	Method Blank	95

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-195831-1

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

Lab Sample ID: MB 240-595841/8
Matrix: Water
Analysis Batch: 595841

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/27/23 18:31	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/27/23 18:31	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/27/23 18:31	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/27/23 18:31	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/27/23 18:31	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/27/23 18:31	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	107		62 - 137		11/27/23 18:31	1
4-Bromofluorobenzene (Surr)	84		56 - 136		11/27/23 18:31	1
Toluene-d8 (Surr)	101		78 - 122		11/27/23 18:31	1
Dibromofluoromethane (Surr)	98		73 - 120		11/27/23 18:31	1

Lab Sample ID: LCS 240-595841/5
Matrix: Water
Analysis Batch: 595841

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	24.4		ug/L		97	63 - 134
cis-1,2-Dichloroethene	25.0	22.5		ug/L		90	77 - 123
Tetrachloroethene	25.0	27.1		ug/L		109	76 - 123
trans-1,2-Dichloroethene	25.0	23.2		ug/L		93	75 - 124
Trichloroethene	25.0	23.4		ug/L		94	70 - 122
Vinyl chloride	12.5	10.5		ug/L		84	60 - 144

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	103		62 - 137
4-Bromofluorobenzene (Surr)	97		56 - 136
Toluene-d8 (Surr)	108		78 - 122
Dibromofluoromethane (Surr)	99		73 - 120

Lab Sample ID: 240-195749-C-2 MS
Matrix: Water
Analysis Batch: 595841

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

Analyte	Sample	Sample	Spike Added	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier		Result	Qualifier				
1,1-Dichloroethene	20	U	500	473		ug/L		95	56 - 135
cis-1,2-Dichloroethene	49		500	496		ug/L		89	66 - 128
Tetrachloroethene	20	U	500	494		ug/L		99	62 - 131
trans-1,2-Dichloroethene	20	U	500	447		ug/L		89	56 - 136
Trichloroethene	20	U	500	435		ug/L		87	61 - 124
Vinyl chloride	690		250	900		ug/L		83	43 - 157

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	102		62 - 137
4-Bromofluorobenzene (Surr)	98		56 - 136
Toluene-d8 (Surr)	109		78 - 122

QC Sample Results

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

Job ID: 240-195831-1

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

Lab Sample ID: 240-195749-C-2 MS
Matrix: Water
Analysis Batch: 595841

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

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
Dibromofluoromethane (Surr)	99		73 - 120

Lab Sample ID: 240-195749-C-2 MSD
Matrix: Water
Analysis Batch: 595841

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

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		Limit
1,1-Dichloroethene	20	U	500	470		ug/L		94	56 - 135	1	26
cis-1,2-Dichloroethene	49		500	482		ug/L		87	66 - 128	3	14
Tetrachloroethene	20	U	500	479		ug/L		96	62 - 131	3	20
trans-1,2-Dichloroethene	20	U	500	445		ug/L		89	56 - 136	0	15
Trichloroethene	20	U	500	431		ug/L		86	61 - 124	1	15
Vinyl chloride	690		250	893		ug/L		80	43 - 157	1	24

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	101		62 - 137
4-Bromofluorobenzene (Surr)	97		56 - 136
Toluene-d8 (Surr)	108		78 - 122
Dibromofluoromethane (Surr)	99		73 - 120

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

Lab Sample ID: MB 240-596235/6
Matrix: Water
Analysis Batch: 596235

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			11/30/23 20:47	1

	MB	MB		Prepared	Analyzed	Dil Fac
Surrogate	%Recovery	Qualifier	Limits			
1,2-Dichloroethane-d4 (Surr)	95		66 - 120		11/30/23 20:47	1

Lab Sample ID: LCS 240-596235/4
Matrix: Water
Analysis Batch: 596235

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

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec
		Result	Qualifier				Limits
1,4-Dioxane	10.0	10.2		ug/L		102	80 - 122

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	94		66 - 120

Lab Sample ID: 500-243000-A-1 MS
Matrix: Water
Analysis Batch: 596235

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	1.4	J	10.0	11.7		ug/L		103	51 - 153

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QC Sample Results

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

Job ID: 240-195831-1

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

	<i>MS</i>	<i>MS</i>	
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	99		66 - 120

Lab Sample ID: 500-243000-A-1 MSD
Matrix: Water
Analysis Batch: 596235

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	1.4	J	10.0	12.0		ug/L		106	51 - 153	2	16

	<i>MSD</i>	<i>MSD</i>	
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	98		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: 240-195831-1

GC/MS VOA

Analysis Batch: 595841

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-195831-1	TRIP BLANK_118	Total/NA	Water	8260D	
240-195831-2	MW-51_111723	Total/NA	Water	8260D	
240-195831-3	MW-19_111723	Total/NA	Water	8260D	
240-195831-4	DUP-01	Total/NA	Water	8260D	
MB 240-595841/8	Method Blank	Total/NA	Water	8260D	
LCS 240-595841/5	Lab Control Sample	Total/NA	Water	8260D	
240-195749-C-2 MS	Matrix Spike	Total/NA	Water	8260D	
240-195749-C-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Analysis Batch: 596235

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-195831-2	MW-51_111723	Total/NA	Water	8260D SIM	
240-195831-3	MW-19_111723	Total/NA	Water	8260D SIM	
240-195831-4	DUP-01	Total/NA	Water	8260D SIM	
MB 240-596235/6	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-596235/4	Lab Control Sample	Total/NA	Water	8260D SIM	
500-243000-A-1 MS	Matrix Spike	Total/NA	Water	8260D SIM	
500-243000-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	



Lab Chronicle

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

Job ID: 240-195831-1

Client Sample ID: TRIP BLANK_118

Lab Sample ID: 240-195831-1

Date Collected: 11/17/23 00:00

Matrix: Water

Date Received: 11/21/23 10:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	595841	CDG	EET CLE	11/27/23 21:02

Client Sample ID: MW-51_111723

Lab Sample ID: 240-195831-2

Date Collected: 11/17/23 13:41

Matrix: Water

Date Received: 11/21/23 10:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	595841	CDG	EET CLE	11/28/23 01:38
Total/NA	Analysis	8260D SIM		1	596235	CS	EET CLE	11/30/23 22:23

Client Sample ID: MW-19_111723

Lab Sample ID: 240-195831-3

Date Collected: 11/17/23 15:02

Matrix: Water

Date Received: 11/21/23 10:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	595841	CDG	EET CLE	11/28/23 02:03
Total/NA	Analysis	8260D SIM		2	596235	CS	EET CLE	11/30/23 22:47

Client Sample ID: DUP-01

Lab Sample ID: 240-195831-4

Date Collected: 11/17/23 00:00

Matrix: Water

Date Received: 11/21/23 10:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	595841	CDG	EET CLE	11/28/23 02:28
Total/NA	Analysis	8260D SIM		2	596235	CS	EET CLE	11/30/23 23:11

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: 240-195831-1

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	08-31-24
Virginia	NELAP	460175	09-14-24
West Virginia DEP	State	210	12-31-23

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



3/39

Chain of Custody Record

MICHIGAN TestAmerica
THE LABORATORY INDEPENDENT

TestAmerica Laboratory location: Brighton --- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2783

Regulatory program: NPDES RCRA Other

Client Project Manager: Kris Hinskey
Site Contact: Christina Weaver
Telephone: 248-994-2240 Telephone: 330-497-9396

Company Name: Arcadis
Address: 28550 Cabot Drive, Suite 500
City/State/Zip: Novi, MI, 48377

Project Name: Ford LTP On-Site
Project Number: 30146655.401.03
PO # 30146655.401.03

Sampler Name: Nolan Schende
Method of Shipment/Carrier:
Shipping/Tracking No:

Sample Identification	Sample Date	Sample Time	Matrix				Containers & Preservatives				Filtered Sample (Y/N)	Analysis	Sample Specific Notes / Special Instructions:	
			Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl	NaOH				ZnAc
TRIP BLANK_118	---	---	1											1 Trip Blank
MW-51-111723	11/17/23	1341	6											3 VOAs for 8260B 3 VOAs for 8260B SIM
MW-19-111723	11/17/23	1502	6											
DUP-01	11/17/23	---	6											

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



Possible Hazard Identification: Non-Hazard Irritant Poison B Unknown
Special Instructions/QC Requirements & Comments: onsite
Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203728
Level IV Reporting requested.

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Nolan Schende	Arcadis	11/17/23 1647	NOVI Cold Storage	Arcadis	11/17/23 1647
Jommar Day	Arcadis	11/20/23 1030	AL Phosul	EEFA	11/20/23 1030
E. Alward	EEFA	11/20/23 1030	Young Day	EEFA	11/21/23 1035



Barberton Facility

Client Arcadis

Site Name

Cooler unpacked by:

Cooler Received on 11-21-23

Opened on 11-21-23

Handwritten signature

FedEx: 1st 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 # 21 (CF +2.0 °C) Observed Cooler Temp. °C Corrected Cooler Temp. °C

- 2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity each
 - 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
 - Were tamper/custody seals intact and uncompromised? Yes No NA

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

- 3. Shippers' packing slip attached to the cooler(s)? Yes No
 - 4. Did custody papers accompany the sample(s)? Yes No
 - 5. Were the custody papers relinquished & signed in the appropriate place? Yes No
 - 6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
 - 7. Did all bottles arrive in good condition (Unbroken)? Yes No
 - 8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
 - 9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)? 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# HC316719
 - 14. Were VOAs on the COC? Yes No
 - 15. Were air bubbles >6 mm in any VOA vials? Yes No NA
 - 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 62225 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: _____

DATA VERIFICATION REPORT



December 04, 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: 195831-1

Sample date: 2023-11-21

Report received by CADENA: 2023-12-04

Initial Data Verification completed by CADENA: 2023-12-04

Number of Samples:4

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 -004 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.

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

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

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

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

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

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

CADENA Valid Qualifiers

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

Qualified Results Summary

CADENA Project ID: E203728

Laboratory: Eurofins Environment Testing LLC - Cleveland

Laboratory Submittal: 195831-1

Sample Name: DUP-01

Lab Sample ID: 2401958314

Sample Date: 11/17/2023

Analyte	Cas No.	Result	Report		Units	Valid Qualifier
			Limit			
GC/MS VOC						
<u>OSW-8260D</u>						
1,1-Dichloroethene	75-35-4	ND	1.0		ug/l	UJ
cis-1,2-Dichloroethene	156-59-2	0.59	1.0		ug/l	J
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	0.86	1.0		ug/l	J
Vinyl chloride	75-01-4	0.70	1.0		ug/l	J

Analytical Results Summary

CADENA Project ID: E203728

Laboratory: Eurofins Environment Testing LLC - Cleveland

Laboratory Submittal: 195831-1

Analyte	Cas No.	Sample Name: TRIP BLANK_118				MW-51_111723				MW-19_111723				DUP-01			
		Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
		2401958311				2401958312				2401958313				2401958314			
		11/17/2023				11/17/2023				11/17/2023				11/17/2023			

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	---	ND	1.0	ug/l	UJ
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---	0.57	1.0	ug/l	J	0.59	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	UJ
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	UJ
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	1.0	ug/l	---	0.94	1.0	ug/l	J	0.86	1.0	ug/l	J
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	0.69	1.0	ug/l	J	0.70	1.0	ug/l	J

OSW-8260DSIM

1,4-Dioxane	123-91-1					1.9	2.0	ug/l	J	280	4.0	ug/l	---	280	4.0	ug/l	---
-------------	----------	--	--	--	--	-----	-----	------	---	-----	-----	------	-----	-----	-----	------	-----