

ANALYTICAL REPORT

PREPARED FOR

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JOB DESCRIPTION

Ford LTP - On Site

JOB NUMBER

240-195752-1

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	15
QC Sample Results	16
QC Association Summary	23
Lab Chronicle	24
Certification Summary	25
Chain of Custody	26

Definitions/Glossary

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

Job ID: 240-195752-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Case Narrative

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

Job ID: 240-195752-1

Job ID: 240-195752-1

Laboratory: Eurofins Cleveland

Narrative

Job Narrative 240-195752-1

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 11/18/2023 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.7°C

GC/MS VOA

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 240-595721 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: The continuing calibration verification (CCV) analyzed in batch 240-595895 was outside the method criteria for the following analyte(s): Vinyl chloride. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

Method 8260D_SIM: The method requirement for no headspace was not met. The container (s) used for reanalysis of the following sample contained headspace: MW-224S_111623 (240-195752-5). The sample container was compromised when taking the pH of the sample.

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: 240-195752-1

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

Protocol References:

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

Laboratory References:

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

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- 13
- 14

Sample Summary

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

Job ID: 240-195752-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-195752-1	TRIP BLANK_106	Water	11/16/23 00:00	11/18/23 08:00
240-195752-2	MW-29_111623	Water	11/16/23 10:14	11/18/23 08:00
240-195752-3	MW-221S_111623	Water	11/16/23 11:08	11/18/23 08:00
240-195752-4	MW-25_111623	Water	11/16/23 13:00	11/18/23 08:00
240-195752-5	MW-224S_111623	Water	11/16/23 13:54	11/18/23 08:00
240-195752-6	MW-01_111623	Water	11/16/23 15:05	11/18/23 08:00

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Detection Summary

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

Job ID: 240-195752-1

Client Sample ID: TRIP BLANK_106

Lab Sample ID: 240-195752-1

No Detections.

Client Sample ID: MW-29_111623

Lab Sample ID: 240-195752-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	8.8		2.0	0.86	ug/L	1		8260D SIM	Total/NA
Vinyl chloride	0.73	J	1.0	0.45	ug/L	1		8260D	Total/NA

Client Sample ID: MW-221S_111623

Lab Sample ID: 240-195752-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	4.2		1.0	0.46	ug/L	1		8260D	Total/NA

Client Sample ID: MW-25_111623

Lab Sample ID: 240-195752-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.5	J	2.0	0.86	ug/L	1		8260D SIM	Total/NA

Client Sample ID: MW-224S_111623

Lab Sample ID: 240-195752-5

No Detections.

Client Sample ID: MW-01_111623

Lab Sample ID: 240-195752-6

No Detections.

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: 240-195752-1

Client Sample ID: TRIP BLANK_106

Lab Sample ID: 240-195752-1

Date Collected: 11/16/23 00:00

Matrix: Water

Date Received: 11/18/23 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/26/23 19:57	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/26/23 19:57	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/26/23 19:57	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/26/23 19:57	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/26/23 19:57	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/26/23 19:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		62 - 137		11/26/23 19:57	1
4-Bromofluorobenzene (Surr)	82		56 - 136		11/26/23 19:57	1
Toluene-d8 (Surr)	101		78 - 122		11/26/23 19:57	1
Dibromofluoromethane (Surr)	104		73 - 120		11/26/23 19:57	1

Client Sample Results

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

Job ID: 240-195752-1

Client Sample ID: MW-29_111623

Lab Sample ID: 240-195752-2

Date Collected: 11/16/23 10:14

Matrix: Water

Date Received: 11/18/23 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	8.8		2.0	0.86	ug/L			11/28/23 22:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		66 - 120					11/28/23 22:44	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			11/26/23 23:43	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/26/23 23:43	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/26/23 23:43	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/26/23 23:43	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/26/23 23:43	1
Vinyl chloride	0.73	J	1.0	0.45	ug/L			11/27/23 23:08	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	114		62 - 137					11/26/23 23:43	1
1,2-Dichloroethane-d4 (Surr)	110		62 - 137					11/27/23 23:08	1
4-Bromofluorobenzene (Surr)	81		56 - 136					11/26/23 23:43	1
4-Bromofluorobenzene (Surr)	82		56 - 136					11/27/23 23:08	1
Toluene-d8 (Surr)	102		78 - 122					11/26/23 23:43	1
Toluene-d8 (Surr)	104		78 - 122					11/27/23 23:08	1
Dibromofluoromethane (Surr)	105		73 - 120					11/26/23 23:43	1
Dibromofluoromethane (Surr)	99		73 - 120					11/27/23 23:08	1

Client Sample Results

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

Job ID: 240-195752-1

Client Sample ID: MW-221S_111623

Lab Sample ID: 240-195752-3

Date Collected: 11/16/23 11:08

Matrix: Water

Date Received: 11/18/23 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/28/23 23:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		66 - 120					11/28/23 23:07	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			11/27/23 20:08	1
cis-1,2-Dichloroethene	4.2		1.0	0.46	ug/L			11/27/23 20:08	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/27/23 20:08	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/27/23 20:08	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/27/23 20:08	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/27/23 20:08	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		62 - 137					11/27/23 20:08	1
4-Bromofluorobenzene (Surr)	98		56 - 136					11/27/23 20:08	1
Toluene-d8 (Surr)	103		78 - 122					11/27/23 20:08	1
Dibromofluoromethane (Surr)	102		73 - 120					11/27/23 20:08	1

Client Sample Results

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

Job ID: 240-195752-1

Client Sample ID: MW-25_111623

Lab Sample ID: 240-195752-4

Date Collected: 11/16/23 13:00

Matrix: Water

Date Received: 11/18/23 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.5	J	2.0	0.86	ug/L			11/28/23 23:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		66 - 120					11/28/23 23:31	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			11/27/23 20:33	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/27/23 20:33	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/27/23 20:33	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/27/23 20:33	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/27/23 20:33	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/27/23 20:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		62 - 137					11/27/23 20:33	1
4-Bromofluorobenzene (Surr)	98		56 - 136					11/27/23 20:33	1
Toluene-d8 (Surr)	101		78 - 122					11/27/23 20:33	1
Dibromofluoromethane (Surr)	101		73 - 120					11/27/23 20:33	1

Client Sample Results

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

Job ID: 240-195752-1

Client Sample ID: MW-224S_111623

Lab Sample ID: 240-195752-5

Date Collected: 11/16/23 13:54

Matrix: Water

Date Received: 11/18/23 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/28/23 23:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		66 - 120					11/28/23 23:55	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			11/28/23 15:52	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/28/23 15:52	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/28/23 15:52	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/28/23 15:52	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/28/23 15:52	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/28/23 15:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		62 - 137					11/28/23 15:52	1
4-Bromofluorobenzene (Surr)	93		56 - 136					11/28/23 15:52	1
Toluene-d8 (Surr)	100		78 - 122					11/28/23 15:52	1
Dibromofluoromethane (Surr)	95		73 - 120					11/28/23 15:52	1

Client Sample Results

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

Job ID: 240-195752-1

Client Sample ID: MW-01_111623

Lab Sample ID: 240-195752-6

Date Collected: 11/16/23 15:05

Matrix: Water

Date Received: 11/18/23 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/29/23 00:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		66 - 120					11/29/23 00:19	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 16:17	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/28/23 16:17	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/28/23 16:17	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/28/23 16:17	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/28/23 16:17	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/28/23 16:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		62 - 137					11/28/23 16:17	1
4-Bromofluorobenzene (Surr)	96		56 - 136					11/28/23 16:17	1
Toluene-d8 (Surr)	102		78 - 122					11/28/23 16:17	1
Dibromofluoromethane (Surr)	98		73 - 120					11/28/23 16:17	1

Surrogate Summary

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

Job ID: 240-195752-1

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)
240-195476-A-1 MS	Matrix Spike	90	99	104	97
240-195476-A-1 MSD	Matrix Spike Duplicate	91	98	103	96
240-195477-C-9 MS	Matrix Spike	94	102	107	97
240-195477-C-9 MSD	Matrix Spike Duplicate	94	103	106	97
240-195660-B-33 MS	Matrix Spike	106	97	109	105
240-195660-B-33 MSD	Matrix Spike Duplicate	107	99	107	105
240-195749-C-2 MS	Matrix Spike	102	98	109	99
240-195749-C-2 MSD	Matrix Spike Duplicate	101	97	108	99
240-195752-1	TRIP BLANK_106	113	82	101	104
240-195752-2	MW-29_111623	114	81	102	105
240-195752-2	MW-29_111623	110	82	104	99
240-195752-3	MW-221S_111623	98	98	103	102
240-195752-4	MW-25_111623	98	98	101	101
240-195752-5	MW-224S_111623	94	93	100	95
240-195752-6	MW-01_111623	95	96	102	98
LCS 240-595705/5	Lab Control Sample	106	97	106	105
LCS 240-595721/5	Lab Control Sample	96	102	108	99
LCS 240-595841/5	Lab Control Sample	103	97	108	99
LCS 240-595895/5	Lab Control Sample	90	98	106	97
MB 240-595705/8	Method Blank	111	86	104	102
MB 240-595721/9	Method Blank	96	97	101	99
MB 240-595841/8	Method Blank	107	84	101	98
MB 240-595895/9	Method Blank	95	98	104	99

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)
240-195752-2	MW-29_111623	103
240-195752-3	MW-221S_111623	102
240-195752-4	MW-25_111623	102
240-195752-5	MW-224S_111623	104
240-195752-6	MW-01_111623	104
240-195835-H-3 MS	Matrix Spike	100
240-195835-N-3 MSD	Matrix Spike Duplicate	106
LCS 240-595988/4	Lab Control Sample	104
MB 240-595988/6	Method Blank	98

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-195752-1

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

Lab Sample ID: MB 240-595705/8

Matrix: Water

Analysis Batch: 595705

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			11/26/23 17:26	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/26/23 17:26	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/26/23 17:26	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/26/23 17:26	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/26/23 17:26	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/26/23 17:26	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	111		62 - 137		11/26/23 17:26	1
4-Bromofluorobenzene (Surr)	86		56 - 136		11/26/23 17:26	1
Toluene-d8 (Surr)	104		78 - 122		11/26/23 17:26	1
Dibromofluoromethane (Surr)	102		73 - 120		11/26/23 17:26	1

Lab Sample ID: LCS 240-595705/5

Matrix: Water

Analysis Batch: 595705

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	26.1		ug/L		105	63 - 134
cis-1,2-Dichloroethene	25.0	23.7		ug/L		95	77 - 123
Tetrachloroethene	25.0	26.8		ug/L		107	76 - 123
trans-1,2-Dichloroethene	25.0	24.2		ug/L		97	75 - 124
Trichloroethene	25.0	24.9		ug/L		100	70 - 122
Vinyl chloride	12.5	11.0		ug/L		88	60 - 144

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	106		62 - 137
4-Bromofluorobenzene (Surr)	97		56 - 136
Toluene-d8 (Surr)	106		78 - 122
Dibromofluoromethane (Surr)	105		73 - 120

Lab Sample ID: 240-195660-B-33 MS

Matrix: Water

Analysis Batch: 595705

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	506		ug/L		101	56 - 135
cis-1,2-Dichloroethene	20	U	500	470		ug/L		94	66 - 128
Tetrachloroethene	20	U	500	498		ug/L		100	62 - 131
trans-1,2-Dichloroethene	20	U	500	467		ug/L		93	56 - 136
Trichloroethene	32		500	501		ug/L		94	61 - 124
Vinyl chloride	20	U	250	236		ug/L		94	43 - 157

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	106		62 - 137
4-Bromofluorobenzene (Surr)	97		56 - 136
Toluene-d8 (Surr)	109		78 - 122

Eurofins Cleveland

QC Sample Results

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

Job ID: 240-195752-1

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

Lab Sample ID: 240-195660-B-33 MS

Client Sample ID: Matrix Spike

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 595705

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	105		73 - 120

Lab Sample ID: 240-195660-B-33 MSD

Client Sample ID: Matrix Spike Duplicate

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 595705

Analyte	Sample	Sample	Spike	MSD MSD		Unit	D	%Rec	%Rec	RPD	
	Result	Qualifier	Added	Result	Qualifier				Limits	RPD	Limit
1,1-Dichloroethene	20	U	500	511		ug/L		102	56 - 135	1	26
cis-1,2-Dichloroethene	20	U	500	471		ug/L		94	66 - 128	0	14
Tetrachloroethene	20	U	500	507		ug/L		101	62 - 131	2	20
trans-1,2-Dichloroethene	20	U	500	476		ug/L		95	56 - 136	2	15
Trichloroethene	32		500	508		ug/L		95	61 - 124	1	15
Vinyl chloride	20	U	250	225		ug/L		90	43 - 157	4	24

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	107		62 - 137
4-Bromofluorobenzene (Surr)	99		56 - 136
Toluene-d8 (Surr)	107		78 - 122
Dibromofluoromethane (Surr)	105		73 - 120

Lab Sample ID: MB 240-595721/9

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 595721

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 11:46	1	
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L		11/27/23 11:46	1	
Tetrachloroethene	1.0	U	1.0	0.44	ug/L		11/27/23 11:46	1	
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L		11/27/23 11:46	1	
Trichloroethene	1.0	U	1.0	0.44	ug/L		11/27/23 11:46	1	
Vinyl chloride	1.0	U	1.0	0.45	ug/L		11/27/23 11:46	1	

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	96		62 - 137		11/27/23 11:46	1
4-Bromofluorobenzene (Surr)	97		56 - 136		11/27/23 11:46	1
Toluene-d8 (Surr)	101		78 - 122		11/27/23 11:46	1
Dibromofluoromethane (Surr)	99		73 - 120		11/27/23 11:46	1

Lab Sample ID: LCS 240-595721/5

Client Sample ID: Lab Control Sample

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 595721

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec
		Result	Qualifier				Limits
1,1-Dichloroethene	20.0	21.8		ug/L		109	63 - 134
cis-1,2-Dichloroethene	20.0	18.4		ug/L		92	77 - 123
Tetrachloroethene	20.0	20.1		ug/L		100	76 - 123
trans-1,2-Dichloroethene	20.0	20.5		ug/L		103	75 - 124
Trichloroethene	20.0	18.0		ug/L		90	70 - 122

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QC Sample Results

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

Job ID: 240-195752-1

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

Lab Sample ID: LCS 240-595721/5

Matrix: Water

Analysis Batch: 595721

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	24.1		ug/L		121	60 - 144

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	96		62 - 137
4-Bromofluorobenzene (Surr)	102		56 - 136
Toluene-d8 (Surr)	108		78 - 122
Dibromofluoromethane (Surr)	99		73 - 120

Lab Sample ID: 240-195477-C-9 MS

Matrix: Water

Analysis Batch: 595721

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	40	U	800	829		ug/L		104	56 - 135
cis-1,2-Dichloroethene	500		800	1240		ug/L		93	66 - 128
Tetrachloroethene	260		800	1060		ug/L		101	62 - 131
trans-1,2-Dichloroethene	83		800	875		ug/L		99	56 - 136
Trichloroethene	720		800	1390		ug/L		84	61 - 124
Vinyl chloride	72		800	967		ug/L		112	43 - 157

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	94		62 - 137
4-Bromofluorobenzene (Surr)	102		56 - 136
Toluene-d8 (Surr)	107		78 - 122
Dibromofluoromethane (Surr)	97		73 - 120

Lab Sample ID: 240-195477-C-9 MSD

Matrix: Water

Analysis Batch: 595721

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	40	U	800	858		ug/L		107	56 - 135	3	26
cis-1,2-Dichloroethene	500		800	1280		ug/L		97	66 - 128	2	14
Tetrachloroethene	260		800	1070		ug/L		101	62 - 131	1	20
trans-1,2-Dichloroethene	83		800	885		ug/L		100	56 - 136	1	15
Trichloroethene	720		800	1450		ug/L		91	61 - 124	4	15
Vinyl chloride	72		800	1010		ug/L		118	43 - 157	5	24

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	94		62 - 137
4-Bromofluorobenzene (Surr)	103		56 - 136
Toluene-d8 (Surr)	106		78 - 122
Dibromofluoromethane (Surr)	97		73 - 120

QC Sample Results

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

Job ID: 240-195752-1

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

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

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QC Sample Results

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

Job ID: 240-195752-1

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

Lab Sample ID: 240-195749-C-2 MS

Client Sample ID: Matrix Spike

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 595841

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

Lab Sample ID: 240-195749-C-2 MSD

Client Sample ID: Matrix Spike Duplicate

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 595841

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

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
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

Lab Sample ID: MB 240-595895/9

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 595895

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			11/28/23 14:05	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/28/23 14:05	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/28/23 14:05	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/28/23 14:05	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/28/23 14:05	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/28/23 14:05	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	95		62 - 137		11/28/23 14:05	1
4-Bromofluorobenzene (Surr)	98		56 - 136		11/28/23 14:05	1
Toluene-d8 (Surr)	104		78 - 122		11/28/23 14:05	1
Dibromofluoromethane (Surr)	99		73 - 120		11/28/23 14:05	1

Lab Sample ID: LCS 240-595895/5

Client Sample ID: Lab Control Sample

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 595895

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec
		Result	Qualifier				Limits
1,1-Dichloroethene	20.0	21.7		ug/L		109	63 - 134
cis-1,2-Dichloroethene	20.0	18.5		ug/L		93	77 - 123
Tetrachloroethene	20.0	19.8		ug/L		99	76 - 123
trans-1,2-Dichloroethene	20.0	20.2		ug/L		101	75 - 124
Trichloroethene	20.0	17.9		ug/L		90	70 - 122

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QC Sample Results

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

Job ID: 240-195752-1

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

Lab Sample ID: LCS 240-595895/5

Matrix: Water

Analysis Batch: 595895

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	22.6		ug/L		113	60 - 144

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	90		62 - 137
4-Bromofluorobenzene (Surr)	98		56 - 136
Toluene-d8 (Surr)	106		78 - 122
Dibromofluoromethane (Surr)	97		73 - 120

Lab Sample ID: 240-195476-A-1 MS

Matrix: Water

Analysis Batch: 595895

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	0.65	J	20.0	21.3		ug/L		103	56 - 135
cis-1,2-Dichloroethene	33	F1	20.0	48.0		ug/L		75	66 - 128
Tetrachloroethene	2.2		20.0	21.2		ug/L		95	62 - 131
trans-1,2-Dichloroethene	1.0	U	20.0	19.2		ug/L		96	56 - 136
Trichloroethene	1.8		20.0	18.8		ug/L		85	61 - 124
Vinyl chloride	8.1		20.0	29.5		ug/L		107	43 - 157

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	90		62 - 137
4-Bromofluorobenzene (Surr)	99		56 - 136
Toluene-d8 (Surr)	104		78 - 122
Dibromofluoromethane (Surr)	97		73 - 120

Lab Sample ID: 240-195476-A-1 MSD

Matrix: Water

Analysis Batch: 595895

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	0.65	J	20.0	21.6		ug/L		105	56 - 135	1	26
cis-1,2-Dichloroethene	33	F1	20.0	43.1	F1	ug/L		51	66 - 128	11	14
Tetrachloroethene	2.2		20.0	20.8		ug/L		93	62 - 131	2	20
trans-1,2-Dichloroethene	1.0	U	20.0	19.4		ug/L		97	56 - 136	1	15
Trichloroethene	1.8		20.0	19.0		ug/L		86	61 - 124	1	15
Vinyl chloride	8.1		20.0	28.0		ug/L		100	43 - 157	5	24

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	91		62 - 137
4-Bromofluorobenzene (Surr)	98		56 - 136
Toluene-d8 (Surr)	103		78 - 122
Dibromofluoromethane (Surr)	96		73 - 120

QC Sample Results

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

Job ID: 240-195752-1

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

Lab Sample ID: MB 240-595988/6
Matrix: Water
Analysis Batch: 595988

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/28/23 19:09	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		66 - 120					11/28/23 19:09	1

Lab Sample ID: LCS 240-595988/4
Matrix: Water
Analysis Batch: 595988

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dioxane	10.0	9.51		ug/L		95	80 - 122
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	104		66 - 120				

Lab Sample ID: 240-195835-H-3 MS
Matrix: Water
Analysis Batch: 595988

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dioxane	2.0	U	10.0	10.5		ug/L		105	51 - 153
Surrogate	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	100		66 - 120						

Lab Sample ID: 240-195835-N-3 MSD
Matrix: Water
Analysis Batch: 595988

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,4-Dioxane	2.0	U	10.0	10.2		ug/L		102	51 - 153	3	16
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	106		66 - 120								

QC Association Summary

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

Job ID: 240-195752-1

GC/MS VOA

Analysis Batch: 595705

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-195752-1	TRIP BLANK_106	Total/NA	Water	8260D	
240-195752-2	MW-29_111623	Total/NA	Water	8260D	
MB 240-595705/8	Method Blank	Total/NA	Water	8260D	
LCS 240-595705/5	Lab Control Sample	Total/NA	Water	8260D	
240-195660-B-33 MS	Matrix Spike	Total/NA	Water	8260D	
240-195660-B-33 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Analysis Batch: 595721

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-195752-3	MW-221S_111623	Total/NA	Water	8260D	
240-195752-4	MW-25_111623	Total/NA	Water	8260D	
MB 240-595721/9	Method Blank	Total/NA	Water	8260D	
LCS 240-595721/5	Lab Control Sample	Total/NA	Water	8260D	
240-195477-C-9 MS	Matrix Spike	Total/NA	Water	8260D	
240-195477-C-9 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Analysis Batch: 595841

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-195752-2	MW-29_111623	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: 595895

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-195752-5	MW-224S_111623	Total/NA	Water	8260D	
240-195752-6	MW-01_111623	Total/NA	Water	8260D	
MB 240-595895/9	Method Blank	Total/NA	Water	8260D	
LCS 240-595895/5	Lab Control Sample	Total/NA	Water	8260D	
240-195476-A-1 MS	Matrix Spike	Total/NA	Water	8260D	
240-195476-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Analysis Batch: 595988

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-195752-2	MW-29_111623	Total/NA	Water	8260D SIM	
240-195752-3	MW-221S_111623	Total/NA	Water	8260D SIM	
240-195752-4	MW-25_111623	Total/NA	Water	8260D SIM	
240-195752-5	MW-224S_111623	Total/NA	Water	8260D SIM	
240-195752-6	MW-01_111623	Total/NA	Water	8260D SIM	
MB 240-595988/6	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-595988/4	Lab Control Sample	Total/NA	Water	8260D SIM	
240-195835-H-3 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-195835-N-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

Lab Chronicle

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

Job ID: 240-195752-1

Client Sample ID: TRIP BLANK_106

Lab Sample ID: 240-195752-1

Date Collected: 11/16/23 00:00

Matrix: Water

Date Received: 11/18/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	595705	CDG	EET CLE	11/26/23 19:57

Client Sample ID: MW-29_111623

Lab Sample ID: 240-195752-2

Date Collected: 11/16/23 10:14

Matrix: Water

Date Received: 11/18/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	595705	CDG	EET CLE	11/26/23 23:43
Total/NA	Analysis	8260D		1	595841	CDG	EET CLE	11/27/23 23:08
Total/NA	Analysis	8260D SIM		1	595988	CS	EET CLE	11/28/23 22:44

Client Sample ID: MW-221S_111623

Lab Sample ID: 240-195752-3

Date Collected: 11/16/23 11:08

Matrix: Water

Date Received: 11/18/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	595721	AJS	EET CLE	11/27/23 20:08
Total/NA	Analysis	8260D SIM		1	595988	CS	EET CLE	11/28/23 23:07

Client Sample ID: MW-25_111623

Lab Sample ID: 240-195752-4

Date Collected: 11/16/23 13:00

Matrix: Water

Date Received: 11/18/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	595721	AJS	EET CLE	11/27/23 20:33
Total/NA	Analysis	8260D SIM		1	595988	CS	EET CLE	11/28/23 23:31

Client Sample ID: MW-224S_111623

Lab Sample ID: 240-195752-5

Date Collected: 11/16/23 13:54

Matrix: Water

Date Received: 11/18/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	595895	AJS	EET CLE	11/28/23 15:52
Total/NA	Analysis	8260D SIM		1	595988	CS	EET CLE	11/28/23 23:55

Client Sample ID: MW-01_111623

Lab Sample ID: 240-195752-6

Date Collected: 11/16/23 15:05

Matrix: Water

Date Received: 11/18/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	595895	AJS	EET CLE	11/28/23 16:17
Total/NA	Analysis	8260D SIM		1	595988	CS	EET CLE	11/29/23 00:19

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: 240-195752-1

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.



3-6/47

Chain of Custody Record



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

Regulatory program: DW NPDES RCRA Other

Client Contact: Arcadis
 Address: 28550 Cabot Drive, Suite 500
 City/State/Zip: Novi, MI, 48377
 Phone: 248-994-2240
 Project Name: Ford LTP On-Site
 Project Number: 30146655-401.03
 PO # 30146655-401.03

Client Project Manager: Kris Hinsky
 Telephone: 248-994-2240
 Email: kristoffer.hinsky@arcadis.com

Site Contact: Christina Weaver
 Telephone: 330-497-9396

Sampler Name: Garrett Link
 Method of Shipment/Carrier:
 Shipping/Tracking No:

Sample Identification	Sample Date	Sample Time	Matrix						Containers & Preservation						Filtered Sample (Y/N)	Composite C / Grab G	Analyses						Sample Specific Notes / Special Instructions:			
			Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl	N ₂ O ₄	ZnO ₂	Triplex	Other:			10 day	2 days	1 day	1,1-DCE 8260B	1,2-DCE 8260B	Trans-1,2-DCE 8260B		PCE 8260B	TCE 8260B	Vinyl Chloride 8260B
TRIP BLANK 106	11/16/23	---	1																							1 Trip Blank
MW-29-111623	11/16/23	1014	6																							3 VOAs for 8260B 3 VOAs for 8260B SIM
MW-2218-111623	11/16/23	1108	6																							
MW-25-111623	11/16/23	1300	6																							5 aqueous, HCl preserved VOAs
MW-2245-111623	11/16/23	13521	6																							39 aqueous, HCl preserved VOAs
MW-01-111623	11/16/23	1505	6																							



240-195752 Chain of Custody

Possible Hazard Identification
 Non-Hazard Irritable Corrosive Highly Flammable
 Toxic Other

Special Instructions/QC Requirements & Comments:
 Submit all results through Cadena at jomaliala@cadenaco.com. Cadena #E203728
 Level IV Reporting requested.

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
<i>[Signature]</i>	ARCADIS	11/16/23 1600	Nov. Cold Storage	ARCADIS	11/16/23 1600
<i>[Signature]</i>	ARCADIS	11/17/23 1150	<i>[Signature]</i>	ARCADIS	11/17/23 1150
<i>[Signature]</i>	ARCADIS	11/17/23 11:50	<i>[Signature]</i>	ARCADIS	11/17/23 11:50

190 MICHIGAN



Eurofins - Cleveland Sample Receipt Form/Narrative
Barberton Facility

Login # : 195752

Client Arcadis Site Name _____ Cooler unpacked by: Alissa Alkerson
Cooler Received on 11-18-23 Opened on 11-18-23

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 # 22 (CP# 1.1 °C) Observed Cooler Temp. 3.6 °C Corrected Cooler Temp. 4.7 °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
-Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA
-Were tamper/custody seals intact and uncompromised? Yes No NA
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 Larger than this.
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

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

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____
Concerning _____

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

19. SAMPLE CONDITION
Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION
Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____
VOA Sample Preservation - Date/Time VOAs Frozen: _____

DATA VERIFICATION REPORT



December 01, 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: 195752-1

Sample date: 2023-11-16

Report received by CADENA: 2023-12-01

Initial Data Verification completed by CADENA: 2023-12-01

Number of Samples:6

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 -005 results for GCMS VOC SIM should be considered to be estimated and qualified with 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.

GCMS VOC QC batch MS/MSD recovery outliers were not determined using a client sample so qualification was not required based on these sample-specific QC outliers.

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

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

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

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.

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: 195752-1

Sample Name: MW-224S_111623

Lab Sample ID: 2401957525

Sample Date: 11/16/2023

Analyte	Cas No.	Report		Valid		
		Result	Limit		Units	Qualifier
GC/MS VOC						
<u>OSW-8260DSIM</u>						
1,4-Dioxane	123-91-1	ND	2.0	ug/l	UJ	

Analytical Results Summary

CADENA Project ID: E203728

Laboratory: Eurofins Environment Testing LLC - Cleveland

Laboratory Submittal: 195752-1

Analyte	Cas No.	Sample Name: TRIP BLANK_106				MW-29_111623				MW-221S_111623				MW-25_111623				MW-224S_111623				MW-01_111623			
		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	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	---	ND	1.0	ug/l	---
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---	4.2	1.0	ug/l	---	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	---	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	---	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	---	ND	1.0	ug/l	---
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	0.73	1.0	ug/l	J	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
<u>OSW-8260DSIM</u>																									
1,4-Dioxane	123-91-1					8.8	2.0	ug/l	---	ND	2.0	ug/l	---	1.5	2.0	ug/l	J	ND	2.0	ug/l	UJ	ND	2.0	ug/l	---