

ANALYTICAL REPORT

PREPARED FOR

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Generated 12/5/2024 7:11:14 AM

JOB DESCRIPTION

Ford LTP

JOB NUMBER

240-215605-1

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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Definitions/Glossary

Client: Arcadis US Inc.
Project/Site: Ford LTP

Job ID: 240-215605-1

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.
☼	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: Ford LTP

Job ID: 240-215605-1

Job ID: 240-215605-1

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Job Narrative 240-215605-1

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 and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided 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 11/23/2024 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.2°C and 5.0°C.

GC/MS VOA

Method 8260D: No Ms/MSD due to instrument failure.
TRIP BLANK_93 (240-215605-1)

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

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Method Summary

Client: Arcadis US Inc.
Project/Site: Ford LTP

Job ID: 240-215605-1

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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- 2
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- 5
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- 8
- 9
- 10
- 11
- 12
- 13
- 14

Sample Summary

Client: Arcadis US Inc.
Project/Site: Ford LTP

Job ID: 240-215605-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-215605-1	TRIP BLANK_93	Water	11/21/24 00:00	11/23/24 08:00
240-215605-2	MW-201_112124	Water	11/21/24 09:50	11/23/24 08:00
240-215605-3	MW-201S_112124	Water	11/21/24 11:25	11/23/24 08:00
240-215605-4	MW-54_112124	Water	11/21/24 12:25	11/23/24 08:00
240-215605-5	MW-54S_112124	Water	11/21/24 13:35	11/23/24 08:00

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

Detection Summary

Client: Arcadis US Inc.
Project/Site: Ford LTP

Job ID: 240-215605-1

Client Sample ID: TRIP BLANK_93

Lab Sample ID: 240-215605-1

No Detections.

Client Sample ID: MW-201_112124

Lab Sample ID: 240-215605-2

No Detections.

Client Sample ID: MW-201S_112124

Lab Sample ID: 240-215605-3

No Detections.

Client Sample ID: MW-54_112124

Lab Sample ID: 240-215605-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.4	J	2.0	0.86	ug/L	1		8260D SIM	Total/NA
Vinyl chloride	0.83	J	1.0	0.45	ug/L	1		8260D	Total/NA

Client Sample ID: MW-54S_112124

Lab Sample ID: 240-215605-5

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

Job ID: 240-215605-1

Client Sample ID: TRIP BLANK_93

Lab Sample ID: 240-215605-1

Date Collected: 11/21/24 00:00

Matrix: Water

Date Received: 11/23/24 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			11/27/24 20:49	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/27/24 20:49	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/27/24 20:49	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/27/24 20:49	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/27/24 20:49	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/27/24 20:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		62 - 137		11/27/24 20:49	1
4-Bromofluorobenzene (Surr)	95		56 - 136		11/27/24 20:49	1
Toluene-d8 (Surr)	105		78 - 122		11/27/24 20:49	1
Dibromofluoromethane (Surr)	106		73 - 120		11/27/24 20:49	1

Client Sample Results

Client: Arcadis US Inc.
Project/Site: Ford LTP

Job ID: 240-215605-1

Client Sample ID: MW-201_112124

Lab Sample ID: 240-215605-2

Date Collected: 11/21/24 09:50

Matrix: Water

Date Received: 11/23/24 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			12/03/24 17:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		68 - 127					12/03/24 17:17	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/30/24 19:28	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/30/24 19:28	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/30/24 19:28	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/30/24 19:28	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/30/24 19:28	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/30/24 19:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		62 - 137					11/30/24 19:28	1
4-Bromofluorobenzene (Surr)	83		56 - 136					11/30/24 19:28	1
Toluene-d8 (Surr)	94		78 - 122					11/30/24 19:28	1
Dibromofluoromethane (Surr)	97		73 - 120					11/30/24 19:28	1

Client Sample Results

Client: Arcadis US Inc.
Project/Site: Ford LTP

Job ID: 240-215605-1

Client Sample ID: MW-201S_112124

Lab Sample ID: 240-215605-3

Date Collected: 11/21/24 11:25

Matrix: Water

Date Received: 11/23/24 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			12/03/24 17:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		68 - 127					12/03/24 17:40	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			11/30/24 19:51	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/30/24 19:51	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/30/24 19:51	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/30/24 19:51	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/30/24 19:51	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/30/24 19:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		62 - 137					11/30/24 19:51	1
4-Bromofluorobenzene (Surr)	91		56 - 136					11/30/24 19:51	1
Toluene-d8 (Surr)	102		78 - 122					11/30/24 19:51	1
Dibromofluoromethane (Surr)	102		73 - 120					11/30/24 19:51	1

Client Sample Results

Client: Arcadis US Inc.
Project/Site: Ford LTP

Job ID: 240-215605-1

Client Sample ID: MW-54_112124

Lab Sample ID: 240-215605-4

Date Collected: 11/21/24 12:25

Matrix: Water

Date Received: 11/23/24 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	1.4	J	2.0	0.86	ug/L			12/03/24 18:04	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		68 - 127					12/03/24 18:04	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			11/30/24 20:15	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/30/24 20:15	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/30/24 20:15	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/30/24 20:15	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/30/24 20:15	1
Vinyl chloride	0.83	J	1.0	0.45	ug/L			11/30/24 20:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		62 - 137					11/30/24 20:15	1
4-Bromofluorobenzene (Surr)	81		56 - 136					11/30/24 20:15	1
Toluene-d8 (Surr)	93		78 - 122					11/30/24 20:15	1
Dibromofluoromethane (Surr)	97		73 - 120					11/30/24 20:15	1

Client Sample Results

Client: Arcadis US Inc.
Project/Site: Ford LTP

Job ID: 240-215605-1

Client Sample ID: MW-54S_112124

Lab Sample ID: 240-215605-5

Date Collected: 11/21/24 13:35

Matrix: Water

Date Received: 11/23/24 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			12/03/24 18:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		68 - 127					12/03/24 18:27	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			11/30/24 20:38	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/30/24 20:38	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/30/24 20:38	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/30/24 20:38	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/30/24 20:38	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/30/24 20:38	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		62 - 137					11/30/24 20:38	1
4-Bromofluorobenzene (Surr)	79		56 - 136					11/30/24 20:38	1
Toluene-d8 (Surr)	92		78 - 122					11/30/24 20:38	1
Dibromofluoromethane (Surr)	97		73 - 120					11/30/24 20:38	1

Surrogate Summary

Client: Arcadis US Inc.
Project/Site: Ford LTP

Job ID: 240-215605-1

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)
240-215464-C-3 MS	Matrix Spike	100	106	104	97
240-215464-C-3 MSD	Matrix Spike Duplicate	96	97	101	92
240-215605-1	TRIP BLANK_93	107	95	105	106
240-215605-2	MW-201_112124	101	83	94	97
240-215605-3	MW-201S_112124	107	91	102	102
240-215605-4	MW-54_112124	98	81	93	97
240-215605-5	MW-54S_112124	100	79	92	97
LCS 240-636936/5	Lab Control Sample	99	102	109	98
LCS 240-637111/5	Lab Control Sample	98	103	104	95
MB 240-636936/9	Method Blank	102	93	100	101
MB 240-637111/9	Method Blank	105	89	98	101

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 (68-127)
240-215602-C-3 MSD	Matrix Spike Duplicate	107
240-215602-D-3 MS	Matrix Spike	105
240-215605-2	MW-201_112124	108
240-215605-3	MW-201S_112124	108
240-215605-4	MW-54_112124	106
240-215605-5	MW-54S_112124	109
LCS 240-637398/5	Lab Control Sample	104
MB 240-637398/7	Method Blank	108

Surrogate Legend

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

QC Sample Results

Client: Arcadis US Inc.
Project/Site: Ford LTP

Job ID: 240-215605-1

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

Lab Sample ID: MB 240-636936/9

Matrix: Water

Analysis Batch: 636936

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			11/27/24 11:36	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/27/24 11:36	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/27/24 11:36	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/27/24 11:36	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/27/24 11:36	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/27/24 11:36	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	102		62 - 137		11/27/24 11:36	1
4-Bromofluorobenzene (Surr)	93		56 - 136		11/27/24 11:36	1
Toluene-d8 (Surr)	100		78 - 122		11/27/24 11:36	1
Dibromofluoromethane (Surr)	101		73 - 120		11/27/24 11:36	1

Lab Sample ID: LCS 240-636936/5

Matrix: Water

Analysis Batch: 636936

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	1000	946		ug/L		95	63 - 134
cis-1,2-Dichloroethene	1000	949		ug/L		95	77 - 123
Tetrachloroethene	1000	1060		ug/L		106	76 - 123
trans-1,2-Dichloroethene	1000	968		ug/L		97	75 - 124
Trichloroethene	1000	977		ug/L		98	70 - 122
Vinyl chloride	1000	825		ug/L		82	60 - 144

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	99		62 - 137
4-Bromofluorobenzene (Surr)	102		56 - 136
Toluene-d8 (Surr)	109		78 - 122
Dibromofluoromethane (Surr)	98		73 - 120

Lab Sample ID: MB 240-637111/9

Matrix: Water

Analysis Batch: 637111

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			11/30/24 15:10	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/30/24 15:10	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/30/24 15:10	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/30/24 15:10	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/30/24 15:10	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/30/24 15:10	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	105		62 - 137		11/30/24 15:10	1
4-Bromofluorobenzene (Surr)	89		56 - 136		11/30/24 15:10	1
Toluene-d8 (Surr)	98		78 - 122		11/30/24 15:10	1

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QC Sample Results

Client: Arcadis US Inc.
Project/Site: Ford LTP

Job ID: 240-215605-1

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

Lab Sample ID: MB 240-637111/9

Matrix: Water

Analysis Batch: 637111

Client Sample ID: Method Blank

Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Dibromofluoromethane (Surr)	101		73 - 120		11/30/24 15:10	1

Lab Sample ID: LCS 240-637111/5

Matrix: Water

Analysis Batch: 637111

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	1000	925		ug/L		92	63 - 134
cis-1,2-Dichloroethene	1000	940		ug/L		94	77 - 123
Tetrachloroethene	1000	978		ug/L		98	76 - 123
trans-1,2-Dichloroethene	1000	931		ug/L		93	75 - 124
Trichloroethene	1000	911		ug/L		91	70 - 122
Vinyl chloride	1000	820		ug/L		82	60 - 144

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	98		62 - 137
4-Bromofluorobenzene (Surr)	103		56 - 136
Toluene-d8 (Surr)	104		78 - 122
Dibromofluoromethane (Surr)	95		73 - 120

Lab Sample ID: 240-215464-C-3 MS

Matrix: Water

Analysis Batch: 637111

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS MS		Unit	D	%Rec	%Rec Limits
				Result	Qualifier				
Vinyl chloride	1.0	U	20.0	16.5		ug/L		82	43 - 157

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	100		62 - 137
4-Bromofluorobenzene (Surr)	106		56 - 136
Toluene-d8 (Surr)	104		78 - 122
Dibromofluoromethane (Surr)	97		73 - 120

Lab Sample ID: 240-215464-C-3 MSD

Matrix: Water

Analysis Batch: 637111

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD MSD		Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
				Result	Qualifier						
Vinyl chloride	1.0	U	20.0	15.5		ug/L		77	43 - 157	6	24

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	96		62 - 137
4-Bromofluorobenzene (Surr)	97		56 - 136
Toluene-d8 (Surr)	101		78 - 122
Dibromofluoromethane (Surr)	92		73 - 120

QC Sample Results

Client: Arcadis US Inc.
Project/Site: Ford LTP

Job ID: 240-215605-1

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

Lab Sample ID: MB 240-637398/7
Matrix: Water
Analysis Batch: 637398

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			12/03/24 13:22	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		68 - 127					12/03/24 13:22	1

Lab Sample ID: LCS 240-637398/5
Matrix: Water
Analysis Batch: 637398

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	9.18		ug/L		92	75 - 121
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	104		68 - 127				

Lab Sample ID: 240-215602-C-3 MSD
Matrix: Water
Analysis Batch: 637398

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	Limit
1,4-Dioxane	2.0	U	10.0	8.20		ug/L		82	20 - 180	3	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	107		68 - 127								

Lab Sample ID: 240-215602-D-3 MS
Matrix: Water
Analysis Batch: 637398

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	7.97		ug/L		80	20 - 180
Surrogate	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	105		68 - 127						

QC Association Summary

Client: Arcadis US Inc.
Project/Site: Ford LTP

Job ID: 240-215605-1

GC/MS VOA

Analysis Batch: 636936

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-215605-1	TRIP BLANK_93	Total/NA	Water	8260D	
MB 240-636936/9	Method Blank	Total/NA	Water	8260D	
LCS 240-636936/5	Lab Control Sample	Total/NA	Water	8260D	

Analysis Batch: 637111

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-215605-2	MW-201_112124	Total/NA	Water	8260D	
240-215605-3	MW-201S_112124	Total/NA	Water	8260D	
240-215605-4	MW-54_112124	Total/NA	Water	8260D	
240-215605-5	MW-54S_112124	Total/NA	Water	8260D	
MB 240-637111/9	Method Blank	Total/NA	Water	8260D	
LCS 240-637111/5	Lab Control Sample	Total/NA	Water	8260D	
240-215464-C-3 MS	Matrix Spike	Total/NA	Water	8260D	
240-215464-C-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Analysis Batch: 637398

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-215605-2	MW-201_112124	Total/NA	Water	8260D SIM	
240-215605-3	MW-201S_112124	Total/NA	Water	8260D SIM	
240-215605-4	MW-54_112124	Total/NA	Water	8260D SIM	
240-215605-5	MW-54S_112124	Total/NA	Water	8260D SIM	
MB 240-637398/7	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-637398/5	Lab Control Sample	Total/NA	Water	8260D SIM	
240-215602-C-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	
240-215602-D-3 MS	Matrix Spike	Total/NA	Water	8260D SIM	

Lab Chronicle

Client: Arcadis US Inc.
Project/Site: Ford LTP

Job ID: 240-215605-1

Client Sample ID: TRIP BLANK_93

Lab Sample ID: 240-215605-1

Date Collected: 11/21/24 00:00

Matrix: Water

Date Received: 11/23/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	636936	AJS	EET CLE	11/27/24 20:49

Client Sample ID: MW-201_112124

Lab Sample ID: 240-215605-2

Date Collected: 11/21/24 09:50

Matrix: Water

Date Received: 11/23/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	637111	AJS	EET CLE	11/30/24 19:28
Total/NA	Analysis	8260D SIM		1	637398	R5XG	EET CLE	12/03/24 17:17

Client Sample ID: MW-201S_112124

Lab Sample ID: 240-215605-3

Date Collected: 11/21/24 11:25

Matrix: Water

Date Received: 11/23/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	637111	AJS	EET CLE	11/30/24 19:51
Total/NA	Analysis	8260D SIM		1	637398	R5XG	EET CLE	12/03/24 17:40

Client Sample ID: MW-54_112124

Lab Sample ID: 240-215605-4

Date Collected: 11/21/24 12:25

Matrix: Water

Date Received: 11/23/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	637111	AJS	EET CLE	11/30/24 20:15
Total/NA	Analysis	8260D SIM		1	637398	R5XG	EET CLE	12/03/24 18:04

Client Sample ID: MW-54S_112124

Lab Sample ID: 240-215605-5

Date Collected: 11/21/24 13:35

Matrix: Water

Date Received: 11/23/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	637111	AJS	EET CLE	11/30/24 20:38
Total/NA	Analysis	8260D SIM		1	637398	R5XG	EET CLE	12/03/24 18:27

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

Job ID: 240-215605-1

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	02-28-25
Connecticut	State	PH-0806	12-31-26
Georgia	State	4062	02-27-25
Illinois	NELAP	200004	08-31-25
Iowa	State	421	06-01-25
Kentucky (UST)	State	112225	02-27-25
Kentucky (WW)	State	KY98016	12-30-24
Minnesota	NELAP	039-999-348	12-31-24
New Hampshire	NELAP	225024	09-30-25
New Jersey	NELAP	OH001	07-03-25
New York	NELAP	10975	04-02-25
Ohio VAP	State	ORELAP 4062	02-27-25
Oregon	NELAP	4062	02-27-25
Pennsylvania	NELAP	68-00340	08-31-25
Texas	NELAP	T104704517-22-19	08-31-25
USDA	US Federal Programs	P330-18-00281	01-05-27
Virginia	NELAP	460175	09-14-25
West Virginia DEP	State	210	12-31-24

Eurofins Cleveland Sample Receipt Form/Narrative
 Barbe(Gov) Facility Login #

Client ARCADIS Site Name Cooler unpacked by: JC

Cooler Received on 11-23-24 Opened on 11-23-24

FedEx: 1* Grd Exp UPS FAS Waypoint Client Drop Off Eurofins Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

Eurofins Cooler # PC Peanut 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) 0.2 °C Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity _____

-Were the seals on the outside of the cooler(s) signed & dated? Yes No NA

-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/McHg)? Yes No NA

-Were tamper/custody seals intact and uncompromised? Yes No NA

3. Shippers' packing slip attached to the cooler(s)? Yes No NA

4. Did custody papers accompany the sample(s)? Yes No NA

5. Were the custody papers relinquished & signed in the appropriate place? Yes No NA

6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No NA

7. Did all bottles arrive in good condition (Unbroken)? Yes No NA

8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No NA

9. For each sample, does the COC specify preservatives Y(N), # of containers Y(N), and sample type of grab/comp Y(N)?

10. Were correct bottle(s) used for the test(s) indicated? Yes No NA

11. Sufficient quantity received to perform indicated analyses? Yes No NA

12. Are these work share samples and all listed on the COC? Yes No NA

13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC448976

14. Were VOAs on the COC? Yes No NA

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 # NA

17. Was a LL Hg or Mc Hg trip blank present? Yes No NA

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: _____

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



Temperature readings.

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container</u> pH	<u>Preservation</u> Temp	<u>Preservation</u> Added	<u>Preservation</u> Lot Number
TRIP BLANK_93	240-215605-A-1	Voa Vial 40ml - Hydrochloric Acid				
MW-201-112124	240-215605-A-2	Voa Vial 40ml - Hydrochloric Acid				
MW-201-112124	240-215605-B-2	Voa Vial 40ml - Hydrochloric Acid				
MW-201-112124	240-215605-C-2	Voa Vial 40ml - Hydrochloric Acid				
MW-201-112124	240-215605-D-2	Voa Vial 40ml - Hydrochloric Acid				
MW-201-112124	240-215605-E-2	Voa Vial 40ml - Hydrochloric Acid				
MW-201-112124	240-215605-G-2	Voa Vial 40ml - Hydrochloric Acid				
MW-201S-112124	240-215605-A-3	Voa Vial 40ml - Hydrochloric Acid				
MW-201S-112124	240-215605-B-3	Voa Vial 40ml - Hydrochloric Acid				
MW-201S-112124	240-215605-C-3	Voa Vial 40ml - Hydrochloric Acid				
MW-201S-112124	240-215605-D-3	Voa Vial 40ml - Hydrochloric Acid				
MW-201S-112124	240-215605-E-3	Voa Vial 40ml - Hydrochloric Acid				
MW-201S-112124	240-215605-F-3	Voa Vial 40ml - Hydrochloric Acid				
MW-54-112124	240-215605-A-4	Voa Vial 40ml - Hydrochloric Acid				
MW-54-112124	240-215605-B-4	Voa Vial 40ml - Hydrochloric Acid				
MW-54-112124	240-215605-C-4	Voa Vial 40ml - Hydrochloric Acid				
MW-54-112124	240-215605-D-4	Voa Vial 40ml - Hydrochloric Acid				
MW-54-112124	240-215605-E-4	Voa Vial 40ml - Hydrochloric Acid				
MW-54-112124	240-215605-F-4	Voa Vial 40ml - Hydrochloric Acid				
MW-54S-112124	240-215605-A-5	Voa Vial 40ml - Hydrochloric Acid				
MW-54S-112124	240-215605-B-5	Voa Vial 40ml - Hydrochloric Acid				
MW-54S-112124	240-215605-C-5	Voa Vial 40ml - Hydrochloric Acid				
MW-54S-112124	240-215605-D-5	Voa Vial 40ml - Hydrochloric Acid				
MW-54S-112124	240-215605-E-5	Voa Vial 40ml - Hydrochloric Acid				
MW-54S-112124	240-215605-F-5	Voa Vial 40ml - Hydrochloric Acid				

DATA VERIFICATION REPORT



December 05, 2024

Megan Meckley
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI US 48377

CADENA project ID: E203728
Project: Ford Livonia Transmission Plant - Soil Gas, Ground Water and Soil
Project number: 30206169.0401.04_WA-03
Event Specific Scope of Work References: Sample COC
Laboratory: Eurofins Environment Testing LLC - Cleveland
Laboratory submittal: 215605-1
Sample date: 2024-11-21
Report received by CADENA: 2024-12-05
Initial Data Verification completed by CADENA: 2024-12-05
Number of Samples:5
Sample Matrices:Water
Test Categories:GCMS VOC
Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

There were no significant QC anomalies or exceptions to report.

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.

Analytical Results Summary

CADENA Project ID: E203728

Laboratory: Eurofins Environment Testing LLC - Cleveland

Laboratory Submittal: 215605-1

Analyte	Cas No.	Sample Name: TRIP BLANK_93				MW-201_112124				MW-201S_112124				MW-54_112124				MW-54S_112124			
		Lab Sample ID: 2402156051				2402156052				2402156053				2402156054				2402156055			
		Sample Date: 11/21/2024				11/21/2024				11/21/2024				11/21/2024				11/21/2024			
		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/MSVOC																					
<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	---	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	---
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	---	0.83	1.0	ug/l	J	ND	1.0	ug/l	---
<u>OSW-8260DSIM</u>																					
1,4-Dioxane	123-91-1					ND	2.0	ug/l	---	ND	2.0	ug/l	---	1.4	2.0	ug/l	J	ND	2.0	ug/l	---