

ANALYTICAL REPORT

PREPARED FOR

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JOB DESCRIPTION

Ford LTP - On Site

JOB NUMBER

240-200848-1

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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 U.S., Inc.
Project/Site: Ford LTP - On Site

Job ID: 240-200848-1

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 U.S., Inc.
Project: Ford LTP - On Site

Job ID: 240-200848-1

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Job Narrative 240-200848-1

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 3/9/2024 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.4°C.

GC/MS VOA

Method 8260D: No MS/MSD for batch 606330 due to parent samples needs reanalyzed at a different dilution.

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Case Narrative

Client: Arcadis U.S., Inc.
Project: Ford LTP - On Site

Job ID: 240-200848-1

Job ID: 240-200848-1 (Continued)

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TRIP BLANK_9 (240-200848-1), MW-40_030724 (240-200848-2), MW-41_030724 (240-200848-3) and MW-35_030724 (240-200848-4)

Method 8260D_SIM: AN MS/MSD was prepped and analyzed with batch 240-606031. The MS/MSD required reanalysis due to matrix effect, and are therefore not reported in this batch.

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 U.S., Inc.
Project/Site: Ford LTP - On Site

Job ID: 240-200848-1

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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Sample Summary

Client: Arcadis U.S., Inc.
Project/Site: Ford LTP - On Site

Job ID: 240-200848-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-200848-1	TRIP BLANK_9	Water	03/07/24 00:00	03/09/24 08:00
240-200848-2	MW-40_030724	Water	03/07/24 10:20	03/09/24 08:00
240-200848-3	MW-41_030724	Water	03/07/24 11:50	03/09/24 08:00
240-200848-4	MW-35_030724	Water	03/07/24 13:20	03/09/24 08:00

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- 7
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- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: Arcadis U.S., Inc.
Project/Site: Ford LTP - On Site

Job ID: 240-200848-1

Client Sample ID: TRIP BLANK_9

Lab Sample ID: 240-200848-1

No Detections.

Client Sample ID: MW-40_030724

Lab Sample ID: 240-200848-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	1.6		1.0	0.46	ug/L	1		8260D	Total/NA
Vinyl chloride	0.69	J	1.0	0.45	ug/L	1		8260D	Total/NA

Client Sample ID: MW-41_030724

Lab Sample ID: 240-200848-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	13		2.0	0.86	ug/L	1		8260D SIM	Total/NA

Client Sample ID: MW-35_030724

Lab Sample ID: 240-200848-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	3.0		2.0	0.86	ug/L	1		8260D SIM	Total/NA
Vinyl chloride	2.2		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 U.S., Inc.
 Project/Site: Ford LTP - On Site

Job ID: 240-200848-1

Client Sample ID: TRIP BLANK_9

Lab Sample ID: 240-200848-1

Date Collected: 03/07/24 00:00

Matrix: Water

Date Received: 03/09/24 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			03/16/24 00:09	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/16/24 00:09	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/16/24 00:09	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/16/24 00:09	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/16/24 00:09	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/16/24 00:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		62 - 137		03/16/24 00:09	1
4-Bromofluorobenzene (Surr)	72		56 - 136		03/16/24 00:09	1
Toluene-d8 (Surr)	90		78 - 122		03/16/24 00:09	1
Dibromofluoromethane (Surr)	112		73 - 120		03/16/24 00:09	1

Client Sample Results

Client: Arcadis U.S., Inc.
 Project/Site: Ford LTP - On Site

Job ID: 240-200848-1

Client Sample ID: MW-40_030724

Lab Sample ID: 240-200848-2

Date Collected: 03/07/24 10:20

Matrix: Water

Date Received: 03/09/24 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			03/14/24 11:30	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	118		68 - 127					03/14/24 11:30	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			03/19/24 03:01	1
cis-1,2-Dichloroethene	1.6		1.0	0.46	ug/L			03/19/24 03:01	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/19/24 03:01	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/19/24 03:01	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/19/24 03:01	1
Vinyl chloride	0.69	J	1.0	0.45	ug/L			03/19/24 03:01	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		62 - 137					03/19/24 03:01	1
4-Bromofluorobenzene (Surr)	99		56 - 136					03/19/24 03:01	1
Toluene-d8 (Surr)	107		78 - 122					03/19/24 03:01	1
Dibromofluoromethane (Surr)	94		73 - 120					03/19/24 03:01	1

Client Sample Results

Client: Arcadis U.S., Inc.
 Project/Site: Ford LTP - On Site

Job ID: 240-200848-1

Client Sample ID: MW-41_030724

Lab Sample ID: 240-200848-3

Date Collected: 03/07/24 11:50

Matrix: Water

Date Received: 03/09/24 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	13		2.0	0.86	ug/L			03/15/24 12:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		68 - 127					03/15/24 12:20	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/16/24 03:39	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/16/24 03:39	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/16/24 03:39	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/16/24 03:39	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/16/24 03:39	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/16/24 03:39	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		62 - 137					03/16/24 03:39	1
4-Bromofluorobenzene (Surr)	68		56 - 136					03/16/24 03:39	1
Toluene-d8 (Surr)	91		78 - 122					03/16/24 03:39	1
Dibromofluoromethane (Surr)	109		73 - 120					03/16/24 03:39	1

Client Sample Results

Client: Arcadis U.S., Inc.
Project/Site: Ford LTP - On Site

Job ID: 240-200848-1

Client Sample ID: MW-35_030724

Lab Sample ID: 240-200848-4

Date Collected: 03/07/24 13:20

Matrix: Water

Date Received: 03/09/24 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	3.0		2.0	0.86	ug/L			03/14/24 12:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		68 - 127					03/14/24 12:18	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			03/16/24 04:03	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/16/24 04:03	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/16/24 04:03	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/16/24 04:03	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/16/24 04:03	1
Vinyl chloride	2.2		1.0	0.45	ug/L			03/16/24 04:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		62 - 137					03/16/24 04:03	1
4-Bromofluorobenzene (Surr)	77		56 - 136					03/16/24 04:03	1
Toluene-d8 (Surr)	95		78 - 122					03/16/24 04:03	1
Dibromofluoromethane (Surr)	118		73 - 120					03/16/24 04:03	1

Surrogate Summary

Client: Arcadis U.S., Inc.
Project/Site: Ford LTP - On Site

Job ID: 240-200848-1

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)
240-200848-1	TRIP BLANK_9	106	72	90	112
240-200848-2	MW-40_030724	97	99	107	94
240-200848-3	MW-41_030724	103	68	91	109
240-200848-4	MW-35_030724	108	77	95	118
240-200849-D-2 MS	Matrix Spike	100	97	103	102
240-200849-F-2 MSD	Matrix Spike Duplicate	98	98	108	97
LCS 240-606330/5	Lab Control Sample	94	92	99	102
LCS 240-606524/5	Lab Control Sample	98	100	106	99
MB 240-606330/9	Method Blank	109	80	97	113
MB 240-606524/9	Method Blank	100	97	106	91

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)
240-200747-D-2 MS	Matrix Spike	110
240-200747-D-2 MSD	Matrix Spike Duplicate	109
240-200848-2	MW-40_030724	118
240-200848-3	MW-41_030724	106
240-200848-4	MW-35_030724	113
LCS 240-606031/5	Lab Control Sample	104
LCS 240-606196/5	Lab Control Sample	109
MB 240-606031/7	Method Blank	109
MB 240-606196/7	Method Blank	105

Surrogate Legend

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

QC Sample Results

Client: Arcadis U.S., Inc.
Project/Site: Ford LTP - On Site

Job ID: 240-200848-1

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

Lab Sample ID: MB 240-606330/9

Matrix: Water

Analysis Batch: 606330

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			03/15/24 23:22	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/15/24 23:22	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/15/24 23:22	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/15/24 23:22	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/15/24 23:22	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/15/24 23:22	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	109		62 - 137		03/15/24 23:22	1
4-Bromofluorobenzene (Surr)	80		56 - 136		03/15/24 23:22	1
Toluene-d8 (Surr)	97		78 - 122		03/15/24 23:22	1
Dibromofluoromethane (Surr)	113		73 - 120		03/15/24 23:22	1

Lab Sample ID: LCS 240-606330/5

Matrix: Water

Analysis Batch: 606330

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
cis-1,2-Dichloroethene	20.0	20.4		ug/L		102	77 - 123
Tetrachloroethene	20.0	20.5		ug/L		102	76 - 123
trans-1,2-Dichloroethene	20.0	19.6		ug/L		98	75 - 124
Trichloroethene	20.0	19.0		ug/L		95	70 - 122
Vinyl chloride	20.0	23.6		ug/L		118	60 - 144

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	94		62 - 137
4-Bromofluorobenzene (Surr)	92		56 - 136
Toluene-d8 (Surr)	99		78 - 122
Dibromofluoromethane (Surr)	102		73 - 120

Lab Sample ID: MB 240-606524/9

Matrix: Water

Analysis Batch: 606524

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			03/19/24 00:54	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/19/24 00:54	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/19/24 00:54	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/19/24 00:54	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/19/24 00:54	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/19/24 00:54	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	100		62 - 137		03/19/24 00:54	1
4-Bromofluorobenzene (Surr)	97		56 - 136		03/19/24 00:54	1
Toluene-d8 (Surr)	106		78 - 122		03/19/24 00:54	1

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QC Sample Results

Client: Arcadis U.S., Inc.
Project/Site: Ford LTP - On Site

Job ID: 240-200848-1

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

Lab Sample ID: MB 240-606524/9
Matrix: Water
Analysis Batch: 606524

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

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Dibromofluoromethane (Surr)	91		73 - 120		03/19/24 00:54	1

Lab Sample ID: LCS 240-606524/5
Matrix: Water
Analysis Batch: 606524

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
1,1-Dichloroethene	20.0	17.2		ug/L		86	63 - 134	
cis-1,2-Dichloroethene	20.0	16.9		ug/L		84	77 - 123	
Tetrachloroethene	20.0	18.8		ug/L		94	76 - 123	
trans-1,2-Dichloroethene	20.0	17.3		ug/L		87	75 - 124	
Trichloroethene	20.0	18.0		ug/L		90	70 - 122	
Vinyl chloride	20.0	16.6		ug/L		83	60 - 144	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	98		62 - 137
4-Bromofluorobenzene (Surr)	100		56 - 136
Toluene-d8 (Surr)	106		78 - 122
Dibromofluoromethane (Surr)	99		73 - 120

Lab Sample ID: 240-200849-D-2 MS
Matrix: Water
Analysis Batch: 606524

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	
1,1-Dichloroethene	1.0	U	20.0	18.9		ug/L		95	56 - 135	
cis-1,2-Dichloroethene	1.0	U	20.0	18.0		ug/L		90	66 - 128	
Tetrachloroethene	1.0	U	20.0	19.5		ug/L		98	62 - 131	
trans-1,2-Dichloroethene	1.0	U	20.0	18.1		ug/L		91	56 - 136	
Trichloroethene	1.0	U	20.0	18.7		ug/L		93	61 - 124	
Vinyl chloride	1.0	U	20.0	18.1		ug/L		90	43 - 157	

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	100		62 - 137
4-Bromofluorobenzene (Surr)	97		56 - 136
Toluene-d8 (Surr)	103		78 - 122
Dibromofluoromethane (Surr)	102		73 - 120

Lab Sample ID: 240-200849-F-2 MSD
Matrix: Water
Analysis Batch: 606524

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits		RPD	
											RPD	Limit
1,1-Dichloroethene	1.0	U	20.0	18.1		ug/L		91	56 - 135	4	26	
cis-1,2-Dichloroethene	1.0	U	20.0	17.3		ug/L		87	66 - 128	4	14	
Tetrachloroethene	1.0	U	20.0	19.4		ug/L		97	62 - 131	1	20	
trans-1,2-Dichloroethene	1.0	U	20.0	17.4		ug/L		87	56 - 136	4	15	
Trichloroethene	1.0	U	20.0	17.3		ug/L		87	61 - 124	7	15	

Eurofins Cleveland

QC Sample Results

Client: Arcadis U.S., Inc.
Project/Site: Ford LTP - On Site

Job ID: 240-200848-1

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

Lab Sample ID: 240-200849-F-2 MSD

Client Sample ID: Matrix Spike Duplicate

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 606524

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Vinyl chloride	1.0	U	20.0	18.1		ug/L		91	43 - 157	0	24
MSD MSD											
Surrogate	%Recovery	Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	98		62 - 137								
4-Bromofluorobenzene (Surr)	98		56 - 136								
Toluene-d8 (Surr)	108		78 - 122								
Dibromofluoromethane (Surr)	97		73 - 120								

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

Lab Sample ID: MB 240-606031/7

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 606031

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			03/14/24 11:06	1
MB MB									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		68 - 127					03/14/24 11:06	1

Lab Sample ID: LCS 240-606031/5

Client Sample ID: Lab Control Sample

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 606031

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dioxane	10.0	8.14		ug/L		81	75 - 121
LCS LCS							
Surrogate	%Recovery	Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	104		68 - 127				

Lab Sample ID: MB 240-606196/7

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 606196

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			03/15/24 11:45	1
MB MB									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		68 - 127					03/15/24 11:45	1

Lab Sample ID: LCS 240-606196/5

Client Sample ID: Lab Control Sample

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 606196

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dioxane	10.0	10.1		ug/L		101	75 - 121

Eurofins Cleveland

QC Sample Results

Client: Arcadis U.S., Inc.
Project/Site: Ford LTP - On Site

Job ID: 240-200848-1

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

Lab Sample ID: LCS 240-606196/5

Matrix: Water

Analysis Batch: 606196

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Surrogate	LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	109		68 - 127

Lab Sample ID: 240-200747-D-2 MS

Matrix: Water

Analysis Batch: 606196

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier					
1,4-Dioxane	1.0	J	10.0	10.8		ug/L		97		20 - 180

Surrogate	MS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	110		68 - 127

Lab Sample ID: 240-200747-D-2 MSD

Matrix: Water

Analysis Batch: 606196

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	Limits	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier						Limit	
1,4-Dioxane	1.0	J	10.0	10.0		ug/L		90		20 - 180	7	20

Surrogate	MSD		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	109		68 - 127

QC Association Summary

Client: Arcadis U.S., Inc.
 Project/Site: Ford LTP - On Site

Job ID: 240-200848-1

GC/MS VOA

Analysis Batch: 606031

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-200848-2	MW-40_030724	Total/NA	Water	8260D SIM	
240-200848-4	MW-35_030724	Total/NA	Water	8260D SIM	
MB 240-606031/7	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-606031/5	Lab Control Sample	Total/NA	Water	8260D SIM	

Analysis Batch: 606196

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-200848-3	MW-41_030724	Total/NA	Water	8260D SIM	
MB 240-606196/7	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-606196/5	Lab Control Sample	Total/NA	Water	8260D SIM	
240-200747-D-2 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-200747-D-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

Analysis Batch: 606330

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-200848-1	TRIP BLANK_9	Total/NA	Water	8260D	
240-200848-3	MW-41_030724	Total/NA	Water	8260D	
240-200848-4	MW-35_030724	Total/NA	Water	8260D	
MB 240-606330/9	Method Blank	Total/NA	Water	8260D	
LCS 240-606330/5	Lab Control Sample	Total/NA	Water	8260D	

Analysis Batch: 606524

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-200848-2	MW-40_030724	Total/NA	Water	8260D	
MB 240-606524/9	Method Blank	Total/NA	Water	8260D	
LCS 240-606524/5	Lab Control Sample	Total/NA	Water	8260D	
240-200849-D-2 MS	Matrix Spike	Total/NA	Water	8260D	
240-200849-F-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	



Lab Chronicle

Client: Arcadis U.S., Inc.
Project/Site: Ford LTP - On Site

Job ID: 240-200848-1

Client Sample ID: TRIP BLANK_9

Lab Sample ID: 240-200848-1

Date Collected: 03/07/24 00:00

Matrix: Water

Date Received: 03/09/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	606330	AJS	EET CLE	03/16/24 00:09

Client Sample ID: MW-40_030724

Lab Sample ID: 240-200848-2

Date Collected: 03/07/24 10:20

Matrix: Water

Date Received: 03/09/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	606524	AJS	EET CLE	03/19/24 03:01
Total/NA	Analysis	8260D SIM		1	606031	MDH	EET CLE	03/14/24 11:30

Client Sample ID: MW-41_030724

Lab Sample ID: 240-200848-3

Date Collected: 03/07/24 11:50

Matrix: Water

Date Received: 03/09/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	606330	AJS	EET CLE	03/16/24 03:39
Total/NA	Analysis	8260D SIM		1	606196	MDH	EET CLE	03/15/24 12:20

Client Sample ID: MW-35_030724

Lab Sample ID: 240-200848-4

Date Collected: 03/07/24 13:20

Matrix: Water

Date Received: 03/09/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	606330	AJS	EET CLE	03/16/24 04:03
Total/NA	Analysis	8260D SIM		1	606031	MDH	EET CLE	03/14/24 12:18

Laboratory References:

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

Accreditation/Certification Summary

Client: Arcadis U.S., Inc.
Project/Site: Ford LTP - On Site

Job ID: 240-200848-1

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 *
Illinois	NELAP	200004	07-31-24
Iowa	State	421	06-01-25
Kentucky (WW)	State	KY98016	12-30-24
Minnesota	NELAP	039-999-348	12-31-24
New Jersey	NELAP	OH001	06-30-24
New York	NELAP	10975	04-01-24
Oregon	NELAP	4062	02-27-25
Pennsylvania	NELAP	68-00340	08-31-24
Texas	NELAP	T104704517-22-19	08-31-24
USDA	US Federal Programs	P330-18-00281	01-05-27
Virginia	NELAP	460175	09-14-24
West Virginia DEP	State	210	12-31-24

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

2/6

Chain of Custody Record

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

Client Contact		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other										TestAmerica Laboratories, Inc.														
Company Name: Arcadis		Client Project Manager: Kris Hinsky				Site Contact: Christina Weaver				Lab Contact: Mike DeMonico				COC No:												
Address: 28550 Cabot Drive, Suite 500		Telephone: 248-994-2240				Telephone: 248-994-2240				Telephone: 330-497-9396				1 of 1 COCs												
City/State/Zip: Novi, MI, 48377		Email: kristoffer.hinsky@arcadis.com				Analysis Turnaround Time				Analyses				For lab use only												
Phone: 248-994-2240		Sampler Name: <u>Garrett Link</u>				TAT if differs from below				<input type="checkbox"/> 3 weeks <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day				Walk-in client												
Project Name: Ford LTP On-Site		Method of Ship ment / Carrier:				10 day								Lab sampling												
Project Number: 30167538.401.03		Shipping/Tracking No:				Filtered Sample (Y / N) Composite = C / Grab = G 1,1-DCE 82600 cis-1,2-DCE 82600 Trans-1,2-DCE 82600 PCE 82600 TCE 82600 Vinyl Chloride 82600 1,4-Dioxane 82600 SIM				Job/SDG No:																
PO # 30167538.401.03														Sample Specific Notes / Special Instructions:												
Sample Identification		Sample Date	Sample Time	Matrix					Containers & Preservatives																	
				Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Upret	Other:											
TRIP BLANK_9		---	---								1					NG	X	X	X	X	X	X				1 Trip Blank
MW-40-030724		3/7/24	1020								6					NG	X	X	X	X	X	X				3 VOAs for 8260D 3 VOAs for 8260D SIM
MW-41-030724		3/7/24	1150								6					NG	X	X	X	X	X	X				↓
MW-35-030724		3/7/24	1320								6					NG	X	X	X	X	X	X				
Possible Hazard Identification		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)																								
<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown		<input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months																								
Special Instructions/QC Requirements & Comments:																										
Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203728 Level IV Reporting requested.																										
Relinquished by: <u>[Signature]</u>				Company: ARCADIS				Date/Time: 3/7/24 14:30				Received by: <u>Navi Cold Storage</u>				Company: ARCADIS				Date/Time: 3/7/24 14:30						
Relinquished by: <u>[Signature]</u>				Company: Arcadis				Date/Time: 3/8/24 1435				Received by: <u>[Signature]</u>				Company: EETA				Date/Time: 3/8/24 1435						
Relinquished by: <u>[Signature]</u>				Company: EETA				Date/Time: 3/8/24 1500				Received in Laboratory by: <u>[Signature]</u>				Company: EETNC				Date/Time: 3-9-24 800						



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Victims - Cleveland Sample Receipt Form/Narrative
 Barberin Facility
 Login # _____

Client Arcadis Site Name _____

Cooler Received on 3-9-24 Opened on 3-9-24 Cooler unpacked by Johnny Payne

FedEx: 1st Grd Exp UPS PAS Waypoint Client Drop Off Enrofin's Courter Other _____

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

Enrofin's 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 # DA (CF) 0.0 °C Observed Cooler Temp 1.4 °C Corrected Cooler Temp 1.4 °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1

-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 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 preservative (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)? Yes No NA

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

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# HG316719

14 Were VOAs on the COC? Yes No NA H4329089

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 # 63024

17 Was a LL, Hg or Me 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

DATA VERIFICATION REPORT



March 22, 2024

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
Event Specific Scope of Work References: Sample COC
Laboratory: Eurofins Environment Testing LLC - Cleveland
Laboratory submittal: 200848-1
Sample date: 2024-03-07
Report received by CADENA: 2024-03-21
Initial Data Verification completed by CADENA: 2024-03-22
Number of Samples:4
Sample Matrices: Water and trip blank
Test Categories: GCMS VOC
Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

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 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: 200848-1

Analyte	Cas No.	Sample Name: TRIP BLANK_9				MW-40_030724				MW-41_030724				MW-35_030724			
		Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier

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	---
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	1.6	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	---
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	---
Trichloroethene	79-01-6	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	---	0.69	1.0	ug/l	J	ND	1.0	ug/l	---	2.2	1.0	ug/l	---

OSW-8260DSIM

1,4-Dioxane	123-91-1					ND	2.0	ug/l	---	13	2.0	ug/l	---	3.0	2.0	ug/l	---
-------------	----------	--	--	--	--	----	-----	------	-----	----	-----	------	-----	-----	-----	------	-----