

ANALYTICAL REPORT

PREPARED FOR

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Generated 6/3/2024 7:03:55 AM

JOB DESCRIPTION

Ford LTP

JOB NUMBER

240-205005-1

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

Job ID: 240-205005-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
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 U.S., Inc.
Project: Ford LTP

Job ID: 240-205005-1

Job ID: 240-205005-1

Eurofins Cleveland

Job Narrative 240-205005-1

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 5/22/2024 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 3.5°C and 3.7°C.

GC/MS VOA

Method 8260D_SIM: The method blank for analytical batch 240-615070 contained 1,4-Dioxane above the method detection limit. This target analyte concentration was less than the reporting limit (RL) in the method blank; therefore, re-extraction and/or re-analysis of samples was not performed.

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

Job ID: 240-205005-1

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

Protocol References:

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

Laboratory References:

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



Sample Summary

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

Job ID: 240-205005-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-205005-1	TRIP BLANK_113	Water	05/17/24 00:00	05/22/24 08:00
240-205005-2	MW-53_051724	Water	05/17/24 09:25	05/22/24 08:00
240-205005-3	MW-54_051724	Water	05/17/24 12:35	05/22/24 08:00
240-205005-4	MW-54S_051724	Water	05/17/24 11:20	05/22/24 08:00
240-205005-5	MW-57_051724	Water	05/17/24 14:15	05/22/24 08:00

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

Detection Summary

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

Job ID: 240-205005-1

Client Sample ID: TRIP BLANK_113

Lab Sample ID: 240-205005-1

No Detections.

Client Sample ID: MW-53_051724

Lab Sample ID: 240-205005-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.1	J	2.0	0.86	ug/L	1		8260D SIM	Total/NA
Vinyl chloride	0.58	J	1.0	0.45	ug/L	1		8260D	Total/NA

Client Sample ID: MW-54_051724

Lab Sample ID: 240-205005-3

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	1.1		1.0	0.45	ug/L	1		8260D	Total/NA

Client Sample ID: MW-54S_051724

Lab Sample ID: 240-205005-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.89	J B	2.0	0.86	ug/L	1		8260D SIM	Total/NA

Client Sample ID: MW-57_051724

Lab Sample ID: 240-205005-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	4.2	B	2.0	0.86	ug/L	1		8260D SIM	Total/NA
Vinyl chloride	0.66	J	1.0	0.45	ug/L	1		8260D	Total/NA

This Detection Summary does not include radiochemical test results.

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Client Sample Results

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

Job ID: 240-205005-1

Client Sample ID: TRIP BLANK_113

Lab Sample ID: 240-205005-1

Date Collected: 05/17/24 00:00

Matrix: Water

Date Received: 05/22/24 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			05/29/24 18:27	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/29/24 18:27	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/29/24 18:27	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/29/24 18:27	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/29/24 18:27	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/29/24 18:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		62 - 137		05/29/24 18:27	1
4-Bromofluorobenzene (Surr)	93		56 - 136		05/29/24 18:27	1
Toluene-d8 (Surr)	94		78 - 122		05/29/24 18:27	1
Dibromofluoromethane (Surr)	107		73 - 120		05/29/24 18:27	1

Client Sample Results

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

Job ID: 240-205005-1

Client Sample ID: MW-53_051724

Lab Sample ID: 240-205005-2

Date Collected: 05/17/24 09:25

Matrix: Water

Date Received: 05/22/24 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	1.1	J	2.0	0.86	ug/L			05/30/24 01:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		68 - 127					05/30/24 01:48	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/26/24 04:00	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/26/24 04:00	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/26/24 04:00	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/26/24 04:00	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/26/24 04:00	1
Vinyl chloride	0.58	J	1.0	0.45	ug/L			05/26/24 04:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		62 - 137					05/26/24 04:00	1
4-Bromofluorobenzene (Surr)	94		56 - 136					05/26/24 04:00	1
Toluene-d8 (Surr)	97		78 - 122					05/26/24 04:00	1
Dibromofluoromethane (Surr)	104		73 - 120					05/26/24 04:00	1

Client Sample Results

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

Job ID: 240-205005-1

Client Sample ID: MW-54_051724

Lab Sample ID: 240-205005-3

Date Collected: 05/17/24 12:35

Matrix: Water

Date Received: 05/22/24 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			05/30/24 02:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		68 - 127					05/30/24 02:12	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/26/24 04:23	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/26/24 04:23	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/26/24 04:23	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/26/24 04:23	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/26/24 04:23	1
Vinyl chloride	1.1		1.0	0.45	ug/L			05/26/24 04:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		62 - 137					05/26/24 04:23	1
4-Bromofluorobenzene (Surr)	94		56 - 136					05/26/24 04:23	1
Toluene-d8 (Surr)	95		78 - 122					05/26/24 04:23	1
Dibromofluoromethane (Surr)	107		73 - 120					05/26/24 04:23	1

Client Sample Results

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

Job ID: 240-205005-1

Client Sample ID: MW-54S_051724

Lab Sample ID: 240-205005-4

Date Collected: 05/17/24 11:20

Matrix: Water

Date Received: 05/22/24 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	0.89	J B	2.0	0.86	ug/L			05/31/24 19:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		68 - 127					05/31/24 19:36	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/26/24 05:55	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/26/24 05:55	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/26/24 05:55	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/26/24 05:55	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/26/24 05:55	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/26/24 05:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		62 - 137					05/26/24 05:55	1
1,2-Dichloroethane-d4 (Surr)	119		62 - 137					05/29/24 08:46	1
4-Bromofluorobenzene (Surr)	94		56 - 136					05/26/24 05:55	1
4-Bromofluorobenzene (Surr)	93		56 - 136					05/29/24 08:46	1
Toluene-d8 (Surr)	95		78 - 122					05/26/24 05:55	1
Toluene-d8 (Surr)	100		78 - 122					05/29/24 08:46	1
Dibromofluoromethane (Surr)	104		73 - 120					05/26/24 05:55	1
Dibromofluoromethane (Surr)	105		73 - 120					05/29/24 08:46	1

Client Sample Results

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

Job ID: 240-205005-1

Client Sample ID: MW-57_051724

Lab Sample ID: 240-205005-5

Date Collected: 05/17/24 14:15

Matrix: Water

Date Received: 05/22/24 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	4.2	B	2.0	0.86	ug/L			05/31/24 20:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		68 - 127					05/31/24 20:00	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/26/24 05:32	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/26/24 05:32	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/26/24 05:32	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/26/24 05:32	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/26/24 05:32	1
Vinyl chloride	0.66	J	1.0	0.45	ug/L			05/26/24 05:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		62 - 137					05/26/24 05:32	1
1,2-Dichloroethane-d4 (Surr)	117		62 - 137					05/29/24 09:11	1
4-Bromofluorobenzene (Surr)	88		56 - 136					05/26/24 05:32	1
4-Bromofluorobenzene (Surr)	90		56 - 136					05/29/24 09:11	1
Toluene-d8 (Surr)	90		78 - 122					05/26/24 05:32	1
Toluene-d8 (Surr)	101		78 - 122					05/29/24 09:11	1
Dibromofluoromethane (Surr)	101		73 - 120					05/26/24 05:32	1
Dibromofluoromethane (Surr)	102		73 - 120					05/29/24 09:11	1

Surrogate Summary

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

Job ID: 240-205005-1

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)
240-204762-F-4 MS	Matrix Spike	96	98	94	96
240-204762-F-4 MSD	Matrix Spike Duplicate	98	101	95	103
240-204914-E-2 MS	Matrix Spike	106	111	102	100
240-204914-E-2 MSD	Matrix Spike Duplicate	104	110	101	99
240-205005-1	TRIP BLANK_113	108	93	94	107
240-205005-2	MW-53_051724	106	94	97	104
240-205005-3	MW-54_051724	108	94	95	107
240-205005-4	MW-54S_051724	105	94	95	104
240-205005-4	MW-54S_051724	119	93	100	105
240-205005-5	MW-57_051724	104	88	90	101
240-205005-5	MW-57_051724	117	90	101	102
240-205006-D-2 MS	Matrix Spike	97	102	97	95
240-205006-F-2 MSD	Matrix Spike Duplicate	101	101	96	100
LCS 240-614436/4	Lab Control Sample	101	107	102	98
LCS 240-614653/4	Lab Control Sample	106	111	104	101
LCS 240-614711/5	Lab Control Sample	97	102	100	100
MB 240-614436/7	Method Blank	105	94	97	102
MB 240-614653/6	Method Blank	116	92	100	102
MB 240-614711/8	Method Blank	107	94	94	104

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)
240-205005-2	MW-53_051724	89
240-205005-3	MW-54_051724	95
240-205005-4	MW-54S_051724	104
240-205005-5	MW-57_051724	104
240-205012-E-3 MS	Matrix Spike	88
240-205012-E-3 MSD	Matrix Spike Duplicate	92
240-205035-A-2 MS	Matrix Spike	102
240-205035-A-2 MSD	Matrix Spike Duplicate	102
LCS 240-614706/4	Lab Control Sample	88
LCS 240-615070/4	Lab Control Sample	106
MB 240-614706/6	Method Blank	88
MB 240-615070/6	Method Blank	106

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-205005-1

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

Lab Sample ID: MB 240-614436/7

Matrix: Water

Analysis Batch: 614436

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			05/26/24 00:09	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/26/24 00:09	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/26/24 00:09	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/26/24 00:09	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/26/24 00:09	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/26/24 00:09	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	105		62 - 137		05/26/24 00:09	1
4-Bromofluorobenzene (Surr)	94		56 - 136		05/26/24 00:09	1
Toluene-d8 (Surr)	97		78 - 122		05/26/24 00:09	1
Dibromofluoromethane (Surr)	102		73 - 120		05/26/24 00:09	1

Lab Sample ID: LCS 240-614436/4

Matrix: Water

Analysis Batch: 614436

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	25.1		ug/L		100	63 - 134
cis-1,2-Dichloroethene	25.0	25.5		ug/L		102	77 - 123
Tetrachloroethene	25.0	23.7		ug/L		95	76 - 123
trans-1,2-Dichloroethene	25.0	23.4		ug/L		94	75 - 124
Trichloroethene	25.0	23.7		ug/L		95	70 - 122
Vinyl chloride	12.5	11.6		ug/L		93	60 - 144

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	101		62 - 137
4-Bromofluorobenzene (Surr)	107		56 - 136
Toluene-d8 (Surr)	102		78 - 122
Dibromofluoromethane (Surr)	98		73 - 120

Lab Sample ID: 240-205006-D-2 MS

Matrix: Water

Analysis Batch: 614436

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	1.0	U	25.0	22.1		ug/L		89	56 - 135
cis-1,2-Dichloroethene	1.0	U	25.0	24.2		ug/L		97	66 - 128
Tetrachloroethene	1.0	U	25.0	21.5		ug/L		86	62 - 131
trans-1,2-Dichloroethene	1.0	U	25.0	21.5		ug/L		86	56 - 136
Trichloroethene	1.0	U	25.0	21.1		ug/L		84	61 - 124
Vinyl chloride	0.61	J	12.5	11.5		ug/L		87	43 - 157

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

Eurofins Cleveland

QC Sample Results

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

Job ID: 240-205005-1

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

Lab Sample ID: 240-205006-D-2 MS

Client Sample ID: Matrix Spike

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 614436

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	95		73 - 120

Lab Sample ID: 240-205006-F-2 MSD

Client Sample ID: Matrix Spike Duplicate

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 614436

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		Limit
1,1-Dichloroethene	1.0	U	25.0	23.6		ug/L		95	56 - 135	7	26
cis-1,2-Dichloroethene	1.0	U	25.0	24.8		ug/L		99	66 - 128	2	14
Tetrachloroethene	1.0	U	25.0	21.6		ug/L		87	62 - 131	1	20
trans-1,2-Dichloroethene	1.0	U	25.0	22.8		ug/L		91	56 - 136	6	15
Trichloroethene	1.0	U	25.0	21.8		ug/L		87	61 - 124	3	15
Vinyl chloride	0.61	J	12.5	11.6		ug/L		88	43 - 157	1	24

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	101		62 - 137
4-Bromofluorobenzene (Surr)	101		56 - 136
Toluene-d8 (Surr)	96		78 - 122
Dibromofluoromethane (Surr)	100		73 - 120

Lab Sample ID: MB 240-614653/6

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 614653

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		05/29/24 05:49	1	
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L		05/29/24 05:49	1	
Tetrachloroethene	1.0	U	1.0	0.44	ug/L		05/29/24 05:49	1	
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L		05/29/24 05:49	1	
Trichloroethene	1.0	U	1.0	0.44	ug/L		05/29/24 05:49	1	
Vinyl chloride	1.0	U	1.0	0.45	ug/L		05/29/24 05:49	1	

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	116		62 - 137		05/29/24 05:49	1
4-Bromofluorobenzene (Surr)	92		56 - 136		05/29/24 05:49	1
Toluene-d8 (Surr)	100		78 - 122		05/29/24 05:49	1
Dibromofluoromethane (Surr)	102		73 - 120		05/29/24 05:49	1

Lab Sample ID: LCS 240-614653/4

Client Sample ID: Lab Control Sample

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 614653

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec
		Result	Qualifier				Limits
1,1-Dichloroethene	25.0	27.4		ug/L		110	63 - 134
cis-1,2-Dichloroethene	25.0	26.1		ug/L		104	77 - 123
Tetrachloroethene	25.0	26.7		ug/L		107	76 - 123
trans-1,2-Dichloroethene	25.0	26.7		ug/L		107	75 - 124
Trichloroethene	25.0	25.3		ug/L		101	70 - 122

Eurofins Cleveland

QC Sample Results

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

Job ID: 240-205005-1

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

Lab Sample ID: LCS 240-614653/4

Client Sample ID: Lab Control Sample

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 614653

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Vinyl chloride	12.5	10.6		ug/L		84	60 - 144

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	106		62 - 137
4-Bromofluorobenzene (Surr)	111		56 - 136
Toluene-d8 (Surr)	104		78 - 122
Dibromofluoromethane (Surr)	101		73 - 120

Lab Sample ID: 240-204914-E-2 MS

Client Sample ID: Matrix Spike

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 614653

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethene	50	U	1250	1230		ug/L		99	56 - 135
cis-1,2-Dichloroethene	57		1250	1260		ug/L		96	66 - 128
Tetrachloroethene	50	U	1250	1160		ug/L		93	62 - 131
trans-1,2-Dichloroethene	50	U	1250	1220		ug/L		98	56 - 136
Trichloroethene	50	U	1250	1140		ug/L		91	61 - 124
Vinyl chloride	930		625	1270		ug/L		55	43 - 157

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	106		62 - 137
4-Bromofluorobenzene (Surr)	111		56 - 136
Toluene-d8 (Surr)	102		78 - 122
Dibromofluoromethane (Surr)	100		73 - 120

Lab Sample ID: 240-204914-E-2 MSD

Client Sample ID: Matrix Spike Duplicate

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 614653

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1-Dichloroethene	50	U	1250	1230		ug/L		98	56 - 135	0	26
cis-1,2-Dichloroethene	57		1250	1270		ug/L		97	66 - 128	1	14
Tetrachloroethene	50	U	1250	1140		ug/L		91	62 - 131	2	20
trans-1,2-Dichloroethene	50	U	1250	1210		ug/L		97	56 - 136	1	15
Trichloroethene	50	U	1250	1120		ug/L		90	61 - 124	2	15
Vinyl chloride	930		625	1220		ug/L		47	43 - 157	4	24

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	104		62 - 137
4-Bromofluorobenzene (Surr)	110		56 - 136
Toluene-d8 (Surr)	101		78 - 122
Dibromofluoromethane (Surr)	99		73 - 120

QC Sample Results

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

Job ID: 240-205005-1

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

Lab Sample ID: MB 240-614711/8
Matrix: Water
Analysis Batch: 614711

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			05/29/24 13:05	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/29/24 13:05	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/29/24 13:05	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/29/24 13:05	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/29/24 13:05	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/29/24 13:05	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	107		62 - 137		05/29/24 13:05	1
4-Bromofluorobenzene (Surr)	94		56 - 136		05/29/24 13:05	1
Toluene-d8 (Surr)	94		78 - 122		05/29/24 13:05	1
Dibromofluoromethane (Surr)	104		73 - 120		05/29/24 13:05	1

Lab Sample ID: LCS 240-614711/5
Matrix: Water
Analysis Batch: 614711

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	25.1		ug/L		100	63 - 134
cis-1,2-Dichloroethene	25.0	25.7		ug/L		103	77 - 123
Tetrachloroethene	25.0	25.0		ug/L		100	76 - 123
trans-1,2-Dichloroethene	25.0	23.8		ug/L		95	75 - 124
Trichloroethene	25.0	24.2		ug/L		97	70 - 122
Vinyl chloride	12.5	11.7		ug/L		93	60 - 144

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

Lab Sample ID: 240-204762-F-4 MS
Matrix: Water
Analysis Batch: 614711

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	100	U	2500	2280		ug/L		91	56 - 135
cis-1,2-Dichloroethene	94	J	2500	2550		ug/L		98	66 - 128
Tetrachloroethene	100	U	2500	2300		ug/L		92	62 - 131
trans-1,2-Dichloroethene	190		2500	2370		ug/L		87	56 - 136
Trichloroethene	2800		2500	4720		ug/L		76	61 - 124
Vinyl chloride	100	U	1250	1100		ug/L		88	43 - 157

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	96		62 - 137
4-Bromofluorobenzene (Surr)	98		56 - 136
Toluene-d8 (Surr)	94		78 - 122

QC Sample Results

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

Job ID: 240-205005-1

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

Lab Sample ID: 240-204762-F-4 MS
Matrix: Water
Analysis Batch: 614711

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

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
Dibromofluoromethane (Surr)	96		73 - 120

Lab Sample ID: 240-204762-F-4 MSD
Matrix: Water
Analysis Batch: 614711

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

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier		Result	Qualifier				Limits		Limit
1,1-Dichloroethene	100	U	2500	2310		ug/L		92	56 - 135	1	26
cis-1,2-Dichloroethene	94	J	2500	2560		ug/L		99	66 - 128	0	14
Tetrachloroethene	100	U	2500	2310		ug/L		92	62 - 131	0	20
trans-1,2-Dichloroethene	190		2500	2380		ug/L		87	56 - 136	0	15
Trichloroethene	2800		2500	4810		ug/L		79	61 - 124	2	15
Vinyl chloride	100	U	1250	1120		ug/L		90	43 - 157	2	24

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		62 - 137
4-Bromofluorobenzene (Surr)	101		56 - 136
Toluene-d8 (Surr)	95		78 - 122
Dibromofluoromethane (Surr)	103		73 - 120

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

Lab Sample ID: MB 240-614706/6
Matrix: Water
Analysis Batch: 614706

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			05/29/24 23:04	1

	MB	MB							
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
1,2-Dichloroethane-d4 (Surr)	88		68 - 127		05/29/24 23:04	1			

Lab Sample ID: LCS 240-614706/4
Matrix: Water
Analysis Batch: 614706

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

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec
		Result	Qualifier				Limits
1,4-Dioxane	10.0	9.87		ug/L		99	75 - 121

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	88		68 - 127

Lab Sample ID: 240-205012-E-3 MS
Matrix: Water
Analysis Batch: 614706

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

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec
	Result	Qualifier		Result	Qualifier				Limits
1,4-Dioxane	2.0	U	10.0	9.87		ug/L		99	20 - 180

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QC Sample Results

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

Job ID: 240-205005-1

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

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	88		68 - 127

Lab Sample ID: 240-205012-E-3 MSD
Matrix: Water
Analysis Batch: 614706

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	10.5		ug/L		105	20 - 180	6	20

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	92		68 - 127

Lab Sample ID: MB 240-615070/6
Matrix: Water
Analysis Batch: 615070

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	1.66	J	2.0	0.86	ug/L			05/31/24 13:58	1

	MB	MB		Prepared	Analyzed	Dil Fac
Surrogate	%Recovery	Qualifier	Limits			
1,2-Dichloroethane-d4 (Surr)	106		68 - 127		05/31/24 13:58	1

Lab Sample ID: LCS 240-615070/4
Matrix: Water
Analysis Batch: 615070

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	11.9		ug/L		119	75 - 121

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	106		68 - 127

Lab Sample ID: 240-205035-A-2 MS
Matrix: Water
Analysis Batch: 615070

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	3.3	B	10.0	13.3		ug/L		100	20 - 180

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	102		68 - 127

Lab Sample ID: 240-205035-A-2 MSD
Matrix: Water
Analysis Batch: 615070

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	3.3	B	10.0	13.4		ug/L		101	20 - 180	1	20

QC Sample Results

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

Job ID: 240-205005-1

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

Lab Sample ID: 240-205035-A-2 MSD

Matrix: Water

Analysis Batch: 615070

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

<i>Surrogate</i>	<i>MSD</i>	<i>MSD</i>	<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
1,2-Dichloroethane-d4 (Surr)	102		68 - 127

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

QC Association Summary

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

Job ID: 240-205005-1

GC/MS VOA

Analysis Batch: 614436

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-205005-2	MW-53_051724	Total/NA	Water	8260D	
240-205005-3	MW-54_051724	Total/NA	Water	8260D	
240-205005-4	MW-54S_051724	Total/NA	Water	8260D	
240-205005-5	MW-57_051724	Total/NA	Water	8260D	
MB 240-614436/7	Method Blank	Total/NA	Water	8260D	
LCS 240-614436/4	Lab Control Sample	Total/NA	Water	8260D	
240-205006-D-2 MS	Matrix Spike	Total/NA	Water	8260D	
240-205006-F-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Analysis Batch: 614653

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-205005-4	MW-54S_051724	Total/NA	Water	8260D	
240-205005-5	MW-57_051724	Total/NA	Water	8260D	
MB 240-614653/6	Method Blank	Total/NA	Water	8260D	
LCS 240-614653/4	Lab Control Sample	Total/NA	Water	8260D	
240-204914-E-2 MS	Matrix Spike	Total/NA	Water	8260D	
240-204914-E-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Analysis Batch: 614706

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-205005-2	MW-53_051724	Total/NA	Water	8260D SIM	
240-205005-3	MW-54_051724	Total/NA	Water	8260D SIM	
MB 240-614706/6	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-614706/4	Lab Control Sample	Total/NA	Water	8260D SIM	
240-205012-E-3 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-205012-E-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

Analysis Batch: 614711

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-205005-1	TRIP BLANK_113	Total/NA	Water	8260D	
MB 240-614711/8	Method Blank	Total/NA	Water	8260D	
LCS 240-614711/5	Lab Control Sample	Total/NA	Water	8260D	
240-204762-F-4 MS	Matrix Spike	Total/NA	Water	8260D	
240-204762-F-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Analysis Batch: 615070

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-205005-4	MW-54S_051724	Total/NA	Water	8260D SIM	
240-205005-5	MW-57_051724	Total/NA	Water	8260D SIM	
MB 240-615070/6	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-615070/4	Lab Control Sample	Total/NA	Water	8260D SIM	
240-205035-A-2 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-205035-A-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

Lab Chronicle

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

Job ID: 240-205005-1

Client Sample ID: TRIP BLANK_113

Lab Sample ID: 240-205005-1

Date Collected: 05/17/24 00:00

Matrix: Water

Date Received: 05/22/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	614711	SAM	EET CLE	05/29/24 18:27

Client Sample ID: MW-53_051724

Lab Sample ID: 240-205005-2

Date Collected: 05/17/24 09:25

Matrix: Water

Date Received: 05/22/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	614436	SAM	EET CLE	05/26/24 04:00
Total/NA	Analysis	8260D SIM		1	614706	MDH	EET CLE	05/30/24 01:48

Client Sample ID: MW-54_051724

Lab Sample ID: 240-205005-3

Date Collected: 05/17/24 12:35

Matrix: Water

Date Received: 05/22/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	614436	SAM	EET CLE	05/26/24 04:23
Total/NA	Analysis	8260D SIM		1	614706	MDH	EET CLE	05/30/24 02:12

Client Sample ID: MW-54S_051724

Lab Sample ID: 240-205005-4

Date Collected: 05/17/24 11:20

Matrix: Water

Date Received: 05/22/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	614436	SAM	EET CLE	05/26/24 05:55
Total/NA	Analysis	8260D		1	614653	TJL2	EET CLE	05/29/24 08:46
Total/NA	Analysis	8260D SIM		1	615070	MDH	EET CLE	05/31/24 19:36

Client Sample ID: MW-57_051724

Lab Sample ID: 240-205005-5

Date Collected: 05/17/24 14:15

Matrix: Water

Date Received: 05/22/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	614436	SAM	EET CLE	05/26/24 05:32
Total/NA	Analysis	8260D		1	614653	TJL2	EET CLE	05/29/24 09:11
Total/NA	Analysis	8260D SIM		1	615070	MDH	EET CLE	05/31/24 20:00

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

Job ID: 240-205005-1

Laboratory: Eurofins Cleveland

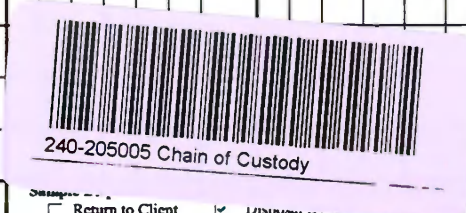
All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-28-25
Georgia	State	4062	02-27-25
Illinois	NELAP	200004	07-31-24
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 Jersey	NELAP	OH001	06-30-24
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	08-31-24
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

Chain of Custody Record

TestAmerica Laboratory location: Brighton — 10448 Citation 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 Hinskey					Site Contact: Christina Weaver					Lab Contact: Mike DelMonico				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.hinskey@arcadis.com					Analysis Turnaround Time					Analyses				For lab use only								
Phone: 248-994-2240		Sampler Name: <i>Kent Kasper</i>					TAT if different from below 10 day <input checked="" 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 <input type="checkbox"/>								
Project Name: Ford LTP		Method of Shipment/Carrier:														Lab sampling <input type="checkbox"/>								
Project Number: 30206169.0401.03		Shipping/Tracking No:														Job/SDG No:								
PO # US3410018772																								
Sample Identification	Sample Date	Sample Time	Matrix					Containers & Preservatives					Filtered Sample (Y/N)	Composite=C/Grab=G	1,1-DCE 8260D	cis-1,2-DCE 8260D	Trans-1,2-DCE 8260D	PCE 8260D	TCE 8260D	Vinyl Chloride 8260D	1,4-Dioxane 8260D SIM	Sample Specific Notes / Special Instructions:		
			Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH											Unpres	Other:
TRIP BLANK_ <i>63</i> 113	---	---	1											NG	X	X	X	X	X	X				1 Trip Blank
MW-53_051724	5/17/24	0925	6											NG	X	X	X	X	X	X				3 VOAs for 8260D 3 VOAs for 8260D SIM
MW-54_051724	5/17/24	1235	6											NG	X	X	X	X	X	X				
MW-54S_051724	5/17/24	1120	6											NG	X	X	X	X	X	X				
MW-57_051724	5/17/24	1415	6											NG	X	X	X	X	X	X				
Possible Hazard Identification		<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown										longer than 1 month												
Special Instructions/QC Requirements & Comments:		Submit all results through Cadena at jtomalla@cadenaco.com. Cadena #E203728 Level IV Reporting requested.										<input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Dispose				ave For _____ Months								
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:	Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:	Relinquished by:	Company:	Date/Time:										
<i>[Signature]</i>	Arcadis	5/17/24 1524	<i>[Signature]</i>	Arcadis	5/17/24 1524	<i>[Signature]</i>	Arcadis	5/17/24 1524	TAMMY ROYER	Arcadis	5/17/24 1524	<i>[Signature]</i>	EETA	5/17/24 0815										
<i>[Signature]</i>	Arcadis	5/21/24 0825	<i>[Signature]</i>	EETA	5/21/24 0825	<i>[Signature]</i>	EETA	5/21/24 0900		EETA	5/21/24 0825	<i>[Signature]</i>	EETA	5/22-24 800										



✓
✓
✓
✓
✓

Eurofins Cleveland Sample Receipt Form/Alternative Barberon Facility Login #:

Client Accad, S Site Name _____

Cooler unpacked by **TAMMY ROYER**

Cooler Received on 5-22-24 Opened on 5-22-24

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

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

Burofins Cooler # EC ~~Points-Box~~ Client Cooler Box Other _____

Packing material used. ~~Bubble-Wrap~~ Foam Plastic Bag None Other _____

COOLANT: ~~Wet Ice~~ Blue Ice Dry Ice Water None See Multiple Cooler Form

1 Cooler temperature upon receipt, IR GUN # 18 (CF DD) °C Observed Cooler Temp. _____ °C Corrected Cooler Temp _____ °C

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

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity lead
 - 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# HC439975
 14. Were VOAs on the COC? Yes No
 - 15 Were air bubbles >6 mm in any VOA vials? Yes No NA
 - 16 Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # covered Yes No
 - 17 Was a LL Hg or Me Hg trip blank present? Yes No

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

Concerning _____

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

19 SAMPLE CONDITION

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

20 SAMPLE PRESERVATION

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

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Login # _____

Eurofins - Cleveland Sample Receipt Multiple Cooler Form				
Cooler Description (Circle)	IR Gun # (Circle)	Observed Temp. °C	Corrected Temp. °C	Coolant (Circle)
FC Client Box Other	IR GUN #: 18	3.5	3.5	Water Blue Ice Dry Ice
FC Client Box Other	IR GUN #: 18	3.7	3.7	Water Blue Ice Dry Ice
FC Client Box Other	IR GUN #: _____			Water None
FC Client Box Other	IR GUN #: _____			Water Blue Ice Dry Ice
FC Client Box Other	IR GUN #: _____			Water None
FC Client Box Other	IR GUN #: _____			Water Blue Ice Dry Ice
FC Client Box Other	IR GUN #: _____			Water None
FC Client Box Other	IR GUN #: _____			Water Blue Ice Dry Ice
FC Client Box Other	IR GUN #: _____			Water None
FC Client Box Other	IR GUN #: _____			Water Blue Ice Dry Ice
FC Client Box Other	IR GUN #: _____			Water None
FC Client Box Other	IR GUN #: _____			Water Blue Ice Dry Ice
FC Client Box Other	IR GUN #: _____			Water None
FC Client Box Other	IR GUN #: _____			Water Blue Ice Dry Ice
FC Client Box Other	IR GUN #: _____			Water None
FC Client Box Other	IR GUN #: _____			Water Blue Ice Dry Ice
FC Client Box Other	IR GUN #: _____			Water None
FC Client Box Other	IR GUN #: _____			Water Blue Ice Dry Ice
FC Client Box Other	IR GUN #: _____			Water None
FC Client Box Other	IR GUN #: _____			Water Blue Ice Dry Ice
FC Client Box Other	IR GUN #: _____			Water None
FC Client Box Other	IR GUN #: _____			Water Blue Ice Dry Ice
FC Client Box Other	IR GUN #: _____			Water None
FC Client Box Other	IR GUN #: _____			Water Blue Ice Dry Ice
FC Client Box Other	IR GUN #: _____			Water None
FC Client Box Other	IR GUN #: _____			Water Blue Ice Dry Ice
FC Client Box Other	IR GUN #: _____			Water None
FC Client Box Other	IR GUN #: _____			Water Blue Ice Dry Ice
FC Client Box Other	IR GUN #: _____			Water None
FC Client Box Other	IR GUN #: _____			Water Blue Ice Dry Ice
FC Client Box Other	IR GUN #: _____			Water None
FC Client Box Other	IR GUN #: _____			Water Blue Ice Dry Ice
FC Client Box Other	IR GUN #: _____			Water None
FC Client Box Other	IR GUN #: _____			Water Blue Ice Dry Ice
FC Client Box Other	IR GUN #: _____			Water None
FC Client Box Other	IR GUN #: _____			Water Blue Ice Dry Ice
FC Client Box Other	IR GUN #: _____			Water None
FC Client Box Other	IR GUN #: _____			Water Blue Ice Dry Ice

See Temperature Excursion Form

DATA VERIFICATION REPORT



June 03, 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: 30206169.401.03
Event Specific Scope of Work References: Sample COC
Laboratory: Eurofins Environment Testing LLC - Cleveland
Laboratory submittal: 205005-1
Sample date: 2024-05-17
Report received by CADENA: 2024-06-03
Initial Data Verification completed by CADENA: 2024-06-03
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.

The following minor QC exceptions or missing information were noted:

MBK - METHOD BLANKS had detections BELOW the Reporting Limit (RL) for these analytes. The listed client sample results had concentrations LESS than 5X the method blank levels so client sample results reported below the RL are considered non-detect at the RL and qualified with UB flags and results greater than the RL are non-detect at the sample concentration reported and qualified with B flags : GCMS VOC-SIM QC batch 615070 - UB flag - sample -04, B flag - sample -05.

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.

Qualifiers added during verification have been added to the electronic data which is available for download from the CADENA CLMS. Refer to the attached table of analytical results that have been qualified during verification. 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>.

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.

Qualified Results Summary

CADENA Project ID: E203728

Laboratory: Eurofins Environment Testing LLC - Cleveland

Laboratory Submittal: 205005-1

Sample Name:	MW-54S_051724	MW-57_051724
Lab Sample ID:	2402050054	2402050055
Sample Date:	5/17/2024	5/17/2024

Analyte	Cas No.	Report		Units	Valid		Report		Units	Valid	
		Result	Limit		Qualifier	Result	Limit	Qualifier			
GC/MS VOC											
<u>OSW-8260DSIM</u>											
1,4-Dioxane	123-91-1	0.89	2.0	ug/l	UB	4.2	2.0	ug/l	B		

Analytical Results Summary

CADENA Project ID: E203728

Laboratory: Eurofins Environment Testing LLC - Cleveland

Laboratory Submittal: 205005-1

Analyte	Cas No.	Sample Name: TRIP BLANK_113				MW-53_051724				MW-54_051724				MW-54S_051724				MW-57_051724			
		Result	Limit	Units	Valid Qualifier	Result	Limit	Units	Valid Qualifier	Result	Limit	Units	Valid Qualifier	Result	Limit	Units	Valid Qualifier	Result	Limit	Units	Valid Qualifier
GC/MS VOC																					
<u>OSW-8260D</u>																					
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	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	---	0.58	1.0	ug/l	J	1.1	1.0	ug/l	---	ND	1.0	ug/l	---	0.66	1.0	ug/l	J
<u>OSW-8260DSIM</u>																					
1,4-Dioxane	123-91-1					1.1	2.0	ug/l	J	1.4	2.0	ug/l	J	0.89	2.0	ug/l	UB	4.2	2.0	ug/l	B