

ANALYTICAL REPORT

PREPARED FOR

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Suite 500
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JOB DESCRIPTION

Ford LTP - On Site

JOB NUMBER

240-190079-1

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 - On Site

Job ID: 240-190079-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Case Narrative

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

Job ID: 240-190079-1

Job ID: 240-190079-1

Laboratory: Eurofins Cleveland

Narrative

**Job Narrative
240-190079-1**

Receipt

The samples were received on 8/12/2023 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 1.7°C and 2.5°C

GC/MS VOA

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 584581 was outside the method criteria for the following analyte(s): Vinyl chloride. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

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 - On Site

Job ID: 240-190079-1

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 US Inc
Project/Site: Ford LTP - On Site

Job ID: 240-190079-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-190079-1	TRIP BLANK_91	Water	08/10/23 00:00	08/12/23 08:00
240-190079-2	MW-54_081023	Water	08/10/23 10:25	08/12/23 08:00
240-190079-3	MW-221S_081023	Water	08/10/23 12:45	08/12/23 08:00
240-190079-4	MW-54S_081023	Water	08/10/23 13:20	08/12/23 08:00

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- 10
- 11
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- 13
- 14

Detection Summary

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

Job ID: 240-190079-1

Client Sample ID: TRIP BLANK_91

Lab Sample ID: 240-190079-1

No Detections.

Client Sample ID: MW-54_081023

Lab Sample ID: 240-190079-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.0	J	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

Client Sample ID: MW-221S_081023

Lab Sample ID: 240-190079-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	8.9		1.0	0.46	ug/L	1		8260D	Total/NA
trans-1,2-Dichloroethene	0.53	J	1.0	0.51	ug/L	1		8260D	Total/NA
Trichloroethene	0.52	J	1.0	0.44	ug/L	1		8260D	Total/NA

Client Sample ID: MW-54S_081023

Lab Sample ID: 240-190079-4

No Detections.

This Detection Summary does not include radiochemical test results.

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Client Sample Results

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

Job ID: 240-190079-1

Client Sample ID: TRIP BLANK_91

Lab Sample ID: 240-190079-1

Date Collected: 08/10/23 00:00

Matrix: Water

Date Received: 08/12/23 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			08/21/23 19:20	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/21/23 19:20	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/21/23 19:20	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/21/23 19:20	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/21/23 19:20	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/21/23 19:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		62 - 137		08/21/23 19:20	1
4-Bromofluorobenzene (Surr)	93		56 - 136		08/21/23 19:20	1
Toluene-d8 (Surr)	97		78 - 122		08/21/23 19:20	1
Dibromofluoromethane (Surr)	98		73 - 120		08/21/23 19:20	1

Client Sample Results

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

Job ID: 240-190079-1

Client Sample ID: MW-54_081023

Lab Sample ID: 240-190079-2

Date Collected: 08/10/23 10:25

Matrix: Water

Date Received: 08/12/23 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.0	J	2.0	0.86	ug/L			08/21/23 20:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		66 - 120					08/21/23 20:02	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			08/21/23 19:46	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/21/23 19:46	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/21/23 19:46	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/21/23 19:46	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/21/23 19:46	1
Vinyl chloride	0.66	J	1.0	0.45	ug/L			08/21/23 19:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		62 - 137					08/21/23 19:46	1
4-Bromofluorobenzene (Surr)	96		56 - 136					08/21/23 19:46	1
Toluene-d8 (Surr)	100		78 - 122					08/21/23 19:46	1
Dibromofluoromethane (Surr)	98		73 - 120					08/21/23 19:46	1

Client Sample Results

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

Job ID: 240-190079-1

Client Sample ID: MW-221S_081023

Lab Sample ID: 240-190079-3

Date Collected: 08/10/23 12:45

Matrix: Water

Date Received: 08/12/23 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/22/23 13:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		66 - 120					08/22/23 13:23	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			08/21/23 20:11	1
cis-1,2-Dichloroethene	8.9		1.0	0.46	ug/L			08/21/23 20:11	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/21/23 20:11	1
trans-1,2-Dichloroethene	0.53	J	1.0	0.51	ug/L			08/21/23 20:11	1
Trichloroethene	0.52	J	1.0	0.44	ug/L			08/21/23 20:11	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/21/23 20:11	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		62 - 137					08/21/23 20:11	1
4-Bromofluorobenzene (Surr)	96		56 - 136					08/21/23 20:11	1
Toluene-d8 (Surr)	101		78 - 122					08/21/23 20:11	1
Dibromofluoromethane (Surr)	95		73 - 120					08/21/23 20:11	1

Client Sample Results

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

Job ID: 240-190079-1

Client Sample ID: MW-54S_081023

Lab Sample ID: 240-190079-4

Date Collected: 08/10/23 13:20

Matrix: Water

Date Received: 08/12/23 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/22/23 13:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		66 - 120					08/22/23 13:47	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			08/21/23 20:36	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/21/23 20:36	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/21/23 20:36	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/21/23 20:36	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/21/23 20:36	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/21/23 20:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		62 - 137					08/21/23 20:36	1
4-Bromofluorobenzene (Surr)	95		56 - 136					08/21/23 20:36	1
Toluene-d8 (Surr)	100		78 - 122					08/21/23 20:36	1
Dibromofluoromethane (Surr)	98		73 - 120					08/21/23 20:36	1

Surrogate Summary

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

Job ID: 240-190079-1

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)
240-190079-1	TRIP BLANK_91	99	93	97	98
240-190079-2	MW-54_081023	100	96	100	98
240-190079-3	MW-221S_081023	102	96	101	95
240-190079-4	MW-54S_081023	101	95	100	98
240-190080-D-3 MSD	Matrix Spike Duplicate	96	98	102	100
240-190080-H-3 MS	Matrix Spike	96	97	100	98
LCS 240-584581/4	Lab Control Sample	93	100	99	99
MB 240-584581/7	Method Blank	99	94	100	97

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		DCA (66-120)
240-189970-C-5 MS	Matrix Spike	106
240-189970-C-5 MSD	Matrix Spike Duplicate	106
240-190079-2	MW-54_081023	103
240-190079-3	MW-221S_081023	109
240-190079-4	MW-54S_081023	106
240-190080-A-3 MS	Matrix Spike	103
240-190080-A-3 MSD	Matrix Spike Duplicate	106
LCS 240-584517/5	Lab Control Sample	101
LCS 240-584695/5	Lab Control Sample	105
MB 240-584517/7	Method Blank	100
MB 240-584695/7	Method Blank	104

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-190079-1

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

Lab Sample ID: MB 240-584581/7

Matrix: Water

Analysis Batch: 584581

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			08/21/23 13:33	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/21/23 13:33	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/21/23 13:33	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/21/23 13:33	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/21/23 13:33	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/21/23 13:33	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	99		62 - 137		08/21/23 13:33	1
4-Bromofluorobenzene (Surr)	94		56 - 136		08/21/23 13:33	1
Toluene-d8 (Surr)	100		78 - 122		08/21/23 13:33	1
Dibromofluoromethane (Surr)	97		73 - 120		08/21/23 13:33	1

Lab Sample ID: LCS 240-584581/4

Matrix: Water

Analysis Batch: 584581

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
1,1-Dichloroethene	25.0	26.7		ug/L		107	63 - 134
cis-1,2-Dichloroethene	25.0	25.7		ug/L		103	77 - 123
Tetrachloroethene	25.0	26.1		ug/L		105	76 - 123
trans-1,2-Dichloroethene	25.0	24.9		ug/L		99	75 - 124
Trichloroethene	25.0	24.8		ug/L		99	70 - 122
Vinyl chloride	12.5	9.18		ug/L		73	60 - 144

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	93		62 - 137
4-Bromofluorobenzene (Surr)	100		56 - 136
Toluene-d8 (Surr)	99		78 - 122
Dibromofluoromethane (Surr)	99		73 - 120

Lab Sample ID: 240-190080-D-3 MSD

Matrix: Water

Analysis Batch: 584581

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample	Sample	Spike Added	MSD	MSD	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
	Result	Qualifier		Result	Qualifier						
1,1-Dichloroethene	1.0	U	25.0	25.2		ug/L		101	56 - 135	4	26
cis-1,2-Dichloroethene	1.0	U	25.0	25.0		ug/L		100	66 - 128	0	14
Tetrachloroethene	1.0	U	25.0	24.0		ug/L		96	62 - 131	6	20
trans-1,2-Dichloroethene	1.0	U	25.0	23.5		ug/L		94	56 - 136	3	15
Trichloroethene	1.0	U	25.0	23.2		ug/L		93	61 - 124	3	15
Vinyl chloride	1.0	U	12.5	8.68		ug/L		69	43 - 157	3	24

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	96		62 - 137
4-Bromofluorobenzene (Surr)	98		56 - 136
Toluene-d8 (Surr)	102		78 - 122

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QC Sample Results

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

Job ID: 240-190079-1

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

Lab Sample ID: 240-190080-D-3 MSD
Matrix: Water
Analysis Batch: 584581

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

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	100		73 - 120

Lab Sample ID: 240-190080-H-3 MS
Matrix: Water
Analysis Batch: 584581

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				
1,1-Dichloroethene	1.0	U	25.0	24.1		ug/L		96	56 - 135
cis-1,2-Dichloroethene	1.0	U	25.0	24.9		ug/L		100	66 - 128
Tetrachloroethene	1.0	U	25.0	22.7		ug/L		91	62 - 131
trans-1,2-Dichloroethene	1.0	U	25.0	22.9		ug/L		92	56 - 136
Trichloroethene	1.0	U	25.0	22.4		ug/L		90	61 - 124
Vinyl chloride	1.0	U	12.5	8.94		ug/L		72	43 - 157

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	96		62 - 137
4-Bromofluorobenzene (Surr)	97		56 - 136
Toluene-d8 (Surr)	100		78 - 122
Dibromofluoromethane (Surr)	98		73 - 120

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

Lab Sample ID: MB 240-584517/7
Matrix: Water
Analysis Batch: 584517

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			08/21/23 10:55	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	100		66 - 120		08/21/23 10:55	1

Lab Sample ID: LCS 240-584517/5
Matrix: Water
Analysis Batch: 584517

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

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
1,4-Dioxane	10.0	9.48		ug/L		95	80 - 122

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	101		66 - 120

Lab Sample ID: 240-189970-C-5 MS
Matrix: Water
Analysis Batch: 584517

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	5.4		10.0	16.2		ug/L		108	51 - 153

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QC Sample Results

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

Job ID: 240-190079-1

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

	<i>MS</i>	<i>MS</i>	
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	106		66 - 120

Lab Sample ID: 240-189970-C-5 MSD
Matrix: Water
Analysis Batch: 584517

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

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
1,4-Dioxane	5.4		10.0	16.6		ug/L		111	51 - 153	2	16

	<i>MSD</i>	<i>MSD</i>	
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	106		66 - 120

Lab Sample ID: MB 240-584695/7
Matrix: Water
Analysis Batch: 584695

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

<i>Analyte</i>	<i>MB Result</i>	<i>MB Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/22/23 10:53	1

	<i>MB</i>	<i>MB</i>		<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
1,2-Dichloroethane-d4 (Surr)	104		66 - 120		08/22/23 10:53	1

Lab Sample ID: LCS 240-584695/5
Matrix: Water
Analysis Batch: 584695

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

<i>Analyte</i>	<i>Spike Added</i>	<i>LCS Result</i>	<i>LCS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>
1,4-Dioxane	10.0	9.38		ug/L		94	80 - 122

	<i>LCS</i>	<i>LCS</i>	
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	105		66 - 120

Lab Sample ID: 240-190080-A-3 MS
Matrix: Water
Analysis Batch: 584695

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

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MS Result</i>	<i>MS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>
1,4-Dioxane	2.0	U	10.0	7.87		ug/L		79	51 - 153

	<i>MS</i>	<i>MS</i>	
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	103		66 - 120

Lab Sample ID: 240-190080-A-3 MSD
Matrix: Water
Analysis Batch: 584695

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

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
1,4-Dioxane	2.0	U	10.0	8.17		ug/L		82	51 - 153	4	16

QC Sample Results

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

Job ID: 240-190079-1

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

Lab Sample ID: 240-190080-A-3 MSD

Matrix: Water

Analysis Batch: 584695

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)	106		66 - 120

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

QC Association Summary

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

Job ID: 240-190079-1

GC/MS VOA

Analysis Batch: 584517

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-190079-2	MW-54_081023	Total/NA	Water	8260D SIM	
MB 240-584517/7	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-584517/5	Lab Control Sample	Total/NA	Water	8260D SIM	
240-189970-C-5 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-189970-C-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

Analysis Batch: 584581

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-190079-1	TRIP BLANK_91	Total/NA	Water	8260D	
240-190079-2	MW-54_081023	Total/NA	Water	8260D	
240-190079-3	MW-221S_081023	Total/NA	Water	8260D	
240-190079-4	MW-54S_081023	Total/NA	Water	8260D	
MB 240-584581/7	Method Blank	Total/NA	Water	8260D	
LCS 240-584581/4	Lab Control Sample	Total/NA	Water	8260D	
240-190080-D-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	
240-190080-H-3 MS	Matrix Spike	Total/NA	Water	8260D	

Analysis Batch: 584695

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-190079-3	MW-221S_081023	Total/NA	Water	8260D SIM	
240-190079-4	MW-54S_081023	Total/NA	Water	8260D SIM	
MB 240-584695/7	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-584695/5	Lab Control Sample	Total/NA	Water	8260D SIM	
240-190080-A-3 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-190080-A-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

Lab Chronicle

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

Job ID: 240-190079-1

Client Sample ID: TRIP BLANK_91

Lab Sample ID: 240-190079-1

Date Collected: 08/10/23 00:00

Matrix: Water

Date Received: 08/12/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	584581	LEE	EET CLE	08/21/23 19:20

Client Sample ID: MW-54_081023

Lab Sample ID: 240-190079-2

Date Collected: 08/10/23 10:25

Matrix: Water

Date Received: 08/12/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	584581	LEE	EET CLE	08/21/23 19:46
Total/NA	Analysis	8260D SIM		1	584517	MRL	EET CLE	08/21/23 20:02

Client Sample ID: MW-221S_081023

Lab Sample ID: 240-190079-3

Date Collected: 08/10/23 12:45

Matrix: Water

Date Received: 08/12/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	584581	LEE	EET CLE	08/21/23 20:11
Total/NA	Analysis	8260D SIM		1	584695	MRL	EET CLE	08/22/23 13:23

Client Sample ID: MW-54S_081023

Lab Sample ID: 240-190079-4

Date Collected: 08/10/23 13:20

Matrix: Water

Date Received: 08/12/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	584581	LEE	EET CLE	08/21/23 20:36
Total/NA	Analysis	8260D SIM		1	584695	MRL	EET CLE	08/22/23 13:47

Laboratory References:

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

Accreditation/Certification Summary

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

Job ID: 240-190079-1

Laboratory: Eurofins Cleveland

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

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-27-24
Georgia	State	4062	02-27-24
Illinois	NELAP	200004	07-31-24
Iowa	State	421	06-01-25
Kentucky (UST)	State	112225	02-28-24
Kentucky (WW)	State	KY98016	12-31-23
Michigan	State	9135	02-27-24
Minnesota	NELAP	039-999-348	12-31-23
Minnesota (Petrofund)	State	3506	08-01-23 *
New Jersey	NELAP	OH001	07-01-24
New York	NELAP	10975	04-02-24
Ohio	State	8303	02-27-24
Ohio VAP	State	ORELAP 4062	02-27-24
Oregon	NELAP	4062	02-27-24
Pennsylvania	NELAP	68-00340	08-31-24
Texas	NELAP	T104704517-22-19	08-31-23
Virginia	NELAP	460175	09-14-23
West Virginia DEP	State	210	12-31-23

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



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

Client Contact Company Name: Arcadis Address: 26550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240 Project Name: Ford I.T.P. On-Site Project Number: 30167538-401.03 PO # 30167538-401.03		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other	
Client Project Manager: Kris Hinsky Telephone: 248-994-2240 Email: kristoffer.hinsky@arcadis.com		Lab Contact: Mike DeMonico Telephone: 330-497-9396	
Sampler Name: Garrett Link Method of Shipment/Carrier: Shipping/Tracking No:		Analysis Turnaround Time TAT is different from below 10 day <input checked="" type="checkbox"/> 3 weeks 1 week <input type="checkbox"/> 2 weeks 2 days <input type="checkbox"/> 1 day	
Matrix Aqueous <input type="checkbox"/> Solid <input type="checkbox"/> Other:		Containers & Preservatives H2SO4 <input type="checkbox"/> HNO3 <input type="checkbox"/> HCl <input type="checkbox"/> NaOH <input type="checkbox"/> NaBr <input type="checkbox"/> Tempres <input type="checkbox"/> Other:	
Sample Date ---	Sample Time ---	Filtered Sample (Y/N) NG	Composite (Y/N) NG
Sample Identification TRIP BLANK 91	Sample Date 08/10/23	Sample Time 10:25	Filtered Sample (Y/N) NG
Sample Identification MW-54-081023	Sample Date 08/10/23	Sample Time 12:45	Filtered Sample (Y/N) NG
Sample Identification MW-221s-081023	Sample Date 08/10/23	Sample Time 13:20	Filtered Sample (Y/N) NG
Sample Identification MW-54s-081023	Sample Date 08/10/23	Sample Time 13:20	Filtered Sample (Y/N) NG
Sample Specific Notes / Special Instructions: 1 Trip Blank 3 VOAs for 8260D 3 VOAs for 8260D SIM ↓			
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown			
Special Instructions/QC Requirements & Comments: Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203728 Level IV Reporting requested.			
Relinquished by: <i>Samuel Green</i>	Date/Time: 8/10/23 14:15	Company: Arcadis's	Date/Time: 8/10/23 14:25 Company: Arcadis's
Relinquished by: <i>Samuel Skuy</i>	Date/Time: 8/11/23 12:40	Company: Arcadis	Date/Time: 8/11/23 12:40 Company: EETA
Relinquished by: <i>Garrett Link</i>	Date/Time: 8/11/23 13:00	Company: EETA	Date/Time: 8-11-23 8:00 Company: EETNC



Barberton Facility

Client Arcadis

Site Name _____

Cooler unpacked by _____

Cooler Received on 8-12-23

Opened on 8-12-23

Nancy Poyh

FedEx: 1st Grd Exp UPS FAS Waypoint

Client Drop Off Eurofins Courier Other

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

Storage Location _____

Eurofins Cooler # EC Foam Box Client Cooler Box Other _____

Packing material used: Bubble Wrap Foam Plastic Bag None Other _____

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form

IR GUN # 22 (CF -0.1 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity leach Yes No

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

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

-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# HC312502

14. Were VOAs on the COC? Yes No

15. Were air bubbles >6 mm in any VOA vials? Yes No NA Larger than this.

16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # Covered Yes No

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

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

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

Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page

Samples processed by: _____

19. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container.

Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.

Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

DATA VERIFICATION REPORT



August 25, 2023

Kris Hinskey
Arcadis of Michigan
28550 Cabot Drive
Suite 500
Novi, MI US 48377

CADENA project ID: E203728

Project: Ford Livonia Transmission Plant - ON-SITE -Soil Gas, Ground water and Soil

Project number: 30167538.401.03- onsite groundwater

Event Specific Scope of Work References: Sample COC

Laboratory: Eurofins Environment Testing LLC - Cleveland

Laboratory submittal: 190079-1

Sample date: 2023-08-10

Report received by CADENA: 2023-08-25

Initial Data Verification completed by CADENA: 2023-08-25

Number of Samples:4

Sample Matrices:Water

Test Categories:GCMS VOC

Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

The following minor QC exceptions or missing information were noted:

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

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

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: 190079-1

Analyte	Cas No.	Sample Name: TRIP BLANK_91				MW-54_081023				MW-221S_081023				MW-54S_081023			
		Result	Limit	Units	Valid Qualifier	Result	Limit	Units	Valid Qualifier	Result	Limit	Units	Valid Qualifier	Result	Limit	Units	Valid Qualifier
		Lab Sample ID: 2401900791				2401900792				2401900793				2401900794			
		Sample Date: 8/10/2023				8/10/2023				8/10/2023				8/10/2023			

GC/MS VOC

OSW-8260D

1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---	8.9	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	---	0.53	1.0	ug/l	J	ND	1.0	ug/l	---
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	1.0	ug/l	---	0.52	1.0	ug/l	J	ND	1.0	ug/l	---
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	0.66	1.0	ug/l	J	ND	1.0	ug/l	---	ND	1.0	ug/l	---

OSW-8260DSIM

1,4-Dioxane	123-91-1					1.0	2.0	ug/l	J	ND	2.0	ug/l	---	ND	2.0	ug/l	---
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