

ANALYTICAL REPORT

PREPARED FOR

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JOB DESCRIPTION

Ford LTP

JOB NUMBER

240-204405-1

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Job Notes

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Authorization



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Definitions/Glossary

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

Job ID: 240-204405-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
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

Job ID: 240-204405-1

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Job Narrative 240-204405-1

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 5/14/2024 10:00 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 3.1°C.

GC/MS VOA

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: 240-204405-1

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: 240-204405-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-204405-1	TRIP BLANK_50	Water	05/13/24 00:00	05/14/24 10:00
240-204405-2	MW-196_051324	Water	05/13/24 11:00	05/14/24 10:00
240-204405-3	MW-196S_051324	Water	05/13/24 09:55	05/14/24 10:00

- 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: 240-204405-1

Client Sample ID: TRIP BLANK_50

Lab Sample ID: 240-204405-1

No Detections.

Client Sample ID: MW-196_051324

Lab Sample ID: 240-204405-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	320		5.0	2.3	ug/L	5		8260D	Total/NA
trans-1,2-Dichloroethene	120		5.0	2.6	ug/L	5		8260D	Total/NA
Trichloroethene	450		10	4.4	ug/L	10		8260D	Total/NA

Client Sample ID: MW-196S_051324

Lab Sample ID: 240-204405-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	42		1.0	0.46	ug/L	1		8260D	Total/NA
trans-1,2-Dichloroethene	1.5		1.0	0.51	ug/L	1		8260D	Total/NA
Trichloroethene	55		1.0	0.44	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: 240-204405-1

Client Sample ID: TRIP BLANK_50

Lab Sample ID: 240-204405-1

Date Collected: 05/13/24 00:00

Matrix: Water

Date Received: 05/14/24 10:00

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			05/23/24 13:43	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/23/24 13:43	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/23/24 13:43	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/23/24 13:43	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/23/24 13:43	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/23/24 13:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		62 - 137		05/23/24 13:43	1
4-Bromofluorobenzene (Surr)	90		56 - 136		05/23/24 13:43	1
Toluene-d8 (Surr)	103		78 - 122		05/23/24 13:43	1
Dibromofluoromethane (Surr)	100		73 - 120		05/23/24 13:43	1

Client Sample Results

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

Job ID: 240-204405-1

Client Sample ID: MW-196_051324

Lab Sample ID: 240-204405-2

Date Collected: 05/13/24 11:00

Matrix: Water

Date Received: 05/14/24 10:00

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			05/17/24 22:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		68 - 127					05/17/24 22:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	5.0	U	5.0	2.5	ug/L			05/23/24 14:07	5
cis-1,2-Dichloroethene	320		5.0	2.3	ug/L			05/23/24 14:07	5
Tetrachloroethene	5.0	U	5.0	2.2	ug/L			05/23/24 14:07	5
trans-1,2-Dichloroethene	120		5.0	2.6	ug/L			05/23/24 14:07	5
Trichloroethene	450		10	4.4	ug/L			05/24/24 14:23	10
Vinyl chloride	5.0	U	5.0	2.3	ug/L			05/23/24 14:07	5
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		62 - 137					05/23/24 14:07	5
1,2-Dichloroethane-d4 (Surr)	117		62 - 137					05/24/24 14:23	10
4-Bromofluorobenzene (Surr)	90		56 - 136					05/23/24 14:07	5
4-Bromofluorobenzene (Surr)	86		56 - 136					05/24/24 14:23	10
Toluene-d8 (Surr)	102		78 - 122					05/23/24 14:07	5
Toluene-d8 (Surr)	105		78 - 122					05/24/24 14:23	10
Dibromofluoromethane (Surr)	101		73 - 120					05/23/24 14:07	5
Dibromofluoromethane (Surr)	104		73 - 120					05/24/24 14:23	10

Client Sample Results

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

Job ID: 240-204405-1

Client Sample ID: MW-196S_051324

Lab Sample ID: 240-204405-3

Date Collected: 05/13/24 09:55

Matrix: Water

Date Received: 05/14/24 10:00

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			05/20/24 16:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		68 - 127					05/20/24 16:57	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			05/23/24 14:31	1
cis-1,2-Dichloroethene	42		1.0	0.46	ug/L			05/23/24 14:31	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/23/24 14:31	1
trans-1,2-Dichloroethene	1.5		1.0	0.51	ug/L			05/23/24 14:31	1
Trichloroethene	55		1.0	0.44	ug/L			05/23/24 14:31	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/23/24 14:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		62 - 137					05/23/24 14:31	1
4-Bromofluorobenzene (Surr)	90		56 - 136					05/23/24 14:31	1
Toluene-d8 (Surr)	101		78 - 122					05/23/24 14:31	1
Dibromofluoromethane (Surr)	99		73 - 120					05/23/24 14:31	1

Surrogate Summary

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

Job ID: 240-204405-1

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)
240-204405-1	TRIP BLANK_50	108	90	103	100
240-204405-2	MW-196_051324	108	90	102	101
240-204405-2	MW-196_051324	117	86	105	104
240-204405-3	MW-196S_051324	108	90	101	99
240-204435-A-1 MS	Matrix Spike	114	87	103	106
240-204435-A-1 MSD	Matrix Spike Duplicate	109	86	101	103
240-204435-B-1 MS	Matrix Spike	109	89	104	103
240-204435-B-1 MSD	Matrix Spike Duplicate	107	89	102	103
LCS 240-614129/6	Lab Control Sample	103	89	98	100
LCS 240-614298/6	Lab Control Sample	108	86	102	103
MB 240-614129/10	Method Blank	109	88	100	98
MB 240-614298/10	Method Blank	117	88	106	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)
240-204330-B-3 MS	Matrix Spike	109
240-204330-C-3 MSD	Matrix Spike Duplicate	101
240-204404-D-4 MS	Matrix Spike	100
240-204404-D-4 MSD	Matrix Spike Duplicate	95
240-204405-2	MW-196_051324	95
240-204405-3	MW-196S_051324	97
LCS 240-613472/4	Lab Control Sample	97
LCS 240-613686/4	Lab Control Sample	101
MB 240-613472/6	Method Blank	101
MB 240-613686/6	Method Blank	99

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-204405-1

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

Lab Sample ID: MB 240-614129/10

Matrix: Water

Analysis Batch: 614129

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			05/23/24 13:19	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/23/24 13:19	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/23/24 13:19	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/23/24 13:19	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/23/24 13:19	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/23/24 13:19	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	109		62 - 137		05/23/24 13:19	1
4-Bromofluorobenzene (Surr)	88		56 - 136		05/23/24 13:19	1
Toluene-d8 (Surr)	100		78 - 122		05/23/24 13:19	1
Dibromofluoromethane (Surr)	98		73 - 120		05/23/24 13:19	1

Lab Sample ID: LCS 240-614129/6

Matrix: Water

Analysis Batch: 614129

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	20.0	19.4		ug/L		97	63 - 134
cis-1,2-Dichloroethene	20.0	19.3		ug/L		96	77 - 123
Tetrachloroethene	20.0	19.6		ug/L		98	76 - 123
trans-1,2-Dichloroethene	20.0	18.6		ug/L		93	75 - 124
Trichloroethene	20.0	19.7		ug/L		98	70 - 122
Vinyl chloride	20.0	17.7		ug/L		88	60 - 144

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	103		62 - 137
4-Bromofluorobenzene (Surr)	89		56 - 136
Toluene-d8 (Surr)	98		78 - 122
Dibromofluoromethane (Surr)	100		73 - 120

Lab Sample ID: 240-204435-B-1 MS

Matrix: Water

Analysis Batch: 614129

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	9.4		20.0	28.8		ug/L		97	56 - 135
Tetrachloroethene	0.79	J	20.0	19.8		ug/L		95	62 - 131
trans-1,2-Dichloroethene	1.0	U	20.0	19.4		ug/L		97	56 - 136
Trichloroethene	3.4		20.0	22.2		ug/L		94	61 - 124
Vinyl chloride	1.5		20.0	18.8		ug/L		87	43 - 157

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	109		62 - 137
4-Bromofluorobenzene (Surr)	89		56 - 136
Toluene-d8 (Surr)	104		78 - 122
Dibromofluoromethane (Surr)	103		73 - 120

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QC Sample Results

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

Job ID: 240-204405-1

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

Lab Sample ID: 240-204435-B-1 MSD

Client Sample ID: Matrix Spike Duplicate

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 614129

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		
1,1-Dichloroethene	9.4		20.0	29.2		ug/L		99	56 - 135	1	26
Tetrachloroethene	0.79	J	20.0	20.2		ug/L		97	62 - 131	2	20
trans-1,2-Dichloroethene	1.0	U	20.0	19.5		ug/L		98	56 - 136	1	15
Trichloroethene	3.4		20.0	22.6		ug/L		96	61 - 124	2	15
Vinyl chloride	1.5		20.0	20.2		ug/L		94	43 - 157	7	24

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	107		62 - 137
4-Bromofluorobenzene (Surr)	89		56 - 136
Toluene-d8 (Surr)	102		78 - 122
Dibromofluoromethane (Surr)	103		73 - 120

Lab Sample ID: MB 240-614298/10

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 614298

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		05/24/24 12:24	1	
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L		05/24/24 12:24	1	
Tetrachloroethene	1.0	U	1.0	0.44	ug/L		05/24/24 12:24	1	
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L		05/24/24 12:24	1	
Trichloroethene	1.0	U	1.0	0.44	ug/L		05/24/24 12:24	1	
Vinyl chloride	1.0	U	1.0	0.45	ug/L		05/24/24 12:24	1	

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	117		62 - 137		05/24/24 12:24	1
4-Bromofluorobenzene (Surr)	88		56 - 136		05/24/24 12:24	1
Toluene-d8 (Surr)	106		78 - 122		05/24/24 12:24	1
Dibromofluoromethane (Surr)	104		73 - 120		05/24/24 12:24	1

Lab Sample ID: LCS 240-614298/6

Client Sample ID: Lab Control Sample

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 614298

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec
		Result	Qualifier				Limits
1,1-Dichloroethene	20.0	20.1		ug/L		100	63 - 134
cis-1,2-Dichloroethene	20.0	19.8		ug/L		99	77 - 123
Tetrachloroethene	20.0	20.2		ug/L		101	76 - 123
trans-1,2-Dichloroethene	20.0	19.2		ug/L		96	75 - 124
Trichloroethene	20.0	19.6		ug/L		98	70 - 122
Vinyl chloride	20.0	20.3		ug/L		102	60 - 144

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	108		62 - 137
4-Bromofluorobenzene (Surr)	86		56 - 136
Toluene-d8 (Surr)	102		78 - 122
Dibromofluoromethane (Surr)	103		73 - 120

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QC Sample Results

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

Job ID: 240-204405-1

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

Lab Sample ID: 240-204435-A-1 MS

Client Sample ID: Matrix Spike

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 614298

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier					
1,1-Dichloroethene	8.6		100	104		ug/L		96		56 - 135
Tetrachloroethene	5.0	U	100	93.2		ug/L		93		62 - 131
trans-1,2-Dichloroethene	5.0	U	100	92.3		ug/L		92		56 - 136
Trichloroethene	3.1	J	100	95.3		ug/L		92		61 - 124
Vinyl chloride	5.0	U	100	100		ug/L		100		43 - 157
MS MS										
Surrogate	%Recovery	Qualifier	Limits							
1,2-Dichloroethane-d4 (Surr)	114		62 - 137							
4-Bromofluorobenzene (Surr)	87		56 - 136							
Toluene-d8 (Surr)	103		78 - 122							
Dibromofluoromethane (Surr)	106		73 - 120							

Lab Sample ID: 240-204435-A-1 MSD

Client Sample ID: Matrix Spike Duplicate

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 614298

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	Limits	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier						Limit	
1,1-Dichloroethene	8.6		100	108		ug/L		99		56 - 135	3	26
Tetrachloroethene	5.0	U	100	99.8		ug/L		100		62 - 131	7	20
trans-1,2-Dichloroethene	5.0	U	100	93.5		ug/L		93		56 - 136	1	15
Trichloroethene	3.1	J	100	99.1		ug/L		96		61 - 124	4	15
Vinyl chloride	5.0	U	100	97.3		ug/L		97		43 - 157	3	24
MSD MSD												
Surrogate	%Recovery	Qualifier	Limits									
1,2-Dichloroethane-d4 (Surr)	109		62 - 137									
4-Bromofluorobenzene (Surr)	86		56 - 136									
Toluene-d8 (Surr)	101		78 - 122									
Dibromofluoromethane (Surr)	103		73 - 120									

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

Lab Sample ID: MB 240-613472/6

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 613472

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			05/17/24 13:36	1
MB MB									
Surrogate	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	101		68 - 127						
				Prepared		Analyzed		Dil Fac	
						05/17/24 13:36		1	

Lab Sample ID: LCS 240-613472/4

Client Sample ID: Lab Control Sample

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 613472

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec	Limits
1,4-Dioxane	10.0	9.74		ug/L		97		75 - 121

Eurofins Cleveland

QC Sample Results

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

Job ID: 240-204405-1

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

Lab Sample ID: LCS 240-613472/4
Matrix: Water
Analysis Batch: 613472

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

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	97		68 - 127

Lab Sample ID: 240-204330-B-3 MS
Matrix: Water
Analysis Batch: 613472

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	
1,4-Dioxane	2.0	U	10.0	9.67		ug/L		97	20 - 180	
Surrogate	MS %Recovery	MS Qualifier	Limits							
1,2-Dichloroethane-d4 (Surr)	109		68 - 127							

Lab Sample ID: 240-204330-C-3 MSD
Matrix: Water
Analysis Batch: 613472

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	9.93		ug/L		99	20 - 180	3	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	101		68 - 127								

Lab Sample ID: MB 240-613686/6
Matrix: Water
Analysis Batch: 613686

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			05/20/24 14:13	1	
Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac				
1,2-Dichloroethane-d4 (Surr)	99		68 - 127		05/20/24 14:13	1				

Lab Sample ID: LCS 240-613686/4
Matrix: Water
Analysis Batch: 613686

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dioxane	10.0	9.53		ug/L		95	75 - 121
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	101		68 - 127				

QC Sample Results

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

Job ID: 240-204405-1

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

Lab Sample ID: 240-204404-D-4 MS

Matrix: Water

Analysis Batch: 613686

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	
1,4-Dioxane	2.0	U	10.0	8.89		ug/L		89	20 - 180	
Surrogate	%Recovery	MS Qualifier	MS Limits							
1,2-Dichloroethane-d4 (Surr)	100		68 - 127							

Lab Sample ID: 240-204404-D-4 MSD

Matrix: Water

Analysis Batch: 613686

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	9.93		ug/L		99	20 - 180	11	20
Surrogate	%Recovery	MSD Qualifier	MSD Limits								
1,2-Dichloroethane-d4 (Surr)	95		68 - 127								

QC Association Summary

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

Job ID: 240-204405-1

GC/MS VOA

Analysis Batch: 613472

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-204405-2	MW-196_051324	Total/NA	Water	8260D SIM	
MB 240-613472/6	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-613472/4	Lab Control Sample	Total/NA	Water	8260D SIM	
240-204330-B-3 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-204330-C-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

Analysis Batch: 613686

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-204405-3	MW-196S_051324	Total/NA	Water	8260D SIM	
MB 240-613686/6	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-613686/4	Lab Control Sample	Total/NA	Water	8260D SIM	
240-204404-D-4 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-204404-D-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

Analysis Batch: 614129

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-204405-1	TRIP BLANK_50	Total/NA	Water	8260D	
240-204405-2	MW-196_051324	Total/NA	Water	8260D	
240-204405-3	MW-196S_051324	Total/NA	Water	8260D	
MB 240-614129/10	Method Blank	Total/NA	Water	8260D	
LCS 240-614129/6	Lab Control Sample	Total/NA	Water	8260D	
240-204435-B-1 MS	Matrix Spike	Total/NA	Water	8260D	
240-204435-B-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Analysis Batch: 614298

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-204405-2	MW-196_051324	Total/NA	Water	8260D	
MB 240-614298/10	Method Blank	Total/NA	Water	8260D	
LCS 240-614298/6	Lab Control Sample	Total/NA	Water	8260D	
240-204435-A-1 MS	Matrix Spike	Total/NA	Water	8260D	
240-204435-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Lab Chronicle

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

Job ID: 240-204405-1

Client Sample ID: TRIP BLANK_50

Lab Sample ID: 240-204405-1

Date Collected: 05/13/24 00:00

Matrix: Water

Date Received: 05/14/24 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	614129	HMB	EET CLE	05/23/24 13:43

Client Sample ID: MW-196_051324

Lab Sample ID: 240-204405-2

Date Collected: 05/13/24 11:00

Matrix: Water

Date Received: 05/14/24 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		5	614129	HMB	EET CLE	05/23/24 14:07
Total/NA	Analysis	8260D		10	614298	HMB	EET CLE	05/24/24 14:23
Total/NA	Analysis	8260D SIM		1	613472	MDH	EET CLE	05/17/24 22:59

Client Sample ID: MW-196S_051324

Lab Sample ID: 240-204405-3

Date Collected: 05/13/24 09:55

Matrix: Water

Date Received: 05/14/24 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	614129	HMB	EET CLE	05/23/24 14:31
Total/NA	Analysis	8260D SIM		1	613686	MDH	EET CLE	05/20/24 16:57

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: 240-204405-1

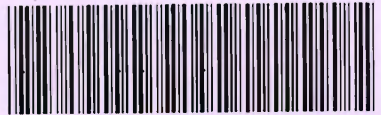
Laboratory: Eurofins Cleveland

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								Walk-in client													
Project Name: Ford LTP		Method of Shipment/Carrier:				<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								Lab sampling													
Project Number: 30206169.0401.03		Shipping/Tracking No:												Job/SDG No:													
PO # US3410018772																											
Sample Identification		Sample Date	Sample Time	Matrix					Containers & Preservatives					Sample Specific Notes / Special Instructions:													
				Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl	NaOH	Zn	NaOH	Unpres	Other:	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		
✓	TRIP BLANK_ 50	---	---	1						1							NG	X	X	X	X	X	X			1 Trip Blank	
✓	MW-196-051324	5/13/24	1100	6						6							NG	X	X	X	X	X	X			3 VOAs for 8260D 3 VOAs for 8260D SIM	
✓	MW-196S-051324	5/13/24	0955	6						6							NG	X	X	X	X	X	X			I	
 240-204405 Chain of Custody																											
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"/> Skin 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: <i>[Signature]</i>	Company: Arcadis	Date/Time: 5/13/24 1218	Received by: Novi Cold Storage	Company: Arcadis	Date/Time: 5/13/24 1218																						
Relinquished by: <i>[Signature]</i>	Company: Arcadis	Date/Time: 5/13/24 1430	Received by: <i>[Signature]</i>	Company: FETA	Date/Time: 5/13/24 1430																						
Relinquished by: <i>[Signature]</i>	Company: FETA	Date/Time: 5/13/24 1800	Received by: <i>[Signature]</i>	Company: EWR	Date/Time: 5-14-24 10am																						

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Eurofins - Cleveland Sample Receipt Form/Narrative
 Barberon Facility
 Client PREADIS Site Name _____ Login # _____
 Cooler unpacked by: MALISSA LAM

Cooler Received on 5.14.23 Opened on 5.14.23
 FedEx 1st Grd Exp UPS FAS Waypoint Client Drop Off Eurofins Courier Other _____
 Receipt After-hours, Drop-off Date/Time _____ Storage Location _____

Eurofins Cooler # 88 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 # 18 (CF Δ) Observed Cooler Temp. 3.1 °C Corrected Cooler Temp 3.1 °C

2 Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity _____ Yes No NA
 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 preservative(s) (Y/N), # of container(s) (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

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

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? Larger than this. Yes No NA
 16 Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ 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 _____

DATA VERIFICATION REPORT



May 28, 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: 204405-1
Sample date: 2024-05-13
Report received by CADENA: 2024-05-28
Initial Data Verification completed by CADENA: 2024-05-28
Number of Samples:3
Sample Matrices:Water
Test Categories:GCMS VOC
Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

There were no significant QC anomalies or exceptions to report.

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

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

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: 204405-1

Sample Name: TRIP BLANK_50	MW-196_051324	MW-196S_051324
Lab Sample ID: 2402044051	2402044052	2402044053
Sample Date: 5/13/2024	5/13/2024	5/13/2024

Analyte	Cas No.	Report		Valid	Report		Valid	Report		Valid
		Result	Limit		Result	Limit		Result	Limit	

GC/MS VOC

OSW-8260D

1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	5.0	ug/l	---	ND	1.0	ug/l	---
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	320	5.0	ug/l	---	42	1.0	ug/l	---
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	5.0	ug/l	---	ND	1.0	ug/l	---
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	120	5.0	ug/l	---	1.5	1.0	ug/l	---
Trichloroethene	79-01-6	ND	1.0	ug/l	---	450	10	ug/l	---	55	1.0	ug/l	---
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	ND	5.0	ug/l	---	ND	1.0	ug/l	---

OSW-8260DSIM

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