

ANALYTICAL REPORT

PREPARED FOR

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Generated 3/14/2023 5:54:11 AM

JOB DESCRIPTION

Ford LTP - On Site

JOB NUMBER

240-181309-1

Eurofins Canton

Job Notes

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Authorization



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Definitions/Glossary

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

Job ID: 240-181309-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F2	MS/MSD RPD exceeds control limits
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/Site: Ford LTP - On Site

Job ID: 240-181309-1

Job ID: 240-181309-1

Laboratory: Eurofins Canton

Narrative

Job Narrative
240-181309-1

Receipt

The samples were received on 3/3/2023 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.6°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 - On Site

Job ID: 240-181309-1

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

Protocol References:

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

Laboratory References:

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

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- 14

Sample Summary

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

Job ID: 240-181309-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-181309-1	TRIP BLANK_78	Water	03/01/23 00:00	03/03/23 08:00
240-181309-2	MW-39_030123	Water	03/01/23 09:58	03/03/23 08:00
240-181309-3	MW-33_030123	Water	03/01/23 11:23	03/03/23 08:00
240-181309-4	MW-219S_030123	Water	03/01/23 12:45	03/03/23 08:00
240-181309-5	MW-38_030123	Water	03/01/23 13:42	03/03/23 08:00
240-181309-6	MW-37_030123	Water	03/01/23 15:25	03/03/23 08:00

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- 10
- 11
- 12
- 13
- 14

Detection Summary

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

Job ID: 240-181309-1

Client Sample ID: TRIP BLANK_78

Lab Sample ID: 240-181309-1

No Detections.

Client Sample ID: MW-39_030123

Lab Sample ID: 240-181309-2

No Detections.

Client Sample ID: MW-33_030123

Lab Sample ID: 240-181309-3

No Detections.

Client Sample ID: MW-219S_030123

Lab Sample ID: 240-181309-4

No Detections.

Client Sample ID: MW-38_030123

Lab Sample ID: 240-181309-5

No Detections.

Client Sample ID: MW-37_030123

Lab Sample ID: 240-181309-6

No Detections.

This Detection Summary does not include radiochemical test results.

Euofins Canton



Client Sample Results

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

Job ID: 240-181309-1

Client Sample ID: TRIP BLANK_78

Lab Sample ID: 240-181309-1

Date Collected: 03/01/23 00:00

Matrix: Water

Date Received: 03/03/23 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			03/10/23 15:45	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/10/23 15:45	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/10/23 15:45	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/10/23 15:45	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/10/23 15:45	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/10/23 15:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		62 - 137		03/10/23 15:45	1
4-Bromofluorobenzene (Surr)	88		56 - 136		03/10/23 15:45	1
Toluene-d8 (Surr)	92		78 - 122		03/10/23 15:45	1
Dibromofluoromethane (Surr)	97		73 - 120		03/10/23 15:45	1

Client Sample Results

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

Job ID: 240-181309-1

Client Sample ID: MW-39_030123

Lab Sample ID: 240-181309-2

Date Collected: 03/01/23 09:58

Matrix: Water

Date Received: 03/03/23 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			03/08/23 17:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		66 - 120					03/08/23 17:32	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/10/23 20:47	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/10/23 20:47	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/10/23 20:47	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/10/23 20:47	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/10/23 20:47	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/10/23 20:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		62 - 137					03/10/23 20:47	1
4-Bromofluorobenzene (Surr)	83		56 - 136					03/10/23 20:47	1
Toluene-d8 (Surr)	92		78 - 122					03/10/23 20:47	1
Dibromofluoromethane (Surr)	100		73 - 120					03/10/23 20:47	1

Client Sample Results

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

Job ID: 240-181309-1

Client Sample ID: MW-33_030123

Lab Sample ID: 240-181309-3

Date Collected: 03/01/23 11:23

Matrix: Water

Date Received: 03/03/23 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			03/08/23 17:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		66 - 120					03/08/23 17:56	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/10/23 21:12	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/10/23 21:12	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/10/23 21:12	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/10/23 21:12	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/10/23 21:12	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/10/23 21:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		62 - 137					03/10/23 21:12	1
4-Bromofluorobenzene (Surr)	88		56 - 136					03/10/23 21:12	1
Toluene-d8 (Surr)	92		78 - 122					03/10/23 21:12	1
Dibromofluoromethane (Surr)	98		73 - 120					03/10/23 21:12	1

Client Sample Results

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

Job ID: 240-181309-1

Client Sample ID: MW-219S_030123

Lab Sample ID: 240-181309-4

Date Collected: 03/01/23 12:45

Matrix: Water

Date Received: 03/03/23 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			03/08/23 18:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		66 - 120					03/08/23 18:20	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/10/23 21:37	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/10/23 21:37	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/10/23 21:37	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/10/23 21:37	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/10/23 21:37	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/10/23 21:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		62 - 137					03/10/23 21:37	1
4-Bromofluorobenzene (Surr)	85		56 - 136					03/10/23 21:37	1
Toluene-d8 (Surr)	91		78 - 122					03/10/23 21:37	1
Dibromofluoromethane (Surr)	102		73 - 120					03/10/23 21:37	1

Client Sample Results

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

Job ID: 240-181309-1

Client Sample ID: MW-38_030123

Lab Sample ID: 240-181309-5

Date Collected: 03/01/23 13:42

Matrix: Water

Date Received: 03/03/23 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			03/08/23 18:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	115		66 - 120					03/08/23 18:45	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/10/23 22:02	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/10/23 22:02	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/10/23 22:02	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/10/23 22:02	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/10/23 22:02	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/10/23 22:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		62 - 137					03/10/23 22:02	1
4-Bromofluorobenzene (Surr)	87		56 - 136					03/10/23 22:02	1
Toluene-d8 (Surr)	93		78 - 122					03/10/23 22:02	1
Dibromofluoromethane (Surr)	97		73 - 120					03/10/23 22:02	1

Client Sample Results

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

Job ID: 240-181309-1

Client Sample ID: MW-37_030123

Lab Sample ID: 240-181309-6

Date Collected: 03/01/23 15:25

Matrix: Water

Date Received: 03/03/23 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 F2	2.0	0.86	ug/L			03/08/23 19:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		66 - 120					03/08/23 19:09	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/10/23 22:27	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/10/23 22:27	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/10/23 22:27	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/10/23 22:27	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/10/23 22:27	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/10/23 22:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		62 - 137					03/10/23 22:27	1
4-Bromofluorobenzene (Surr)	85		56 - 136					03/10/23 22:27	1
Toluene-d8 (Surr)	92		78 - 122					03/10/23 22:27	1
Dibromofluoromethane (Surr)	95		73 - 120					03/10/23 22:27	1

Surrogate Summary

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

Job ID: 240-181309-1

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)
240-181309-1	TRIP BLANK_78	109	88	92	97
240-181309-2	MW-39_030123	110	83	92	100
240-181309-3	MW-33_030123	103	88	92	98
240-181309-4	MW-219S_030123	111	85	91	102
240-181309-5	MW-38_030123	106	87	93	97
240-181309-6	MW-37_030123	110	85	92	95
240-181309-6 MS	MW-37_030123	105	87	92	95
240-181309-6 MSD	MW-37_030123	106	91	92	98
LCS 240-564964/5	Lab Control Sample	106	91	95	94
MB 240-564964/8	Method Blank	110	84	94	99

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)
240-181309-2	MW-39_030123	101
240-181309-3	MW-33_030123	103
240-181309-4	MW-219S_030123	98
240-181309-5	MW-38_030123	115
240-181309-6	MW-37_030123	98
240-181309-6 MS	MW-37_030123	101
240-181309-6 MSD	MW-37_030123	114
LCS 240-564633/4	Lab Control Sample	103
MB 240-564633/6	Method Blank	97

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-181309-1

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

Lab Sample ID: MB 240-564964/8
Matrix: Water
Analysis Batch: 564964

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/10/23 14:30	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/10/23 14:30	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/10/23 14:30	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/10/23 14:30	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/10/23 14:30	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/10/23 14:30	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	110		62 - 137		03/10/23 14:30	1
4-Bromofluorobenzene (Surr)	84		56 - 136		03/10/23 14:30	1
Toluene-d8 (Surr)	94		78 - 122		03/10/23 14:30	1
Dibromofluoromethane (Surr)	99		73 - 120		03/10/23 14:30	1

Lab Sample ID: LCS 240-564964/5
Matrix: Water
Analysis Batch: 564964

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	17.2		ug/L		86	63 - 134
cis-1,2-Dichloroethene	20.0	17.9		ug/L		89	77 - 123
Tetrachloroethene	20.0	20.1		ug/L		100	76 - 123
trans-1,2-Dichloroethene	20.0	19.0		ug/L		95	75 - 124
Trichloroethene	20.0	18.4		ug/L		92	70 - 122
Vinyl chloride	20.0	18.0		ug/L		90	60 - 144

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	106		62 - 137
4-Bromofluorobenzene (Surr)	91		56 - 136
Toluene-d8 (Surr)	95		78 - 122
Dibromofluoromethane (Surr)	94		73 - 120

Lab Sample ID: 240-181309-6 MS
Matrix: Water
Analysis Batch: 564964

Client Sample ID: MW-37_030123
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	20.0	16.1		ug/L		80	56 - 135
cis-1,2-Dichloroethene	1.0	U	20.0	17.3		ug/L		86	66 - 128
Tetrachloroethene	1.0	U	20.0	18.4		ug/L		92	62 - 131
trans-1,2-Dichloroethene	1.0	U	20.0	18.4		ug/L		92	56 - 136
Trichloroethene	1.0	U	20.0	16.8		ug/L		84	61 - 124
Vinyl chloride	1.0	U	20.0	16.6		ug/L		83	43 - 157

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	105		62 - 137
4-Bromofluorobenzene (Surr)	87		56 - 136
Toluene-d8 (Surr)	92		78 - 122

QC Sample Results

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

Job ID: 240-181309-1

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

Lab Sample ID: 240-181309-6 MS
Matrix: Water
Analysis Batch: 564964

Client Sample ID: MW-37_030123
Prep Type: Total/NA

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

Lab Sample ID: 240-181309-6 MSD
Matrix: Water
Analysis Batch: 564964

Client Sample ID: MW-37_030123
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	20.0	16.0		ug/L		80	56 - 135	1	26
cis-1,2-Dichloroethene	1.0	U	20.0	16.6		ug/L		83	66 - 128	4	14
Tetrachloroethene	1.0	U	20.0	17.9		ug/L		89	62 - 131	3	20
trans-1,2-Dichloroethene	1.0	U	20.0	18.4		ug/L		92	56 - 136	0	15
Trichloroethene	1.0	U	20.0	17.2		ug/L		86	61 - 124	2	15
Vinyl chloride	1.0	U	20.0	17.4		ug/L		87	43 - 157	5	24

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	106		62 - 137
4-Bromofluorobenzene (Surr)	91		56 - 136
Toluene-d8 (Surr)	92		78 - 122
Dibromofluoromethane (Surr)	98		73 - 120

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

Lab Sample ID: MB 240-564633/6
Matrix: Water
Analysis Batch: 564633

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			03/08/23 12:16	1

	MB	MB		Prepared	Analyzed	Dil Fac
Surrogate	%Recovery	Qualifier	Limits			
1,2-Dichloroethane-d4 (Surr)	97		66 - 120		03/08/23 12:16	1

Lab Sample ID: LCS 240-564633/4
Matrix: Water
Analysis Batch: 564633

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	8.99		ug/L		90	80 - 122

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	103		66 - 120

Lab Sample ID: 240-181309-6 MS
Matrix: Water
Analysis Batch: 564633

Client Sample ID: MW-37_030123
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 F2	10.0	11.0		ug/L		110	51 - 153

Eurofins Canton

QC Sample Results

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

Job ID: 240-181309-1

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

<i>Surrogate</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	101		66 - 120

Lab Sample ID: 240-181309-6 MSD
 Matrix: Water
 Analysis Batch: 564633

Client Sample ID: MW-37_030123
 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 F2	10.0	13.4	F2	ug/L		134	51 - 153	20	16

<i>Surrogate</i>	<i>%Recovery</i>	<i>MSD MSD Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	114		66 - 120

- 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 - On Site

Job ID: 240-181309-1

GC/MS VOA

Analysis Batch: 564633

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181309-2	MW-39_030123	Total/NA	Water	8260D SIM	
240-181309-3	MW-33_030123	Total/NA	Water	8260D SIM	
240-181309-4	MW-219S_030123	Total/NA	Water	8260D SIM	
240-181309-5	MW-38_030123	Total/NA	Water	8260D SIM	
240-181309-6	MW-37_030123	Total/NA	Water	8260D SIM	
MB 240-564633/6	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-564633/4	Lab Control Sample	Total/NA	Water	8260D SIM	
240-181309-6 MS	MW-37_030123	Total/NA	Water	8260D SIM	
240-181309-6 MSD	MW-37_030123	Total/NA	Water	8260D SIM	

Analysis Batch: 564964

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181309-1	TRIP BLANK_78	Total/NA	Water	8260D	
240-181309-2	MW-39_030123	Total/NA	Water	8260D	
240-181309-3	MW-33_030123	Total/NA	Water	8260D	
240-181309-4	MW-219S_030123	Total/NA	Water	8260D	
240-181309-5	MW-38_030123	Total/NA	Water	8260D	
240-181309-6	MW-37_030123	Total/NA	Water	8260D	
MB 240-564964/8	Method Blank	Total/NA	Water	8260D	
LCS 240-564964/5	Lab Control Sample	Total/NA	Water	8260D	
240-181309-6 MS	MW-37_030123	Total/NA	Water	8260D	
240-181309-6 MSD	MW-37_030123	Total/NA	Water	8260D	

Lab Chronicle

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

Job ID: 240-181309-1

Client Sample ID: TRIP BLANK_78

Lab Sample ID: 240-181309-1

Date Collected: 03/01/23 00:00

Matrix: Water

Date Received: 03/03/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	564964	SAM	EET CAN	03/10/23 15:45

Client Sample ID: MW-39_030123

Lab Sample ID: 240-181309-2

Date Collected: 03/01/23 09:58

Matrix: Water

Date Received: 03/03/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	564964	SAM	EET CAN	03/10/23 20:47
Total/NA	Analysis	8260D SIM		1	564633	BAJ	EET CAN	03/08/23 17:32

Client Sample ID: MW-33_030123

Lab Sample ID: 240-181309-3

Date Collected: 03/01/23 11:23

Matrix: Water

Date Received: 03/03/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	564964	SAM	EET CAN	03/10/23 21:12
Total/NA	Analysis	8260D SIM		1	564633	BAJ	EET CAN	03/08/23 17:56

Client Sample ID: MW-219S_030123

Lab Sample ID: 240-181309-4

Date Collected: 03/01/23 12:45

Matrix: Water

Date Received: 03/03/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	564964	SAM	EET CAN	03/10/23 21:37
Total/NA	Analysis	8260D SIM		1	564633	BAJ	EET CAN	03/08/23 18:20

Client Sample ID: MW-38_030123

Lab Sample ID: 240-181309-5

Date Collected: 03/01/23 13:42

Matrix: Water

Date Received: 03/03/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	564964	SAM	EET CAN	03/10/23 22:02
Total/NA	Analysis	8260D SIM		1	564633	BAJ	EET CAN	03/08/23 18:45

Client Sample ID: MW-37_030123

Lab Sample ID: 240-181309-6

Date Collected: 03/01/23 15:25

Matrix: Water

Date Received: 03/03/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	564964	SAM	EET CAN	03/10/23 22:27
Total/NA	Analysis	8260D SIM		1	564633	BAJ	EET CAN	03/08/23 19:09

Laboratory References:

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

Accreditation/Certification Summary

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

Job ID: 240-181309-1

Laboratory: Eurofins Canton

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	02-27-23 *
Connecticut	State	PH-0590	12-31-23
Florida	NELAP	E87225	06-30-23
Georgia	State	4062	02-27-23 *
Illinois	NELAP	200004	07-31-23
Iowa	State	421	06-01-23
Kentucky (UST)	State	112225	02-27-23 *
Kentucky (WW)	State	KY98016	12-31-23
Michigan	State	9135	02-27-23 *
Minnesota	NELAP	039-999-348	12-31-23
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-23
New York	NELAP	10975	04-01-23
Ohio	State	8303	02-27-23 *
Ohio VAP	State	CL0024	02-27-23 *
Oregon	NELAP	4062	02-28-24
Pennsylvania	NELAP	68-00340	08-31-23
Texas	NELAP	T104704517-22-17	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

Regulatory program: DW NPDES RCRA Other

Client Contact: Arcadis
Address: 26550 Cabot Drive, Suite 500
City/State/Zip: Novi, MI, 48377
Phone: 248-994-2240

Project Name: Ford I, TP On-Site
Project Number: 30167538.401.03
PO # 30167538.401.03

Client Project Manager: Kris Hinskey
Telephone: 248-994-2240
Email: kristoffer.hinskey@arcadis.com

Site Contact: Christina Weaver
Telephone: 248-994-2240

Lab Contact: Mike DeMontico
Telephone: 330-497-9396

Company Name: Arcadis
Address: 26550 Cabot Drive, Suite 500
City/State/Zip: Novi, MI, 48377
Phone: 248-994-2240

Project Name: Ford I, TP On-Site
Project Number: 30167538.401.03
PO # 30167538.401.03

Sampler Name: Sommer Guy
Method of Shipment/Carrier:
Shipping/Tracking No:

Analysis Turnaround Time
TAT (if different from below)
10 day 3 weeks 2 weeks 1 week 2 days 1 day

Containers & Preservatives
H2SO4 HNO3 HCl NaOH ZnAc NaOH Other:

Matrix
Air Aqueous Sediment Solid Other:

Sample Identification	Sample Date	Sample Time	Matrix				Containers & Preservatives				Filtered Sample (Y/N)	Composite C/Grab	1-DCE 8260B	cis-1,2-DCE 8260B	Trans-1,2-DCE 8260B	PCE 8260B	TCE 8260B	Vinyl Chloride 8260B	1,4-Dioxane 8260B SIM	Special Instructions / Notes
			Air	Aqueous	Sediment	Solid	H2SO4	HNO3	HCl	NaOH										
TRIP BLANK_ 78	---	---	1																	1 Trip Blank
MW-39-030123	3/1/23	0958	6																	3 VOAs for 8260B 3 VOAs for 8260B SIM
MW-33-030123	3/1/23	1123	6																	
MW-2195-030123	3/1/23	1245	6																	
MW-38-030123	3/1/23	1342	6																	
MW-37-030123	3/1/23	1525	6																	
MW-37-MS-030123	3/1/23	1525	6																	
MW-37-MSD-030123	3/1/23	1525	6																	

Possible Hazard Identification
 Non-Hazard Flammable Irritant Poison B Unknown

Special Instructions/QC Requirements & Comments:
Submit all results through Cadena at jromalia@cadenaco.com. Cadena #E203728
Level IV Reporting requested.

Barcode: 240-181309 Chain of Custody

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Sommer Guy	Arcadis	3/1/23 1615	Novi Cold Storage	Arcadis	3/1/23 1615
Chandler	ARCADIS	3/2/23 /	Received by: [Signature]	Company: BMA	3/2/23 / 0810
[Signature]	3/2/23 0900	6/6/24	Received in Laboratory by: [Signature]	Company: EETWC	3-3-23 800

Relinquished by: [Signature] Company: Arcadis Date/Time: 3/1/23 1615
Relinquished by: [Signature] Company: ARCADIS Date/Time: 3/2/23 /
Relinquished by: [Signature] Company: 3/2/23 0900 Date/Time: 6/6/24

Eurofins - Canton Sample Receipt Form/Narrative
Barberton Facility

Login # : 181309

Client Arcadis Site Name _____ Cooler unpacked by: Nancy Meyer
 Cooler Received on 3-3-23 Opened on 3-3-23
 FedEx: 1st Grd Exp UPS FAS Clipper 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 # IR-13 (CF -0.2 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN # IR-16 (CF -0.1 °C) Observed Cooler Temp. 1.7 °C Corrected Cooler Temp. 1.6 °C
 IR GUN # IR-17 (CF -0.3 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

- 2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1
 - Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 - Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA
 - Were tamper/custody seals intact and uncompromised? Yes No NA
- 3. Shippers' packing slip attached to the cooler(s)? Yes No
- 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# HC293086
- 14. Were VOAs on the COC? Yes No NA
- 15. Were air bubbles >6 mm in any VOA vials? Yes No NA **● Larger than this.**
- 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # covered Yes No NA
- 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



March 14, 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 - Barberton

Laboratory submittal: 181309-1

Sample date: 2023-03-01

Report received by CADENA: 2023-03-14

Initial Data Verification completed by CADENA: 2023-03-14

Number of Samples:6

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 sample -006 MS or MSD recoveries but not both or RPD only were outliers for 1,4-DIOXANE so client sample results were not qualified based on this QC outlier alone.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, MS/MSD Recovery, MS/MSD RPD, 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 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 - Barberton

Laboratory Submittal: 181309-1

Analyte	Cas No.	Sample Name: TRIP BLANK_78				MW-39_030123				MW-33_030123				MW-2195_030123				MW-38_030123				MW-37_030123			
		Report	Valid	Report	Valid	Report	Valid	Report	Valid	Report	Valid	Report	Valid	Report	Valid	Report	Valid	Report	Valid	Report	Valid	Report	Valid		
		Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	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	---	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	---	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	---	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	---	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	---	ND	1.0	ug/l	---
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
<u>OSW-8260DSIM</u>																									
1,4-Dioxane	123-91-1					ND	2.0	ug/l	---	ND	2.0	ug/l	---	ND	2.0	ug/l	---	ND	2.0	ug/l	---	ND	2.0	ug/l	---