

ANALYTICAL REPORT

PREPARED FOR

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JOB DESCRIPTION

Ford LTP - On Site

JOB NUMBER

240-182164-1

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: 240-182164-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Case Narrative

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

Job ID: 240-182164-1

Job ID: 240-182164-1

Laboratory: Eurofins Canton

Narrative

**Job Narrative
240-182164-1**

Receipt

The samples were received on 3/17/2023 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 0.8°C

GC/MS VOA

Method 8260D_SIM: The matrix spike / matrix spike duplicate / sample duplicate (MS/MSD/DUP) precision for 566343 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) precision was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.



Method Summary

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

Job ID: 240-182164-1

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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- 2
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- 9
- 10
- 11
- 12
- 13
- 14

Sample Summary

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

Job ID: 240-182164-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-182164-1	TRIP BLANK_90	Water	03/15/23 00:00	03/17/23 08:00
240-182164-2	MW-218S_031523	Water	03/15/23 09:40	03/17/23 08:00
240-182164-3	MW-32_031523	Water	03/15/23 11:03	03/17/23 08:00
240-182164-4	MW-24_031523	Water	03/15/23 12:20	03/17/23 08:00
240-182164-5	MW-53_031523	Water	03/15/23 13:42	03/17/23 08:00

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

Detection Summary

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

Job ID: 240-182164-1

Client Sample ID: TRIP BLANK_90

Lab Sample ID: 240-182164-1

No Detections.

Client Sample ID: MW-218S_031523

Lab Sample ID: 240-182164-2

No Detections.

Client Sample ID: MW-32_031523

Lab Sample ID: 240-182164-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.50	J	1.0	0.46	ug/L	1			8260D	Total/NA

Client Sample ID: MW-24_031523

Lab Sample ID: 240-182164-4

No Detections.

Client Sample ID: MW-53_031523

Lab Sample ID: 240-182164-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Vinyl chloride	0.57	J	1.0	0.45	ug/L	1			8260D	Total/NA

This Detection Summary does not include radiochemical test results.

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Client Sample Results

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

Job ID: 240-182164-1

Client Sample ID: TRIP BLANK_90

Lab Sample ID: 240-182164-1

Date Collected: 03/15/23 00:00

Matrix: Water

Date Received: 03/17/23 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			03/26/23 19:29	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/26/23 19:29	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/26/23 19:29	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/26/23 19:29	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/26/23 19:29	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/26/23 19:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		62 - 137		03/26/23 19:29	1
4-Bromofluorobenzene (Surr)	95		56 - 136		03/26/23 19:29	1
Toluene-d8 (Surr)	97		78 - 122		03/26/23 19:29	1
Dibromofluoromethane (Surr)	102		73 - 120		03/26/23 19:29	1

Client Sample Results

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

Job ID: 240-182164-1

Client Sample ID: MW-218S_031523

Lab Sample ID: 240-182164-2

Date Collected: 03/15/23 09:40

Matrix: Water

Date Received: 03/17/23 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			03/22/23 13:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		66 - 120					03/22/23 13:27	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			03/26/23 19:54	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/26/23 19:54	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/26/23 19:54	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/26/23 19:54	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/26/23 19:54	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/26/23 19:54	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		62 - 137					03/26/23 19:54	1
4-Bromofluorobenzene (Surr)	98		56 - 136					03/26/23 19:54	1
Toluene-d8 (Surr)	99		78 - 122					03/26/23 19:54	1
Dibromofluoromethane (Surr)	106		73 - 120					03/26/23 19:54	1

Client Sample Results

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

Job ID: 240-182164-1

Client Sample ID: MW-32_031523

Lab Sample ID: 240-182164-3

Date Collected: 03/15/23 11:03

Matrix: Water

Date Received: 03/17/23 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			03/22/23 14:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		66 - 120					03/22/23 14:40	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			03/26/23 20:19	1
cis-1,2-Dichloroethene	0.50	J	1.0	0.46	ug/L			03/26/23 20:19	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/26/23 20:19	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/26/23 20:19	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/26/23 20:19	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/26/23 20:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		62 - 137					03/26/23 20:19	1
4-Bromofluorobenzene (Surr)	96		56 - 136					03/26/23 20:19	1
Toluene-d8 (Surr)	98		78 - 122					03/26/23 20:19	1
Dibromofluoromethane (Surr)	105		73 - 120					03/26/23 20:19	1

Client Sample Results

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

Job ID: 240-182164-1

Client Sample ID: MW-24_031523

Lab Sample ID: 240-182164-4

Date Collected: 03/15/23 12:20

Matrix: Water

Date Received: 03/17/23 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			03/22/23 13:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		66 - 120					03/22/23 13:51	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			03/26/23 20:43	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/26/23 20:43	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/26/23 20:43	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/26/23 20:43	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/26/23 20:43	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/26/23 20:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		62 - 137					03/26/23 20:43	1
4-Bromofluorobenzene (Surr)	99		56 - 136					03/26/23 20:43	1
Toluene-d8 (Surr)	98		78 - 122					03/26/23 20:43	1
Dibromofluoromethane (Surr)	105		73 - 120					03/26/23 20:43	1

Client Sample Results

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

Job ID: 240-182164-1

Client Sample ID: MW-53_031523

Lab Sample ID: 240-182164-5

Date Collected: 03/15/23 13:42

Matrix: Water

Date Received: 03/17/23 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			03/22/23 14:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		66 - 120					03/22/23 14:16	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			03/26/23 21:08	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/26/23 21:08	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/26/23 21:08	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/26/23 21:08	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/26/23 21:08	1
Vinyl chloride	0.57	J	1.0	0.45	ug/L			03/26/23 21:08	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		62 - 137					03/26/23 21:08	1
4-Bromofluorobenzene (Surr)	97		56 - 136					03/26/23 21:08	1
Toluene-d8 (Surr)	98		78 - 122					03/26/23 21:08	1
Dibromofluoromethane (Surr)	105		73 - 120					03/26/23 21:08	1

Surrogate Summary

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

Job ID: 240-182164-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA	BFB	TOL	DBFM
		(62-137)	(56-136)	(78-122)	(73-120)
240-182005-E-1 MS	Matrix Spike	105	101	101	105
240-182005-H-1 MSD	Matrix Spike Duplicate	105	100	99	105
240-182164-1	TRIP BLANK_90	107	95	97	102
240-182164-2	MW-218S_031523	109	98	99	106
240-182164-3	MW-32_031523	109	96	98	105
240-182164-4	MW-24_031523	108	99	98	105
240-182164-5	MW-53_031523	111	97	98	105
LCS 240-566753/5	Lab Control Sample	103	98	101	102
MB 240-566753/9	Method Blank	110	99	98	105

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

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA
		(66-120)
240-182164-2	MW-218S_031523	98
240-182164-3	MW-32_031523	95
240-182164-3 MS	MW-32_031523	96
240-182164-3 MSD	MW-32_031523	112
240-182164-4	MW-24_031523	98
240-182164-5	MW-53_031523	91
LCS 240-566343/4	Lab Control Sample	89
MB 240-566343/6	Method Blank	93

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-182164-1

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

Lab Sample ID: MB 240-566753/9

Matrix: Water

Analysis Batch: 566753

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			03/26/23 16:35	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/26/23 16:35	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/26/23 16:35	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/26/23 16:35	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/26/23 16:35	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/26/23 16:35	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	110		62 - 137		03/26/23 16:35	1
4-Bromofluorobenzene (Surr)	99		56 - 136		03/26/23 16:35	1
Toluene-d8 (Surr)	98		78 - 122		03/26/23 16:35	1
Dibromofluoromethane (Surr)	105		73 - 120		03/26/23 16:35	1

Lab Sample ID: LCS 240-566753/5

Matrix: Water

Analysis Batch: 566753

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
cis-1,2-Dichloroethene	20.0	18.3		ug/L		92	77 - 123
Tetrachloroethene	20.0	20.4		ug/L		102	76 - 123
trans-1,2-Dichloroethene	20.0	18.7		ug/L		93	75 - 124
Trichloroethene	20.0	19.8		ug/L		99	70 - 122
Vinyl chloride	20.0	16.3		ug/L		82	60 - 144

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	103		62 - 137
4-Bromofluorobenzene (Surr)	98		56 - 136
Toluene-d8 (Surr)	101		78 - 122
Dibromofluoromethane (Surr)	102		73 - 120

Lab Sample ID: 240-182005-E-1 MS

Matrix: Water

Analysis Batch: 566753

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
cis-1,2-Dichloroethene	1.0	U	20.0	18.5		ug/L		93	66 - 128
Tetrachloroethene	1.0	U	20.0	20.3		ug/L		101	62 - 131
trans-1,2-Dichloroethene	1.0	U	20.0	18.7		ug/L		94	56 - 136
Trichloroethene	1.0	U	20.0	19.7		ug/L		98	61 - 124
Vinyl chloride	1.0	U	20.0	16.4		ug/L		82	43 - 157

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	105		62 - 137
4-Bromofluorobenzene (Surr)	101		56 - 136
Toluene-d8 (Surr)	101		78 - 122

QC Sample Results

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

Job ID: 240-182164-1

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

Lab Sample ID: 240-182005-E-1 MS
Matrix: Water
Analysis Batch: 566753

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

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	105		73 - 120

Lab Sample ID: 240-182005-H-1 MSD
Matrix: Water
Analysis Batch: 566753

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	20.0	20.4		ug/L		102	56 - 135	4	26
cis-1,2-Dichloroethene	1.0	U	20.0	19.8		ug/L		99	66 - 128	7	14
Tetrachloroethene	1.0	U	20.0	21.8		ug/L		109	62 - 131	8	20
trans-1,2-Dichloroethene	1.0	U	20.0	20.1		ug/L		101	56 - 136	7	15
Trichloroethene	1.0	U	20.0	20.7		ug/L		104	61 - 124	5	15
Vinyl chloride	1.0	U	20.0	17.6		ug/L		88	43 - 157	7	24

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	105		62 - 137
4-Bromofluorobenzene (Surr)	100		56 - 136
Toluene-d8 (Surr)	99		78 - 122
Dibromofluoromethane (Surr)	105		73 - 120

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

Lab Sample ID: MB 240-566343/6
Matrix: Water
Analysis Batch: 566343

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			03/22/23 11:50	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		66 - 120		03/22/23 11:50	1

Lab Sample ID: LCS 240-566343/4
Matrix: Water
Analysis Batch: 566343

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	10.9		ug/L		109	80 - 122

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	89		66 - 120

Lab Sample ID: 240-182164-3 MS
Matrix: Water
Analysis Batch: 566343

Client Sample ID: MW-32_031523
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: 240-182164-1

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

	<i>MS</i>	<i>MS</i>	
<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
1,2-Dichloroethane-d4 (Surr)	96		66 - 120

Lab Sample ID: 240-182164-3 MSD
Matrix: Water
Analysis Batch: 566343

Client Sample ID: MW-32_031523
Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		Limit
1,4-Dioxane	2.0	U F2	10.0	14.4	F2	ug/L		144	51 - 153	27	16

	<i>MSD</i>	<i>MSD</i>	
<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
1,2-Dichloroethane-d4 (Surr)	112		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: 240-182164-1

GC/MS VOA

Analysis Batch: 566343

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182164-2	MW-218S_031523	Total/NA	Water	8260D SIM	
240-182164-3	MW-32_031523	Total/NA	Water	8260D SIM	
240-182164-4	MW-24_031523	Total/NA	Water	8260D SIM	
240-182164-5	MW-53_031523	Total/NA	Water	8260D SIM	
MB 240-566343/6	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-566343/4	Lab Control Sample	Total/NA	Water	8260D SIM	
240-182164-3 MS	MW-32_031523	Total/NA	Water	8260D SIM	
240-182164-3 MSD	MW-32_031523	Total/NA	Water	8260D SIM	

Analysis Batch: 566753

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182164-1	TRIP BLANK_90	Total/NA	Water	8260D	
240-182164-2	MW-218S_031523	Total/NA	Water	8260D	
240-182164-3	MW-32_031523	Total/NA	Water	8260D	
240-182164-4	MW-24_031523	Total/NA	Water	8260D	
240-182164-5	MW-53_031523	Total/NA	Water	8260D	
MB 240-566753/9	Method Blank	Total/NA	Water	8260D	
LCS 240-566753/5	Lab Control Sample	Total/NA	Water	8260D	
240-182005-E-1 MS	Matrix Spike	Total/NA	Water	8260D	
240-182005-H-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Lab Chronicle

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

Job ID: 240-182164-1

Client Sample ID: TRIP BLANK_90

Lab Sample ID: 240-182164-1

Date Collected: 03/15/23 00:00

Matrix: Water

Date Received: 03/17/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	566753	SAM	EET CAN	03/26/23 19:29

Client Sample ID: MW-218S_031523

Lab Sample ID: 240-182164-2

Date Collected: 03/15/23 09:40

Matrix: Water

Date Received: 03/17/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	566753	SAM	EET CAN	03/26/23 19:54
Total/NA	Analysis	8260D SIM		1	566343	BAJ	EET CAN	03/22/23 13:27

Client Sample ID: MW-32_031523

Lab Sample ID: 240-182164-3

Date Collected: 03/15/23 11:03

Matrix: Water

Date Received: 03/17/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	566753	SAM	EET CAN	03/26/23 20:19
Total/NA	Analysis	8260D SIM		1	566343	BAJ	EET CAN	03/22/23 14:40

Client Sample ID: MW-24_031523

Lab Sample ID: 240-182164-4

Date Collected: 03/15/23 12:20

Matrix: Water

Date Received: 03/17/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	566753	SAM	EET CAN	03/26/23 20:43
Total/NA	Analysis	8260D SIM		1	566343	BAJ	EET CAN	03/22/23 13:51

Client Sample ID: MW-53_031523

Lab Sample ID: 240-182164-5

Date Collected: 03/15/23 13:42

Matrix: Water

Date Received: 03/17/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	566753	SAM	EET CAN	03/26/23 21:08
Total/NA	Analysis	8260D SIM		1	566343	BAJ	EET CAN	03/22/23 14:16

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: 240-182164-1

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	02-28-24
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	02-27-24
Ohio VAP	State	ORELAP 4062	02-27-24
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.

Barberton Facility

Client Arco

Site Name _____

Cooler unpacked by:

Cooler Received on 3-17-23

Opened on 3-17-23

Mamoly

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

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

Eurofins Cooler # ee17K 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. 1.0 °C Corrected Cooler Temp. 0.8 °C
- IR GUN # IR-16 (CF -0.1 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °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 _____
 - 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)?
- 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
- 15. Were air bubbles >6 mm in any VOA vials? Yes 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

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 29, 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: 182164-1

Sample date: 2023-03-15

Report received by CADENA: 2023-03-29

Initial Data Verification completed by CADENA: 2023-03-29

Number of Samples:5

Sample Matrices:Water and trip blank

Test Categories:GCMS VOC

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

The following minor QC exceptions or missing information were noted:

MS or MSD recoveries but not both or RPD only were outliers for the following analytes so results for the client sample spiked were not qualified based on these QC outliers alone: GCMS-SIM VOC sample -003 - 1,4-dioxane - RPD outlier only.

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.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Analytical Results Summary

CADENA Project ID: E203728

Laboratory: Eurofins Environment Testing LLC - Barberton

Laboratory Submittal: 182164-1

Analyte	Cas No.	Sample Name: TRIP BLANK_90				Sample Name: MW-218S_031523				Sample Name: MW-32_031523				Sample Name: MW-24_031523				Sample Name: MW-53_031523			
		Result	Limit	Units	Valid	Result	Limit	Units	Valid	Result	Limit	Units	Valid	Result	Limit	Units	Valid	Result	Limit	Units	Valid
GC/MS VOC																					
<u>OSW-8260D</u>																					
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---	0.50	1.0	ug/l	J	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	0.57	1.0	ug/l	J
<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	---