

ANALYTICAL REPORT

PREPARED FOR

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Generated 11/29/2022 8:29:32 AM

JOB DESCRIPTION

Ford LTP - On Site

JOB NUMBER

240-176264-1

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: 240-176264-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
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: 240-176264-1

Job ID: 240-176264-1

Laboratory: Eurofins Canton

Narrative

**Job Narrative
240-176264-1**

Receipt

The samples were received on 11/11/2022 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.2°C and 2.4°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: 240-176264-1

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



Sample Summary

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

Job ID: 240-176264-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-176264-1	TRIP BLANK_06	Water	11/09/22 00:00	11/11/22 08:00
240-176264-2	PMW-3_110922	Water	11/09/22 10:25	11/11/22 08:00
240-176264-3	PMW-2_110922	Water	11/09/22 11:40	11/11/22 08:00
240-176264-4	MW-38_110922	Water	11/09/22 13:30	11/11/22 08:00
240-176264-5	MW-219S_110922	Water	11/09/22 14:25	11/11/22 08:00

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- 2
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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: 240-176264-1

Client Sample ID: TRIP BLANK_06

Lab Sample ID: 240-176264-1

No Detections.

Client Sample ID: PMW-3_110922

Lab Sample ID: 240-176264-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	1700		67	31	ug/L	66.667		8260D	Total/NA
trans-1,2-Dichloroethene	120		67	34	ug/L	66.667		8260D	Total/NA
Vinyl chloride	160		67	30	ug/L	66.667		8260D	Total/NA

Client Sample ID: PMW-2_110922

Lab Sample ID: 240-176264-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	2200		50	23	ug/L	50		8260D	Total/NA
trans-1,2-Dichloroethene	180		50	26	ug/L	50		8260D	Total/NA
Vinyl chloride	760		50	23	ug/L	50		8260D	Total/NA

Client Sample ID: MW-38_110922

Lab Sample ID: 240-176264-4

No Detections.

Client Sample ID: MW-219S_110922

Lab Sample ID: 240-176264-5

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Client Sample Results

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

Job ID: 240-176264-1

Client Sample ID: TRIP BLANK_06

Lab Sample ID: 240-176264-1

Date Collected: 11/09/22 00:00

Matrix: Water

Date Received: 11/11/22 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			11/17/22 14:51	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/17/22 14:51	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/17/22 14:51	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/17/22 14:51	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/17/22 14:51	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/17/22 14:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		62 - 137		11/17/22 14:51	1
4-Bromofluorobenzene (Surr)	92		56 - 136		11/17/22 14:51	1
Toluene-d8 (Surr)	101		78 - 122		11/17/22 14:51	1
Dibromofluoromethane (Surr)	92		73 - 120		11/17/22 14:51	1

Client Sample Results

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

Job ID: 240-176264-1

Client Sample ID: PMW-3_110922

Lab Sample ID: 240-176264-2

Date Collected: 11/09/22 10:25

Matrix: Water

Date Received: 11/11/22 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			11/21/22 13:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	82		66 - 120		11/21/22 13:13	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	67	U	67	33	ug/L			11/17/22 20:42	66.667
cis-1,2-Dichloroethene	1700		67	31	ug/L			11/17/22 20:42	66.667
Tetrachloroethene	67	U	67	29	ug/L			11/17/22 20:42	66.667
trans-1,2-Dichloroethene	120		67	34	ug/L			11/17/22 20:42	66.667
Trichloroethene	67	U	67	29	ug/L			11/17/22 20:42	66.667
Vinyl chloride	160		67	30	ug/L			11/17/22 20:42	66.667

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		62 - 137		11/17/22 20:42	66.667
4-Bromofluorobenzene (Surr)	89		56 - 136		11/17/22 20:42	66.667
Toluene-d8 (Surr)	100		78 - 122		11/17/22 20:42	66.667
Dibromofluoromethane (Surr)	89		73 - 120		11/17/22 20:42	66.667

Client Sample Results

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

Job ID: 240-176264-1

Client Sample ID: PMW-2_110922

Lab Sample ID: 240-176264-3

Date Collected: 11/09/22 11:40

Matrix: Water

Date Received: 11/11/22 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	4.0	U	4.0	1.7	ug/L			11/21/22 13:38	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	82		66 - 120		11/21/22 13:38	2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	50	U	50	25	ug/L			11/21/22 13:45	50
cis-1,2-Dichloroethene	2200		50	23	ug/L			11/21/22 13:45	50
Tetrachloroethene	50	U	50	22	ug/L			11/21/22 13:45	50
trans-1,2-Dichloroethene	180		50	26	ug/L			11/21/22 13:45	50
Trichloroethene	50	U	50	22	ug/L			11/21/22 13:45	50
Vinyl chloride	760		50	23	ug/L			11/21/22 13:45	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		62 - 137		11/21/22 13:45	50
4-Bromofluorobenzene (Surr)	88		56 - 136		11/21/22 13:45	50
Toluene-d8 (Surr)	100		78 - 122		11/21/22 13:45	50
Dibromofluoromethane (Surr)	107		73 - 120		11/21/22 13:45	50

Client Sample Results

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

Job ID: 240-176264-1

Client Sample ID: MW-38_110922

Lab Sample ID: 240-176264-4

Date Collected: 11/09/22 13:30

Matrix: Water

Date Received: 11/11/22 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			11/21/22 14:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	80		66 - 120		11/21/22 14:04	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			11/17/22 19:52	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/17/22 19:52	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/17/22 19:52	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/17/22 19:52	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/17/22 19:52	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/17/22 19:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		62 - 137		11/17/22 19:52	1
4-Bromofluorobenzene (Surr)	89		56 - 136		11/17/22 19:52	1
Toluene-d8 (Surr)	102		78 - 122		11/17/22 19:52	1
Dibromofluoromethane (Surr)	89		73 - 120		11/17/22 19:52	1

Client Sample Results

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

Job ID: 240-176264-1

Client Sample ID: MW-219S_110922

Lab Sample ID: 240-176264-5

Date Collected: 11/09/22 14:25

Matrix: Water

Date Received: 11/11/22 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			11/21/22 14:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	80		66 - 120		11/21/22 14:29	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			11/17/22 20:17	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/17/22 20:17	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/17/22 20:17	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/17/22 20:17	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/17/22 20:17	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/17/22 20:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		62 - 137		11/17/22 20:17	1
4-Bromofluorobenzene (Surr)	91		56 - 136		11/17/22 20:17	1
Toluene-d8 (Surr)	101		78 - 122		11/17/22 20:17	1
Dibromofluoromethane (Surr)	91		73 - 120		11/17/22 20:17	1

Surrogate Summary

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

Job ID: 240-176264-1

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)
240-176252-C-2 MS	Matrix Spike	98	91	99	93
240-176252-E-2 MSD	Matrix Spike Duplicate	98	92	98	93
240-176264-1	TRIP BLANK_06	101	92	101	92
240-176264-2	PMW-3_110922	101	89	100	89
240-176264-3	PMW-2_110922	97	88	100	107
240-176264-4	MW-38_110922	99	89	102	89
240-176264-5	MW-219S_110922	101	91	101	91
LCS 240-552444/4	Lab Control Sample	96	94	100	96
LCS 240-552949/5	Lab Control Sample	93	93	107	98
MB 240-552444/7	Method Blank	99	93	100	92
MB 240-552949/8	Method Blank	102	95	102	110

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)
240-176264-2	PMW-3_110922	82
240-176264-3	PMW-2_110922	82
240-176264-4	MW-38_110922	80
240-176264-5	MW-219S_110922	80
240-176280-D-11 MS	Matrix Spike	79
240-176280-G-11 MSD	Matrix Spike Duplicate	77
LCS 240-552844/3	Lab Control Sample	81
MB 240-552844/4	Method Blank	80

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-176264-1

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

Lab Sample ID: MB 240-552444/7
Matrix: Water
Analysis Batch: 552444

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			11/17/22 12:46	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/17/22 12:46	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/17/22 12:46	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/17/22 12:46	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/17/22 12:46	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/17/22 12:46	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	99		62 - 137		11/17/22 12:46	1
4-Bromofluorobenzene (Surr)	93		56 - 136		11/17/22 12:46	1
Toluene-d8 (Surr)	100		78 - 122		11/17/22 12:46	1
Dibromofluoromethane (Surr)	92		73 - 120		11/17/22 12:46	1

Lab Sample ID: LCS 240-552444/4
Matrix: Water
Analysis Batch: 552444

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

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
1,1-Dichloroethene	25.0	22.3		ug/L		89	63 - 134
cis-1,2-Dichloroethene	25.0	23.8		ug/L		95	77 - 123
Tetrachloroethene	25.0	24.6		ug/L		98	76 - 123
trans-1,2-Dichloroethene	25.0	24.0		ug/L		96	75 - 124
Trichloroethene	25.0	24.4		ug/L		98	70 - 122
Vinyl chloride	12.5	13.4		ug/L		107	60 - 144

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	96		62 - 137
4-Bromofluorobenzene (Surr)	94		56 - 136
Toluene-d8 (Surr)	100		78 - 122
Dibromofluoromethane (Surr)	96		73 - 120

Lab Sample ID: 240-176252-C-2 MS
Matrix: Water
Analysis Batch: 552444

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

Analyte	Sample	Sample	Spike Added	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier		Result	Qualifier				
1,1-Dichloroethene	1.0	U	25.0	21.0		ug/L		84	56 - 135
cis-1,2-Dichloroethene	1.0	U	25.0	23.2		ug/L		93	66 - 128
Tetrachloroethene	1.0	U	25.0	20.6		ug/L		82	62 - 131
trans-1,2-Dichloroethene	1.0	U	25.0	22.1		ug/L		88	56 - 136
Trichloroethene	1.0	U	25.0	21.3		ug/L		85	61 - 124
Vinyl chloride	1.0	U	12.5	13.9		ug/L		111	43 - 157

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	98		62 - 137
4-Bromofluorobenzene (Surr)	91		56 - 136
Toluene-d8 (Surr)	99		78 - 122

QC Sample Results

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

Job ID: 240-176264-1

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

Lab Sample ID: 240-176252-C-2 MS
Matrix: Water
Analysis Batch: 552444

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

<i>Surrogate</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
<i>Dibromofluoromethane (Surr)</i>	93		73 - 120

Lab Sample ID: 240-176252-E-2 MSD
Matrix: Water
Analysis Batch: 552444

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

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
1,1-Dichloroethene	1.0	U	25.0	20.8		ug/L		83	56 - 135	1	26
cis-1,2-Dichloroethene	1.0	U	25.0	22.3		ug/L		89	66 - 128	4	14
Tetrachloroethene	1.0	U	25.0	19.8		ug/L		79	62 - 131	4	20
trans-1,2-Dichloroethene	1.0	U	25.0	21.7		ug/L		87	56 - 136	2	15
Trichloroethene	1.0	U	25.0	20.6		ug/L		83	61 - 124	3	15
Vinyl chloride	1.0	U	12.5	14.4		ug/L		115	43 - 157	3	24

<i>Surrogate</i>	<i>%Recovery</i>	<i>MSD MSD Qualifier</i>	<i>Limits</i>
<i>1,2-Dichloroethane-d4 (Surr)</i>	98		62 - 137
<i>4-Bromofluorobenzene (Surr)</i>	92		56 - 136
<i>Toluene-d8 (Surr)</i>	98		78 - 122
<i>Dibromofluoromethane (Surr)</i>	93		73 - 120

Lab Sample ID: MB 240-552949/8
Matrix: Water
Analysis Batch: 552949

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

<i>Analyte</i>	<i>MB Result</i>	<i>MB Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/21/22 12:09	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/21/22 12:09	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/21/22 12:09	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/21/22 12:09	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/21/22 12:09	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/21/22 12:09	1

<i>Surrogate</i>	<i>%Recovery</i>	<i>MB MB Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>1,2-Dichloroethane-d4 (Surr)</i>	102		62 - 137		11/21/22 12:09	1
<i>4-Bromofluorobenzene (Surr)</i>	95		56 - 136		11/21/22 12:09	1
<i>Toluene-d8 (Surr)</i>	102		78 - 122		11/21/22 12:09	1
<i>Dibromofluoromethane (Surr)</i>	110		73 - 120		11/21/22 12:09	1

Lab Sample ID: LCS 240-552949/5
Matrix: Water
Analysis Batch: 552949

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

<i>Analyte</i>	<i>Spike Added</i>	<i>LCS Result</i>	<i>LCS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>
1,1-Dichloroethene	25.0	26.8		ug/L		107	63 - 134
cis-1,2-Dichloroethene	25.0	26.3		ug/L		105	77 - 123
Tetrachloroethene	25.0	28.3		ug/L		113	76 - 123
trans-1,2-Dichloroethene	25.0	25.9		ug/L		104	75 - 124
Trichloroethene	25.0	26.1		ug/L		104	70 - 122

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QC Sample Results

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

Job ID: 240-176264-1

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

Lab Sample ID: LCS 240-552949/5
Matrix: Water
Analysis Batch: 552949

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Vinyl chloride	25.0	25.5		ug/L		102	60 - 144

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	93		62 - 137
4-Bromofluorobenzene (Surr)	93		56 - 136
Toluene-d8 (Surr)	107		78 - 122
Dibromofluoromethane (Surr)	98		73 - 120

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

Lab Sample ID: MB 240-552844/4
Matrix: Water
Analysis Batch: 552844

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			11/21/22 10:41	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	80		66 - 120		11/21/22 10:41	1

Lab Sample ID: LCS 240-552844/3
Matrix: Water
Analysis Batch: 552844

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	9.58		ug/L		96	80 - 122

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	81		66 - 120

Lab Sample ID: 240-176280-D-11 MS
Matrix: Water
Analysis Batch: 552844

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	76		10.0	87.9	4	ug/L		121	51 - 153

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	79		66 - 120

Lab Sample ID: 240-176280-G-11 MSD
Matrix: Water
Analysis Batch: 552844

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	76		10.0	89.1	4	ug/L		133	51 - 153	1	16

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QC Sample Results

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

Job ID: 240-176264-1

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

Lab Sample ID: 240-176280-G-11 MSD
Matrix: Water
Analysis Batch: 552844

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

<i>Surrogate</i>	<i>MSD</i>	<i>MSD</i>	<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
1,2-Dichloroethane-d4 (Surr)	77		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: 240-176264-1

GC/MS VOA

Analysis Batch: 552444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-176264-1	TRIP BLANK_06	Total/NA	Water	8260D	
240-176264-2	PMW-3_110922	Total/NA	Water	8260D	
240-176264-4	MW-38_110922	Total/NA	Water	8260D	
240-176264-5	MW-219S_110922	Total/NA	Water	8260D	
MB 240-552444/7	Method Blank	Total/NA	Water	8260D	
LCS 240-552444/4	Lab Control Sample	Total/NA	Water	8260D	
240-176252-C-2 MS	Matrix Spike	Total/NA	Water	8260D	
240-176252-E-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Analysis Batch: 552844

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-176264-2	PMW-3_110922	Total/NA	Water	8260D SIM	
240-176264-3	PMW-2_110922	Total/NA	Water	8260D SIM	
240-176264-4	MW-38_110922	Total/NA	Water	8260D SIM	
240-176264-5	MW-219S_110922	Total/NA	Water	8260D SIM	
MB 240-552844/4	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-552844/3	Lab Control Sample	Total/NA	Water	8260D SIM	
240-176280-D-11 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-176280-G-11 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

Analysis Batch: 552949

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-176264-3	PMW-2_110922	Total/NA	Water	8260D	
MB 240-552949/8	Method Blank	Total/NA	Water	8260D	
LCS 240-552949/5	Lab Control Sample	Total/NA	Water	8260D	

Lab Chronicle

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

Job ID: 240-176264-1

Client Sample ID: TRIP BLANK_06

Lab Sample ID: 240-176264-1

Date Collected: 11/09/22 00:00

Matrix: Water

Date Received: 11/11/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	552444	SAM	EET CAN	11/17/22 14:51

Client Sample ID: PMW-3_110922

Lab Sample ID: 240-176264-2

Date Collected: 11/09/22 10:25

Matrix: Water

Date Received: 11/11/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		66.667	552444	SAM	EET CAN	11/17/22 20:42
Total/NA	Analysis	8260D SIM		1	552844	CS	EET CAN	11/21/22 13:13

Client Sample ID: PMW-2_110922

Lab Sample ID: 240-176264-3

Date Collected: 11/09/22 11:40

Matrix: Water

Date Received: 11/11/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		50	552949	SAM	EET CAN	11/21/22 13:45
Total/NA	Analysis	8260D SIM		2	552844	CS	EET CAN	11/21/22 13:38

Client Sample ID: MW-38_110922

Lab Sample ID: 240-176264-4

Date Collected: 11/09/22 13:30

Matrix: Water

Date Received: 11/11/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	552444	SAM	EET CAN	11/17/22 19:52
Total/NA	Analysis	8260D SIM		1	552844	CS	EET CAN	11/21/22 14:04

Client Sample ID: MW-219S_110922

Lab Sample ID: 240-176264-5

Date Collected: 11/09/22 14:25

Matrix: Water

Date Received: 11/11/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	552444	SAM	EET CAN	11/17/22 20:17
Total/NA	Analysis	8260D SIM		1	552844	CS	EET CAN	11/21/22 14:29

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: 240-176264-1

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	12-31-22
Minnesota	NELAP	039-999-348	12-31-22
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	02-27-23
Pennsylvania	NELAP	68-00340	08-31-23
Texas	NELAP	T104704517-22-17	08-31-23
Virginia	NELAP	460175	09-14-23
Washington	State	C971	01-12-23
West Virginia DEP	State	210	12-31-22

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

Client Contact Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other	
Client Project Manager: Kris Hinskey Telephone: 248-994-2240 Email: kris@hinskey.com		Lab Contact: Mike DelMontico Telephone: 330-497-9396	
Sampler Name: Sommer Guy Method of Shipment/Carrier: Shipping/Tracking No:		Analyses Walk-in client Lab sampling Job/SDG No:	
Containers & Preservatives TAT if different from below 10 day <input checked="" type="checkbox"/> 3 weeks <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		COCs For lab use only	
Matrix Air Aqueous Sediment Solid Other:		Composite=C / Grab=G Filtered Sample (Y / N)	
Sample Identification TRIP BLANK_06 PMW-3-110922 PMW-2-110922 MW-38-110922 MW-2195-110922	Sample Date --- 11/9/22 11/9/22 11/9/22 11/9/22	Sample Time --- 1025 1140 1330 1425	1-1-DCE 8260B cis-1,2-DCE 8260B Trans-1,2-DCE 8260B PCE 8260B TCE 8260B Vinyl Chloride 8260B 1,4-Dioxane 8260B SIM
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Irritant <input type="checkbox"/> Corrosive <input type="checkbox"/> Toxic <input type="checkbox"/> Unknown		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Special Instructions/QC Requirements & Comments: Submit all results through Cadena at jtomalis@cadenasco.com. Cadena #E203728 Level IV Reporting requested.			
Relinquished by: <i>Sommer Guy</i> Date/Time: 11/9/22 1530 Company: Arcadis		Received by: <i>Novi Cold Storage</i> Date/Time: 11/9/22 1530 Company: Arcadis	
Relinquished by: <i>Chloe [Signature]</i> Date/Time: 11/10/22 1515 Company: ARCADIS		Received by: <i>Lilly Mc</i> Date/Time: 11/10/22 1515 Company: EENA	
Relinquished by: <i>[Signature]</i> Date/Time: 11-11-22 800		Received in Laboratory by: <i>Quality Dept</i> Date/Time: 11-11-22 800 Company: E.ETX	

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Eurofins - Canton Sample Receipt Form/Narrative Login #: 176264
Barberton Facility

Client Arcaadis Site Name _____ Cooler unpacked by: Nancy King
Cooler Received on 11-11-22 Opened on 11-11-22
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other _____
Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

Eurofins Cooler # _____ Packing material used: Bubble Wrap Foam Box Client Cooler Box Other _____
COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
IR GUN# IR-13 (CF +0.7 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
IR GUN #IR-15 (CF 0.0°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity lead Yes No
- Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
- Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No 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# HC286797
14. Were VOAs on the COC? Yes No NA
15. Were air bubbles >6 mm in any VOA vials? None Larger than this. Yes No NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # None Yes No NA
17. Was a LL Hg or Me Hg trip blank present? Yes No NA

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

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

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



November 29, 2022

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: 30146655.401.03- onsite groundwater
Event Specific Scope of Work References: Sample COC
Laboratory: Eurofins Environment Testing LLC - Barberton
Laboratory submittal: 176264-1
Sample date: 2022-11-09
Report received by CADENA: 2022-11-29
Initial Data Verification completed by CADENA: 2022-11-29
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.

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.

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: 176264-1

Analyte	Cas No.	Sample Name: TRIP BLANK_06				Sample Name: PMW-3_110922				Sample Name: PMW-2_110922				Sample Name: MW-38_110922				Sample Name: MW-219S_110922			
		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	67	ug/l	---	ND	50	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	1700	67	ug/l	---	2200	50	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	67	ug/l	---	ND	50	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	120	67	ug/l	---	180	50	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	67	ug/l	---	ND	50	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	160	67	ug/l	---	760	50	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	4.0	ug/l	---	ND	2.0	ug/l	---	ND	2.0	ug/l	---