

ANALYTICAL REPORT

PREPARED FOR

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JOB DESCRIPTION

Ford LTP - On Site

JOB NUMBER

240-176903-1

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: 240-176903-1

Qualifiers

GC/MS VOA

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

Glossary

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

Case Narrative

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

Job ID: 240-176903-1

Job ID: 240-176903-1

Laboratory: Eurofins Canton

Narrative

Job Narrative 240-176903-1

Receipt

The samples were received on 11/22/2022 9:40 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.2°C

GC/MS VOA

Method 8260D_SIM: The following volatiles sample was diluted due to foaming at the time of purging during the original sample analysis: MW-21_111822 (240-176903-2). Elevated reporting limits (RLs) are provided.

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: 240-176903-1

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: 240-176903-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-176903-1	TRIP BLANK_203	Water	11/17/22 00:00	11/22/22 09:40
240-176903-2	MW-21_111822	Water	11/18/22 10:51	11/22/22 09:40
240-176903-3	MW-20_111822	Water	11/18/22 12:01	11/22/22 09:40
240-176903-4	MW-18_111822	Water	11/18/22 13:36	11/22/22 09:40
240-176903-5	MW-49_111722	Water	11/17/22 15:06	11/22/22 09:40

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

Detection Summary

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

Job ID: 240-176903-1

Client Sample ID: TRIP BLANK_203

Lab Sample ID: 240-176903-1

No Detections.

Client Sample ID: MW-21_111822

Lab Sample ID: 240-176903-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	14		4.0	1.7	ug/L	2		8260D SIM	Total/NA
1,1-Dichloroethene	5.0	J	8.0	3.9	ug/L	8		8260D	Total/NA
cis-1,2-Dichloroethene	1500		8.0	3.7	ug/L	8		8260D	Total/NA
trans-1,2-Dichloroethene	16		8.0	4.1	ug/L	8		8260D	Total/NA
Vinyl chloride	890		8.0	3.6	ug/L	8		8260D	Total/NA

Client Sample ID: MW-20_111822

Lab Sample ID: 240-176903-3

No Detections.

Client Sample ID: MW-18_111822

Lab Sample ID: 240-176903-4

No Detections.

Client Sample ID: MW-49_111722

Lab Sample ID: 240-176903-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	17		2.0	0.86	ug/L	1		8260D SIM	Total/NA
cis-1,2-Dichloroethene	61000		1000	460	ug/L	1000		8260D	Total/NA
Vinyl chloride	7100		1000	450	ug/L	1000		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: 240-176903-1

Client Sample ID: TRIP BLANK_203

Lab Sample ID: 240-176903-1

Date Collected: 11/17/22 00:00

Matrix: Water

Date Received: 11/22/22 09:40

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			12/01/22 03:31	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			12/01/22 03:31	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			12/01/22 03:31	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			12/01/22 03:31	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			12/01/22 03:31	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			12/01/22 03:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		62 - 137		12/01/22 03:31	1
4-Bromofluorobenzene (Surr)	96		56 - 136		12/01/22 03:31	1
Toluene-d8 (Surr)	103		78 - 122		12/01/22 03:31	1
Dibromofluoromethane (Surr)	96		73 - 120		12/01/22 03:31	1

Client Sample Results

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

Job ID: 240-176903-1

Client Sample ID: MW-21_111822

Lab Sample ID: 240-176903-2

Date Collected: 11/18/22 10:51

Matrix: Water

Date Received: 11/22/22 09:40

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	14		4.0	1.7	ug/L			11/30/22 23:28	2
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	118		66 - 120					11/30/22 23:28	2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	5.0	J	8.0	3.9	ug/L			12/01/22 15:24	8
cis-1,2-Dichloroethene	1500		8.0	3.7	ug/L			12/01/22 15:24	8
Tetrachloroethene	8.0	U	8.0	3.5	ug/L			12/01/22 15:24	8
trans-1,2-Dichloroethene	16		8.0	4.1	ug/L			12/01/22 15:24	8
Trichloroethene	8.0	U	8.0	3.5	ug/L			12/01/22 15:24	8
Vinyl chloride	890		8.0	3.6	ug/L			12/01/22 15:24	8
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		62 - 137					12/01/22 15:24	8
4-Bromofluorobenzene (Surr)	97		56 - 136					12/01/22 15:24	8
Toluene-d8 (Surr)	104		78 - 122					12/01/22 15:24	8
Dibromofluoromethane (Surr)	95		73 - 120					12/01/22 15:24	8

Client Sample Results

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

Job ID: 240-176903-1

Client Sample ID: MW-20_111822

Lab Sample ID: 240-176903-3

Date Collected: 11/18/22 12:01

Matrix: Water

Date Received: 11/22/22 09:40

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			11/30/22 23:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		66 - 120		11/30/22 23:52	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			12/01/22 15:50	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			12/01/22 15:50	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			12/01/22 15:50	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			12/01/22 15:50	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			12/01/22 15:50	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			12/01/22 15:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		62 - 137		12/01/22 15:50	1
4-Bromofluorobenzene (Surr)	97		56 - 136		12/01/22 15:50	1
Toluene-d8 (Surr)	104		78 - 122		12/01/22 15:50	1
Dibromofluoromethane (Surr)	95		73 - 120		12/01/22 15:50	1

Client Sample Results

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

Job ID: 240-176903-1

Client Sample ID: MW-18_111822

Lab Sample ID: 240-176903-4

Date Collected: 11/18/22 13:36

Matrix: Water

Date Received: 11/22/22 09:40

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			12/01/22 00:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		66 - 120		12/01/22 00:17	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			12/01/22 16:15	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			12/01/22 16:15	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			12/01/22 16:15	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			12/01/22 16:15	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			12/01/22 16:15	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			12/01/22 16:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		62 - 137		12/01/22 16:15	1
4-Bromofluorobenzene (Surr)	97		56 - 136		12/01/22 16:15	1
Toluene-d8 (Surr)	104		78 - 122		12/01/22 16:15	1
Dibromofluoromethane (Surr)	96		73 - 120		12/01/22 16:15	1

Client Sample Results

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

Job ID: 240-176903-1

Client Sample ID: MW-49_111722

Lab Sample ID: 240-176903-5

Date Collected: 11/17/22 15:06

Matrix: Water

Date Received: 11/22/22 09:40

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	17		2.0	0.86	ug/L			12/01/22 00:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		66 - 120		12/01/22 00:41	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1000	U	1000	490	ug/L			12/01/22 16:41	1000
cis-1,2-Dichloroethene	61000		1000	460	ug/L			12/01/22 16:41	1000
Tetrachloroethene	1000	U	1000	440	ug/L			12/01/22 16:41	1000
trans-1,2-Dichloroethene	1000	U	1000	510	ug/L			12/01/22 16:41	1000
Trichloroethene	1000	U	1000	440	ug/L			12/01/22 16:41	1000
Vinyl chloride	7100		1000	450	ug/L			12/01/22 16:41	1000

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		62 - 137		12/01/22 16:41	1000
4-Bromofluorobenzene (Surr)	95		56 - 136		12/01/22 16:41	1000
Toluene-d8 (Surr)	103		78 - 122		12/01/22 16:41	1000
Dibromofluoromethane (Surr)	93		73 - 120		12/01/22 16:41	1000

Surrogate Summary

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

Job ID: 240-176903-1

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)
240-176901-H-2 MS	Matrix Spike	83	97	105	96
240-176901-N-2 MSD	Matrix Spike Duplicate	83	97	105	96
240-176903-1	TRIP BLANK_203	90	96	103	96
240-176903-2	MW-21_111822	90	97	104	95
240-176903-3	MW-20_111822	89	97	104	95
240-176903-4	MW-18_111822	90	97	104	96
240-176903-5	MW-49_111722	90	95	103	93
240-176993-F-1 MS	Matrix Spike	84	97	106	95
240-176993-I-1 MSD	Matrix Spike Duplicate	83	97	105	95
LCS 240-554038/4	Lab Control Sample	85	100	105	99
LCS 240-554040/3	Lab Control Sample	84	98	105	95
MB 240-554038/5	Method Blank	93	102	106	103
MB 240-554040/4	Method Blank	89	97	103	95

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)
240-176903-2	MW-21_111822	118
240-176903-3	MW-20_111822	102
240-176903-4	MW-18_111822	100
240-176903-5	MW-49_111722	113
240-177069-E-6 MS	Matrix Spike	97
240-177069-E-6 MSD	Matrix Spike Duplicate	105
LCS 240-554036/4	Lab Control Sample	108
MB 240-554036/5	Method Blank	105

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-176903-1

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

Lab Sample ID: MB 240-554038/5
Matrix: Water
Analysis Batch: 554038

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			11/30/22 23:42	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/30/22 23:42	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/30/22 23:42	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/30/22 23:42	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/30/22 23:42	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/30/22 23:42	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	93		62 - 137		11/30/22 23:42	1
4-Bromofluorobenzene (Surr)	102		56 - 136		11/30/22 23:42	1
Toluene-d8 (Surr)	106		78 - 122		11/30/22 23:42	1
Dibromofluoromethane (Surr)	103		73 - 120		11/30/22 23:42	1

Lab Sample ID: LCS 240-554038/4
Matrix: Water
Analysis Batch: 554038

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	31.5		ug/L		126	63 - 134
cis-1,2-Dichloroethene	25.0	23.4		ug/L		94	77 - 123
Tetrachloroethene	25.0	25.2		ug/L		101	76 - 123
trans-1,2-Dichloroethene	25.0	23.4		ug/L		94	75 - 124
Trichloroethene	25.0	23.2		ug/L		93	70 - 122
Vinyl chloride	25.0	21.6		ug/L		86	60 - 144

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	85		62 - 137
4-Bromofluorobenzene (Surr)	100		56 - 136
Toluene-d8 (Surr)	105		78 - 122
Dibromofluoromethane (Surr)	99		73 - 120

Lab Sample ID: 240-176901-H-2 MS
Matrix: Water
Analysis Batch: 554038

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	26.9		ug/L		108	56 - 135
cis-1,2-Dichloroethene	1.0	U	25.0	21.4		ug/L		86	66 - 128
Tetrachloroethene	1.0	U	25.0	23.8		ug/L		95	62 - 131
trans-1,2-Dichloroethene	1.0	U	25.0	20.6		ug/L		83	56 - 136
Trichloroethene	1.0	U	25.0	20.6		ug/L		82	61 - 124
Vinyl chloride	0.75	J	25.0	20.3		ug/L		78	43 - 157

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	83		62 - 137
4-Bromofluorobenzene (Surr)	97		56 - 136
Toluene-d8 (Surr)	105		78 - 122

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QC Sample Results

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

Job ID: 240-176903-1

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

Lab Sample ID: 240-176901-H-2 MS
Matrix: Water
Analysis Batch: 554038

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>	96		73 - 120

Lab Sample ID: 240-176901-N-2 MSD
Matrix: Water
Analysis Batch: 554038

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	28.9		ug/L		116	56 - 135	7	26
cis-1,2-Dichloroethene	1.0	U	25.0	21.5		ug/L		86	66 - 128	1	14
Tetrachloroethene	1.0	U	25.0	24.6		ug/L		99	62 - 131	4	20
trans-1,2-Dichloroethene	1.0	U	25.0	20.9		ug/L		84	56 - 136	1	15
Trichloroethene	1.0	U	25.0	21.4		ug/L		86	61 - 124	4	15
Vinyl chloride	0.75	J	25.0	20.5		ug/L		79	43 - 157	1	24

<i>Surrogate</i>	<i>%Recovery</i>	<i>MSD MSD Qualifier</i>	<i>Limits</i>
<i>1,2-Dichloroethane-d4 (Surr)</i>	83		62 - 137
<i>4-Bromofluorobenzene (Surr)</i>	97		56 - 136
<i>Toluene-d8 (Surr)</i>	105		78 - 122
<i>Dibromofluoromethane (Surr)</i>	96		73 - 120

Lab Sample ID: MB 240-554040/4
Matrix: Water
Analysis Batch: 554040

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			12/01/22 11:34	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			12/01/22 11:34	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			12/01/22 11:34	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			12/01/22 11:34	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			12/01/22 11:34	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			12/01/22 11:34	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>	89		62 - 137		12/01/22 11:34	1
<i>4-Bromofluorobenzene (Surr)</i>	97		56 - 136		12/01/22 11:34	1
<i>Toluene-d8 (Surr)</i>	103		78 - 122		12/01/22 11:34	1
<i>Dibromofluoromethane (Surr)</i>	95		73 - 120		12/01/22 11:34	1

Lab Sample ID: LCS 240-554040/3
Matrix: Water
Analysis Batch: 554040

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	29.0		ug/L		116	63 - 134
cis-1,2-Dichloroethene	25.0	22.3		ug/L		89	77 - 123
Tetrachloroethene	25.0	24.5		ug/L		98	76 - 123
trans-1,2-Dichloroethene	25.0	22.0		ug/L		88	75 - 124
Trichloroethene	25.0	21.4		ug/L		86	70 - 122

Eurofins Canton

QC Sample Results

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

Job ID: 240-176903-1

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

Lab Sample ID: LCS 240-554040/3
Matrix: Water
Analysis Batch: 554040

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	19.7		ug/L		79	60 - 144
Surrogate							
	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	84		62 - 137				
4-Bromofluorobenzene (Surr)	98		56 - 136				
Toluene-d8 (Surr)	105		78 - 122				
Dibromofluoromethane (Surr)	95		73 - 120				

Lab Sample ID: 240-176993-F-1 MS
Matrix: Water
Analysis Batch: 554040

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
Tetrachloroethene	1.0	U	25.0	24.2		ug/L		97	62 - 131
Surrogate									
	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	84		62 - 137						
4-Bromofluorobenzene (Surr)	97		56 - 136						
Toluene-d8 (Surr)	106		78 - 122						
Dibromofluoromethane (Surr)	95		73 - 120						

Lab Sample ID: 240-176993-I-1 MSD
Matrix: Water
Analysis Batch: 554040

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
Tetrachloroethene	1.0	U	25.0	23.2		ug/L		93	62 - 131	4	20
Surrogate											
	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	83		62 - 137								
4-Bromofluorobenzene (Surr)	97		56 - 136								
Toluene-d8 (Surr)	105		78 - 122								
Dibromofluoromethane (Surr)	95		73 - 120								

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

Lab Sample ID: MB 240-554036/5
Matrix: Water
Analysis Batch: 554036

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			11/30/22 21:51	1
Surrogate									
	MB %Recovery	MB Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	105		66 - 120						

QC Sample Results

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

Job ID: 240-176903-1

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

Lab Sample ID: LCS 240-554036/4
Matrix: Water
Analysis Batch: 554036

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	9.75		ug/L		98	80 - 122
Surrogate							
	%Recovery	LCS Qualifier	LCS Limits				
1,2-Dichloroethane-d4 (Surr)	108		66 - 120				

Lab Sample ID: 240-177069-E-6 MS
Matrix: Water
Analysis Batch: 554036

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dioxane	2.0	U	10.0	10.8		ug/L		108	51 - 153
Surrogate									
	%Recovery	MS Qualifier	MS Limits						
1,2-Dichloroethane-d4 (Surr)	97		66 - 120						

Lab Sample ID: 240-177069-E-6 MSD
Matrix: Water
Analysis Batch: 554036

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,4-Dioxane	2.0	U	10.0	10.7		ug/L		107	51 - 153	1	16
Surrogate											
	%Recovery	MSD Qualifier	MSD Limits								
1,2-Dichloroethane-d4 (Surr)	105		66 - 120								

QC Association Summary

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

Job ID: 240-176903-1

GC/MS VOA

Analysis Batch: 554036

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-176903-2	MW-21_111822	Total/NA	Water	8260D SIM	
240-176903-3	MW-20_111822	Total/NA	Water	8260D SIM	
240-176903-4	MW-18_111822	Total/NA	Water	8260D SIM	
240-176903-5	MW-49_111722	Total/NA	Water	8260D SIM	
MB 240-554036/5	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-554036/4	Lab Control Sample	Total/NA	Water	8260D SIM	
240-177069-E-6 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-177069-E-6 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

Analysis Batch: 554038

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-176903-1	TRIP BLANK_203	Total/NA	Water	8260D	
MB 240-554038/5	Method Blank	Total/NA	Water	8260D	
LCS 240-554038/4	Lab Control Sample	Total/NA	Water	8260D	
240-176901-H-2 MS	Matrix Spike	Total/NA	Water	8260D	
240-176901-N-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Analysis Batch: 554040

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-176903-2	MW-21_111822	Total/NA	Water	8260D	
240-176903-3	MW-20_111822	Total/NA	Water	8260D	
240-176903-4	MW-18_111822	Total/NA	Water	8260D	
240-176903-5	MW-49_111722	Total/NA	Water	8260D	
MB 240-554040/4	Method Blank	Total/NA	Water	8260D	
LCS 240-554040/3	Lab Control Sample	Total/NA	Water	8260D	
240-176993-F-1 MS	Matrix Spike	Total/NA	Water	8260D	
240-176993-I-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Lab Chronicle

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

Job ID: 240-176903-1

Client Sample ID: TRIP BLANK_203

Lab Sample ID: 240-176903-1

Date Collected: 11/17/22 00:00

Matrix: Water

Date Received: 11/22/22 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	554038	CS	EET CAN	12/01/22 03:31

Client Sample ID: MW-21_111822

Lab Sample ID: 240-176903-2

Date Collected: 11/18/22 10:51

Matrix: Water

Date Received: 11/22/22 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		8	554040	CS	EET CAN	12/01/22 15:24
Total/NA	Analysis	8260D SIM		2	554036	CS	EET CAN	11/30/22 23:28

Client Sample ID: MW-20_111822

Lab Sample ID: 240-176903-3

Date Collected: 11/18/22 12:01

Matrix: Water

Date Received: 11/22/22 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	554040	CS	EET CAN	12/01/22 15:50
Total/NA	Analysis	8260D SIM		1	554036	CS	EET CAN	11/30/22 23:52

Client Sample ID: MW-18_111822

Lab Sample ID: 240-176903-4

Date Collected: 11/18/22 13:36

Matrix: Water

Date Received: 11/22/22 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	554040	CS	EET CAN	12/01/22 16:15
Total/NA	Analysis	8260D SIM		1	554036	CS	EET CAN	12/01/22 00:17

Client Sample ID: MW-49_111722

Lab Sample ID: 240-176903-5

Date Collected: 11/17/22 15:06

Matrix: Water

Date Received: 11/22/22 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1000	554040	CS	EET CAN	12/01/22 16:41
Total/NA	Analysis	8260D SIM		1	554036	CS	EET CAN	12/01/22 00:41

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: 240-176903-1

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

Chain of Custody Record

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 Project Name: Ford LTP On-Site Project Number: 30146655.401.03 PO # 30146655.401.03		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 DelMonte Telephone: 330-497-9396	
Sampler Name: <i>Gary Schuber</i> Method of Shipment/Carrier: Shipping/Tracking No:		Analysis Turnaround Time TAT if different from below: <input checked="" type="checkbox"/> 3 weeks <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day	
Sample Identification		Containers & Preservatives H2SO4 <input type="checkbox"/> HNO3 <input type="checkbox"/> HCl <input type="checkbox"/> NaOH <input type="checkbox"/> ZnAc <input type="checkbox"/> NaOH <input type="checkbox"/> Other:	
Sample Date 11/17/22 11/18/22 11/18/22 11/18/22 11/17/22	Sample Time --- 10:51 12:01 1336 1506	Matrix Air <input checked="" type="checkbox"/> Aqueous <input type="checkbox"/> Sediment <input type="checkbox"/> Solid <input type="checkbox"/> Other:	
Sample ID: TRIP BLANK_ 263 MW-21-111822 MW-20-111822 MW-18-111822 MW-49-111722		Filtered Sample (Y/N) Composite C/Grab/G 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	
Special Instructions/QC Requirements & Comments: Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203728 Level IV Reporting requested.		Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Irritable <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown	
Relinquished by: <i>Gary Schuber</i> Date/Time: 11/18/22 1430 Company: ARCADIS		Relinquished by: <i>Johny Mc</i> Date/Time: 11/21/22 0840 Company: EEMA	
Relinquished by: <i>Johny Mc</i> Date/Time: 11/21/22 0840 Company: EEMA		Relinquished by: <i>Johny Mc</i> Date/Time: 11/21/22 1430 Company: Arcadis	
Relinquished by: <i>Johny Mc</i> Date/Time: 11/21/22 0840 Company: EEMA		Relinquished by: <i>Johny Mc</i> Date/Time: 11/21/22 0840 Company: EEMA	
Relinquished by: <i>Johny Mc</i> Date/Time: 11/21/22 0840 Company: EEMA		Relinquished by: <i>Johny Mc</i> Date/Time: 11/21/22 0840 Company: EEMA	

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Client Accardi S Site Name _____ Cooler unpacked by: [Signature]
 Cooler Received on 11-22-22 Opened on 11-22-22
 FedEx: 1st Grd / Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other

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

Eurofins Cooler # IA 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 +0.7 °C) Observed Cooler Temp 2.5 °C Corrected Cooler Temp 3.2 °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 1

Yes	No
Yes	No NA
Yes	No
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
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
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 # 62070 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



December 07, 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: 176903-1
Sample date: 2022-11-17, 11-18
Report received by CADENA: 2022-12-06
Initial Data Verification completed by CADENA: 2022-12-07
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.

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.