

 **ANALYTICAL REPORT****PREPARED FOR**

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JOB DESCRIPTION

Ford LTP - On Site

JOB NUMBER

240-175897-1



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Definitions/Glossary

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

Job ID: 240-175897-1

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.
S1+	Surrogate recovery exceeds control limits, high biased.
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: 240-175897-1

Job ID: 240-175897-1

Laboratory: Eurofins Canton

Narrative

Job Narrative 240-175897-1

Receipt

The samples were received on 11/4/2022 9:40 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 0.9°C, 1.2°C and 1.3°C

GC/MS VOA

Method 8260D_SIM: Surrogate recovery for the following samples was outside the upper control limit: MW-04_110322 (240-175897-3) and DUP-05 (240-175897-5). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Method 8260D_SIM: Surrogate recovery for the following sample was outside control limits: MW-02_110322 (240-175897-4). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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: 240-175897-1

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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Sample Summary

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

Job ID: 240-175897-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-175897-1	TRIP BLANK_51	Water	11/03/22 00:00	11/04/22 09:40
240-175897-2	MW-10_110322	Water	11/03/22 10:05	11/04/22 09:40
240-175897-3	MW-04_110322	Water	11/03/22 10:50	11/04/22 09:40
240-175897-4	MW-02_110322	Water	11/03/22 11:50	11/04/22 09:40
240-175897-5	DUP-05	Water	11/03/22 00:00	11/04/22 09:40

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Detection Summary

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

Job ID: 240-175897-1

Client Sample ID: TRIP BLANK_51

Lab Sample ID: 240-175897-1

No Detections.

Client Sample ID: MW-10_110322

Lab Sample ID: 240-175897-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	5.0		2.0	0.86	ug/L	1		8260D SIM	Total/NA
Vinyl chloride	4300		100	45	ug/L	100		8260D	Total/NA

Client Sample ID: MW-04_110322

Lab Sample ID: 240-175897-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.4	J	2.0	0.86	ug/L	1		8260D SIM	Total/NA
cis-1,2-Dichloroethene	5900		330	150	ug/L	333.33		8260D	Total/NA
trans-1,2-Dichloroethene	180	J	330	170	ug/L	333.33		8260D	Total/NA
Trichloroethene	1200		330	150	ug/L	333.33		8260D	Total/NA
Vinyl chloride	1800		330	150	ug/L	333.33		8260D	Total/NA

Client Sample ID: MW-02_110322

Lab Sample ID: 240-175897-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	5.3		2.0	0.86	ug/L	1		8260D SIM	Total/NA
cis-1,2-Dichloroethene	4100		100	46	ug/L	100		8260D	Total/NA
trans-1,2-Dichloroethene	650		100	51	ug/L	100		8260D	Total/NA
Vinyl chloride	250		100	45	ug/L	100		8260D	Total/NA

Client Sample ID: DUP-05

Lab Sample ID: 240-175897-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.2	J	2.0	0.86	ug/L	1		8260D SIM	Total/NA
cis-1,2-Dichloroethene	6100		250	120	ug/L	250		8260D	Total/NA
trans-1,2-Dichloroethene	200	J	250	130	ug/L	250		8260D	Total/NA
Trichloroethene	1200		250	110	ug/L	250		8260D	Total/NA
Vinyl chloride	1900		250	110	ug/L	250		8260D	Total/NA

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: 240-175897-1

Client Sample ID: TRIP BLANK_51

Lab Sample ID: 240-175897-1

Date Collected: 11/03/22 00:00

Matrix: Water

Date Received: 11/04/22 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			11/15/22 17:28	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/15/22 17:28	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/15/22 17:28	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/15/22 17:28	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/15/22 17:28	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/15/22 17:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		62 - 137		11/15/22 17:28	1
4-Bromofluorobenzene (Surr)	90		56 - 136		11/15/22 17:28	1
Toluene-d8 (Surr)	107		78 - 122		11/15/22 17:28	1
Dibromofluoromethane (Surr)	100		73 - 120		11/15/22 17:28	1

Client Sample Results

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

Job ID: 240-175897-1

Client Sample ID: MW-10_110322

Lab Sample ID: 240-175897-2

Date Collected: 11/03/22 10:05

Matrix: Water

Date Received: 11/04/22 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	5.0		2.0	0.86	ug/L			11/13/22 13:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	118		66 - 120		11/13/22 13:11	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	100	U	100	49	ug/L			11/15/22 17:51	100
cis-1,2-Dichloroethene	100	U	100	46	ug/L			11/15/22 17:51	100
Tetrachloroethene	100	U	100	44	ug/L			11/15/22 17:51	100
trans-1,2-Dichloroethene	100	U	100	51	ug/L			11/15/22 17:51	100
Trichloroethene	100	U	100	44	ug/L			11/15/22 17:51	100
Vinyl chloride	4300		100	45	ug/L			11/15/22 17:51	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		62 - 137		11/15/22 17:51	100
4-Bromofluorobenzene (Surr)	91		56 - 136		11/15/22 17:51	100
Toluene-d8 (Surr)	109		78 - 122		11/15/22 17:51	100
Dibromofluoromethane (Surr)	99		73 - 120		11/15/22 17:51	100

Client Sample Results

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

Job ID: 240-175897-1

Client Sample ID: MW-04_110322

Lab Sample ID: 240-175897-3

Date Collected: 11/03/22 10:50

Matrix: Water

Date Received: 11/04/22 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	1.4	J	2.0	0.86	ug/L			11/13/22 13:35	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	170	S1+	66 - 120					11/13/22 13:35	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	330	U	330	160	ug/L			11/15/22 18:14	333.33
cis-1,2-Dichloroethene	5900		330	150	ug/L			11/15/22 18:14	333.33
Tetrachloroethene	330	U	330	150	ug/L			11/15/22 18:14	333.33
trans-1,2-Dichloroethene	180	J	330	170	ug/L			11/15/22 18:14	333.33
Trichloroethene	1200		330	150	ug/L			11/15/22 18:14	333.33
Vinyl chloride	1800		330	150	ug/L			11/15/22 18:14	333.33
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		62 - 137					11/15/22 18:14	333.33
4-Bromofluorobenzene (Surr)	88		56 - 136					11/15/22 18:14	333.33
Toluene-d8 (Surr)	104		78 - 122					11/15/22 18:14	333.33
Dibromofluoromethane (Surr)	99		73 - 120					11/15/22 18:14	333.33

Client Sample Results

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

Job ID: 240-175897-1

Client Sample ID: MW-02_110322

Lab Sample ID: 240-175897-4

Date Collected: 11/03/22 11:50

Matrix: Water

Date Received: 11/04/22 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	5.3		2.0	0.86	ug/L			11/13/22 14:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	139	S1+	66 - 120					11/13/22 14:00	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	100	U	100	49	ug/L			11/15/22 18:38	100
cis-1,2-Dichloroethene	4100		100	46	ug/L			11/15/22 18:38	100
Tetrachloroethene	100	U	100	44	ug/L			11/15/22 18:38	100
trans-1,2-Dichloroethene	650		100	51	ug/L			11/15/22 18:38	100
Trichloroethene	100	U	100	44	ug/L			11/15/22 18:38	100
Vinyl chloride	250		100	45	ug/L			11/15/22 18:38	100
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		62 - 137					11/15/22 18:38	100
4-Bromofluorobenzene (Surr)	89		56 - 136					11/15/22 18:38	100
Toluene-d8 (Surr)	106		78 - 122					11/15/22 18:38	100
Dibromofluoromethane (Surr)	98		73 - 120					11/15/22 18:38	100

Client Sample Results

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

Job ID: 240-175897-1

Client Sample ID: DUP-05

Lab Sample ID: 240-175897-5

Date Collected: 11/03/22 00:00

Matrix: Water

Date Received: 11/04/22 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	1.2	J	2.0	0.86	ug/L			11/13/22 14:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	146	S1+	66 - 120					11/13/22 14:24	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	250	U	250	120	ug/L			11/15/22 19:01	250
cis-1,2-Dichloroethene	6100		250	120	ug/L			11/15/22 19:01	250
Tetrachloroethene	250	U	250	110	ug/L			11/15/22 19:01	250
trans-1,2-Dichloroethene	200	J	250	130	ug/L			11/15/22 19:01	250
Trichloroethene	1200		250	110	ug/L			11/15/22 19:01	250
Vinyl chloride	1900		250	110	ug/L			11/15/22 19:01	250
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		62 - 137					11/15/22 19:01	250
4-Bromofluorobenzene (Surr)	91		56 - 136					11/15/22 19:01	250
Toluene-d8 (Surr)	107		78 - 122					11/15/22 19:01	250
Dibromofluoromethane (Surr)	99		73 - 120					11/15/22 19:01	250

Surrogate Summary

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

Job ID: 240-175897-1

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)
240-175888-E-5 MS	Matrix Spike	99	98	108	94
240-175888-H-5 MSD	Matrix Spike Duplicate	98	100	109	95
240-175897-1	TRIP BLANK_51	107	90	107	100
240-175897-2	MW-10_110322	108	91	109	99
240-175897-3	MW-04_110322	106	88	104	99
240-175897-4	MW-02_110322	105	89	106	98
240-175897-5	DUP-05	105	91	107	99
LCS 240-551976/5	Lab Control Sample	99	103	108	96
MB 240-551976/8	Method Blank	104	93	106	98

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)
240-175891-G-8 MS	Matrix Spike	106
240-175891-O-8 MSD	Matrix Spike Duplicate	112
240-175897-2	MW-10_110322	118
240-175897-3	MW-04_110322	170 S1+
240-175897-4	MW-02_110322	139 S1+
240-175897-5	DUP-05	146 S1+
LCS 240-551689/3	Lab Control Sample	119
MB 240-551689/4	Method Blank	118

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-175897-1

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

Lab Sample ID: MB 240-551976/8
Matrix: Water
Analysis Batch: 551976

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			11/15/22 11:15	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/15/22 11:15	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/15/22 11:15	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/15/22 11:15	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/15/22 11:15	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/15/22 11:15	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	104		62 - 137		11/15/22 11:15	1
4-Bromofluorobenzene (Surr)	93		56 - 136		11/15/22 11:15	1
Toluene-d8 (Surr)	106		78 - 122		11/15/22 11:15	1
Dibromofluoromethane (Surr)	98		73 - 120		11/15/22 11:15	1

Lab Sample ID: LCS 240-551976/5
Matrix: Water
Analysis Batch: 551976

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

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
1,1-Dichloroethene	20.0	17.2		ug/L		86	63 - 134
cis-1,2-Dichloroethene	20.0	16.9		ug/L		85	77 - 123
Tetrachloroethene	20.0	19.8		ug/L		99	76 - 123
trans-1,2-Dichloroethene	20.0	17.1		ug/L		86	75 - 124
Trichloroethene	20.0	17.4		ug/L		87	70 - 122
Vinyl chloride	20.0	16.7		ug/L		84	60 - 144

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	99		62 - 137
4-Bromofluorobenzene (Surr)	103		56 - 136
Toluene-d8 (Surr)	108		78 - 122
Dibromofluoromethane (Surr)	96		73 - 120

Lab Sample ID: 240-175888-E-5 MS
Matrix: Water
Analysis Batch: 551976

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	20.0	15.6		ug/L		78	56 - 135
cis-1,2-Dichloroethene	1.0	U	20.0	15.1		ug/L		75	66 - 128
Tetrachloroethene	1.0	U	20.0	17.6		ug/L		88	62 - 131
trans-1,2-Dichloroethene	1.0	U	20.0	15.4		ug/L		77	56 - 136
Trichloroethene	1.0	U	20.0	15.3		ug/L		77	61 - 124
Vinyl chloride	1.0	U	20.0	15.1		ug/L		76	43 - 157

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	99		62 - 137
4-Bromofluorobenzene (Surr)	98		56 - 136
Toluene-d8 (Surr)	108		78 - 122

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QC Sample Results

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

Job ID: 240-175897-1

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

Lab Sample ID: 240-175888-E-5 MS
Matrix: Water
Analysis Batch: 551976

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

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	94		73 - 120

Lab Sample ID: 240-175888-H-5 MSD
Matrix: Water
Analysis Batch: 551976

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	16.8		ug/L		84	56 - 135	7	26
cis-1,2-Dichloroethene	1.0	U	20.0	16.2		ug/L		81	66 - 128	7	14
Tetrachloroethene	1.0	U	20.0	18.6		ug/L		93	62 - 131	6	20
trans-1,2-Dichloroethene	1.0	U	20.0	16.5		ug/L		82	56 - 136	7	15
Trichloroethene	1.0	U	20.0	16.2		ug/L		81	61 - 124	6	15
Vinyl chloride	1.0	U	20.0	16.3		ug/L		81	43 - 157	7	24

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		62 - 137
4-Bromofluorobenzene (Surr)	100		56 - 136
Toluene-d8 (Surr)	109		78 - 122
Dibromofluoromethane (Surr)	95		73 - 120

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

Lab Sample ID: MB 240-551689/4
Matrix: Water
Analysis Batch: 551689

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			11/13/22 05:54	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	118		66 - 120		11/13/22 05:54	1

Lab Sample ID: LCS 240-551689/3
Matrix: Water
Analysis Batch: 551689

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	9.78		ug/L		98	80 - 122

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	119		66 - 120

Lab Sample ID: 240-175891-G-8 MS
Matrix: Water
Analysis Batch: 551689

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	2.1		10.0	11.7		ug/L		96	51 - 153

Eurofins Canton

QC Sample Results

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

Job ID: 240-175897-1

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

<i>Surrogate</i>	<i>MS</i> <i>%Recovery</i>	<i>MS</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	106		66 - 120

Lab Sample ID: 240-175891-O-8 MSD
Matrix: Water
Analysis Batch: 551689

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

<i>Analyte</i>	<i>Sample</i> <i>Result</i>	<i>Sample</i> <i>Qualifier</i>	<i>Spike</i> <i>Added</i>	<i>MSD</i> <i>Result</i>	<i>MSD</i> <i>Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec</i> <i>Limits</i>	<i>RPD</i>	<i>RPD</i> <i>Limit</i>
1,4-Dioxane	2.1		10.0	11.5		ug/L		94	51 - 153	1	16

<i>Surrogate</i>	<i>MSD</i> <i>%Recovery</i>	<i>MSD</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	112		66 - 120

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QC Association Summary

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

Job ID: 240-175897-1

GC/MS VOA

Analysis Batch: 551689

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-175897-2	MW-10_110322	Total/NA	Water	8260D SIM	
240-175897-3	MW-04_110322	Total/NA	Water	8260D SIM	
240-175897-4	MW-02_110322	Total/NA	Water	8260D SIM	
240-175897-5	DUP-05	Total/NA	Water	8260D SIM	
MB 240-551689/4	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-551689/3	Lab Control Sample	Total/NA	Water	8260D SIM	
240-175891-G-8 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-175891-O-8 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

Analysis Batch: 551976

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-175897-1	TRIP BLANK_51	Total/NA	Water	8260D	
240-175897-2	MW-10_110322	Total/NA	Water	8260D	
240-175897-3	MW-04_110322	Total/NA	Water	8260D	
240-175897-4	MW-02_110322	Total/NA	Water	8260D	
240-175897-5	DUP-05	Total/NA	Water	8260D	
MB 240-551976/8	Method Blank	Total/NA	Water	8260D	
LCS 240-551976/5	Lab Control Sample	Total/NA	Water	8260D	
240-175888-E-5 MS	Matrix Spike	Total/NA	Water	8260D	
240-175888-H-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Lab Chronicle

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

Job ID: 240-175897-1

Client Sample ID: TRIP BLANK_51

Lab Sample ID: 240-175897-1

Date Collected: 11/03/22 00:00

Matrix: Water

Date Received: 11/04/22 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	551976	TJL1	EET CAN	11/15/22 17:28

Client Sample ID: MW-10_110322

Lab Sample ID: 240-175897-2

Date Collected: 11/03/22 10:05

Matrix: Water

Date Received: 11/04/22 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		100	551976	TJL1	EET CAN	11/15/22 17:51
Total/NA	Analysis	8260D SIM		1	551689	CS	EET CAN	11/13/22 13:11

Client Sample ID: MW-04_110322

Lab Sample ID: 240-175897-3

Date Collected: 11/03/22 10:50

Matrix: Water

Date Received: 11/04/22 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		333.33	551976	TJL1	EET CAN	11/15/22 18:14
Total/NA	Analysis	8260D SIM		1	551689	CS	EET CAN	11/13/22 13:35

Client Sample ID: MW-02_110322

Lab Sample ID: 240-175897-4

Date Collected: 11/03/22 11:50

Matrix: Water

Date Received: 11/04/22 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		100	551976	TJL1	EET CAN	11/15/22 18:38
Total/NA	Analysis	8260D SIM		1	551689	CS	EET CAN	11/13/22 14:00

Client Sample ID: DUP-05

Lab Sample ID: 240-175897-5

Date Collected: 11/03/22 00:00

Matrix: Water

Date Received: 11/04/22 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		250	551976	TJL1	EET CAN	11/15/22 19:01
Total/NA	Analysis	8260D SIM		1	551689	CS	EET CAN	11/13/22 14:24

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: 240-175897-1

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

Eurofins - Canton Sample Receipt Form/Narrative
Barberton Facility

Login #: 175897

Client Accudis Site Name LTP Cooler unpacked by: JME

Cooler Received on _____ Opened on _____
 FedEx: 1st Grd UPS FAS Clipper Client Drop Off Eurofins Courier Other

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

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

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN# IR-13 (CF +0.7 °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 1 ea Yes No NA
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA
 -Were tamper/custody seals intact and uncompromised? Yes No NA
 3. Shippers' packing slip attached to the cooler(s)? Yes No
 4. Did custody papers accompany the sample(s)? Yes No
 5. Were the custody papers relinquished & signed in the appropriate place? Yes No
 6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
 7. Did all bottles arrive in good condition (Unbroken)? Yes No
 8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
 9. For each sample, does the COC specify 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# 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 # Covered 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: _____

Eurofins Canton

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



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11/18/2022 8:02:37 AM

Authorized for release by
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Michael.DelMonico@et.eurofinsus.com
(330)497-9396

DATA VERIFICATION REPORT



November 18, 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: 175897-1
Sample date: 2022-11-03
Report received by CADENA: 2022-11-18
Initial Data Verification completed by CADENA: 2022-11-18
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:

SUR - GCMS VOC surrogate recoveries were outside of laboratory control limits biased HIGH for at least 1 surrogate. These client sample results that were detected for the analytical fraction specified should be considered estimated and qualified with J flags (non-detect results do not require qualification):
GCMS-SIM VOC samples -003, -004, -005 - J flags - 1,4-DIOXANE.

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.

Qualifiers added during verification have been added to the electronic data which is available for download from the CADENA CLMS. Refer to the attached table of analytical results that have been qualified during verification. 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.

Qualified Results Summary

CADENA Project ID: E203728

Laboratory: Eurofins Environment Testing LLC - Barberton

Laboratory Submittal: 175897-1

Analyte	Cas No.	Sample Name: MW-04_110322				Sample Name: MW-02_110322				Sample Name: DUP-05			
		Result	Report Limit	Units	Valid Qualifier	Result	Report Limit	Units	Valid Qualifier	Result	Report Limit	Units	Valid Qualifier

GC/MS VOC

OSW-8260DSIM

1,4-Dioxane	123-91-1	1.4	2.0	ug/l	J	5.3	2.0	ug/l	J	1.2	2.0	ug/l	J
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Analytical Results Summary

CADENA Project ID: E203728

Laboratory: Eurofins Environment Testing LLC - Barberton

Laboratory Submittal: 175897-1

Analyte	Cas No.	Sample Name: TRIP BLANK_51				Sample Name: MW-10_110322				Sample Name: MW-04_110322				Sample Name: MW-02_110322				Sample Name: DUP-05			
		Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
GC/MS VOC																					
<u>OSW-8260D</u>																					
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	100	ug/l	---	ND	330	ug/l	---	ND	100	ug/l	---	ND	250	ug/l	---
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	ND	100	ug/l	---	5900	330	ug/l	---	4100	100	ug/l	---	6100	250	ug/l	---
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	100	ug/l	---	ND	330	ug/l	---	ND	100	ug/l	---	ND	250	ug/l	---
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	ND	100	ug/l	---	180	330	ug/l	J	650	100	ug/l	---	200	250	ug/l	J
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	100	ug/l	---	1200	330	ug/l	---	ND	100	ug/l	---	1200	250	ug/l	---
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	4300	100	ug/l	---	1800	330	ug/l	---	250	100	ug/l	---	1900	250	ug/l	---
<u>OSW-8260DSIM</u>																					
1,4-Dioxane	123-91-1					5.0	2.0	ug/l	---	1.4	2.0	ug/l	J	5.3	2.0	ug/l	J	1.2	2.0	ug/l	J