

ANALYTICAL REPORT

PREPARED FOR

Attn: Kristoffer Hinskey
ARCADIS US Inc
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Generated 11/27/2023 4:29:07 AM

JOB DESCRIPTION

Ford LTP - On Site

JOB NUMBER

240-195409-1

Eurofins Cleveland

Job Notes

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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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Authorized for release by
Michael DeMonico, Project Manager I
Michael.DeMonico@et.eurofinsus.com
(330)497-9396



Table of Contents

Cover Page	1
Table of Contents	3
Definitions/Glossary	4
Case Narrative	5
Method Summary	6
Sample Summary	7
Detection Summary	8
Client Sample Results	9
Surrogate Summary	14
QC Sample Results	15
QC Association Summary	19
Lab Chronicle	20
Certification Summary	21
Chain of Custody	22

Definitions/Glossary

Client: ARCADIS US Inc
Project/Site: Ford LTP - On Site

Job ID: 240-195409-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
E	Result exceeded calibration range.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
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 US Inc
Project/Site: Ford LTP - On Site

Job ID: 240-195409-1

Job ID: 240-195409-1

Laboratory: Eurofins Cleveland

Narrative

**Job Narrative
240-195409-1**

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method. Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt

The samples were received on 11/14/2023 10:00 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 3.2°C and 3.4°C

GC/MS VOA

Method 8260D: The method requirement for no headspace was not met. The following volatile samples were analyzed with headspace in the sample container(s): MW-48R_111023 (240-195409-2) and MW-68_111023 (240-195409-5).

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



Method Summary

Client: ARCADIS US Inc
Project/Site: Ford LTP - On Site

Job ID: 240-195409-1

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

Protocol References:

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

Laboratory References:

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

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- 13
- 14

Sample Summary

Client: ARCADIS US Inc
Project/Site: Ford LTP - On Site

Job ID: 240-195409-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-195409-1	TRIP BLANK_86	Water	11/10/23 00:00	11/14/23 10:00
240-195409-2	MW-48R_111023	Water	11/10/23 10:10	11/14/23 10:00
240-195409-3	MW-67_111023	Water	11/10/23 11:10	11/14/23 10:00
240-195409-4	MW-58_111023	Water	11/10/23 12:35	11/14/23 10:00
240-195409-5	MW-68_111023	Water	11/10/23 01:50	11/14/23 10:00

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Detection Summary

Client: ARCADIS US Inc
Project/Site: Ford LTP - On Site

Job ID: 240-195409-1

Client Sample ID: TRIP BLANK_86

Lab Sample ID: 240-195409-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.52	J B	1.0	0.46	ug/L	1		8260D	Total/NA

Client Sample ID: MW-48R_111023

Lab Sample ID: 240-195409-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	10		2.0	0.86	ug/L	1		8260D SIM	Total/NA
cis-1,2-Dichloroethene	0.87	J	1.0	0.46	ug/L	1		8260D	Total/NA

Client Sample ID: MW-67_111023

Lab Sample ID: 240-195409-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	3.0		1.0	0.46	ug/L	1		8260D	Total/NA
Trichloroethene	57	F1	1.0	0.44	ug/L	1		8260D	Total/NA

Client Sample ID: MW-58_111023

Lab Sample ID: 240-195409-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	2.0		2.0	0.86	ug/L	1		8260D SIM	Total/NA
cis-1,2-Dichloroethene	0.57	J	1.0	0.46	ug/L	1		8260D	Total/NA
Vinyl chloride	0.48	J	1.0	0.45	ug/L	1		8260D	Total/NA

Client Sample ID: MW-68_111023

Lab Sample ID: 240-195409-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	4.1		2.0	0.86	ug/L	1		8260D SIM	Total/NA
cis-1,2-Dichloroethene	3.4		1.0	0.46	ug/L	1		8260D	Total/NA
trans-1,2-Dichloroethene	0.85	J	1.0	0.51	ug/L	1		8260D	Total/NA
Vinyl chloride	22		1.0	0.45	ug/L	1		8260D	Total/NA

This Detection Summary does not include radiochemical test results.

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Client Sample Results

Client: ARCADIS US Inc
 Project/Site: Ford LTP - On Site

Job ID: 240-195409-1

Client Sample ID: TRIP BLANK_86

Lab Sample ID: 240-195409-1

Date Collected: 11/10/23 00:00

Matrix: Water

Date Received: 11/14/23 10:00

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			11/19/23 17:37	1
cis-1,2-Dichloroethene	0.52	J B	1.0	0.46	ug/L			11/19/23 17:37	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/19/23 17:37	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/19/23 17:37	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/19/23 17:37	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/19/23 17:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		62 - 137		11/19/23 17:37	1
4-Bromofluorobenzene (Surr)	73		56 - 136		11/19/23 17:37	1
Toluene-d8 (Surr)	88		78 - 122		11/19/23 17:37	1
Dibromofluoromethane (Surr)	87		73 - 120		11/19/23 17:37	1

Client Sample Results

Client: ARCADIS US Inc
 Project/Site: Ford LTP - On Site

Job ID: 240-195409-1

Client Sample ID: MW-48R_111023

Lab Sample ID: 240-195409-2

Date Collected: 11/10/23 10:10

Matrix: Water

Date Received: 11/14/23 10:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	10		2.0	0.86	ug/L			11/24/23 15:30	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		66 - 120					11/24/23 15:30	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			11/19/23 04:00	1
cis-1,2-Dichloroethene	0.87	J	1.0	0.46	ug/L			11/19/23 04:00	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/19/23 04:00	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/19/23 04:00	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/19/23 04:00	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/19/23 04:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		62 - 137					11/19/23 04:00	1
4-Bromofluorobenzene (Surr)	74		56 - 136					11/19/23 04:00	1
Toluene-d8 (Surr)	90		78 - 122					11/19/23 04:00	1
Dibromofluoromethane (Surr)	93		73 - 120					11/19/23 04:00	1

Client Sample Results

Client: ARCADIS US Inc
 Project/Site: Ford LTP - On Site

Job ID: 240-195409-1

Client Sample ID: MW-67_111023

Lab Sample ID: 240-195409-3

Date Collected: 11/10/23 11:10

Matrix: Water

Date Received: 11/14/23 10:00

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			11/24/23 15:54	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		66 - 120					11/24/23 15:54	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			11/19/23 04:25	1
cis-1,2-Dichloroethene	3.0		1.0	0.46	ug/L			11/19/23 04:25	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/19/23 04:25	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/19/23 04:25	1
Trichloroethene	57 F1		1.0	0.44	ug/L			11/19/23 04:25	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/19/23 04:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		62 - 137					11/19/23 04:25	1
4-Bromofluorobenzene (Surr)	75		56 - 136					11/19/23 04:25	1
Toluene-d8 (Surr)	89		78 - 122					11/19/23 04:25	1
Dibromofluoromethane (Surr)	93		73 - 120					11/19/23 04:25	1

Client Sample Results

Client: ARCADIS US Inc
 Project/Site: Ford LTP - On Site

Job ID: 240-195409-1

Client Sample ID: MW-58_111023

Lab Sample ID: 240-195409-4

Date Collected: 11/10/23 12:35

Matrix: Water

Date Received: 11/14/23 10:00

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		2.0	0.86	ug/L			11/24/23 16:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		66 - 120					11/24/23 16:18	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			11/19/23 04:50	1
cis-1,2-Dichloroethene	0.57	J	1.0	0.46	ug/L			11/19/23 04:50	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/19/23 04:50	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/19/23 04:50	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/19/23 04:50	1
Vinyl chloride	0.48	J	1.0	0.45	ug/L			11/19/23 04:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	115		62 - 137					11/19/23 04:50	1
4-Bromofluorobenzene (Surr)	77		56 - 136					11/19/23 04:50	1
Toluene-d8 (Surr)	94		78 - 122					11/19/23 04:50	1
Dibromofluoromethane (Surr)	95		73 - 120					11/19/23 04:50	1

Client Sample Results

Client: ARCADIS US Inc
 Project/Site: Ford LTP - On Site

Job ID: 240-195409-1

Client Sample ID: MW-68_111023

Lab Sample ID: 240-195409-5

Date Collected: 11/10/23 01:50

Matrix: Water

Date Received: 11/14/23 10:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	4.1		2.0	0.86	ug/L			11/24/23 16:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		66 - 120					11/24/23 16:42	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			11/19/23 05:15	1
cis-1,2-Dichloroethene	3.4		1.0	0.46	ug/L			11/19/23 05:15	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/19/23 05:15	1
trans-1,2-Dichloroethene	0.85	J	1.0	0.51	ug/L			11/19/23 05:15	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/19/23 05:15	1
Vinyl chloride	22		1.0	0.45	ug/L			11/19/23 05:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	115		62 - 137					11/19/23 05:15	1
4-Bromofluorobenzene (Surr)	75		56 - 136					11/19/23 05:15	1
Toluene-d8 (Surr)	90		78 - 122					11/19/23 05:15	1
Dibromofluoromethane (Surr)	96		73 - 120					11/19/23 05:15	1

Surrogate Summary

Client: ARCADIS US Inc
Project/Site: Ford LTP - On Site

Job ID: 240-195409-1

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)
240-195326-E-2 MS	Matrix Spike	103	88	91	92
240-195326-I-2 MSD	Matrix Spike Duplicate	99	84	89	90
240-195409-1	TRIP BLANK_86	102	73	88	87
240-195409-2	MW-48R_111023	110	74	90	93
240-195409-3	MW-67_111023	111	75	89	93
240-195409-3 MS	MW-67-MS_111023	100	87	89	93
240-195409-3 MSD	MW-67-MSD_111023	97	84	89	89
240-195409-4	MW-58_111023	115	77	94	95
240-195409-5	MW-68_111023	115	75	90	96
LCS 240-595138/5	Lab Control Sample	100	84	91	93
LCS 240-595154/5	Lab Control Sample	105	87	94	97
MB 240-595138/8	Method Blank	105	78	91	90
MB 240-595154/8	Method Blank	110	75	90	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)
240-195409-2	MW-48R_111023	102
240-195409-3	MW-67_111023	102
240-195409-3 MS	MW-67-MS_111023	95
240-195409-3 MSD	MW-67-MSD_111023	96
240-195409-4	MW-58_111023	101
240-195409-5	MW-68_111023	102
LCS 240-595685/4	Lab Control Sample	99
MB 240-595685/5	Method Blank	100

Surrogate Legend

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

QC Sample Results

Client: ARCADIS US Inc
Project/Site: Ford LTP - On Site

Job ID: 240-195409-1

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

Lab Sample ID: MB 240-595138/8

Matrix: Water

Analysis Batch: 595138

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			11/18/23 23:04	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/18/23 23:04	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/18/23 23:04	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/18/23 23:04	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/18/23 23:04	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/18/23 23:04	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	105		62 - 137		11/18/23 23:04	1
4-Bromofluorobenzene (Surr)	78		56 - 136		11/18/23 23:04	1
Toluene-d8 (Surr)	91		78 - 122		11/18/23 23:04	1
Dibromofluoromethane (Surr)	90		73 - 120		11/18/23 23:04	1

Lab Sample ID: LCS 240-595138/5

Matrix: Water

Analysis Batch: 595138

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	26.1		ug/L		104	63 - 134
cis-1,2-Dichloroethene	25.0	22.1		ug/L		89	77 - 123
Tetrachloroethene	25.0	23.4		ug/L		94	76 - 123
trans-1,2-Dichloroethene	25.0	23.7		ug/L		95	75 - 124
Trichloroethene	25.0	22.8		ug/L		91	70 - 122
Vinyl chloride	12.5	11.7		ug/L		94	60 - 144

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	100		62 - 137
4-Bromofluorobenzene (Surr)	84		56 - 136
Toluene-d8 (Surr)	91		78 - 122
Dibromofluoromethane (Surr)	93		73 - 120

Lab Sample ID: 240-195409-3 MS

Matrix: Water

Analysis Batch: 595138

Client Sample ID: MW-67-MS_111023

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	24.4		ug/L		98	56 - 135
cis-1,2-Dichloroethene	3.0		25.0	30.4		ug/L		110	66 - 128
Tetrachloroethene	1.0	U	25.0	22.4		ug/L		90	62 - 131
trans-1,2-Dichloroethene	1.0	U	25.0	23.1		ug/L		92	56 - 136
Trichloroethene	57	F1	25.0	64.6	E F1	ug/L		31	61 - 124
Vinyl chloride	1.0	U	12.5	12.0		ug/L		96	43 - 157

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	100		62 - 137
4-Bromofluorobenzene (Surr)	87		56 - 136
Toluene-d8 (Surr)	89		78 - 122

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QC Sample Results

Client: ARCADIS US Inc
Project/Site: Ford LTP - On Site

Job ID: 240-195409-1

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

Lab Sample ID: 240-195409-3 MS

Matrix: Water

Analysis Batch: 595138

Client Sample ID: MW-67-MS_111023

Prep Type: Total/NA

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	93		73 - 120

Lab Sample ID: 240-195409-3 MSD

Matrix: Water

Analysis Batch: 595138

Client Sample ID: MW-67-MSD_111023

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD MSD		Unit	D	%Rec	%Rec		RPD	Limit
	Result	Qualifier		Result	Qualifier				Limits	RPD		
1,1-Dichloroethene	1.0	U	25.0	24.8		ug/L		99	56 - 135	1	26	
cis-1,2-Dichloroethene	3.0		25.0	26.5		ug/L		94	66 - 128	14	14	
Tetrachloroethene	1.0	U	25.0	21.9		ug/L		88	62 - 131	2	20	
trans-1,2-Dichloroethene	1.0	U	25.0	21.3		ug/L		85	56 - 136	8	15	
Trichloroethene	57	F1	25.0	69.9	E F1	ug/L		52	61 - 124	8	15	
Vinyl chloride	1.0	U	12.5	12.8		ug/L		102	43 - 157	6	24	

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	97		62 - 137
4-Bromofluorobenzene (Surr)	84		56 - 136
Toluene-d8 (Surr)	89		78 - 122
Dibromofluoromethane (Surr)	89		73 - 120

Lab Sample ID: MB 240-595154/8

Matrix: Water

Analysis Batch: 595154

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		11/19/23 17:12	1	
cis-1,2-Dichloroethene	0.605	J	1.0	0.46	ug/L		11/19/23 17:12	1	
Tetrachloroethene	1.0	U	1.0	0.44	ug/L		11/19/23 17:12	1	
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L		11/19/23 17:12	1	
Trichloroethene	1.0	U	1.0	0.44	ug/L		11/19/23 17:12	1	
Vinyl chloride	1.0	U	1.0	0.45	ug/L		11/19/23 17:12	1	

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	110		62 - 137		11/19/23 17:12	1
4-Bromofluorobenzene (Surr)	75		56 - 136		11/19/23 17:12	1
Toluene-d8 (Surr)	90		78 - 122		11/19/23 17:12	1
Dibromofluoromethane (Surr)	95		73 - 120		11/19/23 17:12	1

Lab Sample ID: LCS 240-595154/5

Matrix: Water

Analysis Batch: 595154

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike	LCS LCS		Unit	D	%Rec	%Rec
		Added	Result				
1,1-Dichloroethene	25.0	27.1		ug/L		109	63 - 134
cis-1,2-Dichloroethene	25.0	23.2		ug/L		93	77 - 123
Tetrachloroethene	25.0	24.1		ug/L		96	76 - 123
trans-1,2-Dichloroethene	25.0	23.5		ug/L		94	75 - 124
Trichloroethene	25.0	22.6		ug/L		90	70 - 122

Eurofins Cleveland

QC Sample Results

Client: ARCADIS US Inc
Project/Site: Ford LTP - On Site

Job ID: 240-195409-1

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

Lab Sample ID: LCS 240-595154/5

Matrix: Water

Analysis Batch: 595154

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Vinyl chloride	12.5	12.3		ug/L		98	60 - 144

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	105		62 - 137
4-Bromofluorobenzene (Surr)	87		56 - 136
Toluene-d8 (Surr)	94		78 - 122
Dibromofluoromethane (Surr)	97		73 - 120

Lab Sample ID: 240-195326-E-2 MS

Matrix: Water

Analysis Batch: 595154

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
cis-1,2-Dichloroethene	1.0	U	25.0	22.2		ug/L		89	66 - 128
trans-1,2-Dichloroethene	1.0	U	25.0	22.7		ug/L		91	56 - 136
Trichloroethene	1.0	U	25.0	22.6		ug/L		90	61 - 124
Vinyl chloride	1.0	U	12.5	11.2		ug/L		90	43 - 157

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	103		62 - 137
4-Bromofluorobenzene (Surr)	88		56 - 136
Toluene-d8 (Surr)	91		78 - 122
Dibromofluoromethane (Surr)	92		73 - 120

Lab Sample ID: 240-195326-I-2 MSD

Matrix: Water

Analysis Batch: 595154

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
cis-1,2-Dichloroethene	1.0	U	25.0	21.5		ug/L		86	66 - 128	3	14
trans-1,2-Dichloroethene	1.0	U	25.0	22.6		ug/L		91	56 - 136	0	15
Trichloroethene	1.0	U	25.0	22.6		ug/L		90	61 - 124	0	15
Vinyl chloride	1.0	U	12.5	11.4		ug/L		91	43 - 157	2	24

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	99		62 - 137
4-Bromofluorobenzene (Surr)	84		56 - 136
Toluene-d8 (Surr)	89		78 - 122
Dibromofluoromethane (Surr)	90		73 - 120

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

Lab Sample ID: MB 240-595685/5

Matrix: Water

Analysis Batch: 595685

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			11/24/23 13:54	1

Eurofins Cleveland

QC Sample Results

Client: ARCADIS US Inc
Project/Site: Ford LTP - On Site

Job ID: 240-195409-1

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

Lab Sample ID: MB 240-595685/5

Matrix: Water

Analysis Batch: 595685

Client Sample ID: Method Blank

Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	100		66 - 120		11/24/23 13:54	1

Lab Sample ID: LCS 240-595685/4

Matrix: Water

Analysis Batch: 595685

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dioxane	10.0	10.1		ug/L		101	80 - 122

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	99		66 - 120

Lab Sample ID: 240-195409-3 MS

Matrix: Water

Analysis Batch: 595685

Client Sample ID: MW-67-MS_111023

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	12.4		ug/L		124	51 - 153

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	95		66 - 120

Lab Sample ID: 240-195409-3 MSD

Matrix: Water

Analysis Batch: 595685

Client Sample ID: MW-67-MSD_111023

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	11.3		ug/L		113	51 - 153	9	16

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	96		66 - 120

QC Association Summary

Client: ARCADIS US Inc
Project/Site: Ford LTP - On Site

Job ID: 240-195409-1

GC/MS VOA

Analysis Batch: 595138

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-195409-2	MW-48R_111023	Total/NA	Water	8260D	
240-195409-3	MW-67_111023	Total/NA	Water	8260D	
240-195409-4	MW-58_111023	Total/NA	Water	8260D	
240-195409-5	MW-68_111023	Total/NA	Water	8260D	
MB 240-595138/8	Method Blank	Total/NA	Water	8260D	
LCS 240-595138/5	Lab Control Sample	Total/NA	Water	8260D	
240-195409-3 MS	MW-67-MS_111023	Total/NA	Water	8260D	
240-195409-3 MSD	MW-67-MSD_111023	Total/NA	Water	8260D	

Analysis Batch: 595154

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-195409-1	TRIP BLANK_86	Total/NA	Water	8260D	
MB 240-595154/8	Method Blank	Total/NA	Water	8260D	
LCS 240-595154/5	Lab Control Sample	Total/NA	Water	8260D	
240-195326-E-2 MS	Matrix Spike	Total/NA	Water	8260D	
240-195326-I-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Analysis Batch: 595685

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-195409-2	MW-48R_111023	Total/NA	Water	8260D SIM	
240-195409-3	MW-67_111023	Total/NA	Water	8260D SIM	
240-195409-4	MW-58_111023	Total/NA	Water	8260D SIM	
240-195409-5	MW-68_111023	Total/NA	Water	8260D SIM	
MB 240-595685/5	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-595685/4	Lab Control Sample	Total/NA	Water	8260D SIM	
240-195409-3 MS	MW-67-MS_111023	Total/NA	Water	8260D SIM	
240-195409-3 MSD	MW-67-MSD_111023	Total/NA	Water	8260D SIM	

Lab Chronicle

Client: ARCADIS US Inc
Project/Site: Ford LTP - On Site

Job ID: 240-195409-1

Client Sample ID: TRIP BLANK_86

Lab Sample ID: 240-195409-1

Date Collected: 11/10/23 00:00

Matrix: Water

Date Received: 11/14/23 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	595154	CDG	EET CLE	11/19/23 17:37

Client Sample ID: MW-48R_111023

Lab Sample ID: 240-195409-2

Date Collected: 11/10/23 10:10

Matrix: Water

Date Received: 11/14/23 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	595138	CDG	EET CLE	11/19/23 04:00
Total/NA	Analysis	8260D SIM		1	595685	CS	EET CLE	11/24/23 15:30

Client Sample ID: MW-67_111023

Lab Sample ID: 240-195409-3

Date Collected: 11/10/23 11:10

Matrix: Water

Date Received: 11/14/23 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	595138	CDG	EET CLE	11/19/23 04:25
Total/NA	Analysis	8260D SIM		1	595685	CS	EET CLE	11/24/23 15:54

Client Sample ID: MW-58_111023

Lab Sample ID: 240-195409-4

Date Collected: 11/10/23 12:35

Matrix: Water

Date Received: 11/14/23 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	595138	CDG	EET CLE	11/19/23 04:50
Total/NA	Analysis	8260D SIM		1	595685	CS	EET CLE	11/24/23 16:18

Client Sample ID: MW-68_111023

Lab Sample ID: 240-195409-5

Date Collected: 11/10/23 01:50

Matrix: Water

Date Received: 11/14/23 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	595138	CDG	EET CLE	11/19/23 05:15
Total/NA	Analysis	8260D SIM		1	595685	CS	EET CLE	11/24/23 16:42

Laboratory References:

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

Accreditation/Certification Summary

Client: ARCADIS US Inc
 Project/Site: Ford LTP - On Site

Job ID: 240-195409-1

Laboratory: Eurofins Cleveland

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	02-27-24
Georgia	State	4062	02-27-24
Illinois	NELAP	200004	07-31-24
Iowa	State	421	06-01-25
Kentucky (UST)	State	112225	02-28-24
Kentucky (WW)	State	KY98016	12-31-23
Michigan	State	9135	02-27-24
Minnesota	NELAP	039-999-348	12-31-23
Minnesota (Petrofund)	State	3506	08-01-23 *
New Jersey	NELAP	OH001	07-01-24
New York	NELAP	10975	04-02-24
Ohio	State	8303	02-27-24
Ohio VAP	State	ORELAP 4062	02-27-24
Oregon	NELAP	4062	02-27-24
Pennsylvania	NELAP	68-00340	08-31-24
Texas	NELAP	T104704517-22-19	08-31-24
Virginia	NELAP	460175	09-14-24
West Virginia DEP	State	210	12-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.



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				Regulatory program: DW NPDES RCRA Other														
Client Project Manager: Kris Hinskey Telephone: 248-994-2240 Email: kris@hinskey@arcadis.com				Site Contact: Christina Weaver Telephone: 248-994-2240														
Sampler Name: Garrett Link Method of Shipment/Carrier: Shipping/Tracking No:				Analyses Turnaround Time TAT, if different from below: 10 day 3 weeks 1 week 2 weeks 2 days 1 week 1 day 2 days														
Sample Identification	Sample Date	Sample Time	Matrix						Filtered Sample (Y/N)	Composite=C/Grab=G	Analyses						Sample Specific Notes / Special Instructions:	
			Air	Aqueous	Sediment	Solid	Other:	HS04			HNO3	HCl	NaOH	ZnAc/NaOH	Other:	1-DCE 8260B		Cis-1,2-DCE 8260B
TRIP BLANK_ 86	11/10/23	---	1						NG	X	X	X	X	X	X	X	X	1 Trip Blank
MW-48R-111023	11/10/23	1020	6						NG	X	X	X	X	X	X	X	X	3 VOAs for 8260B 3 VOAs for 8260B SIM
MW-67-111023	11/10/23	1110	6						NG	X	X	X	X	X	X	X	X	MS/MSD Present
MW-67-MS-111023	11/10/23	1110	6						NG	X	X	X	X	X	X	X	X	Run MS/MSD
MW-67-MSD-111023	11/10/23	1235	6						NG	X	X	X	X	X	X	X	X	Run MS/MSD
MW-58-111023	11/10/23	1350	6						NG	X	X	X	X	X	X	X	X	Run MS/MSD
MW-68-111023	11/10/23	1350	6						NG	X	X	X	X	X	X	X	X	Run MS/MSD



onsite

Relinquished by: <i>Garrett Link</i> Date/Time: 11/10/23 15:00 Company: ARCADIS		Received by: <i>Navid Cold Storage</i> Date/Time: 11/13/23 0835 Company: ARCADIS	
Relinquished by: <i>Garrett Link</i> Date/Time: 11/13/23 0835 Company: ARCADIS		Received by: <i>Sally Mc</i> Date/Time: 11/13/23 Company: EENA	
Relinquished by: <i>Sally Mc</i> Date/Time: 11/13/23 Company: EENA		Received in Laboratory by: <i>Alison Adams</i> Date/Time: 11-14-23 1000 Company: EET/UC	

Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203728
Level IV Reporting requested.



Client Arcadis Site Name _____

Cooler unpacked by:
Alissa Atkinson

Cooler Received on 11-14-23 Opened on 11-14-23

FedEx: 1st Grd Exp UPS FAS Waypoint 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 # _____ (CF _____ °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 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

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

- 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# HC316719
- 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 # 62225 Yes No
- 17. Was a LL Hg or Me Hg trip blank present? Yes No

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: _____

Log in #: _____

Eurofins - Canton Sample Receipt Multiple Cooler Form

Cooler Description (Circle)				IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)		
EC	Client	Box	Other	IR GUN #: <u>21</u>	<u>3.2</u>	<u>3.9</u>	Wet Ice	Blue Ice	Dry Ice
							Water	None	
EC	Client	Box	Other	IR GUN #: _____	<u>3.0</u>	<u>3.2</u>	Wet Ice	Blue Ice	Dry Ice
							Water	None	
EC	Client	Box	Other	IR GUN #: _____			Wet Ice	Blue Ice	Dry Ice
							Water	None	
EC	Client	Box	Other	IR GUN #: _____			Wet Ice	Blue Ice	Dry Ice
							Water	None	
EC	Client	Box	Other	IR GUN #: _____			Wet Ice	Blue Ice	Dry Ice
							Water	None	
EC	Client	Box	Other	IR GUN #: _____			Wet Ice	Blue Ice	Dry Ice
							Water	None	
EC	Client	Box	Other	IR GUN #: _____			Wet Ice	Blue Ice	Dry Ice
							Water	None	
EC	Client	Box	Other	IR GUN #: _____			Wet Ice	Blue Ice	Dry Ice
							Water	None	
EC	Client	Box	Other	IR GUN #: _____			Wet Ice	Blue Ice	Dry Ice
							Water	None	
EC	Client	Box	Other	IR GUN #: _____			Wet Ice	Blue Ice	Dry Ice
							Water	None	
EC	Client	Box	Other	IR GUN #: _____			Wet Ice	Blue Ice	Dry Ice
							Water	None	
EC	Client	Box	Other	IR GUN #: _____			Wet Ice	Blue Ice	Dry Ice
							Water	None	
EC	Client	Box	Other	IR GUN #: _____			Wet Ice	Blue Ice	Dry Ice
							Water	None	
EC	Client	Box	Other	IR GUN #: _____			Wet Ice	Blue Ice	Dry Ice
							Water	None	
EC	Client	Box	Other	IR GUN #: _____			Wet Ice	Blue Ice	Dry Ice
							Water	None	
EC	Client	Box	Other	IR GUN #: _____			Wet Ice	Blue Ice	Dry Ice
							Water	None	
EC	Client	Box	Other	IR GUN #: _____			Wet Ice	Blue Ice	Dry Ice
							Water	None	
EC	Client	Box	Other	IR GUN #: _____			Wet Ice	Blue Ice	Dry Ice
							Water	None	
EC	Client	Box	Other	IR GUN #: _____			Wet Ice	Blue Ice	Dry Ice
							Water	None	
EC	Client	Box	Other	IR GUN #: _____			Wet Ice	Blue Ice	Dry Ice
							Water	None	
EC	Client	Box	Other	IR GUN #: _____			Wet Ice	Blue Ice	Dry Ice
							Water	None	
EC	Client	Box	Other	IR GUN #: _____			Wet Ice	Blue Ice	Dry Ice
							Water	None	
EC	Client	Box	Other	IR GUN #: _____			Wet Ice	Blue Ice	Dry Ice
							Water	None	

See Temperature Excursion Form



DATA VERIFICATION REPORT



November 28, 2023

Kris Hinskey
Arcadis of Michigan
28550 Cabot Drive
Suite 500
Novi, MI US 48377

CADENA project ID: E203728

Project: Ford Livonia Transmission Plant - ON-SITE -Soil Gas, Ground water and Soil

Project number: 30167538.401.03- onsite groundwater

Event Specific Scope of Work References: Sample COC

Laboratory: Eurofins Environment Testing LLC - Cleveland

Laboratory submittal: 195409-1

Sample date: 2023-11-10

Report received by CADENA: 2023-11-27

Initial Data Verification completed by CADENA: 2023-11-28

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:

TBK - TRIP BLANKS had detections BELOW the Reporting Limit (RL) for these analytes. The listed client sample results had concentrations LESS than 5X the method blank levels so client sample results reported below the RL are considered non-detect at the RL and qualified with UB flags and results greater than the RL are non-detect at the sample concentration reported and qualified with B flags : GCMS VOC CIS-1,2-DICHLOROETHYLENE - UB flags - samples -02 and -04.

MBK - METHOD BLANKS had detections BELOW the Reporting Limit (RL) for these analytes. The listed client sample results had concentrations LESS than 5X the method blank levels so client sample results reported below the RL are considered non-detect at the RL and qualified with UB flags and results greater than the RL are non-detect at the sample concentration reported and qualified with B flags : GCMS VOC CIS-1,2-DICHLOROETHYLENE - UB flag - sample -01. NOTE: trip blank detection was treated as a QC sample so detection was used to qualify other field sample results before qualifying based on method blank detection.

MSD - MS and MSD recovery outliers or one recovery and the MS/MSD RPD were outliers with the recovery biased LOW for these analytes. Results for the client sample spiked only should be considered estimated and qualified with a J flag if detected and UJ flags if non-detect for these analytes: GCMS VOC sample -003 - TRICHLOROETHYLENE - J flag.

HSP - GCMS VOC container was received with headspace according to the laboratory submittal case narrative and sample receipt documents. Client sample GCMS VOC results noted should be considered estimated and qualified with J flags if detected and UJ flags if non-detect. GCMS VOC samples -002 and -005 - J/UJ flags.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, MS/MSD Recovery, MS/MSD RPD, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

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

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 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.

Qualified Results Summary

CADENA Project ID: E203728

Laboratory: Eurofins Environment Testing LLC - Cleveland

Laboratory Submittal: 195409-1

Analyte	Cas No.	Sample Name: TRIP BLANK_86				Sample Name: MW-48R_111023				Sample Name: MW-67_111023				Sample Name: MW-58_111023				Sample Name: MW-68_111023				
		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	UJ													
cis-1,2-Dichloroethene	156-59-2	0.52	1.0	ug/l	UB	0.87	1.0	ug/l	J					0.57	1.0	ug/l	UB	3.4	1.0	ug/l	J	
Tetrachloroethene	127-18-4					ND	1.0	ug/l	UJ													
trans-1,2-Dichloroethene	156-60-5					ND	1.0	ug/l	UJ										0.85	1.0	ug/l	J
Trichloroethene	79-01-6					ND	1.0	ug/l	UJ	57	1.0	ug/l	J						ND	1.0	ug/l	UJ
Vinyl chloride	75-01-4					ND	1.0	ug/l	UJ										22	1.0	ug/l	J

Analytical Results Summary

CADENA Project ID: E203728

Laboratory: Eurofins Environment Testing LLC - Cleveland

Laboratory Submittal: 195409-1

Analyte	Cas No.	Sample Name: TRIP BLANK_86				Sample Name: MW-48R_111023				Sample Name: MW-67_111023				Sample Name: MW-58_111023				Sample Name: MW-68_111023			
		Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
GC/MS VOC																					
<u>OSW-8260D</u>																					
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	1.0	ug/l	UJ	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	UJ
cis-1,2-Dichloroethene	156-59-2	0.52	1.0	ug/l	UB	0.87	1.0	ug/l	J	3.0	1.0	ug/l	---	0.57	1.0	ug/l	UB	3.4	1.0	ug/l	J
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	1.0	ug/l	UJ	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	UJ
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	ND	1.0	ug/l	UJ	ND	1.0	ug/l	---	ND	1.0	ug/l	---	0.85	1.0	ug/l	J
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	1.0	ug/l	UJ	57	1.0	ug/l	J	ND	1.0	ug/l	---	ND	1.0	ug/l	UJ
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	ND	1.0	ug/l	UJ	ND	1.0	ug/l	---	0.48	1.0	ug/l	J	22	1.0	ug/l	J
<u>OSW-8260DSIM</u>																					
1,4-Dioxane	123-91-1					10	2.0	ug/l	---	ND	2.0	ug/l	---	2.0	2.0	ug/l	---	4.1	2.0	ug/l	---