

ANALYTICAL REPORT

PREPARED FOR

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Generated 8/30/2023 8:02:27 AM

JOB DESCRIPTION

Ford LTP - On Site

JOB NUMBER

240-190408-1

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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Definitions/Glossary

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

Job ID: 240-190408-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
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: 240-190408-1

Job ID: 240-190408-1

Laboratory: Eurofins Cleveland

Narrative

Job Narrative 240-190408-1

Receipt

The samples were received on 8/18/2023 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.5°C

GC/MS VOA

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 585087 was outside the method criteria for the following analyte(s): Vinyl chloride. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

Method 8260D: The laboratory control sample (LCS) analyzed in batch 585087 was below the recovery control criteria for the following analyte(s): Vinyl Chloride. This variance only affects results measured above the reporting limit. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. This demonstrates the analyte reporting limit is valid, and it is acceptable to report ND results (non-detects). The samples associated with the LCS were non-detects for the affected analytes; therefore, the results were reported. The following samples are impacted: MW-14_081623 (240-190408-3), MW-24_081623 (240-190408-4) and (LCS 240-585087/4). MW-14_081623 (240-190408-3), MW-24_081623 (240-190408-4) and (LCS 240-585087/4)

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 585139 was outside the method criteria for the following analyte(s): Vinyl chloride. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

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: 240-190408-1

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



Sample Summary

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

Job ID: 240-190408-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-190408-1	TRIP BLANK_10	Water	08/16/23 00:00	08/18/23 08:00
240-190408-2	MW-09_081623	Water	08/16/23 11:25	08/18/23 08:00
240-190408-3	MW-14_081623	Water	08/16/23 13:00	08/18/23 08:00
240-190408-4	MW-24_081623	Water	08/16/23 10:05	08/18/23 08:00
240-190408-5	MW-49_081623	Water	08/16/23 14:30	08/18/23 08:00
240-190408-6	DUP-04	Water	08/16/23 00:00	08/18/23 08:00

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

Detection Summary

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

Job ID: 240-190408-1

Client Sample ID: TRIP BLANK_10

Lab Sample ID: 240-190408-1

No Detections.

Client Sample ID: MW-09_081623

Lab Sample ID: 240-190408-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	3.2		2.0	0.86	ug/L	1		8260D SIM	Total/NA
Vinyl chloride	0.57	J	1.0	0.45	ug/L	1		8260D	Total/NA

Client Sample ID: MW-14_081623

Lab Sample ID: 240-190408-3

No Detections.

Client Sample ID: MW-24_081623

Lab Sample ID: 240-190408-4

No Detections.

Client Sample ID: MW-49_081623

Lab Sample ID: 240-190408-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	11		2.0	0.86	ug/L	1		8260D SIM	Total/NA
cis-1,2-Dichloroethene	49000		2000	920	ug/L	2000		8260D	Total/NA
Vinyl chloride	8500		2000	900	ug/L	2000		8260D	Total/NA

Client Sample ID: DUP-04

Lab Sample ID: 240-190408-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	11		2.0	0.86	ug/L	1		8260D SIM	Total/NA
cis-1,2-Dichloroethene	54000		2000	920	ug/L	2000		8260D	Total/NA
trans-1,2-Dichloroethene	210		200	100	ug/L	200		8260D	Total/NA
Vinyl chloride	10000		2000	900	ug/L	2000		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: 240-190408-1

Client Sample ID: TRIP BLANK_10

Lab Sample ID: 240-190408-1

Date Collected: 08/16/23 00:00

Matrix: Water

Date Received: 08/18/23 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			08/25/23 15:28	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/25/23 15:28	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/25/23 15:28	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/25/23 15:28	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/25/23 15:28	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/25/23 15:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		62 - 137		08/25/23 15:28	1
4-Bromofluorobenzene (Surr)	90		56 - 136		08/25/23 15:28	1
Toluene-d8 (Surr)	96		78 - 122		08/25/23 15:28	1
Dibromofluoromethane (Surr)	96		73 - 120		08/25/23 15:28	1

Client Sample Results

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

Job ID: 240-190408-1

Client Sample ID: MW-09_081623

Lab Sample ID: 240-190408-2

Date Collected: 08/16/23 11:25

Matrix: Water

Date Received: 08/18/23 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	3.2		2.0	0.86	ug/L			08/28/23 13:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		66 - 120					08/28/23 13:46	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			08/25/23 12:58	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/25/23 12:58	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/25/23 12:58	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/25/23 12:58	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/25/23 12:58	1
Vinyl chloride	0.57	J	1.0	0.45	ug/L			08/25/23 12:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		62 - 137					08/25/23 12:58	1
4-Bromofluorobenzene (Surr)	93		56 - 136					08/25/23 12:58	1
Toluene-d8 (Surr)	100		78 - 122					08/25/23 12:58	1
Dibromofluoromethane (Surr)	99		73 - 120					08/25/23 12:58	1

Client Sample Results

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

Job ID: 240-190408-1

Client Sample ID: MW-14_081623

Lab Sample ID: 240-190408-3

Date Collected: 08/16/23 13:00

Matrix: Water

Date Received: 08/18/23 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/28/23 12:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	116		66 - 120		08/28/23 12:35	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			08/25/23 01:40	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/25/23 01:40	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/25/23 01:40	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/25/23 01:40	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/25/23 01:40	1
Vinyl chloride	1.0	U *-	1.0	0.45	ug/L			08/25/23 01:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		62 - 137		08/25/23 01:40	1
4-Bromofluorobenzene (Surr)	92		56 - 136		08/25/23 01:40	1
Toluene-d8 (Surr)	100		78 - 122		08/25/23 01:40	1
Dibromofluoromethane (Surr)	97		73 - 120		08/25/23 01:40	1

Client Sample Results

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

Job ID: 240-190408-1

Client Sample ID: MW-24_081623

Lab Sample ID: 240-190408-4

Date Collected: 08/16/23 10:05

Matrix: Water

Date Received: 08/18/23 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/28/23 14:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		66 - 120		08/28/23 14:10	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			08/25/23 02:05	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/25/23 02:05	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/25/23 02:05	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/25/23 02:05	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/25/23 02:05	1
Vinyl chloride	1.0	U *-	1.0	0.45	ug/L			08/25/23 02:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		62 - 137		08/25/23 02:05	1
4-Bromofluorobenzene (Surr)	91		56 - 136		08/25/23 02:05	1
Toluene-d8 (Surr)	98		78 - 122		08/25/23 02:05	1
Dibromofluoromethane (Surr)	97		73 - 120		08/25/23 02:05	1

Client Sample Results

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

Job ID: 240-190408-1

Client Sample ID: MW-49_081623

Lab Sample ID: 240-190408-5

Date Collected: 08/16/23 14:30

Matrix: Water

Date Received: 08/18/23 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	11		2.0	0.86	ug/L			08/28/23 14:34	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	114		66 - 120					08/28/23 14:34	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	2000	U	2000	980	ug/L			08/28/23 15:15	2000
cis-1,2-Dichloroethene	49000		2000	920	ug/L			08/28/23 15:15	2000
Tetrachloroethene	2000	U	2000	880	ug/L			08/28/23 15:15	2000
trans-1,2-Dichloroethene	2000	U	2000	1000	ug/L			08/28/23 15:15	2000
Trichloroethene	2000	U	2000	880	ug/L			08/28/23 15:15	2000
Vinyl chloride	8500		2000	900	ug/L			08/28/23 15:15	2000
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		62 - 137					08/28/23 15:15	2000
4-Bromofluorobenzene (Surr)	90		56 - 136					08/28/23 15:15	2000
Toluene-d8 (Surr)	93		78 - 122					08/28/23 15:15	2000
Dibromofluoromethane (Surr)	103		73 - 120					08/28/23 15:15	2000

Client Sample Results

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

Job ID: 240-190408-1

Client Sample ID: DUP-04
Date Collected: 08/16/23 00:00
Date Received: 08/18/23 08:00

Lab Sample ID: 240-190408-6
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	11		2.0	0.86	ug/L			08/28/23 14:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	114		66 - 120					08/28/23 14:58	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	200	U	200	98	ug/L			08/25/23 20:53	200
cis-1,2-Dichloroethene	54000		2000	920	ug/L			08/28/23 15:38	2000
Tetrachloroethene	200	U	200	88	ug/L			08/25/23 20:53	200
trans-1,2-Dichloroethene	210		200	100	ug/L			08/25/23 20:53	200
Trichloroethene	200	U	200	88	ug/L			08/25/23 20:53	200
Vinyl chloride	10000		2000	900	ug/L			08/28/23 15:38	2000
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		62 - 137					08/25/23 20:53	200
1,2-Dichloroethane-d4 (Surr)	105		62 - 137					08/28/23 15:38	2000
4-Bromofluorobenzene (Surr)	91		56 - 136					08/25/23 20:53	200
4-Bromofluorobenzene (Surr)	87		56 - 136					08/28/23 15:38	2000
Toluene-d8 (Surr)	100		78 - 122					08/25/23 20:53	200
Toluene-d8 (Surr)	93		78 - 122					08/28/23 15:38	2000
Dibromofluoromethane (Surr)	95		73 - 120					08/25/23 20:53	200
Dibromofluoromethane (Surr)	110		73 - 120					08/28/23 15:38	2000

Surrogate Summary

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

Job ID: 240-190408-1

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)
240-190407-B-4 MS	Matrix Spike	92	100	103	98
240-190407-B-4 MSD	Matrix Spike Duplicate	91	97	99	99
240-190408-1	TRIP BLANK_10	89	90	96	96
240-190408-2	MW-09_081623	92	93	100	99
240-190408-3	MW-14_081623	95	92	100	97
240-190408-3 MS	MW-14-MS_081623	93	97	101	100
240-190408-3 MSD	MW-14-MSD_081623	94	100	103	98
240-190408-4	MW-24_081623	93	91	98	97
240-190408-5	MW-49_081623	98	90	93	103
240-190408-6	DUP-04	91	91	100	95
240-190408-6	DUP-04	105	87	93	110
240-190468-B-1 MS	Matrix Spike	101	90	97	108
240-190468-B-1 MSD	Matrix Spike Duplicate	103	94	96	104
LCS 240-585087/4	Lab Control Sample	93	99	100	100
LCS 240-585139/4	Lab Control Sample	92	94	100	98
LCS 240-585307/4	Lab Control Sample	100	90	95	100
MB 240-585087/7	Method Blank	94	92	99	95
MB 240-585139/7	Method Blank	94	93	100	98
MB 240-585307/9	Method Blank	95	92	94	104

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)
240-190408-2	MW-09_081623	104
240-190408-3	MW-14_081623	116
240-190408-3 MS	MW-14-MS_081623	106
240-190408-3 MSD	MW-14-MSD_081623	99
240-190408-4	MW-24_081623	105
240-190408-5	MW-49_081623	114
240-190408-6	DUP-04	114
LCS 240-585335/5	Lab Control Sample	103
MB 240-585335/7	Method Blank	103

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-190408-1

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

Lab Sample ID: MB 240-585087/7
Matrix: Water
Analysis Batch: 585087

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			08/25/23 00:50	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/25/23 00:50	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/25/23 00:50	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/25/23 00:50	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/25/23 00:50	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/25/23 00:50	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		62 - 137		08/25/23 00:50	1
4-Bromofluorobenzene (Surr)	92		56 - 136		08/25/23 00:50	1
Toluene-d8 (Surr)	99		78 - 122		08/25/23 00:50	1
Dibromofluoromethane (Surr)	95		73 - 120		08/25/23 00:50	1

Lab Sample ID: LCS 240-585087/4
Matrix: Water
Analysis Batch: 585087

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethene	25.0	24.1		ug/L		96	63 - 134
cis-1,2-Dichloroethene	25.0	22.7		ug/L		91	77 - 123
Tetrachloroethene	25.0	22.3		ug/L		89	76 - 123
trans-1,2-Dichloroethene	25.0	21.9		ug/L		87	75 - 124
Trichloroethene	25.0	22.5		ug/L		90	70 - 122
Vinyl chloride	12.5	6.79	*-	ug/L		54	60 - 144

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	93		62 - 137
4-Bromofluorobenzene (Surr)	99		56 - 136
Toluene-d8 (Surr)	100		78 - 122
Dibromofluoromethane (Surr)	100		73 - 120

Lab Sample ID: 240-190408-3 MS
Matrix: Water
Analysis Batch: 585087

Client Sample ID: MW-14-MS_081623
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethene	1.0	U	25.0	24.1		ug/L		96	56 - 135
cis-1,2-Dichloroethene	1.0	U	25.0	23.7		ug/L		95	66 - 128
Tetrachloroethene	1.0	U	25.0	21.1		ug/L		85	62 - 131
trans-1,2-Dichloroethene	1.0	U	25.0	22.2		ug/L		89	56 - 136
Trichloroethene	1.0	U	25.0	21.3		ug/L		85	61 - 124
Vinyl chloride	1.0	U *-	12.5	8.07		ug/L		65	43 - 157

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	93		62 - 137
4-Bromofluorobenzene (Surr)	97		56 - 136
Toluene-d8 (Surr)	101		78 - 122

Eurofins Cleveland

QC Sample Results

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

Job ID: 240-190408-1

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

Lab Sample ID: 240-190408-3 MS
Matrix: Water
Analysis Batch: 585087

Client Sample ID: MW-14-MS_081623
Prep Type: Total/NA

Surrogate	%Recovery	MS MS Qualifier	Limits
Dibromofluoromethane (Surr)	100		73 - 120

Lab Sample ID: 240-190408-3 MSD
Matrix: Water
Analysis Batch: 585087

Client Sample ID: MW-14-MSD_081623
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	25.0	24.2		ug/L		97	56 - 135	0	26
cis-1,2-Dichloroethene	1.0	U	25.0	23.8		ug/L		95	66 - 128	0	14
Tetrachloroethene	1.0	U	25.0	21.7		ug/L		87	62 - 131	2	20
trans-1,2-Dichloroethene	1.0	U	25.0	22.3		ug/L		89	56 - 136	0	15
Trichloroethene	1.0	U	25.0	21.7		ug/L		87	61 - 124	2	15
Vinyl chloride	1.0	U *	12.5	8.17		ug/L		65	43 - 157	1	24

Surrogate	%Recovery	MSD MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	94		62 - 137
4-Bromofluorobenzene (Surr)	100		56 - 136
Toluene-d8 (Surr)	103		78 - 122
Dibromofluoromethane (Surr)	98		73 - 120

Lab Sample ID: MB 240-585139/7
Matrix: Water
Analysis Batch: 585139

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			08/25/23 12:33	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/25/23 12:33	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/25/23 12:33	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/25/23 12:33	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/25/23 12:33	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/25/23 12:33	1

Surrogate	%Recovery	MB MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		62 - 137		08/25/23 12:33	1
4-Bromofluorobenzene (Surr)	93		56 - 136		08/25/23 12:33	1
Toluene-d8 (Surr)	100		78 - 122		08/25/23 12:33	1
Dibromofluoromethane (Surr)	98		73 - 120		08/25/23 12:33	1

Lab Sample ID: LCS 240-585139/4
Matrix: Water
Analysis Batch: 585139

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethene	25.0	27.1		ug/L		108	63 - 134
cis-1,2-Dichloroethene	25.0	25.9		ug/L		104	77 - 123
Tetrachloroethene	25.0	27.0		ug/L		108	76 - 123
trans-1,2-Dichloroethene	25.0	25.0		ug/L		100	75 - 124
Trichloroethene	25.0	25.5		ug/L		102	70 - 122

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QC Sample Results

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

Job ID: 240-190408-1

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

Lab Sample ID: LCS 240-585139/4

Matrix: Water

Analysis Batch: 585139

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	8.83		ug/L		71	60 - 144

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	92		62 - 137
4-Bromofluorobenzene (Surr)	94		56 - 136
Toluene-d8 (Surr)	100		78 - 122
Dibromofluoromethane (Surr)	98		73 - 120

Lab Sample ID: 240-190407-B-4 MS

Matrix: Water

Analysis Batch: 585139

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
1,1-Dichloroethene	6.7	U	167	140		ug/L		84	56 - 135
cis-1,2-Dichloroethene	9.5		167	188		ug/L		107	66 - 128
Tetrachloroethene	6.7	U	167	150		ug/L		90	62 - 131
trans-1,2-Dichloroethene	6.7	U F2	167	136		ug/L		82	56 - 136
Trichloroethene	6.7	U F2	167	136		ug/L		82	61 - 124
Vinyl chloride	170	F1	83.3	198	F1	ug/L		38	43 - 157

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	92		62 - 137
4-Bromofluorobenzene (Surr)	100		56 - 136
Toluene-d8 (Surr)	103		78 - 122
Dibromofluoromethane (Surr)	98		73 - 120

Lab Sample ID: 240-190407-B-4 MSD

Matrix: Water

Analysis Batch: 585139

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	6.7	U	167	172		ug/L		103	56 - 135	20	26
cis-1,2-Dichloroethene	9.5		167	197		ug/L		113	66 - 128	5	14
Tetrachloroethene	6.7	U	167	176		ug/L		106	62 - 131	16	20
trans-1,2-Dichloroethene	6.7	U F2	167	160	F2	ug/L		96	56 - 136	16	15
Trichloroethene	6.7	U F2	167	165	F2	ug/L		99	61 - 124	19	15
Vinyl chloride	170	F1	83.3	231		ug/L		78	43 - 157	16	24

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	91		62 - 137
4-Bromofluorobenzene (Surr)	97		56 - 136
Toluene-d8 (Surr)	99		78 - 122
Dibromofluoromethane (Surr)	99		73 - 120

QC Sample Results

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

Job ID: 240-190408-1

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

Lab Sample ID: MB 240-585307/9
Matrix: Water
Analysis Batch: 585307

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			08/28/23 14:28	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/28/23 14:28	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/28/23 14:28	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/28/23 14:28	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/28/23 14:28	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/28/23 14:28	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	95		62 - 137		08/28/23 14:28	1
4-Bromofluorobenzene (Surr)	92		56 - 136		08/28/23 14:28	1
Toluene-d8 (Surr)	94		78 - 122		08/28/23 14:28	1
Dibromofluoromethane (Surr)	104		73 - 120		08/28/23 14:28	1

Lab Sample ID: LCS 240-585307/4
Matrix: Water
Analysis Batch: 585307

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	26.7		ug/L		107	63 - 134
cis-1,2-Dichloroethene	25.0	24.4		ug/L		98	77 - 123
Tetrachloroethene	25.0	29.2		ug/L		117	76 - 123
trans-1,2-Dichloroethene	25.0	24.9		ug/L		100	75 - 124
Trichloroethene	25.0	29.3		ug/L		117	70 - 122
Vinyl chloride	12.5	12.9		ug/L		103	60 - 144

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	100		62 - 137
4-Bromofluorobenzene (Surr)	90		56 - 136
Toluene-d8 (Surr)	95		78 - 122
Dibromofluoromethane (Surr)	100		73 - 120

Lab Sample ID: 240-190468-B-1 MS
Matrix: Water
Analysis Batch: 585307

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	500	U	12500	13000		ug/L		104	56 - 135
cis-1,2-Dichloroethene	410	J	12500	12000		ug/L		93	66 - 128
Tetrachloroethene	1600		12500	14700		ug/L		105	62 - 131
trans-1,2-Dichloroethene	500	U	12500	12300		ug/L		98	56 - 136
Trichloroethene	10000		12500	23300		ug/L		105	61 - 124
Vinyl chloride	500	U	6250	5290		ug/L		85	43 - 157

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	101		62 - 137
4-Bromofluorobenzene (Surr)	90		56 - 136
Toluene-d8 (Surr)	97		78 - 122

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QC Sample Results

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

Job ID: 240-190408-1

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

Lab Sample ID: 240-190468-B-1 MS
Matrix: Water
Analysis Batch: 585307

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

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	108		73 - 120

Lab Sample ID: 240-190468-B-1 MSD
Matrix: Water
Analysis Batch: 585307

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	500	U	12500	13000		ug/L		104	56 - 135	0	26
cis-1,2-Dichloroethene	410	J	12500	12800		ug/L		99	66 - 128	6	14
Tetrachloroethene	1600		12500	15400		ug/L		111	62 - 131	5	20
trans-1,2-Dichloroethene	500	U	12500	11600		ug/L		93	56 - 136	5	15
Trichloroethene	10000		12500	22200		ug/L		96	61 - 124	5	15
Vinyl chloride	500	U	6250	5240		ug/L		84	43 - 157	1	24

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	103		62 - 137
4-Bromofluorobenzene (Surr)	94		56 - 136
Toluene-d8 (Surr)	96		78 - 122
Dibromofluoromethane (Surr)	104		73 - 120

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

Lab Sample ID: MB 240-585335/7
Matrix: Water
Analysis Batch: 585335

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			08/28/23 12:11	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		66 - 120		08/28/23 12:11	1

Lab Sample ID: LCS 240-585335/5
Matrix: Water
Analysis Batch: 585335

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	9.91		ug/L		99	80 - 122

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	103		66 - 120

Lab Sample ID: 240-190408-3 MS
Matrix: Water
Analysis Batch: 585335

Client Sample ID: MW-14-MS_081623
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	10.1		ug/L		101	51 - 153

Eurofins Cleveland

QC Sample Results

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

Job ID: 240-190408-1

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

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

Lab Sample ID: 240-190408-3 MSD
 Matrix: Water
 Analysis Batch: 585335

Client Sample ID: MW-14-MSD_081623
 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>
1,4-Dioxane	2.0	U	10.0	9.97		ug/L		100	51 - 153	1	16

<i>Surrogate</i>	<i>%Recovery</i>	<i>MSD MSD Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	99		66 - 120

- 1
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- 13
- 14

QC Association Summary

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

Job ID: 240-190408-1

GC/MS VOA

Analysis Batch: 585087

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-190408-3	MW-14_081623	Total/NA	Water	8260D	
240-190408-4	MW-24_081623	Total/NA	Water	8260D	
MB 240-585087/7	Method Blank	Total/NA	Water	8260D	
LCS 240-585087/4	Lab Control Sample	Total/NA	Water	8260D	
240-190408-3 MS	MW-14-MS_081623	Total/NA	Water	8260D	
240-190408-3 MSD	MW-14-MSD_081623	Total/NA	Water	8260D	

Analysis Batch: 585139

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-190408-1	TRIP BLANK_10	Total/NA	Water	8260D	
240-190408-2	MW-09_081623	Total/NA	Water	8260D	
240-190408-6	DUP-04	Total/NA	Water	8260D	
MB 240-585139/7	Method Blank	Total/NA	Water	8260D	
LCS 240-585139/4	Lab Control Sample	Total/NA	Water	8260D	
240-190407-B-4 MS	Matrix Spike	Total/NA	Water	8260D	
240-190407-B-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Analysis Batch: 585307

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-190408-5	MW-49_081623	Total/NA	Water	8260D	
240-190408-6	DUP-04	Total/NA	Water	8260D	
MB 240-585307/9	Method Blank	Total/NA	Water	8260D	
LCS 240-585307/4	Lab Control Sample	Total/NA	Water	8260D	
240-190468-B-1 MS	Matrix Spike	Total/NA	Water	8260D	
240-190468-B-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Analysis Batch: 585335

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-190408-2	MW-09_081623	Total/NA	Water	8260D SIM	
240-190408-3	MW-14_081623	Total/NA	Water	8260D SIM	
240-190408-4	MW-24_081623	Total/NA	Water	8260D SIM	
240-190408-5	MW-49_081623	Total/NA	Water	8260D SIM	
240-190408-6	DUP-04	Total/NA	Water	8260D SIM	
MB 240-585335/7	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-585335/5	Lab Control Sample	Total/NA	Water	8260D SIM	
240-190408-3 MS	MW-14-MS_081623	Total/NA	Water	8260D SIM	
240-190408-3 MSD	MW-14-MSD_081623	Total/NA	Water	8260D SIM	

Lab Chronicle

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

Job ID: 240-190408-1

Client Sample ID: TRIP BLANK_10

Lab Sample ID: 240-190408-1

Date Collected: 08/16/23 00:00

Matrix: Water

Date Received: 08/18/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	585139	LEE	EET CLE	08/25/23 15:28

Client Sample ID: MW-09_081623

Lab Sample ID: 240-190408-2

Date Collected: 08/16/23 11:25

Matrix: Water

Date Received: 08/18/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	585139	LEE	EET CLE	08/25/23 12:58
Total/NA	Analysis	8260D SIM		1	585335	MRL	EET CLE	08/28/23 13:46

Client Sample ID: MW-14_081623

Lab Sample ID: 240-190408-3

Date Collected: 08/16/23 13:00

Matrix: Water

Date Received: 08/18/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	585087	LEE	EET CLE	08/25/23 01:40
Total/NA	Analysis	8260D SIM		1	585335	MRL	EET CLE	08/28/23 12:35

Client Sample ID: MW-24_081623

Lab Sample ID: 240-190408-4

Date Collected: 08/16/23 10:05

Matrix: Water

Date Received: 08/18/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	585087	LEE	EET CLE	08/25/23 02:05
Total/NA	Analysis	8260D SIM		1	585335	MRL	EET CLE	08/28/23 14:10

Client Sample ID: MW-49_081623

Lab Sample ID: 240-190408-5

Date Collected: 08/16/23 14:30

Matrix: Water

Date Received: 08/18/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		2000	585307	LEE	EET CLE	08/28/23 15:15
Total/NA	Analysis	8260D SIM		1	585335	MRL	EET CLE	08/28/23 14:34

Client Sample ID: DUP-04

Lab Sample ID: 240-190408-6

Date Collected: 08/16/23 00:00

Matrix: Water

Date Received: 08/18/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		200	585139	LEE	EET CLE	08/25/23 20:53
Total/NA	Analysis	8260D		2000	585307	LEE	EET CLE	08/28/23 15:38
Total/NA	Analysis	8260D SIM		1	585335	MRL	EET CLE	08/28/23 14:58

Laboratory References:

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

Eurofins Cleveland

Accreditation/Certification Summary

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

Job ID: 240-190408-1

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	08-31-23
Virginia	NELAP	460175	09-14-23
West Virginia DEP	State	210	12-31-23

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

Eurofins - Cleveland Sample Receipt Form/Narrative
Barberton Facility

Login #: 190408

Client Arcadis Site Name _____ Cooler unpacked by: [Signature]
Cooler Received on 8-18-23 Opened on 8-18-23
FedEx: 1st Grd Exp UPS FAS Waypoint Client Drop Off Eurofins Courier Other

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

Eurofins Cooler # ES 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 # 22 (CF -0.1 °C) Observed Cooler Temp. 0.6 °C Corrected Cooler Temp. 0.5 °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1
 - Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 - Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA
 - Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)? Yes No
10. Were correct bottle(s) used for the test(s) indicated? Yes No
11. Sufficient quantity received to perform indicated analyses? Yes No
12. Are these work share samples and all listed on the COC? Yes No
If yes, Questions 13-17 have been checked at the originating laboratory.
13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC312502
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: _____

DATA VERIFICATION REPORT



August 30, 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: 190408-1

Sample date: 2023-08-16

Report received by CADENA: 2023-08-30

Initial Data Verification completed by CADENA: 2023-08-30

Number of Samples:6

Sample Matrices:Water

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:

LCS - GCMS VOC QC batch LCS recovery was outlying biased low for the following analyte: VINYL CHLORIDE. The following client sample results should be considered to be estimated and qualified with UJ flags if non-detect: -003, -004.

GCMS VOC QC batch MS/MSD recovery outliers were not determined using a client sample so qualification was not required based on these sample-specific QC outliers.

GCMS VOC QC batch CCV response outliers as noted in the laboratory submittal case narrative were not used to qualify client sample results as part of this level 2 data package verification review.

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

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

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

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

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA 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: 190408-1

Sample Name:	MW-14_081623	MW-24_081623
Lab Sample ID:	2401904083	2401904084
Sample Date:	8/16/2023	8/16/2023

Analyte	Cas No.	Report		Units	Valid Qualifier	Report		Units	Valid Qualifier	
		Result	Limit			Result	Limit			
GC/MS VOC										
<u>OSW-8260D</u>										
Vinyl chloride	75-01-4	ND	1.0	ug/l	UJ	ND	1.0	ug/l	UJ	

Analytical Results Summary

CADENA Project ID: E203728

Laboratory: Eurofins Environment Testing LLC - Cleveland

Laboratory Submittal: 190408-1

Analyte	Cas No.	Sample Name: TRIP BLANK_10				MW-09_081623				MW-14_081623				MW-24_081623				MW-49_081623				DUP-04			
		Report	Valid	Report	Valid	Report	Valid	Report	Valid	Report	Valid	Report	Valid	Report	Valid	Report	Valid	Report	Valid	Report	Valid	Report	Valid		
		Result	Limit	Units	Qualifier	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	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	2000	ug/l	---	ND	200	ug/l	---
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	49000	2000	ug/l	---	54000	2000	ug/l	---
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	2000	ug/l	---	ND	200	ug/l	---
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	2000	ug/l	---	210	200	ug/l	---
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	2000	ug/l	---	ND	200	ug/l	---
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	0.57	1.0	ug/l	J	ND	1.0	ug/l	UJ	ND	1.0	ug/l	UJ	8500	2000	ug/l	---	10000	2000	ug/l	---
<u>OSW-8260DSIM</u>																									
1,4-Dioxane	123-91-1					3.2	2.0	ug/l	---	ND	2.0	ug/l	---	ND	2.0	ug/l	---	11	2.0	ug/l	---	11	2.0	ug/l	---