

ANALYTICAL REPORT

PREPARED FOR

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JOB DESCRIPTION

Ford LTP - Off Site

JOB NUMBER

240-176468-1

Eurofins Canton

Job Notes

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Authorization



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Definitions/Glossary

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

Job ID: 240-176468-1

Qualifiers

GC/MS VOA

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

Job ID: 240-176468-1

Job ID: 240-176468-1

Laboratory: Eurofins Canton

Narrative

**Job Narrative
240-176468-1**

Receipt

The samples were received on 11/15/2022 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 3 coolers at receipt time were 1.6°C, 2.0°C and 3.6°C

GC/MS VOA

Method 8260D_SIM: Surrogate recovery for the following samples was outside the upper control limit: MW-79D_111122 (240-176468-5) and DUP-11 (240-176468-6). This sample did not contain any target analytes; 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 - Off Site

Job ID: 240-176468-1

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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- 9
- 10
- 11
- 12
- 13
- 14

Sample Summary

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

Job ID: 240-176468-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-176468-1	TRIP BLANK_58	Water	11/11/22 00:00	11/15/22 10:00
240-176468-2	MW-139S_111122	Water	11/11/22 11:11	11/15/22 10:00
240-176468-3	MW-140S_111122	Water	11/11/22 12:26	11/15/22 10:00
240-176468-4	MW-79SR_111122	Water	11/11/22 13:41	11/15/22 10:00
240-176468-5	MW-79D_111122	Water	11/11/22 14:46	11/15/22 10:00
240-176468-6	DUP-11	Water	11/11/22 00:00	11/15/22 10:00

- 1
- 2
- 3
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- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

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

Job ID: 240-176468-1

Client Sample ID: TRIP BLANK_58

Lab Sample ID: 240-176468-1

No Detections.

Client Sample ID: MW-139S_111122

Lab Sample ID: 240-176468-2

No Detections.

Client Sample ID: MW-140S_111122

Lab Sample ID: 240-176468-3

No Detections.

Client Sample ID: MW-79SR_111122

Lab Sample ID: 240-176468-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	1.2		1.0	0.45	ug/L	1		8260D	Total/NA

Client Sample ID: MW-79D_111122

Lab Sample ID: 240-176468-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	2.6		1.0	0.45	ug/L	1		8260D	Total/NA

Client Sample ID: DUP-11

Lab Sample ID: 240-176468-6

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Client Sample Results

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

Job ID: 240-176468-1

Client Sample ID: TRIP BLANK_58

Lab Sample ID: 240-176468-1

Date Collected: 11/11/22 00:00

Matrix: Water

Date Received: 11/15/22 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			11/18/22 14:12	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/18/22 14:12	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/18/22 14:12	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/18/22 14:12	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/18/22 14:12	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/18/22 14:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		62 - 137		11/18/22 14:12	1
4-Bromofluorobenzene (Surr)	74		56 - 136		11/18/22 14:12	1
Toluene-d8 (Surr)	91		78 - 122		11/18/22 14:12	1
Dibromofluoromethane (Surr)	94		73 - 120		11/18/22 14:12	1

Client Sample Results

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

Job ID: 240-176468-1

Client Sample ID: MW-139S_111122

Lab Sample ID: 240-176468-2

Date Collected: 11/11/22 11:11

Matrix: Water

Date Received: 11/15/22 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			11/17/22 19:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		66 - 120		11/17/22 19:56	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			11/18/22 16:42	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/18/22 16:42	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/18/22 16:42	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/18/22 16:42	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/18/22 16:42	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/18/22 16:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		62 - 137		11/18/22 16:42	1
4-Bromofluorobenzene (Surr)	76		56 - 136		11/18/22 16:42	1
Toluene-d8 (Surr)	93		78 - 122		11/18/22 16:42	1
Dibromofluoromethane (Surr)	95		73 - 120		11/18/22 16:42	1

Client Sample Results

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

Job ID: 240-176468-1

Client Sample ID: MW-140S_111122

Lab Sample ID: 240-176468-3

Date Collected: 11/11/22 12:26

Matrix: Water

Date Received: 11/15/22 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			11/22/22 06:34	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	79		66 - 120					11/22/22 06:34	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/18/22 17:07	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/18/22 17:07	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/18/22 17:07	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/18/22 17:07	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/18/22 17:07	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/18/22 17:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		62 - 137					11/18/22 17:07	1
4-Bromofluorobenzene (Surr)	73		56 - 136					11/18/22 17:07	1
Toluene-d8 (Surr)	91		78 - 122					11/18/22 17:07	1
Dibromofluoromethane (Surr)	95		73 - 120					11/18/22 17:07	1

Client Sample Results

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

Job ID: 240-176468-1

Client Sample ID: MW-79SR_111122

Lab Sample ID: 240-176468-4

Date Collected: 11/11/22 13:41

Matrix: Water

Date Received: 11/15/22 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			11/17/22 21:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	118		66 - 120					11/17/22 21:09	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			11/18/22 17:32	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/18/22 17:32	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/18/22 17:32	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/18/22 17:32	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/18/22 17:32	1
Vinyl chloride	1.2		1.0	0.45	ug/L			11/18/22 17:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		62 - 137					11/18/22 17:32	1
4-Bromofluorobenzene (Surr)	72		56 - 136					11/18/22 17:32	1
Toluene-d8 (Surr)	90		78 - 122					11/18/22 17:32	1
Dibromofluoromethane (Surr)	96		73 - 120					11/18/22 17:32	1

Client Sample Results

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

Job ID: 240-176468-1

Client Sample ID: MW-79D_111122

Lab Sample ID: 240-176468-5

Date Collected: 11/11/22 14:46

Matrix: Water

Date Received: 11/15/22 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			11/17/22 21:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	122	S1+	66 - 120		11/17/22 21:33	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			11/18/22 17:58	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/18/22 17:58	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/18/22 17:58	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/18/22 17:58	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/18/22 17:58	1
Vinyl chloride	2.6		1.0	0.45	ug/L			11/18/22 17:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		62 - 137		11/18/22 17:58	1
4-Bromofluorobenzene (Surr)	72		56 - 136		11/18/22 17:58	1
Toluene-d8 (Surr)	91		78 - 122		11/18/22 17:58	1
Dibromofluoromethane (Surr)	93		73 - 120		11/18/22 17:58	1

Client Sample Results

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

Job ID: 240-176468-1

Client Sample ID: DUP-11

Lab Sample ID: 240-176468-6

Date Collected: 11/11/22 00:00

Matrix: Water

Date Received: 11/15/22 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			11/17/22 21:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	121	S1+	66 - 120		11/17/22 21:57	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			11/18/22 18:23	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/18/22 18:23	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/18/22 18:23	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/18/22 18:23	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/18/22 18:23	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/18/22 18:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		62 - 137		11/18/22 18:23	1
4-Bromofluorobenzene (Surr)	74		56 - 136		11/18/22 18:23	1
Toluene-d8 (Surr)	93		78 - 122		11/18/22 18:23	1
Dibromofluoromethane (Surr)	95		73 - 120		11/18/22 18:23	1

Surrogate Summary

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

Job ID: 240-176468-1

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)
240-176468-1	TRIP BLANK_58	101	74	91	94
240-176468-2	MW-139S_111122	107	76	93	95
240-176468-3	MW-140S_111122	101	73	91	95
240-176468-4	MW-79SR_111122	104	72	90	96
240-176468-5	MW-79D_111122	102	72	91	93
240-176468-6	DUP-11	102	74	93	95
240-176475-D-4 MSD	Matrix Spike Duplicate	86	96	97	84
240-176475-E-4 MS	Matrix Spike	86	95	98	87
LCS 240-552675/5	Lab Control Sample	86	93	97	86
MB 240-552675/8	Method Blank	96	74	91	88

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)
240-176368-E-17 MS	Matrix Spike	81
240-176368-E-17 MSD	Matrix Spike Duplicate	77
240-176468-2	MW-139S_111122	107
240-176468-3	MW-140S_111122	79
240-176468-4	MW-79SR_111122	118
240-176468-5	MW-79D_111122	122 S1+
240-176468-6	DUP-11	121 S1+
240-176475-I-4 MS	Matrix Spike	119
240-176475-O-4 MSD	Matrix Spike Duplicate	123 S1+
LCS 240-552553/4	Lab Control Sample	124 S1+
LCS 240-553045/3	Lab Control Sample	81
MB 240-552553/5	Method Blank	116
MB 240-553045/4	Method Blank	79

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-176468-1

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

Lab Sample ID: MB 240-552675/8
Matrix: Water
Analysis Batch: 552675

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			11/18/22 12:32	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/18/22 12:32	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/18/22 12:32	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/18/22 12:32	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/18/22 12:32	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/18/22 12:32	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		62 - 137		11/18/22 12:32	1
4-Bromofluorobenzene (Surr)	74		56 - 136		11/18/22 12:32	1
Toluene-d8 (Surr)	91		78 - 122		11/18/22 12:32	1
Dibromofluoromethane (Surr)	88		73 - 120		11/18/22 12:32	1

Lab Sample ID: LCS 240-552675/5
Matrix: Water
Analysis Batch: 552675

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	26.9		ug/L		107	63 - 134
cis-1,2-Dichloroethene	25.0	24.3		ug/L		97	77 - 123
Tetrachloroethene	25.0	24.0		ug/L		96	76 - 123
trans-1,2-Dichloroethene	25.0	24.1		ug/L		97	75 - 124
Trichloroethene	25.0	21.9		ug/L		88	70 - 122
Vinyl chloride	12.5	12.9		ug/L		103	60 - 144

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	86		62 - 137
4-Bromofluorobenzene (Surr)	93		56 - 136
Toluene-d8 (Surr)	97		78 - 122
Dibromofluoromethane (Surr)	86		73 - 120

Lab Sample ID: 240-176475-D-4 MSD
Matrix: Water
Analysis Batch: 552675

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	25.0	24.4		ug/L		98	56 - 135	1	26
cis-1,2-Dichloroethene	1.0	U	25.0	20.8		ug/L		83	66 - 128	3	14
Tetrachloroethene	1.0	U	25.0	20.0		ug/L		80	62 - 131	6	20
trans-1,2-Dichloroethene	1.0	U	25.0	20.3		ug/L		81	56 - 136	3	15
Trichloroethene	1.0	U	25.0	18.0		ug/L		72	61 - 124	5	15
Vinyl chloride	1.0	U	25.0	23.8		ug/L		95	43 - 157	2	24

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	86		62 - 137
4-Bromofluorobenzene (Surr)	96		56 - 136
Toluene-d8 (Surr)	97		78 - 122

Eurofins Canton

QC Sample Results

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

Job ID: 240-176468-1

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

Lab Sample ID: 240-176475-D-4 MSD

Matrix: Water

Analysis Batch: 552675

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Dibromofluoromethane (Surr)	84		73 - 120

Lab Sample ID: 240-176475-E-4 MS

Matrix: Water

Analysis Batch: 552675

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	1.0	U	25.0	24.8		ug/L		99	56 - 135
cis-1,2-Dichloroethene	1.0	U	25.0	21.5		ug/L		86	66 - 128
Tetrachloroethene	1.0	U	25.0	21.1		ug/L		85	62 - 131
trans-1,2-Dichloroethene	1.0	U	25.0	20.8		ug/L		83	56 - 136
Trichloroethene	1.0	U	25.0	18.9		ug/L		76	61 - 124
Vinyl chloride	1.0	U	25.0	23.3		ug/L		93	43 - 157

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	86		62 - 137
4-Bromofluorobenzene (Surr)	95		56 - 136
Toluene-d8 (Surr)	98		78 - 122
Dibromofluoromethane (Surr)	87		73 - 120

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

Lab Sample ID: MB 240-552553/5

Matrix: Water

Analysis Batch: 552553

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			11/17/22 19:08	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	116		66 - 120		11/17/22 19:08	1

Lab Sample ID: LCS 240-552553/4

Matrix: Water

Analysis Batch: 552553

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	9.20		ug/L		92	80 - 122

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	124	S1+	66 - 120

Lab Sample ID: 240-176475-I-4 MS

Matrix: Water

Analysis Batch: 552553

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dioxane	2.0	U	10.0	9.04		ug/L		90	51 - 153

Eurofins Canton

QC Sample Results

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

Job ID: 240-176468-1

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

	<i>MS</i>	<i>MS</i>	
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	119		66 - 120

Lab Sample ID: 240-176475-O-4 MSD
Matrix: Water
Analysis Batch: 552553

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

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
1,4-Dioxane	2.0	U	10.0	9.56		ug/L		96	51 - 153	6	16

	<i>MSD</i>	<i>MSD</i>	
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	123	S1+	66 - 120

Lab Sample ID: MB 240-553045/4
Matrix: Water
Analysis Batch: 553045

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

<i>Analyte</i>	<i>MB Result</i>	<i>MB Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/21/22 22:31	1

	<i>MB</i>	<i>MB</i>		<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
1,2-Dichloroethane-d4 (Surr)	79		66 - 120		11/21/22 22:31	1

Lab Sample ID: LCS 240-553045/3
Matrix: Water
Analysis Batch: 553045

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

<i>Analyte</i>	<i>Spike Added</i>	<i>LCS Result</i>	<i>LCS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>
1,4-Dioxane	10.0	9.30		ug/L		93	80 - 122

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

Lab Sample ID: 240-176368-E-17 MS
Matrix: Water
Analysis Batch: 553045

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

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MS Result</i>	<i>MS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>
1,4-Dioxane	160		10.0	179	4	ug/L		148	51 - 153

	<i>MS</i>	<i>MS</i>	
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	81		66 - 120

Lab Sample ID: 240-176368-E-17 MSD
Matrix: Water
Analysis Batch: 553045

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

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
1,4-Dioxane	160		10.0	172	4	ug/L		70	51 - 153	4	16

QC Sample Results

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

Job ID: 240-176468-1

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

Lab Sample ID: 240-176368-E-17 MSD
Matrix: Water
Analysis Batch: 553045

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

<i>Surrogate</i>	<i>MSD</i>	<i>MSD</i>	<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
1,2-Dichloroethane-d4 (Surr)	77		66 - 120

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

QC Association Summary

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

Job ID: 240-176468-1

GC/MS VOA

Analysis Batch: 552553

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-176468-2	MW-139S_111122	Total/NA	Water	8260D SIM	
240-176468-4	MW-79SR_111122	Total/NA	Water	8260D SIM	
240-176468-5	MW-79D_111122	Total/NA	Water	8260D SIM	
240-176468-6	DUP-11	Total/NA	Water	8260D SIM	
MB 240-552553/5	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-552553/4	Lab Control Sample	Total/NA	Water	8260D SIM	
240-176475-I-4 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-176475-O-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

Analysis Batch: 552675

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-176468-1	TRIP BLANK_58	Total/NA	Water	8260D	
240-176468-2	MW-139S_111122	Total/NA	Water	8260D	
240-176468-3	MW-140S_111122	Total/NA	Water	8260D	
240-176468-4	MW-79SR_111122	Total/NA	Water	8260D	
240-176468-5	MW-79D_111122	Total/NA	Water	8260D	
240-176468-6	DUP-11	Total/NA	Water	8260D	
MB 240-552675/8	Method Blank	Total/NA	Water	8260D	
LCS 240-552675/5	Lab Control Sample	Total/NA	Water	8260D	
240-176475-D-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	
240-176475-E-4 MS	Matrix Spike	Total/NA	Water	8260D	

Analysis Batch: 553045

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-176468-3	MW-140S_111122	Total/NA	Water	8260D SIM	
MB 240-553045/4	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-553045/3	Lab Control Sample	Total/NA	Water	8260D SIM	
240-176368-E-17 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-176368-E-17 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

Lab Chronicle

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

Job ID: 240-176468-1

Client Sample ID: TRIP BLANK_58

Lab Sample ID: 240-176468-1

Date Collected: 11/11/22 00:00

Matrix: Water

Date Received: 11/15/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	552675	SAM	EET CAN	11/18/22 14:12

Client Sample ID: MW-139S_111122

Lab Sample ID: 240-176468-2

Date Collected: 11/11/22 11:11

Matrix: Water

Date Received: 11/15/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	552675	SAM	EET CAN	11/18/22 16:42
Total/NA	Analysis	8260D SIM		1	552553	CS	EET CAN	11/17/22 19:56

Client Sample ID: MW-140S_111122

Lab Sample ID: 240-176468-3

Date Collected: 11/11/22 12:26

Matrix: Water

Date Received: 11/15/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	552675	SAM	EET CAN	11/18/22 17:07
Total/NA	Analysis	8260D SIM		1	553045	CS	EET CAN	11/22/22 06:34

Client Sample ID: MW-79SR_111122

Lab Sample ID: 240-176468-4

Date Collected: 11/11/22 13:41

Matrix: Water

Date Received: 11/15/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	552675	SAM	EET CAN	11/18/22 17:32
Total/NA	Analysis	8260D SIM		1	552553	CS	EET CAN	11/17/22 21:09

Client Sample ID: MW-79D_111122

Lab Sample ID: 240-176468-5

Date Collected: 11/11/22 14:46

Matrix: Water

Date Received: 11/15/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	552675	SAM	EET CAN	11/18/22 17:58
Total/NA	Analysis	8260D SIM		1	552553	CS	EET CAN	11/17/22 21:33

Client Sample ID: DUP-11

Lab Sample ID: 240-176468-6

Date Collected: 11/11/22 00:00

Matrix: Water

Date Received: 11/15/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	552675	SAM	EET CAN	11/18/22 18:23
Total/NA	Analysis	8260D SIM		1	552553	CS	EET CAN	11/17/22 21:57

Laboratory References:

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

Eurofins Canton

Accreditation/Certification Summary

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

Job ID: 240-176468-1

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

2.0/2.0 Chain of Custody Record

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

Regulatory program: DW NPDES RCRA Other

TestAmerica Laboratories, Inc.
COC No:

1 of 1 COCs

Lab Contact: Mike DelMonico
Telephone: 330-497-9396

Site Contact: Christina Weaver
Telephone: 248-994-2293

Client Project Manager: Kris Hinskey
Telephone: 248-994-2240
Email: kristoffer.hinskey@arcadis.com

Company Name: Arcadis
Address: 24550 Cabot Drive, Suite 500
City/State/Zip: Novi, MI, 48377

Sampler Name: GARY SCHAFFER
Method of Shipment/Carrier:
Shipping/Tracking No:

Analysis Turnaround Time
TAT if different from below:
10 day 3 weeks
1 week 2 weeks
2 days 1 week
1 day 2 days

Containers & Preservatives
HCl NaOH Other:
HNO3 NaOH Uppers Other:

Matrix
Air Sediment Solid Other:

Filtered Sample (Y/N)
Composite=C / Grab=G

Analyses
1-1-DCE 8260B
cis-1-2-DCE 8260B
Trans-1-2-DCE 8260B
PCE 8260B
TCE 8260B
Vinyl Chloride 8260B
1-4-Dioxane 8260B SIM

Sample Identification
Sample Date Sample Time

Sample Identification	Sample Date	Sample Time	Air	Sediment	Solid	Other:	H2SO4	HNO3	HCl	NaOH	Uppers	Other:	Filtered Sample (Y/N)	Composite=C / Grab=G	1-1-DCE 8260B	cis-1-2-DCE 8260B	Trans-1-2-DCE 8260B	PCE 8260B	TCE 8260B	Vinyl Chloride 8260B	1-4-Dioxane 8260B SIM	Sample Specific Notes / Special Instructions:
TRIP BLANK_58	11/11/22	---	1						1				N	G	X	X	X	X	X			1 Trip Blank
MW-1395-11222	11/11/22	1111	6					6					N	G	X	X	X	X	X			3 VOAs for 8260B 3 VOAs for 8260B SIM
MW-1405-11222	11/11/22	1226	6					6					N	G	X	X	X	X	X			
MW-795R-11222	11/11/22	1341	6					6					N	G	X	X	X	X	X			
MW-79D-11222	11/11/22	1446	6					6					N	G	X	X	X	X	X			
DUP-11	11/11/22	---	6					6					N	G	X	X	X	X	X			

Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown

Special Instructions/OC Requirements & Comments:
Sample Address: BOSTON POST
Submit all reports through Cadena at jtomalia@cadenaco.com, Cadena #E203631
Level IV Reporting requested.

Relinquished by: GARY SCHAFFER (CW)
Relinquished by: [Signature]
Relinquished by: [Signature]

Received by: ARCADIS
Received by: ARCADIS
Received in Laboratory by: [Signature]

Date/Time: 11/12/22 1530
Date/Time: 11/14/22 0950
Date/Time: 11/15/22 10:00

Company: ARCADIS
Company: ARCADIS
Company: [Signature]

240-176468 Chain of Custody

Eurofins - Canton Sample Receipt Form/Narrative

Login # : 176408

Barberton Facility

Client Acad's Site Name _____

Cooler unpacked by:

Cooler Received on 11-15-22 Opened on 11-15-22

Charlene

FedEx: 1st Grd UPS FAS Clipper Client Drop Off Eurofins Courier Other

Receipt After-hours: Drop-off Date/Time

Storage Location

Eurofins Cooler # 777 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 _____ Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA
 -Were tamper/custody seals intact and uncompromised? Yes No NA

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# HC286797
 14. Were VOAs on the COC? Yes No
 15. Were air bubbles >6 mm in any VOA vials? Yes No NA
 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # Con Med 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:

Sample IDs are 111222, but sampling dates on COC are 11/11/22. Samples were relinquished on 11/12/22. Sampling dates were logged as 11/12/22. me 11/15/22

19. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

DATA VERIFICATION REPORT



November 30, 2022

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631

Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater

Project number: 30146655.402.04 off-site

Event Specific Scope of Work References: Sample COC

Laboratory: Eurofins Environment Testing LLC - Barberton

Laboratory submittal: 176468-1

Sample date: 2022-11-11

Report received by CADENA: 2022-11-29

Initial Data Verification completed by CADENA: 2022-11-30

Number of Samples:6

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:

SURROGATE recoveries were outside of laboratory control limits biased HIGH for 1 of 1 surrogates in the tests/samples noted. Associated results were non-detect so were not affected by the high bias and qualification of results was not required. GCMS-SIM VOC samples -005, -006. NOTE: QC batch 552553
LCS high bias surrogate recoveries were not used to qualify field sample results.

MS/MSD recovery outliers or sample duplicate RPD outliers were not determined using a client sample from this submittal for the test and QC batch noted so qualification was not required based on these sample-specific QC outliers: GCMS-SIM VOC QC batch 552553.

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

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

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

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Analytical Results Summary

CADENA Project ID: E203631

Laboratory: Eurofins Environment Testing LLC - Barberton

Laboratory Submittal: 176468-1

Analyte	Cas No.	Sample Name: TRIP BLANK_58				MW-139S_111122				MW-140S_111122				MW-79SR_111122				MW-79D_111122				DUP-11			
		Result	Limit	Units	Valid Qualifier	Result	Limit	Units	Valid Qualifier	Result	Limit	Units	Valid Qualifier	Result	Limit	Units	Valid Qualifier	Result	Limit	Units	Valid Qualifier	Result	Limit	Units	Valid 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	1.0	ug/l	---	ND	1.0	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	---	ND	1.0	ug/l	---	ND	1.0	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	1.0	ug/l	---	ND	1.0	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	1.0	ug/l	---	ND	1.0	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	1.0	ug/l	---	ND	1.0	ug/l	---
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	1.2	1.0	ug/l	---	2.6	1.0	ug/l	---	ND	1.0	ug/l	---
<u>OSW-8260DSIM</u>																									
1,4-Dioxane	123-91-1					ND	2.0	ug/l	---	ND	2.0	ug/l	---	ND	2.0	ug/l	---	ND	2.0	ug/l	---	ND	2.0	ug/l	---

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG # 240-176468-1

CADENA Verification Report: 2022-11-30

Analyses Performed By:

TestAmerica

North Canton, Ohio

Report # 47863R

Review Level: Tier III

Project: 30146655.402.02



DATA REVIEW

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-176468-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III) include a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis	
					VOC	VOC SIM
TRIP BLANK_58	240-176468-1	Water	11/11/22		X	
MW-139S_111122	240-176468-2	Water	11/11/22		X	X
MW-140S_111122	240-176468-3	Water	11/11/22		X	X
MW-79SR_111122	240-176468-4	Water	11/11/22		X	X
MW-79D_111122	240-176468-5	Water	11/11/22		X	X
DUP-11	240-176468-6	Water	11/11/22	MW-139S_111122	X	X

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260D and 8260D SIM. Data were reviewed in accordance with USEPA National Functional Guidelines for Organic Superfund Methods Data Review, EPA 540-R-20-005, November 2020 (with reference to the historical USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, OSWER 9240.1-05A-P, October 1999), as appropriate.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260D/8260D-SIM	Water	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl

All samples were analyzed within the specified holding time criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (20%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

DATA REVIEW

Sample ID/Duplicate ID	Compound	Sample Result (µg/L)	Duplicate Result (µg/L)	RPD
MW-139S_111122 / DUP-11	All target compounds	U	U	AC

Notes:

U – Non detect

AC – Acceptable

The calculated differences between the parent sample and field duplicate were acceptable.

6. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: 8260D/8260D-SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times/Preservation		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Field Duplicate RPD		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

DATA REVIEW

VALIDATION PERFORMED BY: Hrishikesh Upadhyaya

SIGNATURE: 

DATE: December 08, 2022

PEER REVIEW: Andrew Korycinski

DATE: December 08, 2022

NO CORRECTIONS/QUALIFIERS ADDED TO SAMPLE ANALYSIS DATA SHEETS



**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**



20/20

Chain of Custody Record

MICHIGAN 190

TestAmerica THE LEADER IN ENVIRONMENTAL TESTING

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

Client Contact		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other		TestAmerica Laboratories, Inc.																										
Company Name: Arcadis		Client Project Manager: Kris Hinskey		Site Contact: Christina Weaver																										
Address: 28550 Cabot Drive, Suite 500		Telephone: 248-994-2240		Telephone: 248-994-2293																										
City/State/Zip: Novi, MI, 48377		Email: kristoffer.hinskey@arcadis.com		Telephone: 330-497-9396																										
Phone: 248-994-2240		Sampler Name: GARY SCHAFFER		Analysis Turnaround Time																										
Project Name: Ford LTP Off-Site		Method of Shipment/Carrier:		Analyses																										
Project Number: 30146655.402.04		Shipping/Tracking No:		For lab use only																										
PO # 30146655.402.04				Walk-in client																										
				Lab sampling																										
				Job/SDG No:																										
				Sample Specific Notes / Special Instructions:																										
Sample Identification		Sample Date	Sample Time	Matrix			Containers & Preservatives			Filtered Sample (Y/N)		Composite=C / Grab=G		Analyses																
				Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl	NaOH	ZnAc	NaOH	Unpres	Other:														
TRIP BLANK_58		11/11/22	---		1													NG	X	X	X	X	X	X					1 Trip Blank	
MW-139S-11122		11/11/22	1111		6													NG	X	X	X	X	X	X					3 VOAs for 8260B 3 VOAs for 8260B SIM	
MW-140S-11122		11/11/22	1226		6													NG	X	X	X	X	X	X						
MW-79SR-11122		11/11/22	1341		6													NG	X	X	X	X	X	X						
MW-79D-11122		11/11/22	1446		6													NG	X	X	X	X	X	X						
DUP-11		11/11/22	---		6													NG	X	X	X	X	X	X						
<div style="border: 1px solid red; padding: 5px;"> Revised COCs 11/16/22 - C.Weaver Corrected Sample ID's MW-139S_111122 MW-140S_111122 MW-79SR_111122 MW-79D_111122 </div>																														
Possible Hazard Identification		<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown		Sample Disposal (A fee may be assessed if sam, Return to Client <input type="checkbox"/> Disposal By Lab <input checked="" type="checkbox"/> Archive For _____ Months																										
Special Instructions/QC Requirements & Comments:		Sample Address: BOSTON POST ROW		Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203631																										
Level IV Reporting requested.																														
Relinquished by: GARY SCHAFFER (CW)	Company: ARCADIS	Date/Time: 11/12/22 1530	Received by: NOVI COLD STORAGE	Company: ARCADIS	Date/Time: 11/12/22 1530																									
Relinquished by: [Signature]	Company: ARCADIS	Date/Time: 11/14/22 0950	Received by: [Signature]	Company: EETA	Date/Time: 11/14/22 0950																									
Relinquished by: [Signature]	Company: [Signature]	Date/Time: 11/15/22 094	Received in Laboratory by: [Signature]	Company: [Signature]	Date/Time: 11-15-22 10:00																									



Client Sample Results

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

Job ID: 240-176468-1

Client Sample ID: TRIP BLANK_58

Lab Sample ID: 240-176468-1

Date Collected: 11/11/22 00:00

Matrix: Water

Date Received: 11/15/22 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			11/18/22 14:12	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/18/22 14:12	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/18/22 14:12	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/18/22 14:12	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/18/22 14:12	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/18/22 14:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		62 - 137		11/18/22 14:12	1
4-Bromofluorobenzene (Surr)	74		56 - 136		11/18/22 14:12	1
Toluene-d8 (Surr)	91		78 - 122		11/18/22 14:12	1
Dibromofluoromethane (Surr)	94		73 - 120		11/18/22 14:12	1

Client Sample ID: MW-139S_111122

Lab Sample ID: 240-176468-2

Date Collected: 11/11/22 11:11

Matrix: Water

Date Received: 11/15/22 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			11/17/22 19:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		66 - 120		11/17/22 19:56	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			11/18/22 16:42	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/18/22 16:42	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/18/22 16:42	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/18/22 16:42	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/18/22 16:42	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/18/22 16:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		62 - 137		11/18/22 16:42	1
4-Bromofluorobenzene (Surr)	76		56 - 136		11/18/22 16:42	1
Toluene-d8 (Surr)	93		78 - 122		11/18/22 16:42	1
Dibromofluoromethane (Surr)	95		73 - 120		11/18/22 16:42	1

Client Sample ID: MW-140S_111122

Lab Sample ID: 240-176468-3

Date Collected: 11/11/22 12:26

Matrix: Water

Date Received: 11/15/22 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			11/22/22 06:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	79		66 - 120		11/22/22 06:34	1

Client Sample Results

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

Job ID: 240-176468-1

Client Sample ID: MW-140S_111122

Lab Sample ID: 240-176468-3

Date Collected: 11/11/22 12:26

Matrix: Water

Date Received: 11/15/22 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			11/18/22 17:07	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/18/22 17:07	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/18/22 17:07	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/18/22 17:07	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/18/22 17:07	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/18/22 17:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		62 - 137		11/18/22 17:07	1
4-Bromofluorobenzene (Surr)	73		56 - 136		11/18/22 17:07	1
Toluene-d8 (Surr)	91		78 - 122		11/18/22 17:07	1
Dibromofluoromethane (Surr)	95		73 - 120		11/18/22 17:07	1

Client Sample ID: MW-79SR_111122

Lab Sample ID: 240-176468-4

Date Collected: 11/11/22 13:41

Matrix: Water

Date Received: 11/15/22 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			11/17/22 21:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	118		66 - 120		11/17/22 21:09	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			11/18/22 17:32	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/18/22 17:32	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/18/22 17:32	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/18/22 17:32	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/18/22 17:32	1
Vinyl chloride	1.2		1.0	0.45	ug/L			11/18/22 17:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		62 - 137		11/18/22 17:32	1
4-Bromofluorobenzene (Surr)	72		56 - 136		11/18/22 17:32	1
Toluene-d8 (Surr)	90		78 - 122		11/18/22 17:32	1
Dibromofluoromethane (Surr)	96		73 - 120		11/18/22 17:32	1

Client Sample ID: MW-79D_111122

Lab Sample ID: 240-176468-5

Date Collected: 11/11/22 14:46

Matrix: Water

Date Received: 11/15/22 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			11/17/22 21:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	122	S1+	66 - 120		11/17/22 21:33	1

Client Sample Results

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

Job ID: 240-176468-1

Client Sample ID: MW-79D_111122

Lab Sample ID: 240-176468-5

Date Collected: 11/11/22 14:46

Matrix: Water

Date Received: 11/15/22 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			11/18/22 17:58	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/18/22 17:58	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/18/22 17:58	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/18/22 17:58	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/18/22 17:58	1
Vinyl chloride	2.6		1.0	0.45	ug/L			11/18/22 17:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		62 - 137		11/18/22 17:58	1
4-Bromofluorobenzene (Surr)	72		56 - 136		11/18/22 17:58	1
Toluene-d8 (Surr)	91		78 - 122		11/18/22 17:58	1
Dibromofluoromethane (Surr)	93		73 - 120		11/18/22 17:58	1

Client Sample ID: DUP-11

Lab Sample ID: 240-176468-6

Date Collected: 11/11/22 00:00

Matrix: Water

Date Received: 11/15/22 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			11/17/22 21:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	121	S1+	66 - 120		11/17/22 21:57	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			11/18/22 18:23	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/18/22 18:23	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/18/22 18:23	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/18/22 18:23	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/18/22 18:23	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/18/22 18:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		62 - 137		11/18/22 18:23	1
4-Bromofluorobenzene (Surr)	74		56 - 136		11/18/22 18:23	1
Toluene-d8 (Surr)	93		78 - 122		11/18/22 18:23	1
Dibromofluoromethane (Surr)	95		73 - 120		11/18/22 18:23	1