PREPARED FOR

Attn: Kristoffer Hinskey Arcadis U.S., Inc. 28550 Cabot Drive Suite 500 Novi, Michigan 48377

Generated 5/24/2024 7:40:52 AM

JOB DESCRIPTION

Ford LTP

JOB NUMBER

240-204330-1

Eurofins Cleveland 180 S. Van Buren Avenue Barberton OH 44203

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Job Notes

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Authorization

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Authorized for release by Michael DelMonico, Project Manager I <u>Michael.DelMonico@et.eurofinsus.com</u> (330)497-9396 2

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Client: Arcadis U.S., Inc. Project/Site: Ford LTP

Laboratory Job ID: 240-204330-1

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Definitions/Glossary

Client: Arcadis U.S., Inc.

Job ID: 240-204330-1

Project/Site: Ford LTP

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.

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

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Case Narrative

Client: Arcadis U.S., Inc. Project: Ford LTP

Job ID: 240-204330-1 Eurofins Cleveland

Job Narrative 240-204330-1

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

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

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

Receipt

The samples were received on 5/11/2024 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 3.2°C and 3.9°C.

GC/MS VOA

Method 8260D: The continuing calibration verification (CCV) associated with batch 240-613535 recovered above the upper control limit for Vinyl chloride. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: TRIP BLANK 35 (240-204330-1) and (240-204329-B-2).

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

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Job ID: 240-204330-1

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Method Summary

Client: Arcadis U.S., Inc.

Project/Site: Ford LTP

Job ID: 240-204330-1

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

Protocol References:

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

Laboratory References:

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

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Sample Summary

Client: Arcadis U.S., Inc.

Project/Site: Ford LTP

Job ID: 240-204330-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-204330-1	TRIP BLANK_35	Water	05/08/24 00:00	05/11/24 08:00
240-204330-2	MW-96S_050824	Water	05/08/24 10:47	05/11/24 08:00
240-204330-3	MW-86_050824	Water	05/08/24 12:29	05/11/24 08:00
240-204330-4	MW-86S 050824	Water	05/08/24 14:15	05/11/24 08:00

Detection Summary

Project/Site: Ford LTP

Client Sample ID: TRIP BLANK_35

No Detections.

Client Sample ID: MW-96S_050824

No Detections.

Client Sample ID: MW-86_050824

Lab Sample ID: 240-204330-3

No Detections.

Client Sample ID: MW-86S_050824

Lab Sample ID: 240-204330-3

No Detections.

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Job ID: 240-204330-1

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Client: Arcadis U.S., Inc.

Client: Arcadis U.S., Inc. Job ID: 240-204330-1

Project/Site: Ford LTP

Client Sample ID: TRIP BLANK_35

Date Received: 05/11/24 08:00

Lab Sample ID: 240-204330-1 Date Collected: 05/08/24 00:00

Matrix: Water

Method: SW846 8260D - Volat	ile Organic Comp	ounds by G	SC/MS						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/18/24 14:09	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/18/24 14:09	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/18/24 14:09	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/18/24 14:09	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/18/24 14:09	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/18/24 14:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4.0. D'abla a a (b. a a a d.4./0 a a)						_		05/40/04 44 00	

Surrogate	%Recovery Qualifi	ier Limits		Prepared	Analyzed	Dil Fac	
1,2-Dichloroethane-d4 (Surr)	111	62 - 137	_		05/18/24 14:09	1	
4-Bromofluorobenzene (Surr)	98	56 ₋ 136			05/18/24 14:09	1	
Toluene-d8 (Surr)	100	78 - 122			05/18/24 14:09	1	
Dibromofluoromethane (Surr)	105	73 - 120			05/18/24 14:09	1	

Client: Arcadis U.S., Inc. Job ID: 240-204330-1

Project/Site: Ford LTP

Date Received: 05/11/24 08:00

Dibromofluoromethane (Surr)

Client Sample ID: MW-96S_050824

Lab Sample ID: 240-204330-2 Date Collected: 05/08/24 10:47

Matrix: Water

05/19/24 08:47

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			05/17/24 16:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		68 - 127			-		05/17/24 16:20	1
Method: SW846 8260D - Volat	ile Organic Comp	ounds by G	C/MS						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/19/24 08:47	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/19/24 08:47	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/19/24 08:47	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/19/24 08:47	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/19/24 08:47	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/19/24 08:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	121		62 - 137			-		05/19/24 08:47	1
4-Bromofluorobenzene (Surr)	91		56 ₋ 136					05/19/24 08:47	1
Toluene-d8 (Surr)	100		78 ₋ 122					05/19/24 08:47	1

73 - 120

Client: Arcadis U.S., Inc. Job ID: 240-204330-1

Project/Site: Ford LTP

Toluene-d8 (Surr)

Dibromofluoromethane (Surr)

Client Sample ID: MW-86_050824

Date Collected: 05/08/24 12:29

98

99

Lab Sample ID: 240-204330-3 Matrix: Water

05/20/24 12:45

05/20/24 12:45

Date Received: 05/11/24 08:00

Method: SW846 8260D SIM - \ Analyte	_	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			05/17/24 16:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		68 - 127			_		05/17/24 16:44	1
Method: SW846 8260D - Volat	tile Organic Comp	ounds by G	C/MS						
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac

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1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/20/24 12:45	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/20/24 12:45	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/20/24 12:45	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/20/24 12:45	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/20/24 12:45	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/20/24 12:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		62 - 137					05/20/24 12:45	1
4-Bromofluorobenzene (Surr)	95		56 ₋ 136					05/20/24 12:45	1

78 - 122

73 - 120

Client: Arcadis U.S., Inc. Job ID: 240-204330-1

Project/Site: Ford LTP

Date Received: 05/11/24 08:00

Client Sample ID: MW-86S_050824

Date Collected: 05/08/24 14:15

Matrix: Water

Lab Sample ID: 240-204330-4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			05/17/24 17:54	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		68 - 127			-		05/17/24 17:54	1
Method: SW846 8260D - Volati	le Organic Comp	ounds by G	iC/MS						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/19/24 09:11	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/19/24 09:11	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/19/24 09:11	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/19/24 09:11	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/19/24 09:11	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/19/24 09:11	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)			62 - 137			-		05/19/24 09:11	1
4-Bromofluorobenzene (Surr)	89		56 - 136					05/19/24 09:11	1
Toluene-d8 (Surr)	100		78 - 122					05/19/24 09:11	1
Dibromofluoromethane (Surr)	102		73 - 120					05/19/24 09:11	1

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

Matrix: Water Prep Type: Total/NA

				Percent Sur	rrogate Reco
		DCA	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(62-137)	(56-136)	(78-122)	(73-120)
240-204275-C-15 MS	Matrix Spike	108	110	104	100
240-204275-C-15 MSD	Matrix Spike Duplicate	107	108	102	101
240-204329-E-2 MSD	Matrix Spike Duplicate	108	104	108	101
240-204329-F-2 MS	Matrix Spike	107	106	108	100
240-204330-1	TRIP BLANK_35	111	98	100	105
240-204330-2	MW-96S_050824	121	91	100	104
240-204330-3	MW-86_050824	102	95	98	99
240-204330-3 MS	MW-86-MS_050824	97	102	97	96
240-204330-3 MSD	MW-86-MSD_050824	97	99	96	94
240-204330-4	MW-86S_050824	119	89	100	102
LCS 240-613535/6	Lab Control Sample	102	101	105	100
LCS 240-613545/3	Lab Control Sample	108	109	103	100
LCS 240-613606/4	Lab Control Sample	96	102	103	98
MB 240-613535/10	Method Blank	112	100	101	107
MB 240-613545/5	Method Blank	117	90	99	100
MB 240-613606/7	Method Blank	100	94	98	99
Cuma mata Lamand					

Surrogate Legend

Project/Site: Ford LTP

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

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

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

Matrix: Water Prep Type: Total/NA

			Percent Surrogate Recovery (Acceptance Limits)
		DCA	
Lab Sample ID	Client Sample ID	(68-127)	
240-204330-2	MW-96S_050824	104	
240-204330-3	MW-86_050824	100	
240-204330-3 MS	MW-86-MS_050824	109	
240-204330-3 MSD	MW-86-MSD_050824	101	
240-204330-4	MW-86S_050824	107	
LCS 240-613472/4	Lab Control Sample	97	
MB 240-613472/6	Method Blank	101	

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

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

Lab Sample ID: MB 240-613535/10

Matrix: Water

Project/Site: Ford LTP

Analysis Batch: 613535

Client Sample ID: Method Blank

Prep Type: Total/NA

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/18/24 12:37	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/18/24 12:37	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/18/24 12:37	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/18/24 12:37	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/18/24 12:37	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/18/24 12:37	1

MB MB %Recovery Qualifier Dil Fac Surrogate Limits Prepared Analyzed 1,2-Dichloroethane-d4 (Surr) 62 - 137 05/18/24 12:37 112 4-Bromofluorobenzene (Surr) 100 56 - 136 05/18/24 12:37 05/18/24 12:37 Toluene-d8 (Surr) 101 78 - 122 Dibromofluoromethane (Surr) 107 73 - 120 05/18/24 12:37

Lab Sample ID: LCS 240-613535/6

Matrix: Water

Analysis Batch: 613535

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

	Spike	LCS	LCS			%Rec	
Analyte	Added	Result	Qualifier	Unit [%Rec	Limits	
1,1-Dichloroethene	25.0	25.8		ug/L	103	63 - 134	
cis-1,2-Dichloroethene	25.0	23.8		ug/L	95	77 - 123	
Tetrachloroethene	25.0	24.6		ug/L	98	76 - 123	
trans-1,2-Dichloroethene	25.0	26.3		ug/L	105	75 - 124	
Trichloroethene	25.0	25.3		ug/L	101	70 - 122	
Vinyl chloride	25.0	28.7		ug/L	115	60 - 144	

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	102		62 - 137
4-Bromofluorobenzene (Surr)	101		56 ₋ 136
Toluene-d8 (Surr)	105		78 - 122
Dibromofluoromethane (Surr)	100		73 120

Lab Sample ID: 240-204329-E-2 MSD

Matrix: Water

Analysis Batch: 613535

Client Sample ID: Matrix Spike Duplicate

Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1.0	U	25.0	25.0		ug/L		100	56 - 135	1	26
1.0	U	25.0	23.4		ug/L		94	66 - 128	1	14
1.0	U	25.0	23.1		ug/L		93	62 - 131	4	20
1.0	U	25.0	25.0		ug/L		100	56 - 136	2	15
1.0	U	25.0	22.6		ug/L		90	61 - 124	2	15
1.0	U	25.0	29.7		ug/L		119	43 - 157	2	24
	1.0 1.0 1.0 1.0 1.0	Sample Sample Result Qualifier 1.0 U 1.0 U 1.0 U 1.0 U 1.0 U 1.0 U 1.0 U	Result Qualifier Added 1.0 U 25.0 1.0 U 25.0	Result Qualifier Added Result 1.0 U 25.0 25.0 1.0 U 25.0 23.4 1.0 U 25.0 23.1 1.0 U 25.0 25.0 1.0 U 25.0 25.0 1.0 U 25.0 22.6	Result Qualifier Added Result Qualifier 1.0 U 25.0 25.0 1.0 U 25.0 23.4 1.0 U 25.0 23.1 1.0 U 25.0 25.0 1.0 U 25.0 22.6	Result Qualifier Added Result Qualifier Unit 1.0 U 25.0 25.0 ug/L 1.0 U 25.0 23.4 ug/L 1.0 U 25.0 23.1 ug/L 1.0 U 25.0 25.0 ug/L 1.0 U 25.0 22.6 ug/L	Result Qualifier Added Result Qualifier Unit D 1.0 U 25.0 25.0 ug/L 1.0 U 25.0 23.4 ug/L 1.0 U 25.0 23.1 ug/L 1.0 U 25.0 25.0 ug/L 1.0 U 25.0 22.6 ug/L	Result Qualifier Added Result Qualifier Unit D %Rec 1.0 U 25.0 25.0 ug/L 100 1.0 U 25.0 23.4 ug/L 94 1.0 U 25.0 23.1 ug/L 93 1.0 U 25.0 25.0 ug/L 100 1.0 U 25.0 22.6 ug/L 90	Result Qualifier Added Result Qualifier Unit D %Rec Limits 1.0 U 25.0 25.0 ug/L 100 56 - 135 1.0 U 25.0 23.4 ug/L 94 66 - 128 1.0 U 25.0 23.1 ug/L 93 62 - 131 1.0 U 25.0 25.0 ug/L 100 56 - 136 1.0 U 25.0 22.6 ug/L 90 61 - 124	Result Qualifier Added Result Qualifier Unit D %Rec Limits RPD 1.0 U 25.0 25.0 ug/L 100 56 - 135 1 1.0 U 25.0 23.4 ug/L 94 66 - 128 1 1.0 U 25.0 23.1 ug/L 93 62 - 131 4 1.0 U 25.0 25.0 ug/L 100 56 - 136 2 1.0 U 25.0 22.6 ug/L 90 61 - 124 2

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	108		62 - 137
4-Bromofluorobenzene (Surr)	104		56 - 136
Toluene-d8 (Surr)	108		78 - 122

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Project/Site: Ford LTP

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

Lab Sample ID: 240-204329-E-2 MSD

Matrix: Water

Analysis Batch: 613535

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

MSD MSD

Surrogate %Recovery Qualifier Limits Dibromofluoromethane (Surr) 101 73 - 120

Lab Sample ID: 240-204329-F-2 MS

Matrix: Water

Analysis Batch: 613535

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

%Rec %Rec Limits

MS MS Sample Sample Spike Analyte Result Qualifier Added Result Qualifier Unit 1,1-Dichloroethene 1.0 U 25.0 25.4 ug/L 101 56 - 135 cis-1,2-Dichloroethene 1.0 U 25.0 23.7 95 66 - 128 ug/L Tetrachloroethene 1.0 U 25.0 24.0 ug/L 96 62 - 131 trans-1,2-Dichloroethene 1.0 U 25.0 25.5 ug/L 102 56 - 136 Trichloroethene 1.0 U 25.0 23.0 ug/L 92 61 - 124 Vinyl chloride 1.0 U 25.0 29.2 ug/L 117 43 - 157

MS MS

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	107		62 - 137
4-Bromofluorobenzene (Surr)	106		56 - 136
Toluene-d8 (Surr)	108		78 - 122
Dibromofluoromethane (Surr)	100		73 - 120

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

Analysis Batch: 613545

Matrix: Water

Lab Sample ID: MB 240-613545/5

MB MB

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/19/24 03:27	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/19/24 03:27	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/19/24 03:27	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/19/24 03:27	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/19/24 03:27	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/19/24 03:27	1
Viriyi oriionao	1.0	· ·	1.0	0.10	ug/ =			00/10/21 00:21	

MR MR

Surrogate	%Recovery	Qualifier	Limits	Prepare	d Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	117		62 - 137		05/19/24 03:27	1
4-Bromofluorobenzene (Surr)	90		56 - 136		05/19/24 03:27	1
Toluene-d8 (Surr)	99		78 - 122		05/19/24 03:27	1
Dibromofluoromethane (Surr)	100		73 - 120		05/19/24 03:27	1

Lab Sample ID: LCS 240-613545/3

Matrix: Water

Analysis Batch: 613545

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

7								
	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,1-Dichloroethene	25.0	24.6		ug/L		98	63 - 134	
cis-1,2-Dichloroethene	25.0	24.4		ug/L		98	77 - 123	
Tetrachloroethene	25.0	23.5		ug/L		94	76 - 123	
trans-1,2-Dichloroethene	25.0	25.0		ug/L		100	75 - 124	
Trichloroethene	25.0	25.1		ug/L		100	70 - 122	

Eurofins Cleveland

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Job ID: 240-204330-1

Prep Type: Total/NA

Client Sample ID: Lab Control Sample

Project/Site: Ford LTP

Client: Arcadis U.S., Inc.

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

Lab Sample ID: LCS 240-613545/3

Matrix: Water

Analysis Batch: 613545

Spike LCS LCS %Rec Analyte Added Result Qualifier Unit %Rec Limits D Vinyl chloride 12.5 9.94 80 60 - 144 ug/L

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	108		62 - 137
4-Bromofluorobenzene (Surr)	109		56 - 136
Toluene-d8 (Surr)	103		78 - 122
Dibromofluoromethane (Surr)	100		73 - 120

Lab Sample ID: 240-204275-C-15 MS

Matrix: Water

Analysis Batch: 613545

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

Sample Sample Spike MS MS %Rec Result Qualifier babbA Result Qualifier %Rec Limits Analyte Unit cis-1,2-Dichloroethene 1700 1250 2650 ug/L 77 66 - 128 1080 Tetrachloroethene 50 1250 ug/L 86 62 - 131 trans-1,2-Dichloroethene 120 1250 1310 95 56 - 136 ug/L Trichloroethene 50 1250 1120 ug/L 89 61 - 124 Vinyl chloride 625 2850 4 2700 ug/L 24 43 - 157

MS MS Surrogate %Recovery Qualifier Limits 62 - 137 1,2-Dichloroethane-d4 (Surr) 108 4-Bromofluorobenzene (Surr) 110 56 - 136 Toluene-d8 (Surr) 78 - 122 104 Dibromofluoromethane (Surr) 73 - 120 100

Lab Sample ID: 240-204275-C-15 MSD

Matrix: Water

Vinyl chloride

Analysis Batch: 613545

Sample Sample Spike MSD MSD %Rec RPD RPD Limit Analyte Result Qualifier babbA Result Qualifier Unit D %Rec Limits cis-1,2-Dichloroethene 1700 1250 2560 ug/L 70 66 - 128 14 Tetrachloroethene 50 1250 990 ug/L 79 62 - 131 9 20 1250 56 - 136 trans-1,2-Dichloroethene 120 1230 ug/L 89 6 15 Trichloroethene 50 U 1250 1050 ug/L 84 61 - 124 15 625 2660 4 -7 43 - 157

MSD MSD Surrogate %Recovery Qualifier Limits 62 - 137 1,2-Dichloroethane-d4 (Surr) 107 4-Bromofluorobenzene (Surr) 108 56 - 136 78 - 122 Toluene-d8 (Surr) 102 73 - 120 Dibromofluoromethane (Surr) 101

2700

Lab Sample ID: MB 240-613606/7

Matrix: Water

Analysis Batch: 613606

Prep Type: Total/NA

ug/L

MB MB Result Qualifier RLMDL Unit D Analyte Prepared Analyzed 1,1-Dichloroethene 1.0 U 1.0 0.49 ug/L 05/20/24 12:22

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10

Client Sample ID: Method Blank

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Dil Fac

Project/Site: Ford LTP

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

Lab Sample ID: MB 240-613606/7

Matrix: Water

cis-1,2-Dichloroethene Tetrachloroethene trans-1,2-Dichloroethene Trichloroethene

Analyte

Vinyl chloride

Analysis Batch: 613606

Client Sample ID: Method Blank

05/20/24 12:22

Prep Type: Total/NA

MB	MB						
Result	Qualifier	RL MDL	Unit	D	Prepared	Analyzed	Dil Fac
1.0	U	1.0 0.46	ug/L			05/20/24 12:22	1
1.0	U	1.0 0.44	ug/L			05/20/24 12:22	1
1.0	U	1.0 0.51	ug/L			05/20/24 12:22	1
1.0	U	1.0 0.44	ug/L			05/20/24 12:22	1

0.45 ug/L

1.0 U

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		62 - 137		05/20/24 12:22	1
4-Bromofluorobenzene (Surr)	94		56 - 136		05/20/24 12:22	1
Toluene-d8 (Surr)	98		78 - 122		05/20/24 12:22	1
Dibromofluoromethane (Surr)	99		73 - 120		05/20/24 12:22	1
	1,2-Dichloroethane-d4 (Surr) 4-Bromofluorobenzene (Surr) Toluene-d8 (Surr)	1,2-Dichloroethane-d4 (Surr) 100 4-Bromofluorobenzene (Surr) 94 Toluene-d8 (Surr) 98	1,2-Dichloroethane-d4 (Surr) 100 4-Bromofluorobenzene (Surr) 94 Toluene-d8 (Surr) 98	1,2-Dichloroethane-d4 (Surr) 100 62 - 137 4-Bromofluorobenzene (Surr) 94 56 - 136 Toluene-d8 (Surr) 98 78 - 122	1,2-Dichloroethane-d4 (Surr) 100 62 - 137 4-Bromofluorobenzene (Surr) 94 56 - 136 Toluene-d8 (Surr) 98 78 - 122	1,2-Dichloroethane-d4 (Surr) 100 62 - 137 05/20/24 12:22 4-Bromofluorobenzene (Surr) 94 56 - 136 05/20/24 12:22 Toluene-d8 (Surr) 98 78 - 122 05/20/24 12:22

1.0

Lab Sample ID: LCS 240-613606/4

Matrix: Water

Analysis Batch: 613606

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,1-Dichloroethene	25.0	23.4		ug/L		94	63 - 134	
cis-1,2-Dichloroethene	25.0	23.6		ug/L		94	77 - 123	
Tetrachloroethene	25.0	24.7		ug/L		99	76 - 123	
trans-1,2-Dichloroethene	25.0	22.6		ug/L		90	75 - 124	
Trichloroethene	25.0	22.6		ug/L		90	70 - 122	
Vinyl chloride	12.5	11.4		ug/L		91	60 - 144	

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	96		62 - 137
4-Bromofluorobenzene (Surr)	102		56 - 136
Toluene-d8 (Surr)	103		78 - 122
Dibromofluoromethane (Surr)	98		73 - 120

Lab Sample ID: 240-204330-3 MS

Matrix: Water

Analysis Batch: 613606

Client Sample ID: MW-86-MS_050824 Prep Type: Total/NA

	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,1-Dichloroethene	1.0	U	25.0	24.3		ug/L		97	56 - 135	
cis-1,2-Dichloroethene	1.0	U	25.0	24.7		ug/L		99	66 - 128	
Tetrachloroethene	1.0	U	25.0	24.5		ug/L		98	62 - 131	
trans-1,2-Dichloroethene	1.0	U	25.0	21.8		ug/L		87	56 - 136	
Trichloroethene	1.0	U	25.0	22.0		ug/L		88	61 - 124	
Vinyl chloride	1.0	U	12.5	11.0		ug/L		88	43 - 157	

MS MS

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	97		62 - 137
4-Bromofluorobenzene (Surr)	102		56 ₋ 136
Toluene-d8 (Surr)	97		78 - 122
Dibromofluoromethane (Surr)	96		73 - 120

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Job ID: 240-204330-1

Prep Type: Total/NA

Client: Arcadis U.S., Inc. Project/Site: Ford LTP

Client Sample ID: MW-86-MSD_050824

Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Type: Total/NA

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

Lab Sample ID: 240-204330-3 MSD

Matrix: Water

Analysis Batch: 613606

,	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,1-Dichloroethene	1.0	U	25.0	22.1		ug/L		88	56 - 135	10	26
cis-1,2-Dichloroethene	1.0	U	25.0	24.8		ug/L		99	66 - 128	0	14
Tetrachloroethene	1.0	U	25.0	24.5		ug/L		98	62 - 131	0	20
trans-1,2-Dichloroethene	1.0	U	25.0	22.2		ug/L		89	56 - 136	2	15
Trichloroethene	1.0	U	25.0	22.5		ug/L		90	61 - 124	2	15
Vinyl chloride	1.0	U	12.5	12.2		ug/L		97	43 - 157	10	24

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	97		62 - 137
4-Bromofluorobenzene (Surr)	99		56 ₋ 136
Toluene-d8 (Surr)	96		78 - 122
Dibromofluoromethane (Surr)	94		73 - 120

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

MB MB

Lab Sample ID: MB 240-613472/6

Matrix: Water

Analysis Batch: 613472

	MB	M
alyte	Result	Q

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			05/17/24 13:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		68 - 127		05/17/24 13:36	1

Lab Sample ID: LCS 240-613472/4

Matrix: Water

Analysis Batch: 613472

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,4-Dioxane	10.0	9.74		ug/L		97	75 - 121	

	LCS LCS	
Surrogate	%Recovery Qualified	r Limits
1,2-Dichloroethane-d4 (Surr)	97	68 - 127

Lab Sample ID: 240-204330-3 MS				Client Sample ID: MW-86-MS_050824
Matrix: Water				Prep Type: Total/NA
Analysis Batch: 613472				
	Sample Sample	Spike	MS MS	%Rec

			- Pillo						,0.100	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,4-Dioxane	2.0	U	10.0	9.67		ug/L		97	20 - 180	

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	109		68 - 127

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QC Sample Results

Client: Arcadis U.S., Inc. Job ID: 240-204330-1

Project/Site: Ford LTP

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

Lab Sample ID: 240-204330-3 MSD Client Sample ID: MW-86-MSD_050824

Matrix: Water Prep Type: Total/NA Analysis Batch: 613472

RPD Sample Sample Spike MSD MSD %Rec Result Qualifier Result Qualifier Added RPD Limit Analyte Unit %Rec Limits 20

1,4-Dioxane 2.0 U 10.0 9.93 ug/L 99 20 - 180 3 MSD MSD

Surrogate %Recovery Qualifier Limits 1,2-Dichloroethane-d4 (Surr) 101 68 - 127

QC Association Summary

Client: Arcadis U.S., Inc.

Project/Site: Ford LTP

Job ID: 240-204330-1

GC/MS VOA

Analysis Batch: 613472

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-204330-2	MW-96S_050824	Total/NA	Water	8260D SIM	
240-204330-3	MW-86_050824	Total/NA	Water	8260D SIM	
240-204330-4	MW-86S_050824	Total/NA	Water	8260D SIM	
MB 240-613472/6	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-613472/4	Lab Control Sample	Total/NA	Water	8260D SIM	
240-204330-3 MS	MW-86-MS_050824	Total/NA	Water	8260D SIM	
240-204330-3 MSD	MW-86-MSD_050824	Total/NA	Water	8260D SIM	

Analysis Batch: 613535

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batc
240-204330-1	TRIP BLANK_35	Total/NA	Water	8260D	
MB 240-613535/10	Method Blank	Total/NA	Water	8260D	
LCS 240-613535/6	Lab Control Sample	Total/NA	Water	8260D	
240-204329-E-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	
240-204329-F-2 MS	Matrix Spike	Total/NA	Water	8260D	

Analysis Batch: 613545

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-204330-2	MW-96S_050824	Total/NA	Water	8260D	 -
240-204330-4	MW-86S_050824	Total/NA	Water	8260D	
MB 240-613545/5	Method Blank	Total/NA	Water	8260D	
LCS 240-613545/3	Lab Control Sample	Total/NA	Water	8260D	
240-204275-C-15 MS	Matrix Spike	Total/NA	Water	8260D	
240-204275-C-15 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Analysis Batch: 613606

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-204330-3	MW-86_050824	Total/NA	Water	8260D	
MB 240-613606/7	Method Blank	Total/NA	Water	8260D	
LCS 240-613606/4	Lab Control Sample	Total/NA	Water	8260D	
240-204330-3 MS	MW-86-MS_050824	Total/NA	Water	8260D	
240-204330-3 MSD	MW-86-MSD_050824	Total/NA	Water	8260D	

Eurofins Cleveland

5/24/2024

Lab Chronicle

Client: Arcadis U.S., Inc. Job ID: 240-204330-1

Project/Site: Ford LTP

Client Sample ID: TRIP BLANK_35

Lab Sample ID: 240-204330-1 Date Collected: 05/08/24 00:00 **Matrix: Water**

Batch Batch Dilution Batch Prepared Prep Type Туре Method Run Factor Number Analyst Lab or Analyzed 05/18/24 14:09 Total/NA Analysis 8260D 613535 MDH EET CLE

Client Sample ID: MW-96S 050824 Lab Sample ID: 240-204330-2

Date Collected: 05/08/24 10:47 **Matrix: Water**

Date Received: 05/11/24 08:00

Date Received: 05/11/24 08:00

Batch Batch Dilution Batch Prepared Prep Type Method Run Factor Number Analyst or Analyzed Туре Lab Total/NA 8260D 613545 TJL2 EET CLE 05/19/24 08:47 Analysis Total/NA 8260D SIM 613472 MDH **EET CLE** 05/17/24 16:20 Analysis 1

Client Sample ID: MW-86 050824 Lab Sample ID: 240-204330-3

Date Collected: 05/08/24 12:29 **Matrix: Water**

Date Received: 05/11/24 08:00

Batch Batch Dilution Batch Prepared Prep Type Туре Method Run Factor **Number Analyst** or Analyzed Lab 05/20/24 12:45 Total/NA 8260D EET CLE Analysis 613606 LEE 05/17/24 16:44 Total/NA Analysis 8260D SIM 613472 MDH EET CLE 1

Client Sample ID: MW-86S 050824 Lab Sample ID: 240-204330-4

Date Collected: 05/08/24 14:15 **Matrix: Water**

Date Received: 05/11/24 08:00

Batch Batch Dilution Batch Prepared Method or Analyzed Туре Factor **Prep Type** Run Number Analyst Lab 05/19/24 09:11 Total/NA 8260D 613545 TJL2 Analysis EET CLE Total/NA 8260D SIM 613472 MDH **EET CLE** 05/17/24 17:54 Analysis 1

Laboratory References:

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

Accreditation/Certification Summary

Client: Arcadis U.S., Inc.

Project/Site: Ford LTP

Job ID: 240-204330-1

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	02-28-25
Georgia	State	4062	02-27-25
Illinois	NELAP	200004	07-31-24
Iowa	State	421	06-01-25
Kentucky (UST)	State	112225	02-27-25
Kentucky (WW)	State	KY98016	12-30-24
Minnesota	NELAP	039-999-348	12-31-24
New Jersey	NELAP	OH001	06-30-24
New York	NELAP	10975	04-02-25
Ohio VAP	State	ORELAP 4062	02-27-25
Oregon	NELAP	4062	02-27-25
Pennsylvania	NELAP	68-00340	08-31-24
Texas	NELAP	T104704517-22-19	08-31-24
USDA	US Federal Programs	P330-18-00281	01-05-27
Virginia	NELAP	460175	09-14-24
West Virginia DEP	State	210	12-31-24

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Chain of Custody Record

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Client Contact	Regulat	ory program:	:	[D	W	_	NPD	ES	1	RCF	13	-	Other	r											
ompany Name: Areadis	Client Project	Manager: Kris	Hinskey			Site	Cont	act: Ch	ristin	a We	aver			li.	ab Co	ontact:	Mike I	Del Mor	ico				stAmerica OC No:	Laborat	tories, In
ddress: 28550 Cabot Drive, Suite 500			Timone,																			_			_ /
ity/State/Zip: Novi, MI, 48377	Telephone: 248	-994-2240				Tele	:phon	e: 248-9	194-22	240				ľ	eleph	one: 3.	30-497-					上	1 of	1 (COCs
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hone: 248-994-2240	Sampler Name	:				TAT	if diff	etent from	below												1 1	w	alk-in client		
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Possible Hazard Identification Non-Hazard Tammable Sin Irritar	nt ["Poise	P	Jnknov		-	S		e Dispos Return t			nay oc	***********************	D.	Tuk.	-	- Am	longe hive Fo		1 month	onths					
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pecial Instructions/QC Requirements & Comments: GOS Jobmit all results through Cadena at jtomalia@cadenaco	STON POST	- ROW /	WR	uSw	OCTV	1 KL	JUL	,																	
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5/24/2024

	VOA Sample Preservation Date/Time VOAs Frozen.
	Time preserved. Preservative(s) added/Lot number(s)
the laboratory	20 SAMPLE PRESERVATION were further preserved in the laboratory
red. ainer fy PM)	SAMPLE CONDITION Were received after the recommended holding time had expired. Sample(s) Were received after the recommended holding time had expired. Were received in a broken container Sample(s) Yere received with bubble > 6 mm in diameter (Notify PM)
ssed by	18 CHAIN OF CUSTODY & SAMPLE DISCREPANCIES [3] additional next page Samples processed by
	Concerning
	Contacted PM Date by yıza Verbal Voice Mail Other
	15 Were air bubbles >6 mm m any VOA vials?
рН Stap Lo#HC439975	If yes, Questions 13-17 have been checked at the originating laboratory Were all preserved sample(s) at the correct pH upon recespt? Were YO As on the COC?
	11. Sufficient quantity received to perform indicated analyses? 12. Are these work share samples and all listed on the COC? Yes (No. 12. Are these work share samples and all listed on the COC?
b/comp(Y)N)?	Could all bottle labels (ID/Date/Time) be reconciled with the COC? For each sample, does the COC specify preservatives (Y/N), # of containers (M/N), and gain Were correct bottle(s) used for the test(s) indicated?
	Were the custody papers reimquished as algued in the appropriate place? Was/were the person(s) who collected the samples clearly identified on the COC? This No Did all boffles arrays in good condition (Unbroken)?
YUAS Oil and Grease TOC	Shippers' packing slip attached to the cooler(s)? Did custody papers accompany the sample(s)? Yes No.
Receiving:	Were tamper/custody seals intact and uncompromised? Were tamper/custody seals intact and uncompromised?
Tests that are not	Quantity Cach Ces No NA Tes No NA
c	IR GUN# (CF 0.0 °C) Observed Cooler Temp °C Corrected Cooler Temp
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	Roam Box Chent Cooler Box Offi
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РТ-NC-099-04I7I4 Cooler Receipt Form

Login#

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-099 Cooler Receipt Form Page 2 Multiple Coolers

Page 25 of 27 5/24/2024

Login Container Summary Report

240-204330

5/11/2024

Temperature readings

Lab ID 240-204330-A-1 240-204330-A-2 240-204330-B-2 240-204330-C-2 240-204330-E-2 240-204330-E-2 240-204330-A-3 240-204330-A-3 MSD 240-204330-B-3 MSD 240-204330-B-3 MSD 240-204330-C-3 MSD 240-204330-C-3 MSD 240-204330-B-3 MSD 240-204330-B-4 240-204330-D-4				Voa Vial 40ml - Hydrochloric Acid	240-204330-F-4	MW 86S_050824
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	ation nber	Preserva Lot Nur	ntanner Pre Temp Ad	Container Type	<u>Lab ID</u>	Client Sample ID

Client Sample ID

<u>Lab ID</u>

Container Type

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13

ContainerPreservationPreservationpHTempAddedLot Number

DATA VERIFICATION REPORT



May 28, 2024

Megan Meckley Arcadis 28550 Cabot Drive Suite 500 Novi, MI US 48377

CADENA project ID: E203728

Project: Ford Livonia Transmission Plant - Soil Gas, Ground Water and Soil

Project number: 30206169.401.03

Event Specific Scope of Work References: Sample COC Laboratory: Eurofins Environment Testing LLC - Cleveland

Laboratory submittal: 204330-1 Sample date: 2024-05-08

Report received by CADENA: 2024-05-28

Initial Data Verification completed by CADENA: 2024-05-28

Number of Samples:4 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:

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.

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.

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 $48108\ 517\text{-}819\text{-}0356$

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
В	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 contaminates) 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.
Е	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 contaminates) 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: E203728

Laboratory: Eurofins Environment Testing LLC - Cleveland

Laboratory Submittal: 204330-1

		Sample Name:	TRIP BL	ANK_35			MW-96	S_05082	4		MW-86	_050824	ļ		MW-86	S_05082	4	
		Lab Sample ID:	240204	3301			240204	3302			240204	3303			240204	3304		
		Sample Date:	5/8/202	24			5/8/202	24			5/8/202	24			5/8/202	24		
				Report		Valid		Report		Valid		Report		Valid		Report		Valid
	Analyte	Cas No.	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
GC/MS VOC																		
OSW-820	60D																	
	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	
	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	
	Tetrachloroethene	127-18-4	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	
	Trichloroethene	79-01-6	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		ND	1.0	ug/l	
OSW-826	60DSIM																	
	1,4-Dioxane	123-91-1					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 # 240-204330-1

CADENA Verification Report: 2024-05-28

Analyses Performed By: Eurofins Cleveland Barberton, Ohio

Report # 54279R Review Level: Tier III Project: 30206169.401.02

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-204330-1 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	Parant Sample	Analysis			
Sample ID	Labib	Matrix	Collection Date	Parent Sample	VOC	VOC SIM		
TRIP BLANK_35	240-204330-1	Water	05/08/2024		Х			
MW-96S_050824	240-204330-2	Water	05/08/2024		Х	X		
MW-86_050824	240-204330-3	Water	05/08/2024		Х	X		
MW-86S_050824	240-204330-4	Water	05/08/2024		Х	Х		

ANALYTICAL DATA PACKAGE DOCUMENTATION

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

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

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.

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, with the exception of the compounds presented in the following table.

Sample ID	Initial / Continuing	Compound	Criteria
TRIP BLANK_35	Continuing Calibration Verification %D	Vinyl chloride	+24.3%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification	
	RRF <0.05	Non-detect	R	
	KKF <0.05	Detect	J	
Initial and Continuing	RRF <0.01 ¹	Non-detect	R	
Calibration	RRF <0.01	Detect	J	
	DDE : 0.05 or DDE : 0.041	Non-detect	No Astico	
	RRF >0.05 or RRF >0.01 ¹	Detect	No Action	

Initial/Continuing	Criteria	Sample Result	Qualification
	0/ DCD - 200/ or a paralation coefficient -0.00	Non-detect	UJ
Initial Calibration	%RSD > 20% or a correlation coefficient <0.99	Detect	J
Initial Calibration	0/ DOD 000/	Non-detect	R
	%RSD > 90%	Detect	J
	ND 000/ (1	Non-detect	UJ
	%D >20% (increase in sensitivity)	Detect	J
	0/D 000/ / L : ::: ': ': ': \	Non-detect	UJ
Continuing Calibration	%D >20% (decrease in sensitivity)	Detect	J
		Non-detect	R
	%D > 90% (increase/decrease in sensitivity)	Detect	J

Note:

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.

A field duplicate sample was not collected for samples from this SDG.

6. Compound Identification

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

No compounds were detected in the samples within this SDG.

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.

¹RRF of 0.01 only applies to compounds which are typically poor responding compounds

DATA VALIDATION CHECKLIST FOR VOCs

Rep	orted			Not Required
No	Yes	No	Yes	- Required
C/MS)				
	Х		Х	
	Х		Х	
	Х		Х	
	Х		Х	
	Х	Х		
	Х		Х	
	Х		Х	
X				Х
	Х		Х	
	Х		Х	
	Х		Х	
	Х		Х	
	X		X	
	Х		Х	
	No C/MS)	X X X X X X X X X X X X X	Reported Acce No Yes No C/MS) X X X X X X X X X X X X X	No Yes No Yes

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Bindu Sree M B

SIGNATURE: BASHIME

DATE: June 13, 2024

PEER REVIEW: Andrew Korycinski

DATE: June 17, 2024

CHAIN OF CUSTODY CORRECTED SAMPLE ANALYSIS DATA SHEETS

Chain of Custody Record



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

Client Contact	Regulat	tory program:		□ DW		NPDE	s	F RC	RA	-	Other												
Company Name: Arcadis	Client Project	Manager: Kris	Hinskey	· · · =	Site	Contac	t: Chris	stina We	aver			- In	Lab C	ontact	: Mike	DelM	onic			-		stAmérica Laboratories, C. No:	PG I
Address: 28550 Cabot Drive, Suite 500	Telephone: 248																						4/
City/State/Zip: Novi. MI, 48377						Telephone: 248-994-2240 Tel Analysis Turnaround Time						Telephone: 330-497-9396 Analyses								1 of 1 COCs		=	
Phone: 248-994-2240	Email: kristoff	fer.hinskey@ar	cadis.com			Analys	is i urna	aroung i	TITIC		ŀ					An	aiys	es		T	For	r lab use only	11.55
Project Name: Ford LTP																	W:	alk-in client	-				
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Project Number: 30206169.0401.03	Method of Ship	oment/Carrier:	U					l week 2 days		2	D=d	D		E 8260D			8260D	SIM					
PO # US3410018772	Shipping/Track	king No:			7		Γ.	l day		Filtered Sample (Y / N)	Composite=C / Grab=G		cis-1,2-DCE 8260D					1,4-Dioxane 8260D			Job	SDG No:	
				Matrix		Contai	iner & F	rocival	vo	ding	E E	8260D	CE 8	DQ.	9	9	oride	ane 8					
			on.	1 L	3	2	=	_ e	u	s para	Isodi	1,1-DCE	.2-D	Trans-1,2-DCE	8260D	TCE 8260D	Vinyl Chloride	Dioxa				Sample Specific Notes /	
Sample Identification	Sample Date	Sample Time	Air	Sediment Solld Other:	H2SO4	INOS	N ₈ OII	ZoAc NaOH Unpres	Other:	Ě	Con	<u></u>	cis-1	Tran	PCE	TCE	V.i.y	1.4.				Special Instructions:	
TRIP BLANK_35			1			1	1			N	G	X	Х	Х	X	Х	Х					1 Trip Blank	7/
MW-965_050824	5/8/24	1047	6			(o			N	G	Х	x	X	X	X	X	X				3 VOAs for 8260D 3 VOAs for 8260D SIN	
MW-86_050824	5/8/24	1229	6				0			N	G	X	K	X	X	X	X	K			1	RUN MS/MST	
MW-86-MS-050824	5/8/24		6			(0			N	G	X	K	X	X	X	X	X				i	$\neg \sim$
MW-80-MSD_050824	518/24	1229	V			1	0			N	G	X	X	X	X	X	X	X				T	\neg
NW-868_050824	5/8/24	1415	V			(o			N	G	x	X	X	X	X	X	X			-		7/
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Special Instructions/QC Requirements & Comments: Submit all results through Cadena at jtomalia@cadenaco	ton Post	ROW /	Wad	lswort	h RC	DW																	
Level IV Reporting requested.																							_
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Client: Arcadis U.S., Inc. Job ID: 240-204330-1

Project/Site: Ford LTP

Client Sample ID: TRIP BLANK_35

Lab Sample ID: 240-204330-1 Date Collected: 05/08/24 00:00

Matrix: Water Date Received: 05/11/24 08:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/18/24 14:09	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/18/24 14:09	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/18/24 14:09	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/18/24 14:09	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/18/24 14:09	1
Vinyl chloride	1.0	MON	1.0	0.45	ug/L			05/18/24 14:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		62 - 137			_		05/18/24 14:09	1
4-Bromofluorobenzene (Surr)	98		56 ₋ 136					05/18/24 14:09	1
Toluene-d8 (Surr)	100		78 - 122					05/18/24 14:09	1
Dibromofluoromethane (Surr)	105		73 - 120					05/18/24 14:09	1

Client Sample ID: MW-96S_050824 Lab Sample ID: 240-204330-2

Date Collected: 05/08/24 10:47 Date Received: 05/11/24 08:00

Method: SW846 8260D SIM - Volatile Organic Compounds (GC/MS) Result Qualifier MDL Unit Prepared Analyzed Dil Fac 1,4-Dioxane 2.0 U 2.0 0.86 ug/L 05/17/24 16:20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		68 - 127		05/17/24 16:20	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/19/24 08:47	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/19/24 08:47	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/19/24 08:47	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/19/24 08:47	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/19/24 08:47	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/19/24 08:47	1

Surrogate	%Recovery	Qualifier	Limits		Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	121		62 - 137	_		05/19/24 08:47	1
4-Bromofluorobenzene (Surr)	91		56 - 136			05/19/24 08:47	1
Toluene-d8 (Surr)	100		78 - 122			05/19/24 08:47	1
Dibromofluoromethane (Surr)	104		73 - 120			05/19/24 08:47	1

Client Sample ID: MW-86_050824 Lab Sample ID: 240-204330-3

Date Collected: 05/08/24 12:29 Date Received: 05/11/24 08:00

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

method. Offoro ozoob omi - foldt	ne Organie O	ompounds	(CO/MIC)						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			05/17/24 16:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		68 - 127					05/17/24 16:44	1

Matrix: Water

Matrix: Water

Client: Arcadis U.S., Inc. Job ID: 240-204330-1

Project/Site: Ford LTP

Client Sample ID: MW-86_050824

Lab Sample ID: 240-204330-3 Date Collected: 05/08/24 12:29 **Matrix: Water**

Date Received: 05/11/24 08:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/20/24 12:45	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/20/24 12:45	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/20/24 12:45	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/20/24 12:45	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/20/24 12:45	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/20/24 12:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		62 - 137			-		05/20/24 12:45	1
4-Bromofluorobenzene (Surr)	95		56 ₋ 136					05/20/24 12:45	1
Toluene-d8 (Surr)	98		78 - 122					05/20/24 12:45	1
Dibromofluoromethane (Surr)	99		73 - 120					05/20/24 12:45	1

Client Sample ID: MW-86S_050824 Lab Sample ID: 240-204330-4

Date Collected: 05/08/24 14:15 Date Received: 05/11/24 08:00

Method: SW846 8260D SIM - V	olatile Organic C	ompounds	(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			05/17/24 17:54	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1.2-Dichloroethane-d4 (Surr)	107		68 - 127			_		05/17/24 17:54	1

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		68 - 127			-		05/17/24 17:54	1
- Method: SW846 8260D - Volat	ile Organic Comp	ounds by G	C/MS						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/19/24 09:11	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/19/24 09:11	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/19/24 09:11	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/19/24 09:11	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/19/24 09:11	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/19/24 09:11	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	119		62 - 137			_		05/19/24 09:11	1
4-Bromofluorobenzene (Surr)	89		56 ₋ 136					05/19/24 09:11	1
Toluene-d8 (Surr)	100		78 - 122					05/19/24 09:11	1
Dibromofluoromethane (Surr)	102		73 - 120					05/19/24 09:11	1

Matrix: Water