# PREPARED FOR

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

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JOB DESCRIPTION

Ford LTP - Off Site

**JOB NUMBER** 

240-199798-1

Eurofins Cleveland 180 S. Van Buren Avenue Barberton OH 44203

# **Eurofins Cleveland**

# **Job Notes**

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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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

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Client: Arcadis U.S., Inc. Project/Site: Ford LTP - Off Site Laboratory Job ID: 240-199798-1

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# **Definitions/Glossary**

Client: Arcadis U.S., Inc. Job ID: 240-199798-1

Project/Site: Ford LTP - Off Site

**Qualifiers** 

GC/MS VOA
Qualifier Qualifier Description

F1 MS and/or MSD recovery exceeds control limits.

F2 MS/MSD RPD exceeds control limits

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 - Off Site

Job ID: 240-199798-1 Eurofins Cleveland

Job Narrative 240-199798-1

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 2/22/2024 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 1.8°C and 1.9°C.

### GC/MS VOA

Method 8260D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for the following sample associated with analytical batch 240-604629 were outside control limits: (240-200131-B-2 MS) and (240-200131-B-2 MSD). The associated laboratory control sample (LCS) recovery met acceptance criteria.

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: 240-199798-1

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# **Method Summary**

Client: Arcadis U.S., Inc.

Job ID: 240-199798-1

Project/Site: Ford LTP - Off Site

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 - Off Site

Job ID: 240-199798-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-199798-1	TRIP BLANK_133	Water	02/19/24 00:00	02/22/24 08:00
240-199798-2	MW-112S_021924	Water	02/19/24 11:50	02/22/24 08:00

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# **Detection Summary**

Client: Arcadis U.S., Inc.

Job ID: 240-199798-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK\_133 Lab Sample ID: 240-199798-1

No Detections.

Client Sample ID: MW-112S\_021924 Lab Sample ID: 240-199798-2

No Detections.

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4.0

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# **Client Sample Results**

Client: Arcadis U.S., Inc. Job ID: 240-199798-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK\_133

Lab Sample ID: 240-199798-1 Date Collected: 02/19/24 00:00

**Matrix: Water** 

Date Received: 02/22/24 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			02/26/24 21:15	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			02/26/24 21:15	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			02/26/24 21:15	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			02/26/24 21:15	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			02/26/24 21:15	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			02/26/24 21:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		62 - 137			_		02/26/24 21:15	1
4-Bromofluorobenzene (Surr)	85		56 <sub>-</sub> 136					02/26/24 21:15	1
Toluene-d8 (Surr)	101		78 - 122					02/26/24 21:15	1
Dibromofluoromethane (Surr)	98		73 - 120					02/26/24 21:15	1

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# **Client Sample Results**

Client: Arcadis U.S., Inc. Job ID: 240-199798-1

Project/Site: Ford LTP - Off Site

Client Sample ID: MW-112S\_021924

Lab Sample ID: 240-199798-2 Date Collected: 02/19/24 11:50

**Matrix: Water** 

03/01/24 01:47

Date Received: 02/22/24 08:00

Dibromofluoromethane (Surr)

Amelida	Decult	Qualifier	` ,	MDL	I Imia	D	Duamanad	Amalumad	Dil Fac
Analyte			RL				Prepared	Analyzed	DII Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			02/26/24 23:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		68 - 127					02/26/24 23:31	1
Method: SW846 8260D - Volati	le 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			03/01/24 01:47	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/01/24 01:47	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/01/24 01:47	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/01/24 01:47	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/01/24 01:47	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/01/24 01:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		62 - 137			_		03/01/24 01:47	1
4-Bromofluorobenzene (Surr)	98		56 <sub>-</sub> 136					03/01/24 01:47	1
Toluene-d8 (Surr)	89		78 <sub>-</sub> 122					03/01/24 01:47	

73 - 120

# **Surrogate Summary**

Client: Arcadis U.S., Inc. Job ID: 240-199798-1

Project/Site: Ford LTP - Off Site

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

Matrix: Water Prep Type: Total/NA

				Percent Sur	rrogate Rec
		DCA	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(62-137)	(56-136)	(78-122)	(73-120)
240-199798-1	TRIP BLANK_133	104	85	101	98
240-199798-2	MW-112S_021924	108	98	89	97
240-199826-C-5 MS	Matrix Spike	97	104	104	97
240-199826-C-5 MSD	Matrix Spike Duplicate	98	103	104	96
240-200131-B-2 MS	Matrix Spike	104	105	101	97
240-200131-B-2 MSD	Matrix Spike Duplicate	100	105	101	95
LCS 240-604242/4	Lab Control Sample	98	103	105	97
LCS 240-604629/5	Lab Control Sample	101	102	91	105
MB 240-604242/6	Method Blank	102	86	103	96
MB 240-604629/8	Method Blank	104	100	95	93

# Surrogate Legend

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

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

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

Matrix: Water Prep Type: Total/NA

			Percent Surrogate Recovery (Acceptance Limits)
		DCA	
Lab Sample ID	Client Sample ID	(68-127)	
240-199798-2	MW-112S_021924	102	
240-199800-C-2 MS	Matrix Spike	101	
240-199800-C-2 MSD	Matrix Spike Duplicate	104	
LCS 240-604238/4	Lab Control Sample	108	
MB 240-604238/6	Method Blank	107	
Surrogate Legend			

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Job ID: 240-199798-1

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

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

Lab Sample ID: MB 240-604242/6

**Matrix: Water** 

Analysis Batch: 604242

Client Sample ID: Method Blar	ık
Prep Type: Total/N	Α

MB MB Dil Fac Analyte Result Qualifier RLMDL Unit D Prepared Analyzed 1,1-Dichloroethene 1.0 U 1.0 0.49 ug/L 02/26/24 20:25 cis-1,2-Dichloroethene 1.0 U 1.0 0.46 ug/L 02/26/24 20:25 Tetrachloroethene 1.0 U 1.0 0.44 ug/L 02/26/24 20:25 trans-1,2-Dichloroethene 1.0 U 1.0 02/26/24 20:25 0.51 ug/L Trichloroethene 1.0 U 1.0 0.44 ug/L 02/26/24 20:25 Vinyl chloride 1.0 U 1.0 0.45 ug/L 02/26/24 20:25

MB MB

Surrogate	%Recovery	Qualifier Limit	s	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102	62 - 1	<del></del>		02/26/24 20:25	1
4-Bromofluorobenzene (Surr)	86	56 - 1	36		02/26/24 20:25	1
Toluene-d8 (Surr)	103	78 - 1	22		02/26/24 20:25	1
Dibromofluoromethane (Surr)	96	73 - 1	20		02/26/24 20:25	1

Lab Sample ID: LCS 240-604242/4

**Matrix: Water** 

Analysis Batch: 604242

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	23.8		ug/L	_	95	63 - 134	
cis-1,2-Dichloroethene	25.0	25.5		ug/L		102	77 - 123	
Tetrachloroethene	25.0	24.9		ug/L		100	76 - 123	
trans-1,2-Dichloroethene	25.0	25.5		ug/L		102	75 - 124	
Trichloroethene	25.0	24.1		ug/L		96	70 - 122	
Vinyl chloride	12.5	11.6		ug/L		93	60 - 144	

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		62 - 137
4-Bromofluorobenzene (Surr)	103		56 <sub>-</sub> 136
Toluene-d8 (Surr)	105		78 - 122
Dibromofluoromethane (Surr)	97		73 - 120

Lab Sample ID: 240-199826-C-5 MS

**Matrix: Water** 

Analysis Batch: 604242

Client Sample ID: Matrix Spike 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	23.7		ug/L		95	56 - 135	
cis-1,2-Dichloroethene	1.0	U	25.0	24.1		ug/L		96	66 - 128	
Tetrachloroethene	1.0	U	25.0	22.8		ug/L		91	62 - 131	
trans-1,2-Dichloroethene	1.0	U	25.0	23.8		ug/L		95	56 - 136	
Trichloroethene	1.0	U	25.0	22.1		ug/L		89	61 - 124	
Vinyl chloride	1.0	U	12.5	8.69		ug/L		70	43 - 157	

MS MS

Surrogate	%Recovery Qualifie	r Limits
1,2-Dichloroethane-d4 (Surr)	97	62 - 137
4-Bromofluorobenzene (Surr)	104	56 - 136
Toluene-d8 (Surr)	104	78 - 122

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Job ID: 240-199798-1

Project/Site: Ford LTP - Off Site

Client: Arcadis U.S., Inc.

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

Lab Sample ID: 240-199826-C-5 MS

**Matrix: Water** 

Analysis Batch: 604242

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

MS MS

%Recovery Qualifier Surrogate Limits Dibromofluoromethane (Surr) 97 73 - 120

Lab Sample ID: 240-199826-C-5 MSD

**Matrix: Water** 

Analysis Batch: 604242

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

	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	23.6		ug/L		94	56 - 135	0	26
cis-1,2-Dichloroethene	1.0	U	25.0	24.3		ug/L		97	66 - 128	1	14
Tetrachloroethene	1.0	U	25.0	22.2		ug/L		89	62 - 131	3	20
trans-1,2-Dichloroethene	1.0	U	25.0	24.1		ug/L		96	56 - 136	1	15
Trichloroethene	1.0	U	25.0	21.9		ug/L		88	61 - 124	1	15
Vinyl chloride	1.0	U	12.5	9.97		ug/L		80	43 - 157	14	24

MSD MSD

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		62 - 137
4-Bromofluorobenzene (Surr)	103		56 - 136
Toluene-d8 (Surr)	104		78 - 122
Dibromofluoromethane (Surr)	96		73 - 120

Lab Sample ID: MB 240-604629/8 Client Sample ID: Method Blank **Matrix: Water** Prep Type: Total/NA

Analysis Batch: 604629

	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			02/29/24 19:33	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			02/29/24 19:33	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			02/29/24 19:33	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			02/29/24 19:33	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			02/29/24 19:33	1
Vinvl chloride	1.0	U	1.0	0.45	ua/L			02/29/24 19:33	1

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		62 - 137		02/29/24 19:33	1
4-Bromofluorobenzene (Surr)	100		56 - 136		02/29/24 19:33	1
Toluene-d8 (Surr)	95		78 - 122		02/29/24 19:33	1
Dibromofluoromethane (Surr)	93		73 - 120		02/29/24 19:33	1

Lab Sample ID: LCS 240-604629/5 **Client Sample ID: Lab Control Sample Matrix: Water** Prep Type: Total/NA

Analysis Batch: 604629

	Spike	LCS	LCS				%Rec
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
1,1-Dichloroethene	25.0	23.1		ug/L		92	63 - 134
cis-1,2-Dichloroethene	25.0	25.6		ug/L		102	77 - 123
Tetrachloroethene	25.0	25.8		ug/L		103	76 - 123
trans-1,2-Dichloroethene	25.0	25.4		ug/L		102	75 - 124
Trichloroethene	25.0	25.6		ug/L		103	70 - 122

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Client: Arcadis U.S., Inc. Job ID: 240-199798-1

Project/Site: Ford LTP - Off Site

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

Lab Sample ID: LCS 240-604629/5

**Matrix: Water** 

Vinyl chloride

Analysis Batch: 604629 Spike LCS LCS %Rec Analyte Added Result Qualifier Unit %Rec Limits

9.66

ug/L

12.5

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	101		62 - 137
4-Bromofluorobenzene (Surr)	102		56 - 136
Toluene-d8 (Surr)	91		78 - 122
Dibromofluoromethane (Surr)	105		73 - 120

Lab Sample ID: 240-200131-B-2 MS

Client Sample ID: Matrix Spike **Matrix: Water** Prep Type: Total/NA Analysis Batch: 604629

	Sample	Sample	<b>Бріке</b>	IVIS	M2				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,1-Dichloroethene	20	U	500	499		ug/L		100	56 - 135	
cis-1,2-Dichloroethene	52		500	556		ug/L		101	66 - 128	
Tetrachloroethene	20	U	500	491		ug/L		98	62 - 131	
trans-1,2-Dichloroethene	20	U	500	514		ug/L		103	56 - 136	
Trichloroethene	20	U F2	500	549		ug/L		110	61 - 124	
Vinyl chloride	810	F1	250	869	F1	ug/L		23	43 - 157	

MS MS %Recovery Qualifier Limits Surrogate 62 - 137 1,2-Dichloroethane-d4 (Surr) 104 4-Bromofluorobenzene (Surr) 105 56 - 136 78 - 122 Toluene-d8 (Surr) 101 Dibromofluoromethane (Surr) 97 73 - 120

Lab Sample ID: 240-200131-B-2 MSD

**Matrix: Water** 

Analysis Batch: 604629

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

**Client Sample ID: Lab Control Sample** 

60 - 144

Prep Type: Total/NA

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,1-Dichloroethene		U	500	464		ug/L		93	56 - 135	7	26
cis-1,2-Dichloroethene	52		500	501		ug/L		90	66 - 128	10	14
Tetrachloroethene	20	U	500	427		ug/L		85	62 - 131	14	20
trans-1,2-Dichloroethene	20	U	500	472		ug/L		94	56 - 136	9	15
Trichloroethene	20	U F2	500	410	F2	ug/L		82	61 - 124	29	15
Vinyl chloride	810	F1	250	788	F1	ug/L		-9	43 - 157	10	24
•						J					

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	100		62 - 137
4-Bromofluorobenzene (Surr)	105		56 - 136
Toluene-d8 (Surr)	101		78 - 122
Dibromofluoromethane (Surr)	95		73 - 120

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**Eurofins Cleveland** 

Client: Arcadis U.S., Inc. Project/Site: Ford LTP - Off Site Job ID: 240-199798-1

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

Lab Sample ID: MB 240-604238/6 Client Sample ID: Method Blank

**Matrix: Water** Prep Type: Total/NA

Analysis Batch: 604238

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			02/26/24 16:06	1

MB MB

Surrogate %Recovery Qualifier Limits Prepared Analyzed Dil Fac 68 - 127 1,2-Dichloroethane-d4 (Surr) 107 02/26/24 16:06

Lab Sample ID: LCS 240-604238/4 **Client Sample ID: Lab Control Sample** Prep Type: Total/NA

**Matrix: Water** 

Analysis Batch: 604238

	Spike	LCS	LCS				%Rec		
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits		
1,4-Dioxane	10.0	11.0		ug/L		110	75 - 121	 	-

LCS LCS

Surrogate %Recovery Qualifier Limits 1,2-Dichloroethane-d4 (Surr) 68 - 127 108

Client Sample ID: Matrix Spike Lab Sample ID: 240-199800-C-2 MS Prep Type: Total/NA

**Matrix: Water** 

Analysis Batch: 604238

	Sample	Sample	Spike	MS	MS					
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,4-Dioxane	2.0	U	8.33	12.5		ug/L		151	20 - 180	

MS MS

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

Lab Sample ID: 240-199800-C-2 MSD Client Sample ID: Matrix Spike Duplicate Prep Type: Total/NA

**Matrix: Water** 

Analysis Batch: 604238

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
1 4-Dioxane	2.0	U	8 33	12.3		ua/l		147	20 - 180		20	

MSD MSD

%Recovery Qualifier Surrogate Limits 1,2-Dichloroethane-d4 (Surr) 104 68 - 127

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# **QC Association Summary**

Client: Arcadis U.S., Inc. Job ID: 240-199798-1

Project/Site: Ford LTP - Off Site

# **GC/MS VOA**

# Analysis Batch: 604238

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-199798-2	MW-112S_021924	Total/NA	Water	8260D SIM	
MB 240-604238/6	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-604238/4	Lab Control Sample	Total/NA	Water	8260D SIM	
240-199800-C-2 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-199800-C-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

# Analysis Batch: 604242

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Bate
240-199798-1	TRIP BLANK_133	Total/NA	Water	8260D	
MB 240-604242/6	Method Blank	Total/NA	Water	8260D	
LCS 240-604242/4	Lab Control Sample	Total/NA	Water	8260D	
240-199826-C-5 MS	Matrix Spike	Total/NA	Water	8260D	
240-199826-C-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

# Analysis Batch: 604629

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-199798-2	MW-112S_021924	Total/NA	Water	8260D	
MB 240-604629/8	Method Blank	Total/NA	Water	8260D	
LCS 240-604629/5	Lab Control Sample	Total/NA	Water	8260D	
240-200131-B-2 MS	Matrix Spike	Total/NA	Water	8260D	
240-200131-B-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

**Eurofins Cleveland** 

# **Lab Chronicle**

Client: Arcadis U.S., Inc. Job ID: 240-199798-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK\_133

Lab Sample ID: 240-199798-1 Date Collected: 02/19/24 00:00

Matrix: Water

Date Received: 02/22/24 08:00

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8260D		1	604242	CDG	EET CLE	02/26/24 21:15

Client Sample ID: MW-112S\_021924 Lab Sample ID: 240-199798-2

Date Collected: 02/19/24 11:50 Matrix: Water

Date Received: 02/22/24 08:00

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Type	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8260D		1	604629	CDG	EET CLE	03/01/24 01:47
Total/NA	Analysis	8260D SIM		1	604238	MDH	EET CLE	02/26/24 23:31

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. Job ID: 240-199798-1 Project/Site: Ford LTP - Off Site

# **Laboratory: Eurofins Cleveland**

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date	
California	State	2927	02-27-24 *	
Illinois	NELAP	200004	07-31-24	
Iowa	State	421	06-01-25	
Kentucky (WW)	State	KY98016	12-30-24	
Minnesota	NELAP	039-999-348	12-31-24	
New Jersey	NELAP	OH001	07-01-24	
New York	NELAP	10975	04-01-24	
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	

 $<sup>^{\</sup>star}\,\text{Accreditation/Certification renewal pending - accreditation/certification considered valid}.$ 

**Eurofins Cleveland** 

# **Chain of Custody Record**

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

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Client Contact	Regulat	ory program	:		DW		F 1	PDES		г	RCRA		Oth	er												
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Address: 28550 Cabot Drive, Suite 500	Chem Project I	ianager: Kris	tmuss	æy			Site C	ontact	: Ca	irisun	a weaver				LXD C	ontac	f: Mile	e Dei	MOINC	0					COC NO.	
City/State/Zip: Novi, MI, 48377	Telephone: 248	-994-2240					Telep	hone:	248-9	994-2	240				Telep	hone:	330-4	97-93	96						1 of 1	COCs
	Email: kristoff	er.hinskey@ar	readis.	com			A	nalysis	Tur	rnaro	and Time	1						A	nalys	es					For lab use only	cocs
Phone: 248-994-2240	-								_			7													Walk-in client	
Project Name: Ford LTP Off-Site	Sampler Name						IAI	f differen	it from	3 w	eeks	-													waik-in client	
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Sample Identification	Sample Date	Sample Time	Air	Aqueous	Solid	Other:	H2SO4	HN03	NaOH	ZaAe/	Unpres Other:	Filtered S	Composite=C/Grab=G	1,1-DCE 8260D	cis-1,2-DCE 8260D	Trans-1,2-DCE 8260D	PCE 8260D	TCE 8260D	Vinyl Chloride 8260D	1,4-Dioxane 8260D SIM					Sample Specific Special Instru	
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<u>«</u>	Sample(s)were received after the recommended holding time had expired.  Sample(s)were received after the recommended holding time had expired.  were received mi/a broken container  Sample(s)were received with bubble >6 ram in diameter (Notify PM)
	18 CHAIN OF CUSTODY & SAMPLE DISCREPANCIES
'	Concerning
	Contacted PM Date by via Verbal Voice Mail Other
,	15 Were air bubbles >6 mm in any VOA vials? Larger than this  16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # COU-trid Was No  17 Was a LL Hg or Me Hg trip blank present?  Yes No
	If yes, Questions 13-17 have been checked at the originating laboratory  Were all preserved sample(s) at the correct pH upon receipt?  Yes, VOAs on the COC?
	a a
	Did custody papers accompany the sample(s)?  Were the custody papers relinquished & signed in the appropriate place?  Yes No
	-Were tamper/custody seals intact and uncompromised?  Stimused realing attached to the cooler(s)?  Stimused realing attached to the cooler(s)?
	Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity CUCY (Yes No Were the seals on the outside of the cooler(s) signed & dated?  Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?  Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?  Yes No NA Checked for pH by Receiving.
	) ကို
	Blue Ice Dry l
	Eurofins Cooler# E Foam Box Client Cooler Box Other Packing material used. Bubble Wrap Foam Plastic Bag None Other
	Receipt After-hours: Drop-off Date/Tibre Storage Location
	Received on 3-22-24 Opened on 3-22-24
	Client + Cad, S Site Name Cooler unpacked by
	Eurofins - Cleveland Sample Receipt Form/Narrative Login #

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Sample(s) \_\_\_\_\_ Time preserved.

20 SAMPLE PRESERVATION

VOA Sample Preservation

Date/Time VOAs Frozen.

Preservative(s) added/Lot number(s).

\_were further preserved in the laboratory

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3/4/2024

# DATA VERIFICATION REPORT



March 04, 2024

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: 30167538.402.04

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

Laboratory submittal: 199798-1 Sample date: 2024-02-19

Report received by CADENA: 2024-03-04

Initial Data Verification completed by CADENA: 2024-03-04

Number of Samples:2 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, 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.
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:** E203631

**Laboratory:** Eurofins Environment Testing LLC - Cleveland

**Laboratory Submittal:** 199798-1

		Sample Name: Lab Sample ID: Sample Date:	TRIP BLA 2401997 2/19/202	7981			MW-112 2401997 2/19/202	7982	24	
				Report		Valid		Report		Valid
	Analyte	Cas No.	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
GC/MS VOC										
OSW-826	<u>60D</u>									
	1,1-Dichloroethene	75-35-4	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	
	Tetrachloroethene	127-18-4	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	
	Trichloroethene	79-01-6	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	
OSW-826	60DSIM									
	1,4-Dioxane	123-91-1					ND	2.0	ug/l	



# Ford Motor Company – Livonia Transmission Project

# **Data Review**

# Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG # 240-199798-1

CADENA Verification Report: 2024-03-04

Analyses Performed By: Eurofins Cleveland Barberton, Ohio

Report # 53228 Review Level: Tier III Project: 30167538.402.02

# **SUMMARY**

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-199798-1 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	Doront Comple	Ana	lysis
Sample ID	Labib	Matrix	Collection Date	Parent Sample	VOC	VOC SIM
TRIP BLANK_133	240-199798-1	Water	02/19/2024		X	
MW-112S_021924	240-199798-2	Water	02/19/2024		X	Х

# **ANALYTICAL DATA PACKAGE DOCUMENTATION**

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

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

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.

# **DATA VALIDATION CHECKLIST FOR VOCs**

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

# Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Dilip Kumar

SIGNATURE:

DATE: March 19, 2024

PEER REVIEW: Andrew Korycinski

DATE: March 20, 2024

# NO CORRECTIONS/QUALIFERS ADDED TO SAMPLE ANALYSIS DATA SHEETS

# 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	ory program	:		_ DV	W		NPDES		г	RCR/	A	Г	Otho	er	-		-											
Company Name: Arcadis	Client Project N	Manager: Kris	Hinsl	kev			Site (	Contact	: Chi	ristina	Weav	ver				Lab C	ontac	t: Mil	ce Del	Monic	.0	_		_		TestAmerica Laborato	ries, Inc.		
Address: 28550 Cabot Drive, Suite 500	Telephone: 248																												
City/State/Zip: Novi, MI, 48377	Telephone: 248	-994-2240						phone:								1 ciep	none:	330-4								1 of 1 CO	Cs		
Phone: 248-994-2240	Email: kristoff	er.hinskey@ar	rcadis	.com			_/	Inalysis	Tur	narou	nd I in	ne							A	nalys	es			Т		For lab use only			
	Sampler Name	:					TAT	if differen	ıt from		I															Walk-in client			
Project Name: Ford LTP Off-Site	Ken																				Lab sampling								
Project Number: 30167538.402.04	Method of Ship	The same of the sa					ပူ			Q						SIM				-	Lab samping								
PO # 30167538.402.04	Shipping/Track	ing No:			-		1			I day			(V)	Grab		G09	8260	8260				8260D	8260D SIM					Job/SIX; No:	
				ı	Matrix			Contain	ers &	Prese	vative	:5	du	/ D=	260	E 82	DCE	۵	۵	ride	ne 82								
Sample Identification	Sample Date	Sample Time	Air	Aqueous	Sediment	Other:	H2SO4	HN03	NaOH	Zale	Unpres	Other:	Filtered Sample (Y / N)	Composite=C/Grab=G	1,1-DCE 8260D	cis-1,2-DCE 8260D	Trans-1,2-DCE 8260D	PCE 8260D	TCE 8260D	Vinyl Chloride	1,4-Dioxane				}	Sample Specific Not Special Instruction			
	Sample Date	Sample Time	1	T	ž v	15	=		Ž	2.2	2   5												+	H	┿				
TRIP BLANK_ 133	-			1				1	L				N	G	X	X	X	X	X	X						1 Trip Blank			
MW-1125_021924	2/19/24	1150	L	6				6	_				W	6	×	x	ኢ	بخ	ኦ	x	x					3 VOAs for 8260D 3 VOAs for 8260D			
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Possible Hazard Identification			<u> </u>				Sa	mple D	ispos	al (A	fee ma	av be a	155055	sed if	samo	les are	retai	ned lo	Deer	ban 1	mont	h)		_		<u> </u>			
Non-Hazard Flammable Skin Irr	itant Poiso	n B	Unk	nown						Clien		- D						rchive				onths							
Special Instructions/QC Requirements & Comments: Sample Address: 34935 Wacks Was Submit all results through Cadena at itomalia gcadena	orth co.com. Cadena #	€203631																											
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made	Company:	<u> </u>		Date		24	100	20	Ko	100	Sal Cal	MAN TO THE POPULATION OF THE P	y Dy		de	1 9		-	Com	ËE	79	2 C				2-22-24	800		
C2008, TestAmerica Lucoratories, Inc., All rights reserved. TestAmerica & Design "" are trademarks of TestAmerica Laboratories, Inc.					- 1					,			1	1															

# **Client Sample Results**

Client: Arcadis U.S., Inc. Job ID: 240-199798-1 Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK\_133

Lab Sample ID: 240-199798-1

Date Collected: 02/19/24 00:00 **Matrix: Water** Date Received: 02/22/24 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			02/26/24 21:15	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			02/26/24 21:15	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			02/26/24 21:15	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			02/26/24 21:15	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			02/26/24 21:15	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			02/26/24 21:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		62 - 137			-		02/26/24 21:15	1
4-Bromofluorobenzene (Surr)	85		56 <sub>-</sub> 136					02/26/24 21:15	1
Toluene-d8 (Surr)	101		78 - 122					02/26/24 21:15	1
Dibromofluoromethane (Surr)	98		73 - 120					02/26/24 21:15	1

Client Sample ID: MW-112S\_021924 Lab Sample ID: 240-199798-2

Date Collected: 02/19/24 11:50 Date Received: 02/22/24 08:00

Dibromofluoromethane (Surr)

Method: SW846 8260D SIM	- Volatile Orga	anic Comp	ounds (GC/N	IS)					
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			02/26/24 23:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1.2-Dichloroethane-d4 (Surr)	102	-	68 - 127			-		02/26/24 23:31	1

1,2-Dichioroethane-04 (Surr)	102		08 - 127					02/20/24 23.31	
Method: SW846 8260D - Vo	olatile Organic	Compound	ds by GC/MS						
Analyte	_	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/01/24 01:47	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/01/24 01:47	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/01/24 01:47	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/01/24 01:47	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/01/24 01:47	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/01/24 01:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		62 - 137			-		03/01/24 01:47	1
4-Bromofluorobenzene (Surr)	98		56 <sub>-</sub> 136					03/01/24 01:47	1
Toluene-d8 (Surr)	89		78 - 122					03/01/24 01:47	1

73 - 120

03/01/24 01:47

**Matrix: Water** 

# **ANALYTICAL REPORT**

# PREPARED FOR

Attn: Kristoffer Hinskey Arcadis U.S., Inc. 28550 Cabot Drive Suite 500 Novi, Michigan 48377 Generated 2/29/2024 7:43:16 AM

# **JOB DESCRIPTION**

Ford LTP - Off Site

# **JOB NUMBER**

240-199801-1

Eurofins Cleveland 180 S. Van Buren Avenue Barberton OH 44203



# **Eurofins Cleveland**

# **Job Notes**

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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# **Authorization**

Generated 2/29/2024 7:43:16 AM

Authorized for release by Michael DelMonico, Project Manager I <u>Michael.DelMonico@et.eurofinsus.com</u> (330)497-9396 Client: Arcadis U.S., Inc. Project/Site: Ford LTP - Off Site Laboratory Job ID: 240-199801-1

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# **Definitions/Glossary**

Client: Arcadis U.S., Inc. Job ID: 240-199801-1

Project/Site: Ford LTP - Off Site

# **Qualifiers**

#### **GC/MS VOA**

Qualifier **Qualifier Description** 

Indicates the analyte was analyzed for but not detected.

#### **Glossary**

DLC

Appreviation	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 Decision Level Concentration (Radiochemistry)

Estimated Detection Limit (Dioxin) EDL 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 **Quality Control** 

RER Relative Error Ratio (Radiochemistry)

Reporting Limit or Requested Limit (Radiochemistry) RL

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin) Toxicity Equivalent Quotient (Dioxin) **TEQ** 

**TNTC** Too Numerous To Count

**Eurofins Cleveland** 

2/29/2024

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#### **Case Narrative**

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

Job ID: 240-199801-1 Eurofins Cleveland

Job Narrative 240-199801-1

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 2/22/2024 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 1.8°C and 1.9°C.

#### GC/MS VOA

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

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**Eurofins Cleveland** 

Job ID: 240-199801-1

2/29/2024

# **Method Summary**

Client: Arcadis U.S., Inc.

Job ID: 240-199801-1

Project/Site: Ford LTP - Off Site

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

**Eurofins Cleveland** 

# **Sample Summary**

Client: Arcadis U.S., Inc.

Project/Site: Ford LTP - Off Site

Job ID: 240-199801-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-199801-1	TRIP BLANK_144	Water	02/19/24 00:00	02/22/24 08:00
240-199801-2	MW-217S_021924	Water	02/19/24 13:40	02/22/24 08:00

3

4

5

7

8

4.0

11

12

4 /

# **Detection Summary**

Client: Arcadis U.S., Inc. Job ID: 240-199801-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK\_144

Lab Sample ID: 240-199801-1

No Detections.

Client Sample ID: MW-217S\_021924 Lab Sample ID: 240-199801-2

No Detections.

3

4

5

7

8

9

44

12

10

14

# **Client Sample Results**

Client: Arcadis U.S., Inc. Job ID: 240-199801-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK\_144

Lab Sample ID: 240-199801-1 Date Collected: 02/19/24 00:00

Matrix: Water

Date Received: 02/22/24 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			02/23/24 14:41	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			02/23/24 14:41	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			02/23/24 14:41	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			02/23/24 14:41	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			02/23/24 14:41	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			02/23/24 14:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)			62 - 137			_		02/23/24 14:41	1
4-Bromofluorobenzene (Surr)	101		56 <sub>-</sub> 136					02/23/24 14:41	1
Toluene-d8 (Surr)	95		78 - 122					02/23/24 14:41	1
Dibromofluoromethane (Surr)	103		73 - 120					02/23/24 14:41	1

**Eurofins Cleveland** 

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# **Client Sample Results**

Client: Arcadis U.S., Inc. Job ID: 240-199801-1

Project/Site: Ford LTP - Off Site

Client Sample ID: MW-217S\_021924

Lab Sample ID: 240-199801-2 Date Collected: 02/19/24 13:40

Matrix: Water

Date Received: 02/22/24 08:00
Method: SW846 8260D SIM - Volatile Organic Compounds (G

Method: SW846 8260D SIM - \	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			02/27/24 12:49	1				
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac				
1.2-Dichloroethane-d4 (Surr)	106		68 127			_		02/27/24 12:40					

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			02/27/24 12:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		68 - 127					02/27/24 12:49	1
Method: SW846 8260D - Volat	ile Organic Comp	ounds by G	C/MS						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Analyte 1,1-Dichloroethene	Result 1.0			MDL 0.49		<u>D</u> .	Prepared	Analyzed 02/23/24 16:48	Dil Fac
		U			ug/L	<u>D</u> .	Prepared		Dil Fac 1
1,1-Dichloroethene	1.0	U U	1.0	0.49	ug/L ug/L	<u>D</u> .	Prepared	02/23/24 16:48	Dil Fac 1 1 1
1,1-Dichloroethene cis-1,2-Dichloroethene	1.0	U U U	1.0	0.49 0.46	ug/L ug/L ug/L	D -	Prepared	02/23/24 16:48 02/23/24 16:48	1 1 1 1 1 1
1,1-Dichloroethene cis-1,2-Dichloroethene Tetrachloroethene	1.0 1.0 1.0	U U U	1.0 1.0 1.0	0.49 0.46 0.44	ug/L ug/L ug/L ug/L	<u>D</u> -	Prepared	02/23/24 16:48 02/23/24 16:48 02/23/24 16:48	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		62 - 137		02/23/24 16:48	1
4-Bromofluorobenzene (Surr)	99		56 <sub>-</sub> 136		02/23/24 16:48	1
Toluene-d8 (Surr)	96		78 - 122		02/23/24 16:48	1
Dibromofluoromethane (Surr)	97		73 - 120		02/23/24 16:48	1

2/29/2024

# **Surrogate Summary**

Client: Arcadis U.S., Inc. Job ID: 240-199801-1

Project/Site: Ford LTP - Off Site

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

Matrix: Water Prep Type: Total/NA

				Percent Sui	rogate Reco
		DCA	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(62-137)	(56-136)	(78-122)	(73-120)
240-199661-B-2 MS	Matrix Spike	107	104	109	99
240-199661-B-2 MSD	Matrix Spike Duplicate	112	103	96	104
240-199801-1	TRIP BLANK_144	112	101	95	103
240-199801-2	MW-217S_021924	109	99	96	97
LCS 240-604060/5	Lab Control Sample	114	103	98	102
MB 240-604060/9	Method Blank	110	99	98	99

#### Surrogate Legend

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

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

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

**Matrix: Water** Prep Type: Total/NA

			Percent Surrogate Recovery (Acceptance Limits)
		DCA	
Lab Sample ID	Client Sample ID	(68-127)	
240-199801-2	MW-217S_021924	106	
240-199806-D-2 MSD	Matrix Spike Duplicate	108	
240-199806-E-2 MS	Matrix Spike	113	
LCS 240-604308/4	Lab Control Sample	105	
MB 240-604308/6	Method Blank	108	
Surrogate Legend			

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

Job ID: 240-199801-1

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

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

Lab Sample ID: MB 240-604060/9

**Matrix: Water** 

1,1-Dichloroethene

Tetrachloroethene

Trichloroethene

Vinyl chloride

cis-1,2-Dichloroethene

trans-1,2-Dichloroethene

Analyte

Analysis Batch: 604060

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

мв мв Dil Fac Result Qualifier RL MDL Unit D Prepared Analyzed 1.0 U 1.0 0.49 ug/L 02/23/24 14:15 1.0 U 1.0 0.46 ug/L 02/23/24 14:15 1.0 U 1.0 0.44 ug/L 02/23/24 14:15

1.0 U

1.0 U 1.0 0.51 ug/L 02/23/24 14:15 1.0 0.44 ug/L 02/23/24 14:15 1.0 U 1.0 0.45 ug/L 02/23/24 14:15

MB MB %Recovery Qualifier Dil Fac Surrogate Limits Prepared Analyzed 62 - 137 1,2-Dichloroethane-d4 (Surr) 110 02/23/24 14:15 4-Bromofluorobenzene (Surr) 99 56 - 136 02/23/24 14:15 Toluene-d8 (Surr) 98 78 - 122 02/23/24 14:15 Dibromofluoromethane (Surr) 99 73 - 120 02/23/24 14:15

Lab Sample ID: LCS 240-604060/5

**Matrix: Water** 

Analysis Batch: 604060

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Spike LCS LCS %Rec Analyte Added Result Qualifier Unit %Rec Limits 1,1-Dichloroethene 20.0 24.8 ug/L 124 63 - 134 cis-1,2-Dichloroethene 20.0 21.2 ug/L 106 77 - 123 ug/L Tetrachloroethene 20.0 21.6 108 76 - 123 trans-1,2-Dichloroethene 20.0 22 0 110 75 - 124 ug/L Trichloroethene 20.0 22.8 ug/L 114 70 - 122 Vinyl chloride 20.0 18.9 ug/L 94 60 - 144

Limits

LCS LCS %Recovery Surrogate

1,2-Dichloroethane-d4 (Surr) 114 62 - 137 4-Bromofluorobenzene (Surr) 103 56 - 136 Toluene-d8 (Surr) 98 78 - 122 73 - 120 Dibromofluoromethane (Surr) 102

Lab Sample ID: 240-199661-B-2 MS

**Matrix: Water** 

Analysis Batch: 604060

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Sample Sample MS MS %Rec Spike Result Qualifier Added Limits Analyte Result Qualifier Unit %Rec 1,1-Dichloroethene 20 U 400 471 ug/L 118 56 - 135 ug/L cis-1,2-Dichloroethene 20 U 400 416 104 66 - 128 Tetrachloroethene 20 U 400 449 ug/L 112 62 - 131trans-1,2-Dichloroethene 20 U 400 430 ug/L 108 56 - 136 Trichloroethene 20 U 400 424 106 61 - 124 ug/L Vinyl chloride 400 20 U 349 ug/L 43 - 157

MS	MS
	_

Surrogate	%Recovery Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	107	62 - 137
4-Bromofluorobenzene (Surr)	104	56 - 136
Toluene-d8 (Surr)	109	78 - 122

**Eurofins Cleveland** 

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Project/Site: Ford LTP - Off Site

Job ID: 240-199801-1 Client: Arcadis U.S., Inc.

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

Lab Sample ID: 240-199661-B-2 MS

**Matrix: Water** 

Analysis Batch: 604060

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

MS MS

Surrogate %Recovery Qualifier Limits Dibromofluoromethane (Surr) 99 73 - 120

Lab Sample ID: 240-199661-B-2 MSD

**Matrix: Water** 

Analysis Batch: 604060

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,1-Dichloroethene	20	U	400	469		ug/L		117	56 - 135	0	26
cis-1,2-Dichloroethene	20	U	400	412		ug/L		103	66 - 128	1	14
Tetrachloroethene	20	U	400	404		ug/L		101	62 - 131	11	20
trans-1,2-Dichloroethene	20	U	400	417		ug/L		104	56 - 136	3	15
Trichloroethene	20	U	400	412		ug/L		103	61 - 124	3	15
Vinyl chloride	20	U	400	412		ug/L		103	43 - 157	16	24

MSD MSD

MR MR

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	112		62 - 137
4-Bromofluorobenzene (Surr)	103		56 - 136
Toluene-d8 (Surr)	96		78 - 122
Dibromofluoromethane (Surr)	104		73 - 120

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

Lab Sample ID: MB 240-604308/6

**Matrix: Water** 

Analysis Batch: 604308

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

Client Sample ID: Lab Control Sample

Limits

75 - 121

%Rec

117

Analyte Result Qualifier RL MDL Unit Prepared Analyzed Dil Fac 1,4-Dioxane 2.0 U 2.0 0.86 ug/L 02/27/24 12:25

MB MB

Surrogate %Recovery Qualifier Limits Prepared Analyzed Dil Fac 1,2-Dichloroethane-d4 (Surr) 108 68 - 127 02/27/24 12:25

Lab Sample ID: LCS 240-604308/4

Analyte

1,4-Dioxane

Matrix: Water			Prep Type: Total/NA
Analysis Batch: 604308			
	Snike	LCS LCS	%Rec

Result Qualifier

11.7

Unit

ug/L

Added

68 - 127

10.0

LCS LCS %Recovery Qualifier Surrogate Limits

1,2-Dichloroethane-d4 (Surr) 105

Lab Sample ID: 240-199806-D-2 MSD

**Matrix: Water** 

Analysis Batch: 604308

Alialysis batch, 604306											
	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,4-Dioxane	2.0	U	10.0	10.5		ug/L		105	20 - 180	9	20

**Eurofins Cleveland** 

Prep Type: Total/NA

Page 13 of 20

Client Sample ID: Matrix Spike Duplicate

# **QC Sample Results**

Client: Arcadis U.S., Inc. Job ID: 240-199801-1

Project/Site: Ford LTP - Off Site

Surrogate

1,2-Dichloroethane-d4 (Surr)

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

%Recovery Qualifier

113

Surrogate 1,2-Dichloroethane-d4 (Surr)	MSD MSD  %Recovery Qualifier  108			
Lab Sample ID: 240-199806-E	-2 MS			Client Sample ID: Matrix S
Matrix: Water Analysis Batch: 604308				Prep Type: Tota
	Sample Sample	Snike	MS MS	%Rec

	Sample	Sample	Spike	IVIO	IVIO				/onec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,4-Dioxane	2.0	U	10.0	11.5		ug/L		115	20 - 180	 
	MS	MS								

Limits

68 - 127

# **QC Association Summary**

Client: Arcadis U.S., Inc. Job ID: 240-199801-1

Project/Site: Ford LTP - Off Site

# **GC/MS VOA**

# Analysis Batch: 604060

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batc
240-199801-1	TRIP BLANK_144	Total/NA	Water	8260D	
240-199801-2	MW-217S_021924	Total/NA	Water	8260D	
MB 240-604060/9	Method Blank	Total/NA	Water	8260D	
LCS 240-604060/5	Lab Control Sample	Total/NA	Water	8260D	
240-199661-B-2 MS	Matrix Spike	Total/NA	Water	8260D	
240-199661-B-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

# Analysis Batch: 604308

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-199801-2	MW-217S_021924	Total/NA	Water	8260D SIM	
MB 240-604308/6	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-604308/4	Lab Control Sample	Total/NA	Water	8260D SIM	
240-199806-D-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	
240-199806-E-2 MS	Matrix Spike	Total/NA	Water	8260D SIM	

4

4

6

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4.0

11

# **Lab Chronicle**

Client: Arcadis U.S., Inc. Job ID: 240-199801-1

Project/Site: Ford LTP - Off Site

8260D

Client Sample ID: TRIP BLANK\_144

Analysis

Lab Sample ID: 240-199801-1 Date Collected: 02/19/24 00:00

Matrix: Water

Dilution Batch Batch Batch Prepared Method Prep Type Туре Run Factor **Number Analyst** Lab or Analyzed

Client Sample ID: MW-217S\_021924 Lab Sample ID: 240-199801-2

Date Collected: 02/19/24 13:40 **Matrix: Water** 

604060 AJS

EET CLE

02/23/24 14:41

Date Received: 02/22/24 08:00

Date Received: 02/22/24 08:00

Total/NA

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Type	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8260D		1	604060	AJS	EET CLE	02/23/24 16:48
Total/NA	Analysis	8260D SIM		1	604308	MDH	EET CLE	02/27/24 12:49

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. Job ID: 240-199801-1

Project/Site: Ford LTP - Off Site

# **Laboratory: Eurofins Cleveland**

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date		
California	State	2927	02-27-24		
Georgia	State	4062	02-27-24		
Illinois	NELAP	200004	07-31-24		
lowa	State	421	06-01-25		
Kentucky (UST)	State	112225	02-28-24		
Kentucky (WW)	State	KY98016	12-30-24		
Michigan	State	9135	02-27-24		
Minnesota	NELAP	039-999-348	12-31-24		
New Jersey	NELAP	OH001	07-01-24		
New York	NELAP	10975	04-01-24		
Ohio	State	8303	02-27-24		
Ohio VAP	State	ORELAP 4062	02-27-24		
Oregon	NELAP	4062	02-27-24		
Pennsylvania	NELAP	68-00340	08-31-24		
Texas	NELAP	T104704517-22-19	08-31-24		
USDA	US Federal Programs	P330-18-00281	01-05-27		
Virginia	NELAP	460175	09-14-24		
West Virginia DEP	State	210	12-31-24		

# **Chain of Custody Record**

TestAmerico

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

Client Contact	Regulat	ory program	:		DW		N	PDES			RCF	RA		Oth	er											TestAmerica Laboratories, Inc
Company Name: Arcadis	Client Project 1	Manager: Kris	Hinsk	ey			Site Co	ntact	: Chr	ristin:	a We	aver				Lab (	Contac	t: Mil	ce Del	Monic	ico					COC No:
Address: 28550 Cabot Drive, Suite 500	Telephone: 248	-994-2240					Teleph	one.	748-9	94-27	240					Telephone: 330-497-9396										
City/State/Zip: Novi, MI, 48377										пагоц		T				,				nalys						1 of 1 COCs For lab use only
Phone: 248-994-2240	Email: kristoff	er.hinskey@ar	cadis.	com			All	arysis	S I Uri	Harrou	ino 1	ine	-		$\vdash$					mary:	l					
Project Name: Ford LTP Off-Site	Sampler Name	; ; ),	,				TAT if	differen		below 3 we	eeks		7													Walk-in client
	15.	ent K	25%	Der	•		10	day		2 wo	eeks															Lab sampling
Project Number: 30167538.402.04	Method of Ship	ment/Carrier:	•							1 wo 2 da			2	p=q			QOS			g	SIN					
PO # 30167538.402.04	Shipping/Track	ting No:								1 da	y		5	/ Gra	۵	260D	826			8260D	2600					Job/SDG No:
				M	latrix		С	ontain	iers &	Prese	rvati	ves	1 6	e C	8260	SE 8	DQ-	9	۾	oride	ne 8					
Sample Identification	Sample Date	Sample Time	Air	Aqueous	Solid	Other:	112504	E E	NaOH	ZnAci	Unpres	Other:	Filtered Sample (Y / N)	Composite=C/Grab=G	1,1-DCE 8260D	cis-1,2-DCE 8260D	Trans-1,2-DCE 8260D	PCE 8260D	TCE 8260D	Vinyl Chloride	1,4-Dioxane 8260D SIM					Sample Specific Notes / Special Instructions:
TRIP BLANK_ 144				1	, 0,			1	-	182			-	G		X	X	X	Х	X						1 Trip Blank
mw-2175-021924	2/19/24	1340	T	6				6	2				N	6	ኧ	×	ኊ	x	入	x	X					3 VOAs for 8260D 3 VOAs for 8260D SIM
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Possible Hazard Identification							San					may be				les ar				than 1						
Non-Hazard Flammable Skin Irr Special Instructions/QC Requirements & Comments: Sample Address: 34935 WordsW Submit all results through Cadena at itomaka@cadena Level IV Reporting requested.		E203631	Unk	nown				Ket	um to	o Clier	nt		Dispo	osal By	y Lab		P	Archive	ror		iv	Ionths				
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# DATA VERIFICATION REPORT



March 04, 2024

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: 30167538.402.04

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

Laboratory submittal: 199801-1 Sample date: 2024-02-19

Report received by CADENA: 2024-03-04

Initial Data Verification completed by CADENA: 2024-03-04

Number of Samples:2 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.

There were no significant QC anomalies or exceptions to report.

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 <a href="http://clms.cadenaco.com/index.cfm">http://clms.cadenaco.com/index.cfm</a>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

**Project Scientist** 

# **CADENA Valid Qualifiers**

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
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:** E203631

**Laboratory:** Eurofins Environment Testing LLC - Cleveland

**Laboratory Submittal:** 199801-1

		Sample Name: Lab Sample ID: Sample Date:	TRIP BLA 2401998 2/19/202	3011			MW-217 2401998 2/19/202			
				Report		Valid		Report		Valid
	Analyte	Cas No.	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
GC/MS VOC										
OSW-826	<u>60D</u>									
	1,1-Dichloroethene	75-35-4	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	
	Tetrachloroethene	127-18-4	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	
	Trichloroethene	79-01-6	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	
OSW-826	60DSIM									
	1,4-Dioxane	123-91-1					ND	2.0	ug/l	



# Ford Motor Company – Livonia Transmission Project

# **Data Review**

# Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG # 240-199801-1

CADENA Verification Report: 2024-03-04

Analyses Performed By: Eurofins Cleveland Barberton, Ohio

Report # 53231R Review Level: Tier III Project: 30167538.402.02

# **SUMMARY**

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-199801-1 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	NDIA III I I I AD III I MISTRIV I IIII I		Sample	Parent Sample	Ana	lysis
Sample 10	Labib	IVIALITA	Collection Date	Parent Sample	VOC	VOC SIM
TRIP BLANK_144	240-199801-1	Water	02/19/2024		Х	
MW-217S_021924	240-199801-2	Water	02/19/2024		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		Х	
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 continuing 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.

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.

# **DATA VALIDATION CHECKLIST FOR VOCs**

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

# Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Dilip Kumar

SIGNATURE:

DATE: March 20, 2024

PEER REVIEW: Andrew Korycinski

DATE: April 1, 2024

# NO CORRECTIONS/QUALIFERS ADDED TO SAMPLE ANALYSIS DATA SHEETS

# 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	ory program:			DW		┌ N	PDES			RCRA		-	Other													
Company Name: Arcadis	Client Project N	danager: Kris	Hinsk	ev			Site Co	ontact:	: Chr	istin:	ı Weave	er			- IL	ab Co	ntact	: Mik	e Del	Monic	:0					TestAmerica Laboratorio COC No:	s, Inc.
Address: 28550 Cabot Drive, Suite 500																elephe											
City/State/Zip: Novi, MI, 48377	Telephone: 248	-994-2240					Teleph								Ľ	еверп	ове: 3	>30-4								1 of 1 COC	S
Phone: 248-994-2240	Email: kristoff	er.hinskey@ar	cadis.	com			Ar	alysis	lurn	narou	ind Tim	-		H					A	nalys	ses		T-	_		For lab use only	
	Sampler Name		,				TAT if	different		below 3 we																Walk-in client	
Project Name: Ford LTP Off-Site	Method of Ship	ent Ko	15%	or			10	day	-	2 we	eeks					-										Lab sampling	
Project Number: 30167538.402.04	Method of Ship	ment/Carrier:	′							1 wo			Z	D=C			9			۵	1,4-Dioxane 8260D SIM						
PO # 30167538.402.04	Shipping/Track	ing No:								1 da	у	- 1	Sample (Y / N)	Composite=C/Grab=G	ا د	260D	826			Vinyl Chloride 8260D	2600					Job/SDG No:	
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				= =			7		_		g	_	red S	poste	ğ	5-DC	3-1,2	8260	TCE 8260D	S	ioxa					Sample Specific Notes	
Sample Identification	Sample Date	Sample Time	٩ŀ	Aqueous	Solid	Other:	HI2SO4	<u> </u>	NaOF	Zn.Ne/ NaOH	Unpres Other:		Filtered	Com	1,1-00= 82000	cis-1,2-DCE 8260D	Trans-1,2-DCE 8260D	PCE 8260D	TCE	Viny	1,4-					Special Instructions	
TRIP BLANK_ 144	_			1				1					N	G :	X	<b>x</b> :	x	X	Х	Х						1 Trip Blank	
MW-2175_021924	2/19/24	1340		6				6					N	6	X.	×	x	x	·	x	X					3 VOAs for 8260D 3 VOAs for 8260D S	SIM
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Possible Hazard Identification  Non-Hazard Flammable Skin Irri	tant Poisc	. P	Link	nown			San		ispos: um to		fee ma	y be as	sess	ed if sa	mple	s are r	etain	ed lo	ger t	han 1	mont	h) Ionths					
			UIIK	nown				KCII	um to	Clica		Dis	spose	ai by L	au	_	74	CIIIVC	101			ionai.					
Special Instructions/QC Requirements & Comments: Sample Address: 34935 WodSWL Submit all results through Cadena at jtomalia@cadenac Level IV Reporting requested.	o.com. Cadena #	E203631																									
Relinquished by:	Company:	e Le		Date/T	ime:	را	14	54	Rec	cived	by:	; (	2	[]	, 5	tor	20		Com	pany:	In c	cdi	12			Date/Time: 2/19/24 14	524
Relingarished by C.	Company:	ades		Date/T		4	102			cived		7/1	V	011	21	7	5		Com	pany:	7	76	1			Date/Time:	15
Relinquished by	Company:	A		Date/T		4	10%	20	Re	Kinco	in Lab	orator	y by	:	h	0)		_	Com	pany:	T	2	· -			2-22-24 8	;∞
\$2008, TrelAmerica Laboratories, Inc. All rights reserved.	_1 [	Ν		7	1	7 /		- 0	1		<del></del>		7	1		1			_	<u>,                                    </u>							

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# **Client Sample Results**

Client: Arcadis U.S., Inc. Job ID: 240-199801-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK\_144 Lab Sample ID: 240-199801-1

Date Collected: 02/19/24 00:00 Matrix: Water Date Received: 02/22/24 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			02/23/24 14:41	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			02/23/24 14:41	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			02/23/24 14:41	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			02/23/24 14:41	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			02/23/24 14:41	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			02/23/24 14:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)			62 - 137					02/23/24 14:41	1
4-Bromofluorobenzene (Surr)	101		56 <sub>-</sub> 136					02/23/24 14:41	1
Toluene-d8 (Surr)	95		78 - 122					02/23/24 14:41	1
Dibromofluoromethane (Surr)	103		73 - 120					02/23/24 14:41	1

Client Sample ID: MW-217S\_021924 Lab Sample ID: 240-199801-2

Date Collected: 02/19/24 13:40 Date Received: 02/22/24 08:00

IV	lethod: SW846 8260D SIM	- Volatile Orga	anic Comp	ounds (GC/N	IS)					
Α	nalyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,	4-Dioxane	2.0	U	2.0	0.86	ug/L			02/27/24 12:49	1
s	urrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,	2-Dichloroethane-d4 (Surr)	106		68 - 127			-		02/27/24 12:49	1

Method: SW846 8260D - Vo	latile Organic	Compound	ds 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			02/23/24 16:48	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			02/23/24 16:48	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			02/23/24 16:48	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			02/23/24 16:48	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			02/23/24 16:48	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			02/23/24 16:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		62 - 137			•		02/23/24 16:48	1
4-Bromofluorobenzene (Surr)	99		56 - 136					02/23/24 16:48	1

**Matrix: Water**