# PREPARED FOR

Attn: Ms. Megan Meckley Arcadis U.S., Inc. 28550 Cabot Drive Suite 500 Novi, Michigan 48377

Generated 8/19/2024 7:03:02 AM

# **JOB DESCRIPTION**

Ford LTP

# **JOB NUMBER**

240-209176-1

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.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

# Authorization

Generated 8/19/2024 7:03:02 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

Laboratory Job ID: 240-209176-1

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# **Definitions/Glossary**

Client: Arcadis U.S., Inc.

Job ID: 240-209176-1

Project/Site: Ford LTP

#### **Qualifiers**

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

U Indicates the analyte was analyzed for but not detected.

#### **Glossary**

Appreviation	These commonly used appreviations may or may not be present in this report.
n	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

**Eurofins Cleveland** 

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#### **Case Narrative**

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

Job ID: 240-209176-1 Eurofins Cleveland

Job Narrative 240-209176-1

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 and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided 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 8/9/2024 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 2.5°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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Job ID: 240-209176-1

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# **Method Summary**

Client: Arcadis U.S., Inc. Job ID: 240-209176-1 Project/Site: Ford LTP

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

#### Protocol References:

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

#### Laboratory References:

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

# **Sample Summary**

Client: Arcadis U.S., Inc.

Project/Site: Ford LTP

Job ID: 240-209176-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-209176-1	TRIP BLANK_84	Water	08/07/24 00:00	08/09/24 08:00
240-209176-2	MW-155S_080724	Water	08/07/24 10:20	08/09/24 08:00

3

4

5

9

10

1 1

13

14

# **Detection Summary**

Client: Arcadis U.S., Inc.

Project/Site: Ford LTP

Job ID: 240-209176-1

Client Sample ID: TRIP BLANK\_84

Lab Sample ID: 240-209176-1

No Detections.

Client Sample ID: MW-155S\_080724 Lab Sample ID: 240-209176-2

No Detections.

16

4

5

7

8

10

11

13

14

# **Client Sample Results**

Client: Arcadis U.S., Inc. Job ID: 240-209176-1

Project/Site: Ford LTP

Date Received: 08/09/24 08:00

Client Sample ID: TRIP BLANK\_84

Lab Sample ID: 240-209176-1 Date Collected: 08/07/24 00:00

**Matrix: Water** 

Method: SW846 8260D - Volatile Organic Compounds by GC/MS Result Qualifier RLMDL Unit D Prepared Analyzed Dil Fac 1.0 1,1-Dichloroethene 1.0 U 0.49 ug/L 08/16/24 05:51 cis-1,2-Dichloroethene 1.0 U 1.0 0.46 ug/L 08/16/24 05:51 Tetrachloroethene 1.0 U 1.0 0.44 ug/L 08/16/24 05:51 trans-1,2-Dichloroethene 1.0 U 1.0 0.51 ug/L 08/16/24 05:51 Trichloroethene 1.0 U 1.0 0.44 ug/L 08/16/24 05:51 Vinyl chloride 0.45 ug/L 1.0 U 1.0 08/16/24 05:51 %Recovery Qualifier Surrogate Limits Prepared Analyzed Dil Fac 1,2-Dichloroethane-d4 (Surr) 105 62 - 137 08/16/24 05:51 4-Bromofluorobenzene (Surr) 95 08/16/24 05:51 56 - 136 78 - 122 08/16/24 05:51 Toluene-d8 (Surr) 100 Dibromofluoromethane (Surr) 100 73 - 120 08/16/24 05:51

# **Client Sample Results**

Client: Arcadis U.S., Inc. Job ID: 240-209176-1

Project/Site: Ford LTP

Toluene-d8 (Surr)

Dibromofluoromethane (Surr)

Client Sample ID: MW-155S\_080724

Date Collected: 08/07/24 10:20

102

100

Lab Sample ID: 240-209176-2 Matrix: Water

08/16/24 06:14

08/16/24 06:14

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/14/24 14:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		68 - 127			_		08/14/24 14:31	1

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		68 - 127					08/14/24 14:31	1
- Method: SW846 8260D - Volat	ile Organic Comp	ounds by G	GC/MS						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			08/16/24 06:14	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/16/24 06:14	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/16/24 06:14	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/16/24 06:14	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/16/24 06:14	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/16/24 06:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		62 - 137			_		08/16/24 06:14	1
4-Bromofluorobenzene (Surr)	98		56 <sub>-</sub> 136					08/16/24 06:14	1

78 - 122

73 - 120

# **Surrogate Summary**

Client: Arcadis U.S., Inc.

Job ID: 240-209176-1

Project/Site: Ford LTP

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

Matrix: Water Prep Type: Total/NA

				Percent Sui	rrogate Reco
		DCA	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(62-137)	(56-136)	(78-122)	(73-120)
240-209176-1	TRIP BLANK_84	105	95	100	100
240-209176-2	MW-155S_080724	106	98	102	100
240-209176-2 MS	MW-155S_080724	97	112	104	97
240-209176-2 MSD	MW-155S_080724	97	111	107	94
LCS 240-623528/4	Lab Control Sample	96	110	107	92
MB 240-623528/7	Method Blank	101	102	105	95
0					

#### 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)	
240-209079-D-2 MS	Matrix Spike	103	
240-209079-D-2 MSD	Matrix Spike Duplicate	98	
240-209176-2	MW-155S_080724	104	
LCS 240-623291/4	Lab Control Sample	103	
MB 240-623291/6	Method Blank	104	
Surrogate Legend			

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

**Eurofins Cleveland** 

Job ID: 240-209176-1

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

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

Lab Sample ID: MB 240-623528/7

**Matrix: Water** 

Analysis Batch: 623528

<b>Client Sam</b>	ple ID:	Method	Blank
	Pren '	Type: To	tal/NA

MB MB Dil Fac Analyte Result Qualifier RLMDL Unit Prepared Analyzed 1,1-Dichloroethene 1.0 U 1.0 0.49 ug/L 08/15/24 22:38 cis-1,2-Dichloroethene 1.0 U 1.0 0.46 ug/L 08/15/24 22:38 Tetrachloroethene 1.0 U 1.0 0.44 ug/L 08/15/24 22:38 trans-1,2-Dichloroethene 1.0 U 1.0 08/15/24 22:38 0.51 ug/L Trichloroethene 1.0 U 1.0 0.44 ug/L 08/15/24 22:38 Vinyl chloride 1.0 U 1.0 0.45 ug/L 08/15/24 22:38

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		62 _ 137		08/15/24 22:38	1
4-Bromofluorobenzene (Surr)	102		56 <sub>-</sub> 136		08/15/24 22:38	1
Toluene-d8 (Surr)	105		78 - 122		08/15/24 22:38	1
Dibromofluoromethane (Surr)	95		73 - 120		08/15/24 22:38	1

Lab Sample ID: LCS 240-623528/4

**Matrix: Water** 

Analysis Batch: 623528

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	21.9		ug/L	87	63 - 134	
cis-1,2-Dichloroethene	25.0	25.3	1	ug/L	101	77 - 123	
Tetrachloroethene	25.0	23.7	İ	ug/L	95	76 - 123	
trans-1,2-Dichloroethene	25.0	23.0		ug/L	92	75 - 124	
Trichloroethene	25.0	22.7	1	ug/L	91	70 - 122	
Vinyl chloride	12.5	11.0		ug/L	88	60 - 144	

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	96		62 - 137
4-Bromofluorobenzene (Surr)	110		56 <sub>-</sub> 136
Toluene-d8 (Surr)	107		78 - 122
Dibromofluoromethane (Surr)	92		73 - 120

Lab Sample ID: 240-209176-2 MS

**Matrix: Water** 

Analysis Batch: 623528

Client Sample ID: MW-155S\_080724

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	18.4		ug/L		74	56 - 135	
cis-1,2-Dichloroethene	1.0	U	25.0	23.5		ug/L		94	66 - 128	
Tetrachloroethene	1.0	U	25.0	17.9		ug/L		72	62 - 131	
trans-1,2-Dichloroethene	1.0	U	25.0	18.8		ug/L		75	56 - 136	
Trichloroethene	1.0	U	25.0	17.5		ug/L		70	61 - 124	
Vinyl chloride	1.0	U	12.5	10.0		ug/L		80	43 - 157	

MS MS

Surrogate	%Recovery (	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	97		62 - 137
4-Bromofluorobenzene (Surr)	112		56 - 136
Toluene-d8 (Surr)	104		78 - 122

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

Job ID: 240-209176-1

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

Lab Sample ID: 240-209176-2 MS

**Matrix: Water** 

Analysis Batch: 623528

Client Sample ID: MW-155S\_080724

Prep Type: Total/NA

MS MS

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

Lab Sample ID: 240-209176-2 MSD Client Sample ID: MW-155S\_080724

**Matrix: Water** 

Analysis Batch: 623528

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	18.3		ug/L		73	56 - 135	1	26
cis-1,2-Dichloroethene	1.0	U	25.0	22.6		ug/L		91	66 - 128	4	14
Tetrachloroethene	1.0	U	25.0	18.5		ug/L		74	62 - 131	3	20
trans-1,2-Dichloroethene	1.0	U	25.0	19.2		ug/L		77	56 - 136	2	15
Trichloroethene	1.0	U	25.0	17.7		ug/L		71	61 - 124	2	15
Vinyl chloride	1.0	U	12.5	9.85		ug/L		79	43 - 157	2	24

MSD MSD

MR MR

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	97		62 - 137
4-Bromofluorobenzene (Surr)	111		56 - 136
Toluene-d8 (Surr)	107		78 - 122
Dibromofluoromethane (Surr)	94		73 - 120

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

Lab Sample ID: MB 240-623291/6

**Matrix: Water** 

Analysis Batch: 623291

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

Client Sample ID: Lab Control Sample

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/14/24 11:00	1

MB MB

Surrogate %Recovery Qualifier Limits Prepared Analyzed Dil Fac 1,2-Dichloroethane-d4 (Surr) 104 68 - 127 08/14/24 11:00

Lab Sample ID: LCS 240-623291/4

Matrix: Water			Prep Type: Total/NA
Analysis Batch: 623291			
	Spike	LCS LCS	%Rec

Analyte Added Result Qualifier Unit %Rec Limits 1,4-Dioxane 10.0 9.82 ug/L

LCS LCS

%Recovery Qualifier Surrogate Limits 1,2-Dichloroethane-d4 (Surr) 68 - 127 103

Lab Sample ID: 240-209079-D-2 MS Client Sample ID: Matrix Spike Prep Type: Total/NA

**Matrix: Water** 

Analysis Batch: 623291

	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,4-Dioxane	2.0	U	10.0	8.41		ug/L		84	20 - 180	

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# **QC Sample Results**

Client: Arcadis U.S., Inc. Job ID: 240-209176-1

Project/Site: Ford LTP

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

98

1,2-Dichloroethane-d4 (Surr)

		MS	MS	
,	Surrogate	%Recovery	Qualifier	Limits
L	1,2-Dichloroethane-d4 (Surr)	103		68 - 127
Γ	Lab Sample ID: 240-209079-	D-2 MSD		
	Matrix: Water			

Analysis Batch: 623291								
	Sample Sample	Spike	MSD MSD			%Rec		RPI
Amaluta	Desuit Ouglities	A al al a al	Desuit Ouslities	11-44	 0/ Daa	Limite	DDD	1 :

Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,4-Dioxane	2.0	U	10.0	9.53		ug/L		95	20 - 180	12	20
	MSD	MSD									
Surrogate	%Recovery	Qualifier	Limits								

68 - 127

# **QC Association Summary**

Client: Arcadis U.S., Inc.

Project/Site: Ford LTP

Job ID: 240-209176-1

# **GC/MS VOA**

# Analysis Batch: 623291

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-209176-2	MW-155S_080724	Total/NA	Water	8260D SIM	
MB 240-623291/6	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-623291/4	Lab Control Sample	Total/NA	Water	8260D SIM	
240-209079-D-2 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-209079-D-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

# Analysis Batch: 623528

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-209176-1	TRIP BLANK_84	Total/NA	Water	8260D	<u> </u>
240-209176-2	MW-155S_080724	Total/NA	Water	8260D	
MB 240-623528/7	Method Blank	Total/NA	Water	8260D	
LCS 240-623528/4	Lab Control Sample	Total/NA	Water	8260D	
240-209176-2 MS	MW-155S_080724	Total/NA	Water	8260D	
240-209176-2 MSD	MW-155S_080724	Total/NA	Water	8260D	

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# **Lab Chronicle**

Client: Arcadis U.S., Inc. Job ID: 240-209176-1

Project/Site: Ford LTP

Client Sample ID: TRIP BLANK\_84

Lab Sample ID: 240-209176-1 Date Collected: 08/07/24 00:00

Matrix: Water

Date Received: 08/09/24 08:00

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8260D		1	623528	LEE	EET CLE	08/16/24 05:51

Client Sample ID: MW-155S\_080724 Lab Sample ID: 240-209176-2

Date Collected: 08/07/24 10:20 Matrix: Water

Date Received: 08/09/24 08:00

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Type	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8260D		1	623528	LEE	EET CLE	08/16/24 06:14
Total/NA	Analysis	8260D SIM		1	623291	MS	EET CLE	08/14/24 14:31

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: 240-209176-1 Project/Site: Ford LTP

# **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	08-31-25		
lowa	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	07-03-25		
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	08-31-25		
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**

MICHIGAN TestA

TestAmerica
The LEADER IN ENVIRONMENTAL TESTING

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

Client Contact	Regulat	tory program:		□ D,	V		(PDE	S		RCRA		Oth	er 「												
Company Name: Arcadis	Client Project	Manager: Kris l	Hinskey			Site C	Contac	t: Cl	hristina	Weaver	_			Lab (	Conta	ct: Mi	ke Del	Monic	0			estAmerica OC No:	Labor	atories,	nc.
Address: 28550 Cabot Drive, Suite 500	Telephone: 248								-994-22					Talar	hana	220	197-93	06			$\dashv$				4
City/State/Zip: Novi, MI, 48377	1													reiej	onone:	330=						1 of		COCs	ゴ
Phone: 248-994-2240	Email: kristoff	er.hinskey@arc	cadis.com			_^	nalys	is Tu	rnarou	d Time	-		$\vdash$		T	Т	A	naly	es		Fo	or lab use onl	y		-
Project Name: Ford LTP	Sampler Name		1 -	,		TATı	f differe		n below 3 we	alco											W	/alk-in client		00.00000	
		laigam l	Hana	rn		10	day	12	2 we	eks									_		L	ab sampling			-
Project Number: 30206169.0401.03	Method of Ship	ment/Carrier:							1 we 2 day		E	D=G			8260D			g	SIN						
PO # US3410018772	Shipping/Tracl	king No:				]		T	l day		2	/Gra	۾	2600	E 826			826(	8260D SIM		Jo	bb/SDG No			
				Matrix	0-107		Contai	ners o	& Prese	vatives	I sum	le=C	8260D	CE 8	2-00	9	8	oride	ane 8				100	1000	4
*		Sample Time	ir	Sediment	Other:	H2SO4	HNO3	5   5	P 10	Unpres Other:	Filtered Sample (Y / N)	Composite=C/Grab=G	1,1-DCE	cis-1,2-DCE 8260D	Trans-1,2-DCE	PCE 8260D	TCE 8260D	Vinyl Chloride 8260D	1,4-Dioxane			Sample Special	Specific I Instruc		
Sample Identification	Sample Date	Sample Time		S	10.	F	_		2 2 2	<u> </u>	-	=					F		-	$\rightarrow \rightarrow$	<del>   </del>				╡
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Special Instructions/QC Requirements & Comments: i206 Submit all results through Cadena at jtomalia@cadenaco.c	6 Bosta	r Post																							
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rofins — Gleveland Sample-Receipt FormiNarrative Login rberton Facility	
ent Arcadis Site Name	Cooler unpacked by
oler Received on 8(9)24 Opened on 8(9)24	たろ
dEx: 1st Grd Exp UPS FAS Waypoilst Client Drop Off Eurofins Courier Other	Other
ceipt After-hours. Drop-off Date/Time Storage Location	
rofins Cooler # EC Foam Box Client Cooler Box Other	
Packing material used. Bubtie What Foam Plastic Bag None Other	
COOLANT Wet Ice Blue Ice Dry Ice Water None	

5 2 2 C

\_ IR GUN# Cooler temperature upon receipt (A -0 |<u>-</u> Observed Cooler Temp. See Multiple Cooler Form °C Corrected Cooler Temp

'n Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity Yes) No Tests that are not checked for pH by

-Were tamper/custody seals intact and uncompromised? -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? -Were the seals on the outside of the cooler(s) signed & dated? 3 **K** 8

Did custody papers accompany the sample(s)? Shippers' packing slip attached to the cooler(s)?

Were the custody papers relinquished & signed in the appropriate place?

4200 Was/were the person(s) who collected the samples clearly identified on the COC?

Did all bottles arrive in good condition (Unbroken)?

9 00 For each sample, does the COC specify preservatives (M), # of containers (M). Could all bottle labels (ID/Date/Time) be reconciled with the COC?

ĭO Were correct bottle(s) used for the test(s) indicated?

Are these work share samples and all listed on the COC?

Yes

No. Yes No

sample type of grab/comp(YN)?

ž

(ES)No

긺

Oil and Grease TOC

VOAs

NA

Z

Receiving:

X

Sufficient quantity received to perform indicated analyses?

بسبر فسنز

Were all preserved sample(s) at the correct pH upon receipt? If yes, Questions 13-17 have been checked at the originating laboratory

16. 17 15 74

Were VOAs on the COC?

Was a VOA trip blank present in the cooler(s)?
Was a LL Hg or Me Hg trip blank present? Were air bubbles >6 mm in any VOA vials? Trip Blank Lot # \

Yes No NA

Concerning Contacted PM Date কু via Verbal Voice Mail Other

Sample(s) Sample(s) VOA Sample Preservation -Time preserved. Sample(s) 20. SAMPLE PRESERVATION Sample(s) 18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES SAMPLE CONDITION Date/Time VOAs Frozen Preservative(s) added/Lot number(s): were received after the recommended holding time had expired were received with bubble >6 mm in diameter (Notify PM) additional next page were received in a broken container were further preserved in the laboratory Samples processed by

WI-NC-099-062024 Cooler Receipt Form.doc 🖈

No (NA) pH Strip Lot# HC442471

Login #:

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WI-NC-099 Cooler Receipt Form Page 2 – Multiple Coolers

Page 20 of 20 8/19/2024

# DATA VERIFICATION REPORT



August 19, 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: 30206169.0401.04\_WA-02

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

Laboratory submittal: 209176-1 Sample date: 2024-08-07

Report received by CADENA: 2024-08-19

Initial Data Verification completed by CADENA: 2024-08-19

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, 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 <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:** E203728

Laboratory: Eurofins Environment Testing LLC - Cleveland

Laboratory Submittal: 209176-1

		Sample Name: Lab Sample ID: Sample Date:	TRIP BL/ 240209 8/7/202	1761 4			MW-155 240209 8/7/202	1762 4		
				Report		Valid		Report		Valid
	Analyte	Cas No.	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
GC/MS VOC										
<u>OSW-8260</u>	<u>OD</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-8260	<u>DDSIM</u>									
	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 # 240-209176-1

CADENA Verification Report: 2024-08-19

Analyses Performed By: Eurofins Cleveland Barberton, Ohio

Report # 55538R Review Level: Tier III Project: 30206169.0401.02

# **SUMMARY**

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-209176-1 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	Parent Sample	Ana	lysis
Sample 10	Labib	IVIALITA	Collection Date	Farent Sample	VOC	VOC SIM
TRIP BLANK_84	240-209176-1	Water	08/07/2024		X	
MW-155S_080724	240-209176-2	Water	08/07/2024		X	X

# **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 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 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		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		Х	
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: Bindu Sree M B

SIGNATURE: BAShims

DATE: September 12, 2024

PEER REVIEW: Andrew Korycinski

DATE: September 17, 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	Regula	tory program:	:		DW	Г	NPDI	ES	Γ-	RCR	4	┌ 0	ther												
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Address: 28550 Cabot Drive, Suite 500	Telephone: 248-994-2240													Lab Contact: Mike DelMonico							1			_	
City/State/Zip: Novi, MI, 48377						Tele							Tel	Telephone: 330-497-9396							1 of 1 COCs			-	
	Email: kristoffer.hinskey@arcadis.com						Analysis Turnaround Time					-	Analyses							For lab use only					
Phone: 248-994-2240	Sampler Name:					TA	TAT if different from below													Walk-in	client	The second			
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Project Number: 30206169,0401.03	Method of Shipment/Carrier:				7					g				SI SI SI			Lab sampling		BAN						
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Sample Identification	Sample Date	Sample Time	Air	Sediment	Solid Other:	H2S04	HNO3	HCI	ZaAd	Unpres	Other:	Filtered Sample (Y / N)	1 1-DCE 82600	cis-1.2-DCE 8260D	Trans-1,2-DCE	PCE 8260D	TCE 8260D	Vinyl Chloride 8260D	1,4-Dioxane 8260D SIM					cific Notes	
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# **Client Sample Results**

Client: Arcadis U.S., Inc. Job ID: 240-209176-1 Project/Site: Ford LTP

Client Sample ID: TRIP BLANK\_84

Lab Sample ID: 240-209176-1 Date Collected: 08/07/24 00:00 **Matrix: Water** 

Date Received: 08/09/24 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			08/16/24 05:51	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/16/24 05:51	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/16/24 05:51	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/16/24 05:51	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/16/24 05:51	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/16/24 05:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		62 - 137			_		08/16/24 05:51	1
4-Bromofluorobenzene (Surr)	95		56 <sub>-</sub> 136					08/16/24 05:51	1
Toluene-d8 (Surr)	100		78 - 122					08/16/24 05:51	1
Dibromofluoromethane (Surr)	100		73 - 120					08/16/24 05:51	1

Client Sample ID: MW-155S\_080724 Lab Sample ID: 240-209176-2

Date Collected: 08/07/24 10:20 Date Received: 08/09/24 08:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/14/24 14:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		68 - 127			-		08/14/24 14:31	1
Method: SW846 8260D - Volat	ile 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			08/16/24 06:14	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/16/24 06:14	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/16/24 06:14	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/16/24 06:14	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/16/24 06:14	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/16/24 06:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		62 - 137			_		08/16/24 06:14	1
4-Bromofluorobenzene (Surr)	98		56 - 136					08/16/24 06:14	1
Toluene-d8 (Surr)	102		78 - 122					08/16/24 06:14	1
Dibromofluoromethane (Surr)	100		73 - 120					08/16/24 06:14	1

**Matrix: Water**