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# **ANALYTICAL REPORT**

# PREPARED FOR

Attn: Ms. Megan Meckley Arcadis US Inc. 28550 Cabot Drive Suite 500 Novi, Michigan 48377 Generated 5/9/2025 7:13:40 AM

# **JOB DESCRIPTION**

Ford LTP

# **JOB NUMBER**

240-223509-1

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**

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Authorized for release by Michael DelMonico, Project Manager I Michael.DelMonico@et.eurofinsus.com (330)966-9783

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# **Definitions/Glossary**

Client: Arcadis US Inc.

Job ID: 240-223509-1

Project/Site: Ford LTP

# **Qualifiers**

GC/MS VOA
Qualifier Qualifier Description

U Indicates the analyte was analyzed for but not detected.

# **Glossary**

DL, RA, RE, IN

Abbreviation	These commonly used abbreviations may or may not be present in this report.
<del>\</del>	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
DI	Detection Limit (DoD/DQE)

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 US Inc. Project: Ford LTP

Job ID: 240-223509-1

**Eurofins Cleveland** 

Job ID: 240-223509-1

Job Narrative 240-223509-1

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 5/2/2025 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.6°C.

### GC/MS VOA

Method 8260D: The matrix spike/matrix spike duplicate (MS/MSD) for samples TRIP BLANK\_23 (240-223509-1) and MW-91S\_043025 (240-223509-2) was not reported, because the analyte list for these samples did not match the analyte list for the MS/MSD parent sample.

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

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# **Method Summary**

Client: Arcadis US Inc.

Project/Site: Ford LTP

Job ID: 240-223509-1

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

# Protocol References:

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

# Laboratory References:

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

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# **Sample Summary**

Client: Arcadis US Inc.

Project/Site: Ford LTP

Job ID: 240-223509-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-223509-1	TRIP BLANK_23	Water	04/30/25 00:00	05/02/25 08:00
240-223509-2	MW-91S_043025	Water	04/30/25 11:30	05/02/25 08:00

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# **Detection Summary**

Client: Arcadis US Inc.

Project/Site: Ford LTP

Job ID: 240-223509-1

Client Sample ID: TRIP BLANK\_23 Lab Sample ID: 240-223509-1

No Detections.

No Detections.

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# **Client Sample Results**

Client: Arcadis US Inc. Job ID: 240-223509-1

Project/Site: Ford LTP

Client Sample ID: TRIP BLANK\_23

Date Received: 05/02/25 08:00

Lab Sample ID: 240-223509-1 Date Collected: 04/30/25 00:00

**Matrix: Water** 

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/06/25 12:45	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/06/25 12:45	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/06/25 12:45	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/06/25 12:45	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/06/25 12:45	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/06/25 12:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		62 - 137			-		05/06/25 12:45	1
4-Bromofluorobenzene (Surr)	90		56 <sub>-</sub> 136					05/06/25 12:45	1
Toluene-d8 (Surr)	86		78 - 122					05/06/25 12:45	1
Dibromofluoromethane (Surr)	100		73 - 120					05/06/25 12:45	1

# **Client Sample Results**

Client: Arcadis US Inc. Job ID: 240-223509-1

Project/Site: Ford LTP

Client Sample ID: MW-91S\_043025

Date Collected: 04/30/25 11:30 Date Received: 05/02/25 08:00

Dibromofluoromethane (Surr)

Lab Sample ID: 240-223509-2

05/06/25 15:29

**Matrix: Water** 

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			05/07/25 20:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		68 - 127			-		05/07/25 20:52	1
Method: SW846 8260D - Volat	ile Organic Comp	ounds by G	C/MS						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/06/25 15:29	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/06/25 15:29	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/06/25 15:29	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/06/25 15:29	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/06/25 15:29	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/06/25 15:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		62 - 137			_		05/06/25 15:29	1
4-Bromofluorobenzene (Surr)	84		56 - 136					05/06/25 15:29	1
Toluene-d8 (Surr)	100		78 <sub>-</sub> 122					05/06/25 15:29	1

73 - 120

# **Surrogate Summary**

Client: Arcadis US Inc.

Job ID: 240-223509-1

Project/Site: Ford LTP

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

Matrix: Water Prep Type: Total/NA

				Percent Sur	rogate Red
		DCA	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(62-137)	(56-136)	(78-122)	(73-120)
240-223509-1	TRIP BLANK_23	96	90	86	100
240-223509-2	MW-91S_043025	99	84	100	102
LCS 240-654855/7	Lab Control Sample	90	90	102	98
MB 240-654855/9	Method Blank	98	86	100	103

**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)	
240-223509-2	MW-91S_043025	106	
240-223617-B-6 MS	Matrix Spike	105	
240-223617-B-6 MSD	Matrix Spike Duplicate	103	
LCS 240-655129/3	Lab Control Sample	105	
MB 240-655129/5	Method Blank	104	

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

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Client: Arcadis US Inc. Job ID: 240-223509-1

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

Lab Sample ID: MB 240-654855/9

**Matrix: Water** 

Project/Site: Ford LTP

Analysis Batch: 654855

Client Sample ID: Method Blank

Prep Type: Total/NA

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/06/25 11:11	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/06/25 11:11	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/06/25 11:11	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/06/25 11:11	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/06/25 11:11	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/06/25 11:11	1

MB MB %Recovery Qualifier Dil Fac Limits Prepared Analyzed 62 - 137 05/06/25 11:11 1,2-Dichloroethane-d4 (Surr) 98 4-Bromofluorobenzene (Surr) 86 56 - 136 05/06/25 11:11 Toluene-d8 (Surr) 100 78 - 122 05/06/25 11:11 Dibromofluoromethane (Surr) 73 - 120 05/06/25 11:11

Lab Sample ID: LCS 240-654855/7

**Matrix: Water** 

1,1-Dichloroethene

Tetrachloroethene

Trichloroethene

Vinyl chloride

cis-1,2-Dichloroethene

trans-1,2-Dichloroethene

Analyte

Surrogate

Analysis Batch: 654855

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

Spike LCS LCS %Rec Added Result Qualifier Unit %Rec Limits 98 25.0 24.5 ug/L 63 - 134 25.0 25.1 ug/L 100 77 - 123 25.0 25.6 ug/L 102 76 - 123 25.0 25.0 100 75 - 124 ug/L 25.0 107 26.8 ug/L 70 - 122 25.0 ug/L 98 60 - 144 24.6

LCS LCS %Recovery Qualifier Limits Surrogate 1,2-Dichloroethane-d4 (Surr) 90 62 - 137 4-Bromofluorobenzene (Surr) 90 56 - 136 Toluene-d8 (Surr) 102 78 - 122 Dibromofluoromethane (Surr) 73 - 120 98

103

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

Lab Sample ID: MB 240-655129/5

**Matrix: Water** 

Analysis Batch: 655129

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

	МВ	МВ							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			05/07/25 20:05	1
	МВ	МВ							

Surrogate %Recovery Qualifier Limits Prepared Analyzed Dil Fac 1,2-Dichloroethane-d4 (Surr) 104 68 - 127 05/07/25 20:05

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# QC Sample Results

Client: Arcadis US Inc. Job ID: 240-223509-1

Project/Site: Ford LTP

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

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

**Matrix: Water** Analysis Batch: 655129

Lab Sample ID: LCS 240-655129/3

Spike LCS LCS %Rec Result Qualifier Analyte Added Unit %Rec Limits 1,4-Dioxane 10.0 8.38 ug/L 84 75 - 121

LCS LCS

Surrogate %Recovery Qualifier Limits 68 - 127 1,2-Dichloroethane-d4 (Surr) 105

Lab Sample ID: 240-223617-B-6 MS Client Sample ID: Matrix Spike Prep Type: Total/NA

**Matrix: Water** 

Analysis Batch: 655129

Sample Sample Spike MS MS %Rec Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits 1,4-Dioxane 2.0 U 10.0 9.50 ug/L 20 - 180

MS MS

Surrogate %Recovery Qualifier Limits 1,2-Dichloroethane-d4 (Surr) 68 - 127 105

Lab Sample ID: 240-223617-B-6 MSD Client Sample ID: Matrix Spike Duplicate

**Matrix: Water** 

Analysis Batch: 655129

RPD Sample Sample Spike MSD MSD %Rec Qualifier Added Qualifier RPD Analyte Result Result Unit %Rec Limits Limit 1,4-Dioxane 2.0 U 10.0 8.67 ug/L 87 20 - 180 20

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

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Prep Type: Total/NA

# **QC Association Summary**

Client: Arcadis US Inc.

Project/Site: Ford LTP

Job ID: 240-223509-1

# **GC/MS VOA**

# Analysis Batch: 654855

	Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
	240-223509-1	TRIP BLANK_23	Total/NA	Water	8260D	
	240-223509-2	MW-91S_043025	Total/NA	Water	8260D	
	MB 240-654855/9	Method Blank	Total/NA	Water	8260D	
Į	LCS 240-654855/7	Lab Control Sample	Total/NA	Water	8260D	

# Analysis Batch: 655129

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-223509-2	MW-91S_043025	Total/NA	Water	8260D SIM	
MB 240-655129/5	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-655129/3	Lab Control Sample	Total/NA	Water	8260D SIM	
240-223617-B-6 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-223617-B-6 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

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# **Lab Chronicle**

Client: Arcadis US Inc. Job ID: 240-223509-1

Project/Site: Ford LTP

Client Sample ID: TRIP BLANK\_23

Lab Sample ID: 240-223509-1 Date Collected: 04/30/25 00:00

Matrix: Water

Dilution Batch Batch Batch Prepared Method Prep Type Туре Run Factor **Number Analyst** Lab or Analyzed Total/NA 8260D 654855 MS EET CLE 05/06/25 12:45 Analysis

Client Sample ID: MW-91S\_043025 Lab Sample ID: 240-223509-2

Date Collected: 04/30/25 11:30 **Matrix: Water** 

Date Received: 05/02/25 08:00

Date Received: 05/02/25 08:00

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8260D		1	654855	MS	EET CLE	05/06/25 15:29
Total/NA	Analysis	8260D SIM		1	655129	R5XG	EET CLE	05/07/25 20:52

Laboratory References:

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

# **Accreditation/Certification Summary**

Client: Arcadis US Inc.

Project/Site: Ford LTP

Job ID: 240-223509-1

# **Laboratory: Eurofins Cleveland**

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

Authority	Program	Identification Number	Expiration Date
Connecticut	State	PH-0806	12-31-26
Georgia	State	4062	02-27-26
Illinois	NELAP	200004	08-31-25
lowa	State	421	06-01-25
Kansas	NELAP	E-10336	01-31-26
Kentucky (UST)	State	112225	02-28-26
Kentucky (WW)	State	KY98016	12-31-25
Minnesota	NELAP	039-999-348	12-31-25
New Hampshire	NELAP	225024	09-30-25
New Jersey	NELAP	OH001	07-03-25
New York	NELAP	10975	04-01-26
North Dakota	State	R-244	02-27-26
Ohio	State	8303	11-04-25
Ohio VAP	State	ORELAP 4062	02-28-26
Oregon	NELAP	4062	02-27-26
Pennsylvania	NELAP	68-00340	08-31-25
Texas	NELAP	T104704517-22-19	08-31-25
US Fish & Wildlife	US Federal Programs	A26406	02-28-26
USDA	US Federal Programs	P330-18-00281	01-05-27
Virginia	NELAP	460175	09-14-25
West Virginia DEP	State	210	12-31-25
Wisconsin	State	399167560	08-31-25

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# MICHIGAN 190

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# **Chain of Custody Record**

Client Contact	TestAmerica Labora Regulat	ory program:			DW		NE			┌ R		┌ o							-	•				
ompany Name: Arcadis	Client Project !	Managam Mag	- Maal	·lau		lei	*- C-		C	antha S				17.5	Combo	t: Mik	- D-1	N41-					TestAmerica Laboratorio	
dress: 28550 Cabot Drive, Suite 500			in wieci	aey							paieni	er							٥			COC No:		
y/State/Zip: Novi, MI, 48377	Telephone: 248	-994-2240				T	_			4-2240				Tele	phone:	330-49	7-939	96					1 of 1 COCs	
one: 248-994-2240	Email: megan.ı	neckley@arcae	dis.com				An	alysis	Twe	around	Time	-		1			A	nalys	ස				For lab use only	
	Sampler Name					Τ,	AT is d	ifferent f	from bo	clow													Walk-in client	
ject Name: Ford LTP		Kayler .	DeR	OD			10 d	lav		3 weeks 2 weeks													Lab sampling	
oject Number: 30251157.401.04	Method of Ship							ay	Г	i week		9	,						₹				Lao samping	
# US3460023914	Shipping/Track	ing No:								2 days 1 day		e (Y/)		Q097	8260			8260D	S 009				Job/SDG No:	
				Mat			C	atalaci	n & I	Preserva	ives	Filtered Sample (Y / N)	1,1-DCE 8260D	cis-1,2-DCE 8260D	Trans-1,2-DCE 8260D	Q09	8260D	Vinyl Chloride 8260D	1,4-Dioxene 8260D SIM					
Sample Identification	Sample Date	Sample Time	۸ir	Sediment	Solid	Foscil	HNO3	HCI	NaOH	ZaAc/ NaOH Unores	Other:	Filtere	1,1-DC	cis-1,2	Trans-	PCE 8260D	TCE 82	Vinyl C	1,4-Dio				Sample Specific Notes Special Instructions:	
TRIP BLANK_ 13			1					1				N	3 X	Х	Х	х	Х	Х					1 Trip Blank	
MW-915_043025	4/30/25	1130	(	2				6				NG	- X	7	×	7-	>	7	X				3 VOAs for 8260D 3 VOAs for 8260D S	
					1-1	,																		
			1	+			1/3	1	3 5			П											MYS	
						$\neg$				-	_													
			$\Box$				$\dagger$																- W.K	
			$\vdash$			$\top$						$\dagger \dagger$								$\forall$	_ 24	10-223	3509 COC	
				+				$\Box$		+		$\dagger \dagger$									-	T		
			$\vdash$	$\top$	H	$\dashv$	+	$\forall$		+		H	$\dagger$				Н				_			
Possible Hazard Identification  Non-Hazard Planmable Sin	Irritant Poiso	n B	Jnkno	wn	<u></u> _	$\top$	Sam			l ( A fee Client		assessed Disposal				ned lon		nan 1 r		) onths				
111		uster											-,											
bmit all results through Cadena at jtomalia@cade vel IV Reporting requested.																								
nquished by: Smylll N-2007	Company:	adis		ite/Tim		i li	00	0	Recei	ived by:	. (.	old	Sto	1149	e		Comp	any: Aru	ud	د;			Date/Time: 4/30/25 160	
Continue	Company	adis	D:	STim	125		253	_ [	Recei	ived by:		e				ľ	Comp	EU	7				4/30/25 160 Date/Time: S/1/25 169	
inquished by:	Company:	514		S/11		120	7		Rece	ived in	Laborat	ory by	1//	1				апу:					Date/Time: 5-2-25 8	

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	VOA Sample Preservation - Date/Time VOAs Frozen.
······································	Sample(s) were further preserved in the laboratory Time preserved Preservative(s) added/Lot number(s)
	20. SAMPLE PRESERVATION
	Sample(s)were received after the recommended holding time had expired.  Sample(s)were received with bubble >6 mm in diameter (Notify PM)
	18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Dadditional next page Labeled by Labels Verified by MYCOSYA
	Concerning
	Contacted PM Date by via Verbal Voice Mail Other
	14 Were VOAs on the COC?  15 Were air bubbles >6 mm in any VOA vials? Larger than this Yes MO NA  16 Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # Yes No  17 Was a LLL Hg or Me Hg trip blank present?
	Sufficient quantity received to perform indicated analyses?  Are these work share samples and all listed on the COC?  Yes No  Yes No  If yes, Questions 13-17 have been checked at the originating laboratory
i	7 Did all bottles arrive in good condition (Unbroken)?  8 Could all bottle labels (ID/Date/Time) be reconciled with the COC?  9—For each sample, does the COC specify preservatives (VN), # of containers (VN), and sample type of grab/comp (VN)?  10 Were correct bottle(s) used for the test(s) indicated?
	Was/were the person(s) who collected the samples clearly identified on the COC?  Yes  Was/were the person(s) who collected the samples clearly identified on the COC?  Yes
	-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?  -Were tamper/custody seals intact and uncompromised?  -Were tamper/custody seals intact and uncompromised?
	httple Cooler Form
	ox Client Cooler Bo Foam Plastic Bag Ice Dry Ice Water
	Receipt After-hours Drop-off Date/Time Storage Location
	Received on S-2-25 Opened on S-2-25
·u	Cooler unpacked by
ر. مار	- 11:1

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# **Login Container Summary Report**

240-223509

Temperature readings			
Client Sample ID	<u>Lab ID</u>	Container Type	Container Preservation Preservation  pH Temp Added Lot Number
TRIP BLANK_23	240-223509-A-1	Voa Vial 40ml - Hydrochloric Acid	
MW-91S_043025	240-223509-A-2	Voa Vial 40ml - Hydrochloric Acid	
MW-91S_043025	240-223509-B-2	Voa Vial 40ml - Hydrochloric Acıd	
MW-91S_043025	240-223509-C-2	Voa Vial 40ml - Hydrochloric Acid	
MW-91S_043025	240-223509-D-2	Voa Vial 40ml - Hydrochloric Acid	
MW-91S_043025	240-223509-E-2	Voa Vial 40ml - Hydrochloric Acid	
MW-91S_043025	240-223509-F-2	Voa Vial 40ml - Hydrochloric Acıd	

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# DATA VERIFICATION REPORT



May 09, 2025

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

CADENA project ID: E203728

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

Project number: 30251157.401.04 (vapor 301.04) Event Specific Scope of Work References: Sample COC Laboratory: Eurofins Environment Testing LLC - Cleveland

Laboratory submittal: 223509-1 Sample date: 2025-04-30

Report received by CADENA: 2025-05-09

Initial Data Verification completed by CADENA: 2025-05-09

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:** E203728

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

Laboratory Submittal: 223509-1

		Sample Name:	ole Name: TRIP BLANK_23				MW-919	5_04302	25	
		Lab Sample ID:	240223	5091			240223	5092		
		Sample Date:	4/30/20	25			4/30/20			
				Report		Valid		Report		Valid
	Analyte	Cas No.	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
GC/MS VOC										
OSW-826	<u>0D</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	<u>ODSIM</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 # 240-223509-1

CADENA Verification Report: 2025-05-09

Analyses Performed By: Eurofins Cleveland Barberton, Ohio

Report # 59430R Review Level: Tier III Project: 30251157.401.02

# **SUMMARY**

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-223509-1 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 ID	Labib	Watrix	Collection Date	Farent Sample	voc	VOC SIM
TRIP BLANK_23	240-223509-1	Water	04/30/2025		Х	
MW-91S_043025	240-223509-2	Water	04/30/2025		X	X

# **ANALYTICAL DATA PACKAGE DOCUMENTATION**

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

Items Reviewed	Rep	orted	Perfori Accep		Not Required
	No	Yes	No	Yes	Required
Sample receipt condition		Χ		X	
2. Requested analyses and sample results		X		Х	
Master tracking list		X		X	
4. Methods of analysis		X		Х	
5. Reporting limits		Х		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	orted	Perfo Acce	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	<u>'</u>				'
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	
lon 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		Х		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: Febin J S

SIGNATURE:

DATE: June 2, 2025

PEER REVIEW: Andrew Korycinski

DATE: June 5, 2025

# NO CORRECTIONS/QUALIFERS ADDED TO SAMPLE ANALYSIS DATA SHEETS

# MICHIGAN 190

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# **Chain of Custody Record**

Client Contact	TestAmerica Labora Regulat	ory program:			DW		NP			┌ RC		┌ o							-				
ompany Name: Arcadis	Client Project	Managam Mag	- Maal	·lau		lei	·- C-		C	andha C				17.5	Combo	4- NAII-	- D-1	N41-					TestAmerica Laboratori
dress: 28550 Cabot Drive, Suite 500		eckiey			Site Contact: Samantha Szpaichler					Lab Contact: Mike DelMonico						COC No:							
y/State/Zip: Novi, MI, 48377	Telephone: 248	-994-2240				T	_			4-2240				Telephone: 330-497-9396						1 of 1 COCs			
one: 248-994-2240	Email: megan.meckley@arcadis.com						Analysis Turnsround Time					1	Analyses							For lab use only			
	Sampler Name: Kayler Vickou					Τ,	TAT if different from below														Walk-in client  Lab sampling		
ject Name: Ford LTP							10 day    3 weeks 2 weeks i week																
oject Number: 30251157.401.04	Method of Shipment/Carrier:																	Lao samping					
# US3460023914	Shipping/Track	Shipping/Tracking No:					The Companies & Preservatives  Companies & Preservatives  Companies Companie				260D	8260			8260D	260D S			Job/SDG No:				
				Mat						iners & Preservatives		Filtered Sample (Y / N)	Composite-C/C	cis-1,2-DCE 8260D	Trans-1,2-DCE 8260D	PCE 8260D	8260D	Vinyl Chloride 8260D	1,4-Dioxane 8260D SIM				Sample Specific Note
Sample Identification	Sample Date	Sample Time	Ŋį.	Sediment	Solld	POSCII	HN03	Ξ	NaOH	ZaAc/ NaOH Unpres	Oiber	Filter	1,1-D	cis-1.	Trans	PCE	TCE	Viny	1,4-D				Special Instructions
TRIP BLANK_ 13			1					1				N	X	X	Х	х	Х	Х					1 Trip Blank
MW-915_043025	4/30/25	1130	(	2				6				NG	- X	7	×	7-	>	7	×				3 VOAs for 8260D 3 VOAs for 8260D
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Possible Hazard Identification  Non-Hazard Identification	Irritant Poiso	n B	Jnkno		Ц.	$\dashv$				l ( A fee Client		assessed Disposal				ned lon		nan 1 r		) onths			
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bmit all results through Cadena at jtomalia@cade rel IV Reporting requested.																							
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# **Definitions/Glossary**

Client: Arcadis US Inc.

Job ID: 240-223509-1

Project/Site: Ford LTP

# **Qualifiers**

GC/MS VOA
Qualifier Qualifier Description

U Indicates the analyte was analyzed for but not detected.

# **Glossary**

DL, RA, RE, IN

Abbreviation	These commonly used abbreviations may or may not be present in this report.
<del>\</del>	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
DI	Detection Limit (DoD/DQE)

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** 

5/9/2025

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# **Client Sample Results**

Client: Arcadis US Inc. Job ID: 240-223509-1

Project/Site: Ford LTP

Client Sample ID: TRIP BLANK\_23

Date Received: 05/02/25 08:00

Lab Sample ID: 240-223509-1 Date Collected: 04/30/25 00:00

**Matrix: Water** 

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/06/25 12:45	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/06/25 12:45	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/06/25 12:45	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/06/25 12:45	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/06/25 12:45	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/06/25 12:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		62 - 137			-		05/06/25 12:45	1
4-Bromofluorobenzene (Surr)	90		56 <sub>-</sub> 136					05/06/25 12:45	1
Toluene-d8 (Surr)	86		78 - 122					05/06/25 12:45	1
Dibromofluoromethane (Surr)	100		73 - 120					05/06/25 12:45	1

# **Client Sample Results**

Client: Arcadis US Inc. Job ID: 240-223509-1

Project/Site: Ford LTP

Client Sample ID: MW-91S\_043025

Date Collected: 04/30/25 11:30 Date Received: 05/02/25 08:00

Dibromofluoromethane (Surr)

Lab Sample ID: 240-223509-2

05/06/25 15:29

**Matrix: Water** 

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			05/07/25 20:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		68 - 127			-		05/07/25 20:52	1
Method: SW846 8260D - Volat	ile Organic Comp	ounds by G	C/MS						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/06/25 15:29	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/06/25 15:29	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/06/25 15:29	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/06/25 15:29	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/06/25 15:29	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/06/25 15:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		62 - 137			_		05/06/25 15:29	1
4-Bromofluorobenzene (Surr)	84		56 - 136					05/06/25 15:29	1
Toluene-d8 (Surr)	100		78 <sub>-</sub> 122					05/06/25 15:29	1

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