# PREPARED FOR

Attn: Kristoffer Hinskey ARCADIS US Inc 28550 Cabot Drive Suite 500 Novi, Michigan 48377

Generated 8/11/2023 9:52:15 AM

**JOB DESCRIPTION** 

Ford LTP - Off Site

**JOB NUMBER** 

240-189531-1

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 8/11/2023 9:52:15 AM

Authorized for release by Michael DelMonico, Project Manager I <u>Michael.DelMonico@et.eurofinsus.com</u> (330)497-9396 Client: ARCADIS US Inc Project/Site: Ford LTP - Off Site Laboratory Job ID: 240-189531-1

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# **Definitions/Glossary**

Client: ARCADIS US Inc Job ID: 240-189531-1

Project/Site: Ford LTP - Off Site

# **Qualifiers**

# **GC/MS VOA**

 Qualifier
 Qualifier Description

 J
 Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

U Indicates the analyte was analyzed for but not detected.

# **Glossary**

Glossary								
Abbreviation	These commonly used abbreviations 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)

Limit of Detection (Dep/DOE)

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 US Inc

Job ID: 240-189531-1 Project/Site: Ford LTP - Off Site

Job ID: 240-189531-1

**Laboratory: Eurofins Cleveland** 

Narrative

Job Narrative 240-189531-1

### Receipt

The samples were received on 8/3/2023 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 0.5°C

# **GC/MS VOA**

Method 8260D: The matrix spike/matrix spike duplicate (MS/MSD) for samples TRIP BLANK\_30 (240-189531-1) and MW-147S\_073123 (240-189531-2) was not reported, because the analyte list for these samples did not match the analyte list for the MS/MSD parent sample: TRIP BLANK 30 (240-189531-1) and MW-147S 073123 (240-189531-2).

Method 8260D SIM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for the following sample associated with analytical batch 240-582950 were outside control limits for the internal standards, this was due to the internal standard running out when the MS/MSD were analyzed: MW-147S 073123 (240-189531-2). 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.

# **Method Summary**

Client: ARCADIS US Inc Job ID: 240-189531-1

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 US Inc Project/Site: Ford LTP - Off Site Job ID: 240-189531-1

 Lab Sample ID
 Client Sample ID
 Matrix
 Collected
 Received

 240-189531-1
 TRIP BLANK\_30
 Water
 07/31/23 00:00
 08/03/23 08:00

 240-189531-2
 MW-147S\_073123
 Water
 07/31/23 13:45
 08/03/23 08:00

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# **Detection Summary**

Client: ARCADIS US Inc Job ID: 240-189531-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK\_30 Lab Sample ID: 240-189531-1

No Detections.

Client Sample ID: MW-147S\_073123 Lab Sample ID: 240-189531-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	0.54	J	1.0	0.45	ug/L	1		8260D	Total/NA

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# **Client Sample Results**

Client: ARCADIS US Inc Job ID: 240-189531-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK\_30

Lab Sample ID: 240-189531-1 Date Collected: 07/31/23 00:00

**Matrix: Water** 

Date Received: 08/03/23 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			08/09/23 12:55	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/09/23 12:55	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/09/23 12:55	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/09/23 12:55	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/09/23 12:55	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/09/23 12:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	114		62 - 137			_		08/09/23 12:55	1
4-Bromofluorobenzene (Surr)	100		56 <sub>-</sub> 136					08/09/23 12:55	1
Toluene-d8 (Surr)	102		78 - 122					08/09/23 12:55	1
Dibromofluoromethane (Surr)	111		73 - 120					08/09/23 12:55	1

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# **Client Sample Results**

Client: ARCADIS US Inc Job ID: 240-189531-1

Project/Site: Ford LTP - Off Site

Client Sample ID: MW-147S\_073123

Date Collected: 07/31/23 13:45 Date Received: 08/03/23 08:00 Lab Sample ID: 240-189531-2

**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			08/04/23 17:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	115		66 - 120			-		08/04/23 17:59	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			08/09/23 15:29	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/09/23 15:29	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/09/23 15:29	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/09/23 15:29	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/09/23 15:29	1
Vinyl chloride	0.54	J	1.0	0.45	ug/L			08/09/23 15:29	1
Surrogate	%Recovery	Qualifier	Limits			_	Prepared	Analyzed	Dil Fac

Surrogate	%Recovery	Qualifier	Limits		Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		62 - 137	_		08/09/23 15:29	1
4-Bromofluorobenzene (Surr)	102		56 - 136			08/09/23 15:29	1
Toluene-d8 (Surr)	98		78 - 122			08/09/23 15:29	1
Dibromofluoromethane (Surr)	110		73 - 120			08/09/23 15:29	1

8/11/2023

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# **Surrogate Summary**

Client: ARCADIS US Inc Job ID: 240-189531-1

Project/Site: Ford LTP - Off Site

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

Matrix: Water Prep Type: Total/NA

		Percent Surrogate Recove					
		DCA	BFB	TOL	DBFM		
Lab Sample ID	Client Sample ID	(62-137)	(56-136)	(78-122)	(73-120)		
240-189531-1	TRIP BLANK_30	114	100	102	111		
240-189531-2	MW-147S_073123	113	102	98	110		
LCS 240-583310/5	Lab Control Sample	113	99	102	113		
MB 240-583310/9	Method Blank	115	102	101	111		

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	(66-120)	
240-189531-2	MW-147S_073123	115	
LCS 240-582950/5	Lab Control Sample	105	
MB 240-582950/7	Method Blank	106	
Surrogate Legend			

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

**Eurofins Cleveland** 

Client: ARCADIS US Inc Job ID: 240-189531-1

Project/Site: Ford LTP - Off Site

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

Lab Sample ID: MB 240-583310/9

**Matrix: Water** 

Analysis Batch: 583310

	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			08/09/23 09:11	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/09/23 09:11	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/09/23 09:11	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/09/23 09:11	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/09/23 09:11	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/09/23 09:11	1

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepar	red	Analyzed	Dil Fa	С
1,2-Dichloroethane-d4 (Surr)	115		62 - 137			08/09/23 09:11		1
4-Bromofluorobenzene (Surr)	102		56 - 136		(	08/09/23 09:11		1
Toluene-d8 (Surr)	101		78 - 122		(	08/09/23 09:11		1
Dibromofluoromethane (Surr)	111		73 - 120		(	08/09/23 09:11		1

Lab Sample ID: LCS 240-583310/5

**Matrix: Water** 

Analysis Batch: 583310

**Client Sample ID: Lab Control Sample** 

Client Sample ID: Method Blank

**Prep Type: Total/NA** 

**Prep Type: Total/NA** 

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,1-Dichloroethene	20.0	23.2		ug/L		116	63 - 134	
cis-1,2-Dichloroethene	20.0	21.4		ug/L		107	77 - 123	
Tetrachloroethene	20.0	19.9		ug/L		100	76 - 123	
trans-1,2-Dichloroethene	20.0	22.2		ug/L		111	75 - 124	
Trichloroethene	20.0	19.5		ug/L		98	70 - 122	
Vinyl chloride	20.0	21.1		ug/L		106	60 - 144	

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	113		62 - 137
4-Bromofluorobenzene (Surr)	99		56 <sub>-</sub> 136
Toluene-d8 (Surr)	102		78 - 122
Dibromofluoromethane (Surr)	113		73 - 120

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

Lab Sample ID: MB 240-582950/7 Client Sample ID: Method Blank

Matrix: Water								Prep Type: 1	Total/NA
Analysis Batch: 582950									
	МВ	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/04/23 14:49	1
	MB	MB							
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		66 - 120			-		08/04/23 14:49	1

**Eurofins Cleveland** 

8/11/2023

# **QC Sample Results**

Client: ARCADIS US Inc Job ID: 240-189531-1

Project/Site: Ford LTP - Off Site

Analysis Batch: 582950

**Matrix: Water** 

Lab Sample ID: LCS 240-582950/5

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

**Client Sample ID: Lab Control Sample** 

**Prep Type: Total/NA** 

Spike LCS LCS %Rec Result Qualifier Added Analyte Unit %Rec Limits 1,4-Dioxane 10.0 9.76 ug/L 98 80 - 122

LCS LCS

Surrogate %Recovery Qualifier Limits 1,2-Dichloroethane-d4 (Surr) 105 66 - 120

# **QC Association Summary**

Client: ARCADIS US Inc Job ID: 240-189531-1

Project/Site: Ford LTP - Off Site

GC/MS VOA

Analysis Batch: 582950

	Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
	240-189531-2	MW-147S_073123	Total/NA	Water	8260D SIM	
	MB 240-582950/7	Method Blank	Total/NA	Water	8260D SIM	
l	LCS 240-582950/5	Lab Control Sample	Total/NA	Water	8260D SIM	

Analysis Batch: 583310

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-189531-1	TRIP BLANK_30	Total/NA	Water	8260D	
240-189531-2	MW-147S_073123	Total/NA	Water	8260D	
MB 240-583310/9	Method Blank	Total/NA	Water	8260D	
LCS 240-583310/5	Lab Control Sample	Total/NA	Water	8260D	

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# **Lab Chronicle**

Client: ARCADIS US Inc Job ID: 240-189531-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK\_30

Lab Sample ID: 240-189531-1 Date Collected: 07/31/23 00:00

Matrix: Water

Date Received: 08/03/23 08:00

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8260D		1	583310	AJS	EET CLE	08/09/23 12:55

Client Sample ID: MW-147S\_073123 Lab Sample ID: 240-189531-2

Date Collected: 07/31/23 13:45 Matrix: Water

Date Received: 08/03/23 08:00

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Type	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8260D		1	583310	AJS	EET CLE	08/09/23 15:29
Total/NA	Analysis	8260D SIM		1	582950	MRL	EET CLE	08/04/23 17:59

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 Job ID: 240-189531-1 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	12-31-23	
Michigan	State	9135	02-27-24	
Minnesota	NELAP	039-999-348	12-31-23	
Minnesota (Petrofund)	State	3506	08-01-23 *	
New Jersey	NELAP	OH001	07-01-24	
New York	NELAP	10975	04-02-24	
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	T104704517-22-17	08-31-23	
Virginia	NELAP	460175	09-14-23	
West Virginia DEP	State	210	12-31-23	

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

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Company. Company Company:

STINCE

Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203631

Level IV Reporting requested.
Relinquished by:

Relinquished by:

Poison B

Skin Irritant

Flammable

Possible Hazard Identification

Special Instructions/QC Requirements & Comments:

Sample Address:

Why 3 6850

EETH

EETZL

15.55 1540 0835

7/31/73

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Company:

O. Wolo SestAmerica

TestAmerica Laboratories, Inc COC No: 4

Lab Contact: Mike DelMonico

Telephone: 330-497-9396

Email: kristoffer.hinskey@arcadis.com

Sampler Name:

Client Project Manager: Kris Hinskey

Telephone: 248-994-2240

Regulatory program:

Client Contact

Address: 28550 Cabot Drive, Suite 500

Company Name: Arcadis

City/State/Zip: Novi, MI, 48377

Phone: 248-994-2240

or lab use only

'alk-in client ab sampling

Job/SDG No:

MIS G0058 anexoid-4,

inyl Chloride 8260D

rans-1,2-DCE 8260D

CE 8500D

SCE 8500D

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Sample Time

Sample Date

Sample Identification

TRIP BLANK 30

Shipping/Trucking No:

Project Number: 30167538,402,04 Project Name: Ford LTP Off-Site

PO # 30167538.402.04

Chain of Custody Record

MICHIGAN 190

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

Sample Disposal ( After may be assessed if samples are retained longer than I month)
Return to Client Popposal By Lab Archive For Months 240-189531 Chain of Custody Received by, Cold Stillage \<u>2</u> × 1-DCE 8500D <u>ෆ</u> D=derio / D=sileoqmoJ Received in Laboratory by: 2 Z Site Contact: Christina Weaver ) there Analysis Turnaround Ilms 4 7 2 weeks 1 week 2 days 1 day soudan Telephone: 248-994-2240 3 weeks HOEN AT if different from below /over HORN 34401 Capitol 1540 NPDES ЮH 0 Date/Time: 7 | 31 | 23 | 5 : 55 10 day CONH +OS7H 811 123 Date/Time Other: Sambantha Sippa Chiler Method of Shipment Carrier: MO pilos Matrix

3 VOAs for 8260D 3 VOAs for 8260D SIM

X

X  $\times$ 

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7/31/23

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Sample Specific Notes / Special Instructions:

8/11/2023

100 531
Eurofins – Cleveland Sample Receipt Form/Narrative  Login #: L89531  Barberton Eacility
Client 1 ROCAS Site Name Cooler unpacked by:
Cooler Received on 7:3:33 Opened on 7:3:33
FedEx: 1st Grd Exp UPS FA Waypoint Client Drop Off Eurofins Courier Other
Receipt After-hours: Drop-off Date/Time Storage Location
Eurofins Cooler # Foam Box Client Cooler Box Other
Packing material used: Bubble Wrap Foam Plastic Bag None Other  COOLANT: Wet Ice Blue Ice Dry Ice Water None
1. Cooler temperature upon receipt  IR GUN # 22 (CF 0, 0) Observed Cooler Temp 0 C Corrected Cooler Temp. 6 - Sec
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity  -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 intact and uncompromised?  3. Shippers' packing slip attached to the cooler(s)?  4. Did custody papers accompany the sample(s)?  5. Were the custody papers relinquished & signed in the appropriate place?  6. Was/were the person(s) who collected the samples clearly identified on the COC?  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 (N), # of containers (N), and sample type of grab/comp(N)?  10. Were correct bottle(s) used for the test(s) indicated?  11. Sufficient quantity received to perform indicated analyses?  12. Are these work share samples and all listed on the COC?  If yes, Questions 13-17 have been checked at the originating laboratory.  13. Were all preserved sample(s) at the correct pH upon receipt?  14. Were VOAs on the COC?  15. Were air bubbles >6 mm in any VOA vials?  16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #  17. Was a LL Hg or Me Hg trip blank present?  18. Vere the seals on the outside dated?  19. No Yes No  Yes
Contacted PM by via Verbal Voice Mail Other
Concerning
18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES
19. SAMPLE CONDITION
Sample(s) were received after the recommended holding time had expired.  Sample(s) were received in a broken container.
Sample(s) were received with bubble >6 mm in diameter. (Notify PM)
20. SAMPLE PRESERVATION
Sample(s) were further preserved in the laboratory.
Sample(s) were further preserved in the laboratory.  Time preserved: Preservative(s) added/Lot number(s):
/OA Sample Preservation - Date/Time VOAs Frozen:

# DATA VERIFICATION REPORT



August 11, 2023

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 off-site

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

Laboratory submittal: 189531-1 Sample date: 2023-07-31

Report received by CADENA: 2023-08-11

Initial Data Verification completed by CADENA: 2023-08-11

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 significant QC anomalies were identified during verification of the analytical report:

GCMS VOC QC batch INTERNAL STANDARD response outliers and MS/MSD ISSUES as noted in the laboratory submittal case narrative were not used to qualify client sample results as part of this level 2 data package verification review.

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.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

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:** 189531-1

		Sample Name: Lab Sample ID: Sample Date:	TRIP BLANK_30 2401895311 7/31/2023				MW-147S_073123 2401895312 7/31/2023				
				Report		Valid		Report		Valid	
	Analyte	Cas No.	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	
GC/MS VOC											
OSW-8260	<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		0.54	1.0	ug/l	J	
OSW-8260	<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 # 240-189531-1

CADENA Verification Report: 2023-08-11

Analyses Performed By: Eurofins Cleveland Barberton, Ohio

Report # 50977R Review Level: Tier III Project: 30167538.402.02

# **SUMMARY**

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-189531-1 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	nole ID Lab ID Matrix Sample		Parent Sample	Analysis		
Sample ID	Labib	IVIALITA	Collection Date	Farent Sample	VOC	VOC SIM
TRIP BLANK_30	240-189531-1	Water	07/31/2023		Х	
MW-147S_073123	240-189531-2	Water	07/31/2023		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		X	
2. Requested analyses and sample results		Х		Х	
Master tracking list		Х		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)		Х		Х	
Sample preparation/extraction/analysis dates		Х		Х	
10. Fully executed Chain-of-Custody (COC) form		Х		X	
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.

All identified compounds met the specified criteria.

# 7. System Performance and Overall Assessment

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

# **DATA VALIDATION CHECKLIST FOR VOCs**

VOCs: 8260D/8260D-SIM	Rep	orted	Performance Acceptable		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: Bindu Sree M B

SIGNATURE: BAShims

DATE: September 11, 2023

PEER REVIEW: Andrew Korycinski

DATE: September 13, 2023

# NO CORRECTIONS/QUALIFERS ADDED TO SAMPLE ANALYSIS DATA SHEETS

# CHAIN OF CUSTODY CORRECTED SAMPLE ANALYSIS DATA SHEETS

# MICHIGAN 190

# **Chain of Custody Record**

O.6/0.5 TestAmerica

TestAmerica Laboratory location: Brighton --- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763 Client Contact NPDES Regulatory program: RCRA Other Company Name: Arcadis TestAmerica Laboratories, Inc. Client Project Manager: Kris Hinskey Site Contact: Christina Weaver Lab Contact: Mike DelMonico COC No: Address: 28550 Cabot Drive, Suite 500 Telephone: 248-994-2240 Telephone: 248-994-2240 Telephone: 330-497-9396 City/State/Zip: Novi, MI, 48377 1 of 1 COCs Analysis Turnaround Time Email: kristoffer.hinskey@arcadis.com Analyses For lab use only Phone: 248-994-2240 TAT if different from below Sampler Name: Walk-in client Project Name: Ford LTP Off-Site 3 weeks Samantha Szparchier 2 weeks Lab sampling Project Number: 30167538.402.04 1 week SIM Composite=C / Grab=G 2 days /inyl Chloride 8260D 8260D PO # 30167538.402.04 Shipping/Tracking No: 1 day Job/SDG No: Matrix Containers & Preservatives Sample Specific Notes / H2SO4 NaOH HC Special Instructions: Sample Time Sample Identification TRIP BLANK 30 NIG Х X X X X 1 Trip Blank MW-1475\_073123 7/31/23 1345 N9X 3 VOAs for 8260D 6 3 VOAs for 8260D SIM Page 350 잌 Possible Hazard Identification Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month) ✓ Non-Hazard Flammable Skin Irritant Poison B Unknown Disposal By Lab Archive For Special Instructions/QC Requirements & Comments: 34401 Capital St Sample Address: Submit all results through Cadena at jtomalia@cadenaco.com, Cadena #E203631 Level IV Reporting requested. Relinquished by: 3 15:55 Arradi 15:55 Relinquished by: Orange February In Received in Laboratory by 0835

# **Client Sample Results**

Client: ARCADIS US Inc Job ID: 240-189531-1 Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK\_30 Lab Sample ID: 240-189531-1

Date Collected: 07/31/23 00:00 **Matrix: Water** Date Received: 08/03/23 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			08/09/23 12:55	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/09/23 12:55	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/09/23 12:55	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/09/23 12:55	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/09/23 12:55	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/09/23 12:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	114		62 - 137			-		08/09/23 12:55	1
4-Bromofluorobenzene (Surr)	100		56 <sub>-</sub> 136					08/09/23 12:55	1
Toluene-d8 (Surr)	102		78 - 122					08/09/23 12:55	1
Dibromofluoromethane (Surr)	111		73 - 120					08/09/23 12:55	1

Client Sample ID: MW-147S\_073123 Lab Sample ID: 240-189531-2

Date Collected: 07/31/23 13:45 Date Received: 08/03/23 08:00

Method: SW846 8260D SIM - Volatile Organic Compounds (GC/MS)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/04/23 17:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	115		66 - 120			· ·		08/04/23 17:59	1

Method: SW846 8260D - Volatile Organic Compounds by GC/MS									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			08/09/23 15:29	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/09/23 15:29	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/09/23 15:29	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/09/23 15:29	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/09/23 15:29	1
Vinyl chloride	0.54	J	1.0	0.45	ug/L			08/09/23 15:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		62 - 137			-		08/09/23 15:29	1

1
1
1
1

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**Matrix: Water**