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# **ANALYTICAL REPORT**

# PREPARED FOR

Attn: Kristoffer Hinskey ARCADIS US Inc 28550 Cabot Drive Suite 500 Novi, Michigan 48377 Generated 5/19/2023 3:28:45 AM

# **JOB DESCRIPTION**

Ford LTP - Off Site

# **JOB NUMBER**

240-185001-1

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 5/19/2023 3:28:45 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: 240-185001-1

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# **Definitions/Glossary**

Client: ARCADIS US Inc Job ID: 240-185001-1

Project/Site: Ford LTP - Off Site

# **Qualifiers**

# **GC/MS VOA**

Qualifier **Qualifier Description** 

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

Decision Level Concentration (Radiochemistry) DLC

Estimated Detection Limit (Dioxin) EDL LOD Limit of Detection (DoD/DOE) LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level" MDA Minimum Detectable Activity (Radiochemistry) MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit ML Minimum Level (Dioxin) MPN Most Probable Number MQL Method Quantitation Limit

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent POS Positive / Present

PQL Practical Quantitation Limit

**PRES** Presumptive **Quality Control** 

RER Relative Error Ratio (Radiochemistry)

Reporting Limit or Requested Limit (Radiochemistry) RL

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

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

**TNTC** Too Numerous To Count

**Eurofins Cleveland** 

5/19/2023

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# **Case Narrative**

Client: ARCADIS US Inc

Job ID: 240-185001-1

Project/Site: Ford LTP - Off Site

Job ID: 240-185001-1

**Laboratory: Eurofins Cleveland** 

Narrative

Job Narrative 240-185001-1

### Receipt

The samples were received on 5/9/2023 10:30 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were  $2.0^{\circ}$ C,  $2.8^{\circ}$ C,  $3.3^{\circ}$ C and  $4.3^{\circ}$ 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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# **Method Summary**

Client: ARCADIS US Inc Job ID: 240-185001-1 Project/Site: Ford LTP - Off Site

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

### **Protocol References:**

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

### Laboratory References:

EET EDI = Eurofins Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

# **Sample Summary**

Client: ARCADIS US Inc
Project/Site: Ford LTP - Off Site

Job ID: 240-185001-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-185001-1	TRIP BLANK_144	Water	05/04/23 00:00	05/09/23 10:30
240-185001-2	MW-116S_050423	Water	05/04/23 13:00	05/09/23 10:30

# **Detection Summary**

Client: ARCADIS US Inc Job ID: 240-185001-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK\_144 Lab Sample ID: 240-185001-1

No Detections.

No Detections.

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# **Client Sample Results**

Client: ARCADIS US Inc Job ID: 240-185001-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK\_144

Lab Sample ID: 240-185001-1 Date Collected: 05/04/23 00:00

**Matrix: Water** 

Date Received: 05/09/23 10:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/15/23 23:50	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/15/23 23:50	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/15/23 23:50	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/15/23 23:50	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/15/23 23:50	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/15/23 23:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)			70 - 128			_		05/15/23 23:50	1
Dibromofluoromethane (Surr)	113		77 - 124					05/15/23 23:50	1
Toluene-d8 (Surr)	107		80 - 120					05/15/23 23:50	1
4-Bromofluorobenzene	97		76 - 120					05/15/23 23:50	1

# **Client Sample Results**

Client: ARCADIS US Inc Job ID: 240-185001-1

Project/Site: Ford LTP - Off Site

Date Received: 05/09/23 10:30

Client Sample ID: MW-116S\_050423

Date Collected: 05/04/23 13:00

Lab Sample ID: 240-185001-2

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			05/17/23 12:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	98		75 - 133			-		05/17/23 12:41	1
- Mathad: CW04C 02C0D Va	latile Organic Comp	ounds by G	SC/MS						
Method: 2000 - Vo									
Analyte	•	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac

cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L		05/16/23 02:16	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L		05/16/23 02:16	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L		05/16/23 02:16	1
Trichloroethene	1.0	U	1.0	0.44	ug/L		05/16/23 02:16	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L		05/16/23 02:16	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	114		70 - 128				05/16/23 02:16	1
Dibromofluoromethane (Surr)	116		77 - 124				05/16/23 02:16	1
Toluene-d8 (Surr)	106		80 - 120				05/16/23 02:16	1
4-Bromofluorobenzene	100		76 - 120				05/16/23 02:16	1

# **Surrogate Summary**

Client: ARCADIS US Inc Job ID: 240-185001-1 Project/Site: Ford LTP - Off Site

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

Matrix: Water Prep Type: Total/NA

				Percent Su	rrogate Rec
		DCA	DBFM	TOL	BFB
Lab Sample ID	Client Sample ID	(70-128)	(77-124)	(80-120)	(76-120)
240-185001-1	TRIP BLANK_144	111	113	107	97
240-185001-2	MW-116S_050423	114	116	106	100
LCS 460-909279/3	Lab Control Sample	99	96	99	91
LCSD 460-909279/4	Lab Control Sample Dup	105	100	105	99
MB 460-909279/9	Method Blank	114	109	103	96

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

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

BFB = 4-Bromofluorobenzene

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

Matrix: Water Prep Type: Total/NA

			Percent Surrogate Recovery (Acceptance Limits)
		BFB	
Lab Sample ID	Client Sample ID	(75-133)	
240-185001-2	MW-116S_050423	98	
LCS 460-909650/5	Lab Control Sample	94	
LCSD 460-909650/6	Lab Control Sample Dup	97	
MB 460-909650/9	Method Blank	96	

Surrogate Legend

BFB = 4-Bromofluorobenzene

**Eurofins Cleveland** 

Client: ARCADIS US Inc Job ID: 240-185001-1 Project/Site: Ford LTP - Off Site

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

Lab Sample ID: MB 460-909279/9

**Matrix: Water** 

Analysis Batch: 909279

<b>Client Sample ID: Meth</b>	od 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			05/15/23 21:44	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/15/23 21:44	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/15/23 21:44	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/15/23 21:44	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/15/23 21:44	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/15/23 21:44	1

M	B MB				
Surrogate %Recover	y Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr) 11	4	70 - 128		05/15/23 21:44	1
Dibromofluoromethane (Surr) 10	9	77 - 124		05/15/23 21:44	1
Toluene-d8 (Surr) 10	3	80 - 120		05/15/23 21:44	1
4-Bromofluorobenzene 9	6	76 - 120		05/15/23 21:44	1

Lab Sample ID: LCS 460-909279/3

**Matrix: Water** 

Analysis Batch: 909279

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	20.0	15.5		ug/L		77	68 - 133	
cis-1,2-Dichloroethene	20.0	17.1		ug/L		86	78 - 121	
Tetrachloroethene	20.0	19.5		ug/L		98	70 - 127	
trans-1,2-Dichloroethene	20.0	17.0		ug/L		85	74 - 126	
Trichloroethene	20.0	17.7		ug/L		88	71 - 121	
Vinyl chloride	20.0	16.2		ug/L		81	55 - 144	

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	99		70 - 128
Dibromofluoromethane (Surr)	96		77 - 124
Toluene-d8 (Surr)	99		80 - 120
4-Bromofluorobenzene	91		76 - 120

Lab Sample ID: LCSD 460-909279/4

**Matrix: Water** 

Analysis Batch: 909279

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

	Spike	LCSD	LCSD				%Rec		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,1-Dichloroethene	20.0	16.7		ug/L		83	68 - 133	8	30
cis-1,2-Dichloroethene	20.0	17.5		ug/L		88	78 - 121	2	30
Tetrachloroethene	20.0	20.4		ug/L		102	70 - 127	4	30
trans-1,2-Dichloroethene	20.0	18.0		ug/L		90	74 - 126	5	30
Trichloroethene	20.0	18.2		ug/L		91	71 - 121	3	30
Vinyl chloride	20.0	16.9		ug/L		85	55 - 144	4	30

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	105		70 - 128
Dibromofluoromethane (Surr)	100		77 - 124
Toluene-d8 (Surr)	105		80 - 120

**Eurofins Cleveland** 

Job ID: 240-185001-1

Client: ARCADIS US Inc Project/Site: Ford LTP - Off Site

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

Lab Sample ID: LCSD 460-909279/4 Client Sample ID: Lab Control Sample Dup Prep Type: Total/NA

**Matrix: Water** 

Analysis Batch: 909279

LCSD LCSD

Surrogate %Recovery Qualifier Limits 4-Bromofluorobenzene 76 - 120

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

Lab Sample ID: MB 460-909650/9 Client Sample ID: Method Blank Prep Type: Total/NA

**Matrix: Water** 

Analysis Batch: 909650

MB MB

Analyte Result Qualifier RLMDL Unit D Analyzed Dil Fac Prepared 2.0 1,4-Dioxane 2.0 U 0.86 ug/L 05/17/23 08:57

MB MB

Surrogate %Recovery Qualifier Limits Dil Fac Prepared Analyzed 4-Bromofluorobenzene 96 75 - 133 05/17/23 08:57

Lab Sample ID: LCS 460-909650/5 Client Sample ID: Lab Control Sample Prep Type: Total/NA

**Matrix: Water** 

Analysis Batch: 909650

Spike LCS LCS %Rec Analyte Added Result Qualifier Limits Unit D %Rec 1,4-Dioxane 5.00 4.96 57 - 124 ug/L

LCS LCS

Surrogate %Recovery Qualifier Limits

4-Bromofluorobenzene 94 75 - 133

Lab Sample ID: LCSD 460-909650/6 Client Sample ID: Lab Control Sample Dup Prep Type: Total/NA

**Matrix: Water** 

Analysis Batch: 909650

Spike LCSD LCSD %Rec RPD Analyte Added Qualifier Unit %Rec Limits RPD Limit Result 1,4-Dioxane 5.00 5.77 115 57 - 124 30 ug/L 15

LCSD LCSD

Surrogate %Recovery Qualifier Limits 4-Bromofluorobenzene 97 75 - 133

# **QC Association Summary**

Client: ARCADIS US Inc
Project/Site: Ford LTP - Off Site

Job ID: 240-185001-1

# **GC/MS VOA**

# Analysis Batch: 909279

<b>Lab Sample ID</b> 240-185001-1	Client Sample ID TRIP BLANK_144	Prep Type Total/NA	Matrix Water	Method 8260D	Prep Batch
240-185001-2	MW-116S_050423	Total/NA	Water	8260D	
MB 460-909279/9	Method Blank	Total/NA	Water	8260D	
LCS 460-909279/3	Lab Control Sample	Total/NA	Water	8260D	
LCSD 460-909279/4	Lab Control Sample Dup	Total/NA	Water	8260D	

# Analysis Batch: 909650

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-185001-2	MW-116S_050423	Total/NA	Water	8260D SIM	
MB 460-909650/9	Method Blank	Total/NA	Water	8260D SIM	
LCS 460-909650/5	Lab Control Sample	Total/NA	Water	8260D SIM	
LCSD 460-909650/6	Lab Control Sample Dup	Total/NA	Water	8260D SIM	

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# **Lab Chronicle**

Client: ARCADIS US Inc Job ID: 240-185001-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK\_144

Lab Sample ID: 240-185001-1 Date Collected: 05/04/23 00:00

Matrix: Water

Date Received: 05/09/23 10:30

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8260D		1	909279	SZD	EET EDI	05/15/23 23:50

Client Sample ID: MW-116S\_050423 Lab Sample ID: 240-185001-2

Date Collected: 05/04/23 13:00 Matrix: Water

Date Received: 05/09/23 10:30

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8260D		1	909279	SZD	EET EDI	05/16/23 02:16
Total/NA	Analysis	8260D SIM		1	909650	SZD	EET EDI	05/17/23 12:41

Laboratory References:

EET EDI = Eurofins Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

# **Accreditation/Certification Summary**

Client: ARCADIS US Inc
Project/Site: Ford LTP - Off Site

Job ID: 240-185001-1

# **Laboratory: Eurofins Edison**

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-0818	01-30-24
DE Haz. Subst. Cleanup Act (HSCA)	State	N/A	01-01-24
Georgia	State	12028 (NJ)	06-30-23
Massachusetts	State	M-NJ312	06-30-23
New Jersey	NELAP	12028	06-30-23
New York	NELAP	11452	04-01-24
Pennsylvania	NELAP	68-00522	03-01-24
Rhode Island	State	LAO00376	12-30-23
USDA	US Federal Programs	P330-20-00244	11-03-23

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Chain of Custody Record

MICHIGAN 190

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

TestAmerica Laboratories, Inc. COC No: 3 VOAs for 8260B 3 VOAs for 8260B SIM Sample Specific Notes / Special Instructions: 1 Trip Blank or lab use onl Walk-in client Job/SDG No. ab sampling X MIS 808S8 anexoid-4, ab Contact: Mike DelMonico 义 Vinyl Chloride 8260B Telephone: 330-497-9396 义 × CE 8500B X CE 8500B × X × (rans-1,2-DCE 8260B 240-185001 Chain of Custody 12-1,2-DCE 8260B X × 1-DCE 8560B Other G G Composite=C / Grab=G Filtered Sample (Y / N) 2 Site Contact: Christina Weaver Analysis Turnaround Time :тэф1С Unpres 2 weeks 1 week Telephone: 248-994-2240 3 weeks 2 days l day HOBS [AT if different from below /ayuy HOBA IOH 10 day EONE POS7H :Totho: MO pilos momiba Email: kristoffer.hinskey@arcadis.com snoonby Client Project Manager: Kris Hinskey ٩į٧ 1300 Regulatory program: Method of Shipment/Carrier: Sample Time Kent Felephone: 248-994-2240 Shipping/Trucking No: 5/4/23 Sampler Name: Sample Date 4/4/2 MW-1165-05043 Sample Identification Client Contact Address: 28550 Cabot Drive, Suite 500 Project Number: 30167538,402.04 Project Name: Ford LTP Off-Site City/State/Zip: Novi, MI, 48377 Company Name: Arcadis TRIP BLANK PO#30167538,402,04 Phone: 248-994-2240

050-13 1030 5/4/23 Date/Times 5/8/23 Date/Time Company: Storas 707 2501 1050 Date/Time: 5/8/8 5/8/23 Company Company 0500 Relinquished by: Kent

Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)
Return to Chent P Disposal By Lab Archive For For Mo

Unknown

Poison B

Sample Address: 34 8 Sr ) しょんいつ かいた Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203631

Level IV Reporting requested.

Special Instructions/QC Requirements & Comments:

Sample Address: ✓ Non-Hazard

Flammable

Possible Hazard Identification

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Hudsnorth Skin Irritant

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Eurofins - Canton Sample Receipt Form/Narrative Login # :	500 (
Client Accadis Site Name Coole	r unpacked by:
Cooler Received on 05-09-23 Opened on 05-09-23 Lead	Manith
FedEx: 1st Grd (Exp. UPS FAS Clipper Client Drop Off Eurofins Courier Other	- III. A III -
Receipt After-hours: Drop-off Date/Time Storage Location	
Eurofins Cooler # E C 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 # (CF + O() Observed Cooler Temp. °C Corrected	Cooler Temp°C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes QuantityNo	
-Were the seals on the outside of the cooler(s) signed & dated?	Tests that are not checked for pH by
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes	Receiving:
-Were tamper/custody seals intact and uncompromised?	
3. Shippers' packing slip attached to the cooler(s)?	VOAs Oil and Grease
4. Did custody papers accompany the sample(s)?	TOC
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)?  Yes No	
7. Did all bottles arrive in good condition (Unbroken)?  8. Could all bottle labels (ID/Date/Time) be reconciled with the COC?  Yes No	
9. For each sample, does the COC specify preservatives (YN), # of containers (YN), and sample type	e of grab/comp(Y)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?  Yes	
If yes, Questions 13-17 have been checked at the originating laboratory.	
	A pH Strip Lot# HC208070
14. Were VOAs on the COC?	
15. Were air bubbles >6 mm in any VOA vials? Larger than this.  Yes No No	A .
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 621/2 Yes No 17. Was a LL Hg or Me Hg trip blank present? Yes No	
Contacted PM by via Verbal Voice Mail	Other
Concerning	
18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES	s processed by:
10. CAMBLE CONDUCTION	
19. SAMPLE CONDITION  Sample(s)  Ware received after the recommended holding time h	and evnired
Sample(s) were received after the recommended holding time by Sample(s) were received in a broken	
• 1/	
Sample(s) were received with bubble >6 mm in diameter	a. (Notify FWI)
20. SAMPLE PRESERVATION	
Sample(s) were further presented by the sample w	erved in the laboratory.
Sample(s) were further preservative(s) added/Lot number(s):	•
VOA Sample Preservation - Date/Time VOAs Frozen:	

				Eurofins - Canto	n Sample Receipt M	luitiple Cooler Form	
Cod	oler Des	scrip	tion	IR Gun #	Observed	Corrected	Coolant
	(Circ			(Circle)	Temp °C	Temp °C	(Circle)
EC		Box	Other	IR GUN #:	2.7	7.8	Wet ice Blue ice Dry ice
(EC)	Client	Вох	Other	IR GUN #:	3.2	3.3	Water None
Te	Client	Вох	Other	IR GUN #:	1.9	2.0	Wet ice Blue ice Dry ice Water None
EC	Client	Box	Other	IR GUN #:	4.2	4.3	Wet ice Blue ice Dry ice Water None
EC	Client	Box	Other	IR GUN #:			Wet ice Blue ice Dry ice Water None
EC	Client	Box	Other	IR GUN #:			Wet ice Blue ice Dry ice Water None
EC	Client	Box	Other	IR GUN #:			Wet ice Blue ice Dry ice Water None
EC	Client	Box	Other	IR GUN #:			Wet ice Blue ice Dry ice Water None
EC	Client	Box	Other	IR GUN #:			Wet ice Blue ice Dry ice Water None
EC	Client	Box	Other	IR GUN #:			Wet ice Blue ice Dry ice Water None
EC	Client	Box	Other	IR GUN #:			Wet ice Blue ice Dry ice Water None
EC	Client	Box	Other	IR GUN #:	··		Wet ice Blue ice Dry ice Water None Wet ice Blue ice Dry ice
EC	Client	Box	Other	IR GUN #:			Wet ice Blue ice Dry ice Water None Wet ice Blue ice Dry ice
EC	Client	Box	Other	IR GUN #:			Water None  Water Studies Dry Ice
EC	Client	Box	Other	IR GUN #:			Water None Wetice Blue ice Dry ice
	Cllent	Box	Other	IR GUN #:			Water None Wet ice Blue ice Dry ice
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			Other	IR GUN #:			Wet ice Blue ice Dry ice
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	===	<u></u>	Other	IR GUN #:			Water None Wet ice Slue Ice Dry Ice Water None
		_				☐ See Tem	perature Excursion Form
							Personal Experience of the

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

Δ

# **Chain of Custody Record**

**Eurofins Cleveland** 180 S. Van Buren Avenue

💸 eurofins | Environment Testing Barberton, OH 44203 Phone: 330-497-9396 Fax: 330-497-0772

Client Contact:													
Shipping/Receiving	Phone:			E-Mail: Micha	i: ael.DelM	onico@e	E-Mail: Michael.DelMonico@et.eurofinsus.com	us.com	State of Origin: Michigan	Ë		Page: Page 1 of 1	
Company:					Accreditation	ons Require	Accreditations Required (See note):	÷	,		1	Job #:	
Eurofins Environment Testing Northeast,											.7	240-185001-1	
Address: 777 New Durham Road, ,	Due Date Requested: 5/22/2023	ij					Ang	lysis Re	Analysis Requested			Preservation Codes:	odes: M - Hexane
City. Edison	TAT Requested (days):	ıys):				_						A - HCL B - NaOH C - Zn Acetate	N - None O - AsNaO2
State, Zip: NJ, 08817						-						D - Nitric Acid E - NaHSO4	P - Na2045 Q - Na2SO3 R - Na2S2O3
Phone: 732-549-3900(Tel) 732-549-3679(Fax)	PO #:					he						F - MeOH G - Amchlor H - Ascorbic Acid	S - H2SO4 T - TSP Dodecahydrate
Email:	:# OM				(ON	7 3400					-	I - Ice J - DI Water	U - Acetone V - MCAA
Project Name: Ford LTP - Off Site	Project #: 24015353					16) 600						K - EDTA L - EDA	W - pH 4-5 Y - Trizma Z - other (specify)
Site:	SSOW#:				Y) G8							Other:	
			Samplo	Matrix	M/SI						redi		
		Sample	Type (C=comp,	(W=water, S=solid, O=waste/oil, BT=Tissue,	M amohe	WIS_G08					muN listo		
painple Identification - Other ID (Lab ID)	Sample Date		G=grab) A=Air)	A=Air)	٥	-					1	Special II	Special Instructions/Note:
OF TRID BI ANK 144 (240 185001 1)	00,812		Lieselvan	OII COOR.							4		
JAIL DEAMY_144 (240-183001-1)	5/4/23	Eastern		water		×					-		
MW-116S_050423 (240-185001-2)	5/4/23	13:00 Eastern		Water		×					ဖ		
21													

accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC. Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return To Client Disposal By Lab Monti Possible Hazard Identification

Unconfirmed

(finada) inina tar tiri tiri tiri tiri tiri tiri tiri	rimary Deliverable Rank: Z	<u>đ</u>	Special Instructions/QC Requirements:		
Empty Kit Relinquished by:	Date:	Time:	Meth	Method of Shipment:	,
Relinodished by:	516 Stalls	STATE OF THE PROPERTY OF THE P	Received by:	Party Date [172] 1030 Company	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Custody Seals Intact: Custody Seal No.: 10	5)		Cooler Temperature(s) °C and Other Remarks: 4,1/4,(5,2/5,2	11/41 5.2/5.2	527J

# **Login Sample Receipt Checklist**

Client: ARCADIS US Inc Job Number: 240-185001-1

List Source: Eurofins Edison
List Number: 2
List Creation: 05/11/23 12:17 PM

Creator: Armbruster, Chris

Answer	Comment
N/A	
N/A	
N/A	
True	
N/A	
	N/A N/A N/A True True True True True True True True

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# DATA VERIFICATION REPORT



May 23, 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: 185001-1 Sample date: 2023-05-04

Report received by CADENA: 2023-05-23

Initial Data Verification completed by CADENA: 2023-05-23

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, LCS/LCD 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:** E203631

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

**Laboratory Submittal:** 185001-1

		Sample Name: Lab Sample ID: Sample Date:	ID: 2401850011		MW-116S_050423 2401850012 5/4/2023			23		
				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 # 240-185001-1

CADENA Verification Report: 2023-05-23

Analyses Performed By: Eurofins North Canton, Ohio

Report # 49918R Review Level: Tier III Project: 30167538.402.02

# **SUMMARY**

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-185001-1 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		Analysis			
Sample ID	Lab ID	Matrix	Collection Date	Parent Sample	voc	VOC SIM
TRIP BLANK_144	240-185001-1	Water	05/04/23		Х	
MW-116S_050423	240-185001-2	Water	05/04/23		Х	X

# **ANALYTICAL DATA PACKAGE DOCUMENTATION**

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

Items Reviewed	Rep	orted	Perfori Accep		Not
	No	Yes	No	Yes	Required
Sample receipt condition		Χ		X	
2. Requested analyses and sample results		Χ		Х	
Master tracking list		Χ		X	
4. Methods of analysis		Х		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	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		1				
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: Hrishikesh Upadhyaya

SIGNATURE:

DATE: June 12, 2023

Curuliland

PEER REVIEW: Andrew Korycinski

DATE: June 21, 2023

# 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 Regulatory program: DW □ NPDES RCRA 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 Walk-in client Project Name: Ford LTP Off-Site 3 weeks Lab sampling Project Number: 30167538.402.04 □ 1 week Filtered Sample (Y / N) 2 days /inyl Chloride 8260B □ I day PO # 30167538.402.04 Shipping/Tracking No: Job/SDG No: Matrix Containers & Preservatives Sample Specific Notes / Solid **Special Instructions:** Sample Date | Sample Time Sample Identification NG TRIP BLANK Χ 1 Trip Blank MW-1165-050423 3 VOAs for 8260B XX X × X 3 VOAs for 8260B SIM Page 592 으 596 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 Return to Client Disposal By Lab Archive For f Special Instructions/QC Requirements & Comments: Sample Address: 34851 Jods North
Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203631 Level IV Reporting requested. Relinquished by: Kent 1626 Relinquished by PRelinguished by:

# **Client Sample Results**

Client: ARCADIS US Inc Job ID: 240-185001-1 Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK\_144

Lab Sample ID: 240-185001-1

Date Collected: 05/04/23 00:00 **Matrix: Water** Date Received: 05/09/23 10:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/15/23 23:50	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/15/23 23:50	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/15/23 23:50	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/15/23 23:50	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/15/23 23:50	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/15/23 23:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		70 - 128			•		05/15/23 23:50	1
Dibromofluoromethane (Surr)	113		77 - 124					05/15/23 23:50	1
Toluene-d8 (Surr)	107		80 - 120					05/15/23 23:50	1
4-Bromofluorobenzene	97		76 - 120					05/15/23 23:50	1

**Client Sample ID: MW-116S\_050423** Lab Sample ID: 240-185001-2

Date Collected: 05/04/23 13:00 Date Received: 05/09/23 10:30

Method: SW846 8260D S	IM - Volatile Orga	anic Comp	ounds (GC/N	<b>1S</b> )					
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			05/17/23 12:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	98		75 - 133					05/17/23 12:41	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/16/23 02:16	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/16/23 02:16	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/16/23 02:16	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/16/23 02:16	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/16/23 02:16	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/16/23 02:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1 2-Dichloroethane-d/ (Surr)			70 128					05/16/22 02:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac	
1,2-Dichloroethane-d4 (Surr)	114		70 - 128		05/16/23 02:16	1	
Dibromofluoromethane (Surr)	116		77 - 124		05/16/23 02:16	1	
Toluene-d8 (Surr)	106		80 - 120		05/16/23 02:16	1	
4-Bromofluorobenzene	100		76 - 120		05/16/23 02:16	1	

Page 8 of 596

**Matrix: Water** 

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4 =

# PREPARED FOR

**ANALYTICAL REPORT** 

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

Generated 5/19/2023 3:27:54 AM

# **JOB DESCRIPTION**

Ford LTP - Off Site

# **JOB NUMBER**

240-184996-1

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 5/19/2023 3:27:54 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: 240-184996-1

# **Table of Contents**

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# **Definitions/Glossary**

Client: ARCADIS US Inc Job ID: 240-184996-1

Project/Site: Ford LTP - Off Site

# **Qualifiers**

# **GC/MS VOA**

 Qualifier
 Qualifier Description

 \*+
 LCS and/or LCSD is outside acceptance limits, high biased.

 U
 Indicates the analyte was analyzed for but not detected.

# Glossary

DLC

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

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)

Decision Level 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** 

Page 4 of 21 5/19/2023

# **Case Narrative**

Client: ARCADIS US Inc

Job ID: 240-184996-1

Project/Site: Ford LTP - Off Site

Job ID: 240-184996-1

**Laboratory: Eurofins Cleveland** 

Narrative

Job Narrative 240-184996-1

### Receipt

The samples were received on 5/9/2023 10:30 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 2.0°C, 2.8°C, 3.3°C and 4.3°C

# GC/MS VOA

Method 8260D: The laboratory control sample duplicate (LCSD) for analytical batch 460-909111 recovered outside control limits for the following analytes: cis-1,2-Dichloroethene and trans-1,2-Dichloroethene. These analytes were biased high in the LCSD and were not detected in the associated samples; therefore, the data have been reported.

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 Job ID: 240-184996-1

Project/Site: Ford LTP - Off Site

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

# Protocol References:

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

### Laboratory References:

EET EDI = Eurofins Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

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# **Sample Summary**

Client: ARCADIS US Inc
Project/Site: Ford LTP - Off Site

Job ID: 240-184996-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-184996-1	TRIP BLANK_145	Water	05/04/23 00:00	05/09/23 10:30
240-184996-2	MW-216S_050423	Water	05/04/23 14:40	05/09/23 10:30

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# **Detection Summary**

Client: ARCADIS US Inc Job ID: 240-184996-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK\_145 Lab Sample ID: 240-184996-1

No Detections.

Client Sample ID: MW-216S\_050423 Lab Sample ID: 240-184996-2

No Detections.

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# **Client Sample Results**

Client: ARCADIS US Inc Job ID: 240-184996-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK\_145

Lab Sample ID: 240-184996-1 Date Collected: 05/04/23 00:00

**Matrix: Water** 

Date Received: 05/09/23 10:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/14/23 19:29	1
cis-1,2-Dichloroethene	1.0	U *+	1.0	0.46	ug/L			05/14/23 19:29	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/14/23 19:29	1
trans-1,2-Dichloroethene	1.0	U *+	1.0	0.51	ug/L			05/14/23 19:29	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/14/23 19:29	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/14/23 19:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		70 - 128			_		05/14/23 19:29	1
Dibromofluoromethane (Surr)	116		77 - 124					05/14/23 19:29	1
Toluene-d8 (Surr)	91		80 - 120					05/14/23 19:29	1
4-Bromofluorobenzene	107		76 - 120					05/14/23 19:29	1

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# **Client Sample Results**

Client: ARCADIS US Inc Job ID: 240-184996-1

Project/Site: Ford LTP - Off Site

Client Sample ID: MW-216S\_050423

Date Collected: 05/04/23 14:40 Date Received: 05/09/23 10:30 Lab Sample ID: 240-184996-2

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			05/17/23 11:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	97		75 - 133					05/17/23 11:58	1
Method: SW846 8260D - Vo	latile Organic Comp	ounds by 0	C/MS						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4.4 D: 11								05/44/00 04 00	

mothod. Offoro ozoob Tolat	no Organio Comp	organio compounds by comic								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/14/23 21:09	1	
cis-1,2-Dichloroethene	1.0	U *+	1.0	0.46	ug/L			05/14/23 21:09	1	
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/14/23 21:09	1	
trans-1,2-Dichloroethene	1.0	U *+	1.0	0.51	ug/L			05/14/23 21:09	1	
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/14/23 21:09	1	
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/14/23 21:09	1	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac	

Surrogate	%Recovery Qu	ualifier Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101	70 - 128		5/14/23 21:09	1
Dibromofluoromethane (Surr)	118	77 - 124		5/14/23 21:09	1
Toluene-d8 (Surr)	91	80 - 120	C	5/14/23 21:09	1
4-Bromofluorobenzene	105	76 - 120	C	5/14/23 21:09	1

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# **Surrogate Summary**

Client: ARCADIS US Inc Job ID: 240-184996-1

Project/Site: Ford LTP - Off Site

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

Matrix: Water Prep Type: Total/NA

				Percent Sur	rrogate Reco
		DCA	DBFM	TOL	BFB
Lab Sample ID	Client Sample ID	(70-128)	(77-124)	(80-120)	(76-120)
240-184996-1	TRIP BLANK_145	100	116	91	107
240-184996-2	MW-216S_050423	101	118	91	105
LCS 460-909111/4	Lab Control Sample	97	115	93	110
LCSD 460-909111/5	Lab Control Sample Dup	98	114	90	109
MB 460-909111/11	Method Blank	101	121	93	108
Surrogate Legend					

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

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

BFB = 4-Bromofluorobenzene

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

Matrix: Water Prep Type: Total/NA

			Percent Surrogate Recovery (Acceptance Limits)
		BFB	
Lab Sample ID	Client Sample ID	(75-133)	
240-184996-2	MW-216S_050423	97	
LCS 460-909650/5	Lab Control Sample	94	
LCSD 460-909650/6	Lab Control Sample Dup	97	
MB 460-909650/9	Method Blank	96	

# Surrogate Legend

BFB = 4-Bromofluorobenzene

**Eurofins Cleveland** 

Client: ARCADIS US Inc Job ID: 240-184996-1

Project/Site: Ford LTP - Off Site

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

**Matrix: Water** 

Analysis Batch: 909111

Lab Sample ID: MB 460-909111/11

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			05/14/23 13:11	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/14/23 13:11	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/14/23 13:11	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/14/23 13:11	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/14/23 13:11	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/14/23 13:11	1

MB MB %Recovery Qualifier Dil Fac Surrogate Limits Prepared Analyzed 70 - 128 1,2-Dichloroethane-d4 (Surr) 101 05/14/23 13:11 Dibromofluoromethane (Surr) 121 77 - 124 05/14/23 13:11 05/14/23 13:11 Toluene-d8 (Surr) 93 80 - 120 4-Bromofluorobenzene 108 76 - 120 05/14/23 13:11

Lab Sample ID: LCS 460-909111/4

**Matrix: Water** 

Analysis Batch: 909111

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	20.0	21.8		ug/L		109	68 - 133	
cis-1,2-Dichloroethene	20.0	22.2		ug/L		111	78 - 121	
Tetrachloroethene	20.0	20.0		ug/L		100	70 - 127	
trans-1,2-Dichloroethene	20.0	22.2		ug/L		111	74 - 126	
Trichloroethene	20.0	17.8		ug/L		89	71 - 121	
Vinyl chloride	20.0	18.6		ug/L		93	55 - 144	

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	97		70 - 128
Dibromofluoromethane (Surr)	115		77 - 124
Toluene-d8 (Surr)	93		80 - 120
4-Bromofluorobenzene	110		76 - 120

Lab Sample ID: LCSD 460-909111/5

**Matrix: Water** 

Analysis Batch: 909111

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

	Spike	LCSD	LCSD				%Rec		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,1-Dichloroethene	20.0	24.9		ug/L		124	68 - 133	13	30
cis-1,2-Dichloroethene	20.0	24.9	*+	ug/L		125	78 - 121	12	30
Tetrachloroethene	20.0	22.9		ug/L		114	70 - 127	13	30
trans-1,2-Dichloroethene	20.0	25.5	*+	ug/L		128	74 - 126	14	30
Trichloroethene	20.0	20.6		ug/L		103	71 - 121	15	30
Vinyl chloride	20.0	20.4		ug/L		102	55 - 144	9	30

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		70 - 128
Dibromofluoromethane (Surr)	114		77 - 124
Toluene-d8 (Surr)	90		80 - 120

**Eurofins Cleveland** 

Page 12 of 21

Job ID: 240-184996-1

Client: ARCADIS US Inc Project/Site: Ford LTP - Off Site

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

Lab Sample ID: LCSD 460-909111/5 Client Sample ID: Lab Control Sample Dup **Matrix: Water** Prep Type: Total/NA

Analysis Batch: 909111

LCSD LCSD

Surrogate %Recovery Qualifier 4-Bromofluorobenzene 109 76 - 120

Limits

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

Lab Sample ID: MB 460-909650/9 **Matrix: Water** 

Analysis Batch: 909650

MB MB Analyte Result Qualifier

RL MDL Unit D Analyzed Dil Fac Prepared 2.0 1,4-Dioxane 2.0 U 0.86 ug/L 05/17/23 08:57

MB MB

Surrogate %Recovery Qualifier Limits Dil Fac Prepared Analyzed 4-Bromofluorobenzene 96 75 - 133 05/17/23 08:57

Lab Sample ID: LCS 460-909650/5 Client Sample ID: Lab Control Sample **Matrix: Water** Prep Type: Total/NA

Analysis Batch: 909650

Spike LCS LCS %Rec Analyte Added Result Qualifier Limits Unit D %Rec 1,4-Dioxane 5.00 4.96 57 - 124 ug/L

LCS LCS

Surrogate %Recovery Qualifier Limits

4-Bromofluorobenzene 94 75 - 133

Lab Sample ID: LCSD 460-909650/6

**Matrix: Water** 

Analysis Batch: 909650

Spike LCSD LCSD %Rec RPD Analyte Added Qualifier Unit %Rec Limits RPD Limit Result 1,4-Dioxane 5.00 5.77 115 57 - 124 30 ug/L 15

LCSD LCSD

Surrogate %Recovery Qualifier Limits 4-Bromofluorobenzene 97 75 - 133

Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Type: Total/NA

# **QC Association Summary**

Client: ARCADIS US Inc
Project/Site: Ford LTP - Off Site

Job ID: 240-184996-1

GC/MS VOA

Analysis Batch: 909111

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-184996-1	TRIP BLANK_145	Total/NA	Water	8260D	
240-184996-2	MW-216S_050423	Total/NA	Water	8260D	
MB 460-909111/11	Method Blank	Total/NA	Water	8260D	
LCS 460-909111/4	Lab Control Sample	Total/NA	Water	8260D	
LCSD 460-909111/5	Lab Control Sample Dup	Total/NA	Water	8260D	

Analysis Batch: 909650

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-184996-2	MW-216S_050423	Total/NA	Water	8260D SIM	
MB 460-909650/9	Method Blank	Total/NA	Water	8260D SIM	
LCS 460-909650/5	Lab Control Sample	Total/NA	Water	8260D SIM	
LCSD 460-909650/6	Lab Control Sample Dup	Total/NA	Water	8260D SIM	

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# **Lab Chronicle**

Client: ARCADIS US Inc Job ID: 240-184996-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK\_145

Lab Sample ID: 240-184996-1 Date Collected: 05/04/23 00:00

Matrix: Water

Date Received: 05/09/23 10:30

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8260D		1	909111	AAT	EET EDI	05/14/23 19:29

Client Sample ID: MW-216S\_050423 Lab Sample ID: 240-184996-2

Date Collected: 05/04/23 14:40 Matrix: Water

Date Received: 05/09/23 10:30

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8260D		1	909111	AAT	EET EDI	05/14/23 21:09
Total/NA	Analysis	8260D SIM		1	909650	SZD	EET EDI	05/17/23 11:58

Laboratory References:

EET EDI = Eurofins Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

# **Accreditation/Certification Summary**

Client: ARCADIS US Inc
Project/Site: Ford LTP - Off Site

Job ID: 240-184996-1

# **Laboratory: Eurofins Edison**

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-0818	01-30-24	
DE Haz. Subst. Cleanup Act (HSCA)	State	N/A	01-01-24	
Georgia	State	12028 (NJ)	06-30-23	
Massachusetts	State	M-NJ312	06-30-23	
New Jersey	NELAP	12028	06-30-23	
New York	NELAP	11452	04-01-24	
Pennsylvania	NELAP	68-00522	03-01-24	
Rhode Island	State	LAO00376	12-30-23	
USDA	US Federal Programs	P330-20-00244	11-03-23	

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**TestAmerica** 

Chain of Custody Record

MICHIGAN 190

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

TestAmerica Laboratories, Inc COC No: 3 VOAs for 8260B 3 VOAs for 8260B SIM Sample Specific Notes / Special Instructions: 1 Trip Blank or lab use onl Walk-in client lob/SDG No: ab sampling X MIS 80828 ansxoid-4, ab Contact: Mike DelMonico X Vinyl Chloride 8260B Telephone: 330-497-9396 × **ICE 8500B**  $\times$ je × 240-184996 Chain of Custody OCE 8500B × Itans-1,2-DCE 8260B × 1 12-1,2-DCE 8260B × × 1-DCE 8560B O O=dard / D=siteqCO <u>ෆ</u> > Filtered Sample (Y / N) Site Contact: Christina Weaver Огрек: Analysis Turnaround Time Sonqu'i √ 2 weeks ☐ I week ☐ 2 days ☐ I day 3 weeks Felephone: 248-994-2240 PORS. HOBN 6 1DH 10 day EONH FOSTH :дэйіС ΟW pilos Sampler Name: Kent Kasper momibo Email: kristoffer.hinskey@arcadis.com snoonby Client Project Manager: Kris Hinskey λik Regulatory program: Sample Date | Sample Time 0/1/21 Telephone: 248-994-2240 Shipping/Tracking No: 5/4/23 5/4/28 · MW-2165=05042 Sample Identification Client Contact Address: 28550 Cabot Drive, Suite 500 Project Number: 30167538.402.04 Project Name: Ford LTP Off-Site City/State/Zip: Novi, MI, 48377 Company Name: Arcadis **TRIP BLANK** PO# 30167538.402.04 Phone: 248-994-2240 0 Page 17 of 21

Date/Time: 5/8/27 1050
Date/Time: 05-09-03 1090 Company: Received in Laboratory 10/ Received by. 1201 0501 2501 14/2 Unknown Company; ARCACIS mpany Sample Address: 3485 Wa Cls Worth Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203631 Poison B Company: Skin Irritant Special Instructions/QC Requirements & Comments: Flammable asper Possible Hazard Identification Level IV Reporting requested. 1/ent ✓ Non-Hazard Relinquished by Relinquished by

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D2008. TestAmenca Leboratories, inc. All rights reserved. TestAmerica & Design 1º are trademarts of TestAmerica Laboratories.

laich
Eurofins - Canton Sample Receipt Form/Narrative  Login # : Login #
Client A(Cadis Site Name Cooler unpacked by:
Cooler Received on 05-09-23 Opened on 05-09-23 Leal- M. Smith
FedEx: 1st Grd (Exp) UPS FAS Clipper Client Drop Off Eurofins Courier Other
Receipt After-hours: Drop-off Date/Time Storage Location
Eurofins Cooler # C 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  See Multiple Cooler Form
IR GUN# (CF + 0, 1 °C) Observed Cooler Temp. °C Corrected Cooler Temp. °C
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 bottle sarrive 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 (NN), # of containers (NN), and sample type of grab/comp(NN)?  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 # C 2 172  17. Were all the each of the test of the cooler(s)? Trip Blank Lot # C 2 172  18. Were all place the cooler of the cool
17. Was a LL Hg or Me Hg trip blank present?Yes (No
Contacted PM Date 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):
VOA Sample Preservation - Date/Time VOAs Frozen:

				<b>Eurofins - Canto</b>	n Sample Receipt M	ultiple Cooler Form	
Co	ooler D	escrip	otion	IR Gun #	Observed	Corrected	Coolant
	(Ci	rcle)		(Circle)	Temp °C	Temp °C	(Circle)
EC	Client	Вох	Other	IR GUN #:	2.7	2.8	Wet Ice Blue Ice Dry Ice Water None
EC	Client	Вох	Other	IR GUN #:	3.2	3.3	Water None
6	Client	Вох	Other	IR GUN #:	1.9	2.0	Wet ice Sive ice Dry ice
EC	Client	Box	Other	IR GUN #:	4.2	4.3	Wet ice Blue ice Dry ice Water None
EC	Client	Box	Other	IR GUN #:			Wet ice Blue ice Dry ice Water None
EC	Client	Box	Other	IR GUN #:			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #:			Wet ice Sive ice Dry ice Water None
EC	Client	Box	Other	IR GUN #:			Wet ice Blue ice Dry ice Water None
EC	Client	Box	Other	IR GUN #:			Wet ice Blue ice Dry ice Water None
EC	Client	Box	Other	IR GUN #:			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #:			Wet ice Blue ice Dry ice Water None
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EC	Client	Box	Other	IR GUN #:			Wet ice Blue ice Dry ice Water None
EC	Client	Box	Other	IR GUN #:			Wet ice Blue ice Dry ice Water None
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EC	Client	Box	Other	IR GUN #:			Wet ice Sive Ice Dry ice Water None
EC	Client	Box	Other	IR GUN #:			Wet Ice Blue Ice Dry Ice Water None
EC	Cllent	Box	Other	IR GUN #:			Wet ice Blue ice Dry ice Water None
EC	Client	Box	Other	IR GUN #:			Wet Ice Stue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #:			Wet ice Blue ice Dry ice Water None
EC	Client	Box	Other	IR GUN #:			Wet ice Blue ice Dry ice Water None
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EC	Client	Вох	Other	IR GUN #:			Wet ice Blue ice Dry ice Water None
EC	Client	Box	Other	IR GUN #:			Wet ice Blue ice Dry ice Water None
EC	Client	Box	Other	IR GUN #:	The second se		Wet ice Blue ice Dry ice Water None
EC	Client	Box	Other	IR GUN #:			Wet ice Blue ice Dry ice Water None
EC	Client	Box	Other	IR GUN #:			Wet ice Blue ice Dry ice Water None
EC	Client	Box	Other	IR GUN #:			Wet ice Blue ice Dry ice Water None
EC	Client	Box	Other	IR GUN #:			Wet ice Blue ice Dry ice Water None
EC	Client	Box	Other	IR GUN #:			Wet Ice Blue Ice Dry Ice Water None
						☐ See Tem	perature Excursion Form

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

# **Eurofins Cleveland** 180 S. Van Buren Avenue

Barberton, OH 44203 Phone: 330-497-9396 Fax: 330-497-0772

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**Environment Testing** 

t Information (Sub Contract Lab) ntact: ig/Receiving Environment Testing Northeast,	Sampler:			Lab PM DelMo	Lab PM: DelMonico, Michae	Michae	-				Carrier	Carrier Tracking No(s):	COC No:	888 1
nt Testing Northeast,													701-04-7	
Environment Testing Northeast,	Phone:			E-Mail: Micha	E-Mail: Michael.DelMonico@et.eurofinsus.com	Monico	@et.eu	rofins	us.cor		State of Origin: Michigan	Origin:	Page: Page 1 of 1	of 1
					Accreditations Required (See note)	tions Re	quired (	See not	:(e				Job #:	006 1
Address:	Dura Date Bogusta												01-01-01	1-066
w Durham Road,	5/22/2023							Ana	llysis	Red	<b>Analysis Requested</b>	Þ	Preserva	Preservation Codes:  M - Hexane
City:	TAT Requested (days):	rs):											B - NaOH C - Zn Acetate	N - None O - AsNaO2
State, Zip: NJ, 08817						-							D - Nitric Acid E - NaHSO4	
Phone: 732-549-3900(Tel) 732-549-3679(Fax)	PO #:				(0	(ts							G - Amchlor	
Email:	:# OM					וסע דו								
Project Name: Pord LTP - Off Site	Project #: 24015353					OC® (SP								W - pH 4-5 Y - Trizma Z - other (specify)
	SSOW#:				_				_				of cor	
				Marrix	_	_			_				) 16	
Sample Identification - Client ID (Lab ID)	Sample Date	Sample	Sample Type (C=comp, G=grab)	(Wewater, Sesolid, Oewaste/oll, BT=Tissue,	enatiis blais RM mnohas	8560D_SIM/50							otal Numbi	Special Instructions/Note:
	X	X	Preservation Code	on Code:	X								X	V
RIP BLANK_145 (240-184996-1)	5/4/23	Eastern		Water		×								
WW-216S_050423 (240-184996-2)	5/4/23	14:40 Eastern		Water		×	J		-				9	
21						,			_					
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													Diversion of the second	

Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month) Possible Hazard Identification

Unconfirmed			Return To Client Disposal By Lab	Il By Lab Archive For	Months
Deliverable Requested: I, II, III, IV, Other (specify)	Primary Deliverable Rank: 2		Require		
Empty Kit Relinquished by:	Date:	Time:		Method of Shipment:	,
Reinous ed by:	SIPS SECTION	Company	Recorded by:	JA FOJE 19/11/73 1030 COMPANY	Company
Geinquished by:	Date/Time:	Company	Received by:	Deffe/Time/	Company
Helinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
SCustody Seals Intact: Custody Seal No.:	Ş		Cooler Temperature(s) °C and Other Remarks:	4.1/4.1,5.2,15.2	( TK)
			10 11 12 13 14	5 6 7 8 9	2 3 4

# **Login Sample Receipt Checklist**

Client: ARCADIS US Inc Job Number: 240-184996-1

List Source: Eurofins Edison
List Number: 2
List Creation: 05/11/23 12:17 PM

Creator: Armbruster, Chris

Creator: Armbruster, Chris		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>N/A</td> <td></td>	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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# DATA VERIFICATION REPORT



May 23, 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: 184996-1 Sample date: 2023-05-04

Report received by CADENA: 2023-05-23

Initial Data Verification completed by CADENA: 2023-05-23

Number of Samples:2 Sample Matrices:Water Test Categories:GCMS VOC

Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

The following minor QC exceptions or missing information were noted:

GCMS VOC batch LCS or LCSD recoveries but not both or RPD only were outliers so for CIS and TRANS-1,2-DICHLOROETHENE so were not used to qualify client sample results based on these QC outliers alone.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, LCS/LCD 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 Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI  $48108\ 517\text{-}819\text{-}0356$ 

# **CADENA Valid Qualifiers**

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
В	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminates) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
Е	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminates) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

# **Analytical Results Summary**

**CADENA Project ID:** E203631

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

**Laboratory Submittal:** 184996-1

		Sample Name: Lab Sample ID: Sample Date:	TRIP BLA 2401849 5/4/202	9961	5		MW-216 2401849 5/4/202	9962	23	
				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		ND	1.0	ug/l	
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 # 240-184996-1

CADENA Verification Report: 2023-05-23

Analyses Performed By: Eurofins North Canton, Ohio

Report # 49914R Review Level: Tier III Project: 30167538.402.02

# **SUMMARY**

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-184996-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III) include a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample	Parant Sample	Ana	lysis
Sample ID	Labib	IVIALITIX	Collection Date	Parent Sample	VOC	VOC SIM
TRIP BLANK_145	240-184996-1	Water	05/04/23		Х	
MW-216S_050423	240-184996-2	Water	05/04/23		Х	Х

# **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		Χ		X	
Master tracking list		Χ		Х	
4. Methods of analysis		Χ		Х	
5. Reporting limits		Χ		Х	
6. Sample collection date		Χ		Х	
7. Laboratory sample received date		Χ		Х	
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
	No	Yes	No	Yes	Required
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (G	C/MS)				
Tier II Validation					
Holding times/Preservation		Х		Х	
Tier III Validation		1			
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		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: Hrishikesh Upadhyaya

SIGNATURE:

DATE: June 09, 2023

Curuliland

PEER REVIEW: Andrew Korycinski

DATE: June 11, 2023

# 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 □ DW Client Contact Regulatory program: NPDES RCRA Other Company Name: Arcadis TestAmerica Laboratories, Inc. Client Project Manager: Kris Hinskey Lab Contact: Mike DelMonico Site Contact: Christina Weaver 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 COCs Analysis Turnaround Time Analyses Email: kristoffer.hinskey@arcadis.com For lab use only Phone: 248-994-2240 TAT if different from below Walk-in client Project Name: Ford LTP Off-Site 3 weeks ✓ 2 weeks Lab sampling Project Number: 30167538.402.04 ☐ I week 8260B SIM Filtered Sample (Y / N) 2 days Vinyl Chloride 8260B PO # 30167538.402.04 Shipping/Tracking No: ☐ I day Job/SDG No: Matrix Containers & Preservatives Sediment Solid Sample Specific Notes / Special Instructions: ΗÇ Sample Date | Sample Time Sample Identification TRIP BLANK\_ 145 NG Χ Χ 1 Trip Blank 6 MW-2165=050423 3 VOAs for 8260B X 3 VOAs for 8260B SIM Page 543 으 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 Return to Client Disposal By Lab Special Instructions/QC Requirements & Comments: Sample Address: 34851 Wadsworth
Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203631 Level IV Reporting requested. 1621 1621 Received in Laboratory by:

# **Client Sample Results**

Client: ARCADIS US Inc Job ID: 240-184996-1 Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK\_145

Lab Sample ID: 240-184996-1 Date Collected: 05/04/23 00:00 **Matrix: Water** 

Date Received: 05/09/23 10:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/14/23 19:29	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/14/23 19:29	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/14/23 19:29	1
trans-1,2-Dichloroethene	1.0	U **	1.0	0.51	ug/L			05/14/23 19:29	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/14/23 19:29	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/14/23 19:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		70 - 128					05/14/23 19:29	1
Dibromofluoromethane (Surr)	116		77 - 124					05/14/23 19:29	1
Toluene-d8 (Surr)	91		80 - 120					05/14/23 19:29	1
4-Bromofluorobenzene	107		76 - 120					05/14/23 19:29	1

**Client Sample ID: MW-216S\_050423** Lab Sample ID: 240-184996-2 **Matrix: Water** 

Date Collected: 05/04/23 14:40 Date Received: 05/09/23 10:30

Method: SW846 8260D SI	M - Volatile Orga	anic Comp	ounds (GC/N	<b>1S</b> )					
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			05/17/23 11:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	97		75 - 133			•		05/17/23 11:58	1

Method: SW846 8260D - Vo	atile 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			05/14/23 21:09	1
cis-1,2-Dichloroethene	1.0	U **	1.0	0.46	ug/L			05/14/23 21:09	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/14/23 21:09	1
trans-1,2-Dichloroethene	1.0	U **	1.0	0.51	ug/L			05/14/23 21:09	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/14/23 21:09	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/14/23 21:09	1

	Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
	1,2-Dichloroethane-d4 (Surr)	101		70 - 128	<u> </u>	5/14/23 21:09	1
	Dibromofluoromethane (Surr)	118		77 - 124	0	5/14/23 21:09	1
	Toluene-d8 (Surr)	91		80 - 120	0	5/14/23 21:09	1
L	4-Bromofluorobenzene	105		76 - 120	0	5/14/23 21:09	1