

**Environment Testing** 

# **ANALYTICAL REPORT**

## PREPARED FOR

Attn: Kristoffer Hinskey ARCADIS US Inc 28550 Cabot Drive Suite 500 Novi, Michigan 48377 Generated 5/31/2023 10:15:44 AM

## JOB DESCRIPTION

Ford LTP - Off Site

## **JOB NUMBER**

240-185637-1

Eurofins Cleveland 180 S. Van Buren Avenue Barberton OH 44203





## **Eurofins Cleveland**

## Job Notes

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## Authorization

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Authorized for release by Patrick O'Meara, Manager of Project Management Patrick.O'Meara@et.eurofinsus.com Designee for Michael DelMonico, Project Manager I <u>Michael.DelMonico@et.eurofinsus.com</u> (330)497-9396

# **Table of Contents**

Cover Page	1
Table of Contents	3
Definitions/Glossary	4
Case Narrative	5
Method Summary	6
Sample Summary	7
Detection Summary	8
Client Sample Results	9
Surrogate Summary	11
QC Sample Results	12
QC Association Summary	14
Lab Chronicle	15
Certification Summary	16
Chain of Custody	17
Receipt Checklists	21

110,000,010.13		
Qualifiers		- 3
GC/MS VOA		
Qualifier	Qualifier Description	4
U	Indicates the analyte was analyzed for but not detected.	
Glossary		5
Abbreviation	These commonly used abbreviations may or may not be present in this report.	6
¤	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	δ
DER	Duplicate Error Ratio (normalized absolute difference)	
Dil Fac	Dilution Factor	9
DL	Detection Limit (DoD/DOE)	
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample	
DLC	Decision Level Concentration (Radiochemistry)	
EDL	Estimated Detection Limit (Dioxin)	
LOD	Limit of Detection (DoD/DOE)	
LOQ	Limit of Quantitation (DoD/DOE)	
MCL	EPA recommended "Maximum Contaminant Level"	
MDA	Minimum Detectable Activity (Radiochemistry)	
MDC	Minimum Detectable Concentration (Radiochemistry)	
MDL	Method Detection Limit	
ML	Minimum Level (Dioxin)	
MPN	Most Probable Number	
MQL	Method Quantitation Limit	
NC	Not Calculated	
ND	Not Detected at the reporting limit (or MDL or EDL if shown)	
NEG	Negative / Absent	
POS	Positive / Present	
PQL	Practical Quantitation Limit	
PRES	Presumptive	
QC	Quality Control	
RER	Relative Error Ratio (Radiochemistry)	
RL	Reporting Limit or Requested Limit (Radiochemistry)	
RPD	Relative Percent Difference, a measure of the relative difference between two points	
TEF	Toxicity Equivalent Factor (Dioxin)	

- TEQ Toxicity Equivalent Quotient (Dioxin)
- TNTC Too Numerous To Count

#### Job ID: 240-185637-1

#### Laboratory: Eurofins Cleveland

#### Narrative

Job Narrative 240-185637-1

#### Receipt

The samples were received on 5/19/2023 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.8°C and 1.8°C

#### GC/MS VOA

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

#### Client: ARCADIS US Inc 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

## Sample Summary

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-185637-1	TRIP BLANK_57	Water	05/17/23 00:00	05/19/23 08:00
240-185637-2	MW-164S_051723	Water	05/17/23 10:29	05/19/23 08:00

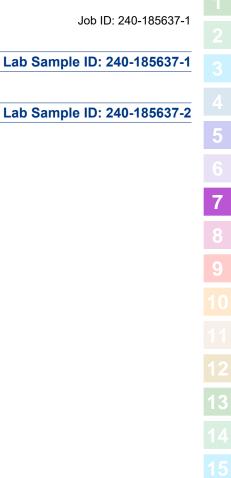
## **Eurofins Cleveland**

### Client Sample ID: TRIP BLANK\_57

No Detections.

### Client Sample ID: MW-164S\_051723

No Detections.



Detection	Summary
-----------	---------

Job ID: 240-185637-1

### Client Sample ID: TRIP BLANK\_57

Date Collected: 05/17/23 00:00 Date Received: 05/19/23 08:00

Method: SW846 8260D - Volati	ile Organic Comp	ounds by G	C/MS						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/26/23 12:59	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/26/23 12:59	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/26/23 12:59	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/26/23 12:59	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/26/23 12:59	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/26/23 12:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		70 - 128			-		05/26/23 12:59	1
Dibromofluoromethane (Surr)	96		77 - 124					05/26/23 12:59	1
Toluene-d8 (Surr)	104		80 - 120					05/26/23 12:59	1
4-Bromofluorobenzene	88		76 - 120					05/26/23 12:59	1

Job ID: 240-185637-1

Matrix: Water

5

**8** 9

**Eurofins Cleveland** 

#### Client Sample ID: MW-164S\_051723

Date Collected: 05/17/23 10:29 Date Received: 05/19/23 08:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			05/23/23 22:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	99		75 - 133			-		05/23/23 22:53	1
Method: SW846 8260D - Volati	le Organic Comp	ounds by G	C/MS						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/26/23 16:16	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/26/23 16:16	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/26/23 16:16	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/26/23 16:16	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/26/23 16:16	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/26/23 16:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		70 - 128			-		05/26/23 16:16	1
Dibromofluoromethane (Surr)	98		77 - 124					05/26/23 16:16	1
Toluene-d8 (Surr)	108		80 - 120					05/26/23 16:16	1
4-Bromofluorobenzene	90		76 - 120					05/26/23 16:16	1

5/31/2023

### Lab Sample ID: 240-185637-2 Matrix: Water

DCA

(70 129)

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

Client Comple ID

#### Matrix: Water

Lab Comula ID

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

BFB

(76 120)

	Client Sample ID	(70-128)	(77-124)	(80-120)	(76-120)		
240-185637-1	TRIP BLANK_57	97	96	104	88		
240-185637-2	MW-164S_051723	101	98	108	90		
LCS 460-911610/4	Lab Control Sample	80	82	96	101		
LCSD 460-911610/5	Lab Control Sample Dup	85	87	101	107		
MB 460-911610/9	Method Blank	88	91	100	98		
Surrogate Legend							8
DCA = 1,2-Dichloroetha	ane-d4 (Surr)						
DBFM = Dibromofluoro	methane (Surr)						9
TOL = Toluene-d8 (Sur	r)						
BFB = 4-Bromofluorobe	enzene						
	enzene M - Volatile Organic Comp	oounds (GC	/MS)			Prep Type: Total/NA	
lethod: 8260D SI		oounds (GC	/MS)	Percent Su	rogate Recc	Prep Type: Total/NA	
lethod: 8260D SI		oounds (GC) BFB	/MS)	Percent Sur	rogate Recc		1 1 1
lethod: 8260D SI			/MS)	Percent Sur	rogate Recc		1 1 1
lethod: 8260D SII atrix: Water	M - Volatile Organic Comp	BFB	/MS)	Percent Sur	rogate Recc		1 1 1
lethod: 8260D SII atrix: Water Lab Sample ID	M - Volatile Organic Comp	BFB (75-133)	/MS)	Percent Sur	rogate Recc		1 1 1 1
lethod: 8260D SII atrix: Water Lab Sample ID 240-185637-2	M - Volatile Organic Comp Client Sample ID MW-164S_051723	BFB (75-133) 99	/MS)	Percent Sur	rogate Recc		1 1 1
lethod: 8260D SIN atrix: Water Lab Sample ID 240-185637-2 LCS 460-910995/4	M - Volatile Organic Comp <u>Client Sample ID</u> MW-164S_051723 Lab Control Sample	<b>BFB</b> (75-133) 99 98	/MS)	Percent Sur	rogate Recc		1 1 1 1

DBFM

(77 124)

TOL

(90 120)

#### Surrogate Legend

BFB = 4-Bromofluorobenzene

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

#### Matrix: Water Analysis Batch: 911610

	MB	МВ							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/26/23 09:17	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/26/23 09:17	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/26/23 09:17	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/26/23 09:17	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/26/23 09:17	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/26/23 09:17	1
viriyi olilollad	1.0	0	1.0	0.40	49/L			00,20,20 00.11	1

	МВ	МВ				
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		70 - 128		05/26/23 09:17	1
Dibromofluoromethane (Surr)	91		77 - 124		05/26/23 09:17	1
Toluene-d8 (Surr)	100		80 - 120		05/26/23 09:17	1
4-Bromofluorobenzene	98		76 - 120		05/26/23 09:17	1

#### Lab Sample ID: LCS 460-911610/4 Matrix: Water Analysis Batch: 911610

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,1-Dichloroethene	20.0	20.4		ug/L		102	68 - 133	
cis-1,2-Dichloroethene	20.0	18.5		ug/L		93	78 - 121	
Tetrachloroethene	20.0	19.8		ug/L		99	70 - 127	
trans-1,2-Dichloroethene	20.0	20.5		ug/L		103	74 - 126	
Trichloroethene	20.0	17.8		ug/L		89	71 _ 121	
Vinyl chloride	20.0	25.0		ug/L		125	55 - 144	

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	80		70 - 128
Dibromofluoromethane (Surr)	82		77 - 124
Toluene-d8 (Surr)	96		80 - 120
4-Bromofluorobenzene	101		76 - 120

#### Lab Sample ID: LCSD 460-911610/5 Matrix: Water Analysis Batch: 911610

Spike	LCSD	LCSD				%Rec		RPD
Analyte Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,1-Dichloroethene         20.0	23.6		ug/L		118	68 - 133	15	30
cis-1,2-Dichloroethene 20.0	20.3		ug/L		101	78 - 121	9	30
Tetrachloroethene 20.0	20.5		ug/L		102	70 - 127	3	30
trans-1,2-Dichloroethene 20.0	21.6		ug/L		108	74 - 126	5	30
Trichloroethene 20.0	19.4		ug/L		97	71 - 121	8	30
Vinyl chloride 20.0	28.6		ug/L		143	55 - 144	14	30

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	85		70 - 128
Dibromofluoromethane (Surr)	87		77 - 124
Toluene-d8 (Surr)	101		80 - 120

### Eurofins Cleveland

# Prep Type: Total/NA

Client Sample ID: Lab Control Sample

Job ID: 240-185637-1

Prep Type: Total/NA

**Client Sample ID: Method Blank** 

Client Sample ID: La	b Control Sample Dup Prep Type: Total/NA

10

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)
Lab Sample ID: LCSD 460-911610/5

Lab Sample ID: LCSD 460	)-911610/5			Client Sample ID: Lab Control Sample Dup
Matrix: Water				Prep Type: Total/NA
Analysis Batch: 911610				
	LCSD	LCSD		
Surrogate	%Recovery	Qualifier	Limits	
4-Bromofluorobenzene	107		76 - 120	
<u> </u>				

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

Lab Sample ID: MB 460-9109	95/8								Client S	Sample ID: M	ethod	Blank
Matrix: Water										Prep Ty	pe: To	tal/NA
Analysis Batch: 910995												
	м	B MB										
Analyte	Resu	lt Qualifier	RL		MDL	Unit		<u>D</u>	Prepared	Analyze	d	Dil Fac
1,4-Dioxane	2.	.0 U	2.0		0.86	ug/L				05/23/23 2	1:05	1
	М	B MB										
Surrogate	%Recover	ry Qualifier	Limits						Prepared	Analyze	d	Dil Fac
4-Bromofluorobenzene	g	99	75 - 133							05/23/23 2	1:05	1
Lab Sample ID: LCS 460-910	995/4							Clier	nt Sample	e ID: Lab Cor	ntrol S	ample
Matrix: Water										Prep Ty	pe: To	tal/NA
Analysis Batch: 910995												
-			Spike	LCS	LCS					%Rec		
Analyte			Added	Result	Qua	lifier	Unit	D	%Rec	Limits		
1,4-Dioxane			5.00	5.25			ug/L		105	57 - 124		
	LCS LC	cs										
Surrogate	%Recovery Q	ualifier	Limits									
4-Bromofluorobenzene	98		75 - 133									
- Lab Sample ID: LCSD 460-91	0995/5						CI	ient Sa	mple ID:	Lab Control	Sampl	e Dup
Matrix: Water										Prep Ty		
Analysis Batch: 910995												
-			Spike	LCSD	LCS	D				%Rec		RPD
Analyte			Added	Result	Qua	lifier	Unit	D	%Rec	Limits	RPD	Limit
1,4-Dioxane			5.00	5.02			ug/L		100	57 - 124	5	30
	LCSD LC	CSD										
Surrogate	%Recovery Q	ualifier	Limits									
4-Bromofluorobenzene	100		75 - 133									

## GC/MS VOA

#### Analysis Batch: 910995

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-185637-2	MW-164S_051723	Total/NA	Water	8260D SIM	
MB 460-910995/8	Method Blank	Total/NA	Water	8260D SIM	
_CS 460-910995/4	Lab Control Sample	Total/NA	Water	8260D SIM	
CSD 460-910995/5	Lab Control Sample Dup	Total/NA	Water	8260D SIM	
nalysis Batch: 91161		Pron Turne	Matrix	Method	Pron Batch
ab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
ab Sample ID 40-185637-1	Client Sample ID	Total/NA	Matrix Water	8260D	Prep Batch
ab Sample ID 40-185637-1	Client Sample ID				Prep Batch
ab Sample ID 40-185637-1 40-185637-2	Client Sample ID	Total/NA	Water	8260D	Prep Batch
· ·	Client Sample ID TRIP BLANK_57 MW-164S_051723	Total/NA Total/NA	Water Water	8260D 8260D	Prep Batch

Matrix: Water

Matrix: Water

Lab Sample ID: 240-185637-1

Lab Sample ID: 240-185637-2

## Client Sample ID: TRIP BLANK\_57 Date Collected: 05/17/23 00:00

Date	Conected. 03/11/23 00.00	
Date	Received: 05/19/23 08:00	

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8260D			911610	CJM	EET EDI	05/26/23 12:59

### Client Sample ID: MW-164S\_051723 Date Collected: 05/17/23 10:29

Date Received: 05/19/23 08:00

	Batch	Batch		Dilution	Batch			Prepared
Ргер Туре	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8260D		1	911610	CJM	EET EDI	05/26/23 16:16
Total/NA	Analysis	8260D SIM		1	910995	KLB	EET EDI	05/23/23 22:53

#### 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

#### 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

**Eurofins Cleveland** 

Client Contact	Regulatory program:	DW NPDES RCRA COther		
Company Name: Arcadis				TestAmerica Laboratories. Inc
Address: 28550 Cabot Drive. Suite 500	Client Project Manager: Kris Hinskey	Site Contact: Christina Weaver	Lab Contact: Mike DelMonico	COC No:
City/State/Zip: Novi, MI, 48377	Telephone: 248-994-2240	Telephone: 248-994-2240	Telephone: 330-497-9396	1 of 1 COC
Physics 248-994-7740	Email: kristoffer.hinskey@arcadis.com	Analysis Turnaround Time	Analyses	only
Project Name: Ford LTP Off-Site	Sampler Name: 1 2 Mi 2 Reweith	cat from b		Walk-in client
Project Number: 30167538,402.04	Method of Shipment/Cartier:	(N		Lab sampling
PO # 30167538.402.04	Shipping/Fracking No:	Grad	8560B 5 8560 5 8560	Job/SDG No:
	Matrix	)==)	08 200 200 200 200 200 200 200 200 200 2	
Sample Identification	Sample Date Sample Time Adress Solid	Combosin Ellisted 2 Combosin Lineted 2 Combosin Combosin Motil HCU HCO HZOO4 HZOO4	cis-1,2-DG Trans-1,2 PCE 8260 Vinyl Chlo 7,4-Dioxa	Sample Specific Notes / Special Instructions:
TRIP BLANK_ 57	1 22/A/va	1 NG X		1 Trip Blank
· MW-1645_051723	05/17/23 11070 1	X 9N		3 VOAs for 8260B
		240-185637 Chain of Custody	tody	AICHIGAN 190
Possible Hazard Identification	Skin Irritant Poison B Unknown	Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month) Return to Chent / Disposal BV Lab / Archive For Mon	ples are retained longer (han 1 month) Months	
oms/OC Requirements & Comment iss: 3 V (5,1,7 V), A lits through Cadlena at jtomafiad			STITUTE	
Relinquished by - Rey RIM	2	(400 Received by LOLO Jacog	Company (	Date/Time: 17/23 1400
Relinquished by Relinquished by Relinquished by Argenting	Company Company Company	1245 Received by Arthough	Company:	Date/Time: S/18/73/12415 Date/Time:
a da	2	A III - ANA	141	M& 12-12-02

Eurofins - Canton Sample Receipt Form/Narrative	.ogin # : 85637
Barberton Facility	
Client Arcadis Site Name	Cooler unpacked by:
Cooler Received on 05-14-23 Opened on 05-14-23	- Leah M. Smith
FedEx: 1st Grd Exp UPS FAS (Chipper) Client Drop Off Eurofins Cou	
Receipt After-hours: Drop-off Date/Time Storage L	
	ſ
Packing material used: Bubble Wrap Foam Plastic Bag None	Other
COOLANT: Wet loe Blue Ice Dry Ice Water None	
1. Cooler temperature upon receipt Z See Multipl	le Cooler Form
IR GUN #(CF°C) Observed Cooler Temp	°C Corrected Cooler Temp°C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity	Tests that are not
-Were the seals on the outside of the cooler(s) signed & dated?	Les No NA checked for pH by
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes N Receiving:
-Were tamper/custody seals intact and uncompromised?	Yes No VA
<ol> <li>Shippers' packing slip attached to the cooler(s)?</li> <li>Did custody papers accompany the sample(s)?</li> </ol>	Yes No VOAs Oil and Grease
<ol> <li>5. Were the custody papers relinquished &amp; signed in the appropriate place?</li> </ol>	TOC TOC
<ol> <li>6. Was/were the person(s) who collected the samples clearly identified on the COC</li> </ol>	
7. Did all bottles arrive in good condition (Unbroken)?	Ke No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC?	Tes No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y)	N), and sample type of grab/comp(Y/N)?
10. Were correct bottle(s) used for the test(s) indicated?	Ges No
11. Sufficient quantity received to perform indicated analyses?	Vos No
12. Are these work share samples and all listed on the COC?	Yes No
If yes, Questions 13-17 have been checked at the originating laboratory. 13. Were all preserved sample(s) at the correct pH upon receipt?	Yes No NA pH Strip Lot# HC208070
14. Were VOAs on the COC?	Ve No
15. Were air bubbles >6 mm in any VOA vials? Larger than this.	Yes NO NA
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?	Yes (No)
Contacted PM Date by via	Verbal Voice Mail Other
Concerning	
18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional ne	xt page Samples processed by:
19. SAMPLE CONDITION	
Sample(s) were received after the recommendation	nded holding time had expired.
Sample(s) were received unter the recommendation were	e received in a broken container.
Sample(s) were received with bubble	e >6 mm in diameter. (Notify PM)
20. SAMPLE PRESERVATION	
Sample(s) Time preserved: Preservative(s) added/Lot number(s):	were further preserved in the laboratory.
Time preserved: Preservative(s) added/Lot number(s):	
VOA Sample Preservation - Date/Time VOAs Frozen:	

Login #: 185637

				Sample Receipt Mu	Itiple Cooler Form	
Cooler		ption	IR Gun #	Observed	Corrected	Coolant
	ircle)		(Circle)	Temp °C	Temp °C	(Circle)
EC Client	Box	Other		0.8,	0.8	Wetice Blue ice Dry ic
EC Client	Box	Other		1.8	1.8	Wet ice Blue ice Dry ic Water None
EC Client	Box	Other	IR GUN #:			Wetice Blueice Dryic Water None
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WI-NC-099 Cooler Receipt Form Page 2 - Multiple Coolers

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**Chain of Custody Record** 



🔆 eurofins

Barberton, OH 44203	د			n or custouy record		7				ų L						ш —	Environment Testing	ŝ
Phone: 330-497-9396 Fax: 330-497-0772										ine C	- Teachi	Carrier Tracking Nofe			COC No:			Г
Client Information (Sub Contract Lab)	Sampler			Del	DelMonico, Michael	chael						elon Au			240-168358.1	1.1		T
Client Contact: Shipping/Receiving	Phone:			E-Mai Mich	r: ael.DelMc	onico@e	st.eurofi	usus.o	E	State Mich	State of Origin: Michigan	2			Page: Page 1 of 1			
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Address: 777 New Durham Road,	Due Date Requested: 6/1/2023	4					₹	Analysis	is Re	Requested	ted						Hexane	
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Note: Since aboratory accreditations are subject to change, Eurofins Environment Testing North Central. LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples back to the Eurofins Environment Testing North Central. LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central. LLC aboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central. LLC altoratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central. LLC.	nt Testing North Centra bove for analysis/tests/ intral, LLC attention imi	al, LLC places matrix being al mediately. If a	the ownership talyzed, the s I requested a	of method, an amples must b ccreditations a	alyte & accre e shipped ba e current to	ditation c ick to the date, retu	ompliance Eurofins E m the sign	tupon o Environm ned Cha	ur subco lent Tes in of Cu	intract la ting Nor stody at	aborator th Cent testing t	ies. Thi al, LLC o said c	s sampl laborato ompliane	e shipme ry or oth ce to Eur	nt is forwarded u ar instructions w ofins Environme	under chain All be provid ant Testing I	-of-custody. If the ed. Any changes to vorth Central, LLC.	
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5/31/2023

#### Client: ARCADIS US Inc

#### Login Number: 185637 List Number: 2

Creator: Armbruster, Chris

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey<br meter.	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	

Job Number: 240-185637-1

List Source: Eurofins Edison

List Creation: 05/23/23 06:56 PM

## **DATA VERIFICATION REPORT**



May 31, 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: 185637-1 Sample date: 2023-05-17 Report received by CADENA: 2023-05-31 Initial Data Verification completed by CADENA: 2023-05-31 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 <u>http://clms.cadenaco.com/index.cfm</u>.

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.
E	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: 185637-1

		Sample Name: Lab Sample ID: Sample Date:	TRIP BLA 2401856 5/17/20	5371			MW-164 2401856 5/17/20		23	
		<b>.</b>		Report		Valid		Report		Valid
	Analyte	Cas No.	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
GC/MS VOC										
<u>OSW-8260</u>	<u> </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	
<u>OSW-8260</u>	DDSIM									
	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 # 240-185637-1 CADENA Verification Report: 2023-05-31

Analyses Performed By: Eurofins North Canton, Ohio

Report # 49958R Review Level: Tier III Project: 30167538.402.02

## **SUMMARY**

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-185637-1 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:

Semale ID	Lab ID	Matrix	Sample	Derent Comple	Ana	lysis
Sample ID	Lab ID	Matrix	Collection Date	Parent Sample	VOC	VOC SIM
TRIP BLANK_57	240-185637-1	Water	05/17/23		Х	
MW-164S_051723	240-185637-2	Water	05/17/23		Х	Х

### DATA REVIEW

### 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
1.	Sample receipt condition		Х		Х	
2.	Requested analyses and sample results		Х		Х	
3.	Master tracking list		Х		Х	
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	
9.	Sample preparation/extraction/analysis dates		Х		Х	
10.	Fully executed Chain-of-Custody (COC) form		Х		Х	
11.	Narrative summary of Quality Assurance or sample problems provided		х		х	
12.	Data Package Completeness and Compliance		Х		Х	

#### **DATA REVIEW**

#### **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 HCI

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.

#### DATA REVIEW

#### 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 REVIEW

### DATA VALIDATION CHECKLIST FOR VOCs

VOCs: 8260D/8260D-SIM	Rep	orted		rmance ptable	Not Required
	No	Yes	No	Yes	Requireu
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (G	C/MS)				
Tier II Validation					
Holding times/Preservation		Х		X	
Tier III Validation					
System performance and column resolution		Х		X	
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	X				Х
Internal standard		Х		Х	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		Х		Х	
B. Quantitation Reports		Х		Х	
C. RT of sample compounds within the established RT windows		Х		Х	
D. Transcription/calculation errors present		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

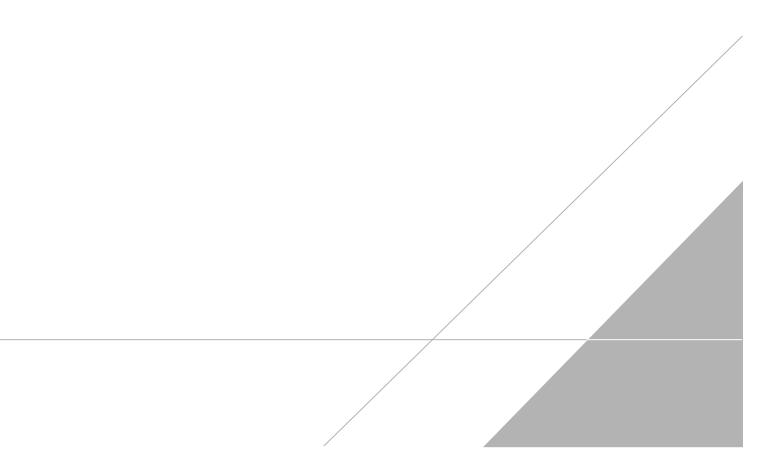
VALIDATION PERFORMED BY:	Hrishikesh Upadhyaya
SIGNATURE:	Curindialundo [

DATE: June 19, 2023

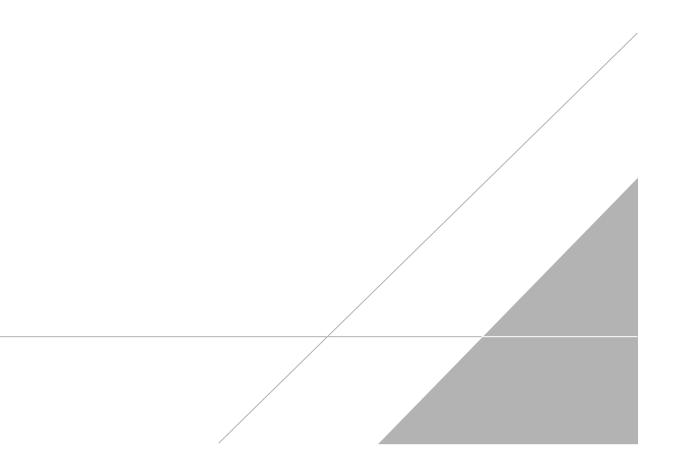
PEER REVIEW: Andrew Korycinski

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 Company Name: Arcadis	- incguin	tory program:			D			NPDE		1	RCI	KA		Othe	er										Т	estAmerica Laboratories,
Address: 28550 Cabot Drive, Suite 500	Client Project	Manager: Kris	Hinsk	ey			Site	Conta	et: C	hristin	ia We	eaver				Lab (	Conta	et: Mi	ce Del	Monic	:0	-				OC No:
· · · · · · · · · · · · · · · · · · ·	Telephone: 24	8-994-2240			_		Tele	phone	: 248	-994-2	240					Telep	hone	330-4	97-93	96					-+	
City/State/Zip: Novi, MI, 48377	Email: kristof	fer.hinskey@ar	cadis.	com				Analy	sis Tu	Inaro	und T	lime	1	<b>T</b>	-				A	nalys	es	_			E	1 of 1 COCs or lab use only
Phone: 248-994-2240	]																									
Project Name: Ford LTP Off-Site	Sampler Name		ein	n				l of day	ſ	m below 3 w v 2 w	/eeks														12	alk-in client
Project Number: 30167538.402.04		ment/Carrier:					1	u day	r	- I w	reek		9	ų							₹				La	b sampling
PO # 30167538.402.04	Shipping/Tracl	king No:	_						T	2 d 1 d			(N / N)	=C / Grab=G	8	260B	8260			8260B	8260B SIM				ol	b/SDG No:
				N	Aatrix	1		Conts	iners	& Pres	ervati	ves	Sample		8260	CE 82	-DCE	8	80	oride	ne 82					
Sample Identification	Sample Date	Sample Time	Air	Aqueous	Sediment Solid	Other:	H2SO4	HN03	HCI	ZaAe	Unpres	Other:	Filtered	Composite	1.1-DCE 8260B	cis-1.2-DCE 8260B	Trans-1,2-DCE 8260B	PCE 8260B	TCE 8260B	Vinyl Chloride	1,4-Dioxane					Sample Specific Notes / Special Instructions:
TRIP BLANK_ ちー	18/17/23			1					1				N	G	Х	X	Х	X	Х	X						1 Trip Blank
MW-1645_051723	05/17/2	1029		6			T				1		N	6	X	X	K	K	X	X	X		1		1	3 VOAs for 8260B 3 VOAs for 8260B SI
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### Client Sample ID: TRIP BLANK\_57

### Date Collected: 05/17/23 00:00

Date Received: 05/19/23 08:00

Method: SW846 8260	D - Volatile Organic Com	pounds 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			05/26/23 12:59	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/26/23 12:59	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/26/23 12:59	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/26/23 12:59	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/26/23 12:59	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/26/23 12:59	1
Surrogate	%Recovery	Qualifier	Limits			_	Prepared	Analyzed	Dil Fac

Surrogate	%Recovery Qualifier	Limits	Prepared
1,2-Dichloroethane-d4 (Surr)	97	70 - 128	
Dibromofluoromethane (Surr)	96	77 - 124	
Toluene-d8 (Surr)	104	80 - 120	
4-Bromofluorobenzene	88	76 - 120	

### Client Sample ID: MW-164S\_051723 Date Collected: 05/17/23 10:29 Date Received: 05/19/23 08:00

4-Bromofluorobenzene

Lab Sample ID: 240-185637-2

05/26/23 12:59

05/26/23 12:59

05/26/23 12:59

05/26/23 12:59

Matrix: Water

1

1

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Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			05/23/23 22:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	99	·	75 - 133					05/23/23 22:53	1

#### Method: SW846 8260D - Volatile Organic Compounds by GC/MS

90

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/26/23 16:16	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/26/23 16:16	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/26/23 16:16	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/26/23 16:16	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/26/23 16:16	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/26/23 16:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		70 - 128			-		05/26/23 16:16	1
Dibromofluoromethane (Surr)	98		77 - 124					05/26/23 16:16	1
Toluene-d8 (Surr)	108		80 - 120					05/26/23 16:16	1

76 - 120

05/26/23 16:16

## Lab Sample ID: 240-185637-1 Matrix: Water