

**Environment Testing** 

# **ANALYTICAL REPORT**

# PREPARED FOR

Attn: Kristoffer Hinskey ARCADIS US Inc 28550 Cabot Drive Suite 500 Novi, Michigan 48377 Generated 8/22/2023 7:36:42 AM

# JOB DESCRIPTION

Ford LTP - Off Site

# **JOB NUMBER**

240-189869-1

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.

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# Authorization

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# **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	15
Lab Chronicle	16
Certification Summary	17
Chain of Custody	18

3

# Qualifiers

G	C/MS VOA		
-		-	

Qualifier	Qualifier Description
F2	MS/MSD RPD exceeds control limits
U	Indicates the analyte was analyzed for but not detected.

# Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Job ID: 240-189869-1

### Laboratory: Eurofins Cleveland

### Narrative

# Job Narrative 240-189869-1

### Receipt

The samples were received on 8/10/2023 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 0.2°C and 0.4°C

### GC/MS VOA

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

# **Method Summary**

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

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

### **Protocol References:**

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

### Laboratory References:

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

# Sample Summary

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-189869-1	TRIP BLANK_5	Water	08/08/23 00:00	08/10/23 08:00
240-189869-2	MW-158S_080823	Water	08/08/23 10:50	08/10/23 08:00

# Client Sample ID: TRIP BLANK\_5

No Detections.

# Client Sample ID: MW-158S\_080823

No Detections.

Lab Sample ID: 240-189869-1

Lab Sample ID: 240-189869-2

# Client Sample ID: TRIP BLANK\_5 Date Collected: 08/08/23 00:00 Date Received: 08/10/23 08:00

# Lab Sample ID: 240-189869-1

Matrix: Water

5

8

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			08/14/23 21:18	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/14/23 21:18	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/14/23 21:18	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/14/23 21:18	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/14/23 21:18	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/14/23 21:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		62 - 137					08/14/23 21:18	1
4-Bromofluorobenzene (Surr)	97		56 - 136					08/14/23 21:18	1
Toluene-d8 (Surr)	98		78 - 122					08/14/23 21:18	1
Dibromofluoromethane (Surr)	101		73 - 120					08/14/23 21:18	1

## Client Sample ID: MW-158S\_080823 Date Collected: 08/08/23 10:50 Date Received: 08/10/23 08:00

# Lab Sample ID: 240-189869-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/16/23 12:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		66 - 120			-		08/16/23 12:17	1
Method: SW846 8260D - Vo	slatile Organic	Compound	ds by GC/MS						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			08/14/23 21:43	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/14/23 21:43	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/14/23 21:43	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/14/23 21:43	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/14/23 21:43	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/14/23 21:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		62 - 137			-		08/14/23 21:43	1
4-Bromofluorobenzene (Surr)	97		56 - 136					08/14/23 21:43	1
Toluene-d8 (Surr)	98		78 - 122					08/14/23 21:43	1
Dibromofluoromethane (Surr)	99		73 - 120					08/14/23 21:43	1

# **Surrogate Summary**

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

			Pe	ercent Surr	ogate Recovery (Ad	cceptance Limits)
		DCA	BFB	TOL	DBFM	
Lab Sample ID	Client Sample ID	(62-137)	(56-136)	(78-122)	(73-120)	
240-189869-1	TRIP BLANK_5	100	97	98	101	
240-189869-2	MW-158S_080823	100	97	98	99	
240-189869-2 MS	MW-158S_080823	97	101	97	101	
240-189869-2 MSD	MW-158S_080823	96	103	97	102	
LCS 240-583797/5	Lab Control Sample	98	100	100	101	
MB 240-583797/8	Method Blank	100	99	97	102	
Surrogate Legend						
DCA = 1,2-Dichloroet						
BFB = 4-Bromofluoro	benzene (Surr)					
TOL = Toluene-d8 (S	urr)					
DBFM = Dibromofluo	romethane (Surr)					
Method: 8260D S	SIM - Volatile Organic	: Compoun	ds (GC/	MS)		
Aatrix: Water	-	-				Prep Type: Total
-			Pe	ercent Surr	ogate Recovery (Ad	cceptance Limits)
		DCA			<b>J</b>	. ,

		DCA		
Lab Sample ID 240-189869-2	Client Sample ID MW-158S_080823	(66-120) 86	 	
240-189878-C-2 MS	Matrix Spike	95		
240-189878-C-2 MSD	Matrix Spike Duplicate	86		
LCS 240-584028/5	Lab Control Sample	96		
MB 240-584028/7	Method Blank	97		

### Surrogate Legend

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

Job ID: 240-189869-1

Prep Type: Total/NA

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

# Lab Sample ID: MB 240-583797/8

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

Job ID: 240-189869-1

Matrix: Water Analysis Batch: 583797

M	в МВ							
Analyte Resu	It Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene   1	0 U —	1.0	0.49	ug/L			08/14/23 13:23	1
cis-1,2-Dichloroethene 1	0 U	1.0	0.46	ug/L			08/14/23 13:23	1
Tetrachloroethene 1	0 U	1.0	0.44	ug/L			08/14/23 13:23	1
trans-1,2-Dichloroethene 1	0 U	1.0	0.51	ug/L			08/14/23 13:23	1
Trichloroethene 1	0 U	1.0	0.44	ug/L			08/14/23 13:23	1
Vinyl chloride 1	0 U	1.0	0.45	ug/L			08/14/23 13:23	1

	МВ	МВ				
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		62 - 137		08/14/23 13:23	1
4-Bromofluorobenzene (Surr)	99		56 - 136		08/14/23 13:23	1
Toluene-d8 (Surr)	97		78 - 122		08/14/23 13:23	1
Dibromofluoromethane (Surr)	102		73 - 120		08/14/23 13:23	1

## Lab Sample ID: LCS 240-583797/5 Matrix: Water Analysis Batch: 583797

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,1-Dichloroethene	25.0	26.1		ug/L		105	63 - 134	
cis-1,2-Dichloroethene	25.0	24.5		ug/L		98	77 - 123	
Tetrachloroethene	25.0	24.8		ug/L		99	76 - 123	
trans-1,2-Dichloroethene	25.0	23.5		ug/L		94	75 - 124	
Trichloroethene	25.0	23.9		ug/L		96	70 - 122	
Vinyl chloride	12.5	10.8		ug/L		86	60 - 144	

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		62 - 137
4-Bromofluorobenzene (Surr)	100		56 - 136
Toluene-d8 (Surr)	100		78 - 122
Dibromofluoromethane (Surr)	101		73 - 120

97

### Lab Sample ID: 240-189869-2 MS **Matrix: Water** Analysis Batch: 583797

Toluene-d8 (Surr)

	Sample	Sample	Spike	MS	MS				%Rec
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
1,1-Dichloroethene	1.0	U	25.0	24.0		ug/L		96	56 - 135
cis-1,2-Dichloroethene	1.0	U	25.0	24.4		ug/L		98	66 - 128
Tetrachloroethene	1.0	U	25.0	23.4		ug/L		94	62 - 131
trans-1,2-Dichloroethene	1.0	U	25.0	22.9		ug/L		92	56 - 136
Trichloroethene	1.0	U	25.0	23.2		ug/L		93	61 - 124
Vinyl chloride	1.0	U	12.5	9.35		ug/L		75	43 - 157
	MS	MS							
Surrogate	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	97		62 - 137						
4-Bromofluorobenzene (Surr)	101		56 - 136						

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

# Client Sample ID: MW-158S\_080823

Prep Type: Total/NA

**Eurofins Cleveland** 

78 - 122

# **QC Sample Results**

5 6 7

10

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

Analyte         Result         Qualifier         Added         Result         Qualifier         Unit         D         %Rec         Limits         RPD         L           1,1-0-ichloroethene         1.0         U         25.0         25.1         ugl.         100         56.135         5           Tetrachloroethene         1.0         U         25.0         23.4         ugl.         93         62.131         0           Trans-1,2-Dichloroethene         1.0         U         25.0         23.8         ugl.         94         56.136         3           Trichloroethene         1.0         U         25.0         23.8         ugl.         82         43.157         10           MSD MSD           Surrogate         Surrogate         Limits         62.137           1/2-Dichloroethane-d4 (Surr)         97         78.122         Dibromofluorobanzene (Surr)         102         73.120            ISUB         Surrogate         Surrogate         Client Sample ID: MB 240-584028/7         Client Sample ID: MB 240-584028/7         Dil           Analysis         Batch: 584028         MB         MB         NB         Surrogate         Surogate         Mailifler	Lab Sample ID: 240-1898 Matrix: Water	69-2 MS					C	client S	Sample	ID: MW-15 Prep Typ		
Diaronaliuoromethane (Surr)         101         73. 120           Lab Sample (D: 240-189869-2 MSD Matrix: Water Analysis Batch: 583797         Client Sample (D: MW-1682, 0600 Prep Type: Total/ Analysis Batch: 583797           Analysis Batch: 583797         Sample Sample Result Qualifier         Added Added         Result Qualifier         Unit         D         %Rec         FB           1.1:Dichloroethene         1.0         0         25.0         25.1         ug/L         101         66.123         4           1.1:Dichloroethene         1.0         0         25.0         23.4         ug/L         93         62.131         0           Trenshoroethene         1.0         0         25.0         23.8         ug/L         95         61.124         3           Viry chicking         10         2.5         2.3         ug/L         82         43.157         10           Surrogate         MSD         MSD         62.137         45         73120         44         56         136           Totuene-dg (Surr)         96         62.137         61.36         79         73.120         Client Sample ID: Method Ble         Prep Type: Total/           Analysis Batch: 584028         MB         MB         MB         MB         MB	Analysis Batch: 583797	MS	MS									
Dibromofluoromethane (Surr)         101         73.120           Lab Sample (D: 240-189868-2 MSD Matrix: Water Analysis Batch: 583797         Client Sample (D: MW-1682, 6000 Prep Type: Total/ Analysis Batch: 583797           Analyse Batch: 583797         Result Qualifier Added         Added         Result Qualifier         Unit         D %Rec         Kinc         FB           1.1:Dichtoroethene         1.0         0         25.0         25.1         ug/L         100         66.128         4           1.1:Dichtoroethene         1.0         0         25.0         23.4         ug/L         93         62.131         0           1.1:Dichtoroethene         1.0         0         25.0         23.8         ug/L         95         61.124         3           Viny chiotoid         1.0         25.0         23.8         ug/L         95         61.124         3           Surrogate         %Recovery         Qualifier         Limits         10.3         ug/L         82         43.157         10           Dibromofluoromethane (Surr)         96         62.137         420         43.157         10         10         12.0         12.0         12.0         12.0         12.0         12.0         0.0         0.0         0.0         0.	Surrogate	%Recoverv	Qualifier	Limits								
Matrix: Water Analysis Batch: 583797         Sample Sample Result Qualifier         Spike Added Result Qualifier         MSD MSD Result Result Qualifier         Prep Type: Total/           Analysis Batch: 583797         Sample Sample         Spike         MSD MSD         9%Rec         Filmits         RPD L           Analysis Batch: 583797         100         25.0         25.1         ugit, ugit,         D         96.128         4           1.0         0         25.0         25.3         ugit, ugit,         93         62.131         0           Trichloroethene         1.0         0         25.0         23.6         ugit, ugit,         95         61.124         3           Vinyl chloride         1.0         0         12.5         10.3         ugit, ugit,         95         61.124         3           Surrogate         %Recovery Qualifier         Limits         10.0         12.5         10.3         ugit, ugit,         82         43.157         10           Surrogate         %Recovery Qualifier         Limits         20         10.0         73.120         100         100         10.0         10.0         10.0         10.0         10.0         10.0         10.0         10.0         10.0         10.0         10.0												
Matrix: Water Analysis Batch: 583797         Sample Sample Result Qualifier         Spike Added Added         MSD MSD Result Qualifier         MSD MSD Visit         Prep Type: Total/           Analysis Batch: 583797         Sample Sample Result Qualifier         Added Added         Result Qualifier         Unit         D         %Rec         F           Analysis Batch: 583797         Inition         Public Solution 50: 12: Dichloroethene         10         U         25:0         25:1         ugit         D         66: 12:6         4           Initerial-12: Dichloroethene         10         U         25:0         23:4         ugit         93         62: 13:0         0           Surrogate         10         U         25:0         23:8         ugit         95         61: 12:4         3           Surrogate         10:0         U         12:5         10:3         ugit         82         43: 157         10           Surrogate         %Recovery Qualifier         Limits         E         10:0	Leh Comula ID: 240 4000									10. 10.4		0000
Sample         Spike         MSD         %Rec         F           Analyte         Result         Qualifier         Added         Result         Qualifier         Unit         D         %Rec         Tite         RPD         L           1,1-Dichloroethene         1.0         U         25.0         25.3         ug/L         100         66.128         4           Tarash12-Dichloroethene         1.0         U         25.0         23.4         ug/L         93         62.131         0           Tarash12-Dichloroethene         1.0         U         25.0         23.6         ug/L         94         56.136         3           Trichloroethene         1.0         U         25.0         23.8         ug/L         95         61.124         3           Surrogate         %Recovery         Qualifier         Limits         78         103         ug/L         82         43.157         10           Surrogate         %Recovery         Qualifier         Limits         78         120         Difformofucondenaed(Surr)         78         120         Difformofucondenaed(Surr)         Difformofucondenaed(Surr)         20         0.86         Quil         Prepared         Analyzed         Prep Type: Tot		09-2 IVISD					, c	silent a	sampie			
Analyte         Result         Qualifier         Added         Result         Qualifier         Unit         D         %Rec         Linits         RPD         L           1,1-Dichloroethnen         1.0         U         25.0         25.1         ugl.         100         56.135         5           1,2-Dichloroethnen         1.0         U         25.0         23.4         ugl.         93         62.131         0           trans-1,2-Dichloroethnen         1.0         U         25.0         23.4         ugl.         94         56.138         3           Trichloroethnen         1.0         U         25.0         23.8         ugl.         92         61.124         3           Vinyl chloride         1.0         U         2.5         10.3         ugl.         82         43.157         10           Surrogate         /// SR0covery Qualifier         Limits         62.137         43         157         10           1.2-Dichloroethane-df (Surr)         102         73.120         62.137         43         160         161         1.20         164         100         84         162         102         164         100         102         173         120         166	Analysis Batch: 583797											
1,1_0Linkorethene       1.0       25.0       25.1       ug/L       100       56.135       5         0sh 1,2.Dichloroethene       1.0       25.0       23.4       ug/L       101       66.128       4         Tetrachloroethene       1.0       25.0       23.4       ug/L       101       66.128       4         Tetrachloroethene       1.0       25.0       23.6       ug/L       94       56.136       3         Tichbioroethene       1.0       0       25.0       23.6       ug/L       94       56.136       3         Tichbioroethene       1.0       0       25.0       23.8       ug/L       94       56.136       3         Tichbioroethane-d4 (Surr)       10.0       12.5       10.3       ug/L       82       43.157       10          96       62.137       62.137       62.136       73       43       10       10       10.2       73.120       10       10       10.14       10       10       10.14       10       10       10.14       10       10.14       10       10.14       10       10.14       10       10.14       10       10.14       10.14       10       10.14		Sample	Sample	Spike	MSD	MSD				%Rec		RP
cis-12-Dichloroethene       1.0       U       25.0       25.3       ug/L       101       66.128       4         Tetrachhoroethene       1.0       U       25.0       23.4       ug/L       93       62.131       0         Tinchoroethene       1.0       U       25.0       23.4       ug/L       93       62.131       0         Tinchloroethene       1.0       U       25.0       23.8       ug/L       95       61.124       3         Vinyl chorde       1.0       U       25.0       23.8       ug/L       82       43.157       10         MSD MSD         Surrogate       %Recovery Qualifier       Limits         1.2-Dichloroethezne (Surr)       96       62.137       45.136       75.136         40moflucondenzene (Surr)       102       73.120       78.122       75.102       75.102         Client Sample ID: MB 240-584028/7         Analyste       Result Qualifier       RL       MB       MB       97       78.122         1.4-Dickane       2.0       U       2.0       0.86       ug/L       D       Prepared       Analyzed       Dil         1.4-Dickane       %Recovery	Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Lim
Tetrachloroethene       1.0       U       25.0       23.4       ug/L       93       62.131       0         Trans-1,2-Dichloroethene       1.0       U       25.0       23.6       ug/L       94       65       13       0         Trans-1,2-Dichloroethene       1.0       U       25.0       23.6       ug/L       94       65       13       3         Trinchloroethene       1.0       U       12.5       10.3       ug/L       82       43.157       10         MBZD MSD         Surrogate       1.20       12.5       10.3       ug/L       82       43.157       10         Limits         Jethonoritomothane (Surr)       103       56.136         Toluene-d8 (Surr)       97       78.122       101       102       73.120         Iterhod: 8260D SIM - Volatile Organic Compounds (GC/MS)         Lab Sample ID: MB 240-584028/7         Matrix: Water       Result       Qualifier       Limits       Prep Type: Total/         Analyte       Result       Qualifier       Limits       0.86       Ug/L       D       08/16/23 10.39       Dil         Lis Dichloroethane-d4 (Surr)	1,1-Dichloroethene	1.0	U	25.0	25.1		ug/L		100	56 - 135	5	2
trans-1,2-Dichloroethene       1.0       U       25.0       23.6       ug/L       94       56.136       3         Tinchioroethene       1.0       U       25.0       23.8       ug/L       95       61.124       3         Vinyl chloride       1.0       U       12.5       10.3       ug/L       82       43.157       10         Surrogate       %Recovery       Qualifier       Limits       62.137       43.157       10         1,2-Dichloroethene/d4 (Surr)       97       78.122       78.122       78.122       78.122       78.122       78.122         Dibromofluoromethane (Surr)       102       73.120       78.122       78.122       78.122       78.122       79.120         Tethod:       8260D SIM - Volatile Organic Compounds (GC/MS)       Client Sample ID: MB 240-584028/7       Client Sample ID: Method Bla Prep Type: Total/         Analyte       Result Qualifier       RL       MDL Unit       D       Prepared       Analyzed       Dil         1,4-Dioxane       %Recovery       Qualifier       Limits       66.120       08.00       08/16/23 10.39       Dil         1,2-Dichloroethane-d4 (Surr)       97       Gen 200       Second       Second       91.10       08.102	cis-1,2-Dichloroethene	1.0	U	25.0	25.3		ug/L		101	66 - 128	4	
Trichloroethene       1.0       U       25.0       23.8       ug/L       95       61.124       3         Vinyl chloride       1.0       U       12.5       10.3       ug/L       82       43.157       10         Surrogate       %Recovery       Qualifier       Limits       - <td< td=""><td>Tetrachloroethene</td><td>1.0</td><td>U</td><td>25.0</td><td>23.4</td><td></td><td>ug/L</td><td></td><td>93</td><td>62 - 131</td><td>0</td><td>2</td></td<>	Tetrachloroethene	1.0	U	25.0	23.4		ug/L		93	62 - 131	0	2
Trichloroethene       1.0       U       25.0       23.8       ug/L       95       61.124       3         Vinyl chloride       1.0       U       12.5       10.3       ug/L       82       43.157       10         Surrogate       %Recovery       Qualifier       Limits       Limits       43.157       10         Surrogate       %Recovery       Qualifier       Limits       Client       43.157       10         Holoroethane-d4 (Surr)       96       62.137       61.36       76.122       78.122       78.122       78.122         Dibromofluoromethane (Surr)       102       73.120       Client Sample ID: MB 240-584028/7       Client Sample ID: Method Biz Prep Type: Total/         Analysis Batch: 584028       MB       MB       MB       MB       Prepared       Analyzed       Dil         Surrogate       %Recovery       Qualifier       Limits       Einits       Prepared       Analyzed       Dil         1.2-Dichloroethane-d4 (Surr)       97       66.120       Client Sample ID: Lab Control Sam Dif/02310:39       Dil         Lab Sample ID: LCS 240-584028/5 Matrix: Water Analysis Batch: 584028       Spike Matrix       LCS LCS Result Qualifier       Unit       0       %Rec Limits       Mint	rans-1,2-Dichloroethene	1.0	U	25.0	23.6		ug/L		94	56 - 136	3	•
Winyl chloride         1.0         12.5         10.3         ug/L         82         43.157         10           Surrogate         %Recovery         Qualifier         Limits         62.137	Trichloroethene	1.0	U	25.0	23.8		-		95	61 - 124	3	
MSD       MSD       MSD         Surrogate       %Recovery       Qualifier       Limits         12-Dichloroethane-d4 (Surr)       96       62.137         4-Bromofluorobenzene (Surr)       103       566-136         Dibromofluoromethane (Surr)       97       78.122         Dibromofluoromethane (Surr)       102       73.120         Client Sample ID: MB 240-584028/7         Matrix: Water       Client Sample ID: Method Bla         Analysis Batch: 584028       MB       MB         Analyte       Result Qualifier       RL       MDL       Unit       D       Prepared       Analyzed       Dil         1.2-Dichloroethane-d4 (Surr)       97       76.120       0.86       ug/L       D       Prepared       Analyzed       Dil         1.2-Dichloroethane-d4 (Surr)       97       76.120       0.86       ug/L       D       Prepared       Analyzed       Dil         1.2-Dichloroethane-d4 (Surr)       97       66.120       Client Sample ID: Lab Control Sam       Prep Type: Total/         Analyses       240-584028/5       Spike       LCS LCS       LCS LCS       NB       MB         Surrogate       240-584028/5       Spike       LCS LCS       M24       NB<							-					2
Surrogate       %Recovery       Qualifier       Limits         1,2-Dichlorosthane-d4 (Surr)       96       62.137         4-Bromofluorobenzene (Surr)       103       56 - 136         Toluene-d6 (Surr)       97       78 - 122         Dibromofluoromethane (Surr)       102       73 - 120         Iethod:       8260D SIM - Volatile Organic Compounds (GC/MS)       Client Sample ID: Method Biz Prep Type: Total/         Matrix: Water       Result Qualifier       RL       MDL       Unit       D       Prepared       Analyzed       Dil         1.4-Dioxane       2.0       U       2.0       0.86       ug/L       D       Prepared       Analyzed       Dil         1.2-Dichlorosthane-d4 (Surr)       97       97       66 - 120       Client Sample ID: Lab Control Sam Prep Type: Total/         Lab Sample ID: LCS 240-584028/5       Spike       LCS LCS Result       Client Sample ID: Lab Control Sam Prep Type: Total/         Matrix: Water       Analysis Batch: 584028       Spike       LCS LCS Result       Qualifier       Unit ug/L       D       %Rec %Rec         Surrogate       2.6       LCS LCS %Recovery       Qualifier       Limits 66 - 120       D       %Rec         Surrogate       %Rec Verey       Q			•				~g/=		02	10 - 101		-
1.2-Dichloroethane-d4 (Surr)       96       62.137         4-Bromofluorobenzene (Surr)       103       56.136         Toluene-d8 (Surr)       97       78.122         Dibromofluoromethane (Surr)       102       73.120         Iethod:       8260D SIM - Volatile Organic Compounds (GC/MS)         Lab Sample ID: MB 240-584028/7       Client Sample ID: Method Bla Prep Type: Total/         Analysis Batch:       584028         MB MB       Result Qualifier       RL       MDL       Unit       D       Prepared       Analyzed       Dil         1,4-Dioxane       2.0       0       0.86       ug/L       D       Prepared       Analyzed       Dil         1,2-Dichloroethane-d4 (Surr)       97       66.120       0.86       Unit       D       Prepared       Analyzed       Dil         1,2-Dichloroethane-d4 (Surr)       97       66.120       Client Sample ID: Lab Control Sam Prep Type: Total/         Analysis Batch: 584028       Spike       LCS LCS       LCS       Scs       92       80.122       50.122         Surrogate       %Recovery Qualifier       Limits       10.0       9.17       ug/L       D       %Rec       10.12       10.12       10.12       10.12       10.12       10												
4-Bromofiluorobenzene (Surr)       103       56 - 136         Toluene-28 (Surr)       97       78 - 122         Dibromofiluoromethane (Surr)       102       73 - 120         Iethod: 8260D SIM - Volatile Organic Compounds (GC/MS)         Lab Sample ID: MB 240-584028/7       Client Sample ID: Method Bla         Matrix: Water       Result       Qualifier         Analysis Batch: 584028       MB       MB         Matrix: Water       Result       Qualifier         1,4-Dioxane       2.0       0.86       ug/L       Prepared       Analyzed       Dil         1,2-Dichloroethane-d4 (Surr)       %Recovery       Qualifier       Limits       Elstoct       Dil       08/16/23 10:39       Dil         Lab Sample ID: LCS 240-584028/5       KRecovery       Qualifier       Limits       08/16/23 10:39       Dil         Lab Sample ID: LCS 240-584028/5       Client Sample ID: Lab Control Sam Prep Type: Total/       Prepared       Analyzed       Dil         Analysis Batch: 584028       Spike       LCS LCS       Client Sample ID: Lab Control Sam Prep Type: Total/         Surrogate       KRecovery       Qualifier       Limits       08/16/23 10:39       80-122         1,2-Dichloroethane-d4 (Surr)       %Rec       Limits       80-122		·	Qualifier									
Toluene-d8 (Surr) 97 78 - 122 Dibromofluoromethane (Surr) 102 73 - 120 Iethod: 8260D SIM - Volatile Organic Compounds (GC/MS) Lab Sample ID: MB 240-584028/7 Matrix: Water Analysis Batch: 584028 MB MB Surrogate 1,2-Dichloroethane-d4 (Surr) %Recovery Qualifier 1,2-Dichloroethane-d4 (Surr) Katrix: Water Analysis Batch: 584028 LCS LCS LCS LCS Surrogate LCS LCS LCS LCS LCS LCS LCS LCS Surrogate LCS LCS LCS LCS Surrogate LCS LCS LCS LCS Surrogate LCS LCS CLS LCS	1,2-Dichloroethane-d4 (Surr)	96		62 - 137								
Dibromofiluoromethane (Surr)       102       73.120         Iethod: 8260D SIM - Volatile Organic Compounds (GC/MS)         Lab Sample ID: MB 240-584028/7       Client Sample ID: MB 240-584028/7         Matrix: Water       Client Sample ID: MB 240-584028/7         Analysis Batch: 584028       MB MB         Analysis Batch: 584028       MB MB         Surrogate       %Recovery Qualifier       Limits         1.2-Dichloroethane-d4 (Surr)       97       66-120         Lab Sample ID: LCS 240-584028/5       Client Sample ID: LCS 240-584028/5         Matrix: Water       Analysis Batch: 584028       Client Sample ID: Lab Control Sam Prep Type: Total/         Analyte       Added       Result Qualifier       LCS LCS         Analyte       LCS LCS       Kesult Qualifier       Unit       D         1.4-Dioxane       10.0       9.17       ug/L       D       %Rec         Analyte       Added       Result Qualifier       Unit       D       %Rec       Limits         1.4-Dioxane       %Recovery Qualifier       Limits       66.120       Els LCS       LCS LCS       LCS LCS       NB       NB       Prep Type: Total/         Analysis Batch: 584028       %Recovery Qualifier       Limits       66.120       Els Added       Prep	4-Bromofluorobenzene (Surr)	103		56 - 136								
Iethod: 8260D SIM - Volatile Organic Compounds (GC/MS)         Lab Sample ID: MB 240-584028/7         Matrix: Water         Analysis Batch: 584028         Analyte       Result       Qualifier       RL       MDL       Unit       D       Prepared       Analyzed       Dil         1.4-Dioxane       %Recovery       Qualifier       Limits       0.86       Ug/L       D       Prepared       Analyzed       Dil         1.2-Dichloroethane-d4 (Surr)       %Recovery       Qualifier       Limits       Client Sample ID: Lab Control Sam Prep Type: Total/         Analyte       Analyte       Added       Result       Qualifier       Unit       D       %Rec       Limits OB/16/23 10:39       Dil         Lab Sample ID: LCS 240-584028/5       Spike       LCS       MRec       Limits B0       92       80.122       -         Surrogate       %Recovery       Qualifier       Limits 66.120       Client Sample ID: Lab Control Sam Prep Type: Total/         1,4-Dioxane       %Recovery       Qualifier       Limits 66.120       Client Sample ID: Matrix Sp Prep Type: Total/         Lab Sample ID:	Toluene-d8 (Surr)	97		78 - 122								
Iethod: 8260D SIM - Volatile Organic Compounds (GC/MS)         Lab Sample ID: MB 240-584028/7         Matrix: Water         Analysis Batch: 584028         Analyte       Result       Qualifier       RL       MDL       Unit       D       Prepared       Analyzed       Dil         1.4-Dioxane       %Recovery       Qualifier       Limits       0.86       Ug/L       D       Prepared       Analyzed       Dil         1.2-Dichloroethane-d4 (Surr)       %Recovery       Qualifier       Limits       Client Sample ID: Lab Control Sam Prep Type: Total/         Analyte       Analyte       Added       Result       Qualifier       Unit       D       %Rec       Limits OB/16/23 10:39       Dil         Lab Sample ID: LCS 240-584028/5       Spike       LCS       MRec       Limits B0       92       80.122       -         Surrogate       %Recovery       Qualifier       Limits 66.120       Client Sample ID: Lab Control Sam Prep Type: Total/         1,4-Dioxane       %Recovery       Qualifier       Limits 66.120       Client Sample ID: Matrix Sp Prep Type: Total/         Lab Sample ID:	Dibromofluoromethane (Surr)	102		73 - 120								
MBMBMBAnalyteResultQualifierRLMDLUnitDPreparedAnalyzedDil1,4-Dioxane2.0U2.00.86ug/LDPreparedAnalyzedDilSurrogate%RecoveryQualifierLimitsClientisPreparedAnalyzedDil1,2-Dichloroethane-d4 (Surr)%RecoveryQualifierLimitsPreparedAnalyzedDilLab Sample ID: LCS 240-584028/5%RecoveryQualifierLimitsClient Sample ID: Lab Control Sam Prep Type: Total/Matrix: Water Analysis Batch: 584028SpikeLCSLCSLCSV%RecLCSLCSLCSLCSSpikeResultQualifierUnitD%Rec1,2-Dichloroethane-d4 (Surr)9666 - 12066 - 120SurrogateSpikeLCSLCSNot1,2-Dichloroethane-d4 (Surr)9666 - 120SurrogatePreparedMatrix: SpiteSpikeLCSLCSNot1,2-Dichloroethane-d4 (Surr)9666 - 120SurrogateSpiteClient Sample ID: Matrix Sp Prep Type: Total/Lab Sample ID: 240-189878-C-2 MS Matrix: Water Analysis Batch: 584028SurrogateClient Sample ID: Matrix Sp Prep Type: Total/	lethod: 8260D SIM - \ Lab Sample ID: MB 240-5		ganic Cor	npounds ((	GC/M	3)		Clie	ent Sam	· · · · · · · · · · · · · · · · · · ·		
MB       Ma       Ma       Ma       Ma       Ma <th< th=""><th>lethod: 8260D SIM - \ Lab Sample ID: MB 240-5 Matrix: Water</th><th></th><th>ganic Cor</th><th>npounds ((</th><th>GC/M</th><th>6)</th><th></th><th>Clie</th><th>ent Sam</th><th>· · · · · · · · · · · · · · · · · · ·</th><th></th><th></th></th<>	lethod: 8260D SIM - \ Lab Sample ID: MB 240-5 Matrix: Water		ganic Cor	npounds ((	GC/M	6)		Clie	ent Sam	· · · · · · · · · · · · · · · · · · ·		
MB       MB       MB         Surrogate       %Recovery       Qualifier       Limits         1,2-Dichloroethane-d4 (Surr)       97       66 - 120       Client Sample ID: LCS 240-584028/5         Lab Sample ID: LCS 240-584028/5       Client Sample ID: Lab Control Sam Prep Type: Total/         Matrix: Water       Analysis Batch: 584028       Spike       LCS LCS       LCS LCS       Maintis:       MRec       MRec       MRec       MRec       Maintis:       Maintis:       Maintis:       Maintis:       Spike       LCS LCS       LCS LCS       MRec       Limits       MRec       MRec       MRec       MRec       MRec       MRec       MRec       Maintis:	lethod: 8260D SIM - \ Lab Sample ID: MB 240-5 Matrix: Water			npounds ((	GC/M	3)		Clie	ent Sam	· · · · · · · · · · · · · · · · · · ·		
Surrogate       %Recovery       Qualifier       Limits       Prepared       Analyzed       Dil         1,2-Dichloroethane-d4 (Surr)       97       Qualifier       Limits       66 - 120       Client Sample ID: LCS 240-584028/5         Lab Sample ID: LCS 240-584028/5       Client Sample ID: Lab Control Sam       Prep Type: Total/         Matrix: Water       Analysis Batch: 584028       Spike       LCS       10.0       9.17       Qualifier       Unit       D       %Rec       Limits       -<	lethod: 8260D SIM - \ Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 584028	84028/7	MB MB	· · ·						Prep Typ	e: Tot	tal/N
1,2-Dichloroethane-d4 (Surr)       97       66 - 120       08/16/23 10:39         Lab Sample ID: LCS 240-584028/5       Client Sample ID: Lab Control Sam Prep Type: Total/         Matrix: Water       Spike       LCS LCS         Analyte       Added       Result       Qualifier       Unit       D       %Rec         1,4-Dioxane       10.0       9.17       ug/L       D       %Rec       Limits         1,2-Dichloroethane-d4 (Surr)       96       66 - 120       Client Sample ID: Lab Control Sam Prep Type: Total/         Lab Sample ID: 240-189878-C-2 MS Matrix: Water       Client Sample ID: Attrix Sp Prep Type: Total/         Matrix: Water Analysis Batch: 584028       Prep Type: Total/	lethod: 8260D SIM - \ Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 584028 Analyte	84028/7	MB MB sult Qualifie	r RL	I	MDL Unit				Prep Typ	e: Tot	tal/N
1,2-Dichloroethane-d4 (Surr)       97       66 - 120       08/16/23 10:39         Lab Sample ID: LCS 240-584028/5       Client Sample ID: Lab Control Sam Prep Type: Total/         Matrix: Water       Spike       LCS LCS         Analyte       Added       Result       Qualifier       Unit       D       %Rec         1,4-Dioxane       10.0       9.17       ug/L       D       %Rec       Limits         1,2-Dichloroethane-d4 (Surr)       96       66 - 120       Client Sample ID: Lab Control Sam Prep Type: Total/         Lab Sample ID: 240-189878-C-2 MS Matrix: Water       Client Sample ID: Attrix Sp Prep Type: Total/         Matrix: Water Analysis Batch: 584028       Prep Type: Total/	lethod: 8260D SIM - \ Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 584028 Analyte	84028/7	MB MB sult Qualifie	r RL	I	MDL Unit				Prep Typ	e: Tot	tal/N
Matrix: Water       Prep Type: Total/         Analysis Batch: 584028       Spike       LCS       LCS       LCS       LCS       LCS       Limits       Matrix:       Spike       LCS       LCS       LCS       LCS       Limits       Matrix:       Matrix:       Matrix:       Matrix:       Matrix:       Matrix:       Spike       Limits       Matrix:       Matrix:       Matrix:       Matrix:       Matrix:       Spike       LCS       LCS       LCS       Limits       Matrix:       Matrix:       Matrix:       Matrix:       Matrix:       Spike       Client       Sample ID:       Matrix       Matrix:       Matrix:       Matrix:       Matrix:       Spike       Client       Spike       Prep Type:       Total/	lethod: 8260D SIM - Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 584028 Analyte 1,4-Dioxane	84028/7	MB MB sult Qualifie 2.0 U MB MB	r <u>RL</u> 2.0	I	MDL Unit		<u>D</u> P	repared	Prep Typ Analyze 08/16/23 1	e: Tot ed 0:39	tal/N Dil Fa
Matrix: Water       Prep Type: Total/         Analysis Batch: 584028       Spike       LCS       LCS       LCS       LCS       LCS       Limits       Matrix:       Spike       LCS       LCS       LCS       LCS       Limits       Matrix:       Matrix:       Matrix:       Matrix:       Matrix:       Matrix:       Spike       Limits       Matrix:       Matrix:       Matrix:       Matrix:       Matrix:       Spike       LCS       LCS       LCS       Limits       Matrix:       Matrix:       Matrix:       Matrix:       Matrix:       Spike       Client       Sample ID:       Matrix       Matrix:       Matrix:       Matrix:       Matrix:       Spike       Client       Spike       Prep Type:       Total/	lethod: 8260D SIM - Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 584028 Analyte 1,4-Dioxane	84028/7	MB MB sult Qualifie 2.0 U MB MB very Qualifie	r RL 2.0 r Limits	I	MDL Unit		<u>D</u> P	repared	Prep Typ Analyze 08/16/23 1 Analyze	e: Tot ed 0:39 -	tal/N Dil Fa
Analysis Batch: 584028       Spike       LCS       LCS       LCS       Matrix: Water         Analyte       Added       Added       Result       Qualifier       Unit       D       %Rec       Limits         1,4-Dioxane       10.0       9.17       Qualifier       Unit       D       %Rec       Limits         1,4-Dioxane       LCS       LCS       LCS       80 - 122       -         Surrogate       %Recovery       Qualifier       Limits       Client Sample ID: 240-189878-C-2 MS       Client Sample ID: Matrix Sp         Matrix: Water       Analysis Batch: 584028       Prep Type: Total/       Prep Type: Total/	lethod: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 584028 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr)	84028/7 Re % <i>Reco</i> r	MB MB sult Qualifie 2.0 U MB MB very Qualifie	r RL 2.0 r Limits	I	MDL Unit		<u>D</u> _ P	repared repared	Prep Typ Analyze 08/16/23 1 Analyze 08/16/23 1	e: Tot ed 0:39 - ed 0:39 -	tal/N Dil Fa Dil Fa
AnalyteLCSLCSLCSMRec1,4-Dioxane10.09.179.179980 - 122LCSLCSSurrogate%RecoveryQualifierLimits1,2-Dichloroethane-d4 (Surr)9666 - 12066 - 120Lab Sample ID: 240-189878-C-2 MSClient Sample ID: Matrix SpMatrix: WaterAnalysis Batch: 584028Prep Type: Total/	lethod: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 584028 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-	84028/7 Re % <i>Reco</i> r	MB MB sult Qualifie 2.0 U MB MB very Qualifie	r RL 2.0 r Limits	I	MDL Unit	Clie	<u>D</u> _ P	repared repared	Prep Typ Analyze 08/16/23 1 Analyze 08/16/23 1 : Lab Cont	e: Tot ad 0:39 - 20 0:39 - 370 Sa	tal/N Dil Fa Dil Fa
Analyte       Added       Result       Qualifier       Unit       D       %Rec       Limits         1,4-Dioxane       10.0       9.17       9.17       92       92       80-122       92         LCS       LCS       LCS       LCS       10.0       96       66-120       66-120         Lab Sample ID: 240-189878-C-2 MS       Matrix: Water       Client Sample ID: Matrix Sp       Prep Type: Total/         Analysis Batch: 584028       584028       584028       584028       584028       584028	lethod: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 584028 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water	84028/7 Re % <i>Reco</i> r	MB MB sult Qualifie 2.0 U MB MB very Qualifie	r RL 2.0 r Limits	I	MDL Unit	Clie	<u>D</u> _ P	repared repared	Prep Typ Analyze 08/16/23 1 Analyze 08/16/23 1 : Lab Cont	e: Tot ad 0:39 - 20 0:39 - 370 Sa	tal/N Dil Fa Dil Fa
1,4-Dioxane       10.0       9.17       ug/L       92       80 - 122         LCS       LCS       LCS       LCS       10.0       9.17       ug/L       92       80 - 122         Surrogate       %Recovery       Qualifier       Limits       66 - 120       10.0	lethod: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 584028 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water	84028/7 Re % <i>Reco</i> r	MB MB sult Qualifie 2.0 U MB MB very Qualifie	r RL 2.0 r Limits 66 - 120		MDL Unit	Clie	<u>D</u> _ P	repared repared	Prep Typ <u>Analyze</u> 08/16/23 1 <u>Analyze</u> 08/16/23 1 <b>Cont</b> Prep Typ	e: Tot ad 0:39 - 20 0:39 - 370 Sa	tal/N Dil Fa Dil Fa
LCS LCS Surrogate <u>%Recovery Qualifier Limits</u> 1,2-Dichloroethane-d4 (Surr) <u>96</u> <u>Qualifier 66 - 120</u> Lab Sample ID: 240-189878-C-2 MS Matrix: Water Client Sample ID: Matrix Sp Prep Type: Total/ Analysis Batch: 584028	lethod: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 584028 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water Analysis Batch: 584028	84028/7 Re % <i>Reco</i> r	MB MB sult Qualifie 2.0 U MB MB very Qualifie	r <u>RL</u> 2.0 r <u>Limits</u> 66 - 120 Spike	LCS	MDL Unit 0.86 ug/L LCS		DPP P	repared repared mple ID	Prep Typ - Analyze - 08/16/23 1 - Analyze - 08/16/23 1 - Cont - Prep Typ %Rec	e: Tot ad 0:39 - 20 0:39 - 370 Sa	tal/N Dil Fa Dil Fa
Surrogate       %Recovery       Qualifier       Limits         1,2-Dichloroethane-d4 (Surr)       96       66 - 120         Lab Sample ID: 240-189878-C-2 MS       Client Sample ID: Matrix Sp         Matrix: Water       Prep Type: Total/         Analysis Batch: 584028       Prep Type: Total/	lethod: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 584028 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water Analysis Batch: 584028 Analyte	84028/7 Re % <i>Reco</i> r	MB MB sult Qualifie 2.0 U MB MB very Qualifie	r RL 2.0 r Limits 66 - 120 Spike Added	LCS Result	MDL Unit 0.86 ug/L LCS	Unit	DPP P	repared repared mple ID	Prep Typ Analyze 08/16/23 1 Analyze 08/16/23 1 Calculate Calculate Prep Typ %Rec Limits	e: Tot ad 0:39 - 20 0:39 - 370 Sa	tal/N Dil Fa Dil Fa
1,2-Dichloroethane-d4 (Surr)       96       66 - 120         Lab Sample ID: 240-189878-C-2 MS       Client Sample ID: Matrix Sp         Matrix: Water       Prep Type: Total/         Analysis Batch: 584028       Prep Type: Total/	lethod: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 584028 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water Analysis Batch: 584028 Analyte	84028/7 Re % <i>Reco</i> r	MB MB sult Qualifie 2.0 U MB MB very Qualifie	r RL 2.0 r Limits 66 - 120 Spike Added	LCS Result	MDL Unit 0.86 ug/L LCS	Unit	DPP P	repared repared mple ID	Prep Typ Analyze 08/16/23 1 Analyze 08/16/23 1 Calculate Calculate Prep Typ %Rec Limits	e: Tot ad 0:39 - 20 0:39 - 370 Sa	tal/N Dil Fa Dil Fa
1,2-Dichloroethane-d4 (Surr)       96       66 - 120         Lab Sample ID: 240-189878-C-2 MS       Client Sample ID: Matrix Sp         Matrix: Water       Prep Type: Total/         Analysis Batch: 584028       Prep Type: Total/	lethod: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 584028 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water Analysis Batch: 584028 Analyte	84028/7 Re %Recon 584028/5	MB MB sult Qualifie 2.0 U MB MB very Qualifie 97	r RL 2.0 r Limits 66 - 120 Spike Added	LCS Result	MDL Unit 0.86 ug/L LCS	Unit	DPP P	repared repared mple ID	Prep Typ Analyze 08/16/23 1 Analyze 08/16/23 1 Calculate Calculate Prep Typ %Rec Limits	e: Tot ad 0:39 - 20 0:39 - 370 Sa	tal/N Dil Fa Dil Fa
Matrix: Water Prep Type: Total/ Analysis Batch: 584028	lethod: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 584028 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water Analysis Batch: 584028 Analyte 1,4-Dioxane	84028/7 Recov 584028/5 	MB MB sult Qualifie 2.0 U MB MB very Qualifie 97 LCS	r RL 2.0 r Limits 66 - 120 Spike Added 10.0	LCS Result	MDL Unit 0.86 ug/L LCS	Unit	DPP P	repared repared mple ID	Prep Typ Analyze 08/16/23 1 Analyze 08/16/23 1 Calculate Calculate Prep Typ %Rec Limits	e: Tot ad 0:39 - 20 0:39 - 370 Sa	tal/N Dil Fa Dil Fa
Matrix: Water Prep Type: Total/ Analysis Batch: 584028	lethod: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 584028 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water Analysis Batch: 584028 Analyte 1,4-Dioxane Surrogate	84028/7 Re %Recou 584028/5  LCS _%Recovery	MB MB sult Qualifie 2.0 U MB MB very Qualifie 97 LCS	r RL 2.0 r Limits 66 - 120 Spike Added 10.0 Limits	LCS Result	MDL Unit 0.86 ug/L LCS	Unit	DPP P	repared repared mple ID	Prep Typ Analyze 08/16/23 1 Analyze 08/16/23 1 Calculate Calculate Prep Typ %Rec Limits	e: Tot ad 0:39 - 20 0:39 - 370 Sa	tal/N Dil Fa Dil Fa
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	lethod: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 584028 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water Analysis Batch: 584028 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: 240-1898	84028/7 Recor 584028/5  584028/5  LCS %Recovery 96	MB MB sult Qualifie 2.0 U MB MB very Qualifie 97 LCS	r RL 2.0 r Limits 66 - 120 Spike Added 10.0 Limits	LCS Result	MDL Unit 0.86 ug/L LCS	Unit	D P P ent Sar	repared repared mple ID <u>%Rec</u> 92	Prep Typ Analyze 08/16/23 1 Analyze 08/16/23 1 Lab Cont Prep Typ %Rec Limits 80 - 122 mple ID: M	e: Tot 2:d 0:39 2:d 0:39 	tal/N Dil Fa Dil Fa ampl tal/N
Comple Comple Philes NO NO NO	lethod: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 584028 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water Analysis Batch: 584028 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: 240-1898 Matrix: Water	84028/7 Recor 584028/5  584028/5  LCS %Recovery 96	MB MB sult Qualifie 2.0 U MB MB very Qualifie 97 LCS	r RL 2.0 r Limits 66 - 120 Spike Added 10.0 Limits	LCS Result	MDL Unit 0.86 ug/L LCS	Unit	D P P ent Sar	repared repared mple ID <u>%Rec</u> 92	Prep Typ Analyze 08/16/23 1 Analyze 08/16/23 1 Lab Cont Prep Typ %Rec Limits 80 - 122 mple ID: M	e: Tot 2:d 0:39 2:d 0:39 	tal/N Dil Fa Dil Fa ampl tal/N
	lethod: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 584028 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water Analysis Batch: 584028 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: 240-1898 Matrix: Water	84028/7 	MB MB sult Qualifie 2.0 U MB MB very Qualifie 97 LCS Qualifier	r RL 2.0 r Limits 66 - 120 Spike Added 10.0 Limits 66 - 120	LCS Result 9.17	MDL Unit 0.86 ug/L LCS Qualifier	Unit	D P P ent Sar	repared repared mple ID <u>%Rec</u> 92	Prep Typ Analyze 08/16/23 1 Analyze 08/16/23 1 Lab Conf Prep Typ %Rec Limits 80 - 122 mple ID: M Prep Typ	e: Tot 2:d 0:39 2:d 0:39 	tal/N Dil Fa Dil Fa ampl tal/N
Analyte         Result         Qualifier         Added         Result         Qualifier         Unit         D         %Rec         Limits           1,4-Dioxane         2.0         U F2         10.0         10.7         ug/L         D         %Rec         Limits         -	lethod: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 584028 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water Analysis Batch: 584028 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: 240-1898 Matrix: Water Analysis Batch: 584028	84028/7 	MB MB sult Qualifie 2.0 U MB MB very Qualifie 97 LCS Qualifier Sample	r RL 2.0 r Limits 66 - 120 Spike Added 10.0 Limits 66 - 120 Spike	LCS Result 9.17	MDL Unit 0.86 ug/L LCS Qualifier	Unit ug/L	DPP P ent Sar D	repared mple ID <u>%Rec</u> 92	Analyze           08/16/23 1	e: Tot 2:d 0:39 2:d 0:39 	tal/N Dil Fa Dil Fa ampl tal/N

Job ID: 240-189869-1

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

	MS	MS										
Surrogate	%Recovery	Qualifier	Limits									
1,2-Dichloroethane-d4 (Surr)	95		66 - 120									
Lab Sample ID: 240-1898	78-C-2 MSD					Client	Samp	le ID: N	latrix Spil	ke Dup	licate	
Matrix: Water									Prep Ty			
Analysis Batch: 584028										-		
	Sample	Sample	Spike	MSD	MSD				%Rec		RPD	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
1,4-Dioxane	2.0	U F2	10.0	8.71	F2	ug/L		87	51 - 153	21	16	
	MSD	MSD										
Surrogate	%Recovery	Qualifier	Limits									
1,2-Dichloroethane-d4 (Surr)	86		66 - 120									

# **GC/MS VOA**

### Analysis Batch: 583797

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-189869-1	TRIP BLANK_5	Total/NA	Water	8260D	
240-189869-2	MW-158S_080823	Total/NA	Water	8260D	
MB 240-583797/8	Method Blank	Total/NA	Water	8260D	
_CS 240-583797/5	Lab Control Sample	Total/NA	Water	8260D	
240-189869-2 MS	MW-158S_080823	Total/NA	Water	8260D	
240-189869-2 MSD	MW-158S 080823	Total/NA	Water	8260D	

### Lab Sample ID **Client Sample ID** Prep Type Method Matrix 240-189869-2 MW-158S\_080823 Total/NA Water 8260D SIM Method Blank Total/NA MB 240-584028/7 Water 8260D SIM LCS 240-584028/5 Lab Control Sample Total/NA Water 8260D SIM 240-189878-C-2 MS Matrix Spike Total/NA Water 8260D SIM 240-189878-C-2 MSD Matrix Spike Duplicate Total/NA Water 8260D SIM

Prep Batch

Matrix: Water

Lab Sample ID: 240-189869-1

# Client Sample ID: TRIP BLANK\_5 Date Collected: 08/08/23 00:00 Date Received: 08/10/23 08:00

	Batch	Batch		Dilution	Batch			Prepared	
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed	
Total/NA	Analysis	8260D		1	583797	LEE	EET CLE	08/14/23 21:18	
lient Sam	ple ID: MW	-158S 08082	.3				Lab	Sample ID: 240-	189869-2
	•								
ate Collecte	d: 08/08/23 1	0:50						Ma	trix: Wate
	d: 08/08/23 1 d: 08/10/23 0							Ma	trix: Wate
				Dilution	Batch			Ma Prepared	trix: Wate
ate Receive	d: 08/10/23 0	8:00	Run	Dilution Factor	Batch Number	Analyst	Lab		trix: Wate
	d: 08/10/23 0 Batch	8:00 Batch	Run				EET CLE	Prepared	trix: Wate

### Laboratory References:

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

Client: ARCADIS US Inc Project/Site: Ford LTP - Off Site Job ID: 240-189869-1

13

# Laboratory: Eurofins Cleveland

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

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-27-24
Georgia	State	4062	02-27-24
Illinois	NELAP	200004	07-31-24
owa	State	421	06-01-25
Kentucky (UST)	State	112225	02-28-24
Kentucky (WW)	State	KY98016	12-31-23
Michigan	State	9135	02-27-24
Vinnesota	NELAP	039-999-348	12-31-23
/linnesota (Petrofund)	State	3506	08-01-23 *
lew Jersey	NELAP	OH001	07-01-24
lew York	NELAP	10975	04-02-24
Dhio	State	8303	02-27-24
Dhio VAP	State	ORELAP 4062	02-27-24
Dregon	NELAP	4062	02-27-24
Pennsylvania	NELAP	68-00340	08-31-24
Texas	NELAP	T104704517-22-19	08-31-23
/irginia	NELAP	460175	09-14-23
Vest Virginia DEP	State	210	12-31-23

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestA	<b>Chaj</b> TestAmerica Laboratory location: Brighton 10448 Cita	Chain of Custody Record 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763	2763	
Client Contact	Regulatory program: DW	NPDES   RCRA   Other		
Company Name: Arcadis	Client Project Nanaper: Kris Hinskev	Site Contact: Christina Weaver	l sh Cantact: Mike DelManica	TestAmerica Laboratories, Inc.
Address: 28550 Cabot Drive, Suite 500	1.1.1.1.1.0.0.0.1.1.1.1.1.1.1.1.1.1.1.1	T-1-1		
City/State/Zip: Novi, MI, 48377	1 ETE/P1096: 249-994-2240	I EIE DIOIIC: 240-994-2240	1 clepnone: 350-49/-49/6 A mailyear	1 of 1 COCs
Phone: 248-994-2240	Email: Kristoffer,ninskey@arcadis.com	Crange of a large state	Vilatiyees	Por lab use only
Project Name: Ford LTP Off-Site	Sampler Name: Kont Kosop.	IAT if different from below 3 weeks 10 dav < 2 weeks		Walk-in client
Project Number: 30167538.402.04	Method of Shipment/Carrier:	1 week 2 davs N)	C	THO SERVICE
PO# 30167538.402.04	Shipping/Tracking No:	ik (X /	82601 E 8260	Job/SDG No:
	Matrix	Containers & Preservativ	oxane 8 2260D 3260D 227DC 820D 3260D 220D 220D 220D 220D 220D 220D 220D	Samula Specific Notes /
Sample Identification	Sample Date Sample Time Air Solim	twoy		Special Instructions:
TRIP BLANK_ S				1 Trip Blank
MW-1585-080823	e) 0501 Ec/3/g	C X C X	XXXXXXX	3 VOAs for 8260D 3 VOAs for 8260D SIM
Page				
18 c				
of 20				
	240-1898	240-189869 Chain of Custody		NGUIGAN
				051
Possible Hazard Identification Von-Hazard Flammable Skin Irritant	ant 1 Poison B Unknown	Sample Disposal ( A fee may be assessed if samples are retained longer than 1 Return to Client Disposal By Lab	oles are retained longer than 1 month) Archive For 6 Months	
ments & Comments 1950 dena at jtomalia@				
Relinquished by North North	Company: L. Date/Timy: K.	2 144. Received by	Company (	Date/Tiple: / ICL
m M	aclus Baterine: Daterine: Daterine:	SOS Received by	Company: Company: Company: Company:	Bactime: S/9/23 13, W
Mattro	TTA	313:05 (12-	1 27	8/10/23 8:00
2000 Trailwaren Lacontrol for Al regits memori resolveners ( Decor <sup>10</sup> as trailwared of fred/memori Resolveners) ( Decor <sup>10</sup> as trailwared of the Resolveners) ( Dec				

Eurofins – Cleveland Sample Receip Barberton Facility	ot Form/Narrative	Login # :
Client Arcadi S	Site Name	Cooler unpacked by:
Chent FI CACALS		- cnal
Cooler Received on 8/10/23	Opened on 8/10/23	
	Clipper Client Drop Off Eurofins Cou	
Receipt After-hours: Drop-off Date/Tir		
Eurofins Cooler # Foan Packing material used: Bubble W		
	rap (Foard Plastic Bag None lue Ice Dry Ice Water None	Other
1. Cooler temperature upon receipt	See Multip	le Cooler Form
$IR GUN # \_ \_ \_ \_ (CF \ (CF \ $	() Observed Cooler Temp.	°C Corrected Cooler Temp°C
2. Were tamper/custody seals on the out	itside of the cooler(s)? If Yes Quantity	Kes No
-Were the seals on the outside of the	ne cooler(s) signed & dated?	Yer No NA Tests that are not checked for pH by
-Were tamper/custody seals on the	bottle(s) or bottle kits (LLHg/MeHg)?	Yes No Receiving:
-Were tamper/custody seals intact	and uncompromised?	Yes No NA
3. Shippers' packing slip attached to the		Yes (Nd) VOAs
4. Did custody papers accompany the sa		Yes No Oil and Grease TOC
5. Were the custody papers relinquished		Yes No
	d the samples clearly identified on the COO	
7. Did all bottles arrive in good condition		Yes No
8. Could all bottle labels (ID/Date/Time		Yes No
	fy preservatives (Y( $\mathbb{N}$ ), # of containers ( $\mathbb{N}$ )	
10. Were correct bottle(s) used for the tes		Yes No
11. Sufficient quantity received to perform 12. Are these work share samples and all		Yes No Vac No
If yes, Questions 13-17 have been ch		Yes No
13. Were all preserved sample(s) at the co		Yes No (NA) pH Strip Lot# 10BDH4321
14. Were VOAs on the COC?	A comparison of the company of the c	HC312502
15. Were air bubbles >6 mm in any VOA	vials? 🛑 🖕 Larger than this.	IN OCONO NA HCSIZOCA
16. Was a VOA trip blank present in the		Yes No
17. Was a LL Hg or Me Hg trip blank pro		Yes No
Contacted PM Date Concerning	by via	Verbal Voice Mail Other
18. CHAIN OF CUSTODY & SAMPL	E DISCREPANCIES additional new	t page Samples processed by:
Bi bubbles in sam	DICS: MDU-102-0808	23 (4 bottles) J Owe
principal surp		
	Bup-09 [3	bottles)
	•	
	······	
19. SAMPLE CONDITION		
Sample(s)		ded 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) Preservativ	ve(s) added/Lot number(s):	
VOA Sample Preservation - Date/Time V(		

Login #:\_

<b>Cooler Description</b>	Eurofins - Canton	Observed	Corrected	Coolant
(Circle)	(Circle)	Temp °C	Temp °C	(Circle)
Clent Box Other	IR GUN 0; 22	Ous	0,4	Welke Blue Ice By Ic Water None
Client Box Other	IR GUN #: _22	0,3	0,2	Wellice) Blue Ice Dy Ic Water None
EC Client Box Other	IR GUN #:			Wellice Blue Ice Dylic Water None
EC Client Box Other	IR GUN #:			Wellice Blue Ice Byla Weley Note
EC Client Box Other	IR GUN #:			Welice Dive Ice Bylic Water None
EC Client Box Other	IR GWN #:			Wellice Blue ice Bylice Weller Mone
EC Client Box Other	IR GUN 6:			Wet ice Sive ice Dy ice Water None
Client Bex Other	IR GIN #:			Wollice She Ice Byla Water Mane
C Client Box Other	IR GUN #:			Wellice Blue Ice Bylco Water Name
EC Client Box Other	IR GUN #:			Wetten Blue ten Bryten Water Mann
EC Client Bas Other	IR GUN #:			Wellice Blue Ice Bylce Water Mane
BC Client Box Other	IR GIN #:			Wellice Blue Sco Bylco Water Blane
EC Client Bax Other	IR GUN #:			Wet too Shee Loo By too
Client Box Other	IR GUN 4:			Wellice Shee Soe Bryles
Client Bax Other	IR GUN #:			Wellice Slue Ice Bylte Water Blane
Client Box Other	IR GUN #:			Weltce Nee Ice Byte Water Nene
Client Box Other	IR CUN #:			Wellice Blue Ice Brylee Water Hane
C Client Bex Other	R GUN 8:			Wellce She lce Byte
C Client Bex Other	IR CUN #:			Wellice Blue Ice Byte
C Cloud Bax Other	12 GUN 5:			Wellice Blue Ice Bryles Wieler Name
C Client Box Other	R CON #:			Wellice Sive Ice Byte
C Client Box Other	IR GUN #:			Wellice Blue ice Brylie Wider Mean
C Client Ben Ölher	R GUN #:			Welter Neer Byles
IC Client Sex Other	IR GUN #:			Wellice Mae Ice Brylos Water Mane
C Client Bex Other	R GUN #:			Wellice Nee Ice Dyice Water Nees
C Client Sex Other	IR GUN #:			Welice Blue ice Bry ice Water Blue
C Client Box Other	R CON #:			Wet Ice Blue Ice Dry Ice Water News
C Client Box Other	it cun #:			Wellice Blue Ice Bry Ice Water Mane
C Client Box Other	R GUN #:			Wellice Blue Ice Bry to
C Client Ben Other	IR GUN #:			Wet Ice blue Ice Dry Ice
C Client Box Ölher	R GUN #:			Wet Ice Shee Ice Dry ice
C Client Box Other	IR GUN #:			Wellice Bluelice Brylice
C Client Sex Other	# GUN #:			Wei Ice Blue Ice Bry Ice Water Mone
C Client Box Other	IR GUN #:			Wellice Blue Ice Brylice Water Blass

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

# **DATA VERIFICATION REPORT**



August 22, 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: 189869-1 Sample date: 2023-08-08 Report received by CADENA: 2023-08-22 Initial Data Verification completed by CADENA: 2023-08-22 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 QC batch MS/MSD recovery outliers were not determined using a client sample so qualification was not required based on these sample-specific QC outliers.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, MS/MSD Recovery, MS/MSD RPD, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <u>http://clms.cadenaco.com/index.cfm</u>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

**Project Scientist** 

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

# **CADENA Valid Qualifiers**

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

# Analytical Results Summary

CADENA Project ID: E203631

Laboratory: Eurofins Environment Testing LLC - Cleveland Laboratory Submittal: 189869-1

		Sample Name: Lab Sample ID: Sample Date:	TRIP BLA 2401898 8/8/202				MW-158 2401898 8/8/202	_ 3692	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 # 240-189869-1 CADENA Verification Report: 2023-08-22

Analyses Performed By: Eurofins Cleveland Barberton, Ohio

Report # 51121R Review Level: Tier III Project: 30167538.402.02

# **SUMMARY**

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-189869-1 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	Barant Sampla	Analysis			
Sample ID		IVIALITA	Collection Date	Parent Sample	VOC	VOC SIM		
TRIP BLANK_5	240-189869-1	Water	08/08/2023		Х			
MW-158S_080823	240-189869-2	Water	08/08/2023		Х	X		

# DATA REVIEW

# ANALYTICAL DATA PACKAGE DOCUMENTATION

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

	Items Reviewed	Rep	orted	Perfor Accep	mance otable	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		X	
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	

## **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.

### 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	Perfo Acce	Not	
	No	Yes	No	Yes	Required
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (G	C/MS)				
Tier II Validation					
Holding times/Preservation		Х		Х	
Tier III Validation					
System performance and column resolution		Х		Х	
Initial calibration %RSDs		Х		Х	
Continuing calibration RRFs		Х		Х	
Continuing calibration %Ds		Х		Х	
Instrument tune and performance check		Х		Х	
Ion abundance criteria for each instrument used		Х		Х	
Field Duplicate RPD	Х				Х
Internal standard		Х		Х	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		Х		Х	
B. Quantitation Reports		Х		Х	
C. RT of sample compounds within the established RT windows		Х		Х	
D. Transcription/calculation errors present		Х		Х	
E. Reporting limits adjusted to reflect sample dilutions		Х		Х	

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

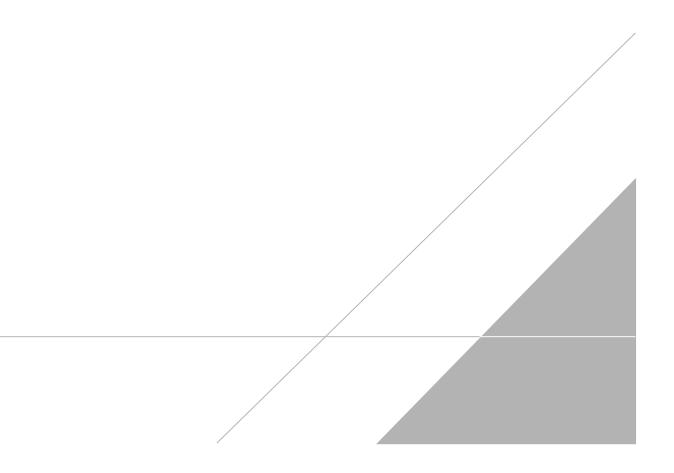
VALIDATION PERFORMED BY:	Bindu Sree M B
SIGNATURE:	BASHMB
DATE:	September 12, 2023

PEER REVIEW: Andrew Korycinski

DATE: September 14, 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	Regula	tory program:		£	DW		N	PDE	s	Ľ	RC	RA	Г	Othe	er [		-									
Company Name: Arcadia	Client Project	Manager: Kris H	inskey				Site C	ontac	ct: Chi	ristin	a We	eaver			-	Lab (	Contac	t: Mil	e Del	Monic	:0					estAmerica Laboratories,   COC No:
Address: 28550 Cabot Drive, Suite 500	Telephone: 248	8-994-2240					Telep	hone:	: 248-9	994-2	240				-	Telephone: 330-497-9396					+					
Clty/State/Zip: Novi, MI, 48377	Email: kristofi	fer.hinskey@arca	dis.co	m			A	nalys	lysis Turnaround Time					Analyses						1 of 1 COCs or lab use only						
Phone: 248-994-2240	Sampler Name					-	TAT	if different from below											Valk-in client							
Project Name: Ford LTP Off-Site		ent Ka	50	01				dav		3 w	eeks eeks	L														ab sampling
Project Number: 30167538.402.04	Method of Ship	oment/Carrier:	4					uuy			eck		2	9			9				SIM				ľ	ചാ ബന്നാള
PO # 30167538.402.04	Shipping/Trac	king No:		Mat	-			Contol	iners de	۱d	ay	1	Sample (Y / N)	C / Grab=G	60D	8260D	CE 826(			te 8260D	8260D SIM				J	ob/SDG No:
Sample Identification	Sample Date	Sample Time	Air	Sediment	Solid			50NH	Ŧ	Τ			Filtered San	1	1,1-DCE 8260D	cis-1,2-DCE	Trans-1,2-DCE 8260D	PCE 8260D	TCE 8260D	Vinyl Chloride	1,4-Dioxane				ľ	Sample Specific Notes / Special Instructions:
TRIP BLANK 5				1				1	1				N	G	Х	X	X	X	X	X						1 Trip Blank
TRIP BLANK_ 5 MW-1585_080823	8/8/2	1050	1	a				4	0				De	6	X	$\lambda$	k	X	X	X	X	,				3 VOAs for 8260D 3 VOAs for 8260D SI
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Possible Hazard Identification	nt Pois	on B	Unkno		LL_		Sa		Dispos			nuay be		ssed if		les ar		ined lo Archive		than 1		h) lonths	<u> </u>			
Special Instructions/QC Requirements & Comments: Sample Address: 34950 /Secc Submit all results through Cadena at itomalia@cadenaco Lavel IV Reporting requested.													- inpo								1					
Relinquished by: Ment Kerper	Company:		D	ate/Tim S/ ate/Tim	8/2	23	1:	\$4	2 Ref	ceive	d by	ivi X	4	<u>el</u>	d	51	erc erc	.41	Com	papy?	C.	di	5		1	Datc/Time: 5/8/23 15 Datc/Time:
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C2008, TeslAmenca Laboratores, hc. All rights meanved. DesAmenca & Design <sup>14</sup> are trademarks of TeslAmenca Laboratores, hc.				1	1																					/ /
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# Client Sample ID: TRIP BLANK\_5

## Date Collected: 08/08/23 00:00

Date Received: 08/10/23 08:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			08/14/23 21:18	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/14/23 21:18	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/14/23 21:18	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/14/23 21:18	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/14/23 21:18	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/14/23 21:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac

Surroyate	/onecovery	Quanner	Liiiits	riepaieu	Analyzeu	Dirrac	
1,2-Dichloroethane-d4 (Surr)	100		62 - 137		08/14/23 21:18	1	
4-Bromofluorobenzene (Surr)	97		56 - 136		08/14/23 21:18	1	
Toluene-d8 (Surr)	98		78 - 122		08/14/23 21:18	1	
Dibromofluoromethane (Surr)	101		73 - 120		08/14/23 21:18	1	

# Client Sample ID: MW-158S\_080823 Date Collected: 08/08/23 10:50 Date Received: 08/10/23 08:00

Lab Sample ID: 240-189869-2

**Matrix: Water** 

1

1

	Volatile Orga	anic Comp	ounds (GC/N	IS)					
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/16/23 12:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		66 - 120			-		08/16/23 12:17	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			08/14/23 21:43	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/14/23 21:43	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/14/23 21:43	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/14/23 21:43	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/14/23 21:43	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/14/23 21:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		62 - 137			-		08/14/23 21:43	1
4-Bromofluorobenzene (Surr)	97		56 - 136					08/14/23 21:43	1

 4-Bromofluorobenzene (Surr)
 97
 56 - 136
 08/14/23 21:43

 Toluene-d8 (Surr)
 98
 78 - 122
 08/14/23 21:43

 Dibromofluoromethane (Surr)
 99
 73 - 120
 08/14/23 21:43

# Lab Sample ID: 240-189869-1 Matrix: Water