

**Environment Testing** 

# **ANALYTICAL REPORT**

#### PREPARED FOR

Attn: Ms. Megan Meckley Arcadis US Inc. 28550 Cabot Drive Suite 500 Novi, Michigan 48377 Generated 12/2/2024 7:07:11 AM

#### JOB DESCRIPTION

Ford LTP

#### **JOB NUMBER**

240-215037-1

Eurofins Cleveland 180 S. Van Buren Avenue Barberton OH 44203





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#### Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization

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Authorized for release by Michael DelMonico, Project Manager I Michael.DelMonico@et.eurofinsus.com (330)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	14
QC Sample Results	15
QC Association Summary	18
Lab Chronicle	19
Certification Summary	20
Chain of Custody	21

Client: Arcadis US Inc. Project/Site: Ford LTP

#### Qualifiers

Qualifiers		3
GC/MS VOA		
Qualifier	Qualifier Description	
E	Result exceeded calibration range.	
S1+	Surrogate recovery exceeds control limits, high biased.	5
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	0
CFL	Contains Free Liquid	0
CFU	Colony Forming Unit	
CNF	Contains No Free Liquid	9
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)	13
MCL	EPA recommended "Maximum Contaminant Level"	
MDA	Minimum Detectable Activity (Radiochemistry)	
MDC	Minimum Detectable Concentration (Radiochemistry)	

%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)
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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: 240-215037-1

#### Job ID: 240-215037-1

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#### Job Narrative 240-215037-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these
  situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise
  specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

#### Receipt

The samples were received on 11/15/2024 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 4 coolers at receipt time were 1.1°C, 1.3°C, 1.4°C and 2.3°C.

#### GC/MS VOA

Method 8260D: Surrogate recovery for the following sample was outside the upper control limit: MW-202S\_111224 (240-215037-5). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

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

Method	Volatile Organic Compounds by GC/MS	Protocol	Laboratory
8260D	Volatile Organic Compounds by 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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-215037-1	TRIP BLANK_64	Water	11/12/24 00:00	11/15/24 08:00
240-215037-2	MW-206_111224	Water	11/12/24 10:10	11/15/24 08:00
240-215037-3	MW-206S_111224	Water	11/12/24 11:25	11/15/24 08:00
240-215037-4	MW-202_111224	Water	11/12/24 12:50	11/15/24 08:00
240-215037-5	MW-202S_111224	Water	11/12/24 14:10	11/15/24 08:00

#### **Detection Summary**

Client: Arcadis US Inc. Project/Site: Ford LTP

#### Client Sample ID: TRIP BLANK\_64

Job ID: 240-215037-1

Lab Sample ID: 240-215037-1

#### 1 2 3 4 5 6 7 8 9 10 11 12 13 14

No Detections.

Client Sample ID: MW-206_111224						Lab S	Sample ID:	: 240-215037-2
 Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac D	Method	Prep Type
cis-1,2-Dichloroethene	40		1.0	0.46	ug/L	1	8260D	Total/NA
trans-1,2-Dichloroethene	110		25	13	ug/L	25	8260D	Total/NA
Trichloroethene	1100		25	11	ug/L	25	8260D	Total/NA
Client Sample ID: MW-206		Lab S	Sample ID:	: 240-215037-3				
No Detections.								
Client Sample ID: MW-202	_111224					Lab S	Sample ID:	: 240-215037-4
No Detections.								
Client Sample ID: MW-202	· _					Lab S	Sample ID:	: 240-215037-5
No Detections.								
—								

Client: Arcadis US Inc. Project/Site: Ford LTP

#### Client Sample ID: TRIP BLANK\_64

Date Collected: 11/12/24 00:00 Date Received: 11/15/24 08:00

	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			11/21/24 15:57	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/21/24 15:57	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/21/24 15:57	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/21/24 15:57	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/21/24 15:57	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/21/24 15:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	125		62 - 137			-		11/21/24 15:57	1
4-Bromofluorobenzene (Surr)	78		56 - 136					11/21/24 15:57	1
Toluene-d8 (Surr)	91		78 - 122					11/21/24 15:57	1
Dibromofluoromethane (Surr)	109		73 - 120					11/21/24 15:57	1

Job ID: 240-215037-1

Matrix: Water

Lab Sample ID: 240-215037-1

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#### **Client Sample Results**

Client: Arcadis US Inc. Project/Site: Ford LTP

#### Client Sample ID: MW-206\_111224

Date Collected: 11/12/24 10:10 Date Received: 11/15/24 08:00

Method: SW846 8260D - Volati	lie Organic Comp	ounas by G							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	40		1.0	0.46	ug/L			11/21/24 18:38	1
trans-1,2-Dichloroethene	110		25	13	ug/L			11/22/24 18:05	25
Trichloroethene	1100		25	11	ug/L			11/22/24 18:05	25
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/21/24 18:38	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	135		62 - 137			-		11/21/24 18:38	1
1,2-Dichloroethane-d4 (Surr)	136		62 - 137					11/22/24 18:05	25
4-Bromofluorobenzene (Surr)	86		56 - 136					11/21/24 18:38	1
4-Bromofluorobenzene (Surr)	81		56 - 136					11/22/24 18:05	25
Toluene-d8 (Surr)	100		78 - 122					11/21/24 18:38	1
Toluene-d8 (Surr)	99		78 - 122					11/22/24 18:05	25
Dibromofluoromethane (Surr)	118		73 - 120					11/21/24 18:38	1
Dibromofluoromethane (Surr)	115		73 - 120					11/22/24 18:05	25

Job ID: 240-215037-1

Lab Sample ID: 240-215037-2 Matrix: Water

5 **8** 9

RL

1.0

1.0

1.0

1.0

Limits

62 - 137

56 - 136

78 - 122

73 - 120

MDL Unit

0.46 ug/L

0.51 ug/L

0.44 ug/L

0.45 ug/L

Client: Arcadis US Inc. Project/Site: Ford LTP

cis-1,2-Dichloroethene

Trichloroethene

Toluene-d8 (Surr)

Vinyl chloride

Surrogate

trans-1,2-Dichloroethene

1,2-Dichloroethane-d4 (Surr)

4-Bromofluorobenzene (Surr)

Dibromofluoromethane (Surr)

Analyte

#### Client Sample ID: MW-206S\_111224

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

Result Qualifier

1.0 U

1.0 U

1.0 U

1.0 U

%Recovery Qualifier

124

76

91

106

Date Collected: 11/12/24 11:25 Date Received: 11/15/24 08:00

			-

#### Lab Sample ID: 240-215037-3 Matrix: Water

Job ID: 240-215037-1

D Prepared Analyzed Dil Fac 11/21/24 16:17 1 11/21/24 16:17 1 11/21/24 16:17 1 11/21/24 16:17 1 Prepared Analyzed Dil Fac 8 11/21/24 16:17 1 11/21/24 16:17 1 11/21/24 16:17 1 11/21/24 16:17 1 12 13

12/2/2024

Client: Arcadis US Inc. Project/Site: Ford LTP

#### Client Sample ID: MW-202\_111224

Date Collected: 11/12/24 12:50 Date Received: 11/15/24 08:00

Job ID: 240-215037-1

#### Lab Sample ID: 240-215037-4

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/21/24 16:37	1	
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/21/24 16:37	1	
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/21/24 16:37	1	
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/21/24 16:37	1	
Surrogate	%Recovery	Qualifier	Limits			_	Prepared	Analyzed	Dil Fac	
1,2-Dichloroethane-d4 (Surr)	134		62 - 137					11/21/24 16:37	1	
4-Bromofluorobenzene (Surr)	84		56 - 136					11/21/24 16:37	1	
Toluene-d8 (Surr)	97		78 - 122					11/21/24 16:37	1	
Dibromofluoromethane (Surr)	119		73 - 120					11/21/24 16:37	1	

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Client: Arcadis US Inc. Project/Site: Ford LTP

#### Client Sample ID: MW-202S\_111224

Date Collected: 11/12/24 14:10 Date Received: 11/15/24 08:00

#### Lab Sample ID: 240-215037-5 Matrix: Water

Matrix: Water

5 6 7

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/21/24 16:57	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/21/24 16:57	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/21/24 16:57	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/21/24 16:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	140	S1+	62 - 137			-		11/21/24 16:57	1
4-Bromofluorobenzene (Surr)	88		56 - 136					11/21/24 16:57	1
Toluene-d8 (Surr)	105		78 - 122					11/21/24 16:57	1
Dibromofluoromethane (Surr)	124	S1+	73 - 120					11/21/24 16:57	1

12/2/2024

Lab Sample ID

240-215037-1

240-215037-2 240-215037-2

240-215037-3 240-215037-4

240-215037-5

240-215038-D-7 MSD

240-215038-F-7 MS

LCS 240-636190/4

LCS 240-636341/4

MB 240-636190/7 MB 240-636341/7

240-215037-2 MS 240-215037-2 MSD

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

		_			Prep Type: Total/NA	
			Percent Su	rrogate Recovery (Accep	tance Limits)	
	DCA	BFB	TOL	DBFM		
Client Sample ID	(62-137)	(56-136)	(78-122)	(73-120)		
RIP BLANK_64	125	78	91	109		
1W-206_111224	135	86	100	118		
1W-206_111224	136	81	99	115		
1W-206_111224	111	99	98	101		
IW-206_111224	107	91	93	97		
IW-206S_111224	124	76	91	106		
IW-202_111224	134	84	97	119		
IW-202S_111224	140 S1+	88	105	124 S1+		9
latrix Spike Duplicate	110	93	99	97		
latrix Spike	115	95	102	101		
ab Control Sample	112	98	97	100		
ab Control Sample	116	103	103	102		
lethod Blank	118	83	94	103		
lethod Blank	121	84	95	106		
Quer)						
(Surr)						

DCA = 1,2-Dichloroethane-d4 (Surr) BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)

Job ID: 240-215037-1

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

#### Matrix: Water Analysis Batch: 636190

	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			11/21/24 11:57	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/21/24 11:57	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/21/24 11:57	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/21/24 11:57	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/21/24 11:57	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/21/24 11:57	1

	МВ	МВ					
Surrogate	%Recovery	Qualifier	Limits	Prep	oared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	118		62 - 137			11/21/24 11:57	1
4-Bromofluorobenzene (Surr)	83		56 - 136			11/21/24 11:57	1
Toluene-d8 (Surr)	94		78 - 122			11/21/24 11:57	1
Dibromofluoromethane (Surr)	103		73 - 120			11/21/24 11:57	1

#### Lab Sample ID: LCS 240-636190/4 Matrix: Water Analysis Batch: 636190

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,1-Dichloroethene	25.0	27.7		ug/L		111	63 - 134	
cis-1,2-Dichloroethene	25.0	26.8		ug/L		107	77 - 123	
Tetrachloroethene	25.0	25.7		ug/L		103	76 - 123	
trans-1,2-Dichloroethene	25.0	28.2		ug/L		113	75 - 124	
Trichloroethene	25.0	24.9		ug/L		100	70 - 122	
Vinyl chloride	12.5	15.4		ug/L		123	60 - 144	

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)			62 - 137
4-Bromofluorobenzene (Surr)	98		56 - 136
Toluene-d8 (Surr)	97		78 - 122
Dibromofluoromethane (Surr)	100		73 - 120

#### Lab Sample ID: 240-215038-D-7 MSD Matrix: Water Analysis Batch: 636190

-	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,1-Dichloroethene	1.0	U	25.0	28.4		ug/L		114	56 - 135	10	26
cis-1,2-Dichloroethene	1.0	U	25.0	26.8		ug/L		107	66 - 128	5	14
Tetrachloroethene	1.0	U	25.0	27.0		ug/L		108	62 - 131	7	20
trans-1,2-Dichloroethene	1.0	U	25.0	27.6		ug/L		110	56 - 136	5	15
Trichloroethene	1.0	U	25.0	25.5		ug/L		102	61 - 124	2	15
Vinyl chloride	37		12.5	46.2		ug/L		71	43 - 157	5	24

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	110		62 - 137
4-Bromofluorobenzene (Surr)	93		56 - 136
Toluene-d8 (Surr)	99		78 - 122

Prep Type: Total/NA

Client Sample ID: Lab Control Sample

**Client Sample ID: Matrix Spike Duplicate** Prep Type: Total/NA

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**Client Sample ID: Method Blank** 

Prep Type: Total/NA

10

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

_ab Sample ID: 240-215038-D-7	MSD								Clien	t Sa	mple ID	: Matrix Spike D	uplicat
Matrix: Water												Prep Type: 7	Fotal/N
Analysis Batch: 636190													
	MSD	MSD											
Surrogate	%Recovery	Qual	ifier	Limits									
Dibromofluoromethane (Surr)	97			73 - 120									
.ab Sample ID: 240-215038-F-7	MS										Client	Sample ID: Matr	ix Snik
Aatrix: Water												Prep Type:	-
Analysis Batch: 636190													
	Sample	Sam	ple	Spike	MS	MS						%Rec	
nalyte	Result			Added	Result		lifier	Unit		D	%Rec	Limits	
,1-Dichloroethene	1.0			25.0	25.7			ug/L			103	56 - 135	
is-1,2-Dichloroethene	1.0	U		25.0	25.5			ug/L			102	66 - 128	
etrachloroethene	1.0			25.0	25.1			ug/L			100	62 - 131	
ans-1,2-Dichloroethene	1.0			25.0	26.4			ug/L			106	56 - 136	
richloroethene	1.0			25.0	25.0			ug/L			100	61 - 124	
/inyl chloride	37			12.5	44.1			ug/L			54	43 - 157	
								3/					
	MS	MS											
urrogate	%Recovery	Qual	ifier	Limits									
,2-Dichloroethane-d4 (Surr)	115			62 - 137									
-Bromofluorobenzene (Surr)	95			56 - 136									
oluene-d8 (Surr)	102			78 - 122									
Dibromofluoromethane (Surr)	101			73 - 120									
ab Sample ID: MB 240-636341	17										Client S	ample ID: Metho	d Blan
-												Prep Type: <sup>-</sup>	
Aatrix: Water Analvsis Batch: 636341													
		МВ	мв										
Analysis Batch: 636341	Re		MB Qualifier		RL	MDL	Unit		D	Pr	epared	Analyzed	Dil Fa
Analysis Batch: 636341	Re		Qualifier		<b>RL</b> 1.0					Pr	epared	Analyzed	Dil Fa
analysis Batch: 636341 analyte is-1,2-Dichloroethene	Re	sult	Qualifier U			0.46	ug/L		<u>D</u>	Pr	epared		Dil Fa
Analysis Batch: 636341 Analyte is-1,2-Dichloroethene rans-1,2-Dichloroethene irichloroethene	R(	esult 1.0	<b>Qualifier</b> U U		1.0	0.46 0.51			<u>D</u>	Pr	epared	11/22/24 11:25	Dil Fa
Analysis Batch: 636341 analyte is-1,2-Dichloroethene ans-1,2-Dichloroethene richloroethene	R	<b>esult</b> 1.0 1.0	Qualifier U U U		1.0 1.0	0.46 0.51 0.44	ug/L ug/L		_ <u>D</u>	Pr	epared	11/22/24 11:25 11/22/24 11:25	Dil Fa
Analysis Batch: 636341 analyte is-1,2-Dichloroethene rans-1,2-Dichloroethene	R(	esult 1.0 1.0 1.0	Qualifier U U U U		1.0 1.0 1.0	0.46 0.51 0.44	ug/L ug/L ug/L		<u>D</u>	Pr	repared	11/22/24 11:25 11/22/24 11:25 11/22/24 11:25	Dil Fa
Analysis Batch: 636341 analyte is-1,2-Dichloroethene ans-1,2-Dichloroethene richloroethene inyl chloride		esult 1.0 1.0 1.0 1.0 MB	Qualifier U U U U		1.0       1.0       1.0       1.0	0.46 0.51 0.44	ug/L ug/L ug/L		<u>D</u>		repared	11/22/24 11:25 11/22/24 11:25 11/22/24 11:25	
Analysis Batch: 636341 analyte is-1,2-Dichloroethene ans-1,2-Dichloroethene richloroethene inyl chloride		esult 1.0 1.0 1.0 1.0 MB	Qualifier U U U U U MB		1.0 1.0 1.0 1.0 5	0.46 0.51 0.44	ug/L ug/L ug/L		_ <u>D</u> _			11/22/24 11:25 11/22/24 11:25 11/22/24 11:25 11/22/24 11:25 11/22/24 11:25	
Analysis Batch: 636341 Analyte is-1,2-Dichloroethene rans-1,2-Dichloroethene richloroethene		25011 1.0 1.0 1.0 1.0 1.0 MB very	Qualifier U U U U U MB		1.0 1.0 1.0 1.0 1.0 5 37	0.46 0.51 0.44	ug/L ug/L ug/L		<u> </u>			11/22/24 11:25 11/22/24 11:25 11/22/24 11:25 11/22/24 11:25 11/22/24 11:25 Analyzed	
Analysis Batch: 636341 analyte is-1,2-Dichloroethene rans-1,2-Dichloroethene richloroethene rinyl chloride Surrogate ,2-Dichloroethane-d4 (Surr)		esult 1.0 1.0 1.0 1.0 1.0 <b>MB</b> very 121	Qualifier U U U U U MB	62 - 13	1.0 1.0 1.0 1.0 5 37 36	0.46 0.51 0.44	ug/L ug/L ug/L		<u>D</u>			11/22/24 11:25         11/22/24 11:25         11/22/24 11:25         11/22/24 11:25         11/22/24 11:25         Analyzed         11/22/24 11:25	
Analysis Batch: 636341 analyte is-1,2-Dichloroethene ans-1,2-Dichloroethene richloroethene inyl chloride aurrogate ,2-Dichloroethane-d4 (Surr) -Bromofluorobenzene (Surr) ioluene-d8 (Surr)		esult 1.0 1.0 1.0 1.0 MB very 121 84	Qualifier U U U U U MB	62 - 13 56 - 13	1.0 1.0 1.0 1.0 5 37 36 22	0.46 0.51 0.44	ug/L ug/L ug/L		_ <b>D</b>			11/22/24 11:25         11/22/24 11:25         11/22/24 11:25         11/22/24 11:25         11/22/24 11:25         11/22/24 11:25         11/22/24 11:25         11/22/24 11:25	Dil Fa
Analysis Batch: 636341 analyte is-1,2-Dichloroethene rans-1,2-Dichloroethene finyl chloride Surrogate ,2-Dichloroethane-d4 (Surr) -Bromofluorobenzene (Surr) Toluene-d8 (Surr) Dibromofluoromethane (Surr)	%Reco	esult 1.0 1.0 1.0 MB very 121 84 95	Qualifier U U U U U MB	62 - 13 56 - 13 78 - 12	1.0 1.0 1.0 1.0 5 37 36 22	0.46 0.51 0.44	ug/L ug/L ug/L			Pr	epared	11/22/24 11:25         11/22/24 11:25         11/22/24 11:25         11/22/24 11:25         11/22/24 11:25         11/22/24 11:25         11/22/24 11:25         11/22/24 11:25         11/22/24 11:25         11/22/24 11:25         11/22/24 11:25         11/22/24 11:25         11/22/24 11:25	Dil Fa
Analysis Batch: 636341 analyte is-1,2-Dichloroethene rans-1,2-Dichloroethene richloroethene finyl chloride Surrogate ,2-Dichloroethane-d4 (Surr) -Bromofluorobenzene (Surr) Foluene-d8 (Surr)	%Reco	esult 1.0 1.0 1.0 MB very 121 84 95	Qualifier U U U U U MB	62 - 13 56 - 13 78 - 12	1.0 1.0 1.0 1.0 5 37 36 22	0.46 0.51 0.44	ug/L ug/L ug/L			Pr	epared	11/22/24 11:25         11/22/24 11:25         11/22/24 11:25         11/22/24 11:25         11/22/24 11:25         11/22/24 11:25         11/22/24 11:25         11/22/24 11:25         11/22/24 11:25	Dil Fa

#### Analyte Added Result Qualifier Unit D %Rec Limits cis-1,2-Dichloroethene 25.0 25.4 ug/L 102 77 - 123 trans-1,2-Dichloroethene 25.0 26.3 105 75 - 124 ug/L Trichloroethene 25.0 24.1 ug/L 96 70 - 122 Vinyl chloride 12.5 13.2 106 60 - 144 ug/L

**Eurofins Cleveland** 

Limits

62 - 137

56 - 136 78 - 122

73 - 120

73 - 120

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

LCS LCS %Recovery Qualifier

116

103

103

102

101

Analysis Batch: 636341

1,2-Dichloroethane-d4 (Surr)

4-Bromofluorobenzene (Surr)

Dibromofluoromethane (Surr)

Matrix: Water

Toluene-d8 (Surr)

Surrogate

Client Sample ID: MW-206\_111224

Client Sample ID: MW-206\_111224

Prep Type: Total/NA

Prep Type: Total/NA

# **Client Sample ID: Lab Control Sample** Prep Type: Total/NA 5

10

#### Lab Sample ID: 240-215037-2 MS Matrix: Water Analysis Batch: 636341

Lab Sample ID: LCS 240-636341/4

Analysis Batch. 000041	Sample	Sample	Spike	MS	MS				%Rec
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
ans-1,2-Dichloroethene	110		625	823		ug/L		114	56 - 136
richloroethene	1100		625	1690	E	ug/L		95	61 - 124
	MS	MS							
rrogate	%Recovery	Qualifier	Limits						
-Dichloroethane-d4 (Surr)			62 - 137						
Bromofluorobenzene (Surr)	99		56 - 136						
uene-d8 (Surr)	98		78 - 122						

#### Lab Sample ID: 240-215037-2 MSD Matrix: Water Analysis Batch: 636341

Dibromofluoromethane (Surr)

Analysis Datch. 000041	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	•	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
trans-1,2-Dichloroethene	110		625	788		ug/L		109	56 - 136	4	15
Trichloroethene	1100		625	1590	E	ug/L		79	61 - 124	6	15
	MSD	MSD									
Surrogate	%Recovery	Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)			62 - 137								
4-Bromofluorobenzene (Surr)	91		56 - 136								
Toluene-d8 (Surr)	93		78 - 122								
Dibromofluoromethane (Surr)	97		73 - 120								

#### GC/MS VOA

#### Analysis Batch: 636190

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-215037-1	TRIP BLANK_64	Total/NA	Water	8260D	
240-215037-2	MW-206_111224	Total/NA	Water	8260D	
240-215037-3	MW-206S_111224	Total/NA	Water	8260D	
240-215037-4	MW-202_111224	Total/NA	Water	8260D	
240-215037-5	MW-202S_111224	Total/NA	Water	8260D	
MB 240-636190/7	Method Blank	Total/NA	Water	8260D	
LCS 240-636190/4	Lab Control Sample	Total/NA	Water	8260D	
240-215038-D-7 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	
240-215038-F-7 MS	Matrix Spike	Total/NA	Water	8260D	
Analysis Batch: 63634	1				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-215037-2	MW-206_111224	Total/NA	Water	8260D	
MB 240-636341/7	Method Blank	Total/NA	Water	8260D	
LCS 240-636341/4	Lab Control Sample	Total/NA	Water	8260D	
240-215037-2 MS	MW-206_111224	Total/NA	Water	8260D	
240-215037-2 MSD	MW-206_111224	Total/NA	Water	8260D	

Client Samp	le ID: TRIP E	BLANK_64						Lab Sample ID:	240-215037-
ate Collected	1: 11/12/24 00:0	0							Matrix: Wate
ate Received	: 11/15/24 08:00	0							
-	Batch	Batch		Dilution	Batch			Prepared	
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed	
Total/NA	Analysis	8260D		1	636190	LEE	EET CLE	11/21/24 15:57	
Client Samp	le ID: MW-20	06_111224						Lab Sample ID:	240-215037-
ate Collected	I: 11/12/24 10:10	0							Matrix: Wate
ate Received	: 11/15/24 08:00	0							
-	Batch	Batch		Dilution	Batch			Prepared	
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed	
Total/NA	Analysis	8260D		1	636190	LEE	EET CLE	11/21/24 18:38	
Total/NA	Analysis	8260D		25	636341	LEE	EET CLE	11/22/24 18:05	
lient Samp	le ID: MW-20	)6S_111224						Lab Sample ID:	240-215037-
-	I: 11/12/24 11:2								Matrix: Wate
Date Received	: 11/15/24 08:00	D							
-	Batch	Batch		Dilution	Batch			Prepared	
Prep Type	Type	Method	Run	Factor		Analyst	Lab	or Analyzed	
Total/NA	Analysis	8260D		1	636190		EET CLE	11/21/24 16:17	
Client Samp	le ID: MW-20	)2_111224						Lab Sample ID:	240-215037-
Date Collected	1: 11/12/24 12:50	0							Matrix: Wate
Date Received	: 11/15/24 08:00	D							
-	Batch	Batch		Dilution	Batch			Prepared	
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed	
Total/NA	Analysis	8260D		1	636190	LEE	EET CLE	11/21/24 16:37	
liont Samn	le ID: MW-20	)2S_111224						Lab Sample ID:	240-215037-
shem Samp		0							Matrix: Wate
	11/12/24 14:10								
ate Collected	: 11/15/24 08:00	D							
ate Collected		) Batch		Dilution	Batch			Prepared	
Date Collected	: 11/15/24 08:00	-	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed	

Laboratory References:

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

#### Accreditation/Certification Summary

Client: Arcadis US Inc. Project/Site: Ford LTP

#### Laboratory: Eurofins Cleveland

aboratory: Eurofins Cle				
accreditations/certifications held by	y this laboratory are listed. Not all accreditations/ce	rtifications are applicable to this report	<u></u>	
Authority	Program	Identification Number	Expiration Date	
California	State	2927	02-28-25	
Connecticut	State	PH-0806	12-31-26	
Georgia	State	4062	02-27-25	
Illinois	NELAP	200004	08-31-25	
lowa	State	421	06-01-25	
Kentucky (UST)	State	112225	02-27-25	
Kentucky (WW)	State	KY98016	12-30-24	
Minnesota	NELAP	039-999-348	12-31-24	
New Hampshire	NELAP	225024	09-30-25	
New Jersey	NELAP	OH001	07-03-25	
New York	NELAP	10975	04-02-25	
Ohio VAP	State	ORELAP 4062	02-27-25	
Oregon	NELAP	4062	02-27-25	
Pennsylvania	NELAP	68-00340	08-31-25	
Texas	NELAP	T104704517-22-19	08-31-25	
USDA	US Federal Programs	P330-18-00281	01-05-27	
Virginia	NELAP	460175	09-14-25	
West Virginia DEP	State	210	12-31-24	

	TestAmerica Labora	tory location:	Brigh	nton ·		C <b>hai</b> 448 Cite					·			3116	/ 810	)-229-	2763			N	Л		H	IC	À	Te	
Client Contact		ory program:			(" D			_	PDES			RCR			Othe	_							19	30			
Company Name: Arcadis	Client Project		¥87				Ic.	-		0		13/				1	1								-		TestAmerica Laboratories, In COC No:
Address: 28550 Cabot Drive, Suite 500	Client Project		Hinsk	ey ——					ntact:				aver						ct: Mi			co					
City/State/Zip: Novi, MI, 48377	Telephone: 248					•	Te		one: 2								Telep	hone:	330-4								1 of 1 COCs
Phone: 248-994-2240	Email: kristoff	er.hinskey@ar	cadis.c	com				An	alysis	Tura	arou	d Ti	LINC	-			Г		T		naly	ses	T	Т			For lab use only
Project Name: Ford LTP	Sampler Name						TA	tT if é	lifferent		xelow 3 we	eks															Walk-in client
	Garet. Method of Ship	t Link						10 d	day	~	2 we	eks															Lab sampling
Project Number: 30206169.0401.03	Method of Ship	ment/Carrier:									1 we 2 day			R.	2			000			8	SIM					1.11.1.1.1.1.10
PO # US3410018772	Shipping/Track	cing No:								Г	l day	'		Filtered Sample (Y / N)	Composite-C / Grab-G	9	cis-1,2-DCE 8260D	Irans-1,2-DCE 8260D			Vinyl Chloride 8260D	1,4-Dioxane 8260D SIM					Job/SDG No:
	-			-	Matria		-	C	ontaine	ers &	Prese	vativ	ves		Y	8260	CE 8	-DC	9	9	oride	ne 8					Part Instance
				100	Jear		1			Ŧ		s	2	red	lood	1,1-DCE 8260D	2-D	s-1,2	PCE 8260D	TCE 8260D	CP	Dioxe					Sample Specific Notes /
Sample Identification	Sample Date	Sample Time	Air	Aqueous	Sediment	Solid Other:	H2SO4	HNO3	HCI.	HOWN	ZaAc/ NaOH	Unpres	Other	File	Con	1.1-1	cis-1	Tran	PCE	TCE	Viny	1,4-1					Special Instructions:
TRIP BLANK_ 🙆 🤟			Π	1	T	Τ	Τ	T	1					N	G	X	х	х	X	x	X			Γ			1 Trip Blank
MW-206-111224-	11/12/24	1010		3	T			T	3					N	G		×	×		×	X						3 VOAs for 8260D
MW-2065_111224	11/12/24	1125	Π	3	T	T	T	T	3					N	6		×	×		×	×						
MW-202_111224	11/12/24		$\square$	3				T	3					N	6		×	×		×	×						
MW-2025-111224	11/12/24	1410		3					3					N	G		×	*		×	×						~
1			Π																		1						
								T						1													
							T	T															T				
			F		-	+		T								-											240-215037 COC
							Τ	T						Г									F	$\vdash$			
Possible Hazard Identification		1					+	Sam	ple Di	sposa	A) (A	fee n	nay be	asses	sed if	samp	les are	retai	ned lo	nger t	than 1						
Non-Hazard l'ammable d'ammable	n Irritant Poise	an Rd.	Jnkn				- 11	0	_		Clien	t		Dispo	sal By	y Lab		P	uchive	For	-	N	Aonths		-		
Submit all results through Cadena at jtomalia@cad Level IV Reporting requested.				och	101	10((	• 4	0	12	v																	
Relinquished by:	Company: Arccolis		1		Time:	24	15	: /	5		eived	81	cid	St	tora	<b>G 9</b>			-	Com	pany:	1-5					Date/Time: 11/12/24 15:15
Relinquished by:	Company:	dis	1	Date	Time.	the		05	50	Rece	eived	by	M	H	-/~	2	-			Com	Ê	T	A				Date 1114/24 1651
Relingvished by: Matthe	Company		1			120		2	00	Reco	eived	in L	aborat	ory b	y:J	F				Com	May:	V					Date Time: 11115724 8500

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14

Sample(s)       were nurther preserved in the laboratory         Time preserved:       Preservative(s) added/Lot number(s)
PLE PRESERVATION
19. SAMPLE CONDITION         Sample(s)
18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page Samples processed by:
Contacted PM Date by via Verbal Voice Mail Other Concerning
<ul> <li>4. Lud custody papers accompany the sample(s)?</li> <li>5. Were the custody papers relinquished &amp; signed in the appropriate place?</li> <li>6. Was/were the person(s) who collected the samples clearly identified on the COC?</li> <li>7. Did all bottles arrive in good condition (Unbroken)?</li> <li>8. Could all bottles arrive in good condition (Unbroken)?</li> <li>9. For each sample, does the COC specify preservatives (JNN), # of containers (JNN), and sample type of grab/comp(J/N)?</li> <li>10. Were correct bottle(s) used for the test(s) indicated?</li> <li>11. Sufficient quantity received to perform indicated analyses?</li> <li>12. Are these work share samples and all listed on the COC?</li> <li>13. Were all preserved sample(s) at the correct pH upon receipt?</li> <li>14. Were VOAs on the COC?</li> <li>15. Were air bubbles &gt;6 mm in any VOA vials?</li> <li>16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # (Averve)</li> <li>17. Was a LL Hg or Me Hg trip blank present?</li> </ul>
he cooler(s)? If Yes Quantity (2) (2) No s) signed & dated? or bottle kits (LLHg/MeHg)? Yes (2) mpromised? ?
Packing material used:       Wubble Wrap       Foam       Plastic Bag       None       Other         COOLANT:       Vet Ice       Blue Ice       Dry Ice       Water       None         1       Cooler temperature upon receipt       Image: See Multiple Cooler Form         1R GUN #
phe Receipt Form/Narrative Site Name Site Name Opened on 11/1/57224 PS FAS (Waypoint) Client Drop Off Eurofins C off Date/Time Foam Box Client Cooler Box Oth

WI-NC-099-110524 Cooler Receipt Form.doc

11

Login # : \_\_\_

EC Client Box Other IR	EC Client Box Ofher	EC Client Box Other IR	EC Client Box Other	EC Client Box Other II	EC Client box Other	EC Client box Other	EC Client Box Other II	EC Client box Other	EC Client Box Other	EC Client Box Other I	EC Client Box Other	EC Client Box Other 1	EC Client Box Other	EC Client Box Other 4	EC Client Box Other	(EC) Client Box Other I	ooler Description (Circle)																	
~ GUN #:		2 GUN ₽-	R GUN #-	IR GUN #:	R GUN #:	R GUN #:	R GUN #:	R GUN #:	R GUN #:	IR GUN #:		IR GUN #:	IR GUN *:	IR GUN <b>*</b> :	IR GUN #:	urofins ≡Cleveland IR Gun # (Circle)																		
																														2 R	101	1. X	61	Eurofins - Cleveland Sample Receipt Multiple Cooler Form
See Temp																														S S	1.1	6-1-	14	ti <u>ple Cooler Form</u> Corrected Temp °C
Weilice Bluelice Dry Ice Woter None See Temperature Excursion Form	Wet Ice Bive ice Dry Ice Water None	Wei ice Bive ice Dry ice Water None	Wel Ice Blue Ice Dry Ice Water None	Wet ice Bive ice Dry ice Water None	Wel ice Blue ice Dry ice Water None	Wet ice Bive ice Dry ice Water None	Wet ice Blue Ice Dry Ice Water None	Wet ice Bive ice Dry ice Water None	Wet Ice Blue Ice Dry Ice Water None	Wellice Bive Ice Dry Ice Water None	Coolant (Circle)																							

H1-NC-099 Cooler Receipt Form Page 2 – Multiple Coolers

14

# Login Container Summary Report

240-215037

# Temperature readings

11/15/2024

	Voa Vial 40ml - Hydrochloric Acid	240-215037-F-5	MW-202S_111224
•	Voa Vial 40ml - Hydrochloric Acid	240-215037-E-5	MW-202S_111224
	Voa Vial 40ml - Hydrochloric Acid	240-215037-D-5	MW-202S_111224
	Voa Vial 40ml - Hydrochloric Acid	240-215037-C-5	MW-202S_111224
	Voa Vial 40ml - Hydrochloric Acid	240-215037-B-5	MW-202S_111224
• • • • • • • • • • • • • • • • • • •	Voa Vial 40ml - Hydrochloric Acid	240-215037-A-5	MW-202S_111224
	Voa Vial 40ml - Hydrochloric Acid	240-215037-F-4	MW-202_111224
F	Voa Vial 40ml - Hydrochloric Acid	240-215037-E-4	MW-202_111224
Page	Voa Vial 40mi - Hydrochloric Acid	240-215037-D-4	MW-202_111224
24	Voa Vial 40ml - Hydrochloric Acıd	240-215037-C-4	MW-202_111224
of 2	Voa Vial 40ml - Hydrochloric Acid	240-215037-B-4	MW-202_111224
	Voa Vial 40ml - Hydrochloric Acid	240-215037-A-4	MW-202_111224
a mana amin'ny faritr'i Andrea amin'ny faritr'i Andrea amin'ny faritr'i Andrea amin'ny faritr'i Andrea amin'ny	Voa Vial 40ml - Hydrochloric Acid	240-215037-F-3	MW-206S_111224
We writer	Voa Vial 40ml - Hydrochloric Acıd	240-215037-E-3	MW-206S_111224
	Voa Vial 40ml - Hydrochloric Acid	240-215037-D-3	MW-206S_111224
	Voa Vial 40ml - Hydrochloric Acid	240-215037-C-3	MW-206S_111224
	Voa Vial 40ml - Hydrochloric Acid	240-215037-B-3	MW-206S_111224
	Voa Vial 40ml - Hydrochloric Acıd	240-215037-A-3	MW-206S_111224
	Voa Vial 40ml - Hydrochloric Acıd	240-215037-G-2	MW-206_111224
	Voa Vial 40ml - Hydrochloric Acid	240-215037-E-2	MW-206_111224
	Voa Vial 40ml - Hydrochloric Acıd	240-215037-D-2	MW-206_111224
	Voa Vial 40ml - Hydrochloric Acid	240-215037-C-2	MW-206_111224
	Voa Vial 40ml - Hydrochloric Acid	240-215037-B-2	MW-206_111224
	Voa Vial 40ml - Hydrochloric Acıd	240-215037-A-2	MW-206_111224
	Voa Vial 40ml - Hydrochloric Acid	240-215037-A-1	TRIP BLANK_64
pH Temp Added Lot Number	Container Type pH	Lab ID	<u>Client Sample ID</u>
			ioniporatario rocanigo .

#### **DATA VERIFICATION REPORT**



December 02, 2024

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

CADENA project ID: E203728 Project: Ford Livonia Transmission Plant - Soil Gas, Ground Water and Soil Project number: 30206169.0401.04\_WA-03 Event Specific Scope of Work References: Sample COC Laboratory: Eurofins Environment Testing LLC - Cleveland Laboratory submittal: 215037-1 Sample date: 2024-11-12 Report received by CADENA: 2024-12-02 Initial Data Verification completed by CADENA: 2024-12-02 Number of Samples:5 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 sample -005 SURROGATE recoveries were outliers biased high for at least 1 surrogate. Associated client sample results were non-detect so qualification was not required based on these high bias 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: E203728

Laboratory: Eurofins Environment Testing LLC - Cleveland Laboratory Submittal: 215037-1

	Sample Nan	ne: TRIP BL	.ANK_64			MW-206	6_11122	4		MW-206	6S_1112	24		MW-202	2_11122	4		MW-202	2S_1112	24	
	Lab Sample	ID: 240215	50371			240215	0372			240215	0373			240215	0374			240215	0375		
	Sample Date	e: 11/12/2	2024			11/12/2	2024			11/12/2	2024			11/12/2	024			11/12/2	024		
			Report		Valid		Report		Valid		Report		Valid		Report		Valid		Report		Valid
Ar	alyte Cas No.	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
GC/MS VOC																					
OSW-8260D																					
1,1-Dichlor	ethene 75-35-4	ND	1.0	ug/l																	
cis-1,2-Dich	loroethene 156-59-2	ND	1.0	ug/l		40	1.0	ug/l		ND	1.0	ug/l		ND	1.0	ug/l		ND	1.0	ug/l	
Tetrachloro	ethene 127-18-4	ND	1.0	ug/l																	
trans-1,2-D	chloroethene 156-60-5	ND	1.0	ug/l		110	25	ug/l		ND	1.0	ug/l		ND	1.0	ug/l		ND	1.0	ug/l	
Trichloroeth	ene 79-01-6	ND	1.0	ug/l		1100	25	ug/l		ND	1.0	ug/l		ND	1.0	ug/l		ND	1.0	ug/l	
Vinyl chlorid	e 75-01-4	ND	1.0	ug/l		ND	1.0	ug/l		ND	1.0	ug/l		ND	1.0	ug/l		ND	1.0	ug/l	



**Environment Testing** 

# **ANALYTICAL REPORT**

#### PREPARED FOR

Attn: Ms. Megan Meckley Arcadis US Inc. 28550 Cabot Drive Suite 500 Novi, Michigan 48377 Generated 11/26/2024 8:19:40 AM

#### JOB DESCRIPTION

Ford LTP

#### **JOB NUMBER**

240-215040-1

Eurofins Cleveland 180 S. Van Buren Avenue Barberton OH 44203





#### **Eurofins Cleveland**

#### Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization

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Authorized for release by Michael DelMonico, Project Manager I <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	12
QC Sample Results	13
QC Association Summary	15
Lab Chronicle	16
Certification Summary	17
Chain of Custody	18

Client: Arcadis US Inc. Project/Site: Ford LTP

#### Qualifiers

Qualifiers		3
GC/MS VOA		
Qualifier	Qualifier Description	
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.	
<del>.</del>	Listed under the "D" column to designate that the result is reported on a dry weight basis	
%R	Percent Recovery	
CFL	Contains Free Liquid	
CFU	Colony Forming Unit	0
CNF	Contains No Free Liquid	0
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)	13
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: 240-215040-1

#### Job ID: 240-215040-1

#### **Eurofins Cleveland**

#### Job Narrative 240-215040-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these
  situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise
  specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

#### Receipt

The samples were received on 11/15/2024 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 4 coolers at receipt time were 1.1°C, 1.3°C, 1.4°C and 2.3°C.

#### GC/MS VOA

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

**Eurofins Cleveland** 

#### **Method Summary**

#### Client: Arcadis US Inc. Project/Site: Ford LTP

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by 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

**Eurofins Cleveland** 

#### Sample Summary

Client: Arcadis US Inc. Project/Site: Ford LTP

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-215040-1	TRIP BLANK_62	Water	11/13/24 00:00	11/15/24 08:00
240-215040-2	MW-203_111324	Water	11/13/24 09:45	11/15/24 08:00
240-215040-3	MW-203S_111324	Water	11/13/24 10:45	11/15/24 08:00

#### **Detection Summary**

trans-1,2-Dichloroethene

Trichloroethene

#### Client Sample ID: TRIP BLANK\_62

No Detections.

8260D

8260D

1

1

Client Sample ID: MW-203_111324				Lab Sample ID: 240-215040-2			
Analyte	Result Qualifier	RL	MDL	Unit	Dil Fac	Method	Prep Type
cis-1,2-Dichloroethene	62	50	23	ug/L	50	8260D	Total/NA
trans-1,2-Dichloroethene	180	50	26	ug/L	50	8260D	Total/NA
Trichloroethene	1300	50	22	ug/L	50	8260D	Total/NA
Client Sample ID: MW-203S_111324					Lab Sample ID: 240-215040-3		
Analyte	Result Qualifier	RL	MDL	Unit	Dil Fac	) Method	Prep Type

1.0

1.0

0.51 ug/L

0.44 ug/L

1.2

50

			)	
		(	1	
			2	

Total/NA

Total/NA

This Detection Summary does not include radiochemical test results.

RL

1.0

1.0

1.0

1.0

1.0

1.0

Limits

62 - 137

56 - 136

78 - 122

73 - 120

MDL Unit

0.49 ug/L

0.46 ug/L

0.44 ug/L

0.51 ug/L

0.44 ug/L

0.45 ug/L

D

Prepared

Prepared

Analyte

1,1-Dichloroethene

Tetrachloroethene

Trichloroethene

Toluene-d8 (Surr)

Vinyl chloride

Surrogate

cis-1,2-Dichloroethene

trans-1,2-Dichloroethene

1,2-Dichloroethane-d4 (Surr)

4-Bromofluorobenzene (Surr)

Dibromofluoromethane (Surr)

#### Client Sample ID: TRIP BLANK\_62 Date Collected: 11/13/24 00:00 Date Received: 11/15/24 08:00

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

Result Qualifier

1.0 U

1.0 U

1.0 U

1.0 U

1.0 U

1.0 U

%Recovery Qualifier

105

100

100

93

#### Job ID: 240-215040-7

#### Lab Sample ID: 240-215040-1 Matrix: Water

Analyzed

11/22/24 12:52

11/22/24 12:52

11/22/24 12:52

11/22/24 12:52

11/22/24 12:52

11/22/24 12:52

Analyzed

11/22/24 12:52

11/22/24 12:52

11/22/24 12:52

11/22/24 12:52

13

)-1	
-	
-1	
ter	

Dil Fac

1

1

1

1

1

1

1

1

1

1

Dil Fac

#### Client Sample ID: MW-203\_111324 Date Collected: 11/13/24 09:45 Date Received: 11/15/24 08:00

#### Job ID: 240-215040-1

#### Lab Sample ID: 240-215040-2 Matrix: Water

5 6 7

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	62		50	23	ug/L			11/22/24 13:15	50
trans-1,2-Dichloroethene	180		50	26	ug/L			11/22/24 13:15	50
Trichloroethene	1300		50	22	ug/L			11/22/24 13:15	50
Vinyl chloride	50	U	50	23	ug/L			11/22/24 13:15	50
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		62 - 137					11/22/24 13:15	50
4-Bromofluorobenzene (Surr)	102		56 - 136					11/22/24 13:15	50
Toluene-d8 (Surr)	101		78 - 122					11/22/24 13:15	50
Dibromofluoromethane (Surr)	94		73 - 120					11/22/24 13:15	50

#### Client Sample ID: MW-203S\_111324 Date Collected: 11/13/24 10:45 Date Received: 11/15/24 08:00

#### Job ID: 240-215040-1

#### Lab Sample ID: 240-215040-3 Matrix: Water

5 6 7

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/22/24 13:37	1
rans-1,2-Dichloroethene	1.2		1.0	0.51	ug/L			11/22/24 13:37	1
Frichloroethene	50		1.0	0.44	ug/L			11/22/24 13:37	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/22/24 13:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		62 - 137					11/22/24 13:37	1
4-Bromofluorobenzene (Surr)	103		56 - 136					11/22/24 13:37	1
Toluene-d8 (Surr)	105		78 - 122					11/22/24 13:37	1
Dibromofluoromethane (Surr)	96		73 - 120					11/22/24 13:37	1

#### **Surrogate Summary**

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

		Percent Surrogate Recovery (Acceptance Limits)						
		DCA	BFB	TOL	DBFM			
Lab Sample ID	Client Sample ID	(62-137)	(56-136)	(78-122)	(73-120)			
240-215038-E-4 MS	Matrix Spike	100	102	105	97			
240-215038-E-4 MSD	Matrix Spike Duplicate	98	104	104	93			
240-215040-1	TRIP BLANK_62	105	100	100	93			
240-215040-2	MW-203_111324	103	102	101	94			
240-215040-3	MW-203S_111324	101	103	105	96			
LCS 240-636343/4	Lab Control Sample	97	101	100	91			
MB 240-636343/7	Method Blank	101	101	101	90			

Surrogate Legend

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

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Prep Type: Total/NA

9

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

# ds by GC/MS

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

Lab Sample ID: MB 240-636343/7 Matrix: Water Analysis Batch: 636343

	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			11/22/24 11:43	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/22/24 11:43	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/22/24 11:43	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/22/24 11:43	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/22/24 11:43	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/22/24 11:43	1

	MB	MB				
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		62 - 137		11/22/24 11:43	1
4-Bromofluorobenzene (Surr)	101		56 - 136		11/22/24 11:43	1
Toluene-d8 (Surr)	101		78 - 122		11/22/24 11:43	1
Dibromofluoromethane (Surr)	90		73 - 120		11/22/24 11:43	1

#### Lab Sample ID: LCS 240-636343/4 Matrix: Water Analysis Batch: 636343

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,1-Dichloroethene	25.0	23.3		ug/L		93	63 - 134	
cis-1,2-Dichloroethene	25.0	24.3		ug/L		97	77 - 123	
Tetrachloroethene	25.0	24.8		ug/L		99	76 - 123	
trans-1,2-Dichloroethene	25.0	22.6		ug/L		90	75 - 124	
Trichloroethene	25.0	23.3		ug/L		93	70 - 122	
Vinyl chloride	12.5	13.1		ug/L		105	60 - 144	

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	97		62 - 137
4-Bromofluorobenzene (Surr)	101		56 - 136
Toluene-d8 (Surr)	100		78 - 122
Dibromofluoromethane (Surr)	91		73 - 120

105

#### Lab Sample ID: 240-215038-E-4 MS Matrix: Water Analysis Batch: 636343

Toluene-d8 (Surr)

	Sample	Sample	Spike	MS	MS				%Rec
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
1,1-Dichloroethene	200	U	5000	4080		ug/L		82	56 - 135
cis-1,2-Dichloroethene	4500		5000	9180		ug/L		94	66 - 128
Tetrachloroethene	200	U	5000	4260		ug/L		85	62 - 131
trans-1,2-Dichloroethene	240		5000	4380		ug/L		83	56 - 136
Trichloroethene	360		5000	4460		ug/L		82	61 - 124
Vinyl chloride	180	J	2500	2530		ug/L		94	43 - 157
	MS	MS							
Surrogate	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	100		62 - 137						
4-Bromofluorobenzene (Surr)	102		56 - 136						

## Client Sample ID: Lab Control Sample

#### Prep Type: Total/NA

Client Sample ID: Matrix Spike Prep Type: Total/NA

Eurofins Cleveland

78 - 122

#### **QC Sample Results**

Job ID: 240-215040-1

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

Lab Sample ID: 240-2150	38-E-4 MS						C	liont Sa	mple ID: N	Matrix '	Sniko	
Matrix: Water Analysis Batch: 636343	30-E-4 WIS						0	lent Ja	Prep Ty			
-	MS	MS										
Surrogate	%Recovery	Qualifier	Limits									
Dibromofluoromethane (Surr)	97		73 - 120									
Lab Sample ID: 240-2150 Matrix: Water	38-E-4 MSD					Client	Samp	le ID: N	latrix Spik Prep Ty			
Analysis Batch: 636343									• • •			
	Sample	Sample	Spike	MSD	MSD				%Rec		RPD	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
1,1-Dichloroethene	200	U	5000	4310		ug/L		86	56 - 135	6	26	
cis-1,2-Dichloroethene	4500		5000	9000		ug/L		90	66 - 128	2	14	
Tetrachloroethene	200	U	5000	4610		ug/L		92	62 - 131	8	20	
trans-1,2-Dichloroethene	240		5000	4360		ug/L		83	56 - 136	0	15	
Trichloroethene	360		5000	4430		ug/L		81	61 - 124	1	15	
Vinyl chloride	180	J	2500	2530		ug/L		94	43 - 157	0	24	
	MSD	MSD										
Surrogate	%Recovery	Qualifier	Limits									
1,2-Dichloroethane-d4 (Surr)	98		62 - 137									
4-Bromofluorobenzene (Surr)	104		56 - 136									
Toluene-d8 (Surr)	104		78 - 122									
Dibromofluoromethane (Surr)	93		73 - 120									

#### **QC Association Summary**

Client: Arcadis US Inc. Project/Site: Ford LTP Job ID: 240-215040-1

#### GC/MS VOA

#### Analysis Batch: 636343

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-215040-1	TRIP BLANK_62	Total/NA	Water	8260D	
240-215040-2	MW-203_111324	Total/NA	Water	8260D	
240-215040-3	MW-203S_111324	Total/NA	Water	8260D	
MB 240-636343/7	Method Blank	Total/NA	Water	8260D	
LCS 240-636343/4	Lab Control Sample	Total/NA	Water	8260D	
240-215038-E-4 MS	Matrix Spike	Total/NA	Water	8260D	
240-215038-E-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

12

#### Client Sample ID: TRIP BLANK 62 Lab Sample ID: 240-215040-1 Date Collected: 11/13/24 00:00 Matrix: Water Date Received: 11/15/24 08:00 Batch Batch Dilution Batch Prepared Method Factor Number Analyst or Analyzed Prep Type Туре Run Lab 11/22/24 12:52 Total/NA Analysis 8260D 636343 LEE EET CLE 1 Client Sample ID: MW-203 111324 Lab Sample ID: 240-215040-2 Date Collected: 11/13/24 09:45 **Matrix: Water** Date Received: 11/15/24 08:00 Batch Batch Dilution Batch Prepared Prep Type Туре Method Run Factor Number Analyst Lab or Analyzed Total/NA Analysis 8260D 50 636343 LEE EET CLE 11/22/24 13:15 Client Sample ID: MW-203S\_111324 Lab Sample ID: 240-215040-3 Date Collected: 11/13/24 10:45 Matrix: Water Date Received: 11/15/24 08:00 Batch Batch Dilution Batch Prepared or Analyzed Method Prep Type Туре Factor Number Analyst Run Lab 11/22/24 13:37 Total/NA Analysis 8260D 636343 LEE EET CLE 1

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 Job ID: 240-215040-1

#### Laboratory: Eurofins Cleveland

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

Authority	Program	Identification Number	Expiration Date	
California	State	2927	02-28-25	
Connecticut	State	PH-0806	12-31-26	
Georgia	State	4062	02-27-25	
Illinois	NELAP	200004	08-31-25	
lowa	State	421	06-01-25	
Kentucky (UST)	State	112225	02-27-25	
Kentucky (WW)	State	KY98016	12-30-24	
Minnesota	NELAP	039-999-348	12-31-24	
New Hampshire	NELAP	225024	09-30-25	
New Jersey	NELAP	OH001	07-03-25	
New York	NELAP	10975	04-02-25	
Ohio VAP	State	ORELAP 4062	02-27-25	
Oregon	NELAP	4062	02-27-25	
Pennsylvania	NELAP	68-00340	08-31-25	
Texas	NELAP	T104704517-22-19	08-31-25	
USDA	US Federal Programs	P330-18-00281	01-05-27	
Virginia	NELAP	460175	09-14-25	
West Virginia DEP	State	210	12-31-24	

Client Contact mpany Name: Arcadis	Regulat	ory program:		1	DW	Г I	NPDES		RC	CRA	E C	ther				1.					TestAmerica Laboratories, Inc.	
	Client Project N	Manager: Kris	Hinskey	y		Site C	Contac	: Christ	ina W	caver			Lab	Contac	t: Mik	e DelM	lonico				COC No:	1
ddress: 28550 Cabot Drive, Suite 500	Telephone: 248	-994-2240				Telep	hone:	248-994	-2240				Tele	phone:	330-49	7-9396	5					1
ity/State/Zip: Novi, M1, 48377	Email: kristoff	er.hinskey@arc	adis.co	m			nalysi	Turna	ound	Time					_	An	alyse	s	-		1 of 1 COCs For lab use only	
hone: 248-994-2240	Sampler Name	_				TAT	differer	t from bel													Walk-in client	
roject Name: Ford LTP		tt Lini	4				dav	Γ 3	weeks												Lab sampling	
roject Number: 30206169.0401.03	Method of Ship			<i>n</i> .		-  "	Gay	F 1	week	,	2	2		0				M			Lao sampung	
D # US3410018772	Shipping/Track	ing No:				1			days day		mple (V / N)		60D	8260D			8260D	560D 5			Job/SDG No:	
				Mat	rix		Contain	ers & Pr	eserva	tives	ampl	8260	CE 8	-DCE	9	8	oride	ane 8;			and the second	4
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SAMPLE PRESERVATION
Sample(s) were received with bubble >6 mm in diameter (Notify PM)
19 SAMPLE CONDITION Sample(s) were received after the recommended holding time had expired.
18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES E3 additional next page Samples processed by
Contacted PM Date by via Verbal Voice Mail Other Concerning
Hg or Me Hg trip blank present?
?
H yes, Questions 1571 / μανό όσομ οποκινά αι μις οι ιχιμαιμμη μαυσι αυτή Were all preserved sample(s) at the correct pH upon receipt? Yes No PH Ship Lot# HC448976 Were VOAs on the COC?
Were correct bottle(s) used for the test(s) indicated? Sufficient quantity received to perform indicated analyses?
with the COC? ( $\mathcal{Q}$ N), # of containers $\mathcal{Q}$ N), at
Was/were the person(s) who collected the samples clearly identified on the COC? (Yes) No Did all bottles arrive in good condition (Unbroken)? (Yes) No
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10.1 °C) Observed Cooler
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Euronns Cooler # C. Foam Box Client Cooler Box Other Packing material used. Bubble Wrap Foam Plastic Bag None Other
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Cooler Received on 11/15/24 Opened on 11/15/24 1t Opened on 11/15/24
Client AYCad 3 Site Name Cooler impacked by:

WI-NC-099-110524 Cooler Receipt Form.doc

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		ultiple Cooler Form	Sample Receipt M	Eurofins - Cleveland			

H1-NC-099 Cooler Receipt Form Page 2 – Multiple Coolers

Login # .

14

# Temperature readings

11/15/2024

	Voa Vial 40ml - Hydrochloric Acid	240-215040-F-3	MW-203S_111324
	Voa Vial 40ml - Hydrochloric Acid	240-215040-E-3	MW-203S_111324
	Voa Vial 40mi - Hydrochloric Acıd	240-215040-D-3	MW-203S_111324
	Voa Vial 40ml - Hydrochloric Acıd	240-215040-C-3	MW-203S_111324
	Voa Vial 40ml - Hydrochloric Acid	240-215040-В-3	MW-203S_111324
	Voa Vial 40ml - Hydrochloric Acid	240-215040-A-3	MW-203S_111324
	Voa Viał 40ml - Hydrochloric Acid	240-215040-G-2	MW-203_111324
	Voa Vial 40ml - Hydrochloric Acid	240-215040-E-2	MW-203_111324
	Voa Vial 40ml - Hydrochloric Acid	240-215040-D-2	MW-203_111324
	Voa Vial 40ml - Hydrochloric Acid	240-215040-C-2	MW-203_111324
	Voa Vial 40ml - Hydrochloric Acid	240-215040-B-2	MW-203_111324
Sector Statements and Sector Statements	Voa Vial 40mi - Hydrochloric Acid	240-215040-A-2	MW-203_111324
	Voa Vial 40mi - Hydrochloric Acıd	240-215040-A-1	TRIP BLANK_62
Container Preservation Preservation pH Temp Added Lot Number	Container Type	Lab ID	Client Sample ID

## **DATA VERIFICATION REPORT**



November 26, 2024

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

CADENA project ID: E203728 Project: Ford Livonia Transmission Plant - Soil Gas, Ground Water and Soil Project number: 30206169.0401.04\_WA-03 Event Specific Scope of Work References: Sample COC Laboratory: Eurofins Environment Testing LLC - Cleveland Laboratory submittal: 215040-1 Sample date: 2024-11-13 Report received by CADENA: 2024-11-26 Initial Data Verification completed by CADENA: 2024-11-26 Number of Samples:3 Sample Matrices:Water Test Categories:GCMS VOC Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

There were no significant QC anomalies or exceptions to report.

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

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

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

## Analytical Results Summary

#### CADENA Project ID: E203728

Laboratory: Eurofins Environment Testing LLC - Cleveland Laboratory Submittal: 215040-1

		Sample Name:		_				3_11132	4			3S_1113	24	
		Lab Sample ID:	240215	0401			240215	0402			240215	0403		
		Sample Date:	11/13/2	024			11/13/2	024			11/13/2	024		
				Report		Valid		Report		Valid		Report		Valid
	Analyte	Cas No.	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
GC/MS VOC														
<u>OSW-8260</u>	<u>D</u>													
	1,1-Dichloroethene	75-35-4	ND	1.0	ug/l									
	cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l		62	50	ug/l		ND	1.0	ug/l	
	Tetrachloroethene	127-18-4	ND	1.0	ug/l									
	trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l		180	50	ug/l		1.2	1.0	ug/l	
	Trichloroethene	79-01-6	ND	1.0	ug/l		1300	50	ug/l		50	1.0	ug/l	
	Vinyl chloride	75-01-4	ND	1.0	ug/l		ND	50	ug/l		ND	1.0	ug/l	



## Ford Motor Company – Livonia Transmission Project

## **Data Review**

## Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG # 240-215037-1 CADENA Verification Report: 2024-12-02

Analyses Performed By: Eurofins Cleveland Barberton, Ohio

Report # 56936R Review Level: Tier III Project: 30206169.0401.02

#### **SUMMARY**

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-215037-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III) include a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample	Parent Sample	Ana	lysis
Sample ID		Maurix	Collection Date	Farent Sample	VOC	VOC SIM
TRIP BLANK_64	240-215037-1	Water	11/12/2024		Х	
MW-206_111224	240-215037-2	Water	11/12/2024		Х	
MW-206S_111224	240-215037-3	Water	11/12/2024		Х	
MW-202_111224	240-215037-4	Water	11/12/2024		Х	
MW-202S_111224	240-215037-5	Water	11/12/2024		Х	

#### ANALYTICAL DATA PACKAGE DOCUMENTATION

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

Items Reviewed	Rep	orted	Perfori Accep		Not
	No	Yes	No	Yes	Required
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	

#### **ORGANIC ANALYSIS INTRODUCTION**

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260D. 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	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.

#### DATA REVIEW

A field duplicate sample was not collected for samples from this SDG.

#### 6. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

Sample results associated with compound that exhibited a concentration greater than the linear range of the instrument calibration are summarized in the following table.

Sample ID	Compounds	Original Analysis	Diluted Analysis	Reported Analysis
MW-206 111224	trans-1,2-Dichloroethene		110 D	110 D
WW-200_111224	Trichloroethene		1100 D	1100 D

Sample results associated with compounds exhibiting concentrations greater than the linear range are gualified as documented in the table below when reported as the final reported sample result.

Reported Sample Results	Qualification
Diluted sample result within calibration range	D
Diluted sample result less than the calibration range	DJ
Diluted sample result greater than the calibration range	EDJ
Original sample result greater than the calibration range	EJ

#### 7. System Performance and Overall Assessment

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

#### DATA VALIDATION CHECKLIST FOR VOCs

VOCs: 8260D	Rep	orted		rmance ptable	Not Required
	No	Yes	No	Yes	Required
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GO	C/MS)			·	
Tier II Validation					
Holding times/Preservation		Х		X	
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	
Notes:					

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY:	Bindu Sree M B
SIGNATURE:	BASHMB
DATE:	December 16, 2024

PEER REVIEW: Andrew Korycinski

DATE: December 19, 2024

## 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	Regulat	ory program:			D	w	1.1	NPDES	5	ſ	RCRA	ſ	Oth	er							19	U		Track	in Laboratoria
	Client Project M	lanager: Kris	Hinsk	ey			Site (	Contac	t: Ch	ristina	Weaver		-	-	Lab (	Lab Contact: Mike DelMonico				-	COC No:	ica Laboratories,			
ddress: 28550 Cabot Drive, Suite 500	Telephone: 248-	994-2240					Telep	Telephone: 248-994-2240 T					Telephone: 330-497-9396					-							
ity/State/Zip: Novi, MI, 48377	Email: kristoffe	r hinskev@ar	cadis c	com					s Tur	Rarou	nd Time	· T	1	-	Analyses					-	1 o For lab use	f 1 COCs			
hone: 248-994-2240		Email: kristoffer.hinskey@arcadis.com					- 3			-											T				
roject Name: Ford LTP	Sampler Name:							f differe		3 we		-												Walk-in client	
roject Number: 30206169.0401.03	Garret Method of Ship						10	day		2 we 1 we			. 0							Σ				Lab sampli:	ng
O # US3410018772	Shipping/Track	ing No:					1			2 day		mole (Y / N)	C/Grab=G		Dog	8260C			260D	S D S				Job/SDG N	0;
				-	Matri	K		Contai	ners &	Prese	rvatives		-V	260D	E 826	DCE	0	0	ride 8	<b>78 826</b>					
Sample Identification	Sample Date	Sample Time	Air	Aquenus	Sediment	Other:	H2S04	HN03	HOW	ZaAc/ VaOH	Unpres Other:	Filtered Se	Composite	1,1-DCE 8260D	cis-1,2-DCE 8260D	Trans-1,2-DCE 8260D	PCE 8260D	TCE 8260D	Vinyl Chloride 8260D	1,4-Dioxane 8260D SIM					ole Specific Notes / cial Instructions:
TRIP BLANK_ 64				1	T			1					IG		X	х	X	X	X				1	1 Trip	Blank
NW-206_111224	11/12/24	1010		3				3				٨			×	×		×	×					3 VOA	s for 8260D
	11/12/24		Π	3				3	5			٨	16		×	×		×	×						
NW-2065_111224 NW-202_111224	11/12/24			3				3	3			٨	) 6		×	×		×	×						
MW-2025-111224	1112/24			3				(1)	5			N	JG		×	٢		×	×						/
																									10 S
								_																_	2-68
					_	-		_	_		_													240	)-215037 COC
																						+	+	-	
Possible Hazard Identification           Non-Hazard         Immable         Immable	n Irritant 🗂 Poiso	n B	Jnkn	nown			Sa			al (A	fee may	be asse Disp	ssed i osal B	f samp y Lab			ned lon schive		an I r		onths				
pecial Instructions/QC Requirements & Comments: ubmit all results through Cadena at jtomalia@cad evel IV Reporting requested.	enaco.com. Cadena #E	203728				M۱ .	48	315																	
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#### Qualifiers

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	/!	VI 🔿	v	U	А

	<b>N</b>
Qualifier	Qualifier Description
E	Result exceeded calibration range.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

#### Glossary

Clobbally	
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

#### Client Sample ID: TRIP BLANK\_64

#### Date Collected: 11/12/24 00:00

Date Received: 11/15/24 08:00

Method: SW846 8260D - Volati		-				_			
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/21/24 15:57	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/21/24 15:57	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/21/24 15:57	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/21/24 15:57	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/21/24 15:57	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/21/24 15:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	125		62 - 137			-		11/21/24 15:57	1
4-Bromofluorobenzene (Surr)	78		56 - 136					11/21/24 15:57	1

78 - 122

73 - 120

91

109

#### Client Sample ID: MW-206\_111224

#### Date Collected: 11/12/24 10:10

Dibromofluoromethane (Surr)

Toluene-d8 (Surr)

#### Date Received: 11/15/24 08:00

Method: SW846 8260D - Volatile Organic Compounds by GC/MS											
Analyzed Di	Dil F	Fac									
11/21/24 18:38		1									
11/22/24 18:05		25									
11/22/24 18:05		25									
11/21/24 18:38		1									
	11/22/24 18:05	11/22/24 18:05									

Surrogate	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	135	62 - 137		11/21/24 18:38	1
1,2-Dichloroethane-d4 (Surr)	136	62 - 137		11/22/24 18:05	25
4-Bromofluorobenzene (Surr)	86	56 - 136		11/21/24 18:38	1
4-Bromofluorobenzene (Surr)	81	56 - 136		11/22/24 18:05	25
Toluene-d8 (Surr)	100	78 - 122		11/21/24 18:38	1
Toluene-d8 (Surr)	99	78 - 122		11/22/24 18:05	25
Dibromofluoromethane (Surr)	118	73 - 120		11/21/24 18:38	1
Dibromofluoromethane (Surr)	115	73 - 120		11/22/24 18:05	25

#### Client Sample ID: MW-206S\_111224

#### Date Collected: 11/12/24 11:25

Date Received: 11/15/24 08:00

Method: SW846 8260D - Volati	le Organic Comp	ounds by G	SC/MS						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/21/24 16:17	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/21/24 16:17	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/21/24 16:17	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/21/24 16:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	124		62 - 137			-		11/21/24 16:17	1
4-Bromofluorobenzene (Surr)	76		56 - 136					11/21/24 16:17	1
Toluene-d8 (Surr)	91		78 - 122					11/21/24 16:17	1
Dibromofluoromethane (Surr)	106		73 - 120					11/21/24 16:17	1

#### Lab Sample ID: 240-215037-1 Matrix: Water

**Eurofins Cleveland** 

#### Lab Sample ID: 240-215037-2

11/21/24 15:57

11/21/24 15:57

Matrix: Water

1

1

#### Lab Sample ID: 240-215037-3 Matrix: Water

#### Client Sample ID: MW-202\_111224

#### Date Collected: 11/12/24 12:50

Date Received: 11/15/24 08:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/21/24 16:37	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/21/24 16:37	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/21/24 16:37	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/21/24 16:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	134		62 - 137					11/21/24 16:37	1
4-Bromofluorobenzene (Surr)	84		56 - 136					11/21/24 16:37	1
Toluene-d8 (Surr)	97		78 - 122					11/21/24 16:37	1
Dibromofluoromethane (Surr)	119		73 - 120					11/21/24 16:37	1

#### Client Sample ID: MW-202S\_111224

#### Date Collected: 11/12/24 14:10

#### Date Received: 11/15/24 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
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/21/24 16:57	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/21/24 16:57	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/21/24 16:57	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/21/24 16:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	140	<del>\$1+</del>	62 - 137			-		11/21/24 16:57	1
4-Bromofluorobenzene (Surr)	88		56 - 136					11/21/24 16:57	1
Toluene-d8 (Surr)	105		78 - 122					11/21/24 16:57	1
Dibromofluoromethane (Surr)	124	<u>\$1+</u>	73 - 120					11/21/24 16:57	1

#### Lab Sample ID: 240-215037-4 Matrix: Water

Job ID: 240-215037-1

Lab Sample ID: 240-215037-5 Matrix: Water



## Ford Motor Company – Livonia Transmission Project

## **Data Review**

## Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG # 240-215040-1 CADENA Verification Report: 2024-11-26

Analyses Performed By: Eurofins Cleveland Barberton, Ohio

Report # 56935R Review Level: Tier III Project: 30206169.0401.02

### **SUMMARY**

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-215040-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III) include a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample	Parent Sample	Ana	ysis
Sample ID		INIALITA	Collection Date	Parent Sample	VOC	VOC SIM
TRIP BLANK_62	240-215040-1	Water	11/13/2024		Х	
MW-203_111324	240-215040-2	Water	11/13/2024		Х	
MW-203S_111324	240-215040-3	Water	11/13/2024		Х	

#### ANALYTICAL DATA PACKAGE DOCUMENTATION

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

	Items Reviewed		Reported		mance otable	Not	
		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. 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	Water	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl

All samples were analyzed within the specified holding time criteria.

#### 2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable, and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

#### 3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

#### 3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (20%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

#### 3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

#### 4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

#### 5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

A field duplicate sample was not collected for samples from this SDG.

#### 6. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

#### 7. System Performance and Overall Assessment

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

#### DATA VALIDATION CHECKLIST FOR VOCs

VOCs: 8260D	Rep	orted		rmance eptable	Not Required
	No	Yes	No	Yes	Required
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GO	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		X	
E. Reporting limits adjusted to reflect sample dilutions		Х		Х	
Notes:					

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY:	Bindu Sree M B
SIGNATURE:	BASHMB
DATE:	December 16, 2024

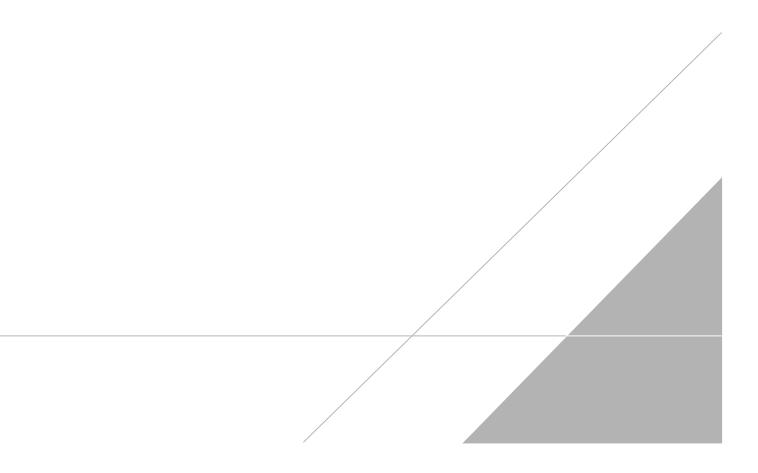
PEER REVIEW: Andrew Korycinski

DATE: December 19, 2024

## NO CORRECTIONS/QUALIFERS ADDED TO SAMPLE ANALYSIS DATA SHEETS



# CHAIN OF CUSTODY CORRECTED SAMPLE ANALYSIS DATA SHEETS



Chain of Custody Record



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Address: 28550 Cabot Drive, Suite 500     Telephone: 7       City/State/Zip: Novi, MI, 48377     Email: krist       Phone: 248-994-2240     Sampler Na       Project Name: Ford LTP     Gac	ihipment/Carrier:	Telephor	antact: Christina Weaver		Lab Contact: Mi Telephone: 330-4		TestAmerica Laboratories, Inc. COC No: 1 of 1 COCs For lab use only Walk-in client
Address: 28550 Cabot Drive, Suite 500         Telephone: 7           City/State/Zip: Novi, MI, 48377         Email: krist           'hone: 248-994-2240         Sampler Na           'roject Name: Ford LTP         Gas           'roject Number: 30206169.0401.03         Method of S	248-994-2240 toffer.hinskey@arcadis.com me: ロテにサイレンス shipment/Carrier:	Telephor Anal TAT ir an	aliferent from below	F		497-9396	For lab use only
City/State/Zip: Novi, M1, 48377       Email: krist         Phone: 248-994-2240       Sampler Na         Project Name: Ford LTP       Gac         Project Number: 30206169.0401.03       Method of S	toffer.hinskey@arcadis.com me: PFCHLINK Shipment/Carrier:	Anal TAT if dif	different from below		Telephone: 330-		For lab use only
Phone: 248-994-2240 Project Name: Ford LTP Project Number: 30206169.0401.03 Email: krist Gauce Record State	ime: prett Link ihipment/Carrier:	TAT if dif	different from below3 weeks			Analyses	
Project Name: Ford LTP Gac Project Number: 30206169.0401.03 Method of S	ihipment/Carrier:		3 weeks				Walk-in client
Project Number: 30206169.0401.03 Method of S	ihipment/Carrier:		3 weeks				
Project Number: 30206169.0401.03 Method of S	hipment/Carrier:	10 di	day 2 weeks				
			C 1 week	(3)		Σ	Lab sampling
PO # U\$3410018772 Shipping/Tr			2 days	I A	0 0		
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	Matrix	Cor	Containers & Preservatives	le=C 826(	B CE B	D D D	
Sample Identification Sample Da	ite Sample Time V	Other: H12SO4 HNO3	2 days 1 day 1 day	Composite=C/Grab=G 1,1-DCE 8260D	cis-1,2-DCE 8260D Trans-1,2-DCE 8260D PCE 8260D	TCE 8260D Vinyl Chloride 8260D 1,4-Dioxane 8260D S	Sample Specific Notes / Special Instructions:
TRIP BLANK_ (02	1			IG X	XXX	XX	1 Trip Blank
MW-203-111524 11/13/24	4 3		3	16 ×	×	┢╾┥╌┝╴┽╼┝╾┽╌┙	
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	4945 3	·	3 N	19	XX	XX	3 VOAs For 82600
MU-2035-111324 11/13/2	4 1045 3		3 N	16	××	× ×	V V
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		<b>⊢−−↓</b> −−'	<u>++++++</u>			<mark>┼╌┤╶╎╶╎╶┧╴┽</mark> ╌╵	240-21504C COC -
		( <b></b>	++++			$\frac{1}{1}$	
Possible Hazard Identification		Samr	mle Disnosal ( A fee may be asses	ered if samp	les are retained lo	anger than 1 month)	
Non-Hazard Tammable in Irritant Pc	oison B 👘 Jnknown	5	Return to Client 🔽 Dispo	osal By Lab	Archive	e For Months	
🔽 Non-Hazard 🗇 Tammable 🔽 tin-Irritant 🖉 Po	oison B Jhknown Levan Rel; Livonia	5		sed if samp sal By Lab	les are retained lo	inger than 1 month) e For Months	

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#### Qualifiers

GC/MS VOA	
Qualifier	Qualifier Description
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

#### Client Sample ID: TRIP BLANK\_62

#### Date Collected: 11/13/24 00:00

Date Received: 11/15/24 08:00

Method: SW846 8260D - Volati	ile Organic Comp	ounds by G	SC/MS						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/22/24 12:52	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/22/24 12:52	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/22/24 12:52	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/22/24 12:52	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/22/24 12:52	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/22/24 12:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		62 - 137			-		11/22/24 12:52	1

1,2-Dichloroethane-d4 (Surr)	105	62 - 137	11/22/24 12:52	1
4-Bromofluorobenzene (Surr)	100	56 - 136	11/22/24 12:52	1
Toluene-d8 (Surr)	100	78 - 122	11/22/24 12:52	1
Dibromofluoromethane (Surr)	93	73 - 120	11/22/24 12:52	1

#### Client Sample ID: MW-203\_111324

#### Date Collected: 11/13/24 09:45

Date	<b>Received:</b>	11/15/24	08:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	62		50	23	ug/L			11/22/24 13:15	50
trans-1,2-Dichloroethene	180		50	26	ug/L			11/22/24 13:15	50
Trichloroethene	1300		50	22	ug/L			11/22/24 13:15	50
Vinyl chloride	50	U	50	23	ug/L			11/22/24 13:15	50
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		62 - 137			-		11/22/24 13:15	50
4-Bromofluorobenzene (Surr)	102		56 - 136					11/22/24 13:15	50
Toluene-d8 (Surr)	101		78 - 122					11/22/24 13:15	50
Dibromofluoromethane (Surr)	94		73 - 120					11/22/24 13:15	50

#### Client Sample ID: MW-203S\_111324

Date Collected: 11/13/24 10:45

#### Date Received: 11/15/24 08:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/22/24 13:37	1
trans-1,2-Dichloroethene	1.2		1.0	0.51	ug/L			11/22/24 13:37	1
Trichloroethene	50		1.0	0.44	ug/L			11/22/24 13:37	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/22/24 13:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		62 - 137			-		11/22/24 13:37	1
4-Bromofluorobenzene (Surr)	103		56 - 136					11/22/24 13:37	1
Toluene-d8 (Surr)	105		78 - 122					11/22/24 13:37	1
Dibromofluoromethane (Surr)	96		73 - 120					11/22/24 13:37	1

Job ID: 240-215040-1

Matrix: Water

## Lab Sample ID: 240-215040-2

Lab Sample ID: 240-215040-3

Matrix: Water

Matrix: Water