

**Environment Testing** 

# **ANALYTICAL REPORT**

## PREPARED FOR

Attn: Kristoffer Hinskey ARCADIS US Inc 28550 Cabot Drive Suite 500 Novi, Michigan 48377 Generated 12/1/2023 1:33:21 PM Revision 1

JOB DESCRIPTION

Ford LTP - Off Site

## **JOB NUMBER**

240-195844-1

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

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## Qualifiers

GC/MS VO		
Qualifier	Qualifier Description	
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.	
U	Indicates the analyte was analyzed for but not detected.	

### Glossary

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

#### Job ID: 240-195844-1

#### Laboratory: Eurofins Cleveland

#### Narrative

Job Narrative 240-195844-1

Report revised on 12/1/2023 to report to the correct site.

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 are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample 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 11/21/2023 10:35 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.2°C and 3.9°C

#### GC/MS VOA

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

### **Method Summary**

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

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

#### **Protocol References:**

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

#### Laboratory References:

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

## Sample Summary

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-195844-1	TRIP BLANK_120	Water	11/17/23 00:00	11/21/23 10:35
240-195844-2	MW-95S_111723	Water	11/17/23 12:25	11/21/23 10:35

#### Client Sample ID: TRIP BLANK\_120

#### No Detections.

### Client Sample ID: MW-95S\_111723

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Ргер Туре
cis-1,2-Dichloroethene	0.56	J	1.0	0.46	ug/L	1	_	8260D	Total/NA
Trichloroethene	0.76	J	1.0	0.44	ug/L	1		8260D	Total/NA
Vinyl chloride	0.62	J	1.0	0.45	ug/L	1		8260D	Total/NA

This Detection Summary does not include radiochemical test results.

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

#### Job ID: 240-195844-1

## Lab Sample ID: 240-195844-1

Lab Sample ID: 240-195844-2

#### Client Sample ID: TRIP BLANK\_120 Date Collected: 11/17/23 00:00 Date Received: 11/21/23 10:35

## Lab Sample ID: 240-195844-1

Matrix: Water

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Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/27/23 20:12	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/27/23 20:12	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/27/23 20:12	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/27/23 20:12	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/27/23 20:12	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/27/23 20:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)			62 - 137					11/27/23 20:12	1
4-Bromofluorobenzene (Surr)	85		56 - 136					11/27/23 20:12	1
Toluene-d8 (Surr)	106		78 - 122					11/27/23 20:12	1
Dibromofluoromethane (Surr)	99		73 - 120					11/27/23 20:12	1

#### Client Sample ID: MW-95S\_111723 Date Collected: 11/17/23 12:25 Date Received: 11/21/23 10:35

#### Job ID: 240-195844-1

#### Lab Sample ID: 240-195844-2 Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/30/23 03:21	1	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
1,2-Dichloroethane-d4 (Surr)	100		66 - 120					11/30/23 03:21	1	
Method: SW846 8260D - Vo	latile Organic	Compound	ds by GC/MS							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/28/23 01:13	1	1
cis-1,2-Dichloroethene	0.56	J	1.0	0.46	ug/L			11/28/23 01:13	1	
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/28/23 01:13	1	
rans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/28/23 01:13	1	
Trichloroethene	0.76	J	1.0	0.44	ug/L			11/28/23 01:13	1	
Vinyl chloride	0.62	J	1.0	0.45	ug/L			11/28/23 01:13	1	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
1,2-Dichloroethane-d4 (Surr)			62 - 137					11/28/23 01:13	1	
4-Bromofluorobenzene (Surr)	79		56 - 136					11/28/23 01:13	1	
Toluene-d8 (Surr)	103		78 - 122					11/28/23 01:13	1	
Dibromofluoromethane (Surr)	100		73 - 120					11/28/23 01:13	1	

### **Surrogate Summary**

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

			Pe	ercent Surro	gate Recovery (Acceptance Limits)	
		DCA	BFB	TOL	DBFM	
_ab Sample ID	Client Sample ID	(62-137)	(56-136)	(78-122)	(73-120)	
240-195749-C-2 MS	Matrix Spike	102	98	109	99	
240-195749-C-2 MSD	Matrix Spike Duplicate	101	97	108	99	
240-195844-1	TRIP BLANK_120	110	85	106	99	
40-195844-2	MW-95S_111723	111	79	103	100	
.CS 240-595841/5	Lab Control Sample	103	97	108	99	
AB 240-595841/8	Method Blank	107	84	101	98	
Surrogate Legend						
DCA = 1,2-Dichloroeth	ane-d4 (Surr)					
BFB = 4-Bromofluorob	enzene (Surr)					
TOL = Toluene-d8 (Su	rr)					
DBFM = Dibromofluor	omethane (Surr)					
othod: 8260D S	IM - Volatile Organic	Compound	de (GC/			
atrix: Water		Compound	43 (00/	<b>MO</b> )	Prep Ty	pe: Total/N
			Pa	arcent Surr	gate Recovery (Acceptance Limits)	
		DCA		Joon Oun		

		DCA
Lab Sample ID	Client Sample ID	(66-120)
240-195844-2	MW-95S_111723	100
500-242755-B-10 MS	Matrix Spike	100
500-242755-C-10 MSD	Matrix Spike Duplicate	101
_CS 240-596115/4	Lab Control Sample	103
MB 240-596115/6	Method Blank	103

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

Job ID: 240-195844-1

Prep Type: Total/NA

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

#### Lab Sample ID: MB 240-595841/8 Matrix: Water

### Analysis Batch: 595841

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/27/23 18:31	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/27/23 18:31	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/27/23 18:31	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/27/23 18:31	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/27/23 18:31	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/27/23 18:31	1

	MB	МВ				
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		62 - 137		11/27/23 18:31	1
4-Bromofluorobenzene (Surr)	84		56 - 136		11/27/23 18:31	1
Toluene-d8 (Surr)	101		78 - 122		11/27/23 18:31	1
Dibromofluoromethane (Surr)	98		73 - 120		11/27/23 18:31	1

#### Lab Sample ID: LCS 240-595841/5 Matrix: Water Analysis Batch: 595841

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,1-Dichloroethene	25.0	24.4		ug/L		97	63 - 134	
cis-1,2-Dichloroethene	25.0	22.5		ug/L		90	77 - 123	
Tetrachloroethene	25.0	27.1		ug/L		109	76 - 123	
trans-1,2-Dichloroethene	25.0	23.2		ug/L		93	75 - 124	
Trichloroethene	25.0	23.4		ug/L		94	70 - 122	
Vinyl chloride	12.5	10.5		ug/L		84	60 - 144	

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	103		62 - 137
4-Bromofluorobenzene (Surr)	97		56 - 136
Toluene-d8 (Surr)	108		78 - 122
Dibromofluoromethane (Surr)	99		73 - 120

#### Lab Sample ID: 240-195749-C-2 MS Matrix: Water Analysis Batch: 595841

·····,									
	Sample	Sample	Spike	MS	MS				%Rec
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
1,1-Dichloroethene	20	U	500	473		ug/L		95	56 - 135
cis-1,2-Dichloroethene	49		500	496		ug/L		89	66 - 128
Tetrachloroethene	20	U	500	494		ug/L		99	62 - 131
trans-1,2-Dichloroethene	20	U	500	447		ug/L		89	56 - 136
Trichloroethene	20	U	500	435		ug/L		87	61 - 124
Vinyl chloride	690		250	900		ug/L		83	43 - 157
	MS	MS							
Surrogate	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	102		62 - 137						
4-Bromofluorobenzene (Surr)	98		56 - 136						
Toluene-d8 (Surr)	109		78 - 122						

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

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**Client Sample ID: Matrix Spike** 

Prep Type: Total/NA

## **QC Sample Results**

Job ID: 240-195844-1

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

Analysis Batch: 595841	49-C-2 MS						CI	ient Sa	mple ID: Ma Prep Type		
Surrogate	MS %Recovery		Limits								
Dibromofluoromethane (Surr)	99		73 - 120								
Lab Sample ID: 240-1957 Matrix: Water	49-C-2 MSD					Client Sa	amp	le ID: N	latrix Spike Prep Type		
Analysis Batch: 595841	•	<b>.</b> .	• •						a. –		
	Sample	-	Spike		MSD		_	a/ <b>-</b>	%Rec		RP
Analyte		Qualifier	Added		Qualifier	Unit	_ <u>D</u>	%Rec		RPD	Lim
1,1-Dichloroethene		0	500	470		ug/L		94	56 - 135	1	2
cis-1,2-Dichloroethene	49 20		500	482		ug/L		87	66 - 128	3	1
Tetrachloroethene			500	479		ug/L		96	62 - 131	3	2
trans-1,2-Dichloroethene	20		500	445		ug/L		89 86	56 - 136 61 - 134	0	1
Trichloroethene	20	U	500	431		ug/L		86	61 - 124	1	1
Vinyl chloride	690		250	893		ug/L		80	43 - 157	1	2
	MSD	MSD									
Surrogate	%Recovery	Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	101		62 - 137								
4-Bromofluorobenzene (Surr)	97		56 - 136								
Toluene-d8 (Surr)	108		78 - 122								
Dibromofluoromethane (Surr)	99		73 - 120								
Lab Sample ID: MB 240-5			ompounds	5 (GC/IN)	5)		Clie	ent Sam	ple ID: Met		
Lab Sample ID: MB 240-5 Matrix: Water			ompounds	6 (GC/M	5)		Clie	ent Sam	nple ID: Met Prep Type		
Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 596115	96115/6	MB MB							Prep Type	: <b>To</b> i	tal/N
Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 596115 Analyte	96115/6	MB MB sult Qualit	ier	RL	MDL Unit	<u>D</u>		ent Sam	Prep Type Analyzed	: <b>To</b> i	tal/N/ Dil Fa
Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 596115	96115/6	MB MB sult Qualit 2.0 U	ier	RL		<u>D</u>			Prep Type	: <b>To</b> i	tal/N/ Dil Fa
Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 596115 Analyte 1,4-Dioxane	96115/6 Re	MB MB sult Qualit 2.0 U MB MB	ier	<b>RL</b>	MDL Unit	<u>D</u>	P	repared	Prep Type 	: <b>To</b>	tal/N/ Dil Fa
Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 596115 Analyte 1,4-Dioxane Surrogate	96115/6 Re	MB MB sult Qualit 2.0 U MB MB very Qualit	ier	RL	MDL Unit	<u>D</u>	P		Analyzed           11/29/23 19           Analyzed	: <b>To</b>	Dil Fa
Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 596115 Analyte 1,4-Dioxane Surrogate	96115/6 Re	MB MB sult Qualit 2.0 U MB MB	ier	RL	MDL Unit	<u>D</u>	P	repared	Prep Type 	: <b>To</b>	tal/N Dil Fa
Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 596115 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water	96115/6 Re %Record	MB MB sult Qualit 2.0 U MB MB very Qualit	ier	RL	MDL Unit		P	repared repared	Analyzed           11/29/23 19           Analyzed	: Tot 45 - 45 -	Dil Fa Dil Fa Dil Fa
Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 596115 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water	96115/6 Re %Record	MB MB sult Qualit 2.0 U MB MB very Qualit	fier	<b>RL</b> 2.0 <b>s</b> 20	MDL Unit 0.86 ug/L		P	repared repared	Analyzed           11/29/23 19           Analyzed           11/29/23 19           Lab Contr           Prep Type	: Tot 45 - 45 -	Dil Fa Dil Fa Dil Fa
Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 596115 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water Analysis Batch: 596115	96115/6 Re %Record	MB MB sult Qualit 2.0 U MB MB very Qualit	fier Limits 66 - 12	RL 2.0 s 20 LCS	MDL Unit 0.86 ug/L	Client	  : Sai	repared repared mple ID	Prep Type <u>Analyzed</u> 11/29/23 19 <u>Analyzed</u> 11/29/23 19 <b>Characle Contr</b> Prep Type %Rec	: Tot 45 - 45 -	tal/N/ Dil Fa Dil Fa
Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 596115 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water Analysis Batch: 596115 Analyte	96115/6 Re %Record	MB MB sult Qualit 2.0 U MB MB very Qualit	fier <u>Fier Limit</u> : 66 - 1 Spike Added	RL 2.0 s 20 LCS Result	MDL Unit 0.86 ug/L LCS Qualifier	Client	P	repared repared mple ID %Rec	Analyzed           4nalyzed           11/29/23 19           4nalyzed           11/29/23 19           11/29/23 19           11/29/23 19           11/29/23 19           11/29/23 19           Kec           Limits	: Tot 45 - 45 -	Dil Fa Dil Fa Dil Fa
Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 596115 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water Analysis Batch: 596115 Analyte	96115/6 	MB MB sult Qualit 2.0 U MB MB very Qualit 103	fier Limits 66 - 12	RL 2.0 s 20 LCS	MDL Unit 0.86 ug/L LCS Qualifier	Client	  : Sai	repared repared mple ID	Prep Type <u>Analyzed</u> 11/29/23 19 <u>Analyzed</u> 11/29/23 19 <b>Characle Contr</b> Prep Type %Rec	: Tot 45 - 45 -	Dil Fa Dil Fa Dil Fa
Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 596115 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water Analysis Batch: 596115 Analyte 1,4-Dioxane	96115/6 Re  596115/4 	MB MB sult Qualit 2.0 U MB MB very Qualit 103	fier <u>Fier Limit</u> : 66 - 1 Spike Added	RL 2.0 s 20 LCS Result	MDL Unit 0.86 ug/L LCS Qualifier	Client	  : Sai	repared repared mple ID %Rec	Analyzed           4nalyzed           11/29/23 19           4nalyzed           11/29/23 19           11/29/23 19           11/29/23 19           11/29/23 19           11/29/23 19           Kec           Limits	: Tot 45 - 45 -	Dil Fa Dil Fa Dil Fa
Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 596115 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water Analysis Batch: 596115 Analyte 1,4-Dioxane <i>Surrogate</i>	96115/6 	MB MB sult Qualit 2.0 U MB MB very Qualit 103	ier ier ier 66 - 1 66 - 1 66 - 1 10.0  10.0  Limits	RL 2.0 s 20 LCS Result	MDL Unit 0.86 ug/L LCS Qualifier	Client	  : Sai	repared repared mple ID %Rec	Analyzed           4nalyzed           11/29/23 19           4nalyzed           11/29/23 19           11/29/23 19           11/29/23 19           11/29/23 19           11/29/23 19           Kec           Limits	: Tot 45 - 45 -	tal/N/ Dil Fa Dil Fa
Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 596115 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water Analysis Batch: 596115 Analyte 1,4-Dioxane <i>Surrogate</i>	96115/6 Re  596115/4 	MB MB sult Qualit 2.0 U MB MB very Qualit 103	fier	RL 2.0 s 20 LCS Result	MDL Unit 0.86 ug/L LCS Qualifier	Client	  : Sai	repared repared mple ID %Rec	Analyzed           4nalyzed           11/29/23 19           4nalyzed           11/29/23 19           11/29/23 19           11/29/23 19           11/29/23 19           11/29/23 19           Kec           Limits	: Tot 45 - 45 -	Dil Fa Dil Fa Dil Fa
Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 596115 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water Analysis Batch: 596115 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: 500-2427	96115/6 Recor 596115/4     	MB MB sult Qualit 2.0 U MB MB very Qualit 103	ier ier ier 66 - 1 66 - 1 66 - 1 10.0  10.0  Limits	RL 2.0 s 20 LCS Result	MDL Unit 0.86 ug/L LCS Qualifier	Client	 	repared repared mple ID <u>%Rec</u> 107	Analyzed           11/29/23 19           Analyzed           11/29/23 19           Analyzed           11/29/23 19           Example           Malyzed           11/29/23 19           Example           Malyzed           11/29/23 19           Example           Malyzed           11/29/23 19           Example           Malyzed           WRec           Limits           80 - 122           mple ID: Malyzed	: Tot	tal/N/ Dil Fa Dil Fa ampl tal/N/
Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 596115 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water Analysis Batch: 596115 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: 500-2427 Matrix: Water	96115/6 Recor 596115/4     	MB MB sult Qualit 2.0 U MB MB very Qualit 103	ier ier ier 66 - 1 66 - 1 66 - 1 10.0  10.0  Limits	RL 2.0 s 20 LCS Result	MDL Unit 0.86 ug/L LCS Qualifier	Client	 	repared repared mple ID <u>%Rec</u> 107	Analyzed           11/29/23 19           Analyzed           11/29/23 19           Analyzed           11/29/23 19           Example           Malyzed           11/29/23 19           Example           Malyzed           11/29/23 19           Example           Malyzed           11/29/23 19           Example           Malyzed           Water           Water           Water           80 - 122	: Tot	tal/N/ Dil Fa Dil Fa ample tal/N/
Aethod: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 596115 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water Analysis Batch: 596115 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: 500-2427 Matrix: Water Analysis Batch: 596115	96115/6 	MB MB sult Qualit 2.0 U MB MB very Qualit 103	fier	RL           2.0           s           20           LCS           Result           10.7	MDL Unit 0.86 ug/L LCS Qualifier	Client	 	repared repared mple ID <u>%Rec</u> 107	Prep Type Analyzed 11/29/23 19 Analyzed 11/29/23 19 : Lab Contr Prep Type %Rec Limits 80 - 122 mple ID: Ma Prep Type	: Tot	tal/N/ Dil Fa Dil Fa ample tal/N/
Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 596115 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water Analysis Batch: 596115 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: 500-2427 Matrix: Water	96115/6 	MB MB sult Qualit 2.0 U MB MB very Qualit 103	ier ier ier 66 - 1 66 - 1 66 - 1 10.0  10.0  Limits	RL           2.0           s           20           LCS           Result           10.7	MDL Unit 0.86 ug/L LCS Qualifier	Client	 	repared repared mple ID <u>%Rec</u> 107	Analyzed           11/29/23 19           Analyzed           11/29/23 19           Analyzed           11/29/23 19           Example           Malyzed           11/29/23 19           Example           Malyzed           11/29/23 19           Example           Malyzed           11/29/23 19           Example           Malyzed           WRec           Limits           80 - 122           mple ID: Malyzed	: Tot	Dil Fa Dil Fa ample tal/N/

10

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

	MS	MS										
Surrogate	%Recovery	Qualifier	Limits									
1,2-Dichloroethane-d4 (Surr)	100		66 - 120									
_ Lab Sample ID: 500-2427	55-C-10 MSF	<b>,</b>				Client	Samn		Aatrix Spil	ke Dun	licate	
Matrix: Water						Unon	Cump		Prep Ty			
Analysis Batch: 596115												
-	Sample	Sample	Spike	MSD	MSD				%Rec		RPD	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	-
1,4-Dioxane	2.0	U	10.0	10.8		ug/L		108	51 - 153	0	16	
	MSD	MSD										
Surrogate	%Recovery	Qualifier	Limits									
1,2-Dichloroethane-d4 (Surr)	101		66 - 120									-

#### Analysis Batch: 595841

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-195844-1	TRIP BLANK_120	Total/NA	Water	8260D	
240-195844-2	MW-95S_111723	Total/NA	Water	8260D	
MB 240-595841/8	Method Blank	Total/NA	Water	8260D	
LCS 240-595841/5	Lab Control Sample	Total/NA	Water	8260D	
240-195749-C-2 MS	Matrix Spike	Total/NA	Water	8260D	
240-195749-C-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

#### Analysis Batch: 596115

Lab Sample ID 240-195844-2	Client Sample ID MW-95S_111723	Prep Type Total/NA	Matrix Water	Method 8260D SIM	Prep Batch
MB 240-596115/6	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-596115/4	Lab Control Sample	Total/NA	Water	8260D SIM	
500-242755-B-10 MS	Matrix Spike	Total/NA	Water	8260D SIM	
500-242755-C-10 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

Lab Sample ID: 240-195844-1

#### Client Sample ID: TRIP BLANK\_120 Date Collected: 11/17/23 00:00 Data Pacaivad: 11/21/23 10:35

	Batch	Batch		Dilution	Batch			Prepared	
Ргер Туре	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed	
Total/NA	Analysis	8260D		1	595841	CDG	EET CLE	11/27/23 20:12	
lient Sam	ple ID: MW	-958 111723					Lab	Sample ID: 2	40-195844-
ate Collecte	d: 11/17/23 1	2:25							Matrix: Wate
	d: 11/17/23 1 d: 11/21/23 1								Matrix: Wate
				Dilution	Batch			Prepared	Matrix: Wate
ate Receive	d: 11/21/23 1	0:35	Run	Dilution Factor		Analyst	Lab	Prepared or Analyzed	Matrix: Wate
	d: 11/21/23 1 Batch	0:35 Batch	Run		Number	Analyst CDG	Lab EET CLE	•	Matrix: Wate

#### Laboratory References:

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

**12** 13

Client: ARCADIS US Inc Project/Site: Ford LTP - Off Site Job ID: 240-195844-1

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#### Laboratory: Eurofins Cleveland

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

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

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

TestA	TestAmerica Laboratory location: Brighton	1	Chain of Custody Record 10448 Citation Drive, Suite 200 / Brichton, MI 48116 / 810-229-2763	Record	/ 810-229-	2763	processing of the second		TIGA	III GANestAmerica	<b>O</b>
Client Contact	Regulatory program:	leaver	NPDES	RCRA	Other				-IVU		
Company Name: Arcadis										TestAmerica Laboratories,	Inc.
Address: 28550 Cabot Drive, Suite 500	Client Project Manager: Kris Hinskey		Site Contact: Christina Weaver	na Weaver		Lab Contact: Mike DelMonico	: Mike Del	Aonico		COC No:	
City/State/Zip: Novi. MI. 48377	Telephone: 248-994-2240	E	Telephone: 248-994-2293	2293		Telephone: 330-497-9396	(30-497-93	9			Π
Phone: 248.004.7240	Email: kristoffer.hinskey@arcadis.com	E	Analysis Turnaround Time	ound Time	Ц		Y	Analyses		1 of 1 COCs For lab use only	
LIGHT, 240-77-2240 Projost Names Pard I TD Aff Cits.	Sampler Name: 0 1 / 1		rAT if different from below	-	ray a sa ay					Walk-in client	
	IVUIAN Schendel		10 day ~ 2	s weeks 2 weeks	na arti					f is to committee	<del>,</del>
Project Number: 30146655.402.04	Method of Shipment/Carrier:			a dechara	instant of the	8				Smithing our	0000000
PO # 30146655.402.04	Shipping/Tracking No:		- -	<u>aine eller</u>	(Grab					Job/SDQ Not	energangen.
		Matrix	Containers & Preservatis	<b>S</b>	()=91						
Sample Identification	Veneous Veneou	Sediment Solid Other:	<u>т</u> ण्फ€\ И <sup>8</sup> ОН НСІ НИО3 Н52О <del>4</del>	Filtered S Unpres Another:	Composit SOT-1,1	cis-1,2-D( C,1-2-D(	LCE 8260	DIAO IyniV ■ ■		Sample Specific Notes / Special Instructions:	
/ TRIP BLANK_ 120			-	Z	X U	× ×	$\times$	×		1 Trip Blank	
~ MW-955_111723	11/17/23 1225 6		و	N	N N	XX	イメ	メメ		3 VOAs for 8260B 3 VOAs for 8260B SIM	
Pa											
je 18				<b>-</b>			+	<u> </u>			
s of 2											
0					240-1958						
							of Custoc	2			
Possible Hazard Identification	ant Poison B Unknown	uv.	Sample Disposal (	Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month) A Return to Client & Disposal By Lab Archive For Mon	ssed if samp sal By Lab	les are retai	ed longer t	han 1 mon	nth) Months		
Boston Por dena at jtomalia@	.com. Cadena #E203631			-							
Level IV Reporting requested. Relimenshed by		te/Time.	Baran	od h			c				Т
Nolar Schender	nd:S	53	647 NO	Cold	Syorage	0		Arcad.S	\$	Date/Time: 111.0123 1647	
Relinquished by:	adus	Date/Time: 11/20/23 10	1030 Received by	ed by M	wit		Com	Company	a d	Date/Time:	
Reinquished by: L. R.U.S.	Company:	ite/Time; 1/10/33 10	630	Received in Laboratory by	Str Jen	)	Com	Comments	J	10	5
2006. Trestymenta Laborationes. Inc. All gytis reserved. 2000. South and the standards of fest/mentical Laboratores. Inc. 2005.				Q	Λ.						]
(Rev.											

1) " 6 (R

195014
Eurofins - Cleveland Sample Receipt Form/Narrative Login # :
Barberton Facility
Client Arcadi S Site Name Cooler unpacked by:
Cooler Received on 11-21-23 Opened on 11-21-23 Hamphy
FedEx: 1 <sup>st</sup> Grd Exp) UPS FAS Waypoint Client Drop Off Eurofins Courier Other
Receipt After-houre. Drop-off Date/Time Storage Location
Eurofins Cooler # Foam Box Client Cooler Box Other
Packing material used: Rubble Whap Foam Plastic Bag None Other
COOLANT: Wet Ice Blue Ice Dry Ice Water None
1. Cooler temperature upon receipt
IR GUN # (CF_+ $2.0$ °C) Observed Cooler Temp °C Corrected Cooler Temp °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity COCh Yes No
-Were the seals on the outside of the cooler(s) signed & dated? Were the seals on the outside of the cooler(s) signed & dated? Were the seals on the outside of the cooler(s) signed & dated?
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No. Receiving:
-Were tamper/custody seals intact and uncompromised? 3 Shippers' packing slip attached to the cooler(s)?
5. Simplers packing sin attached to the coord (s):
<ul> <li>4. Did custody papers accompany the sample(s)?</li> <li>5. Were the custody papers relinquished &amp; signed in the appropriate place?</li> <li>Yes No</li> <li>Yes No</li> </ul>
6. Was/were the person(s) who collected the samples clearly identified on the COC? (No No No
<ol> <li>Did all bottles arrive in good condition (Unbroken)?</li> <li>Could all bottle labels (ID/Date/Time) be reconciled with the COC?</li> <li>Yes No</li> </ol>
<ol> <li>8. Could all bottle labels (ID/Date/Time) be reconciled with the COC?</li> <li>9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp(Y/N)?</li> </ol>
10. Were correct bottle(s) used for the test(s) indicated?
12. Are these work share samples and all listed on the COC? Yes No If yes, Questions 13-17 have been checked at the originating laboratory.
13. Were all preserved sample(s) at the correct pH upon receipt?
14. Were VOAs on the COC?
15. Were air bubbles >6 mm in any VOA vials?  Larger than this A to Yes No NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # Yes No
17. Was a LL Hg or Me Hg trip blank present?Yes (No)
Contacted PM Date by via Verbal Voice Mail Other
Concerning
18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES  additional next page Samples processed by:
19. SAMPLE CONDITION
Sample(s) were received after the recommended holding time had expired.
Sample(s) were received in a broken container.         Sample(s) were received with bubble >6 mm in diameter. (Notify PM)
20. SAMPLE PRESERVATION
Sample(s) were further preserved in the laboratory.
Sample(s)
VOA Sample Preservation - Date/Time VOAs Frozen:

	Eurofins - Ca	inton Sample Receipt	Multiple Cooler Form	
Cooler Descrip		Observed	Corrected	Coolani
(Circle)	(Circle)	Temp °C	Temp °C	- (Circle)
EC Cliem Box	Other IR GUN #;	- 3.7	3.9	Welke Blue Ice Dyke Water None
EC Client Box	Other IR GUN #:	t 1.2	2.2	Welk Blue Ice Dy ke Water None
EC Client Box	Other IR GUN #:			Wellice Blue Ice Dylice Water None
IC Client Box	Other IR GUN #:			Wellice Blue ice Divice Water None
	Other IR GUN #:			Wellice Bluelice Bylce
	Other IR GVN #:			Wet ice Blue ice By ice
	P CHIL			Weler None Welice Sive Ice Dyke
	Other R GUN #:			Water Nose Wellice Sive Sce Bylice
	Canter In Canto A.			Welse None Welse Noe Sce Bylee
				Weise None Weize Sive Sce Mike
				Weber Mone Weber Blue Sce Bylce
EC Cloud Jak	Officer         It count :            It count :			Water Nene Water She ice hyle
IC Client Box	Other R GUN #:	1		Water Mone Water Mone
EC Client Box	<b>Ç</b>			Weler Hene
EC Clent Box	Other # GIN 1:			Weler None
BC Client Box	Other IX 6911 #:			Wellice Blue lice Bylice Water Mann
BC Client Box	Other X GAN #:			Wellice Blue Ice Bylee Water Mone
BC Client Box	Ollier IX GVN 6:			Wellice Blue lice Brylie Weller Nees
, BC Client Box	Other IR GUN 4:			Wellice Blue lice Bryke Water Blane
BC Client Box	Other IR GUN 5:			Wellice Blue lice Bryle Water Blace
BC Client Box	Other # GUN #:			Wellice Blue Sco Bryle Weller Name
BC Client Box	Other IR GUN #:			Wellice Sivelice Byle Weley Hone
BC Client Box	Diher # GUN #:			Wellice Sivelice Dyke Water Nene
BC Client Box (	other # GUN #:			Wellice Dive Ice Dylo Water Hone
tC Clent Jox (	Diher # GUN #:			Wellice Blue ice Dyks Water Hene
BC Client Box C	21. Star 1:			Wellice She lice Divise Weller Name
EC Clent Box C	Sher R GIN F:	1		Not ice Blue ice Dy ice Water Name
BC Clent Box C	ither IR GUN #:			Net Ice Blue Ice Dry to Water Mane
SC Client Box C				Vel Ice Blue Ice Divice Water Name
BC Client Box Q			and the second	let ice Blue ice Dryke Weier Blane
BC Client Box O	IS CHILLS.		1	let ice sive ice Dry ice
	ther R GUN F:		W	Water None of Ice Blue Ice Dry Ice
	ther IR GWN #:		W	Water None of Ice Sive Ice Dry Ice
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				Hister None Histe Blue iste Dry ist
EC Clent Lox Of	Rer			Water Nene ture Excursion Form
			E 946 Lauthala	

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

## **DATA VERIFICATION REPORT**



December 01, 2023

Kris Hinskey Arcadis Inc 10559 Citation Ave Suite 100 Brighton, MI 48116

CADENA project ID: E203631 Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater Project number: 30167538.402.04 off-site Event Specific Scope of Work References: Sample COC Laboratory: Eurofins Environment Testing LLC - Cleveland Laboratory submittal: 195844-1 Sample date: 2023-11-17 Report received by CADENA: 2023-12-01 Initial Data Verification completed by CADENA: 2023-12-01 Number of Samples:2 Sample Matrices:Water Test Categories:GCMS VOC Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

There were no significant QC anomalies or exceptions to report.

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

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

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

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

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

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

## **CADENA Valid Qualifiers**

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

## Analytical Results Summary

CADENA Project ID: E203631

Laboratory: Eurofins Environment Testing LLC - Cleveland Laboratory Submittal: 195844-1

	Sample Name: Lab Sample ID: Sample Date:	TRIP BL/ 2401958 11/17/2		)		MW-959 2401958 11/17/2	_ 3442	3	
			Report		Valid		Report		Valid
Analyte	Cas No.	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
GC/MS VOC									
<u>OSW-8260D</u>									
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l		ND	1.0	ug/l	
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l		0.56	1.0	ug/l	J
Tetrachloroethene	127-18-4	ND	1.0	ug/l		ND	1.0	ug/l	
trans-1,2-Dichloroethe	ene 156-60-5	ND	1.0	ug/l		ND	1.0	ug/l	
Trichloroethene	79-01-6	ND	1.0	ug/l		0.76	1.0	ug/l	J
Vinyl chloride	75-01-4	ND	1.0	ug/l		0.62	1.0	ug/l	J
OSW-8260DSIM									
1,4-Dioxane	123-91-1					ND	2.0	ug/l	



## Ford Motor Company – Livonia Transmission Project

# **Data Review**

## Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG # 240-195844-1 CADENA Verification Report: 2023-12-01

Analyses Performed By: Eurofins Cleveland Barberton, Ohio

Report # 52175R Review Level: Tier III Project: 30167538.402.02

## **SUMMARY**

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-195844-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III) include a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample	Barant Sampla	Analysis			
Sample ID		Matrix	Collection Date	Parent Sample	VOC	VOC SIM		
TRIP BLANK_120	240-195844-1	Water	11/17/2023		Х			
MW-95S_111723	240-195844-2	Water	11/17/2023		Х	Х		

#### DATA REVIEW

#### ANALYTICAL DATA PACKAGE DOCUMENTATION

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

	Items Reviewed	Rep	orted		mance otable	Not Required
		No	Yes	No	Yes	Required
1.	Sample receipt condition		Х		Х	
2.	Requested analyses and sample results		Х		Х	
3.	Master tracking list		Х		Х	
4.	Methods of analysis		Х		X	
5.	Reporting limits		Х		Х	
6.	Sample collection date		Х		Х	
7.	Laboratory sample received date		Х		X	
8.	Sample preservation verification (as applicable)		Х		Х	
9.	Sample preparation/extraction/analysis dates		Х		Х	
10.	Fully executed Chain-of-Custody (COC) form		Х		Х	
11.	Narrative summary of Quality Assurance or sample problems provided		х		х	
12.	Data Package Completeness and Compliance		Х		Х	

#### **ORGANIC ANALYSIS INTRODUCTION**

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260D and 8260D SIM. Data were reviewed in accordance with USEPA National Functional Guidelines for Organic Superfund Methods Data Review, EPA 540-R-20-005, November 2020 (with reference to the historical USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, OSWER 9240.1-05A-P, October 1999), as appropriate.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
  - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
  - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
  - E The compound was quantitated above the calibration range.
  - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
  - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
  - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
  - UB Analyte considered non-detect at the listed value due to associated blank contamination.
  - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

#### VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

#### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260D/8260D-SIM	Water	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCI

All samples were analyzed within the specified holding time criteria.

#### 2. Mass Spectrometer Tuning

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

System performance and column resolution were acceptable.

#### 3. Calibration

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

#### 3.1 Initial Calibration

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

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

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

#### 3.2 Continuing Calibration

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

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

#### 4. Internal Standard Performance

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

All internal standard responses were within control limits.

#### 5. Field Duplicate Analysis

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

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

#### DATA REVIEW

#### 6. Compound Identification

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

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 REVIEW

#### DATA VALIDATION CHECKLIST FOR VOCs

VOCs: 8260D/8260D-SIM	Rep	orted		rmance ptable	Not Required
	No	Yes	No	Yes	Nequireu
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (G	C/MS)				
Tier II Validation					
Holding times/Preservation		Х		X	
Tier III Validation		1		-	
System performance and column resolution		Х		X	
Initial calibration %RSDs		Х		Х	
Continuing calibration RRFs		Х		Х	
Continuing calibration %Ds		Х		Х	
Instrument tune and performance check		Х		Х	
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:	BASh_MB
DATE:	December 18, 2023

PEER REVIEW: Andrew Korycinski

DATE: December 20, 2023

# NO CORRECTIONS/QUALIFERS ADDED TO SAMPLE ANALYSIS DATA SHEETS



# CHAIN OF CUSTODY CORRECTED SAMPLE ANALYSIS DATA SHEETS



### **Chain of Custody Record**



Client Contact       Regulatory program:       DW       NPDEs       RCRA       Other         Company Name: Arcadis       Client Project Manager: Kris Hinskey       Site Contact: Christina Weaver       Lab Contact: Mike DelMonico       COC No:         Address: 28550 Cabot Drive, Suite 500       Telephone: 248-994-2240       Telephone: 248-994-2293       Telephone: 248-994-2293       Telephone: 300-497-9396       1 of 1 COCs         Phone: 248-994-2240       Sampler Name:       Malysis Turnaround Time       Analysis       For lab use only         Phone: 248-994-2240       TAT if different from below       Sampler Name:       Mol And Sign E Turnaround Time       Valkin elient         Project Name: Ford LTP Off-Site       Mol And Sign E Turnaround Time       TAT if different from below       3 weeks       1 of 2 COCs         Project Name: Ford LTP Off-Site       Mol And Sign E Turnaround Time       3 weeks       1 weeks       1 weeks       1 weeks         1 day       2 weeks       1 weeks	Tes	America Labora	tory location:	Brig	hton -	10	448 Citati	on Dr	ive, S	Suite	200 /	Brigh	nton,	, MI 48	116 /	/ 810-	-229-:	2763						_ 1	9(	)	1	* E L	EA EH NENVRO	NMENTA	IE STRACT
Address: 1359 Cable Brive, Nate Still         Closed Project Manager Kits Hindley         Bate Cable Cable Cable Cable Cables         Close Cables         Project Manager Kits Hindley         Ref Cables         Close Cables         Project Manager Kits Hindley         Ref Cables         Close Cables         Project Manager Kits Hindley         Ref Cable Cables         Project Manager Kits Hindley         Ref Kits Cables         Ref Kits Cables <thref cables<="" kits="" th="">         Ref Kits Cables</thref>		Regulat	tory program:			1	DW		NPI	DES		F	RCR	A		Othe	r 🦳	10000000mm		******			**********	_ A	. /\	J					
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<u>المجارعة</u>/1/2023

### Client Sample ID: TRIP BLANK\_120

#### Date Collected: 11/17/23 00:00

Date Received: 11/21/23 10:35

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/27/23 20:12	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/27/23 20:12	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/27/23 20:12	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/27/23 20:12	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/27/23 20:12	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/27/23 20:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		62 - 137		11/27/23 20:12	1
4-Bromofluorobenzene (Surr)	85		56 - 136		11/27/23 20:12	1
Toluene-d8 (Surr)	106		78 - 122		11/27/23 20:12	1
Dibromofluoromethane (Surr)	99		73 - 120		11/27/23 20:12	1

#### Client Sample ID: MW-95S\_111723 Date Collected: 11/17/23 12:25 Date Received: 11/21/23 10:35

trans-1,2-Dichloroethene

Trichloroethene

Lab Sample ID: 240-195844-2

11/28/23 01:13

11/28/23 01:13

1

1

**Matrix: Water** 

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/30/23 03:21	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		66 - 120			-		11/30/23 03:21	1
Method: SW846 8260D - Vo	olatile Organic	Compound	ds by GC/MS						
		Compound Qualifier	ds by GC/MS RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Analyte		Qualifier	-		Unit ug/L	<u>D</u>	Prepared	Analyzed	Dil Fac
Method: SW846 8260D - Vo Analyte 1,1-Dichloroethene cis-1,2-Dichloroethene	Result	Qualifier	RL		ug/L	<u> </u>	Prepared	,	Dil Fac 1

Vinyl chloride	0.62 J	1.0	0.45 ug/L		11/28/23 01:13	1
Surrogate	%Recovery Q	Qualifier Limits		Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111	62 - 137			11/28/23 01:13	1
4-Bromofluorobenzene (Surr)	79	56 - 136			11/28/23 01:13	1
Toluene-d8 (Surr)	103	78 - 122			11/28/23 01:13	1
Dibromofluoromethane (Surr)	100	73 - 120			11/28/23 01:13	1

1.0

1.0

0.51 ug/L

0.44 ug/L

1.0 U

0.76 J

### Lab Sample ID: 240-195844-1 Matrix: Water