🛟 eurofins

Environment Testing America

ANALYTICAL REPORT

Eurofins Canton 180 S. Van Buren Avenue Barberton, OH 44203 Tel: (330)497-9396

Laboratory Job ID: 240-167140-1

Client Project/Site: Ford LTP - Off Site

For:

..... Links

Review your project results through

EOL

Have a Question?

www.eurofinsus.com/Env

Visit us at:

Ask— The Expert ARCADIS U.S., Inc. 28550 Cabot Drive Suite 500 Novi, Michigan 48377

Attn: Kristoffer Hinskey

Mole Del your

Authorized for release by: 6/6/2022 11:49:04 AM

Michael DelMonico, Project Manager I (330)497-9396 Michael.DelMonico@et.eurofinsus.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1	Í
Table of Contents 2	2
Definitions/Glossary 3	3
Case Narrative 4	ł
Method Summary 5	5
Sample Summary 6	3
Detection Summary 7	7
Client Sample Results 8	3
Surrogate Summary 1	0
QC Sample Results 1	1
QC Association Summary 1	4
Lab Chronicle 1	15
Certification Summary 1	6
Chain of Custody 1	17

Qualifiers

Qualifiers		3
GC/MS VOA		
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.	5
Glossary		6
Abbreviation	These commonly used abbreviations may or may not be present in this report.	0
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis	7
%R	Percent Recovery	
CFL	Contains Free Liquid	0
CFU	Colony Forming Unit	0
CNF	Contains No Free Liquid	
DER	Duplicate Error Ratio (normalized absolute difference)	9
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"	13
MDA	Minimum Detectable Activity (Radiochemistry)	
MDC	Minimum Detectable Concentration (Radiochemistry)	
МП	Method Detection Limit	

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: 240-167140-1

Laboratory: Eurofins Canton

Narrative

Job Narrative 240-167140-1

Case Narrative

Comments

No additional comments.

Receipt

The samples were received on 5/24/2022 10:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.2° C and 2.2° C.

GC/MS VOA

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

VOA Prep

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

Method Summary

Client: ARCADIS U.S., Inc. Project/Site: Ford LTP - Off Site

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

Protocol References:

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

Laboratory References:

TAL CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Client: ARCADIS U.S., Inc. Project/Site: Ford LTP - Off Site

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-167140-1	TRIP BLANK_39	Water	05/20/22 00:00	05/24/22 10:00
240-167140-2	MW-147S_052022	Water	05/20/22 13:13	05/24/22 10:00

Detection Summary

Client: ARCADIS U.S., Inc. Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK_39

No Detections.

Client Sample ID: MW-147S_052022 Lab Sample ID: 240-16								40-167140-2		
	Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
	Vinyl chloride	0.73	J	1.0	0.45	ug/L	1	_	8260D	Total/NA

Job ID: 240-167140-1

Lab Sample ID: 240-167140-1

Client Sample ID: TRIP BLANK_39 Date Collected: 05/20/22 00:00 Date Received: 05/24/22 10:00

Lab Sample ID: 240-167140-1

Matrix: Water

5 6

8 9

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			06/02/22 18:40	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			06/02/22 18:40	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			06/02/22 18:40	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			06/02/22 18:40	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			06/02/22 18:40	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			06/02/22 18:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		62 - 137			-		06/02/22 18:40	1
4-Bromofluorobenzene (Surr)	107		56 - 136					06/02/22 18:40	1
Toluene-d8 (Surr)	90		78 - 122					06/02/22 18:40	1
Dibromofluoromethane (Surr)	85		73 - 120					06/02/22 18:40	1

Client Sample ID: MW-147S_052022 Date Collected: 05/20/22 13:13 Date Received: 05/24/22 10:00

- Method: 8260D SIM - Volatile Organic Compounds (GC/MS)										
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed		
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			06/02/22 01:43		
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed		
4 9 5 7 7 7 7 7 7 7 9 1	(~~ ~~~							

66 - 120

103

Surrogate	
1,2-Dichloroethane-d4 (Surr)	

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

Method: 8260D - Volatile Organic Compounds by GC/MS											
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	8	
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			06/02/22 19:03	1		
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			06/02/22 19:03	1	9	
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			06/02/22 19:03	1		
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			06/02/22 19:03	1		
Trichloroethene	1.0	U	1.0	0.44	ug/L			06/02/22 19:03	1		
Vinyl chloride	0.73	J	1.0	0.45	ug/L			06/02/22 19:03	1		
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac		
1,2-Dichloroethane-d4 (Surr)	89		62 - 137					06/02/22 19:03	1		
4-Bromofluorobenzene (Surr)	104		56 - 136					06/02/22 19:03	1		
Toluene-d8 (Surr)	91		78 - 122					06/02/22 19:03	1		
Dibromofluoromethane (Surr)	85		73 - 120					06/02/22 19:03	1		

06/02/22 01:43

Job ID: 240-167140-1

Dil Fac

Dil Fac

1

1

Eurofins Canton

Surrogate Summary

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

			Pe	rcent Surro	gate Recovery (Ac	ceptance Limits)
		DCA	BFB	TOL	DBFM	. ,
Lab Sample ID	Client Sample ID	(62-137)	(56-136)	(78-122)	(73-120)	
240-167140-1	TRIP BLANK_39	87	107	90	85	
240-167140-2		89	104	91	85	
240-167148-E-2 MS	Matrix Spike	85	107	88	87	
240-167148-H-2 MSD	Matrix Spike Duplicate	78	94	81	79	
LCS 240-528959/5	Lab Control Sample	83	101	85	84	
MB 240-528959/8	Method Blank	85	98	85	80	
Surrogate Legend						
DCA = 1,2-Dichloroeth	ane-d4 (Surr)					
BFB = 4-Bromofluorob	enzene (Surr)					
TOL = Toluene-d8 (Su	rr)					
DBFM = Dibromofluor	omethane (Surr)					
		•				
lethod: 8260D S	IM - Volatile Organic	Compound	ds (GC/	MS)		
latrix: Water						Prep Type: Total/N

			Percent Surrogate Recovery (Acceptance Limits)	
		DCA		13
Lab Sample ID	Client Sample ID	(66-120)		
240-167140-2	MW-147S_052022	103		
240-167148-I-2 MS	Matrix Spike	106		
240-167148-O-2 MSD	Matrix Spike Duplicate	105		
LCS 240-528805/3	Lab Control Sample	107		
MB 240-528805/4	Method Blank	107		
Surrogate Legend				

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

Job ID: 240-167140-1

Eurofins Canton

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

Lab Sample ID: MB 240-528959/8 Matrix: Water

Analysis Batch: 528959

ME	6 MB							
Analyte Resul	t Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene1.0) <u> </u>	1.0	0.49	ug/L			06/02/22 17:29	1
cis-1,2-Dichloroethene 1.0) U	1.0	0.46	ug/L			06/02/22 17:29	1
Tetrachloroethene 1.0) U	1.0	0.44	ug/L			06/02/22 17:29	1
trans-1,2-Dichloroethene 1.0) U	1.0	0.51	ug/L			06/02/22 17:29	1
Trichloroethene 1.0) U	1.0	0.44	ug/L			06/02/22 17:29	1
Vinyl chloride 1.0) U	1.0	0.45	ug/L			06/02/22 17:29	1

	MB	МВ				
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		62 - 137		06/02/22 17:29	1
4-Bromofluorobenzene (Surr)	98		56 - 136		06/02/22 17:29	1
Toluene-d8 (Surr)	85		78 - 122		06/02/22 17:29	1
Dibromofluoromethane (Surr)	80		73 - 120		06/02/22 17:29	1

Lab Sample ID: LCS 240-528959/5 Matrix: Water Analysis Batch: 528959

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,1-Dichloroethene	20.0	19.5		ug/L		97	63 - 134	
cis-1,2-Dichloroethene	20.0	18.7		ug/L		94	77 - 123	
Tetrachloroethene	20.0	18.2		ug/L		91	76 - 123	
trans-1,2-Dichloroethene	20.0	18.1		ug/L		90	75_124	
Trichloroethene	20.0	19.0		ug/L		95	70 - 122	
Vinyl chloride	20.0	21.3		ug/L		107	60 - 144	

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	83		62 - 137
4-Bromofluorobenzene (Surr)	101		56 - 136
Toluene-d8 (Surr)	85		78 - 122
Dibromofluoromethane (Surr)	84		73 - 120

88

Lab Sample ID: 240-167148-E-2 MS **Matrix: Water** Analysis Batch: 528959

Toluene-d8 (Surr)

	Sample	Sample	Spike	MS	MS				%Rec
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
1,1-Dichloroethene	1.0	U	20.0	19.6		ug/L		98	56 - 135
cis-1,2-Dichloroethene	1.0	U	20.0	18.9		ug/L		95	66 - 128
Tetrachloroethene	1.0	U	20.0	17.6		ug/L		88	62 - 131
trans-1,2-Dichloroethene	1.0	U	20.0	17.8		ug/L		89	56 - 136
Trichloroethene	1.0	U	20.0	18.2		ug/L		91	61 - 124
Vinyl chloride	1.6		20.0	23.1		ug/L		107	43 - 157
	MS	MS							
Surrogate	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	85		62 - 137						
4-Bromofluorobenzene (Surr)	107		56 - 136						

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

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

Eurofins Canton

78 - 122

QC Sample Results

Job ID: 240-167140-1

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

Lab Sample ID: 240-16714 Matrix: Water	+U-E-2 IVIJ								nent 3d	mple ID: M Prep Tyj		
Analysis Batch: 528959												
	MS	MS										
Surrogate	%Recovery	Qualifie		nits								
Dibromofluoromethane (Surr)	87		73	- 120								
Lab Sample ID: 240-16714 Matrix: Water	48-H-2 MSD						Clien	t Samp	ole ID: N	latrix Spik Prep Tyj		
Analysis Batch: 528959												
	Sample	Sample	S	pike	MSD	MSD				%Rec		RPD
Analyte	Result	-	r Ao	lded		Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,1-Dichloroethene	1.0			20.0	18.3		ug/L		91	56 - 135	7	26
cis-1,2-Dichloroethene	1.0			20.0	17.7		ug/L		88	66 - 128	7	14
Tetrachloroethene	1.0	U		20.0	17.3		ug/L		86	62 - 131	2	20
trans-1,2-Dichloroethene	1.0	U		20.0	16.9		ug/L		84	56 - 136	5	15
Trichloroethene	1.0	U		20.0	18.0		ug/L		90	61 - 124	1	15
Vinyl chloride	1.6			20.0	22.1		ug/L		102	43 - 157	4	24
	MSD	MSD										
Surrogate	%Recovery		r Lir	nits								
1,2-Dichloroethane-d4 (Surr)	78		62	- 137								
4-Bromofluorobenzene (Surr)	94		56	- 136								
Toluene-d8 (Surr)	81		78	- 122								
Dibromofluoromethane (Surr)	79		73	- 120								
lethod: 8260D SIM - V Lab Sample ID: MB 240-5	/olatile Org	anic	Compo	ounds (GC/M	S)		Clie	ent Sarr	nple ID: Me Prep Tvi		
lethod: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water	/olatile Org	anic	Compo	ounds (GC/M	S)		Clie	ent Sarr	iple ID: Mo Prep Tyj		
Method: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 528805	/olatile Org 28805/4	MB MB				-				Prep Ty	be: Tot	al/NA
Method: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 528805 Analyte	/olatile Org 28805/4 Res	MB MB sult Qua		RI		MDL Unit			ent Sam	Prep Typ	ed	al/NA Dil Fac
Analyte 1,4-Dioxane	/olatile Org 28805/4 Res	MB MB				-				Prep Ty	ed	al/NA
Method: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 528805 Analyte 1,4-Dioxane	/olatile Org 28805/4 	MB MB sult Qua 2.0 U MB MB	alifier	R I 2.1		MDL Unit		<u>D</u> P	Prepared	Prep Typ Analyz	ed	al/NA Dil Fac
Method: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 528805 Analyte 1,4-Dioxane Surrogate	/olatile Org 28805/4 	MB MB sult Qua 2.0 U MB MB rery Qua	alifier	Ri 2.1 Limits		MDL Unit		<u>D</u> P		Prep Tyj Analyz 06/01/22 Analyz	ed	Dil Fac 1 Dil Fac
Method: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 528805 Analyte 1,4-Dioxane	/olatile Org 28805/4 	MB MB sult Qua 2.0 U MB MB	alifier	R I 2.1		MDL Unit		<u>D</u> P	Prepared	Prep Typ Analyz	ed	al/NA Dil Fac
Method: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 528805 Analyte 1,4-Dioxane Surrogate	/olatile Org 28805/4 	MB MB sult Qua 2.0 U MB MB rery Qua	alifier	Ri 2.1 Limits		MDL Unit		D P	Prepared Prepared	Prep Tyj Analyz 06/01/22 Analyz	ed 19:54 19:54 19:54	al/NA Dil Fac 1 Dil Fac 1
Method: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 528805 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr)	/olatile Org 28805/4 	MB MB sult Qua 2.0 U MB MB rery Qua	alifier	Ri 2.1 Limits		MDL Unit		D P	Prepared Prepared	Prep Typ <u>Analyz</u> 06/01/22 <u>Analyz</u> 06/01/22 : Lab Con	ed 19:54 19:54 19:54 19:54 trol Sa	al/NA Dil Fac 1 Dil Fac 1 mple
Method: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 528805 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-4 Matrix: Water	/olatile Org 28805/4 	MB MB sult Qua 2.0 U MB MB rery Qua	alifier	Ri 2.1 Limits		MDL Unit		D P	Prepared Prepared	Prep Tyj <u>Analyz</u> 06/01/22 <u>Analyz</u> 06/01/22	ed 19:54 19:54 19:54 19:54 trol Sa	al/NA Dil Fac 1 Dil Fac 1 mple
Method: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 528805 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-4 Matrix: Water	/olatile Org 28805/4 	MB MB sult Qua 2.0 U MB MB rery Qua	alifier alifier	Ri 2.1 Limits	L 0 -	MDL Unit		D P	Prepared Prepared	Prep Typ <u>Analyz</u> 06/01/22 <u>Analyz</u> 06/01/22 : Lab Con	ed 19:54 19:54 19:54 19:54 trol Sa	al/NA Dil Fac 1 Dil Fac 1 mple
Method: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 528805 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-4	/olatile Org 28805/4 	MB MB sult Qua 2.0 U MB MB rery Qua	alifier alifier	Rl 2.1 Limits 66 - 120	L	MDL Unit		D P	Prepared Prepared mple ID	Prep Tyj <u>Analyz</u> 06/01/22 <u>Analyz</u> 06/01/22 : Lab Con Prep Tyj	ed 19:54 19:54 19:54 19:54 trol Sa	al/NA Dil Fac 1 Dil Fac 1 mple
Method: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 528805 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-5 Matrix: Water Analysis Batch: 528805	/olatile Org 28805/4 	MB MB sult Qua 2.0 U MB MB rery Qua	alifier alifier	Rl 2.1 Limits 66 - 120 pike	L	MDL Unit 0.86 ug/L	CI	DP F	Prepared Prepared mple ID	Prep Ty - Analyz 06/01/22 - Analyz 06/01/22 : Lab Con Prep Ty %Rec	ed 19:54 19:54 19:54 19:54 trol Sa	al/NA Dil Fac 1 Dil Fac 1 mple
Method: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 528805 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-5 Matrix: Water Analysis Batch: 528805 Analyte	/olatile Org 28805/4 	MB MB sult Qua 2.0 U MB MB fery Qua 107	alifier alifier	Ri 2.1 <i>Limits</i> 66 - 120 pike Ided	L LCS Result	MDL Unit 0.86 ug/L	CI Unit	DP F	Prepared Prepared mple ID	Analyz 06/01/22 Analyz 06/01/22 Color 06/01/22 Lab Con Prep Tyl %Rec Limits	ed 19:54 19:54 19:54 19:54 trol Sa	al/NA Dil Fac 1 Dil Fac 1 mple
Method: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 528805 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-4 Matrix: Water Analysis Batch: 528805 Analyte 1,4-Dioxane	/olatile Org 28805/4 	MB MB sult Qua 2.0 U MB MB rery Qua 107	alifier alifier S Ac	Ri 2.1 66 - 120 pike 1ded 10.0	L LCS Result	MDL Unit 0.86 ug/L	CI Unit	DP F	Prepared Prepared mple ID	Analyz 06/01/22 Analyz 06/01/22 Color 06/01/22 Lab Con Prep Tyl %Rec Limits	ed 19:54 19:54 19:54 19:54 trol Sa	al/NA Dil Fac 1 Dil Fac 1 mple
Method: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 528805 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-5 Matrix: Water Analysis Batch: 528805 Analyte	/olatile Org 28805/4 	MB MB sult Qua 2.0 U MB MB rery Qua 107	alifier alifier S Ac	Ri 2.1 <i>Limits</i> 66 - 120 pike Ided	L LCS Result	MDL Unit 0.86 ug/L	CI Unit	DP F	Prepared Prepared mple ID	Analyz 06/01/22 Analyz 06/01/22 Color 06/01/22 Lab Con Prep Tyl %Rec Limits	ed 19:54 19:54 19:54 19:54 trol Sa	al/NA Dil Fac 1 Dil Fac 1 mple
Method: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 528805 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-4 Matrix: Water Analysis Batch: 528805 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr)	/olatile Org 28805/4 	MB MB sult Qua 2.0 U MB MB rery Qua 107	alifier alifier S Ac	Ri 2.1 66 - 120 pike 10.0 nits	L LCS Result	MDL Unit 0.86 ug/L	CI Unit	D P F	Prepared Prepared mple ID <u>%Rec</u> 109	Analyz 06/01/22 Analyz 06/01/22 Color 06/01/22 Lab Con Prep Tyl %Rec Limits 80 - 122	ed 19:54	al/NA Dil Fac 1 Dil Fac 1 mple al/NA
Method: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 528805 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-4 Matrix: Water Analysis Batch: 528805 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: 240-16714	/olatile Org 28805/4 	MB MB sult Qua 2.0 U MB MB rery Qua 107	alifier alifier S Ac	Ri 2.1 66 - 120 pike 10.0 nits	L LCS Result	MDL Unit 0.86 ug/L	CI Unit	D P F	Prepared Prepared mple ID <u>%Rec</u> 109	Prep Ty Analyz 06/01/22 Analyz 06/01/22 Lab Con Prep Ty %Rec Limits 80 - 122 mple ID: N	ed	al/NA Dil Fac 1 Dil Fac 1 mple al/NA Spike
Method: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 528805 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-4 Matrix: Water Analysis Batch: 528805 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: 240-16714 Matrix: Water	/olatile Org 28805/4 	MB MB sult Qua 2.0 U MB MB rery Qua 107	alifier alifier S Ac	Ri 2.1 66 - 120 pike 10.0 nits	L LCS Result	MDL Unit 0.86 ug/L	CI Unit	D P F	Prepared Prepared mple ID <u>%Rec</u> 109	Analyz 06/01/22 Analyz 06/01/22 Color 06/01/22 Lab Con Prep Tyl %Rec Limits 80 - 122	ed	al/NA Dil Fac 1 Dil Fac 1 mple al/NA Spike
Method: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 528805 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-4 Matrix: Water Analysis Batch: 528805 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: 240-16714	/olatile Org 28805/4 	MB MB sult Qua 2.0 U MB MB fery Qua 107	alifier alifier S Ac r Lir 66	Ri 2.0 Limits 66 - 120 pike ided 10.0 nits - 120	LCS Result 10.9	MDL Unit 0.86 ug/L LCS Qualifier	CI Unit	D P F	Prepared Prepared mple ID <u>%Rec</u> 109	Prep Ty Analyz 06/01/22 Analyz 06/01/22 Lab Con Prep Ty %Rec Limits 80 - 122 mple ID: M Prep Ty	ed	al/NA Dil Fac 1 Dil Fac 1 mple al/NA Spike
Method: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 528805 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-4 Matrix: Water Analysis Batch: 528805 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: 240-16714 Matrix: Water Analysis Batch: 528805	/olatile Org 28805/4 	MB MB sult Qua 2.0 U MB MB fery Qua 107	alifier alifier S Ac r Lin 66	Ri 2.0 Limits 66 - 120 pike 10.0 nits - 120 pike	LCS Result 10.9	MDL Unit 0.86 ug/L LCS Qualifier	CI Unit ug/L	D P F ient Sa D	Prepared Prepared mple ID <u>%Rec</u> 109	Prep Ty Analyz 06/01/22 Analyz 06/01/22 Lab Con Prep Ty %Rec Limits 80 - 122 mple ID: M Prep Ty %Rec	ed	al/NA Dil Fac 1 Dil Fac 1 mple al/NA Spike
Method: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 528805 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-4 Matrix: Water Analysis Batch: 528805 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: 240-16714 Matrix: Water Analysis Batch: 528805 Analyte	/olatile Org 28805/4 	MB MB sult Qua 2.0 U MB MB fery Qua 107 LCS Qualified Sample Qualified	alifier alifier S Ac r Lin 66	Ri 2.0 <u>Limits</u> 66 - 120 pike ided 10.0 <u>nits</u> - 120 pike ided	LCS Result 10.9 MS Result	MDL Unit 0.86 ug/L LCS Qualifier	CI Unit ug/L	D P F ient Sa D	Prepared Prepared mple ID <u>%Rec</u> 109	Prep Ty Analyz 06/01/22 Analyz 06/01/22 Lab Con Prep Ty %Rec Limits 80 - 122 mple ID: M Prep Ty %Rec Limits	ed	al/NA Dil Fac 1 Dil Fac 1 mple al/NA Spike
Method: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water Analysis Batch: 528805 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-4 Matrix: Water Analysis Batch: 528805 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: 240-16714 Matrix: Water Analysis Batch: 528805	/olatile Org 28805/4 	MB MB sult Qua 2.0 U MB MB fery Qua 107 LCS Qualified Sample Qualified	alifier alifier S Ac r Lin 66	Ri 2.0 Limits 66 - 120 pike 10.0 nits - 120 pike	LCS Result 10.9	MDL Unit 0.86 ug/L LCS Qualifier	CI Unit ug/L	D P F ient Sa D	Prepared Prepared mple ID <u>%Rec</u> 109	Prep Ty Analyz 06/01/22 Analyz 06/01/22 Lab Con Prep Ty %Rec Limits 80 - 122 mple ID: M Prep Ty %Rec	ed	al/NA Dil Fac 1 Dil Fac 1 mple al/NA Spike

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

	MS	MS										
Surrogate	%Recovery		Limits									
1,2-Dichloroethane-d4 (Surr)	106		66 - 120									
Lab Sample ID: 240 1671						Client	Sama		latrix Spil	ka Dun	licato	
Lab Sample ID: 240-1671 Matrix: Water	40-0-2 WISD					Chefit	Samp	ie iD. N	latrix Spi Prep Ty			
Analysis Batch: 528805	Sample	Sample	Spike	MSD	MSD				%Rec		RPD	
Analyte	•	Qualifier	Added	-	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
1,4-Dioxane	1.1	J	10.0	13.1		ug/L		120	51 - 153	1	16	
	MSD	MSD										ī
Surrogate	%Recovery	Qualifier	Limits									
1,2-Dichloroethane-d4 (Surr)	105		66 - 120									

GC/MS VOA

Analysis Batch: 528805

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-167140-2	MW-147S_052022	Total/NA	Water	8260D SIM	
MB 240-528805/4	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-528805/3	Lab Control Sample	Total/NA	Water	8260D SIM	
240-167148-I-2 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-167148-O-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
240-167140-1	TRIP BLANK_39	Total/NA	Water	8260D	
240-167140-2	MW-147S_052022	Total/NA	Water	8260D	
MB 240-528959/8	Method Blank	Total/NA	Water	8260D	
LCS 240-528959/5	Lab Control Sample	Total/NA	Water	8260D	
240-167148-E-2 MS	Matrix Spike	Total/NA	Water	8260D	
240-167148-H-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Job ID: 240-167140-1

Eurofins Canton

Matrix: Water

Lab Sample ID: 240-167140-1

Client Sample ID: TRIP BLANK_39 Date Collected: 05/20/22 00:00 Date Received: 05/24/22 10:00

D	Batch	Batch		Dilution	Batch	Prepared	A	1	
Prep Type Total/NA	Analysis	Method 8260D	Run	_ Factor 1	Number 528959	or Analyzed 06/02/22 18:40	Analyst TJL1	Lab TAL CAN	
Client Sam	ple ID: MW	-147S_05202	22				Lab Sa	mple ID: 2	40-167140
Date Collecte	d: 05/20/22 1	3:13							Matrix: Wa
Date Receive	d: 05/24/22 1	0:00							
_	Batch	Batch		Dilution	Batch	Prepared			

	Daton	Datch		Dilution	Daton	Flepaleu			
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab	
Total/NA	Analysis	8260D		1	528959	06/02/22 19:03	TJL1	TAL CAN	
Total/NA	Analysis	8260D SIM		1	528805	06/02/22 01:43	CS	TAL CAN	

Laboratory References:

TAL CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Eurofins Canton

Client: ARCADIS U.S., Inc. Project/Site: Ford LTP - Off Site

Laboratory: Eurofins Canton

aboratory: Eurofins C		ccreditations/certifications are applicable to	o this report.	
Authority	Program	Identification Number	Expiration Date	
California	State	2927	02-27-23	
Connecticut	State	PH-0590	12-31-23	
Florida	NELAP	E87225	06-30-22	
Georgia	State	4062	02-23-22 *	
Illinois	NELAP	200004	07-31-22	
Iowa	State	421	06-01-23	
Kentucky (UST)	State	112225	02-27-23	
Kentucky (WW)	State	KY98016	12-31-22	
Minnesota	NELAP	039-999-348	12-31-22	
Minnesota (Petrofund)	State	3506	08-01-23	
New Jersey	NELAP	OH001	06-30-22	
New York	NELAP	10975	04-01-23	
Ohio	State	8303	02-23-23	
Ohio VAP	State	CL0024	02-27-23	
Oregon	NELAP	4062	02-27-23	
Pennsylvania	NELAP	68-00340	08-31-22	
Texas	NELAP	T104704517-22-16	08-31-22	
Virginia	NELAP	11570	09-14-22	
Washington	State	C971	01-12-23	
West Virginia DEP	State	210	12-31-22	

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

Controllered Regions preprint Notice	MICHIGAN 190	Chain of C TestAmerica Laboratory location: <u>Brighton — 10448</u> Citation Drive	Chain of Custody Record 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763	-2763	
State Control Thranger Excitation Reconst. Christian Verser La Context. Thrane I. S.OCE. SEGIO SIM Explana	Client Contact	L MG L	RCRA		TettAmerica Lahoratorios Inc
Indefinition Topological Topological <thtopological< th=""> <thtopological< th=""></thtopological<></thtopological<>	rive. Suite 500		Contact: Christina Weaver	Lab Contact: Mike DelMonico	COC No:
Earlie Kindiffer Hinkkysgerentiscen Auffreiter Auffreiter Auffreiter Partie Kindiffer Hinkkysgerentiscen Statier Name Statier Name Statier Name Name <td></td> <td></td> <td>ohone: 248-994-2329</td> <td>Telephone: 330-966-9783</td> <td></td>			ohone: 248-994-2329	Telephone: 330-966-9783	
Image: constrained of the constrai	. 48.377		the Vets Turnaround Time	Ang Used	
Americanic Americanic Americanic Americanic Note of Statement Current 100 100 100 100 Note of Statement Current 100 100 100 100 Note of Statement Current Note of Statement Current 100 100 Note of Statement Current Note of Statement Current 100 100 Statement Current Statement Current 100 100					
Without Christian Without Christian Luis Luis <thluis< th=""></thluis<>	TP Off-Site	m Sukarla	if different from below 3 weeks 1 day 2 weeks		Walk-in Client 1 sh comoling
Image: Second	0642.402.04		1 week Z)	(Similine
Mitti Contained Atmostation Mitti Contained Atmostation Mitti Note		Shipping/Tracking No:	le (Y /	8260C	Job/SDG No:
X L N X X X I Trip Blank 3 VOAs for 8260 N X X X X X X 3 VOAs for 8260 N K X X X X X 3 VOAs for 8260 N K X X X X X 1 Trip Blank 3 VOAs for 8260 3 VOAs for 8260 3 VOAs for 8260 3 VOAs for 8260 1 Trip Plank N N N N N 3 VOAs for 8260 1 Trip Plank N N N N N 3 VOAs for 8260 1 Trip Plank N N N N N N N 1 Trip Plank N N N N N N 1 Trip Plank N N N N N N 1 Trip N N N N N N N 1 Trip N N N N N N N 1 Trip N N N N N N N 1 Trip N N N N N N N 1 Trip N N N N N N	Sample Identification	Alterna Sediment Sediment Sediment Sediment Sediment Sediment Sediment	Filtered Samp Composite=C	Trans-1,2-DCI PCE 8260D PCE 8260D	Sample Specific Notes / Special Instructions:
3 X X X X X X 3 VOAs for 6260 1 X X X X X X X 3 VOAs for 6260 1 X X X X X X X X X X 1 X		X JACHA	NG	× × × × ×	1 Trip Blank
Image: Contract of the second of tangles are retained longer than 1 month Children Starthout	K_dsrorr	3	9 M	XXXXX	3 VOAs for 8260D 3 VOAs for 8260D SIM
Date Time Date Time Starting Starting Starting Starting					
Company Company Date Time: Date Time: 240-167140 Chain of Custody Cubinoun Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) Cubinoun Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) Cubinoun Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) Cubinoun Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) Cubinoun Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) Cubinoun Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) Cubinoun Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) Disposal (A fee may be assessed if samples are retained longer than 1 month) Disposal (A fee may be assessed if samples are retained longer than 1 month) Disposal (A fee may be assessed if samples are retained longer than 1 month) Disposal (A fee may be assessed if samples are retained longer than 1 month) Disposal (A fee may be assessed if samples are retained longer than 1 month) Disposal (A fee may be assessed if samples are retained longer than 1 month) Disposal (A fee may be assessed if samples are retained longer than 1 month) Company: Company Disposal (A fee may be assessed if samples are retained longer than 1 month) Company Disposal (A fee may be assessed if samples are retained longer than 1 mon					
Tuknown Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) Return to Client Sample Disposal By Lab Archive For Anthrown Archive For Months Archive For Archive For Months Bate/Time. Received by: Company.			240-167140 Ch	ain of Custody	
Marchine 34401 CAPETOL Distrime Date Time Received by Confany Company Company Company Date Time Stray 23 23 C	kntification Skin Ir	Poison B CUnknown	mple Disposal (A fee may be assessed if sam Return to Client & Disposal By Lab	ples are retained longer than 1 month) Archive For	
Superia company Compan	OC Requirements & Comments: And the from a from a la@caden requested.	104401 34401			
Date Time: S/23/22 0850 Lew Generative Company: Date Time: S/23/22 854 Received in Laboratory by: S/23/22 6		Date/Time:	Received by: Con Con Con	5	Date/Time:
7.4 Station 854 Received in Latoratory by: Company: Date Time. 3/24/22	the follow	Date/Time: 5/23/27 Date/Time:			22 0
	dae	Tut 5/22/22	Received in Laboratory by:	Company:	2

©2008. TestAmerica Latoratorias, Inc. All rights reserved. TestAmerica & Design 14 are trademarks of TestAmerica Latoratories, Inc. 6/6/2022

 Were the seals on the outside of the cooler(s) signed & dated? Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Were tamper/custody seals intact and uncompromised? Shippers' packing slip attached to the cooler(s)? Did custody papers accompany the sample(s)? Were the custody papers relinquished & signed in the appropriate place? Was/were the person(s) who collected the samples clearly identified on the COC? Did all bottle sarrive in good condition (Unbroken)? Could all bottle sample, does the COC specify preservatives (NN), # of containers (NN), and sample type of grab/comp Were correct bottle(s) used for the test(s) indicated? Were all preserved samples and all listed on the COC? If yes, Questions 13-17 have been checked at the originating laboratory. Were air bubbles >6 mm in any VOA vials? Were air bubbles >6 mm in any VOA vials? Larger than this. Were air bubbles >6 mm in any VOA vials? Larger than this. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # N/A Yes No 	
Client ACCADIS Site Name Cooler unpacked by Cooler Received on \$/24/11 Opened on \$/24/12 M.A.A. FedEx: 1* Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other Receipt After-hours: Drop-off Date/Time Storage Location Storage Location TestAmerica Cooler # T A Foam Box Other	<u>+</u>
Cooler Received on 5/24/21 Opened on 5/24/21 M.A.A. FedEx: 1 st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other M.A.A. Receipt After-hours: Drop-off Date/Time Storage Location Other Packing material used: Bubble Wrap Foam Plastic Bag None Other COOLANT: Vet Co Blue Ice Dry Ice Water None 1. Cooler temperature upon receipt Exective Mater None ************************************	<i>'</i> :
FedEx: 1 ^s Grd Cipper Client Drop Off TestAmerica Courier Other Receipt After-hours: Drop-off Date/Time Storage Location Storage Location TestAmerica Cooler # T A Egam Box Client Cooler Box Other Packing material used: Bubble Wrap Foam Plastic Bag None Other 1 Cooler temperature upon receipt See Multiple Cooler Temp. °C °C °C 1 R GUN# IR-15 (CF • 0.°C) Observed Cooler Temp. °C °C °C 2. Were tamper/custody seals on the outside of the cooler(s) signed & dated? Yes< No	
TestAmerica Cooler # A Foam Box Client Cooler Box Other Other Packing material used: Bubble Wrap Foam Plastic Bag None Other COOLANT: Wet Co Blue Ice Dry Ice Water None Other 1. Cooler temperature upon receipt See Multiple Cooler Form See Multiple Cooler Temp °C Corrected Cooler Temp °C 1. R GUN# IR-13 (CF 0.0 °C) Observed Cooler Temp °C Corrected Cooler Temp °C °C Corrected Cooler Temp °C °C 2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity Vere tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Ves No Tests the checked Receivity VOAs 3. Shippers' packing slip attached to the cooler(s)? Vere the custody papers accompany the sample(s)? Ves No No 5. Were the person(s) who collected the samples clearly identified on the COC? Ves No Yes No No 6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No Yes No Yes No 7. Did all bottle sarrive in good condition (Unbroken)? Yes No Yes No Yes No Yes No 8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No No Yes No Yes No 10. Sufficient quantity received to perform indicated analyses? Yes No No Yes No	
Packing material used: Bubble Wrap Foam Plastic Bag None Other COOLANT: Wet R Blue Ice Dry Ice Water None 1. Cooler temperature upon receipt Descendent See Multiple Cooler Form 1. GUN# IR-13 (CF 0.0 °C) Observed Cooler Temp °C Corrected Cooler Temp °C Corrected Cooler Temp °C 2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity Ver Yes No Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No Tests th Were tamper/custody seals intact and uncompromised? Yes No NA 3. Shippers' packing slip attached to the cooler(s)? Yes No NA 4. Did custody papers accompany the sample(s)? Yes No Yes No 5. Were the person(s) who collected the samples clearly identified on the COC? Yes No Yes No 6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No Yes No 7. Did all bottle abels (ID/Date/Time) be reconciled with the COC? Yes No Yes No 7. For each sample, does the COC spe	
COOLANT: Wet ice Blue ice Dry ice Water None 1. Cooler temperature upon receipt IR GUN# IR-13 (CF 0.0 °C) Observed Cooler Temp °C Corrected Cooler Temp °C IR GUN# IR-13 (CF 0.0 °C) Observed Cooler Temp °C Corrected Cooler Temp °C IR GUN# IR-15 (CF -0.7°C) Observed Cooler Temp °C Corrected Cooler Temp °C . Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity_l Yes No . Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No . Were tamper/custody seals intact and uncompromised? Yes No . Were the custody papers accompany the sample(s)? Yes No Yes No Yes No . Were the custody papers relinquished & signed in the appropriate place? Yes No . Were the custody papers relinquished & signed in the cOC? Yes No . Did all bottle arrive in good condition (Unbroken)? Yes No . Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No . Sufficient quantity received to perform indicated analyses? Yes No . Sufficient quantity received to perform indicated analyses? Yes No . Were all preserved samples and all listed on the COC? Yes No . Were all preserved samples and all listed on the cooler(s)? Trip Blank Lot #_ P / A Yes No <	
 Cooler temperature upon receipt IR GUN# IR-13 (CF 0.0 °C) Observed Cooler Temp °C Corrected Cooler Temp °C Corrected Cooler Temp °C Corrected Cooler Temp °C Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity Yes No -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? -Were tamper/custody seals intact and uncompromised? Were the custody papers relinquished & signed in the appropriate place? Were the custody papers relinquished & signed in the appropriate place? Were the person(s) who collected the samples clearly identified on the COC? Did all bottle labels (ID/Date/Time) be reconciled with the COC? Did all bottle labels (ID/Date/Time) be reconciled with the COC? For each sample, does the COC specify preservatives (NN), # of containers (NN), and asample type of grab/comp Were torse to butle(s) used for the test(s) indicated? Sufficient quantity received to perform indicated analyses? Larger than this. Were VOAs on the COC? Were all preserved sample(s)? Were all plank present in the cooler(s)? Trip Blank Lot #Y / A Yes No Yes No	
IR GUN# IR-13 (CF 0.0 °C) Observed Cooler Temp °C Corrected Cooler Temp °C IR GUN #IR-15 (CF -0.7°C) Observed Cooler Temp °C Corrected Cooler Temp °C 2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity Yes No -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? -Were tamper/custody seals intact and uncompromised? 3. Shippers' packing slip attached to the cooler(s)? 4. Did custody papers accompany the sample(s)? 5. Were the custody papers relinquished & signed in the appropriate place? 6. Was/were the person(s) who collected the samples clearly identified on the COC? 7. Did all bottle labels (ID/Date/Time) be reconciled with the COC? 9. For each sample, does the COC specify preservatives (YN), # of containers (YN), and sample type of grab/comp 10. Were correct bottle(s) used for the test(s) indicated? 11. Sufficient quantity received to perform indicated analyses? 12. Are these work share samples and all listed on the COC? 13. Were air bubbles >6 mm in any VOA vials? 14. Were VOAs on the COC? 15. Were air bubbles >6 mm in any VOA vials? 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # / A 17. Was a LL Hg or Me Hg trip blank present? Yes No	
IR GUN #IR-15 (CF -0.7°C) Observed Cooler Temp°C Corrected Cooler Temp°C °C 2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity _1 Yes No No -Were tamper/custody seals on the outside of the cooler(s) signed & dated? Yes No NA -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA -Were tamper/custody seals intact and uncompromised? Yes No NA 3. Shippers' packing slip attached to the cooler(s)? Yes No NA 4. Did custody papers accompany the sample(s)? Yes No No 5. Were the person(s) who collected the samples clearly identified on the COC? Yes No No 7. Did all bottle sarrive in good condition (Unbroken)? Yes No Yes No 8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No Yes No 9. For each sample, does the COC specify preservatives (NN), # of containers (NN), and sample type of grab/comp Yes No 10. Were correct bottle(s) used for the test(s) indicated? Yes No Yes No 11. Sufficient quantity received to perform indicated analyses? Yes No Yes No 12. Are these work share samples and all listed on the COC? Yes No Yes No 13. Were all preser	
 Were the seals on the outside of the cooler(s) signed & dated? Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Were tamper/custody seals intact and uncompromised? Shippers' packing slip attached to the cooler(s)? Did custody papers accompany the sample(s)? Were the custody papers relinquished & signed in the appropriate place? Was/were the person(s) who collected the samples clearly identified on the COC? Did all bottles arrive in good condition (Unbroken)? Could all bottle labels (ID/Date/Time) be reconciled with the COC? For each sample, does the COC specify preservatives (NN), # of containers (NN), and sample type of grab/comp Were correct bottle(s) used for the test(s) indicated? Were all preserved to perform indicated analyses? Are these work share samples and all listed on the COC? If yes, Questions 13-17 have been checked at the originating laboratory. Were air bubbles >6 mm in any VOA vials? Were air bubbles >6 mm in any VOA vials? Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # Y / A Yes No 	
 Were the seals on the outside of the cooler(s) signed & dated? Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Were tamper/custody seals intact and uncompromised? Shippers' packing slip attached to the cooler(s)? Did custody papers accompany the sample(s)? Were the custody papers relinquished & signed in the appropriate place? Was/were the person(s) who collected the samples clearly identified on the COC? Did all bottle sarrive in good condition (Unbroken)? Could all bottle labels (ID/Date/Time) be reconciled with the COC? For each sample, does the COC specify preservatives (NN), # of containers (NN), and sample type of grab/comp Were correct bottle(s) used for the test(s) indicated analyses? Sufficient quantity received to perform indicated analyses? Are these work share samples and all listed on the COC? If yes, Questions 13-17 have been checked at the originating laboratory. Were air bubbles >6 mm in any VOA vials? Were air bubbles >6 mm in any VOA vials? Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # <u>N / A</u> Yes No 	nat are not
-Were tamper/custody seals intact and uncompromised? 3. Shippers' packing slip attached to the cooler(s)? 4. Did custody papers accompany the sample(s)? 5. Were the custody papers relinquished & signed in the appropriate place? 6. Was/were the person(s) who collected the samples clearly identified on the COC? 7. Did all bottle arrive in good condition (Unbroken)? 8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? 9. For each sample, does the COC specify preservatives (NN), # of containers (NN), and sample type of grab/comp 10. Were correct bottle(s) used for the test(s) indicated? 11. Sufficient quantity received to perform indicated analyses? 12. Are these work share samples and all listed on the COC? 13. Were all preserved sample(s) at the correct pH upon receipt? 14. Were VOAs on the COC? 15. Were air bubbles >6 mm in any VOA vials? 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # <u>P / A</u> 17. Was a LL Hg or Me Hg trip blank present? 18. Were Mere the gor Me Hg trip blank present? 19. Were all preserved sample(s)? 10. Were all preserved sample(s)? 11. Sufficient quantity received to perform indicated analyses? 12. Are these work share samples and all listed on the COC? 13. Were ail preserved sample(s)? 14. Were air bubbles >6 mm in any VOA vials? 15. Were air bubbles >6 mm in any VOA vials? 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # <u>P / A</u> 17. Was a LL Hg or Me Hg trip blank present? 18. Were All Hg or Me Hg trip blank present? 19. Were All Hg or Me Hg trip blank present? 10. Were All Hg or Mere Hg trip blank present? 10. Were All Hg or Mere Hg trip blank present? 11. Sufficient Quantity for the test(s)? 12. Were all preserved sample(s)? 13. Were air bubbles >6 mm in any VOA vials? 14. Were VOAs on the COC? 15. Were air bubbles >6 mm in any VOA vials? 15. Were air bubbles >6 mm in any VOA vials? 16. Was a VOA trip blank present? 17. Was a LL Hg or Mere Hg trip blank present? 18. Were All Preserved Sample? 1	d for pH by
 3. Shippers' packing slip attached to the cooler(s)? 4. Did custody papers accompany the sample(s)? 5. Were the custody papers relinquished & signed in the appropriate place? 6. Was/were the person(s) who collected the samples clearly identified on the COC? 7. Did all bottle sarrive in good condition (Unbroken)? 8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? 9. For each sample, does the COC specify preservatives (NN), # of containers (NN), and sample type of grab/comp 10. Were correct bottle(s) used for the test(s) indicated? 11. Sufficient quantity received to perform indicated analyses? 12. Are these work share samples and all listed on the COC? 13. Were all preserved sample(s) at the correct pH upon receipt? 14. Were VOAs on the COC? 15. Were air bubbles >6 mm in any VOA vials? 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # MIA 17. Was a LL Hg or Me Hg trip blank present? 	ng:
 4. Did custody papers accompany the sample(s)? 5. Were the custody papers relinquished & signed in the appropriate place? 6. Was/were the person(s) who collected the samples clearly identified on the COC? 7. Did all bottle sarrive in good condition (Unbroken)? 8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? 9. For each sample, does the COC specify preservatives (VN), # of containers (VN), and sample type of grab/comp 10. Were correct bottle(s) used for the test(s) indicated? 11. Sufficient quantity received to perform indicated analyses? 12. Are these work share samples and all listed on the COC? 13. Were all preserved sample(s) at the correct pH upon receipt? 14. Were VOAs on the COC? 15. Were air bubbles >6 mm in any VOA vials? 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # <u>N / A</u> 17. Was a LL Hg or Me Hg trip blank present? 	
 5. Were the custody papers relinquished & signed in the appropriate place? 6. Was/were the person(s) who collected the samples clearly identified on the COC? 7. Did all bottles arrive in good condition (Unbroken)? 8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? 9. For each sample, does the COC specify preservatives (VN), # of containers (VN), and sample type of grab/comp 10. Were correct bottle(s) used for the test(s) indicated? 11. Sufficient quantity received to perform indicated analyses? 12. Are these work share samples and all listed on the COC? 13. Were all preserved sample(s) at the correct pH upon receipt? 14. Were VOAs on the COC? 15. Were air bubbles >6 mm in any VOA vials? 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #Y / A 17. Was a LL Hg or Me Hg trip blank present? 	Grease
 6. Was/were the person(s) who collected the samples clearly identified on the COC? 7. Did all bottles arrive in good condition (Unbroken)? 8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? 9. For each sample, does the COC specify preservatives (NN), # of containers (NN), and sample type of grab/comp 10. Were correct bottle(s) used for the test(s) indicated? 11. Sufficient quantity received to perform indicated analyses? 12. Are these work share samples and all listed on the COC? 13. Were all preserved sample(s) at the correct pH upon receipt? 14. Were VOAs on the COC? 15. Were air bubbles >6 mm in any VOA vials? 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # NIA 17. Was a LL Hg or Me Hg trip blank present? 	
 8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? 9. For each sample, does the COC specify preservatives (NN), # of containers (NN), and sample type of grab/comp 10. Were correct bottle(s) used for the test(s) indicated? 11. Sufficient quantity received to perform indicated analyses? 12. Are these work share samples and all listed on the COC? 14. Were VOAs on the COC? 15. Were air bubbles >6 mm in any VOA vials? 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # NA 17. Was a LL Hg or Me Hg trip blank present? 	
 9. For each sample, does the COC specify preservatives (NN), # of containers (NN), and sample type of grab/comp 10. Were correct bottle(s) used for the test(s) indicated? 11. Sufficient quantity received to perform indicated analyses? 12. Are these work share samples and all listed on the COC? If yes, Questions 13-17 have been checked at the originating laboratory. 13. Were all preserved sample(s) at the correct pH upon receipt? 14. Were VOAs on the COC? 15. Were air bubbles >6 mm in any VOA vials? 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # N/A 17. Was a LL Hg or Me Hg trip blank present? 	
 10. Were correct bottle(s) used for the test(s) indicated? 11. Sufficient quantity received to perform indicated analyses? 12. Are these work share samples and all listed on the COC? 13. Were all preserved sample(s) at the correct pH upon receipt? 14. Were VOAs on the COC? 15. Were air bubbles >6 mm in any VOA vials? 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # N/A 17. Was a LL Hg or Me Hg trip blank present? 	(Ch no
 11. Sufficient quantity received to perform indicated analyses? 12. Are these work share samples and all listed on the COC? If yes, Questions 13-17 have been checked at the originating laboratory. 13. Were all preserved sample(s) at the correct pH upon receipt? 14. Were VOAs on the COC? 15. Were air bubbles >6 mm in any VOA vials? 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # N/A 17. Was a LL Hg or Me Hg trip blank present? 	(UN)?
 12. Are these work share samples and all listed on the COC? If yes, Questions 13-17 have been checked at the originating laboratory. 13. Were all preserved sample(s) at the correct pH upon receipt? 14. Were VOAs on the COC? 15. Were air bubbles >6 mm in any VOA vials? 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # N/A 17. Was a LL Hg or Me Hg trip blank present? 	
If yes, Questions 13-17 have been checked at the originating laboratory. 13. Were all preserved sample(s) at the correct pH upon receipt? 14. Were VOAs on the COC? 15. Were air bubbles >6 mm in any VOA vials? 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # N/A 17. Was a LL Hg or Me Hg trip blank present? 17. Was a LL Hg or Me Hg trip blank present?	
14. Were VOAs on the COC? Yes No 15. Were air bubbles >6 mm in any VOA vials? Larger than this. 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # YA Yes No 17. Was a LL Hg or Me Hg trip blank present? Yes No	
15. Were air bubbles >6 mm in any VOA vials? ← Larger than this. Yes No NA 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # ► / A Yes No 17. Was a LL Hg or Me Hg trip blank present? Yes No	t# HC157842
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # N/A Yes No 17. Was a LL Hg or Me Hg trip blank present? 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 lab	ooratory.
Sample(s)	
VOA Sample Preservation - Date/Time VOAs Frozen:	

Login #: 167140

	Eurofins - Canto	n Sample Receipt Mu	Itiple Cooler Form	
Cooler Description	IR Gun #	Observed	Corrected	Coolant
(Circle)	(Circle)	Temp °C	Temp °C	(Circle)
TA Client Box Other	IR-13 IR-15	1-2	1= 2	Wet Ice Blue Ice Dry Ice
TA Client Box Other	(IR-13)IR-15	2+2	2.2	Wet Ice Blue Ice Dry Ice
TA Client Box Other	IR-13 IR-15			Wet ice Blue ice Dry ice Water None
TA Client Box Other	IR-13 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-13 IR-15			Wet ice Blue ice Dry ice Water None
TA Client Box Other	IR-13 IR-15			Wet ice Blue ice Dry ice Water None
TA Client Box Other	IR-13 IR-15			Wet ice Blue ice Dry ice Water None
TA Client Box Other	IR-13 IR-15			Wet ice Blue ice Dry ice Water None
TA Client Box Other	IR-13 IR-15			Wet ice Blue ice Dry ice Water None
TA Client Box Other	IR-13 IR-15	and and a second se		Wet ice Blue ice Dry ice Water None
TA Client Box Other	IR-13 IR-15			Wet ice Blue ice Dry ice Water None
TA Client Box Other	IR-13 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-13 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-13 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-13 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-13 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-13 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-13 IR-15		an <u>an an a</u>	Wet ice Blue ice Dry ice Water None
TA Client Box Other	IR-13 IR-15			Wet ice Blue ice Dry ice Water None
TA Client Box Other	IR-13 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-13 IR-15			Wet ice Blue ice Dry ice Water None
TA Client Box Other	IR-13 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-13 IR-15			Wet ice Blue ice Dry ice Water None
TA Client Box Other	IR-13 IR-15			Wet ice Blue ice Dry ice Water None
TA Client Box Other	IR-13 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-13 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-13 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-13 IR-15	-		Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-13 IR-15			Wet ice Blue ice Dry ice Water None
TA Client Box Other	IR-13 IR-15			Wet ice Blue ice Dry ice Water None
TA Client Box Other	IR-13 IR-15			Wellice Blue Ice Dry ice Water None
TA Client Box Other	IR-13 IR-15			Wellice Sluelice Dry ice Water None
TA Client Box Other	JR-13 IR-15			Wet Ice Sive Ice Dry Ice Water None
TA Client Box Other	IR-13 IR-15		<u>a na si ana ana si </u>	Wet Ice Blue Ice Dry Ice Water None
			See Tem	perature Excursion Form

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

DATA VERIFICATION REPORT



June 06, 2022

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: 30080642.402.04 Event Specific Scope of Work References: Sample COC Laboratory: Eurofins Environment Testing LLC - Barberton Laboratory submittal: 167140-1 Sample date: 2022-05-20 Report received by CADENA: 2022-06-06 Initial Data Verification completed by CADENA: 2022-06-06 Number of Samples:2 Sample Matrices: Water and trip blank 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 http://clms.cadenaco.com/index.cfm.

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 - Barberton Laboratory Submittal: 167140-1

		Sample Name: Lab Sample ID: Sample Date:	TRIP BLANK_39 2401671401 5/20/2022			MW-147 2401671 5/20/20	22			
		a b	- II	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		ND	1.0	ug/l	
Tet	trachloroethene	127-18-4	ND	1.0	ug/l		ND	1.0	ug/l	
tra	ns-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l		ND	1.0	ug/l	
Trie	chloroethene	79-01-6	ND	1.0	ug/l		ND	1.0	ug/l	
Vin	iyl chloride	75-01-4	ND	1.0	ug/l		0.73	1.0	ug/l	J
<u>OSW-8260DSII</u>	M									
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 # 240-167140-1 CADENA Verification Report: 2022-06-06

Analyses Performed By: TestAmerica North Canton, Ohio

Report # 45899R Review Level: Tier III Project: 30080642.402.01

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-167140-1for 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 Collection		Ana	lysis
Sample ID	Lab ID	Matrix	Date	Parent Sample	voc	VOC SIM
TRIP BLANK_39	240-167140-1	Water	05/20/22		Х	
MW-147S_052022	240-167140-2	Water	05/20/22		Х	Х

ANALYTICAL DATA PACKAGE DOCUMENTATION

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

Items Reviewed	Rep	orted		mance ptable	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 and 8260D SIM. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

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.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

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

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

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

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

All samples were analyzed within the specified holding time criteria.

2. Mass Spectrometer Tuning

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

System performance and column resolution were acceptable.

3. Calibration

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

3.1 Initial Calibration

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

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

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

3.2 Continuing Calibration

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

All compounds associated with the 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 is 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	Required
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (G	C/MS)				
Tier II Validation					
Holding times/Preservation		Х		X	
Tier III Validation					·
System performance and column resolution		Х		X	
Initial calibration %RSDs		Х		Х	
Continuing calibration RRFs		Х		Х	
Continuing calibration %Ds		Х		Х	
Instrument tune and performance check		Х		Х	
lon abundance criteria for each instrument used		Х		Х	
Field Duplicate RPD	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

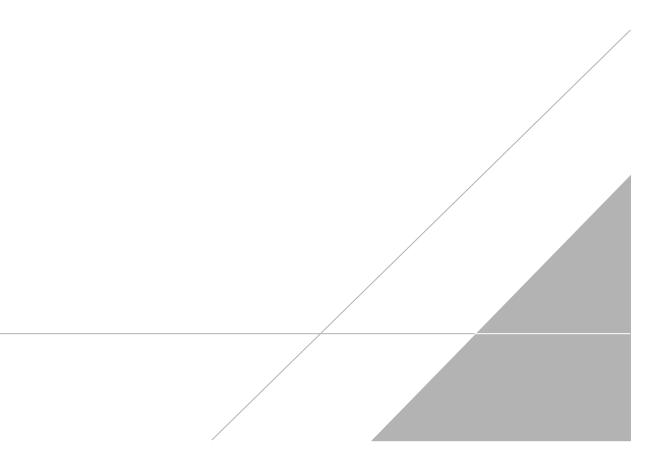
VALIDATION PERFORMED BY:	Vinayak Hegde
SIGNATURE:	V Anexer
DATE:	June 20, 2022

PEER REVIEW: Andrew Korycinski

DATE: June 22, 2022

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

Company Name: Arcadis	Client Project !	Client Project Manager: Kris Hinskey Site Contact: Christina Weaver Lab Contact: Mike DelMonico								TestAmerica Laboratories COC No:												
ddress: 28550 Cabot Drive, Suite 500	Telephone: 260	-832-7478	_			Tel	enhor	10.24	19.004	2230					Tale	nhor	. 220	066.07	93			
ity/State/Zip: Novi, MI, 48377	Telephone. 20	Telephone: 269-832-7478					Telephone: 248-994-2329					Telephone: 330-966-9783						1 of 1 COCs				
hone: 248-994-2240	Email: Kristoffer.Hinskey@arcadis.com				-	Analy	ysis 'l	Turna	round	Time				Analyses					For lab use only			
	Sampler Name	:				TA	T if diffe	ferent fi	from bel	ow	1	-										Walk-in client
Project Name: Ford LTP Off-Site	1	Sam Su	sta	rin			TAT if different from below 3 3 3 10 day ✓ 2 weeks 1 ueeks															
Project Number: 30080642.402.04	Method of Ship		1001	14		-													Σ		Lab sampling	
PO # 30080642.402.04	Shipping/Track	Shipping/Tracking No:				-	Containers & Preservatives					e	3260D				8260D	S DO		Job/SDG No:		
				Mati	ix	+	Cont	tainer	rs & Pi	reserva	tives	ample		260D	E 826	DCE	0		ride 8	1e 826		
Sample Identification	Sample Date	Sample Time	Air Agueous	Sediment	Solid Other:	H2SO4	HN03	HCI	NaOH	Unbres	Other:	Filtered S	Comnosit	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		Sample Specific Notes Special Instructions:
TRIP BLANK_ 39 MW-1475_052022	05/20/22	13130	PX			Т		1				N	6	; X	X	X	X	X	X			1 Trip Blank
NA 147 HERRIZZ	Si la	1717		+ +	-	+		1			-	11	r		1	1	11			11	++-	3 VOAs for 8260D
1VW-115_00000	5/rohi	1313	Y	4	_	+		6	+			W	t	ηX	ЦX		K		X		++	3 VOAs for 8260D S
	_			++	+	+	+		$ \rightarrow $	+		+	+	-	+	+	-					
												1	1		1	1	1	1		1 1 1		
				+		+-	$\left \right $			-	- 11									_		
				+		+	$\left \right $			+	- 24	40-16	714	O Ch	ain o	Cus	tody					
																				1 1 1		
																	\square		-			
Possible Hazard Identification						-	Sample	e Dis	sposal	(A fee	e may t	be asses	ssed	if sam	ples ai	re reta	ined lo	nger t	han 1	month)		
Non-Hazard Flammable Skin Ir		on B	Unknow						m to C			Dispo					Archiv			Months		
Sample Address: Garthan Stranger States Submit all results through Catlena at itomalia@cadena	058 51	de ant	ES		3440	21	0	10		-1												
	ico.com. Cadena i	E203631		2	770	1	C		LIC													
Level IV Reporting requested. Relinquished by:	Company:		Da	ste/Time			_		Receiv	ved by	- 1		- 1					Conv	anu:	1		Data/Tima:
Samuel Unfaria	Arcad	ts	0	5/2	sn					Arc	ank	(d	4.		Ma	e	Comp	A	readis		Date/Time:
Relinquished By:	Company:	NOTS	Da	te/Time		8	85	$\overline{\mathbf{a}}$	Rece	ved by	· (1)	atory to	0		1	1		Comp	any:			Date/Time:
Relinquished by:				>/C ate/Tjm	3/22		030	~	Read	en.	~ 1	a		$\overline{}$				6	Ħ	of		5/23/2(00
Jei Hae	Company: EETV	4	6	5/20	122	85	4		Accel	ved 10	Labor	ر ٢	8-	۵.				Com	S	inc		Date/Time: 5/23/27 005 Date/Time: 5/24/22 101
				2100	and a	97	1	_			*							1 (



Client Sample ID: TRIP BLANK_39 Date Collected: 05/20/22 00:00 Date Received: 05/24/22 10:00

.lob	١D·	240-	1671	40-1
000	ıD.	270-	107 1	-0-

Lab Sample ID: 240-167140-1

Matrix: Water

5 6

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			06/02/22 18:40	
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			06/02/22 18:40	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			06/02/22 18:40	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			06/02/22 18:40	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			06/02/22 18:40	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			06/02/22 18:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
1,2-Dichloroethane-d4 (Surr)	87		62 - 137					06/02/22 18:40	
4-Bromofluorobenzene (Surr)	107		56 - 136					06/02/22 18:40	1
Toluene-d8 (Surr)	90		78 - 122					06/02/22 18:40	
Dibromofluoromethane (Surr)	85		73 - 120					06/02/22 18:40	

Eurofins Canton

Client Sample ID: MW-147S_052022 Date Collected: 05/20/22 13:13 Date Received: 05/24/22 10:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			06/02/22 01:43
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed
1,2-Dichloroethane-d4 (Surr) 103			66 - 120			-		06/02/22 01:43
Method: 8260D - Volatile Or	ganic Compo	unds by G	C/MS					
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			06/02/22 19:03
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			06/02/22 19:03

Surrogate	%Recovery	Qualifier	Limits			
Vinyl chloride	0.73	J	1.0	0.45	ug/L	
					0	
Trichloroethene	1.0	П	1.0	0.44	ua/l	
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L	
Tetrachloroethene	1.0	U	1.0	0.44	ug/L	
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L	
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L	

Surrogate	%Recovery	Qualifier	Limits		Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		62 - 137	-		06/02/22 19:03	1
4-Bromofluorobenzene (Surr)	104		56 - 136			06/02/22 19:03	1
Toluene-d8 (Surr)	91		78 - 122			06/02/22 19:03	1
Dibromofluoromethane (Surr)	85		73 - 120			06/02/22 19:03	1

06/02/22 19:03

06/02/22 19:03

06/02/22 19:03

06/02/22 19:03

Lab Sample ID: 240-167140-2

Matrix: Water

Dil Fac

Dil Fac

Dil Fac

1

1

1

1

1

1

1

1

8