🔅 eurofins

Environment Testing America

ANALYTICAL REPORT

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

Laboratory Job ID: 240-166931-1

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

signature.

Authorized for release by: 5/31/2022 3:43:52 PM

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

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

Table of Contents

Case Narrative4Method Summary5Sample Summary6Detection Summary7Client Sample Results8Surrogate Summary10QC Sample Results11QC Association Summary14Lab Chronicle15	Cover Page	1
Case Narrative4Method Summary5Sample Summary6Detection Summary7Client Sample Results8Surrogate Summary10QC Sample Results11QC Association Summary14Lab Chronicle15Certification Summary16	Table of Contents	2
Method Summary5Sample Summary6Detection Summary7Client Sample Results8Surrogate Summary10QC Sample Results11QC Association Summary14Lab Chronicle15Certification Summary16	Definitions/Glossary	3
Sample Summary6Detection Summary7Client Sample Results8Surrogate Summary10QC Sample Results11QC Association Summary14Lab Chronicle15Certification Summary16	Case Narrative	4
Sample Summary6Detection Summary7Client Sample Results8Surrogate Summary10QC Sample Results11QC Association Summary14Lab Chronicle15Certification Summary16	Method Summary	5
Client Sample Results8Surrogate Summary10QC Sample Results11QC Association Summary14Lab Chronicle15Certification Summary16	Sample Summary	6
Client Sample Results8Surrogate Summary10QC Sample Results11QC Association Summary14Lab Chronicle15Certification Summary16	Detection Summary	7
QC Sample Results11QC Association Summary14Lab Chronicle15Certification Summary16	Client Sample Results	-
QC Association Summary14Lab Chronicle15Certification Summary16	Surrogate Summary	10
QC Association Summary14Lab Chronicle15Certification Summary16		11
Certification Summary 16	QC Association Summary	14
Certification Summary 16	Lab Chronicle	15
Chain of Custody	Certification Summary	16
	Chain of Custody	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: 240-166931-1

Laboratory: Eurofins Canton

Narrative

Job Narrative 240-166931-1

Case Narrative

Comments

No additional comments.

Receipt

The samples were received on 5/20/2022 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.8° C and 1.9° C.

GC/MS VOA

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

VOA Prep

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

Job ID: 240-166931-1

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

Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-166931-1	TRIP BLANK_56	Water	05/17/22 00:00	05/20/22 08:00
240-166931-2	MW-89S_051722	Water	05/17/22 12:55	05/20/22 08:00

Eurofins Canton

Client Sample ID: TRIP BLANK_56

No Detections.

Client Sample ID: MW-89S_051722								ple ID: 2	40-166931-2
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.53	J	1.0	0.46	ug/L	1	_	8260D	Total/NA
Vinyl chloride	1.1		1.0	0.45	ug/L	1		8260D	Total/NA

This Detection Summary does not include radiochemical test results.

Job ID: 240-166931-1

Lab Sample ID: 240-166931-1

Client Sample ID: TRIP BLANK_56 Date Collected: 05/17/22 00:00 Date Received: 05/20/22 08:00

Lab Sample ID: 240-166931-1

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			05/26/22 15:11	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/26/22 15:11	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/26/22 15:11	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/26/22 15:11	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/26/22 15:11	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/26/22 15:11	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		62 - 137			-		05/26/22 15:11	1
4-Bromofluorobenzene (Surr)	95		56 - 136					05/26/22 15:11	1
Toluene-d8 (Surr)	101		78 - 122					05/26/22 15:11	1
Dibromofluoromethane (Surr)	100		73 - 120					05/26/22 15:11	1

Client Sample ID: MW-89S_051722 Date Collected: 05/17/22 12:55 Date Received: 05/20/22 08:00

Lab Sample	ID: 240-1	66931-2

Matrix: Water

Job ID: 240-166931-1

nalyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
,4-Dioxane	2.0	U	2.0	0.86	ug/L			05/27/22 21:54	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		66 - 120					05/27/22 21:54	1
Method: 8260D - Volatile O	rganic Compo	unds by G	C/MS						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/26/22 17:10	1
cis-1,2-Dichloroethene	0.53	J	1.0	0.46	ug/L			05/26/22 17:10	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/26/22 17:10	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/26/22 17:10	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/26/22 17:10	1
Vinyl chloride	1.1		1.0	0.45	ug/L			05/26/22 17:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		62 - 137					05/26/22 17:10	1
4-Bromofluorobenzene (Surr)	95		56 <u>-</u> 136					05/26/22 17:10	1
Toluene-d8 (Surr)	99		78 - 122					05/26/22 17:10	1
Dibromofluoromethane (Surr)	100		73 - 120					05/26/22 17:10	1

Eurofins Canton

Surrogate Summary

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

			Pe	rcent Surre	ogate Recovery (Ac	ceptance Limits)
		DCA	BFB	TOL	DBFM	
_ab Sample ID	Client Sample ID	(62-137)	(56-136)	(78-122)	(73-120)	
240-166931-1	TRIP BLANK_56	92	95	101	100	
240-166931-2	MW-89S_051722	93	95	99	100	
240-166933-D-2 MS	Matrix Spike	92	101	102	98	
240-166933-G-2 MSD	Matrix Spike Duplicate	90	102	103	98	
_CS 240-528104/5	Lab Control Sample	87	98	101	94	
MB 240-528104/7	Method Blank	93	94	100	100	
Surrogate Legend						
DCA = 1,2-Dichloroeth	ane-d4 (Surr)					
BFB = 4-Bromofluorob	enzene (Surr)					
TOL = Toluene-d8 (Su	r)					
DBFM = Dibromofluoro	omethane (Surr)					
		•				
lethod: 8260D S	IM - Volatile Organic	Compound	ds (GC/	MS)		
atrix: Water						Prep

			Percent Surrogate Recovery (Acceptance Limits)	
		DCA		
Lab Sample ID	Client Sample ID	(66-120)		
240-166931-2	MW-89S_051722	87		
240-166933-H-2 MS	Matrix Spike	91		
240-166933-N-2 MSD	Matrix Spike Duplicate	88		
LCS 240-528362/3	Lab Control Sample	88		
MB 240-528362/4	Method Blank	93		
Surrogate Legend				

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

Eurofins Canton

Job ID: 240-166931-1

Prep Type: Total/NA

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

Lab Sample ID: MB 240-528104/7 **Matrix: Water**

Analysis Batch: 528104

MB	MB							
Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1.0	U	1.0	0.49	ug/L			05/26/22 14:00	1
1.0	U	1.0	0.46	ug/L			05/26/22 14:00	1
1.0	U	1.0	0.44	ug/L			05/26/22 14:00	1
1.0	U	1.0	0.51	ug/L			05/26/22 14:00	1
1.0	U	1.0	0.44	ug/L			05/26/22 14:00	1
1.0	U	1.0	0.45	ug/L			05/26/22 14:00	1
		MB MB Result Qualifier 1.0 U 1.0 U	Result Qualifier RL 1.0 U 1.0 1.0 U 1.0	Result Qualifier RL MDL 1.0 U 1.0 0.49 1.0 U 1.0 0.49 1.0 U 1.0 0.44 1.0 U 1.0 0.44 1.0 U 1.0 0.51 1.0 U 1.0 0.44	Result Qualifier RL MDL Unit 1.0 U 1.0 0.49 ug/L 1.0 U 1.0 0.46 ug/L 1.0 U 1.0 0.44 ug/L 1.0 U 1.0 0.51 ug/L 1.0 U 1.0 0.44 ug/L	Result Qualifier RL MDL Unit D 1.0 U 1.0 0.49 ug/L 0.49 ug/L 0.49 ug/L 0.40 ug/L 0.41 0.41 ug/L 0.41 0.41 0.41 0.41 </td <td>Result Qualifier RL MDL Unit D Prepared 1.0 U 1.0 0.49 ug/L ug</td> <td>Result Qualifier RL MDL Unit D Prepared Analyzed 1.0 U 1.0 0.49 ug/L 05/26/22 05/26/22 14:00 1.0 U 1.0 0.46 ug/L 05/26/22 14:00 1.0 U 1.0 0.44 ug/L 05/26/22 14:00 1.0 U 1.0 0.44 ug/L 05/26/22 14:00 1.0 U 1.0 0.51 ug/L 05/26/22 14:00 1.0 U 1.0 0.51 ug/L 05/26/22 14:00 1.0 U 1.0 0.44 ug/L 05/26/22 14:00</td>	Result Qualifier RL MDL Unit D Prepared 1.0 U 1.0 0.49 ug/L ug	Result Qualifier RL MDL Unit D Prepared Analyzed 1.0 U 1.0 0.49 ug/L 05/26/22 05/26/22 14:00 1.0 U 1.0 0.46 ug/L 05/26/22 14:00 1.0 U 1.0 0.44 ug/L 05/26/22 14:00 1.0 U 1.0 0.44 ug/L 05/26/22 14:00 1.0 U 1.0 0.51 ug/L 05/26/22 14:00 1.0 U 1.0 0.51 ug/L 05/26/22 14:00 1.0 U 1.0 0.44 ug/L 05/26/22 14:00

	MB	МВ				
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		62 - 137		05/26/22 14:00	1
4-Bromofluorobenzene (Surr)	94		56 - 136		05/26/22 14:00	1
Toluene-d8 (Surr)	100		78 - 122		05/26/22 14:00	1
Dibromofluoromethane (Surr)	100		73 - 120		05/26/22 14:00	1

Lab Sample ID: LCS 240-528104/5 Matrix: Water Analysis Batch: 528104

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,1-Dichloroethene		25.0		ug/L		100	63 - 134	
cis-1,2-Dichloroethene	25.0	23.7		ug/L		95	77 - 123	
Tetrachloroethene	25.0	25.8		ug/L		103	76 - 123	
trans-1,2-Dichloroethene	25.0	23.8		ug/L		95	75 - 124	
Trichloroethene	25.0	25.3		ug/L		101	70 - 122	
Vinyl chloride	25.0	22.9		ug/L		91	60 - 144	

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	87		62 - 137
4-Bromofluorobenzene (Surr)	98		56 - 136
Toluene-d8 (Surr)	101		78 - 122
Dibromofluoromethane (Surr)	94		73 - 120

102

Lab Sample ID: 240-166933-D-2 MS **Matrix: Water** Analysis Batch: 528104

Toluene-d8 (Surr)

· · · · · · · · · · · · · · · · · · ·									
	Sample	Sample	Spike	MS	MS				%Rec
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
1,1-Dichloroethene	1.0	U	25.0	24.7		ug/L		99	56 - 135
cis-1,2-Dichloroethene	1.0	U	25.0	23.3		ug/L		93	66 - 128
Tetrachloroethene	1.0	U	25.0	24.1		ug/L		96	62 - 131
trans-1,2-Dichloroethene	1.0	U	25.0	23.3		ug/L		93	56 - 136
Trichloroethene	1.0	U	25.0	24.2		ug/L		97	61 - 124
Vinyl chloride	1.0	U	25.0	22.4		ug/L		90	43 - 157
	MS	MS							
Surrogate	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	92		62 - 137						
4-Bromofluorobenzene (Surr)	101		56 - 136						

Euro	fins	Cantor	h

5

10

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

Client Sample ID: Lab Control Sample

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Type: Total/NA

78 - 122

QC Sample Results

5

10

13

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

Analysis Batch: 528104										ient 38	mple ID: Prep Ty		
	MS	мs											
Surrogate	%Recovery		lifier	Limits									
Dibromofluoromethane (Surr)	98	quu		73 - 120									
Lab Sample ID: 240-16693 Matrix: Water	33-G-2 MSD						Clie	nt Sar	npl	le ID: N	latrix Spi Prep Ty		
Analysis Batch: 528104													
-	Sample	Sam	ple	Spike	MSD	MSD					%Rec		RP
Analyte	Result	Qua	lifier	Added	Result	t Qualifie	r Unit		D	%Rec	Limits	RPD	Lin
1,1-Dichloroethene	1.0	U		25.0	23.8	3	ug/L		_	95	56 - 135	4	
cis-1,2-Dichloroethene	1.0	U		25.0	23.2	2	ug/L			93	66 - 128	0	
Tetrachloroethene	1.0	U		25.0	23.2	2	ug/L			93	62 - 131	4	:
rans-1,2-Dichloroethene	1.0	U		25.0	22.8	}	ug/L			91	56 - 136	2	• • • • •
Trichloroethene	1.0			25.0	23.6		ug/L			94	61 - 124	3	
Vinyl chloride		U		25.0	22.2		ug/L			89	43 - 157	1	
···· , ········		-					3,					-	-
	MSD	MSL)										
Surrogate	%Recovery	Qua	lifier	Limits									
1,2-Dichloroethane-d4 (Surr)	90			62 - 137									
4-Bromofluorobenzene (Surr)	102			56 - 136									
Toluene-d8 (Surr)	103			78 - 122									
Dibromofluoromethane (Surr)	98			73 - 120									
Matrix: Water								, c	lie	nt Sam	ple ID: N Prep Tv		
								, c	lie	nt Sam	Prep Ty		
Analysis Batch: 528362	_	МВ									Prep Ty	/pe: To	otal/N
Analysis Batch: 528362	Re	sult	Qualifier		RL	MDL Un		_ <u>P</u> _		nt Sam	Prep Ty Analy	/pe: To	otal/N
Analysis Batch: 528362	Re		Qualifier		RL	MDL Un 0.86 ug/					Prep Ty	/pe: To	otal/N
Analysis Batch: 528362 Analyte	Re	sult	Qualifier								Prep Ty Analy	/pe: To	otal/N
Analysis Batch: 528362 Analyte 1,4-Dioxane		esult 2.0 MB	Qualifier	 Limi	2.0				Pr		Prep Ty Analy	vpe: To vzed 2 19:56	Dil F
Analysis Batch: 528362 Analyte 1,4-Dioxane Surrogate		esult 2.0 MB	Qualifier U MB		2.0				Pr	epared	Prep Ty Analy 	vpe: To vzed 2 19:56 vzed	Dil Fa
Analysis Batch: 528362 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr)	%Reco	2.0 MB	Qualifier U MB		2.0		L	D	Pr Pr	repared repared	Prep Ty 	vpe: To vzed 2 19:56 vzed 2 19:56	Dil Fa
Analysis Batch: 528362 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-4	%Reco	2.0 MB	Qualifier U MB		2.0		L	D	Pr Pr	repared repared	Prep Ty 	rzed 2 19:56 2 19:56 2 19:56 ntrol S	Dil Fa Dil Fa Dil Fa
Analysis Batch: 528362 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-4 Matrix: Water	%Reco	2.0 MB	Qualifier U MB		2.0		L	D	Pr Pr	repared repared	Prep Ty 	rzed 2 19:56 2 19:56 2 19:56 ntrol S	Dil Fa Dil Fa Dil Fa
Analysis Batch: 528362 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-4 Matrix: Water	%Reco	2.0 MB	Qualifier U MB	66 - 1	2.0 its 120	0.86 ug/	L	D	Pr Pr	repared repared	Prep Ty 	rzed 2 19:56 2 19:56 2 19:56 ntrol S	Dil Fa
Analysis Batch: 528362 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-4 Matrix: Water Analysis Batch: 528362	%Reco	2.0 MB	Qualifier U MB	66 - ` Spike	2.0 its 120 LCS	0.86 ug/	C	D	Pr Pr San	epared repared nple ID	Prep Ty 	rzed 2 19:56 2 19:56 2 19:56 ntrol S	Dil Fa Dil Fa Dil Fa
Analysis Batch: 528362 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-4 Matrix: Water Analysis Batch: 528362 Analyte	%Reco	2.0 MB	Qualifier U MB	66 - 5 Spike Added	2.0 its 120 LCS Result	0.86 ug/ 6 LCS 2 Qualifie	L C r <u>Unit</u>	D	Pr Pr	epared epared nple ID	Prep Ty Analy 05/27/22 Analy 05/27/22 Lab Cou Prep Ty %Rec Limits	rzed 2 19:56 2 19:56 2 19:56 ntrol S	Dil Fa
Analysis Batch: 528362 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-4 Matrix: Water Analysis Batch: 528362 Analyte	%Reco	2.0 MB	Qualifier U MB	66 - ` Spike	2.0 its 120 LCS	0.86 ug/ 6 LCS 2 Qualifie	C	D	Pr Pr San	epared repared nple ID	Prep Ty 	rzed 2 19:56 2 19:56 2 19:56 ntrol S	Dil Fail/N Dil Fa
Analysis Batch: 528362 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-4 Matrix: Water Analysis Batch: 528362 Analyte	%Reco	esult 2.0 MB very 93	Qualifier U MB Qualifier	66 - 5 Spike Added	2.0 its 120 LCS Result	0.86 ug/ 6 LCS 2 Qualifie	L C r <u>Unit</u>	D	Pr Pr San	epared epared nple ID	Prep Ty Analy 05/27/22 Analy 05/27/22 Lab Cou Prep Ty %Rec Limits	rzed 2 19:56 2 19:56 2 19:56 ntrol S	Dil Fa Dil Fa Dil Fa
Analysis Batch: 528362 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-4 Matrix: Water Analysis Batch: 528362 Analyte 1,4-Dioxane	%Recon 528362/3	LCS	Qualifier U MB Qualifier	66 - 66 - 66 - 66 - 66 - 66 - 66 - 66	2.0 its 120 LCS Result	0.86 ug/ 6 LCS 2 Qualifie	L C r <u>Unit</u>	D	Pr Pr San	epared epared nple ID	Prep Ty Analy 05/27/22 Analy 05/27/22 Lab Cou Prep Ty %Rec Limits	rzed 2 19:56 2 19:56 2 19:56 ntrol S	Dil Fa Dil Fa Dil Fa
Analysis Batch: 528362 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-4 Matrix: Water Analysis Batch: 528362 Analyte 1,4-Dioxane Surrogate	%Recon	LCS	Qualifier U MB Qualifier	66 - 5 Spike Added	2.0 its 120 LCS Result	0.86 ug/ 6 LCS 2 Qualifie	L C r <u>Unit</u>	D	Pr Pr San	epared epared nple ID	Prep Ty Analy 05/27/22 Analy 05/27/22 Lab Cou Prep Ty %Rec Limits	rzed 2 19:56 2 19:56 2 19:56 ntrol S	Dil Fa Dil Fa Dil Fa
Analysis Batch: 528362 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-4 Matrix: Water Analysis Batch: 528362 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr)	%Recon 528362/3 LCS %Recovery 88	LCS	Qualifier U MB Qualifier	66 - Spike Added 10.0	2.0 its 120 LCS Result	0.86 ug/ 6 LCS 2 Qualifie	L C r <u>Unit</u>	D	Pr Pr San	repared nple ID <u>%Rec</u> 101	Prep Ty Analy Analy 	vpe: To vzed 2 19:56 2 19:56 vpe: To vpe: To	Dil Fa Dil Fa Dil Fa
Analysis Batch: 528362 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-4 Matrix: Water Analysis Batch: 528362 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: 240-16693	%Recon 528362/3 LCS %Recovery 88	LCS	Qualifier U MB Qualifier	66 - Spike Added 10.0	2.0 its 120 LCS Result	0.86 ug/ 6 LCS 2 Qualifie	L C r <u>Unit</u>	D	Pr Pr San	repared nple ID <u>%Rec</u> 101	Prep Ty 	rpe: To rzed 2 19:56 2 19:56 ntrol S rpe: To Matrix	Dil Fa Dil Fa Dil Fa ampl tal/N
Analysis Batch: 528362 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-4 Matrix: Water Analysis Batch: 528362 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: 240-16693 Matrix: Water	%Recon 528362/3 LCS %Recovery 88	LCS	Qualifier U MB Qualifier	66 - Spike Added 10.0	2.0 its 120 LCS Result	0.86 ug/ 6 LCS 2 Qualifie	L C r <u>Unit</u>	D	Pr Pr San	repared nple ID <u>%Rec</u> 101	Prep Ty Analy Analy 	rpe: To rzed 2 19:56 2 19:56 ntrol S rpe: To Matrix	Dil Fa Dil Fa Dil Fa ampl tal/N
Matrix: Water Analysis Batch: 528362 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-4 Matrix: Water Analysis Batch: 528362 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: 240-16693 Matrix: Water Analysis Batch: 528362	%Recon 528362/3 <i>LCS</i> %Recovery 88 33-H-2 MS	LCS Qua	Qualifier U MB Qualifier	66 - Spike Added 10.0 Limits 66 - 120	2.0 its 120 LCS Result 10.1	0.86 ug/	L C r <u>Unit</u>	D	Pr Pr San	repared nple ID <u>%Rec</u> 101	Prep Ty Analy 05/27/22 Analy 05/27/22 Lab Cor Prep Ty %Rec Limits 80 - 122 mple ID: Prep Ty	rpe: To rzed 2 19:56 2 19:56 ntrol S rpe: To Matrix	Dil Fa Dil Fa Dil Fa ampl tal/N
Analysis Batch: 528362 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-4 Matrix: Water Analysis Batch: 528362 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: 240-16693 Matrix: Water	%Recon 528362/3 LCS %Recovery 88	LCS Qua	Qualifier U MB Qualifier	66 - Spike Added 10.0	2.0 its 120 LCS Result 10.1	0.86 ug/ 6 LCS 2 Qualifie	r <u>Unit</u> ug/L	D	Pr Pr San	repared nple ID <u>%Rec</u> 101	Prep Ty 	rpe: To rzed 2 19:56 2 19:56 ntrol S rpe: To Matrix	Dil Fa Dil Fa Dil Fa ampl tal/N

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

	MS	MS										
Surrogate	%Recovery	Qualifier	Limits									
1,2-Dichloroethane-d4 (Surr)	91		66 - 120									
_ Lab Sample ID: 240-1669	33-N-2 MSD					Client	Samn	le ID: N	latrix Spi	ke Dup	licate	2
Matrix: Water						•			Prep Ty			
Analysis Batch: 528362												
-	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	11.1		ug/L		111	51 - 153	10	16	
	MSD	MSD										ï
Surrogate	%Recovery	Qualifier	Limits									
1,2-Dichloroethane-d4 (Surr)	88		66 - 120									-

GC/MS VOA

Analysis Batch: 528104

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-166931-1	TRIP BLANK_56	Total/NA	Water	8260D	
240-166931-2	MW-89S_051722	Total/NA	Water	8260D	
MB 240-528104/7	Method Blank	Total/NA	Water	8260D	
LCS 240-528104/5	Lab Control Sample	Total/NA	Water	8260D	
240-166933-D-2 MS	Matrix Spike	Total/NA	Water	8260D	
240-166933-G-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Analysis Batch: 528362

Lab Sample ID 240-166931-2	Client Sample ID MW-89S_051722	Prep Type Total/NA	Matrix Water	Method 8260D SIM	Prep Batch
MB 240-528362/4	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-528362/3	Lab Control Sample	Total/NA	Water	8260D SIM	
240-166933-H-2 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-166933-N-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

Matrix: Water

Lab Sample ID: 240-166931-1

Client Sample ID: TRIP BLANK_56 Date Collected: 05/17/22 00:00 Date Received: 05/20/22 08:00

_	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	528104	05/26/22 15:11	SAM	TAL CAN
Client Sam	ple ID: MW	-895_051722	2				Lab Sa	mple ID: 240-166931-2
Date Collecte	d: 05/17/22 1	2:55						Matrix: Water
Date Receive	d: 05/20/22 0	8:00						

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	528104	05/26/22 17:10	SAM	TAL CAN
Total/NA	Analysis	8260D SIM		1	528362	05/27/22 21:54	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				
accreditations/certifications held b	y this laboratory are listed. Not all ac	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	Ĩ
Washington	State	C971	01-12-23	
West Virginia DEP	State	210	12-31-22	

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

		TestAmerica Laboratories, Inc. ICOC No:		1 of 1 COCs	For Iab use only	Walk-in client Lab sampling	Job/SDGi No:	Sample Specific Notes / Special Instructions:	1 Trip Blank	3 VOAs for 8260D 3 VOAs for 8260D SIM			Pare Time: 5/19/22 10, 20 Bare Time: 5/19/22 0930 Date Time: S-2022 2920
Chain of Custody Record 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763	RCRA Other	Site Contact: Christina Weaver I.ab Contact: Mike DelMonico				ceks () () () () () () () () () () () () ()	8560D E 8560D 560D D V Gtsp=	Облания <		24 X X X K K K X K X	240-16931 Chain of Custody	Return to Cheatt V Disposal By Lab Archive For Months	Received by CUN STATE Company Company Received by M M Company EFAA Refined in the offer by Company EFAA Refined in the offer by Company: EETAC
Chain of Custody Record TestAmerica Laboratory location: Brighton 10448 Citation Drive, Suite 200 / Brighton, M 4	Regulatory program: 📄 DW 📄 NPDES	Client Project Manager: Kris Hinskey		Marondie acom		Numpler Name: NMM MVV 10 day 2 N Method of Shipment/Carrier: 1 a	Shipping/Tracking No:	Value Va	2/1/2/ X - 22/1/2	SIN122 12:55 X		Unknown	Company Contract Date Time I IV IV IV Company Company FEXA 5/19/27 0920 No. Company FEXA 5/19/27 0920 No. 10
MICHIGAN 190 Testamer	Client Contact		uite 500	City/State/Zap: Novi, MI, 48377	Phone: 248-994-2240	Project Name: Ford LTP Off-Site Project Number: 3008042.402.04 Me	PO# 30080642.402.04 Shi	Sample Identification Sa	TRIP BLANK_ 5	22 LISO-895-UM	Possible flazard Identification	n-Hazard F Flammable Skin Irrite structions/OC Requirements & Comments: Iddress: AVC VC Nonaing@cadenaco Il results thrddgh Cadena arftomalng@cadenaco Reporting requested.	Relinquished by: Relinquished by: Relinq

Page 17 of 19

5/31/2022

1/1/93
Eurofins TestAmerica Canton Sample Receipt Form/Narrative Login # : 1001
Client_ACCADIS Site Name Ford - LTP Cooler unpacked by:
Cooler Received on 5-20-22 (Sme)
FedEx: 1 st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other
Receipt After-hours: Drop-off Date/Time Storage Location
TestAmerica Cooler # Foam Box Client Cooler Box Other
Packing material used: Bubble Wray Foam Plastic Bag None Other COOLANT: Wet Ice Blue Ice Dry Ice Water None
Cooler temperature upon receipt See Multiple Cooler Form
IR GUN# IR-13 (CF 0.0 °C) Observed 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 CA (Ses) No
-were the seals on the outside of the cooler(s) signed & dated? (Yes) No NA checked for pH by
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No Receiving:
-Were tamper/custody seals intact and uncompromised? B. Shippers' packing slip attached to the cooler(s)? VOAs
 B. Shippers' packing slip attached to the cooler(s)? 4. Did custody papers accompany the sample(s)? VOAs Oil and Grease Oil and Grease
5. Were the custody papers relinquished & signed in the appropriate place? No No No
5. Was/were the person(s) who collected the samples clearly identified on the COC? Ver No
7. Did all bottles arrive in good condition (Unbroken)?
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC?
P. For each sample, does the COC specify preservatives (YN), # of containers (YN), and sample type of grab/comp (YN)?
10. Were correct bottle(s) used for the test(s) indicated?
11. Sufficient quantity received to perform indicated analyses? (Yes) No
12. Are these work share samples and all listed on the COC? Yes 10
If yes, Questions 13-17 have been checked at the originating laboratory.
13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# <u>HC157842</u> 14. Were VOAs on the COC? Yes No
15. Were air bubbles >6 mm in any VOA vials? Larger than this. NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # COVECED to No
7. 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:
9. 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 in a broken container. Sample(s) were received with bubble >6 mm in diameter. (Notify PM)
0. SAMPLE PRESERVATION
Sample(s) were further preserved in the laboratory.
Sample(s)
104 Sample Descention Date Time VOAs France
/OA Sample Preservation - Date/Time VOAs Frozen:

WI-NC-099

Login #: (6693)

	5
	8
	9
	3
1	4

	Eurofina Cant	on Comple Dessint Mu	ultiple Cooler Form	
		on Sample Receipt Mu		
Cooler Descriptio (Circle)	n IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)
Client Box Of	her IR-13 IR-15	08	a8	Wet Ice Blue Ice Dry Ice Water None
TA Client Box Ot	her (R-13 IR-15	1-9	1.9	Wet ice Blue ice Dry ice Water None
TA Client Box Ot	iR-13 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Ot	her IR-13 IR-15			Wet ice Bive ice Dry ice Water None
TA Client Box Ot	her IR-13 IR-15			Wet ice Blue ice Dry ice Water None
TA Client Box Ot	her IR-13 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Ot	lR-13 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Ot	IR-13 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Ot	iR-13 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Ot	iR-13 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Ot	her IR-13 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Of	iR-13 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Ot	iR-13 IR-15			Wet ice Blue ice Dry ice Water None
TA Client Box Ot	lR-13 IR-15			Wet ice Sive ice Dry ice Water None
TA Client Box Of	lR-13 IR-15			Wet ice Blue ice Dry ice Water None
TA Client Box Ot	lR-13 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Ot	iR-13 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Ot	ir-13 ir-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Ot	iR-13 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Ot	her IR-13 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Ot	her IR-13 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Ot	her IR-13 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Ot	her IR-13 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Ot	her IR-13 IR-15			Wet ice Blue ice Dry ice Water None
TA Client Box Ot				Wet Ice Blue Ice Dry Ice Water None
TA Client Box Ot				Wet Ice Blue Ice Dry Ice Water None
TA Client Box Oti				Wet Ice Blue Ice Dry Ice Water None
TA Client Box Oti	ner IR-13 IR-15			Wet ice Blue ice Dry ice Water None
TA Client Box Ot				Wet ice Sive ice Dry ice Water None
TA Client Box Off				Wet ice Blue ice Dry ice Water None
TA Client Box Of				Wet Ice Blue Ice Dry Ice Water None
TA Client Box Ot	IR-13 IR-15			Wet ice Blue ice Dry ice Water None
TA Client Box Of				Wet ice Blue ice Dry ice Water None
TA Client Box Off	ner IR-13 IR-15			Wet Ice Blue Ice Dry Ice Water None
		**************************************	See Ter	nperature Excursion Form

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

DATA VERIFICATION REPORT



June 01, 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: 166931-1 Sample date: 2022-05-17 Report received by CADENA: 2022-05-31 Initial Data Verification completed by CADENA: 2022-06-01 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											
<	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: 166931-1

		Sample Name: Lab Sample ID: Sample Date:	TRIP BL/ 2401669 5/17/20	9311			MW-89S_051722 2401669312 5/17/2022					
				Report		Valid		Report		Valid		
	Analyte	Cas No.	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier		
GC/MS VOC												
<u>OSW-826</u>	<u>0D</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		0.53	1.0	ug/l	J		
	Tetrachloroethene	127-18-4	ND	1.0	ug/l		ND	1.0	ug/l			
	trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l		ND	1.0	ug/l			
	Trichloroethene	79-01-6	ND	1.0	ug/l		ND	1.0	ug/l			
	Vinyl chloride	75-01-4	ND	1.0	ug/l		1.1	1.0	ug/l			
<u>OSW-826</u>	<u>ODSIM</u>											
	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 # 240-166931-1 CADENA Verification Report: 2022-06-01

Analyses Performed By: TestAmerica North Canton, Ohio

Report # 45838R Review Level: Tier III Project: 30080642.402.01

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-166931-1 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 Collection	Sample Collection					
Sample ID	Lab ID	Matrix	Date	Parent Sample	voc	VOC SIM			
TRIP BLANK_56	240-166931-1	Water	05/17/22		Х				
MW-89S_051722	240-166931-2	Water	05/17/22		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		x		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		Х	
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

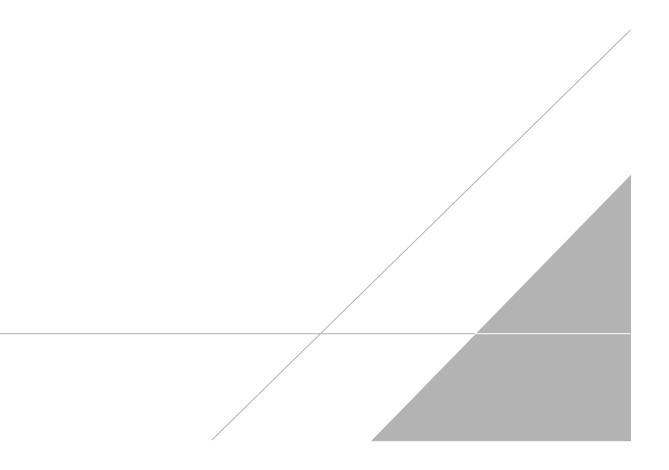
VALIDATION PERFORMED BY:	Vinayak Hegde	
SIGNATURE:	V Gresce	
DATE:	June 14, 2022	

PEER REVIEW: Andrew Korycinski

DATE: June 14, 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

Client Contact	Regulat	tory program	:	D	w	E.	NPDE	s	1	RCR	RA	E.	Other												
ompany Name: Arcadis	Client Project 1	Janager: Kris	Hinston		_	Site	Contac	at: Ch	ricting	We				- 1	.ab Co	mfaat		Dat	Marria					estAmerica La OC No:	boratories,
ddress: 28550 Cabot Drive, Suite 500			makey								aver									:0			0	OC N0:	
ity/State/Zip: Novi, MI, 48377	Telephone: 269	9-832-7478					phone								Feleph	one:	330-9	56-97	83				\vdash	1 of 1	COCs
hone: 248-994-2240	Email: Kristof	fer.Hinskey@a	arcadis.co	m			Analys	is Tu	rnarou	ind Ti	ime		-	_	-	_	T	A	nalys	ies		1 1	Fo	or lab use only	
roject Name: Ford LTP Off-Site	Sampler Name					TAT	f differe	ent from				1											w	alk-in client	
		Hind	l_			1	0 day	-	3 we 2 we	eks													La	b sampling	
roject Number: 30080642.402.04	Method of Ship	ment/Carrier:							1 we 2 day			(N)	U			8			0	SIM					
O # 30080642.402.04	Shipping/Track	ing No:				1			I da	У		le (Y	Gra		260D	8260D			8260D	260D			Jo	b/SDG No:	
	1			Matri	x		Conta	iners d	& Prese	rvativ	ves	ampl	e=C /	3260	CE 82	DQ	0	0	oride	ne 8					
Sample Identification	Sample Date	Sample Time	Air Aqueous	Sediment	Other:	H2SO4	HN03	NaOH	ZaAc/ NaOH	Unpres	Other:	Filtered Sample (Y / N)	Composite=C / Grab=G	1.1-DCE 8260D	cis-1.2-DCE 8260D	Trans-1,2-DCE	PCE 8260D	TCE 8260D	Vinyl Chloride	1,4-Dioxane 8260D SIM				Sample Spec Special Ins	
TRIP BLANK_ 5	5/17/22		X				1	_				2	4	x			X	X	X				1	1 Trip Blar	nk
TRIP BLANK_ 51; MW-895-051722	5/11/22	17:55	X				(6				N	6	V	8	۲	Ł	K	x	7				3 VOAs for 8 3 VOAs for 8	
									\square					-	1					-			+		
				+		+		+	+			\vdash	\vdash	-		-					+		_		
														Τ	T										
					+		$-\parallel$											-		\vdash		+			
																		_							
						Π		40-10	56931	I Ch	nain of	Cus	stody		_	_	_			1			+		
				++	-	+		+	+-1		-	1-1	<u> </u>		-	_		_				++	-		
Possible Hazard Identification Non-Hazard Flammable Skin Irrita	ant Poisc	on B	Unknow	'n		S	ample	Dispo eturn t	sal (A lo Clien	fee n	may be a	assess Dispos	sed if s: al By L	ample ab	es are i		ned lor rchive				h) lonths				
pecial Instructions/QC Requirements & Comments: ample Address: ubmit all results through Cadena artitomaling@cadenaco. evel IV Reporting requested.	Com Eadena #	E203631				•																			
clinquished by:	Company:	2	F Dat	BIZ.	2 11	017	w	_	ceived		0	UNC	ls	D	ra	gr		Comp	nany: UN	d	is		5	ite/Time:	16:2
elinquished by	Company: Company:	TIS	Dat	e/Time:	127	Ø	PC	\sum	ceived	1	M	//	N		_			Comp	ante		ENA		Da	$\frac{10}{7}$	09
elinquished by:	Company:	EXA	Dat	te/Time		22		Re	Rived		aborato	Dry by	v:	0		5		Com	pany:	38	TNC	~	D	Terrine:	2 08
										<u> </u>															

Client Sample ID: TRIP BLANK_56 Date Collected: 05/17/22 00:00 Date Received: 05/20/22 08:00

Lab Sample ID: 240-166931-1

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			05/26/22 15:11	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/26/22 15:11	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/26/22 15:11	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/26/22 15:11	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/26/22 15:11	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/26/22 15:11	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		62 - 137			-		05/26/22 15:11	1
4-Bromofluorobenzene (Surr)	95		56 - 136					05/26/22 15:11	1
Toluene-d8 (Surr)	101		78 - 122					05/26/22 15:11	1
Dibromofluoromethane (Surr)	100		73 - 120					05/26/22 15:11	1

Client Sample ID: MW-89S_051722 Date Collected: 05/17/22 12:55 Date Received: 05/20/22 08:00

Lab Sample	ID: 240-1	66931-2

Matrix: Water

Job ID: 240-166931-1

nalyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
,4-Dioxane	2.0	U	2.0	0.86	ug/L			05/27/22 21:54	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		66 - 120					05/27/22 21:54	1
Method: 8260D - Volatile O	rganic Compo	unds by G	C/MS						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/26/22 17:10	1
cis-1,2-Dichloroethene	0.53	J	1.0	0.46	ug/L			05/26/22 17:10	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/26/22 17:10	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/26/22 17:10	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/26/22 17:10	1
Vinyl chloride	1.1		1.0	0.45	ug/L			05/26/22 17:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		62 - 137					05/26/22 17:10	1
4-Bromofluorobenzene (Surr)	95		56 <u>-</u> 136					05/26/22 17:10	1
Toluene-d8 (Surr)	99		78 - 122					05/26/22 17:10	1
Dibromofluoromethane (Surr)	100		73 - 120					05/26/22 17:10	1

Eurofins Canton

🛟 eurofins

Environment Testing America

ANALYTICAL REPORT

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

Laboratory Job ID: 240-166269-1

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: 5/24/2022 7:54:09 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

Case Narrative4Method Summary5Sample Summary6Detection Summary7Client Sample Results8Surrogate Summary10QC Sample Results11QC Association Summary14Lab Chronicle15	Cover Page	1
Case Narrative4Method Summary5Sample Summary6Detection Summary7Client Sample Results8Surrogate Summary10QC Sample Results11QC Association Summary14Lab Chronicle15Certification Summary16	Table of Contents	2
Method Summary5Sample Summary6Detection Summary7Client Sample Results8Surrogate Summary10QC Sample Results11QC Association Summary14Lab Chronicle15Certification Summary16	Definitions/Glossary	3
Sample Summary6Detection Summary7Client Sample Results8Surrogate Summary10QC Sample Results11QC Association Summary14Lab Chronicle15Certification Summary16	Case Narrative	4
Sample Summary6Detection Summary7Client Sample Results8Surrogate Summary10QC Sample Results11QC Association Summary14Lab Chronicle15Certification Summary16	Method Summary	5
Client Sample Results8Surrogate Summary10QC Sample Results11QC Association Summary14Lab Chronicle15Certification Summary16	Sample Summary	6
Client Sample Results8Surrogate Summary10QC Sample Results11QC Association Summary14Lab Chronicle15Certification Summary16	Detection Summary	7
QC Sample Results11QC Association Summary14Lab Chronicle15Certification Summary16	Client Sample Results	-
QC Association Summary14Lab Chronicle15Certification Summary16	Surrogate Summary	10
QC Association Summary14Lab Chronicle15Certification Summary16		11
Certification Summary 16	QC Association Summary	14
Certification Summary 16	Lab Chronicle	15
Chain of Custody	Certification Summary	16
	Chain of Custody	17

Qualifiers

TEF

TEQ

TNTC

Toxicity Equivalent Factor (Dioxin)

Too Numerous To Count

Toxicity Equivalent Quotient (Dioxin)

GC/MS VOA Qualifier	Qualifier Description
	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

Job ID: 240-166269-1

Laboratory: Eurofins Canton

Narrative

Job Narrative 240-166269-1

Case Narrative

Comments

No additional comments.

Receipt

The samples were received on 5/10/2022 9:45 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.2° C.

GC/MS VOA

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

VOA Prep

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

Job ID: 240-166269-1

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

Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-166269-1	TRIP BLANK_58	Water	05/06/22 00:00	05/10/22 09:45
240-166269-2	MW-193S_050622	Water	05/06/22 13:52	05/10/22 09:45

Detection Sur	nmary
----------------------	-------

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

Client Sample ID: TRIP BLANK_58

No Detections.

Client Sample ID: MW-193S_050622

No Detections.

Lab Sample ID: 240-166269-1 4 5 7 8 9 10 11 12 13 14 Lab Sample ID: 240-166269-2

This Detection Summary does not include radiochemical test results.

Client Sample ID: TRIP BLANK_58 Date Collected: 05/06/22 00:00 Date Received: 05/10/22 09:45

Job	١D·	240-1	66269-1
000	ıю.	270 1	00200 1

Lab Sample ID: 240-166269-1

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			05/17/22 13:51	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/17/22 13:51	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/17/22 13:51	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/17/22 13:51	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/17/22 13:51	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/17/22 13:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)			62 - 137					05/17/22 13:51	1
4-Bromofluorobenzene (Surr)	101		56 - 136					05/17/22 13:51	1
Toluene-d8 (Surr)	95		78 - 122					05/17/22 13:51	1
Dibromofluoromethane (Surr)	109		73 - 120					05/17/22 13:51	1

Client Sample ID: MW-193S_050622 Date Collected: 05/06/22 13:52 Date Received: 05/10/22 09:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			05/14/22 02:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		66 - 120					05/14/22 02:23	1
_ Method: 8260D - Volatile C	organic Compo	unds bv G	C/MS						
Analyte	•	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/17/22 14:16	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/17/22 14:16	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/17/22 14:16	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/17/22 14:16	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/17/22 14:16	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/17/22 14:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1.2 Dichlaracthana d1 (Curr)	102		60 107					05/17/00 14.16	

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac	
1,2-Dichloroethane-d4 (Surr)	103		62 - 137		05/17/22 14:16	1	
4-Bromofluorobenzene (Surr)	100		56 - 136		05/17/22 14:16	1	
Toluene-d8 (Surr)	93		78 - 122		05/17/22 14:16	1	
Dibromofluoromethane (Surr)	110		73 - 120		05/17/22 14:16	1	

5/24/2022

Lab Sample ID: 240-166269-2 Matrix: Water

Surrogate Summary

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

Percent Surrogate Recovery (Acceptance Limits) DCA BFB DBFM TOL (73-120) Lab Sample ID **Client Sample ID** (62-137) (56-136) (78-122) 240-166236-H-4 MS Matrix Spike 94 90 107 99 240-166236-N-4 MSD Matrix Spike Duplicate 97 90 109 101 240-166269-1 TRIP BLANK 58 101 101 95 109 240-166269-2 MW-193S 050622 103 100 93 110 LCS 240-526699/5 Lab Control Sample 90 108 98 97 MB 240-526699/8 Method Blank 103 102 95 109 Surrogate Legend DCA = 1,2-Dichloroethane-d4 (Surr) BFB = 4-Bromofluorobenzene (Surr) TOL = Toluene-d8 (Surr) DBFM = Dibromofluoromethane (Surr) Method: 8260D SIM - Volatile Organic Compounds (GC/MS) Matrix: Water Prep Type: Total/NA Percent Surrogate Recovery (Acceptance Limits)

			Fercent Surrogate Recovery (Acceptance Linits)	
		DCA		
Lab Sample ID	Client Sample ID	(66-120)		
240-166269-2	MW-193S_050622	103		
240-166275-I-4 MS	Matrix Spike	105		
240-166275-O-4 MSD	Matrix Spike Duplicate	103		
LCS 240-526433/3	Lab Control Sample	108		
MB 240-526433/4	Method Blank	105		
Surrogate Legend				

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

Prep Type: Total/NA

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

Lab Sample ID: MB 240-526699/8 Matrix: Water

Analysis Batch: 526699

MB	MB							
Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1.0	U	1.0	0.49	ug/L			05/17/22 11:22	1
1.0	U	1.0	0.46	ug/L			05/17/22 11:22	1
1.0	U	1.0	0.44	ug/L			05/17/22 11:22	1
1.0	U	1.0	0.51	ug/L			05/17/22 11:22	1
1.0	U	1.0	0.44	ug/L			05/17/22 11:22	1
1.0	U	1.0	0.45	ug/L			05/17/22 11:22	1
	Result 1.0 1.0 1.0 1.0 1.0	MB MB Result Qualifier 1.0 U 1.0 U	Result Qualifier RL 1.0 U 1.0 1.0 U 1.0	Result Qualifier RL MDL 1.0 U 1.0 0.49 1.0 U 1.0 0.46 1.0 U 1.0 0.44 1.0 U 1.0 0.51 1.0 U 1.0 0.44	ResultQualifierRLMDLUnit1.0 U 1.0 0.49 ug/L 1.0 U 1.0 0.46 ug/L 1.0 U 1.0 0.44 ug/L 1.0 U 1.0 0.51 ug/L 1.0 U 1.0 0.44 ug/L 1.0 U 1.0 0.44 ug/L	Result Qualifier RL MDL Unit D 1.0 U 1.0 0.49 ug/L D 1.0 U 1.0 0.49 ug/L D 1.0 U 1.0 0.44 ug/L D 1.0 U 1.0 0.44 ug/L D 1.0 U 1.0 0.51 ug/L D 1.0 U 1.0 0.44 ug/L D	Result Qualifier RL MDL Unit D Prepared 1.0 U 1.0 0.49 ug/L 0	Result Qualifier RL MDL Unit D Prepared Analyzed 1.0 U 1.0 0.49 ug/L 05/17/22 05/17/22 05/17/22 11:22 1.0 U 1.0 0.46 ug/L 05/17/22 05/17/22 11:22 1.0 U 1.0 0.44 ug/L 05/17/22 11:22 1.0 U 1.0 0.51 ug/L 05/17/22 11:22 1.0 U 1.0 0.44 ug/L 05/17/22 11:22 1.0 U 1.0 0.44 ug/L 05/17/22 11:22 1.0 U 1.0 0.44 ug/L 05/17/22 11:22

	MB	МВ				
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		62 - 137		05/17/22 11:22	1
4-Bromofluorobenzene (Surr)	102		56 - 136		05/17/22 11:22	1
Toluene-d8 (Surr)	95		78 - 122		05/17/22 11:22	1
Dibromofluoromethane (Surr)	109		73 - 120		05/17/22 11:22	1

Lab Sample ID: LCS 240-526699/5 Matrix: Water Analysis Batch: 526699

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,1-Dichloroethene	20.0	22.1		ug/L		110	63 - 134	
cis-1,2-Dichloroethene	20.0	21.3		ug/L		106	77 - 123	
Tetrachloroethene	20.0	20.8		ug/L		104	76 - 123	
trans-1,2-Dichloroethene	20.0	21.1		ug/L		105	75_124	
Trichloroethene	20.0	20.3		ug/L		102	70 - 122	
Vinyl chloride	20.0	15.0		ug/L		75	60 - 144	

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	90		62 - 137
4-Bromofluorobenzene (Surr)	108		56 - 136
Toluene-d8 (Surr)	98		78 - 122
Dibromofluoromethane (Surr)	97		73 - 120

99

Lab Sample ID: 240-166236-H-4 MS **Matrix: Water** Analysis Batch: 526699

Toluene-d8 (Surr)

7 maryolo Batolii ozoooo									
	Sample	Sample	Spike	MS	MS				%Rec
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
1,1-Dichloroethene	1.0	U	20.0	19.8		ug/L		99	56 - 135
cis-1,2-Dichloroethene	1.0	U	20.0	18.6		ug/L		93	66 - 128
Tetrachloroethene	1.0	U	20.0	17.8		ug/L		89	62 - 131
trans-1,2-Dichloroethene	1.0	U	20.0	18.9		ug/L		95	56 - 136
Trichloroethene	1.0	U	20.0	17.3		ug/L		87	61 - 124
Vinyl chloride	1.0	U	20.0	13.7		ug/L		68	43 - 157
	MS	MS							
Surrogate	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	90		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: 240-166269-1

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

Lab Sample ID: 240-166236-H-4 MS **Client Sample ID: Matrix Spike** Matrix: Water Prep Type: Total/NA Analysis Batch: 526699 MS MS %Recovery Qualifier Limits Surrogate Dibromofluoromethane (Surr) 94 73 - 120 **Client Sample ID: Matrix Spike Duplicate** Lab Sample ID: 240-166236-N-4 MSD Matrix: Water Prep Type: Total/NA Analysis Batch: 526699 Sample Sample Spike MSD MSD %Rec RPD **Result Qualifier** Added Limits RPD Limit Analyte **Result Qualifier** Unit D %Rec 1.0 U 1,1-Dichloroethene 20.0 22.0 ug/L 110 56 - 135 10 26 cis-1,2-Dichloroethene 1.0 U 20.0 20.4 ug/L 102 66 - 128 9 14 Tetrachloroethene 1.0 U 20.0 18.8 ug/L 94 62 - 131 5 20 trans-1.2-Dichloroethene 1.0 U 20.0 20.4 102 15 ug/L 56 - 136 7 Trichloroethene 1.0 U 20.0 18.7 ug/L 93 61 - 124 7 15 Vinyl chloride 1.0 U 20.0 14.3 ug/L 72 43 - 157 5 24 MSD MSD %Recovery Qualifier Surrogate Limits 1,2-Dichloroethane-d4 (Surr) 90 62 - 137 4-Bromofluorobenzene (Surr) 109 56 - 136 Toluene-d8 (Surr) 101 78 - 122 Dibromofluoromethane (Surr) 97 73 - 120 Method: 8260D SIM - Volatile Organic Compounds (GC/MS) Lab Sample ID: MB 240-526433/4 **Client Sample ID: Method Blank Matrix: Water Prep Type: Total/NA** Analysis Batch: 526433 MB MB Analyte **Result Qualifier** RL MDL Unit D Prepared Analyzed Dil Fac 1,4-Dioxane 2.0 U 2.0 0.86 ug/L 05/13/22 20:08 MB MB Qualifier Dil Fac Surrogate %Recovery Limits Prepared Analyzed 1,2-Dichloroethane-d4 (Surr) 105 66 - 120 05/13/22 20:08 1 Lab Sample ID: LCS 240-526433/3 **Client Sample ID: Lab Control Sample Matrix: Water** Prep Type: Total/NA Analysis Batch: 526433 Spike LCS LCS %Rec Added Result Qualifier Limits Analyte Unit D %Rec 1,4-Dioxane 10.0 8.93 ug/L 89 80 - 122 LCS LCS Surrogate %Recovery Qualifier Limits 1,2-Dichloroethane-d4 (Surr) 108 66 - 120 **Client Sample ID: Matrix Spike** Lab Sample ID: 240-166275-I-4 MS Prep Type: Total/NA Matrix: Water Analysis Batch: 526433 Sample Sample Spike MS MS %Rec **Result Qualifier** Added **Result Qualifier** Limits Analyte Unit D %Rec 1,4-Dioxane 2.0 U 10.0 10.0 ug/L 100 51 - 153

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

	MS	MS										
Surrogate	%Recovery	Qualifier	Limits									
1,2-Dichloroethane-d4 (Surr)	105		66 - 120									
 Lab Sample ID: 240-1662	75-0-4 MSD					Client	Samn	Ie ID: N	latrix Spil	ke Dun	licate	
Matrix: Water						Unorth	oump		Prep Ty			
Analysis Batch: 526433												
	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	10.6		ug/L		106	51 - 153	6	16	
	MSD	MSD										
Surrogate	%Recovery	Qualifier	Limits									
1,2-Dichloroethane-d4 (Surr)	103		66 - 120									

QC Association Summary

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

GC/MS VOA

Analysis Batch: 526433

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-166269-2	MW-193S_050622	Total/NA	Water	8260D SIM	
MB 240-526433/4	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-526433/3	Lab Control Sample	Total/NA	Water	8260D SIM	
240-166275-I-4 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-166275-O-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-166269-1	TRIP BLANK_58	Total/NA	Water	8260D	
240-166269-2	MW-193S_050622	Total/NA	Water	8260D	
MB 240-526699/8	Method Blank	Total/NA	Water	8260D	
LCS 240-526699/5	Lab Control Sample	Total/NA	Water	8260D	
240-166236-H-4 MS	Matrix Spike	Total/NA	Water	8260D	
240-166236-N-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Matrix: Water

Lab Sample ID: 240-166269-1

Client Sample ID: TRIP BLANK_58 Date Collected: 05/06/22 00:00 Date Received: 05/10/22 09:45

Date Receive	0: 05/10/22 0	9:45						
Γ	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	526699	05/17/22 13:51	HMB	TAL CAN
Client Sam	ple ID: MW	/-193S_050622					Lab Sa	ample ID: 240-166269-2
Date Collecte	d: 05/06/22 1	3:52						Matrix: Water

Date Received: 05/10/22 09:45

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	526699	05/17/22 14:16	HMB	TAL CAN
Total/NA	Analysis	8260D SIM		1	526433	05/14/22 02:23	CS	TAL CAN

Laboratory References:

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

12 13

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

Laboratory: Eurofins Canton

aboratory: Eurofins C				
accreditations/certifications held b	y this laboratory are listed. Not all ac	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	- I
Washington	State	C971	01-12-23	
West Virginia DEP	State	210	12-31-22	1

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

Client Contact	Regulatory program:	DW	DW PDES RCRA Dther	RCRA	RA	Other					h		Ŀ
Company Name: Arcadis	Client Project Manager: Kris Hinskey		Site Contact:	Site Contact: Christina Weaver	PAVER		Lab C	Lab Contact: Mike DelMonico	like Del	Monico		TestAmeric COC No:	TestAmerica Laboratories, Inc. COC No: [
Address: 20550 Carbor Drive, Suite SUV City/State/Zin: Novi-MI 48177	Telephone: 269-832-7478		Telephone: 248-994-2329	48-994-2329			Telepl	Telephone: 330-966-9783	-966-97	83		-	
Dh.mm. 248 004 13140	Email: Kristoffer.Hinskey@arcadis.com		Analysis	Analysis Furnaround Time	Inc	H				Analyses		For lab use only	
Project Name: Ford LTP Off-Site Project Number: 30080642.402.04	Sampler Name: SAMANAMA HING Method of ShipmenUCarrier:	n	TAT if different from below 3 w 10 day 2 w	from below 3 weeks 2 weeks 1 weeks				c			MI	Walk-in client Lab sampling	
PO# 30080642.402.04	Shipping/Fracking No:			F 1 days		C / Grad=		D 8260	_	00928 e	S 00928	Job/SDG No.	
Sample Identification	Sample Date Sample Time A	Sediment Natrix Solid Solid	BCI Containe	Other: Connect to Conn	Filtered Sam	Composite Composite	cis-1,2-DCE	PCE 8260D	TCE 8260D	Vinyl Chlorid	ansxoiQ-4, f	Sampl	Sample Specific Notes / Special Instructions:
TRIP BLANK_ 58	5/6/22 - X				5	× 4	×	××	×	\times		1 Trip Blank	Blank
MW-1935_0501020	516/22 13:52 X		9		2	5	XX	X	XX	X	X	3 VOAs	3 VOAs for 8260D 3 VOAs for 8260D SIM
Page 17 of 18													
									+ + +				
Possible Hazard Identification Flammable Skin Irritant Poison B Non-Hazard Flammable Skin Irritant Poison B Special Instructions/OC Requirements Comparts: Supports Sample Address: Supports Below Standards Level IV Requirements Below Standards Standards	Skin Irritant Poison B Unknown s: Redelity ST geadenace.com. Cadena #E203631		240-16			dy			onger than 1 month) ve For [Mon	han 1	onth) Months	-	
Relinquished by Relinquished by Relinquished by	Company: Com	Date/Time: 5/0/72 U Date/Time: 5/0/77 / 0	15:10	Received by: Received by:	- IN	200	Stu	10/20	Company: Company:	<u> </u>	Adus terno	Date/Time: 5/0/2 Date/Time:	2 15:1
Retinquished by: JUN MUL			0445	Received in Lako	Laborate Av Int	-	7	13	Company:	UNIN I	EETNC	Date/Time: 5-10	-22 0545

urofins TestAmerica Canton Sample Receipt Form/Narrative	Login # : (e (e 2 0)
anton Facility	Cooler unpacked by:
ent Arcadis - Ford LTP Site Name	
oler Received on 5-10-22 Opened on 5-10-2e	JM
dEx: 1 st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier	Other
ceipt After-hours: Drop-off Date/Time Storage Location	
COOLANT: Werte Blue Ice Dry Ice Water None	
Cooler temperature upon receipt IR GUN# IR-13 (CF 0.0 °C) Observed Cooler Temp. 3, 2°C Corrected Cooler T	3 7
IR GUN #IR-15 (CF 0.0 °C) Observed Cooler Temp°C Corrected Cooler T	Temp. °C
	s) No S) No NA Tests that are not
	checked for pri by
-Were tamper/custody seals intact and uncompromised?	s No NA
	NO NA VOAs
	S No Oil and Grease
	No TOC
	DNo
	No
	DNo c
For each sample, does the COC specify preservatives (VN), # of containers (VN), and s	
	P No
	No
	5 (ND)
If yes, Questions 13-17 have been checked at the originating laboratory.	
Were all preserved sample(s) at the correct pH upon receipt? Yes	No NA pH Strip Lot# HC15784
	No
. Were air bubbles >6 mm in any VOA vials? 🛑 🖕 Larger than this. 👔 🗡	No NA
Was a VOA trip blank present in the cooler(s)? Trip Blank Lot $\# Cove(ed)$ (Yes	No
. Was a LL Hg or Me Hg trip blank present? Yes	No
ontacted PM Date by via Verbal V	oice Mail Other
oncerning	
CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page	Samples processed by:
SAMPLE CONDITION	
mple(s) were received after the recommended holdi	ng time had expired.
	in a broken container.
mple(s) were received with bubble >6 mm in	
SAMPLE PRESERVATION	
	ther preserved in the laboratory.
SAMPLE PRESERVATION mple(s)	ther preserved in the laboratory.

5/24/2022

DATA VERIFICATION REPORT



May 24, 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: 166269-1 Sample date: 2022-05-06 Report received by CADENA: 2022-05-24 Initial Data Verification completed by CADENA: 2022-05-24 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.

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

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Valid Qualifiers

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

Analytical Results Summary

CADENA Project ID: E203631

Laboratory: Eurofins Environment Testing LLC - Barberton Laboratory Submittal: 166269-1

		Sample Name: Lab Sample ID: Sample Date:	TRIP BLA 2401662 5/6/202	2691			MW-193 2401662 5/6/202			
				Report		Valid		Report		Valid
	Analyte	Cas No.	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
GC/MS VOC										
<u>OSW-826</u>	<u>0D</u>									
	1,1-Dichloroethene	75-35-4	ND	1.0	ug/l		ND	1.0	ug/l	
	cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l		ND	1.0	ug/l	
	Tetrachloroethene	127-18-4	ND	1.0	ug/l		ND	1.0	ug/l	
	trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l		ND	1.0	ug/l	
	Trichloroethene	79-01-6	ND	1.0	ug/l		ND	1.0	ug/l	
	Vinyl chloride	75-01-4	ND	1.0	ug/l		ND	1.0	ug/l	
<u>OSW-826</u>	<u>ODSIM</u>									
	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 # 240-166269-1 CADENA Verification Report: 2022-05-24

Analyses Performed By: TestAmerica North Canton, Ohio

Report # 45689R Review Level: Tier III Project: 30080642.402.01

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-166269-1 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:

		Lab ID Matrix Sample Collection Baront Sample			Anal	lysis
Sample ID	Lab ID	Matrix	Date	Parent Sample	voc	VOC SIM
TRIP BLANK_58	240-166269-1	Water	05/06/22		Х	
MW-193S_050622	240-166269-2	Water	05/06/22		Х	Х

ANALYTICAL DATA PACKAGE DOCUMENTATION

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

Items Reviewed	Repo	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 was not collected for samples from this SDG.

6. Compound Identification

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

No compounds were detected in the samples within this SDG.

7. System Performance and Overall Assessment

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

DATA REVIEW

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: 8260D/8260D-SIM	Rep	orted		rmance ptable	Not Required
	No	Yes	No	Yes	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	X				Х
Internal standard		Х		Х	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		Х		Х	
B. Quantitation Reports		Х		Х	
C. RT of sample compounds within the established RT windows		Х		Х	
D. Transcription/calculation errors present		Х		Х	
E. Reporting limits adjusted to reflect sample dilutions		Х		Х	
Notes:					

%RSD Relative standard deviation

%R Percent recovery

- RPD Relative percent difference
- %D Percent difference

VALIDATION PERFORMED BY:	Vinayak Hegde
SIGNATURE:	V Gresci
DATE:	June 3, 2022

PEER REVIEW: Andrew Korycinski

DATE: June 6, 2022

NO CORRECTIONS/QUALIFERS ADDED TO SAMPLE ANALYSIS DATA SHEETS



CHAIN OF CUSTODY CORRECTED SAMPLE ANALYSIS DATA SHEETS



MICHIGAN 190 3.2/3.2

Chain of Custody Record



TestAmerica Laboratory location: Brighton --- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Client Contact	Regula	tory program:		17	DW		PDES		- F	RCRA		T.	Other												
Company Name: Arcadis													_											TestAmeric	Laboratories, I
Address: 28550 Cabot Drive, Suite 500	Client Project	Manager: Kris	Hinskey	y.		Site C	ontact	: Chr	ristina	Weave	er				Lab Co	ontac	t: Mik	e Del	Monic	0				COC No:	
Address: 28550 Cabot Drive, Suite 500	Telephone: 26	9-832-7478			_	Telen	Telephone: 248-994-2329					Telephone: 330-966-9783													
City/State/Zip: Novi, MI, 48377																	1 of	1 COCs							
Phone: 248-994-2240	Email: Kristo	fer.Hinskey@a	rcadis.	com		A	Analysis Turnaround Time				-	Analyses						For lab use or	ly						
rnone: 248-994-2240	Sampler Name		_			TAT	TAT if different from below														Walk-in client				
Project Name: Ford LTP Off-Site	(AINA D	ntha .	Uir	Al	1		3 weeks						1							in alle-in enen					
Project Number: 30080642.402.04	Method of Ship	INVIA 1	run	au	1	10	day	*	2 wee 1 wee											_				Lab sampling	
1 tojett, tulilott, 50000042,402.04	Arethod of Ship	Inent/Carrier:						-	2 days		- 1	Z	D=Q			8			0	SIM					
PO # 30080642.402.04	Shipping/Trac	king No:							I day		- 1	5	Gra		00	826			8260D	8260D				Job/SDG No:	
		T		Ma	trix	+	ontain	ars L	Preser	vatives	_	Filtered Sample (Y / N)	Composite=C / Grab=G	600	82	W I			de 8	82					
				1				130		TALL CS		Sar	lite	82	No l	2-0	00	SOD	lori	ane					
				hent		3		Ŧ		2 :		red	todu	ö	.2-	12-1	82	82(5	Dio					Specific Notes /
Sample Identification	Sample Date	Sample Time	F.	Aqueo	Solid Other:	H2SO4	BCI BCI	NaOH	ZaAc' NaOH	Unpres Other:		File	Con	1.1-DCE 8260D	cis-1,2-DCE 8260D	Trans-1,2-DCE 8260D	PCE 8260D	TCE 8260D	Vinyl Chloride	1,4-Dioxane				Specia	Instructions:
	ali in	1			1		1	Ť		1			1									-	1		
TRIP BLANK_ 58	5/6/22			X			1					N	5	×	X	X	X	Х	X					1 Trip I	Blank
TRIP BLANK_ 58 MW-1935_050622	516/22	10.00					1				1	1	1	X	V	V	K	V	V	V	T I			3 VOAs	for 8260D
MW-1103_030022	Julic	13:52		7	\vdash		6	2				M	4	~	X	4	C	X	X	1				3 VOAs	for 8260D SIM
											Ĩ			1											
D			+		$\left \right $	+	_	+	\downarrow	_			\rightarrow	-		_		_				-	\rightarrow		
Page 17 of 18											- 1														
			+	-		++	+	+	++	+		-	-	+					-		\vdash		-+-	+	
7											- 1													1	
P				-		++		+	+	+	-+		-	-+			-	_	-		\vdash	\rightarrow	-+-	+	
18																									
								\top						-								-			
							1	1	1 1																
				-		II											4					$ \rightarrow $			
											MH M														
						+ 1											+	-		_					
Possible Hazard Identification		1				2	40-16	626	59 Ch	ain of	Cus	stody	У				01	nger t	than 1	mont	h)				
	Irritant Pois	on B	Unkno	own												_		For [onths	_			
Special Instructions/QC Requirements & Comments:	DOMO SE																								
Sample Address: 34940 Bell Submit all results through Cadena at itomalia@cade	enaco.com Cadena:	F203631																							
Level IV Reporting requested.																									
Relinquished has	Company:	1 .	D	Date/Tir	ne;			Rec	ceived t	y:	\			1 .	1.5			Comp	any:	-	1.1.2			Date/Time:	
Gamastha din	ma	au	2	5/6	122	15:10				6	10	9	Xa	60	50	3	80	1	Arc	10	US			15/6/2	2 15:10
Relinquished by	Company:	nac	D	Date Tir	ne	000	1.	Rec	ceived b	by:	1.1	10-	1	~	oto		0	Com	pany:	-				Date/Time: 3/9/26 Date/Time:	
Bland MAR		HUIS	6	214	1661	093				_/				2	-	-				EF	NA	_		5/9/20	1
Relinquished by:	Company:	ENA	D	ate Tir	u 22	090	15	Rec	ceived	in Late	orator	y by	-	14	/			Com	pany:	-	NA FN	,		Date/Time:	
Ind I have	17	UNT		5/	100			Ľ	7	18	44	e		1	K	L	~		E	EI	N	$\overline{\mathcal{L}}$		J-10.	22.054
12008, TestAmerica Laboratories, Inc. Al roka reserved, estAmerica & Design ¹⁴ are trademarks of TestAmerica Laboratories, Inc.								/						1											
Televenerce o Delegn " are racements or restAmence Laboratores, Inc.								1 -	/																



Client Sample ID: TRIP BLANK_58 Date Collected: 05/06/22 00:00 Date Received: 05/10/22 09:45

Job	ID:	240-	166269-	1
000	ю.	240	100200	

Lab Sample ID: 240-166269-1

Matrix: Water

5

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			05/17/22 13:51	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/17/22 13:51	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/17/22 13:51	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/17/22 13:51	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/17/22 13:51	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/17/22 13:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)			62 - 137					05/17/22 13:51	1
4-Bromofluorobenzene (Surr)	101		56 - 136					05/17/22 13:51	1
Toluene-d8 (Surr)	95		78 - 122					05/17/22 13:51	1
Dibromofluoromethane (Surr)	109		73 - 120					05/17/22 13:51	1

Client Sample ID: MW-193S_050622 Date Collected: 05/06/22 13:52 Date Received: 05/10/22 09:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			05/14/22 02:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		66 - 120					05/14/22 02:23	1
Method: 8260D - Volatile O Analyte	•	u <mark>nds by G</mark> Qualifier	C/MS RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/17/22 14:16	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/17/22 14:16	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/17/22 14:16	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/17/22 14:16	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/17/22 14:16	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/17/22 14:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
			00 407					05/47/00 44.40	

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac	
1,2-Dichloroethane-d4 (Surr)	103		62 - 137		05/17/22 14:16	1	
4-Bromofluorobenzene (Surr)	100		56 - 136		05/17/22 14:16	1	
Toluene-d8 (Surr)	93		78 - 122		05/17/22 14:16	1	
Dibromofluoromethane (Surr)	110		73 - 120		05/17/22 14:16	1	

Job ID: 240-166269-1

8