

Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Kristoffer Hinskey ARCADIS US Inc 28550 Cabot Drive Suite 500 Novi, Michigan 48377 Generated 11/15/2023 4:26:20 AM

JOB DESCRIPTION

Ford LTP - Off Site

JOB NUMBER

240-194826-1

Eurofins Cleveland 180 S. Van Buren Avenue Barberton OH 44203





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Job Notes

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

Authorization

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Authorized for release by Michael DelMonico, Project Manager I <u>Michael.DelMonico@et.eurofinsus.com</u> (330)497-9396

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RPD

TEF

TEQ

TNTC

-		
Qualifiers		3
GC/MS VOA		
Qualifier	Qualifier Description	
U	Indicates the analyte was analyzed for but not detected.	
Glossary		5
Abbreviation	These commonly used abbreviations may or may not be present in this report.	
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis	
%R	Percent Recovery	
CFL	Contains Free Liquid	
CFU	Colony Forming Unit	0
CNF	Contains No Free Liquid	8
DER	Duplicate Error Ratio (normalized absolute difference)	
Dil Fac	Dilution Factor	9
DL	Detection Limit (DoD/DOE)	
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample	
DLC	Decision Level Concentration (Radiochemistry)	
EDL	Estimated Detection Limit (Dioxin)	
LOD	Limit of Detection (DoD/DOE)	
LOQ	Limit of Quantitation (DoD/DOE)	
MCL	EPA recommended "Maximum Contaminant Level"	
MDA	Minimum Detectable Activity (Radiochemistry)	13
MDC	Minimum Detectable Concentration (Radiochemistry)	13
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)	

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Relative Percent Difference, a measure of the relative difference between two points

Toxicity Equivalent Factor (Dioxin)

Too Numerous To Count

Toxicity Equivalent Quotient (Dioxin)

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Laboratory: Eurofins Cleveland

Narrative

Job Narrative 240-194826-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

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

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

Receipt

The samples were received on 11/4/2023 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.6°C and 2.9°C

GC/MS VOA

Method 8260D: The method requirement for no headspace was not met. The following volatile sample was analyzed with headspace in the sample container(s): MW-118S 110223 (240-194826-2).

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

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

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

Protocol References:

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

Laboratory References:

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

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-194826-1	TRIP BLANK_12	Water	11/02/23 00:00	11/04/23 08:00
240-194826-2	MW-118S_110223	Water	11/02/23 09:58	11/04/23 08:00

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Detection Summary

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

Client Sample ID: TRIP BLANK_12

No Detections.

Client Sample ID: MW-118S_110223

No Detections.

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Job ID: 240-194826-1

Lab Sample ID: 240-194826-1

Lab Sample ID: 240-194826-2

Client Sample ID: TRIP BLANK_12

Date Collected: 11/02/23 00:00 Date Received: 11/04/23 08:00

Method: SW846 8260D - Volati	le Organic Comp	ounds by G	C/MS						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/11/23 18:22	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/11/23 18:22	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/11/23 18:22	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/11/23 18:22	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/11/23 18:22	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/11/23 18:22	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		62 - 137			-		11/11/23 18:22	1
4-Bromofluorobenzene (Surr)	75		56 - 136					11/11/23 18:22	1
Toluene-d8 (Surr)	88		78 - 122					11/11/23 18:22	1
Dibromofluoromethane (Surr)	92		73 - 120					11/11/23 18:22	1

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Job ID: 240-194826-1

Matrix: Water

Lab Sample ID: 240-194826-1

Client Sample ID: MW-118S_110223

Date Collected: 11/02/23 09:58 Date Received: 11/04/23 08:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/14/23 01:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		66 - 120			-		11/14/23 01:28	1
Method: SW846 8260D - Volati	ile Organic Comp	ounds by 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			11/11/23 22:55	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/11/23 22:55	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/11/23 22:55	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/11/23 22:55	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/11/23 22:55	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/11/23 22:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		62 - 137			-		11/11/23 22:55	1
4-Bromofluorobenzene (Surr)	75		56 - 136					11/11/23 22:55	1
Toluene-d8 (Surr)	90		78 - 122					11/11/23 22:55	1
Dibromofluoromethane (Surr)	92		73 - 120					11/11/23 22:55	1

11/15/2023

Job ID: 240-194826-1

Lab Sample ID: 240-194826-2 Matrix: Water

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

Matrix: Water

Prep Type: Total/NA

				Percent Su	rrogate Reco
		DCA	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(62-137)	(56-136)	(78-122)	(73-120)
240-194809-C-1 MS	Matrix Spike	116	97	102	108
240-194809-D-1 MSD	Matrix Spike Duplicate	104	83	92	100
240-194826-1	TRIP BLANK_12	107	75	88	92
240-194826-2	MW-118S_110223	107	75	90	92
LCS 240-594284/5	Lab Control Sample	100	86	95	96
MB 240-594284/8	Method Blank	108	77	91	94
Surrogate Legend					
DCA = 1,2-Dichloroethar	ne-d4 (Surr)				
BFB = 4-Bromofluorober	nzene (Surr)				
TOL = Toluene-d8 (Surr)					
DBFM = Dibromofluoron	nethane (Surr)				

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

Matrix: Water

			Percent Surrogate Recovery (Acceptance Limits)
		DCA	
ab Sample ID.	Client Sample ID	(66-120)	
240-194776-H-2 MS	Matrix Spike	85	
240-194776-N-2 MSD	Matrix Spike Duplicate	83	
240-194826-2	MW-118S_110223	94	
_CS 240-594455/3	Lab Control Sample	84	
MB 240-594455/5	Method Blank	82	

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

Prep Type: Total/NA

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

Matrix: Water Analysis Batch: 594284

	MB	МВ							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/11/23 15:04	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/11/23 15:04	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/11/23 15:04	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/11/23 15:04	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/11/23 15:04	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/11/23 15:04	1

	МВ	МВ					
Surrogate	%Recovery	Qualifier	Limits	Prep	bared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		62 - 137			11/11/23 15:04	1
4-Bromofluorobenzene (Surr)	77		56 - 136			11/11/23 15:04	1
Toluene-d8 (Surr)	91		78 - 122			11/11/23 15:04	1
Dibromofluoromethane (Surr)	94		73 - 120			11/11/23 15:04	1

Lab Sample ID: LCS 240-594284/5 Matrix: Water Analysis Batch: 594284

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,1-Dichloroethene	25.0	30.3		ug/L		121	63 - 134	
cis-1,2-Dichloroethene	25.0	25.2		ug/L		101	77 - 123	
Tetrachloroethene	25.0	26.9		ug/L		108	76 - 123	
trans-1,2-Dichloroethene	25.0	26.8		ug/L		107	75 - 124	
Trichloroethene	25.0	25.9		ug/L		103	70 - 122	
Vinyl chloride	12.5	12.3		ug/L		98	60 - 144	

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)			62 - 137
4-Bromofluorobenzene (Surr)	86		56 - 136
Toluene-d8 (Surr)	95		78 - 122
Dibromofluoromethane (Surr)	96		73 - 120

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Lab Sample ID: 240-194809-C-1 MS Matrix: Water

Analysis Batch: 594284

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	32.1		ug/L		128	56 - 135
cis-1,2-Dichloroethene	1.0	U	25.0	25.7		ug/L		103	66 - 128
Tetrachloroethene	1.0	U	25.0	26.8		ug/L		107	62 - 131
trans-1,2-Dichloroethene	1.0	U	25.0	26.8		ug/L		107	56 - 136
Trichloroethene	1.0	U	25.0	26.4		ug/L		106	61 - 124
Vinyl chloride	1.0	U	12.5	10.2		ug/L		82	43 - 157
	MS	MS							
Surrogate	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	116		62 - 137						
4-Bromofluorobenzene (Surr)	97		56 - 136						

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

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78 - 122

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	C-1 MS							Client	Sample ID: Ma	atrix S	pike
Matrix: Water									Prep Type		
Analysis Batch: 594284											
	MS	MS									
Surrogate	%Recovery	Qualifier	Limits								
Dibromofluoromethane (Surr)	108		73 - 120								
Lab Sample ID: 240-194809-	D-1 MSD						Client S	Sample II	D: Matrix Spike		
Matrix: Water									Prep Type	: Tota	I/NA
Analysis Batch: 594284											
	Sample	Sample	Spike	MSD	MSD				%Rec		RPI
Analyte		Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits F	RPD	Limi
1,1-Dichloroethene	1.0	U	25.0	30.3		ug/L		121	56 - 135	6	26
cis-1,2-Dichloroethene	1.0	U	25.0	23.9		ug/L		95	66 - 128	8	14
Tetrachloroethene	1.0	U	25.0	25.0		ug/L		100	62 - 131	7	20
trans-1,2-Dichloroethene	1.0	U	25.0	26.1		ug/L		104	56 - 136	3	15
Trichloroethene	1.0	U	25.0	24.7		ug/L		99	61 - 124	7	15
Vinyl chloride	1.0	U	12.5	12.6		ug/L		101	43 - 157	21	24
		MED									
Surragata		MSD Qualifiar	Limita								
Surrogate	%Recovery 104	Qualifier	Limits 62 - 137								
1,2-Dichloroethane-d4 (Surr)											
4-Bromofluorobenzene (Surr)	83		56 - 136								
Toluene-d8 (Surr)	92		78 - 122								
Dibromofluoromethane (Surr)	100		73 - 120								
lethod: 8260D SIM - Vol		: Compoun	ds (GC/MS)					Client S	Sample ID: Met	hod B	lan
Aethod: 8260D SIM - Vol Lab Sample ID: MB 240-5944		: Compoun	ds (GC/MS)					Client S	Sample ID: Met Prep Type		
Aethod: 8260D SIM - Vol Lab Sample ID: MB 240-5944 Matrix: Water Analysis Batch: 594455			ds (GC/MS)					Client S			
Aethod: 8260D SIM - Vol Lab Sample ID: MB 240-5944 Matrix: Water Analysis Batch: 594455	455/5	МВ МВ							Ргер Туре	e: Tota	I/NA
Aethod: 8260D SIM - Vol Lab Sample ID: MB 240-5944 Matrix: Water Analysis Batch: 594455 Analyte	455/5	MB MB esult Qualifier			MDL Unit		D	Client S	Prep Type Analyzed	e: Tota	I/NA Vil Fac
Aethod: 8260D SIM - Vol Lab Sample ID: MB 240-5944 Matrix: Water Analysis Batch: 594455	455/5	МВ МВ			MDL Unit		D		Ргер Туре	e: Tota	I/NA Vil Fac
Aethod: 8260D SIM - Vol Lab Sample ID: MB 240-5944 Matrix: Water Analysis Batch: 594455 Analyte	455/5	MB MB esult Qualifier					<u>D</u>		Prep Type Analyzed	e: Tota	I/NA Vil Fac
Aethod: 8260D SIM - Vol Lab Sample ID: MB 240-5944 Matrix: Water Analysis Batch: 594455 Analyte	455/5 R	MB MB esult Qualifier 2.0 U							Prep Type Analyzed	2: Tota	iil Fac 1
Method: 8260D SIM - Vol Lab Sample ID: MB 240-5944 Matrix: Water Analysis Batch: 594455 Analyte 1,4-Dioxane Surrogate	455/5 R	MB MB esult Qualifier 2.0 U MB MB						Prepared	Analyzed 11/13/23 21:06	D	il/NA il Fac
Aethod: 8260D SIM - Vol Lab Sample ID: MB 240-5944 Matrix: Water Analysis Batch: 594455 Analyte 1,4-Dioxane	455/5 R	MB MB esult Qualifier 2.0 U MB MB overy Qualifier						Prepared	Analyzed 11/13/23 21:00 Analyzed	D	il/NA il Fac
Aethod: 8260D SIM - Vol Lab Sample ID: MB 240-5944 Matrix: Water Analysis Batch: 594455 Analyte 1,4-Dioxane	455/5 	MB MB esult Qualifier 2.0 U MB MB overy Qualifier						Prepared Prepared	Analyzed 11/13/23 21:00 Analyzed	D <u>D</u> <u>D</u> <u>D</u> <u>D</u> <u>D</u>	NI/NA Nil Fac
Aethod: 8260D SIM - Vol Lab Sample ID: MB 240-5944 Matrix: Water Analysis Batch: 594455 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr)	455/5 	MB MB esult Qualifier 2.0 U MB MB overy Qualifier						Prepared Prepared	Analyzed 11/13/23 21:00 Analyzed 11/13/23 21:00	2: Tota <u></u> <u></u> <u></u> ol Sar	ni/NA vil Fac
Aethod: 8260D SIM - Vol Lab Sample ID: MB 240-5944 Matrix: Water Analysis Batch: 594455 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-594	455/5 	MB MB esult Qualifier 2.0 U MB MB overy Qualifier						Prepared Prepared	Analyzed 11/13/23 21:00 Analyzed 11/13/23 21:00 Analyzed 11/13/23 21:00 D: Lab Contr	2: Tota <u></u> <u></u> <u></u> ol Sar	ni/NA iii Fac
Aethod: 8260D SIM - Vol Lab Sample ID: MB 240-5944 Matrix: Water Analysis Batch: 594455 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-594 Matrix: Water	455/5 	MB MB esult Qualifier 2.0 U MB MB overy Qualifier						Prepared Prepared	Analyzed 11/13/23 21:00 Analyzed 11/13/23 21:00 Analyzed 11/13/23 21:00 D: Lab Contr	2: Tota <u></u> <u></u> <u></u> ol Sar	ni/NA iii Fac iii Fac nple
Aethod: 8260D SIM - Vol Lab Sample ID: MB 240-5944 Matrix: Water Analysis Batch: 594455 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-594 Matrix: Water	455/5 	MB MB esult Qualifier 2.0 U MB MB overy Qualifier	RL 2.0 2.0 66 - 120	LCS	0.86 ug/L	Unit		Prepared Prepared	Analyzed 11/13/23 21:00 Analyzed 11/13/23 21:00 11/13/23 21:00 11/13/23 21:00 D: Lab Contr Prep Type	2: Tota <u></u> <u></u> <u></u> ol Sar	ni/NA iii Fac iii Fac nple
Aethod: 8260D SIM - Vol Lab Sample ID: MB 240-5944 Matrix: Water Analysis Batch: 594455 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-594 Matrix: Water Analysis Batch: 594455 Analyte	455/5 	MB MB esult Qualifier 2.0 U MB MB overy Qualifier	RL 2.0 66 - 120 Spike	LCS	0.86 ug/L	Unit ug/L	Clier	Prepared Prepared	Analyzed 11/13/23 21:00 Analyzed 11/13/23 21:00 11/13/23 21:00 0 11/13/23 21:00 0 11/13/23 21:00 0 11/13/23 21:00 0 11/13/23 21:00 0 0 1D: Lab Contr Prep Type %Rec	2: Tota <u></u> <u></u> <u></u> ol Sar	ni/NA iii Fac iii Fac nple
Aethod: 8260D SIM - Vol Lab Sample ID: MB 240-5944 Matrix: Water Analysis Batch: 594455 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-594 Matrix: Water Analysis Batch: 594455	455/5 	MB MB esult Qualifier 2.0 U MB MB overy Qualifier 82	RL 2.0 20 66 - 120 Spike Added	LCS Result	0.86 ug/L		Clier	Prepared Prepared nt Sample	Analyzed 11/13/23 21:06 Analyzed 11/13/23 21:06 Analyzed 11/13/23 21:06 e ID: Lab Contr Prep Type %Rec Limits	2: Tota <u></u> <u></u> <u></u> ol Sar	ni/NA iii Fac iii Fac nple
Aethod: 8260D SIM - Vol Lab Sample ID: MB 240-5944 Matrix: Water Analysis Batch: 594455 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-594 Matrix: Water Analysis Batch: 594455 Analyte 1,4-Dioxane	455/5 	MB MB esult Qualifier 2.0 U MB MB overy Qualifier 82	RL 2.0 20 20 66 - 120 Spike 	LCS Result	0.86 ug/L		Clier	Prepared Prepared nt Sample	Analyzed 11/13/23 21:06 Analyzed 11/13/23 21:06 Analyzed 11/13/23 21:06 e ID: Lab Contr Prep Type %Rec Limits	2: Tota <u></u> <u></u> <u></u> ol Sar	ni/NA iii Fac iii Fac nple
Aethod: 8260D SIM - Vol Lab Sample ID: MB 240-5944 Matrix: Water Analysis Batch: 594455 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-594 Matrix: Water Analysis Batch: 594455 Analyte 1,4-Dioxane Surrogate	455/5 	MB MB esult Qualifier 2.0 U MB MB overy Qualifier 82	RL 2.0 	LCS Result	0.86 ug/L		Clier	Prepared Prepared nt Sample	Analyzed 11/13/23 21:06 Analyzed 11/13/23 21:06 Analyzed 11/13/23 21:06 e ID: Lab Contr Prep Type %Rec Limits	2: Tota <u></u> <u></u> <u></u> ol Sar	ni/NA iii Fac iii Fac nple
Aethod: 8260D SIM - Vol Lab Sample ID: MB 240-5944 Matrix: Water Analysis Batch: 594455 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-594 Matrix: Water Analysis Batch: 594455 Analyte 1,4-Dioxane Surrogate	455/5 	MB MB esult Qualifier 2.0 U MB MB overy Qualifier 82	RL 2.0 20 20 66 - 120 Spike 	LCS Result	0.86 ug/L		Clier	Prepared Prepared nt Sample	Analyzed 11/13/23 21:06 Analyzed 11/13/23 21:06 Analyzed 11/13/23 21:06 e ID: Lab Contr Prep Type %Rec Limits	2: Tota <u></u> <u></u> <u></u> ol Sar	ni/NA iii Fac iii Fac nple
Aethod: 8260D SIM - Vol Lab Sample ID: MB 240-5944 Matrix: Water Analysis Batch: 594455 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-594 Matrix: Water Analysis Batch: 594455 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr)	455/5 	MB MB esult Qualifier 2.0 U MB MB overy Qualifier 82	RL 2.0 	LCS Result	0.86 ug/L		Clier	Prepared Prepared nt Sample %Rec 94	Analyzed 11/13/23 21:00 Analyzed 11/13/23 21:00 Analyzed 11/13/23 21:00 e ID: Lab Contr Prep Type %Rec Limits 80 - 122	•: Tota D ool Sar •: Tota	liii Fac 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Aethod: 8260D SIM - Vola Lab Sample ID: MB 240-5944 Matrix: Water Analysis Batch: 594455 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-594 Matrix: Water Analysis Batch: 594455 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: 240-194776-	455/5 	MB MB esult Qualifier 2.0 U MB MB overy Qualifier 82	RL 2.0 	LCS Result	0.86 ug/L		Clier	Prepared Prepared nt Sample %Rec 94	Analyzed 11/13/23 21:00 Analyzed 11/13/23 21:00 Analyzed 11/13/23 21:00 e ID: Lab Contr Prep Type %Rec Limits 80 - 122 Sample ID: Mate	e: Tota	ni/NA 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Aethod: 8260D SIM - Vola Lab Sample ID: MB 240-5944 Matrix: Water Analysis Batch: 594455 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-594 Matrix: Water Analysis Batch: 594455 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: 240-194776- Matrix: Water	455/5 	MB MB esult Qualifier 2.0 U MB MB overy Qualifier 82	RL 2.0 	LCS Result	0.86 ug/L		Clier	Prepared Prepared nt Sample %Rec 94	Analyzed 11/13/23 21:00 Analyzed 11/13/23 21:00 Analyzed 11/13/23 21:00 e ID: Lab Contr Prep Type %Rec Limits 80 - 122	e: Tota	ni/NA 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Aethod: 8260D SIM - Vola Lab Sample ID: MB 240-5944 Matrix: Water Analysis Batch: 594455 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-594 Matrix: Water Analysis Batch: 594455 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: 240-194776-	455/5 	MB MB esult Qualifier 2.0 U MB MB overy Qualifier 82	RL 2.0 Limits 66 - 120 Spike Added 10.0 Limits 66 - 120	LCS Result 9.43	0.86 ug/L LCS Qualifier		Clier	Prepared Prepared nt Sample %Rec 94	Analyzed 11/13/23 21:00 4nalyzed 11/13/23 21:00 4nalyzed 11/13/23 21:00 6 ID: Lab Contr Prep Type %Rec Limits 80 - 122 Sample ID: Ma Prep Type	e: Tota	ni/NA 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Aethod: 8260D SIM - Vola Lab Sample ID: MB 240-5944 Matrix: Water Analysis Batch: 594455 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-594 Matrix: Water Analysis Batch: 594455 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: 240-194776- Matrix: Water	455/5 	MB MB esult Qualifier 2.0 U MB MB overy Qualifier 82	RL 2.0 	LCS Result 9.43	0.86 ug/L		Clier	Prepared Prepared nt Sample %Rec 94 Client	Analyzed 11/13/23 21:00 Analyzed 11/13/23 21:00 Analyzed 11/13/23 21:00 e ID: Lab Contr Prep Type %Rec Limits 80 - 122 Sample ID: Mate	e: Tota	ni/NA 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

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

	MS	MS									
Surrogate	%Recovery	Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	85		66 - 120								
- Lab Sample ID: 240-194776-	N-2 MSD					c	lient Sa	ample IC): Matrix Sp	oike Dur	olicate
Matrix: Water									Prep 1	Гуре: То	tal/NA
Analysis Batch: 594455											
	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	10.3		ug/L		103	51 _ 153	5	16
	MSD	MSD									
Surrogate	%Recovery	Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	83		66 - 120								

Eurofins Cleveland

GC/MS VOA

Analysis Batch: 594284

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-194826-1	TRIP BLANK_12	Total/NA	Water	8260D	
240-194826-2	MW-118S_110223	Total/NA	Water	8260D	
MB 240-594284/8	Method Blank	Total/NA	Water	8260D	
CS 240-594284/5	Lab Control Sample	Total/NA	Water	8260D	
240-194809-C-1 MS	Matrix Spike	Total/NA	Water	8260D	
	Matrix Chika Dunlianta	Total/NA	Water	8260D	
	Matrix Spike Duplicate	Total/NA	Water	02000	
240-194809-D-1 MSD nalysis Batch: 594455	5				
nalysis Batch: 594455 .ab Sample ID	5 Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
nalysis Batch: 594455 Lab Sample ID 240-194826-2	5 Client Sample ID MW-118S_110223	Prep Type Total/NA	Matrix Water	Method 8260D SIM	Prep Batch
nalysis Batch: 594455 Lab Sample ID 240-194826-2 MB 240-594455/5	Client Sample ID MW-118S_110223 Method Blank	Prep Type Total/NA Total/NA	Matrix Water Water	Method 8260D SIM 8260D SIM	Prep Batch
nalysis Batch: 594455 Lab Sample ID 240-194826-2 MB 240-594455/5	5 Client Sample ID MW-118S_110223	Prep Type Total/NA	Matrix Water	Method 8260D SIM	Prep Batch
	Client Sample ID MW-118S_110223 Method Blank	Prep Type Total/NA Total/NA	Matrix Water Water	Method 8260D SIM 8260D SIM	Prep Batch

Date Received: 11/04/23 08:00

Matrix: Water

Client Sample ID: TRIP BLANK_12 Date Collected: 11/02/23 00:00

Lab Sample ID: 240-194826-1
Matrix: Water

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8260D			594284	TJL2	EET CLE	11/11/23 18:22

Client Sample ID: MW-118S_110223 Date Collected: 11/02/23 09:58

Date Received: 11/04/23 08:00

_	Batch	Batch		Dilution	Batch			Prepared
Ргер Туре	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8260D		1	594284	TJL2	EET CLE	11/11/23 22:55
Total/NA	Analysis	8260D SIM		1	594455	CS	EET CLE	11/14/23 01:28

Laboratory References:

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

Eurofins Cleveland

Accreditation/Certification Summary

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

Laboratory: Eurofins Cleveland

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

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

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

Tes	TestAmerica Laboratory location: Brighton	1	in Drive, Suite 200	10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763	16 / 810-23	29-2763					IESIAMERIC(3
Client Contact	Regulatory program:	DW	NPDES	RCRA	Other							r
Company Name: Arcadis											TestAmerica Laboratories. Inc.	s. Inc.
Address: 28550 Cabot Drive, Suite 500	Cheft Froject Manager: Kris Hinskey	nskey	Site Contact: Christina Weaver	ıristina Weaver		Lab Cor	Lab Contact: Mike DelMonico	DelMoni	0		COC No:	
City/State/Zin: Novi MI 48377	Telephone: 248-994-2240		Telephone: 248-994-2240	994-2240		Telepho	Telephone: 330-497-9396	7-9396				Τ
	Email: kristoffer.hinskev@arcadis.com	dis.com	Analysis Tur	Analysis Turnaround Time				Anglvees	30		1 of 1 COC	Í
Phone: 248-994-2240			TAT at a					_			FOU IAD LISC ONLY	
Project Name: Ford LTP Off-Site	- Sampler Name: トロビード ゲッンナーメ	-14	ent fro	3 weeks							Walk-in client	
Project Number: 30167538.402.04	/Ca		10 day 〈		and a first				MI		Lab sampling	
PO#30167538.402.04	Shipping/Tracking No:			2 days 1 day	=dr1ð	Q09	10978	00928	S 009		Job/SDG No:	
		nont Matrix	T	Preservativ	lqms2 bars \D=stite=C \	25-DCE 82601	8560D \$-1,2-DCE	S260D	28 ənexoi		Sample Specific Notes /	,
Sample Identification	Sample Date Sample Time	rifA nupA nibo2 nifo2	NªO HCI HNC H7S	ofio 10s 10s 10s 10s 10s 10s 10s 10s 10s 10s	Con	r-sio]-4,1		Special Instructions:	
TRIP BLANK_ 12	-		~		С U Z	×××	××	××			1 Trip Blank	
mw- 1185 _ 110223	11-2-23 0958	و	و		5	X X X	×	×	×		3 VOAs for 8260D	
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				-					-			
c 18									I			
S of 2									I			
				240-1	94826 Ch	240-194826 Chain of Custody	stody					
											UCHICAN	
Possible Hazard Identification	Foison B	Unknown	Sample Dispos	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) Semple Disposal (A fee may be assessed if samples are retained longer than 1 month)	sessed if sa	mples are r	tained long	ger than 1	month)		06	
Special Instructions/OC Requirements & Comments: Sample Address: 12124 Rn 470 N 2045			~		to mod	2			MOULUS			
Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203631 Level IV Reporting requested.	o.com. Cadena #E203631											
Rehnquished by Report M / Once	Company Ar ca dis	Date/Time. 11.2.23/15	1500 Re	Received by Schender	ende			Company.	2.4		Date/Time. 11-7.73 / 1500	
Reinquested by: NO lan S chinder	Company: Artad: S	Date/Time: / 1525		Received by.	Sturney	d'an		Company:	drS		Date/Time:	5
clinquished by Bernet Levy	company Contractes	Date/Time: $u(3/23)$		Received in Laboratory by:	hy:		0	Company:	1A	1	Date/Time; 11 [3] 33 12	10 HO
11/15/2	7 MARE	р Д	2012	P I I				- 1	ET.		11-4-23	l 22
J				<u>)</u> {								

Surpfus - Cleveland Sample Receipt Form/Narrative Login #	larberton Facility Code state in the object of the sealer of the sea	*	Val 876
html	Minim MCGdds Site Name Coder unpecked by: Operad on Image: Coder and Code an		Login # :
Art Cetter do n // 4/ 2.3 Opened on // 4/ 2.3 Opened on Excortions Courser Other edEx. 'P Grd Exp UPS FAS Cappoint) Client Drop Off Eurofins Courser Other unifunc Coller timperatures: Drop-off Date/Time Storage Location Storage Location unifunc Coller timperature upon Teceipt Erst Mathie Cooler for mone Corrected Cooler Temp. Cooler temperature upon Teceipt Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No No Tests that are attriat are attriat. Yes No Obd all bottle habels (Dr/Date/Time) be reconciled citation (Unorkenn)? Yes No Yes No Out all bottle habels (Dr/Date/Time) be reconciled sylthybe COC? Yes No Yes No Out all bottle habels (Dr/Date/Time) be reconciled sylthybe COC? Yes No Yes No Out at bottle habels (Dr/Date/Time) be reconciled sylthybe COC? Yes No Yes No Out at other bottle(s) ath correct pH u	ooler Received on //-4/23 Opened on //-4/23 Opened on offer Received on //-4/23 Opened on //-4/23 Other edEx. 'f' Grd Exp UPS FAS @xproint) Citent Drop Off Eurofins Courier Other		Cooler unpacked by:
edEs: "# Grd Exp UPS FAS Cappoint) Client Drop Off Eurofins Courier Other tectept After-hours: Drop-off Date/Time Storage Location	edEx.1 ¹¹ Grd Exp UPS FAS Suppoint) Client Drop Off Eurofunc Couler Other eeelp1 After-hours: Drop-off Date/Time Storage Location urofuns Cooler #	hent <u>ACGAB</u> She Name	innall
iereipt After-hours: Drop-off Date/Time Storage Location iurofins Cooler #	setep1 After-hours: Drop-off Date/Time Storage Location urofins Cooler # C Foam Box Other Packing material used: Bable Werp Foam Plastic Bag None Other COOLANT: Werles Blue Le Dry Lee Water None COOLANT: Werles Blue Le Dry Lee Water None COOLANT: Werles Blue Lee Dry Lee Water None Cooler temper/custody seals on the outside of the cooler(s)? If Yee Quantity If Base No Yee No No Were tamper/custody seals on the outside of the cooler(s)? Were tamper/custody seals on the sample(s) Yee No No Were tamper/custody papers accompany the sample(s)? Wes No No Yee No No Was/were the person(s) who collected the samples clearly identified on the COC? Yee No No No Did all bottles as anyle, does the COC epecify preservative(Y/N), # of containers (YN), and sample type of grb/coms(YN)? Wore correct bottle(s) used for the test(s) indicated? Yee No Yee No Sufficient quantity received to perform indicated analyses? Yee No Yee No Yee No Yee No Were correct bottle(s) at t		
birofins Cooler # Foam Box Client Cooler Box Other	urofins Cooler # Foam Box Client Cooler Box Other Packing material used: BubbleWmp Foam Plastic Bag None Other COOLANT: Werfield Blue LO Dy Lee Water None Cooler temperature upon Teccipi IR GUN # (CF 'C) Observed Cooler Temp 'C Corected Cooler Temp'' Were tamper/custody seals on the bottle(s) or bottle kits (L1EqMeHg)? Were tamper/custody seals instat and uncompromised? Shippers' packing sitg attached to the cooler(s)? If Yes Quantity Yes Ko Were tamper/custody seals instat and uncompromised? Shippers' packing sitg attached to the cooler(s)? Did custody papers accompany the sample(s)? Were tamper/custody seals instat and uncompromised? Shippers' packing sitg attached to the cooler(s)? Did custody papers accompany the sample(s)? Were tamper/custody case instat and uncompromised? Solid all bottle labels (ID/Date/Time) be reconciled vibt/bhe COC? For each sample, does the COC epecify preservatives(V/N), # of containers (N), and sample type of grab/comp(V/N)? Were correct whate samples and all listed on the COC? If yes, Questions 13-17 have been checked at the originating laboratory. 8. Were all preserved sample(s) at the correct pH upon receipt? 18. Were Volta on the COC? Were some the share sample(s) at the correct pH upon receipt? 19. Were correct in the cooler(s)? Trip Blank Lot # Yes No 20. Was a LL Hg or Me Hg trip blank present? 4. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES □ additional next page Samples processed by: 2. SAMPLE CONDITION mple(s)		
Packing material used BdDEeWrep Form Plastic Bag None Other COOLANT: VetTee Blue lce Dry lce Water None COOLANT: VetTee Blue lce Dry lce Water None R GUN # (CFC) Observed Cooler TempC Corrected Cooler Temp Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity Yes No NA Were tamper/custody seals on the bottle(s) or bottle kits (LLHe/McH2)? Were tamper/custody seals on the bottle(s) or bottle kits (LLHe/McH2)? Were tamper/custody seals in the bottle(s) or bottle kits (LLHe/McH2)? Were tamper/custody seals in the bottle(s) or bottle kits (LLHe/McH2)? Were tamper/custody seals in the bottle(s) or bottle kits (LLHe/McH2)? Were tamper/custody seals in the somples (Jetar) dentified on the COC? Were the custody papers accompany the samples(Jetar) dentified on the COC? Did custody papers accompany the samples(Jetar) dentified on the COC? For each sample, does the COC specify preservatives(YM), which sample type of grab/comp(YN)? Were correct bottle(s) used for the test(s) indicated? Sufficient quantity received to perform indicated analyses? Are these work share samples and all listed on the COC? If yes, Questions 13-17 have been checked at the originating laboratory. Were air bubbles >6 mm in any VOA vials? Were air bubbles >6 mm in any VOA vials? Were air bubbles >6 mm in any VOA vials? Were air bubbles >6 mm in any VOA vials? Sufficient quantity repeating the correct pH upon receipr? Sufficient quantity repeating the correct pH upon receipr? Were with bubbles >6 mm in any VOA vials? Sufficient quantity repeating the correct pH upon receipr? Sufficient quantity repeating the correct pH upon receipr? Were with bubbles >6 mm in any VOA vials? Sufficient quantity repeating the correct pH upon receipr? Sufficient quantity repeating the correct pH upon receipr? Were air bubbles >6 mm in any VOA vials? Sufficient quantity received at the recommended holding time had expired. Were VOAs on the COC? Sufficient quantity received after the	Packing material used: Bubble Verp Foam Plastic Bag None Other		
COOLANT: Writes Blue lee Dry lee Water None Cooler temperature upon receipt IR GUN # (CFC) Observed Cooler Temp (C corrected Cooler Temp Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity Yes No NA Were tamper/custody seals inte at an uncompromised? Shippers' packing slip stached to the cooler(s)? Did custody papers accompany the sample(s)? Were tamper/custody seals inter at an uncompromised? Were to the person(s) who collected the samples clearly identified on the COC? Was'were the person(s) who collected the samples clearly identified on the COC? For each sample, does the COC specify preservatives(V/N), # of containers No Were correct bottle (s) used for the test(s) indicated? Sufficient quantity received to perform indicated and the COC? If yes, Questions 13-17 have been checked at the originating laboratory. Were VOAs on the COC? Was aver VOAs on the COC? Was aver VOAs on the COC? Was a Vach trip blank present in the cooler(s)? Types (Were VOAs on the COC? Was a Ut thip blank present in the cooler(s)? Were air bubbles >6 mm in any VOA vials? Mere all preserved sample(s)? Were air bubbles >6 mm in any VOA vials? Mere all preserved sample(s)? Sufficient questives received in the this. Mas a VOA trip blank present in the cooler(s)? Types (Were VOAs on the COC? Sufficient questives for the test(s) middited and the originating laboratory. Sufficient questives devendenchecked at the originating laboratory. Sufficient questives devendenchecked in the trip blank Lot #	COLANT: WIEC Blue Ice Dry Ice Water None Cooler temperature upon receipt "C) Observed Cooler Temp"C Corrected Cooler Temp"C Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity Yes No Yes No Yes No Were tamper/custody seals on the outside of the cooler(s)? Were tamper/custody seals on the outside of the cooler(s)? Yes No Yes No Shippers' packing sitp attached to the cooler(s)? Yes No Yes No Yes No Were tamper/custody seals intact and uncompromised? Yes No Yes No Ware consolver the custody papers accompany the sample(s)? Yes No Yes No Was/were the person(s) who collected the samples clearly identified on the COC? Yes No Yes No Could all bottle labels (ID/Date/Time) be reconciled with/the COC? Yes No No Could all bottle labels (ID/Date/Time) be reconciled with/the COC? Yes No No Were tamper/custody search and uncels) indicated anlyses? Yes No Were the custody have been becked at the originating laboratory. No Yes No Were all prevend sample(s) at the correct pH upon receipt? Yes No Yes No Were air whohes asamples and all listed on		
Cooler temperature upon receipt If See Multiple Cooler Ferm IR GUN # (CF,C) Observed Cooler Temp,C Corrected Cooler Temp,C Were tamper/custody seals on the outside of the cooler(s)? If Yes QuantityYes No NA Test that are set and ne counside of the cooler(s)? If Yes QuantityYes No NA Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA Objects early of the could of the cooler(s)? Yes No NA Were tamper/custody seals intext and uncompromised? Yes No Shipper's packing slip attached to the cooler(s)? Yes No Was/were the person(s) who collected the samples clearly identified on the COC? Yes No Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No Could all bottle babels (ID/Date/Time) be reconciled with the COC? Yes No Sufficient quantity received to perform indicated analyses? Yes No Are these work share samples and all listed on the COC? Yes No Swere all preserved sample(s) at the correct pH upon receipt? Yes No Were tamper/custody trip blap preserved sample(s) at the correct pH upon receipt? Yes No Were all bottle babels of mn in any VOA vials? Larger than this. Yes No Swere all preserved sampleses in the cooler(s)? Trip Blank Lot # Yes No <	Cooler temperature upon Teccipt If See Multiple Cooler Temp. "C Corrected Cooler Temp. "C Corrected Cooler Temp. "C Corrected Cooler Temp. "C Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity Yes No Yes No Test that are set seals on the outside of the cooler(s)? If Yes Quantity Yes No No Test that are set seals on the outside of the cooler(s)? Were tamper/custody seals intact and uncompromised? Yes No No Were tamper/custody seals intact and uncompromised? Yes No Were tamper/custody papers accompany the sample(s)? Yes No Were tamper/custody papers accompany the sample(s)? Yes No		None Uther
IR GUN # (CP *C) Observed Cooler Temp *C Corrected Cooler Condent Corrected Cooler Correcte	IR GUN #		
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Login	#	č D	194826
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			Eurofins - Canton	Sample Receipt Mi	ultiple Cooler Form	
Coo	oler Desi	cription	IR Gun #	Observed	Corrected	Coolant
\sim	(Circl		(Circle)	Temp °C	Temp °C	(Circle)
10		ox Other	IR GUN #:	1.5	2.6	Wet Ice Blue Ice Dry Ic Water None
Eg	Client B	ox Other	IR GUN #:	18	2.9	Wet Ice Blue Ice Dry Ice Water None
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					See Tem	perature Excursion Form

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

DATA VERIFICATION REPORT



November 15, 2023

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

CADENA project ID: E203631 Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater Project number: 30167538.402.04 off-site Event Specific Scope of Work References: Sample COC Laboratory: Eurofins Environment Testing LLC - Cleveland Laboratory submittal: 194826-1 Sample date: 2023-11-02 Report received by CADENA: 2023-11-15 Initial Data Verification completed by CADENA: 2023-11-15 Number of Samples:2 Sample Matrices:Water Test Categories:GCMS VOC Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

The following minor QC exceptions or missing information were noted:

SRN - Sample Receipt Non-conformance(headspace) - Sample -002 results for GCMS VOC should be considered to be estimated and qualified with UJ flags if non-detect due to sample receipt non-conformance that affects the integrity of the sample. See laboratory submittal sample receipt forms for details.

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

CADENA Valid Qualifiers

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

Qualified Results Summary

CADENA Project ID: E203631 Laboratory: Eurofins Environment Testing LLC - Cleveland Laboratory Submittal: 194826-1

ort	Valid			
it Units	Qualifier			
) ug/l	UJ			
) ug/l	UJ			
) ug/l	UJ			
) ug/l	UJ			
) ug/l	UJ			
) ug/l	UJ			
	0 ug/l 0 ug/l 0 ug/l 0 ug/l			

Analytical Results Summary

CADENA Project ID: E203631

Laboratory: Eurofins Environment Testing LLC - Cleveland Laboratory Submittal: 194826-1

		Sample Name: Lab Sample ID: Sample Date:	TRIP BLANK_12 2401948261 11/2/2023							
				Report		Valid		Report		Valid
	Analyte	Cas No.	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
GC/MS VOC										
<u>OSW-826</u>										
	1,1-Dichloroethene	75-35-4	ND	1.0	ug/l		ND	1.0	ug/l	UJ
	cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l		ND	1.0	ug/l	UJ
	Tetrachloroethene	127-18-4	ND	1.0	ug/l		ND	1.0	ug/l	UJ
	trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l		ND	1.0	ug/l	UJ
	Trichloroethene	79-01-6	ND	1.0	ug/l		ND	1.0	ug/l	UJ
	Vinyl chloride	75-01-4	ND	1.0	ug/l		ND	1.0	ug/l	UJ
<u>OSW-826</u>	DDSIM									
	1,4-Dioxane	123-91-1					ND	2.0	ug/l	



Ford Motor Company – Livonia Transmission Project

Data Review

Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG # 240-194826-1 CADENA Verification Report: 2023-11-15

Analyses Performed By: Eurofins Cleveland Barberton, Ohio

Report # 52099R Review Level: Tier III Project: 30167538.402.02

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-194826-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III) include a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample	Barant Sampla	Analysis			
Sample ID		Matrix	Collection Date	Parent Sample	VOC	VOC SIM		
TRIP BLANK_12	240-194826-1	Water	11/02/2023		Х			
MW-118S_110223	240-194826-2	Water	11/02/2023		Х	Х		

ANALYTICAL DATA PACKAGE DOCUMENTATION

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

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

ORGANIC ANALYSIS INTRODUCTION

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

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

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

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

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

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

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

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

All samples were analyzed within the specified holding time criteria.

2. Sample Receipt Condition

The laboratory received VOC vials with significant headspace for sample MW-118S_110223 (240-194826-2). In case of any deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
Bubbles in VOC vials > 6 mm	Non-detect	UJ
	Detect	J

3. 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.

4. 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.

4.1 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.

4.2 Continuing Calibration

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

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

5. 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.

6. 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.

7. 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.

8. System Performance and Overall Assessment

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

DATA VALIDATION CHECKLIST FOR VOCs

Yes X X X X X X X X	X	Yes X X X	Required
X X X X	X	X	
X X X X	X	X	
X X X X	X	X	
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Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

Bindu Sree M B
BASHMB
December 05, 2023

PEER REVIEW: Andrew Korycinski

DATE: December 11, 2023

CHAIN OF CUSTODY CORRECTED SAMPLE ANALYSIS DATA SHEETS



Chain of Custody Record



TestAmerica Laboratory location: Brighton --- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-276

Client Contact	•	atory location: tory program:			DV				DES	200		RCR			Othe		2103							т	EL EASER & NVH NM % A YEST?
Company Name: Arcadis	Client Project	Manager: Kris	18				C			~			_	t											TestAmerica Laboratories, In
ddress: 28550 Cabot Drive, Suite 500		0	minsk	ey							istina		iver				Lab (Conta	ct: Mi	ike De	lMoni	co			COC No:
ity/State/Zip: Novi, MI, 48377	Telephone: 248	8-994-2240					Te	lepho	one: 248-994-2240						Telephone: 330-497-9396						4				
hone: 248-994-2240	Email: kristofi	fer.hinskey@ar	cadis.	com				An	alysis	Turi	narour	d Ti	me				Analyses						1 of 1 COCs For lab use only		
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roject Name: Ford LTP Off-Site	ر ا	テ チッン	TH	r				3 weeks 10 day ~ 2 weeks														T ah annalia a			
oject Number: 30167538.402.04	Method of Ship	oment/Carrier:									1 wee 2 day			Î	ဖူ							MIG			Lab sampling
D # 30167538.402.04	Shipping/Tracl	king No:	1	x	latrix				ntalua	P.	1 day			Filtered Sample (Y / N)	C/Grab	50D	8260D	Trans-1,2-DCE 8260D			Vinyl Chloride 8260D	1,4-Dioxane 8260D SIM			Job/SDG No:
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Sample Identification	Sample Date	Sample Time	Air	Aqueous	Sediment Solid	Other:	H2SO4	HN03	HCI	NaOH	ZnAc/ NaOH	Unpres	Other:	Filtere	Composite	1,1-DCE 8260D	cis-1,2-DCE	Trans-1	PCE 8260D	TCE 8260D	Vinyl CI	1,4-Dio			Sample Specific Notes / Special Instructions:
TRIP BLANK_ 12				1					1					Ν	G	Х	Х	х	X	X	X				1 Trip Blank
MW- 1185_ 110223	11-2-23	0958		6			_		6					Ν	G	γ	x	X	X	X	X	X			3 VOAs for 8260D 3 VOAs for 8260D SIM
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Possible Hazard Identification → Non-Hazard Flammable Skin Irritar	L	L				_	-	Sam	ple Di	spos	al (A 1	fee n	ay be a	assess	ed if	samp	les ar	e reta	ined l	onger	than	month)			190
ecial Instructions/QC Requirements & Comments: ample Address: 12124 Bo5TDN PD5T ubmit all results through Cadena at jtomalia@cadenaco.o evel IV Reporting requested.			Unki	nown				I	Retu	rn to	Chent		₩ D	Disposa	al By	Lab			Archiv	e For	in an	Months			
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1908, TestAmerica Laboratories, Inc. All rights reserved gNmerica & Design ¹⁰ are trademarks of TestAmerica Laboratories. Inc.											~		0		~~~					-1					
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Client Sample ID: TRIP BLANK_12

Date Collected: 11/02/23 00:00

Date Received: 11/04/23 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/11/23 18:22	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/11/23 18:22	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/11/23 18:22	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/11/23 18:22	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/11/23 18:22	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/11/23 18:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		62 - 137	11	1/11/23 18:22	1
4-Bromofluorobenzene (Surr)	75		56 - 136	11	1/11/23 18:22	1
Toluene-d8 (Surr)	88		78 - 122	11	1/11/23 18:22	1
Dibromofluoromethane (Surr)	92		73 - 120	11	1/11/23 18:22	1

Client Sample ID: MW-118S_110223 Date Collected: 11/02/23 09:58 Date Received: 11/04/23 08:00

Analyte

Matrix: Water Method: SW846 8260D SIM - Volatile Organic Compounds (GC/MS) Result Qualifier MDL Unit RL П Prepared Analyzed Dil Fac

1,4-Dioxane	2.0	U	2.0	0.86 ug/L	_ <u> </u>	11/14/23 01:28	1
Surrogate 1,2-Dichloroethane-d4 (Surr)	%Recovery 94	Qualifier	Limits 66 - 120		Prepared	Analyzed 11/14/23 01:28	Dil Fac

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	h nî	1.0	0.49	ug/L			11/11/23 22:55	1
cis-1,2-Dichloroethene	1.0	ΨŢ	1.0	0.46	ug/L			11/11/23 22:55	1
Tetrachloroethene	1.0	ψ	1.0	0.44	ug/L			11/11/23 22:55	1
trans-1,2-Dichloroethene	1.0	Ψ	1.0	0.51	ug/L			11/11/23 22:55	1
Trichloroethene	1.0	ψ	1.0	0.44	ug/L			11/11/23 22:55	1
Vinyl chloride	1.0	ψ ↓	1.0	0.45	ug/L			11/11/23 22:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac

Surroyate	/anecovery	Quaimer	LIIIIIIS	Fiepa	neu /	anaiyzeu	DIIFac	
1,2-Dichloroethane-d4 (Surr)	107		62 - 137		11/	11/23 22:55	1	
4-Bromofluorobenzene (Surr)	75		56 - 136		11/	11/23 22:55	1	
Toluene-d8 (Surr)	90		78 - 122		11/	11/23 22:55	1	
Dibromofluoromethane (Surr)	92		73 - 120		11/	11/23 22:55	1	

Lab Sample ID: 240-194826-1 Matrix: Water

Lab Sample ID: 240-194826-2